# THE ARCHITECTS' JOURNAL

*standard contents*

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

*NEWS and COMMENT*
*Astragal's Notes and Topics*
*Letters*
*News*
*Diary*
*Criticism*

*TECHNICAL SECTION*
*Information Sheets*
*Information Centre*
*Current Technique*
*Working Details*
*Questions and Answers*
*Prices*
*The Industry*

*CURRENT BUILDING*
*Major Buildings described:*
*Details of Planning, Construction, Finishes and Costs*
*Buildings in the News*
*Building Costs Analysed*

*Architectural Appointments Wanted and Vacant*

No. 3381] [Vol. 131
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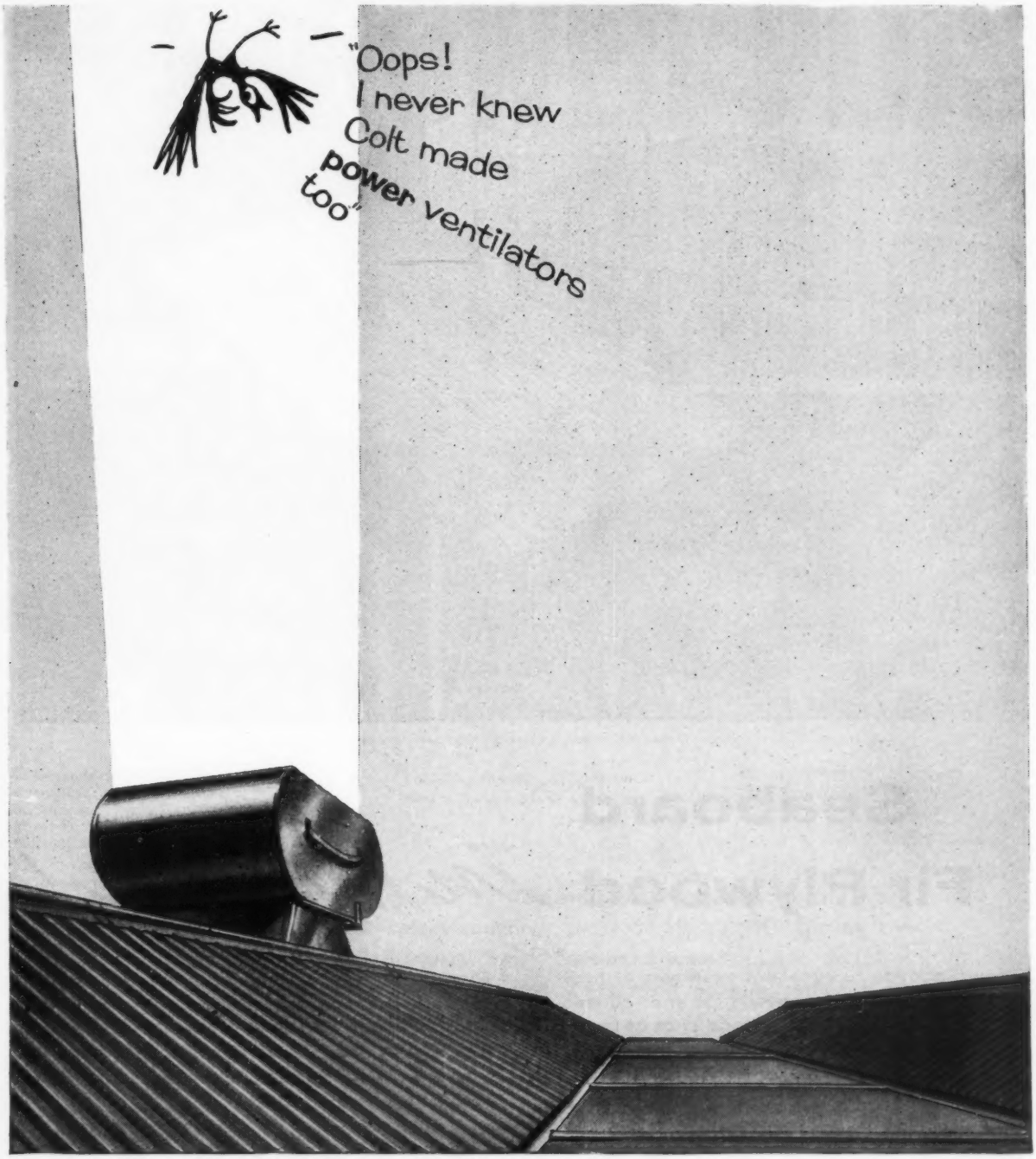
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ii one week, Il to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

| | | |
|---|---|---|
| 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 5533 |
| ABT | Association of Building Technicians. 1, Ashley Place, S.W.1. | Victoria 0447-8 |
| ACGB | Arts Council of Great Britain. 4, St. James's Square, S.W.1. | Whitehall 9737 |
| ADA | Aluminium Development Association. 33, Grosvenor Street, W.1. | Mayfair 7501/8 |
| ARCUK | Architects' Registration Council. 68, Portland Place, W.1. | Langham 5861 |
| 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, Portland 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 |
| BE | Building Exhibition. 11, Manchester Square, W.1. | Hunter 1951 |
| 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 |
| CABAS | City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1. | Holborn 3411 |
| 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 |
| CDA | Copper Development Association. 55, South Audley Street, W.1. | Grosvenor 8811 |
| 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 |
| DIA | Design and Industries Association. 13, Suffolk Street, S.W.1. | Whitehall 0540 |
| 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), Stafford House, Norfolk Street, W.C.2. | Covent Garden 3008 |
| 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. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines) | |
| FPC | The Federation of Painting Contractors, St. Stephen's House, S.W.1. | Whitehal 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, Piccadi[illegible] W.1. | Grosvenor 6186 |
| ICE | Institution of Civil Engineers. 1, Great George Street, S.W | Whitehall 4577 |
| IEE | Institution of Electrical Engineers. Savoy Place, Victoria [illegible]bankment, 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 |
| IHVE | Institution of Heating and Ventilating Engineers. 49, Cadogan Square | Sloane 1601/3158 |
| IIBDID | Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1. | Mayfair 7086 |

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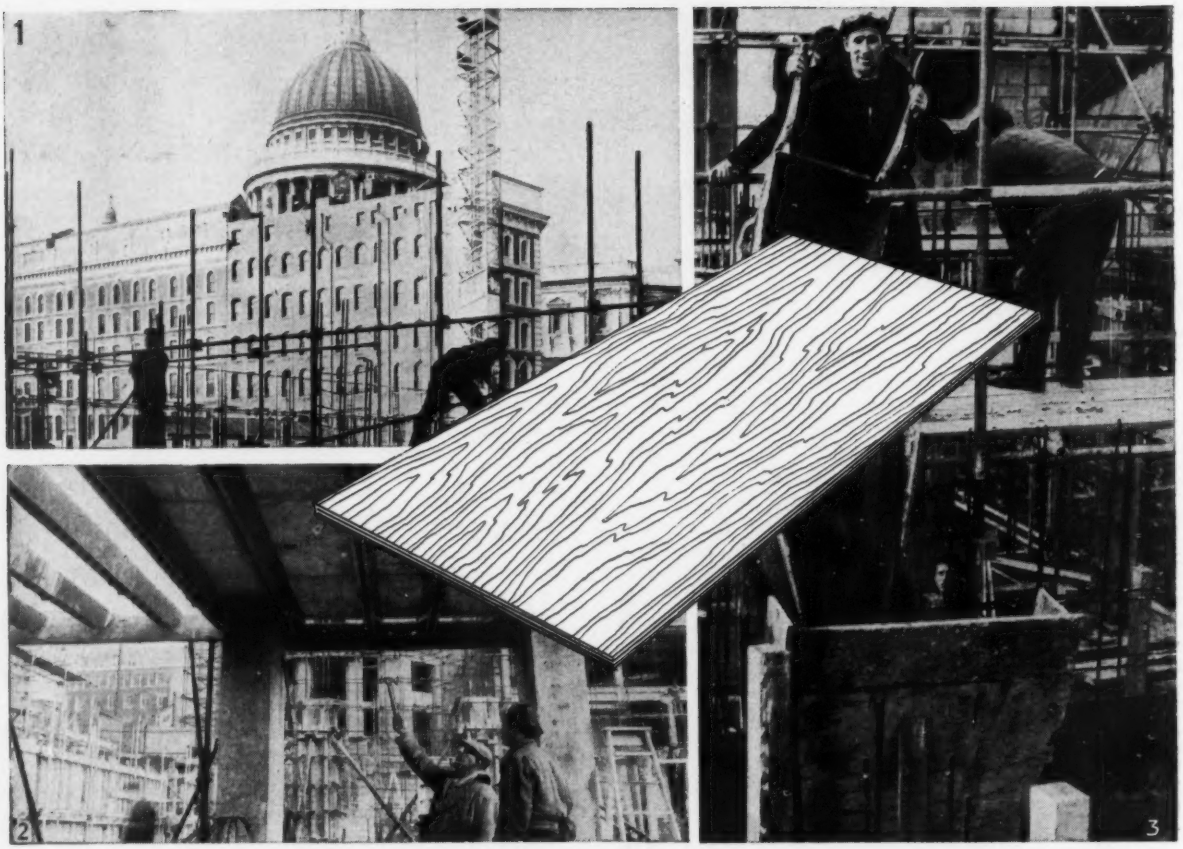


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Shown above are excellent examples of how Seaboard fir plywood saves time and reduces cost. Picture (1) shows general shot of building site with all concrete shown being poured in fir plywood forms. Picture (2) shows plywood used as shuttering for pouring slab floors.

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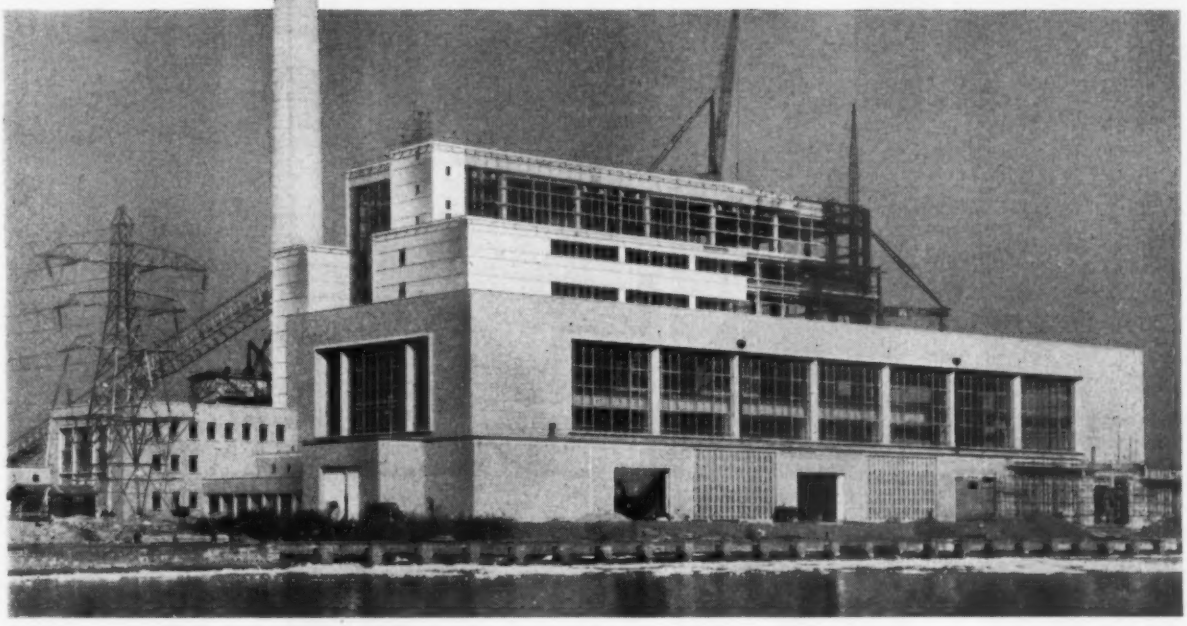

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*Consulting Engineers & Contractors*
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*Acknowledgements to*
Chief Project Engineer,
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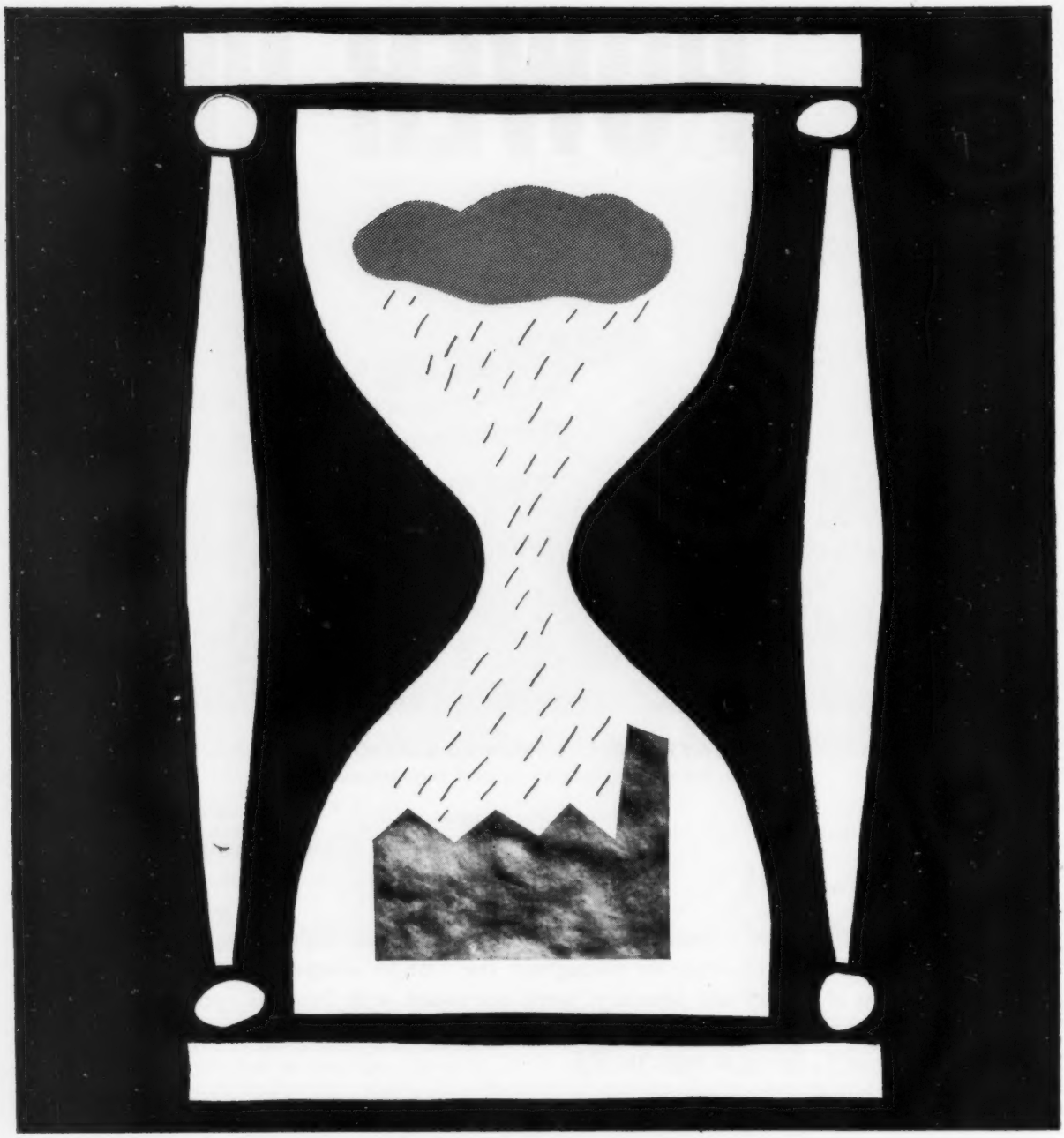

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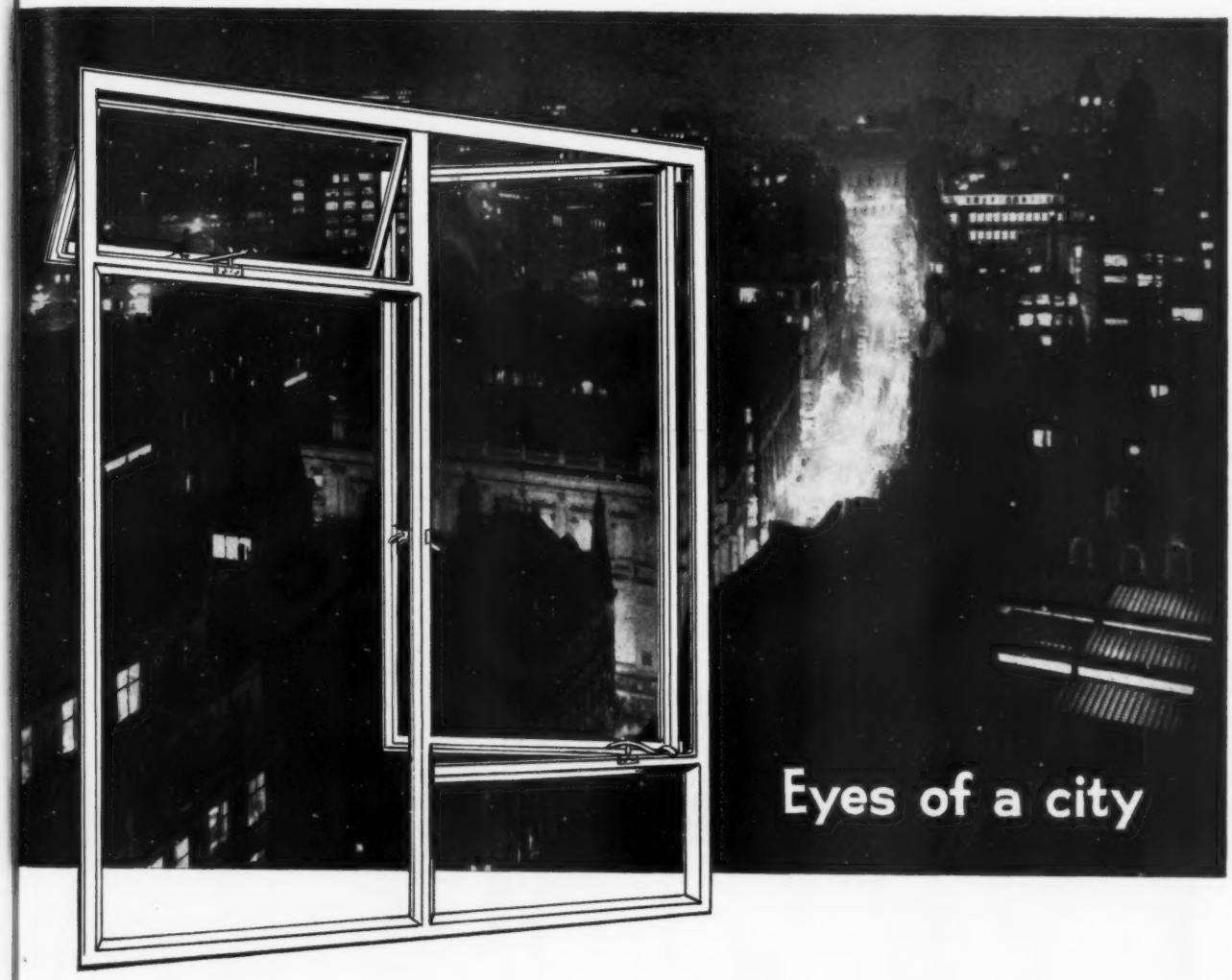


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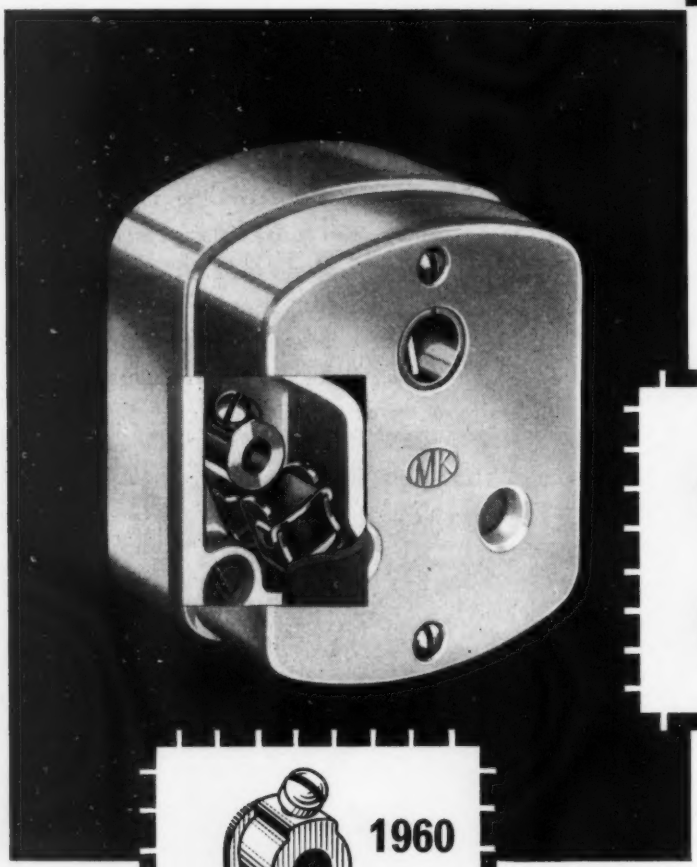

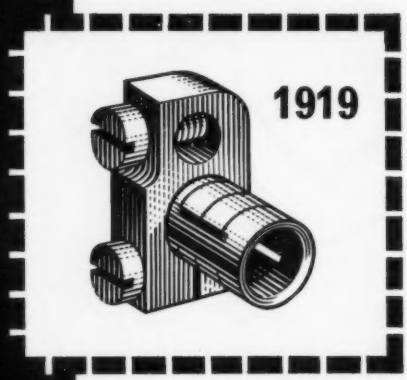


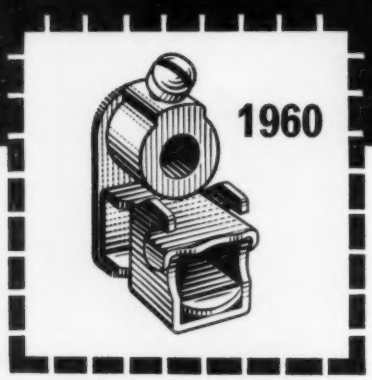


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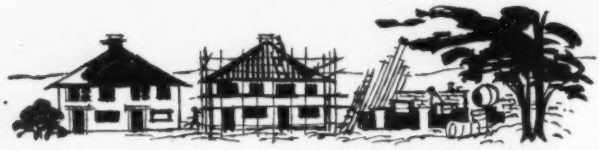
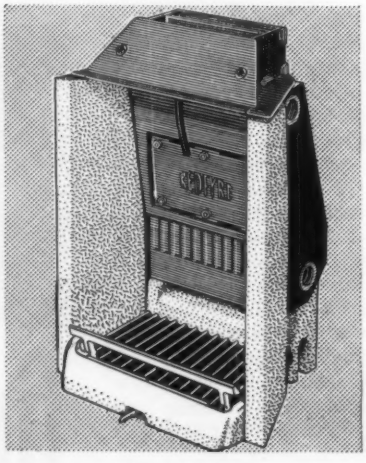


*Redfyre 60*



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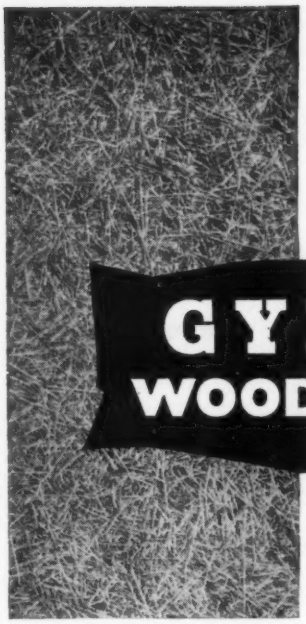

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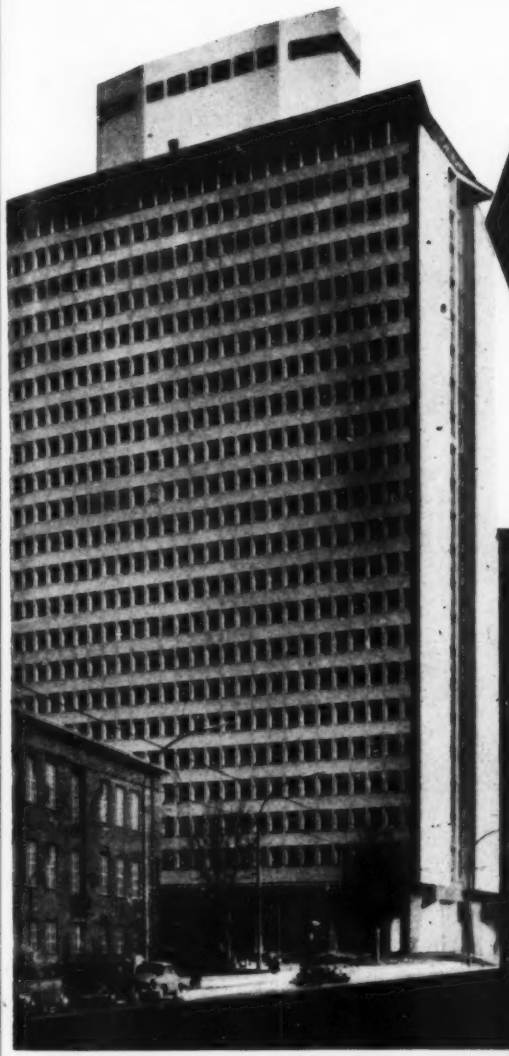

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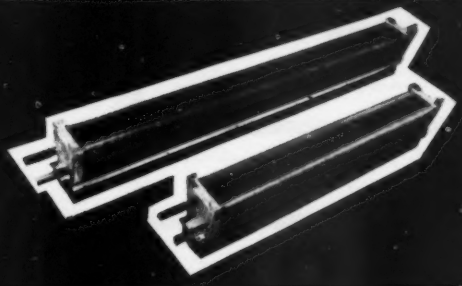

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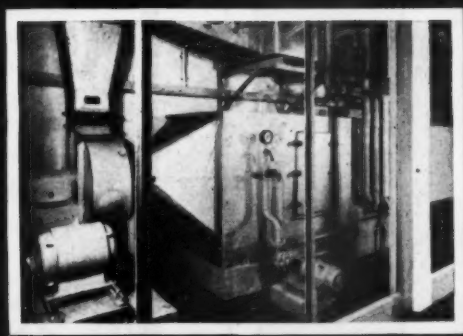

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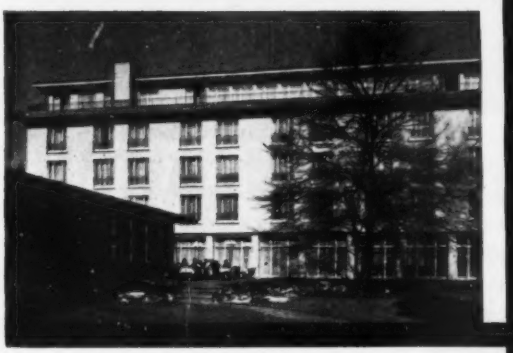

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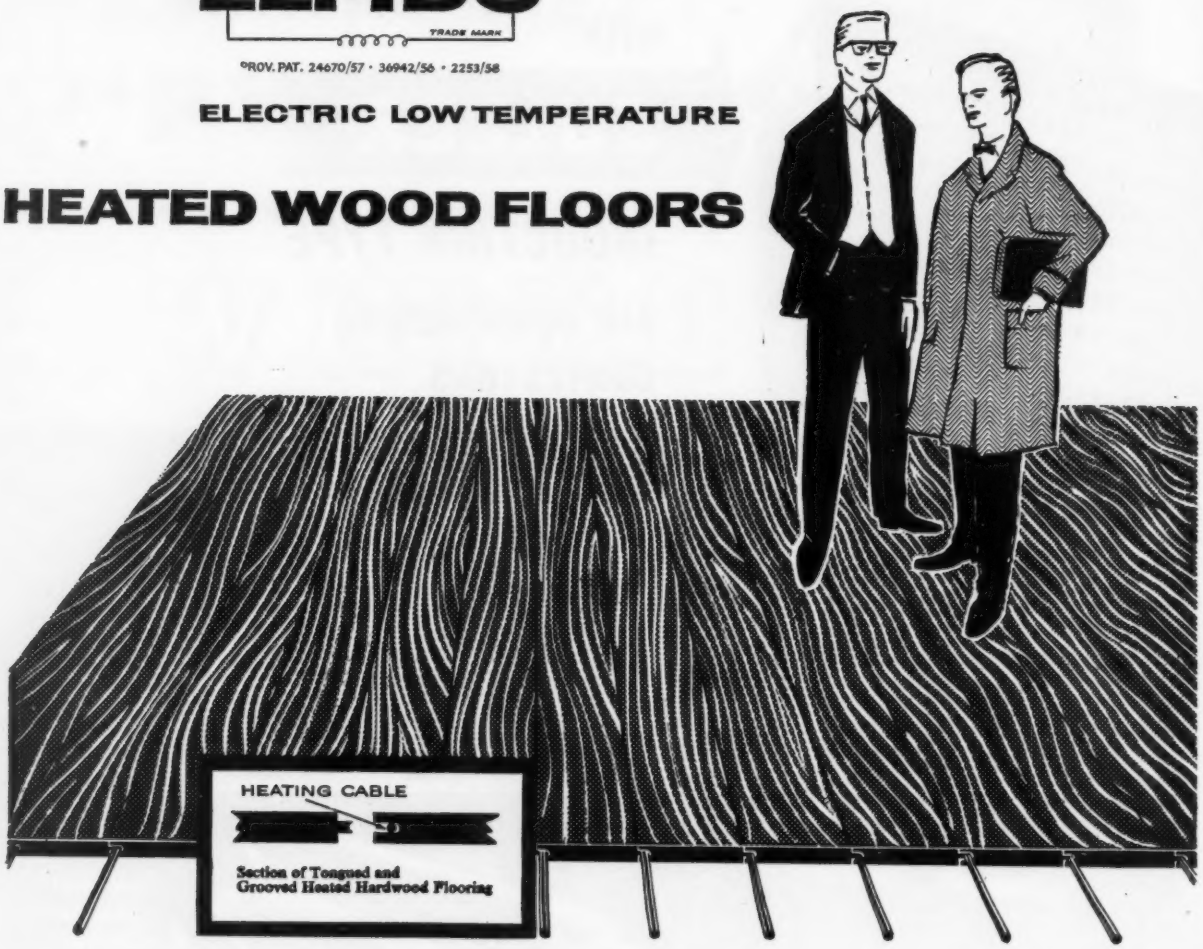


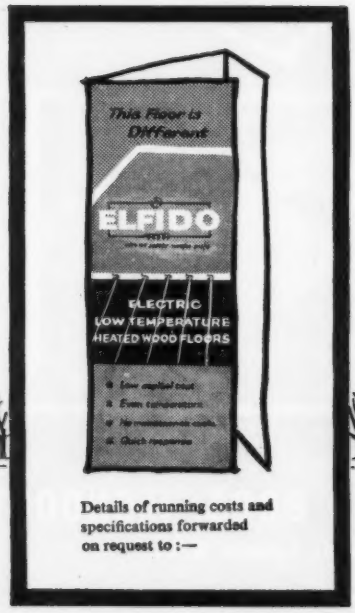


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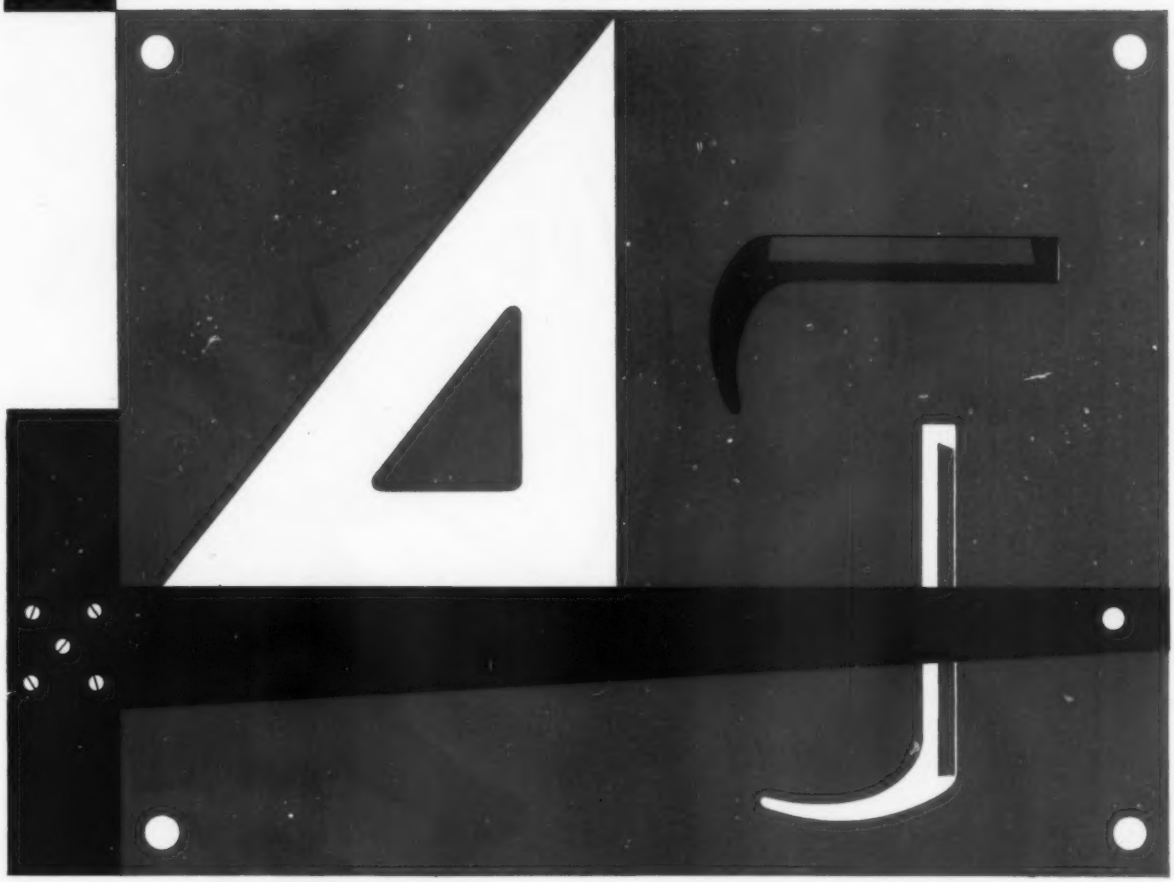

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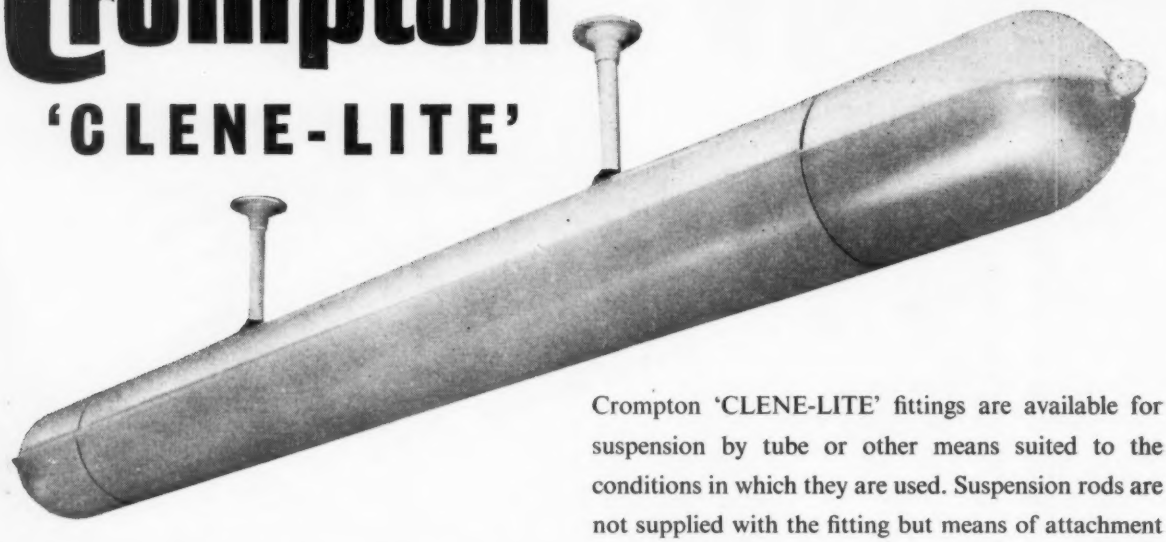

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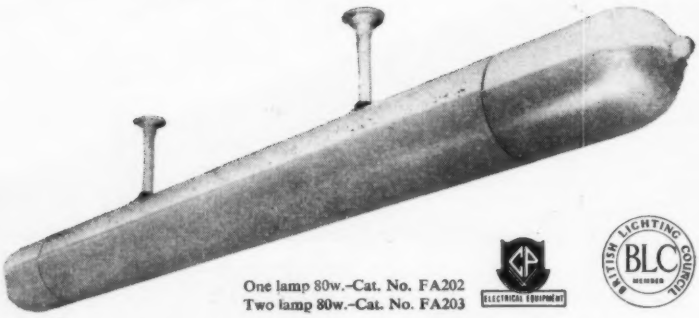

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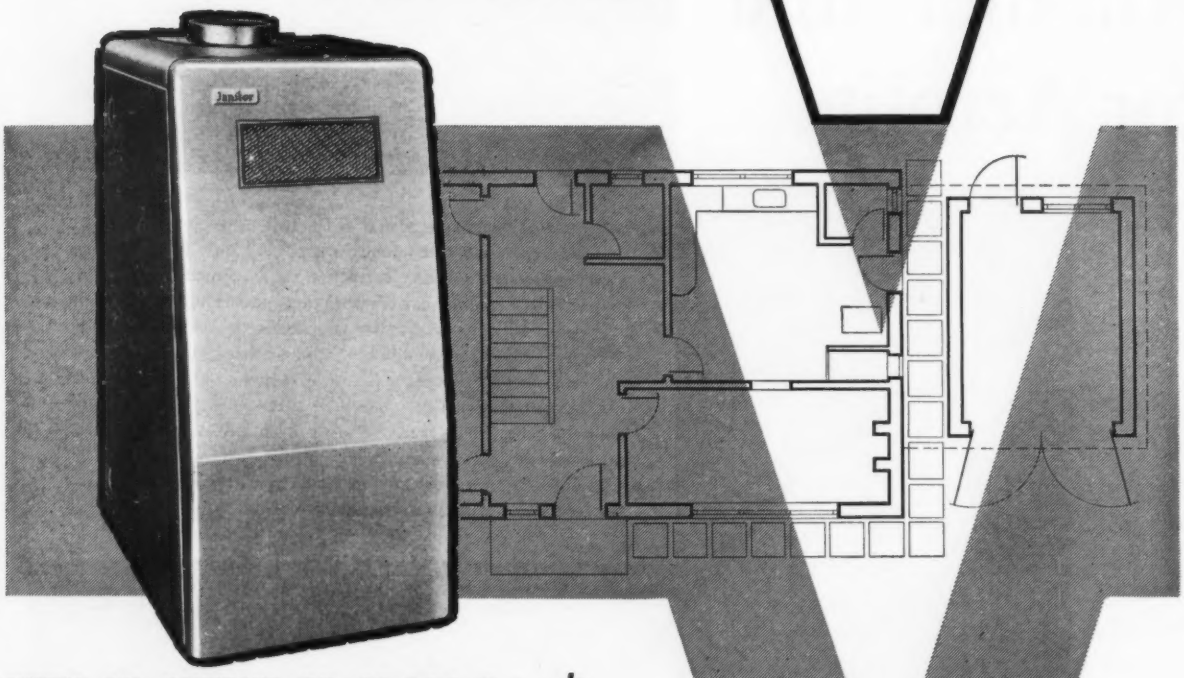


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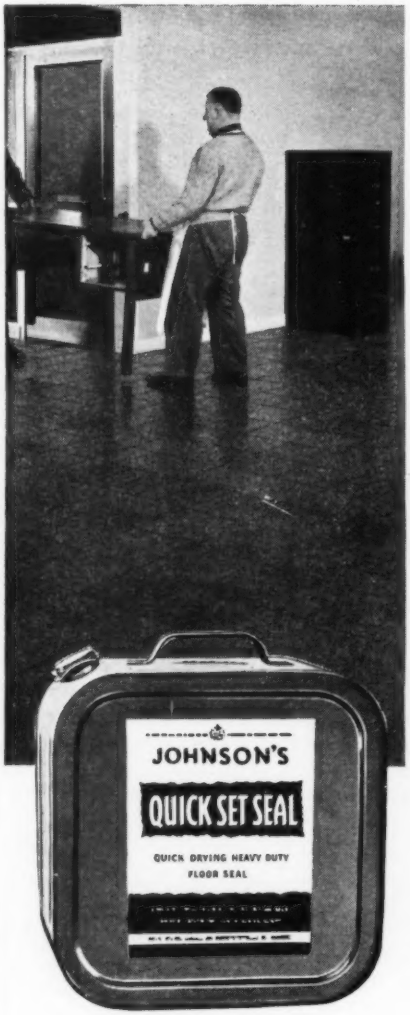


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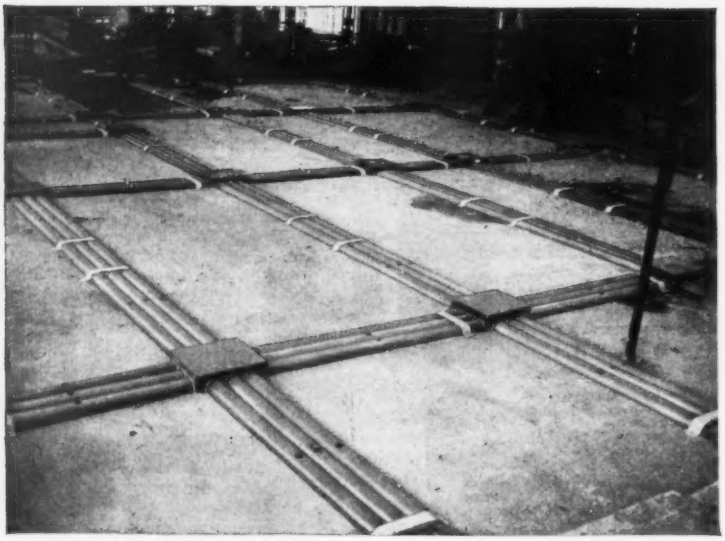
## of new KEY triple unit fibre UNDERFLOOR DUCT for the new Daily Mirror building



**SOLVES ALL PRESENT AND FUTURE ELECTRICAL DISTRIBUTION PROBLEMS**

Now and for the future, this immense Key Underfloor Duct installation will solve electrical distribution problems in the 'Daily Mirror' building. The system provides unique flexibility because once the duct is laid, outlets for power and telephones can be added anywhere to suit individual needs. These outlets can later be increased and extended as needs in the building change, without disturbing floors or existing wiring.

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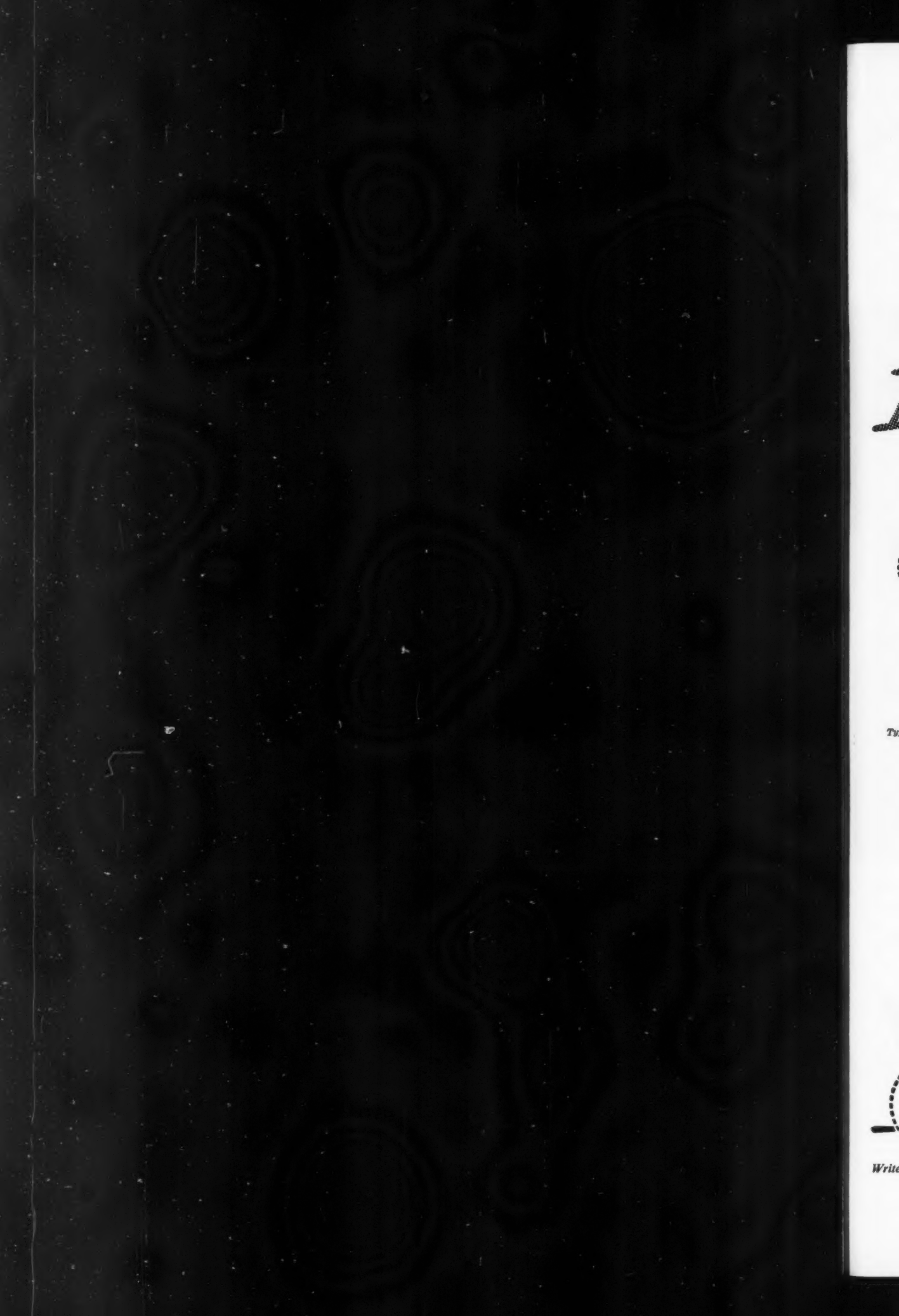
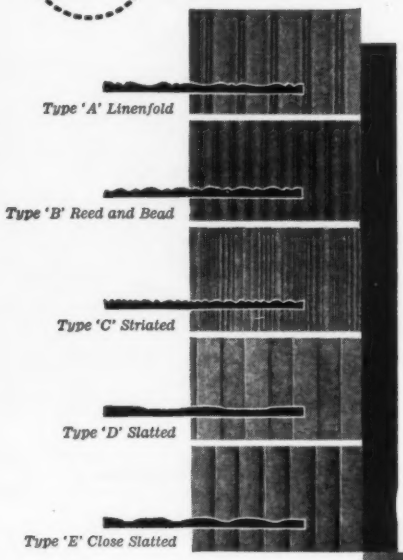



# Attractive NEW addition to LW BOARD MOULDED HARDBOARD RANGE

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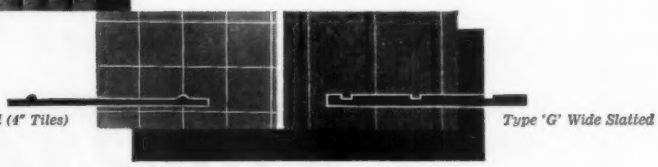


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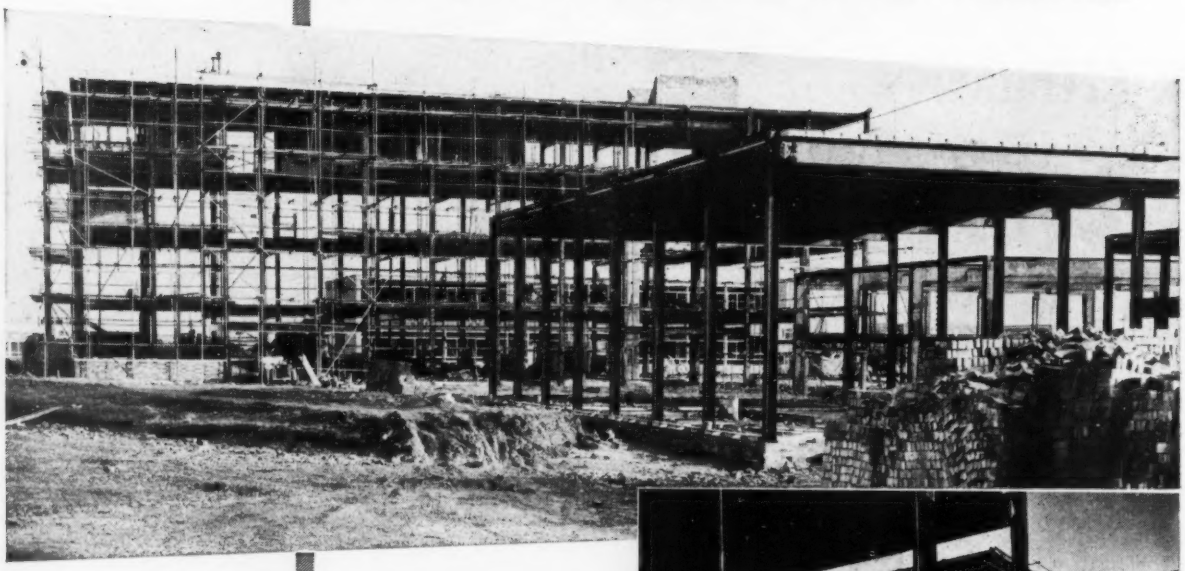
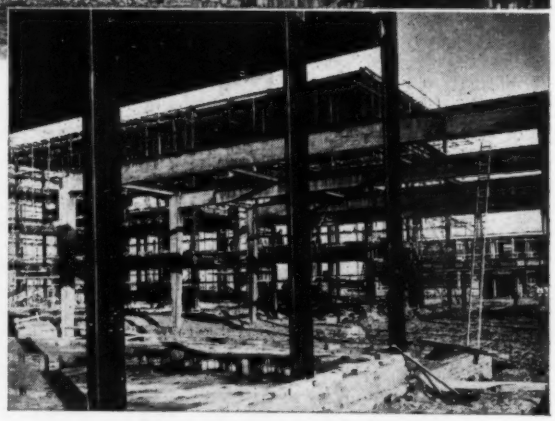
# THE SIR WILFRID MARTINEAU SCHOOL, BIRMINGHAM

## *for City of Birmingham Education Committee*





**Architects:** Messrs. Jackson & Edmonds, Birmingham, in association with:—
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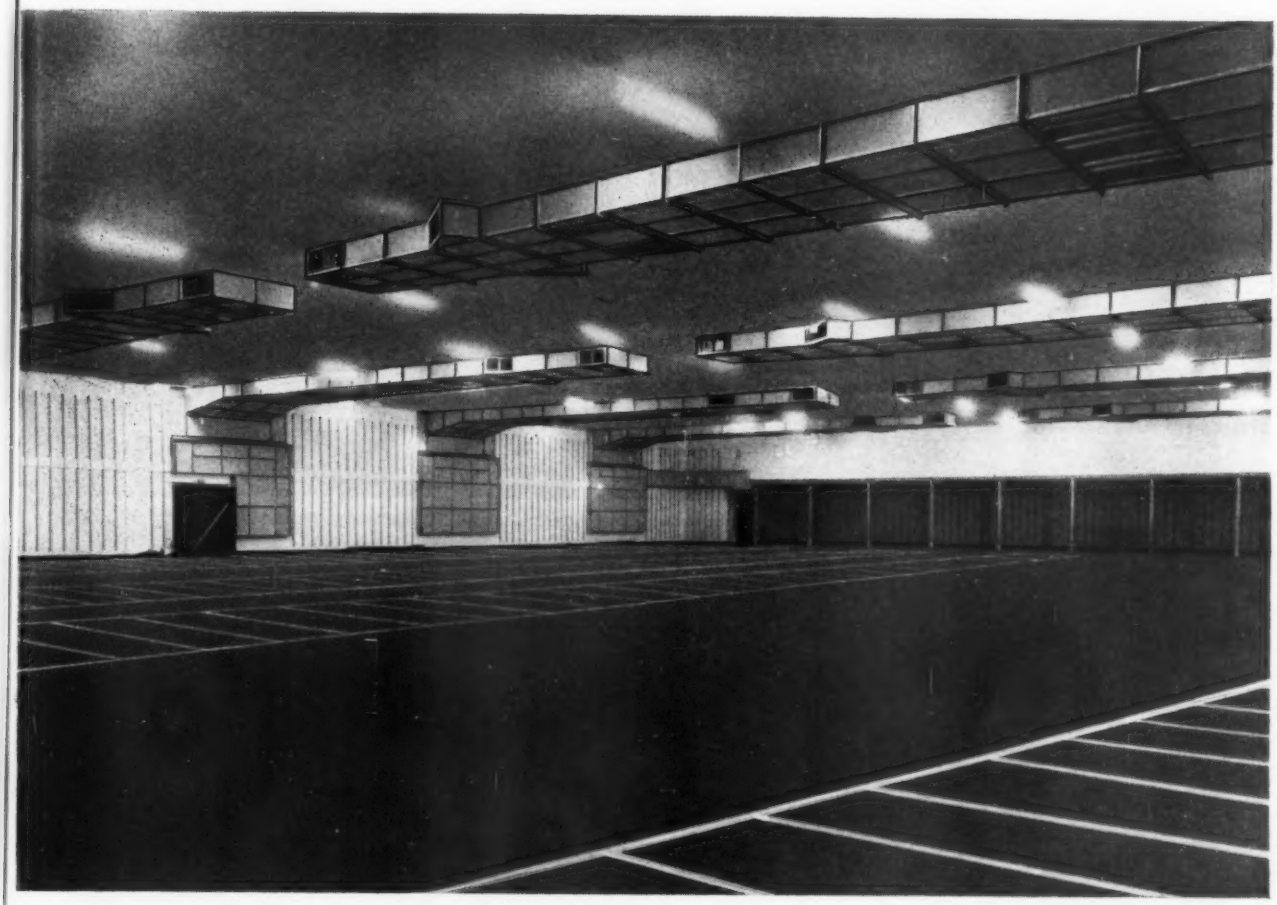

*This photograph shows an uninterrupted view of the interior of the new 600,000 cu. ft. cold store for T. Wall & Sons (Ice Cream) Ltd., at Gloucester.*

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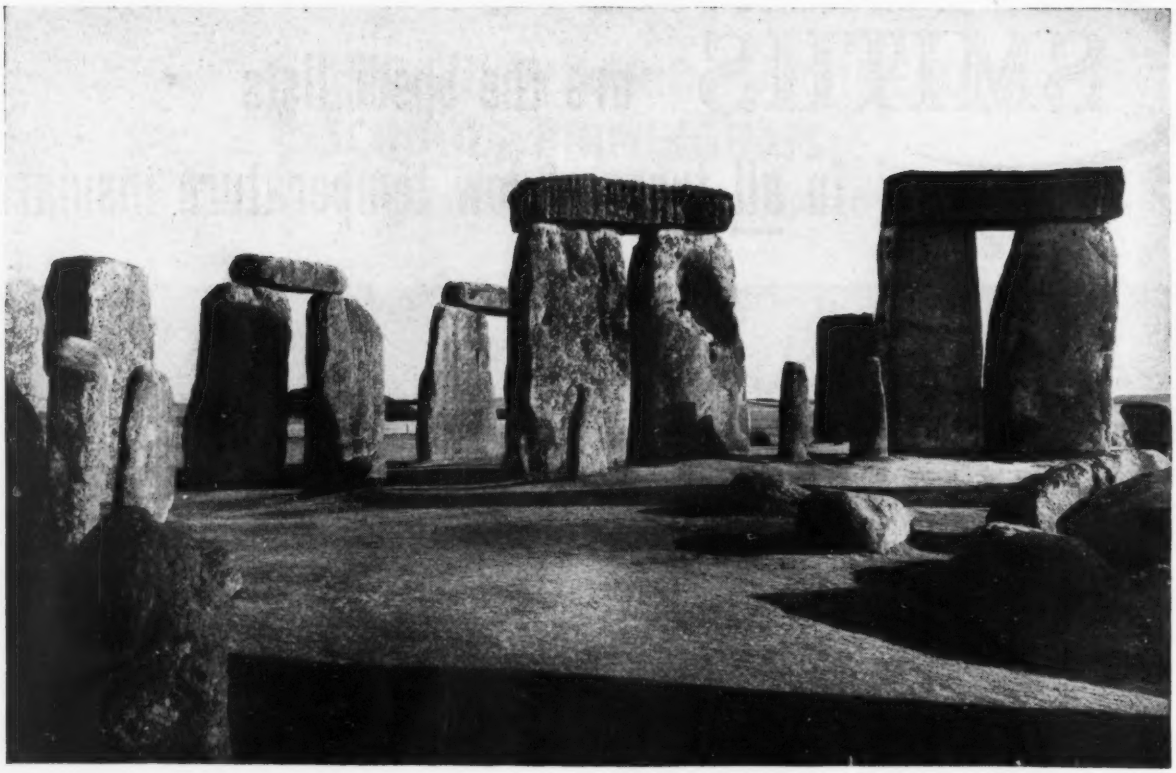

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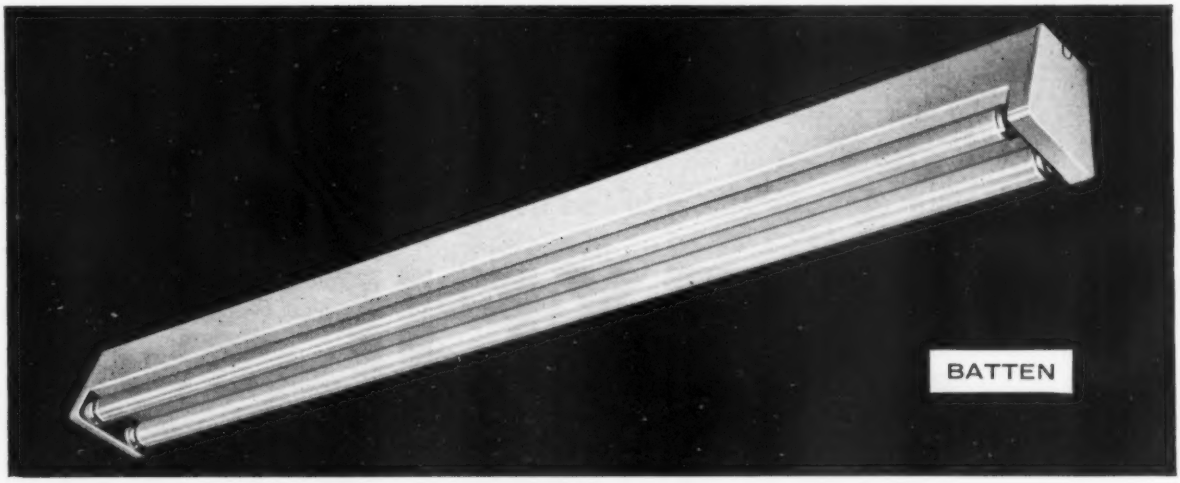


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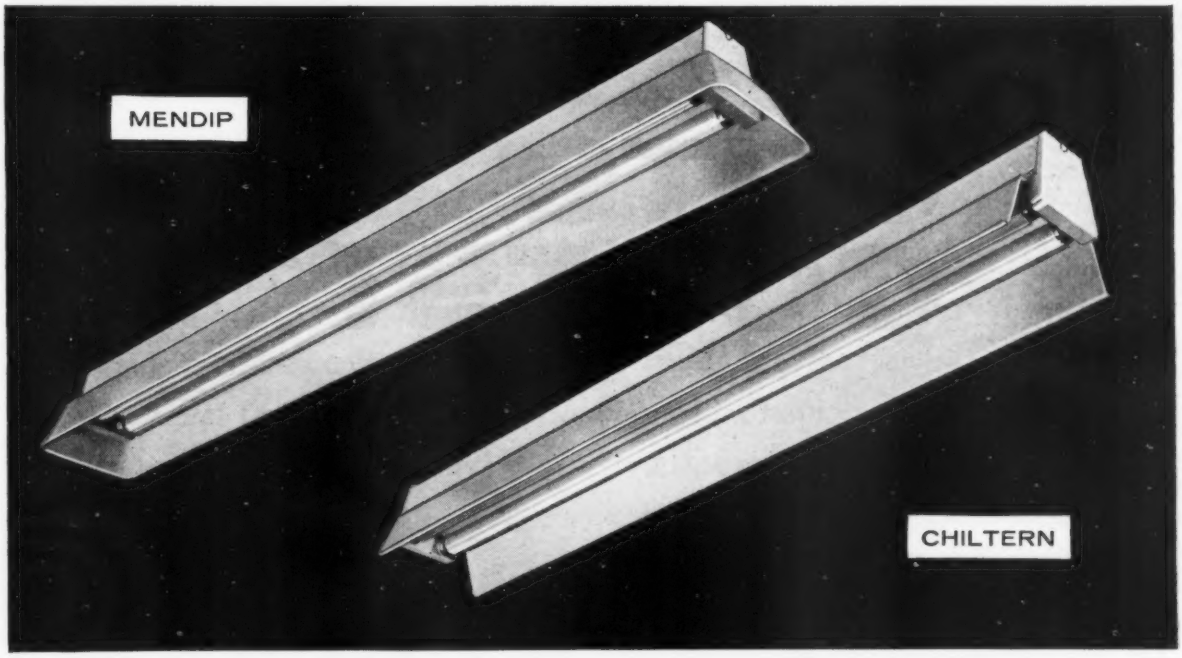


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*AP 114*

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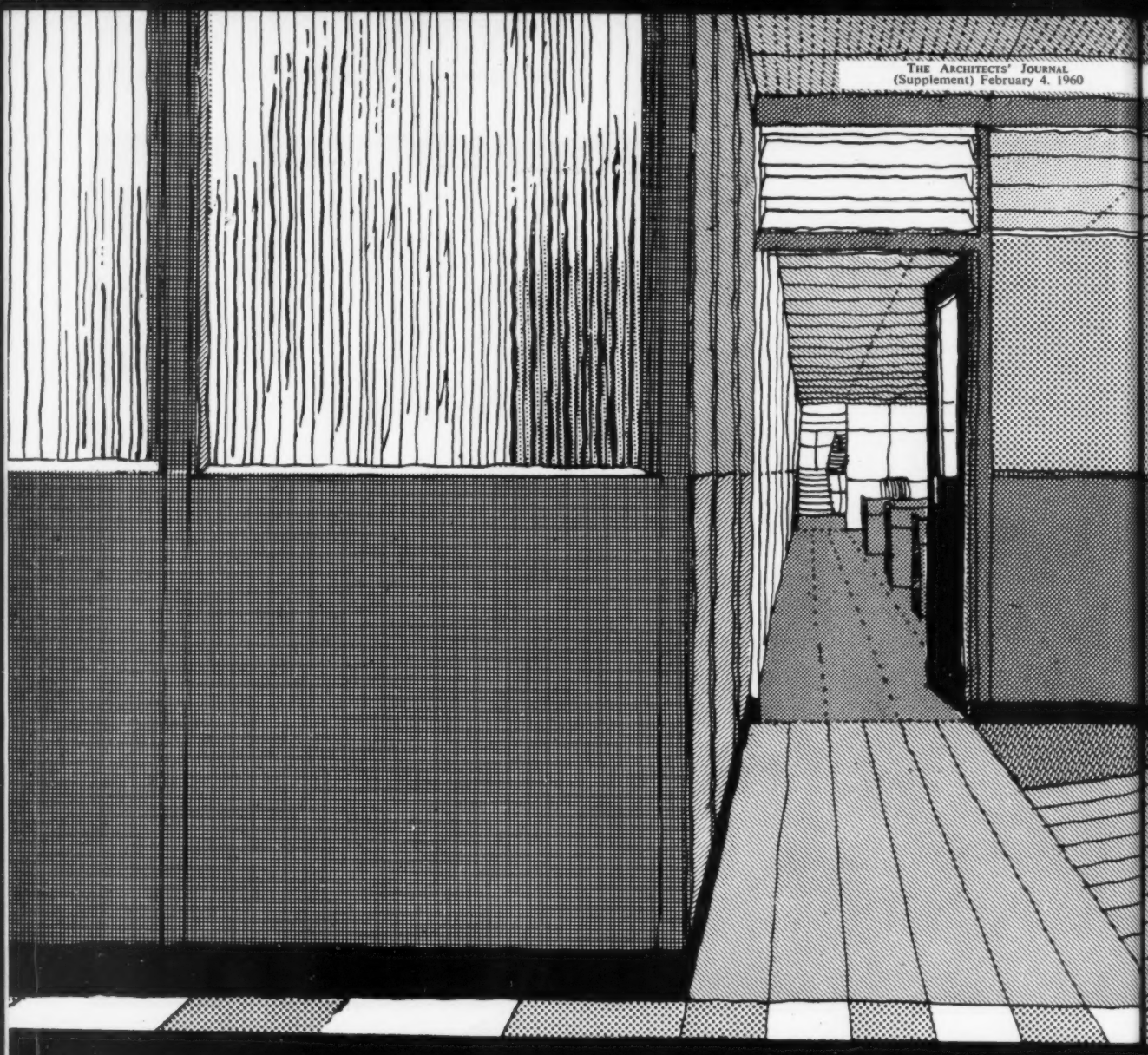

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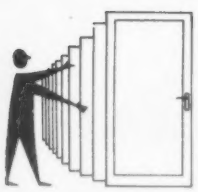

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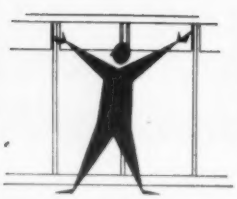

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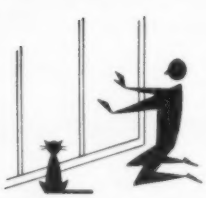

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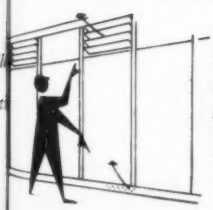

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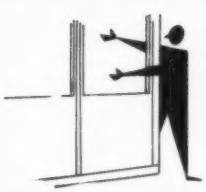

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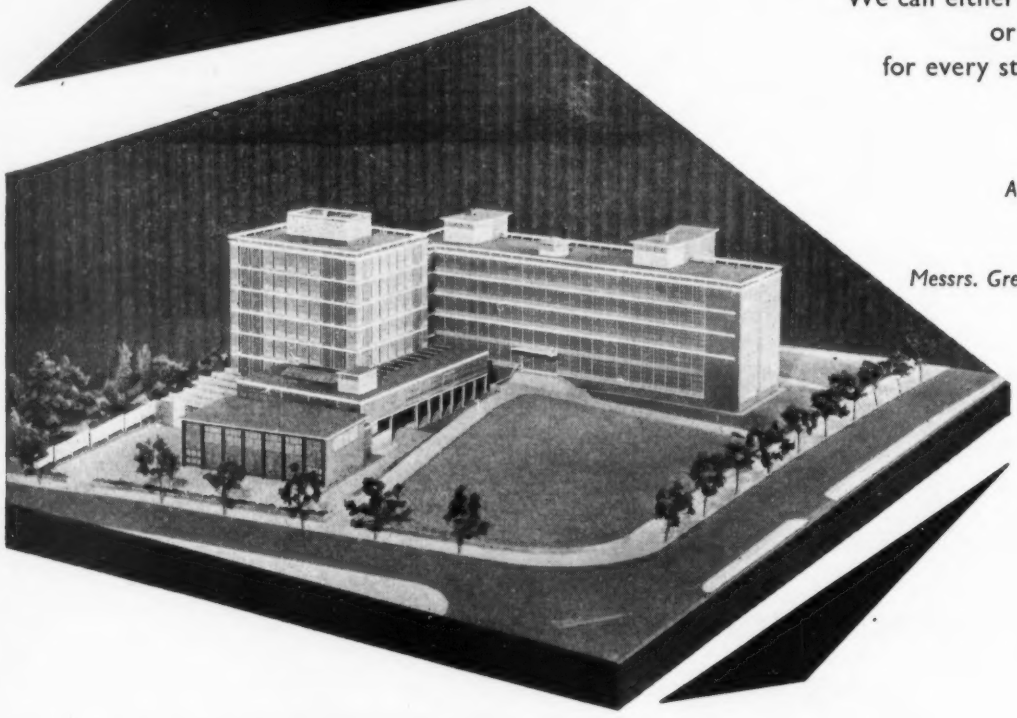

*Architects : Messrs. Howard V. Lobb & Partners in collaboration with Messrs. Grenfell Baines & Hargreaves.*

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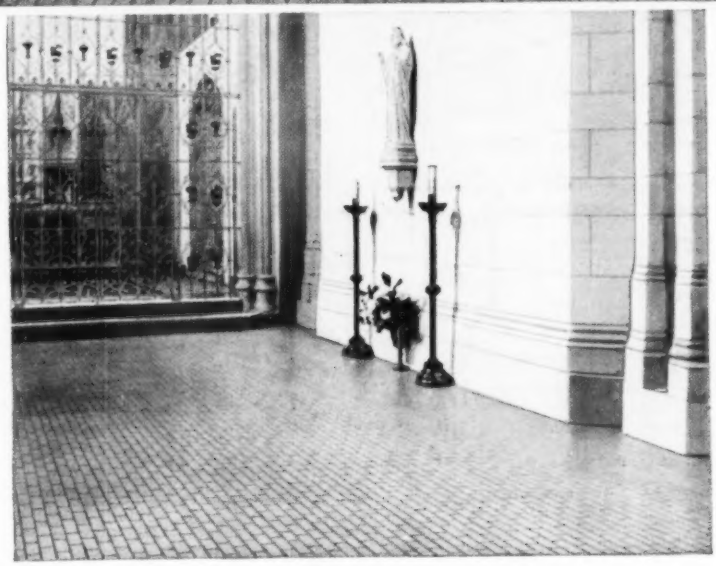

*Architect*
*Romilly B. Craze of Milner & Craze, FF.R.I.B.A.*

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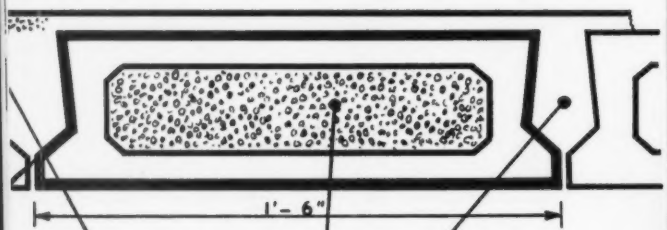


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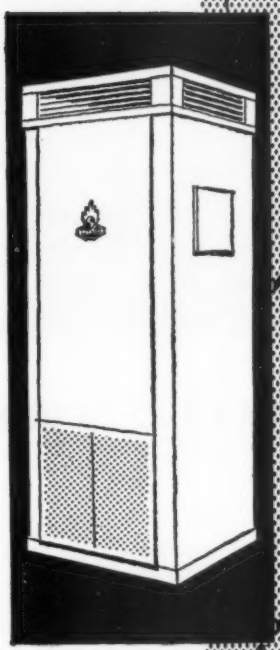

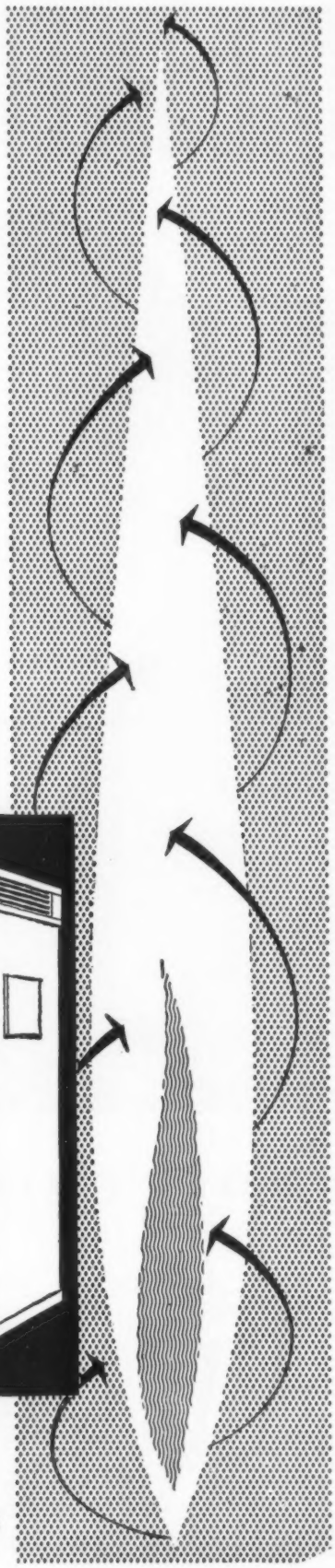

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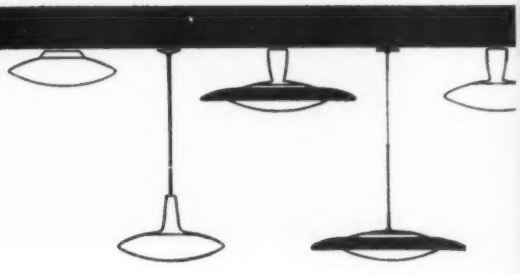

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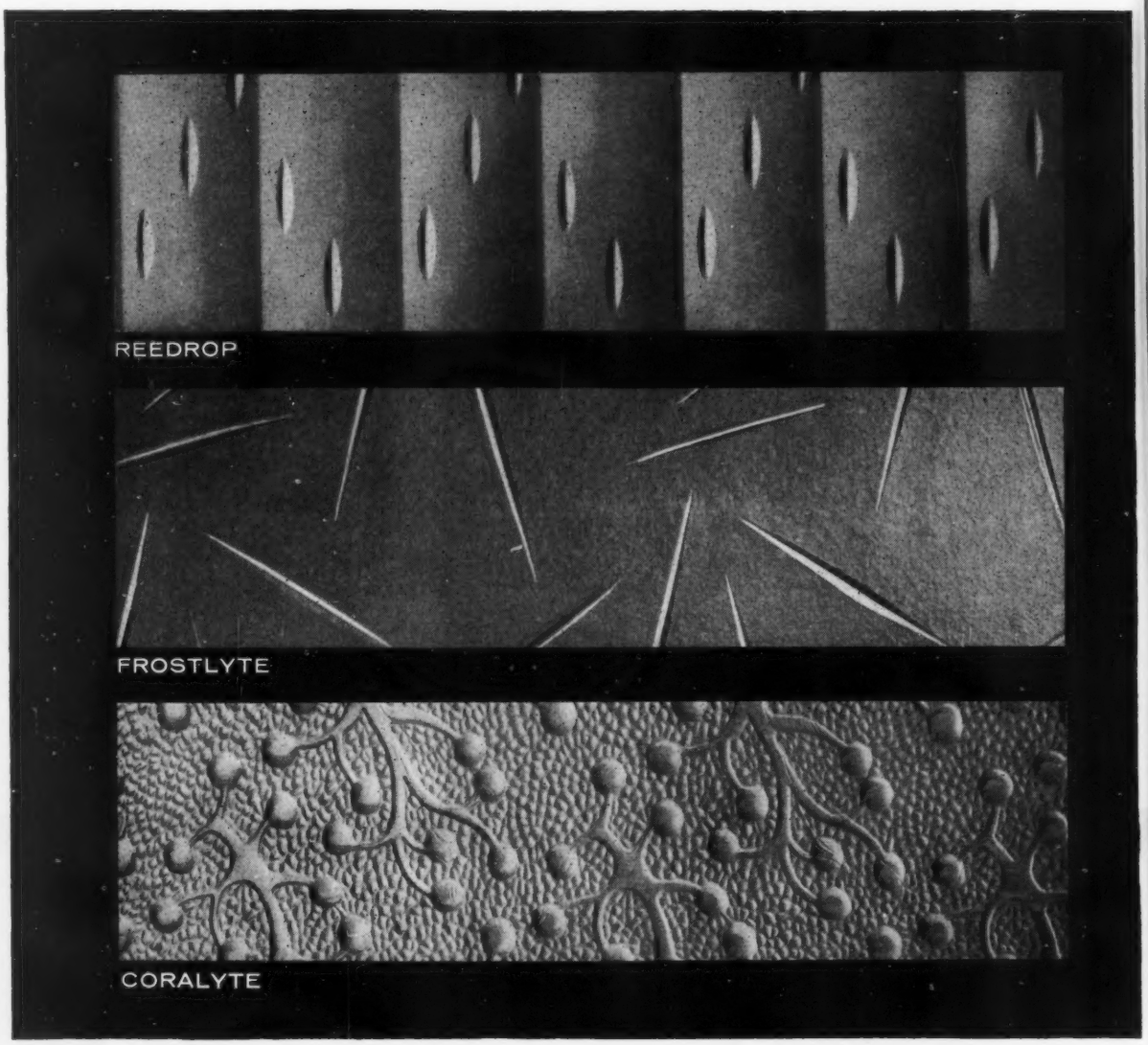


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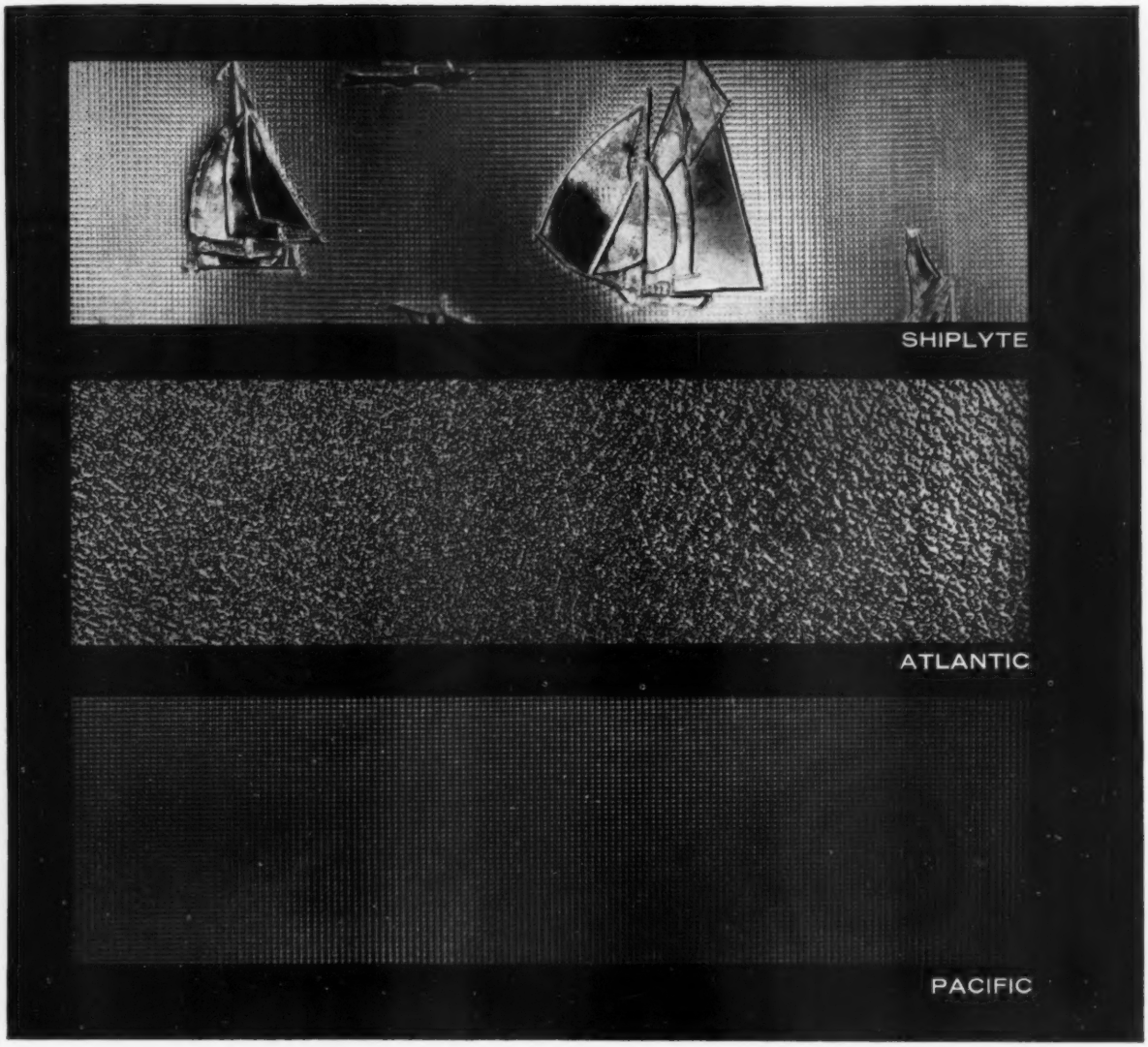


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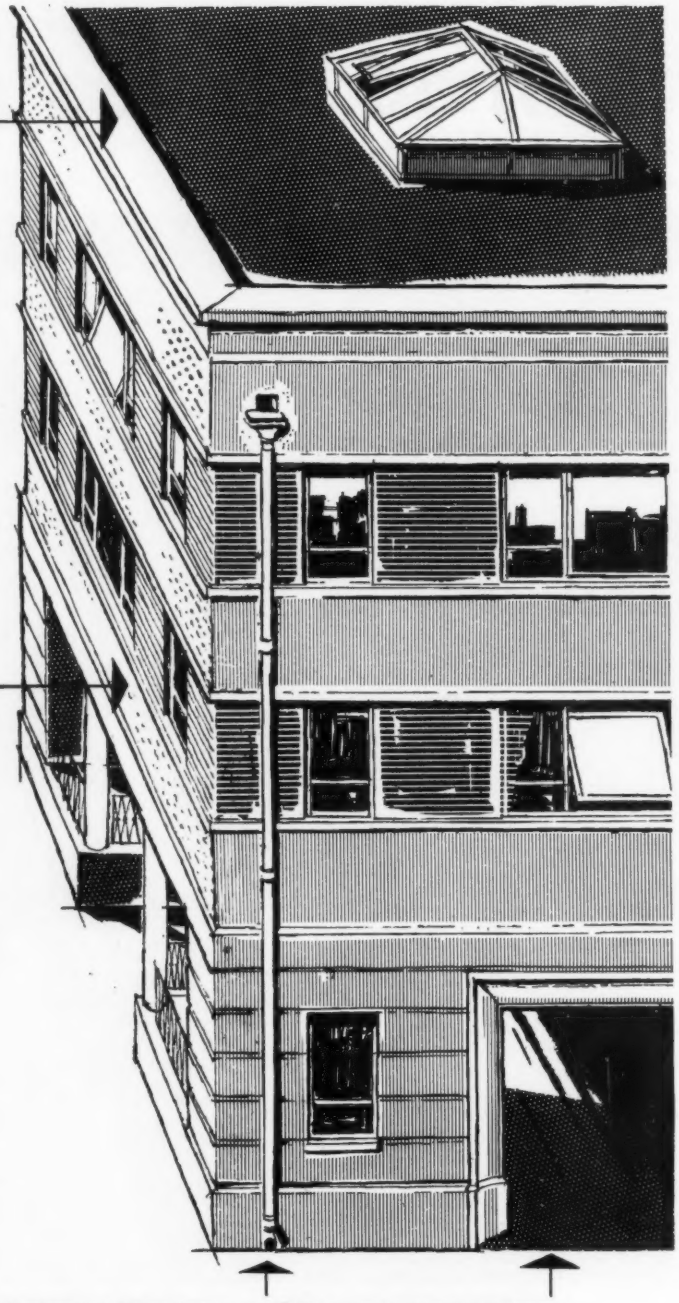

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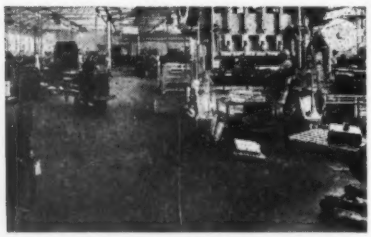

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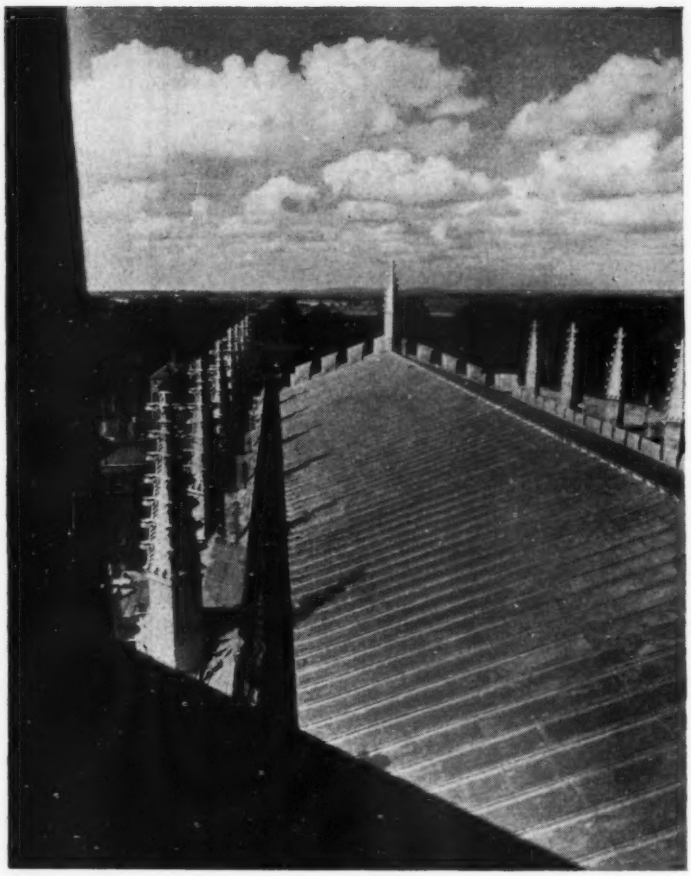

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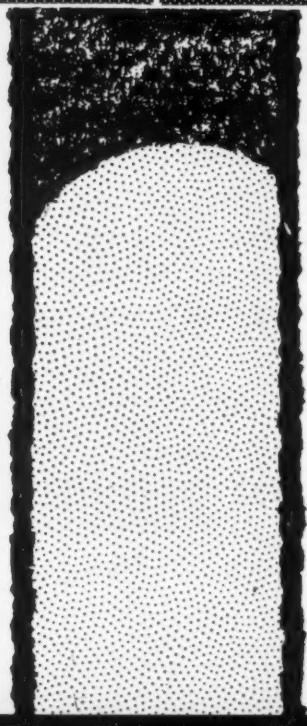

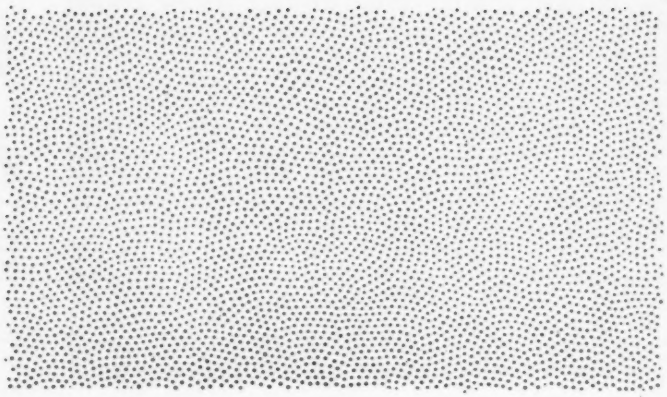

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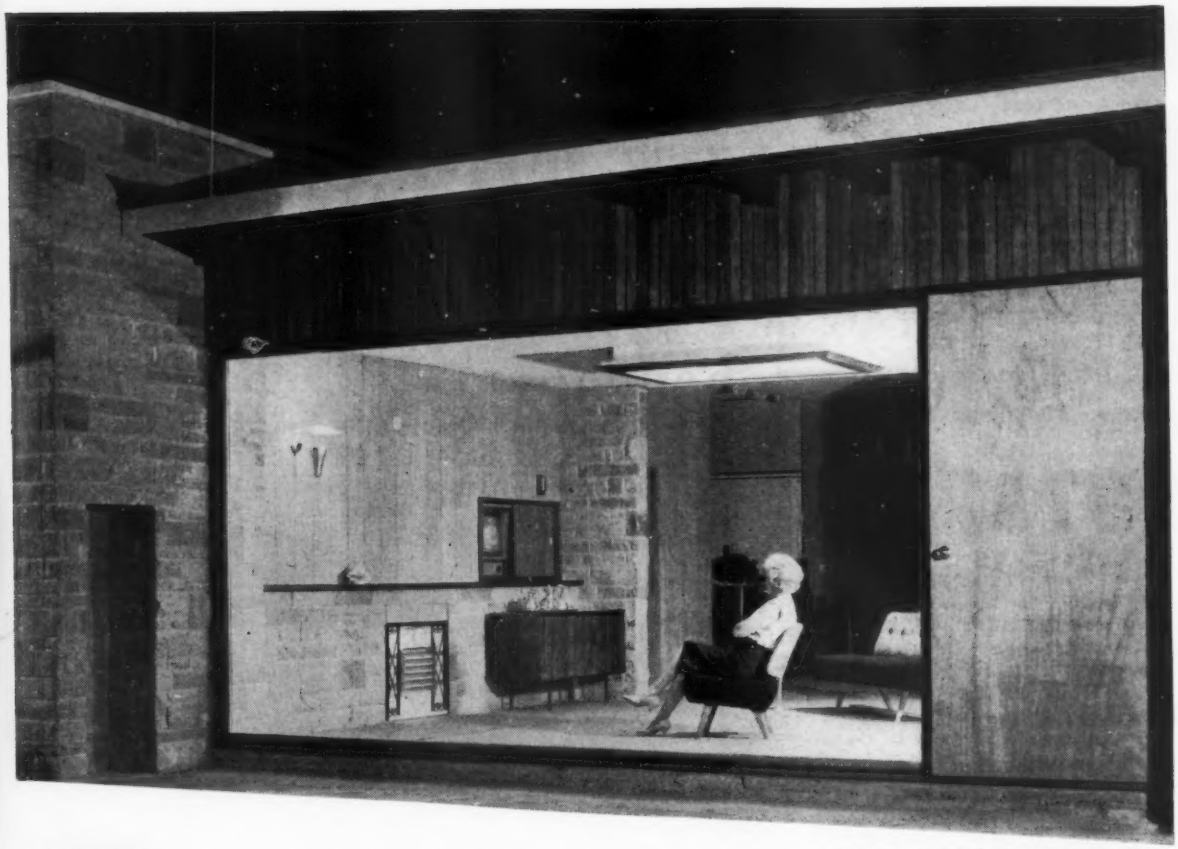

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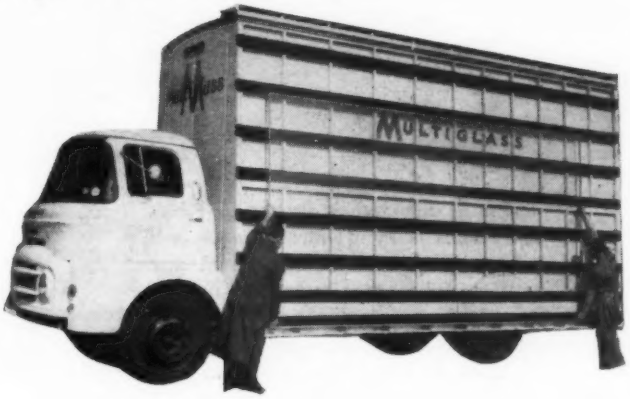


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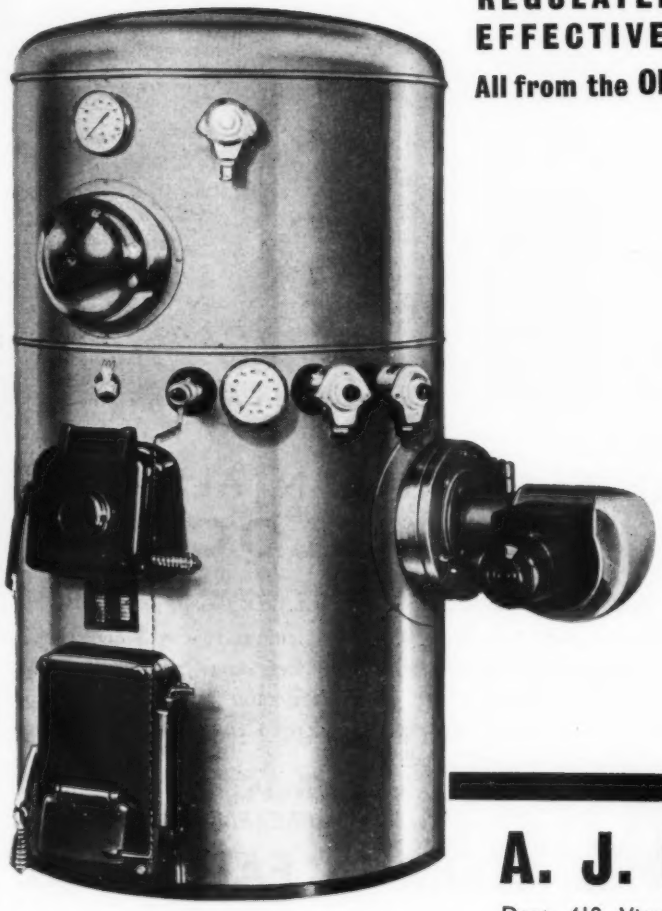

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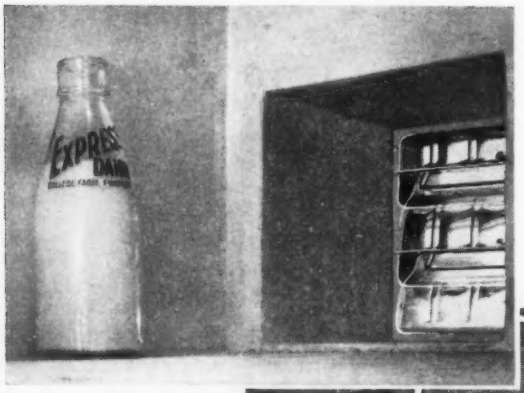


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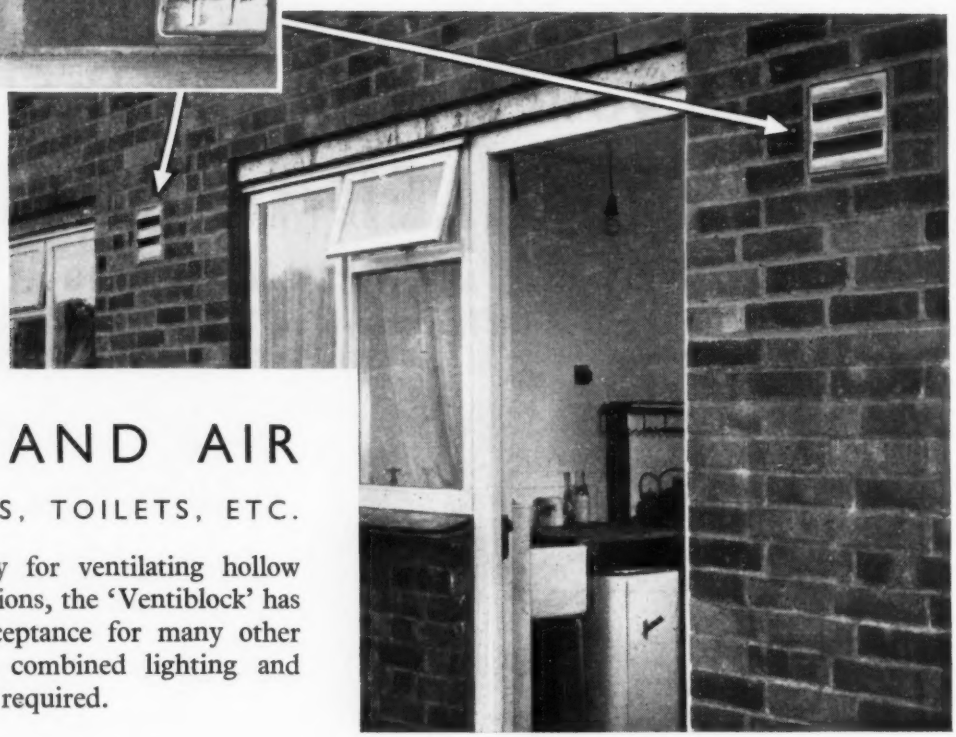

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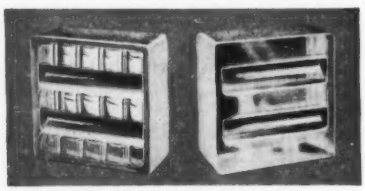

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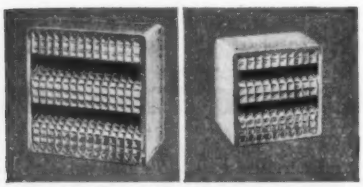

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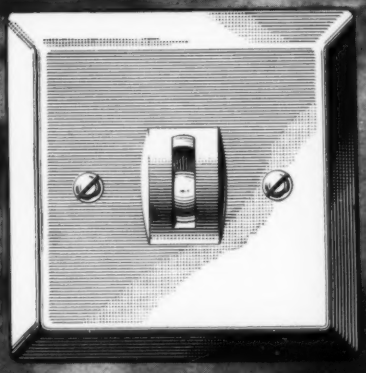

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**The Architects' Journal**

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# *Birmingham's Bull Ring Centre*

St. Martin's Church, with the Bull Ring, barrow boys, Lord Nelson's statue and the markets has been the hub of old Birmingham for a very long time. Down at heel and shabby though it was, here could be found the real flavour of the City: away from the golden shops of New Street and Corporation Street.

*

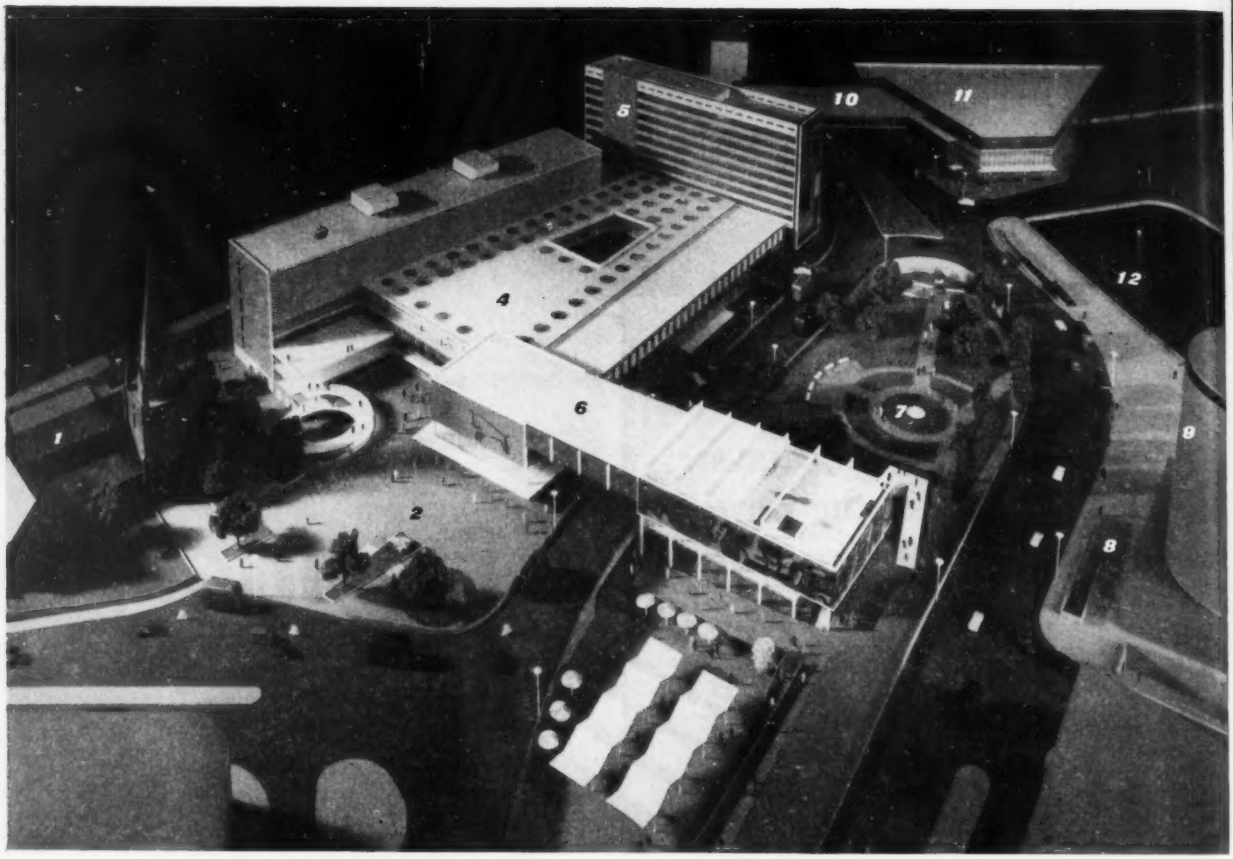
The motor-car put paid to all this when the Ring Road forced its way through, and the old market became stranded on a vast traffic island. But here was an opportunity for comprehensive planning and, unlike much of the previous piece-meal or ribbon type Ring Road development, there emerges from a murky struggle a bold and imaginative scheme better than other commercial buildings in Birmingham since the war.

*

T. James Hirst, architect to the Laing Development Co. Ltd., has created a complex of retail shops, departmental stores, markets, pedestrian precincts, car parks, a bus station, restaurants and gardens on a site just over three acres, with a fall of 50 ft. across it and cut by two limbs of a traffic artery. This is architectural surgery in a big way. There is complete pedestrian segregation, a major factor planned by Sir Herbert Mansoni, the City Engineer and Surveyor, to form a limitation and an opportunity in this scheme.

*

The Bull Ring thus becomes a large open




*The scheme, above, for Laing Development Co. Ltd., by their staff architect T. James Hirst, has been accepted by the Birmingham Public Works Committee. The model shows: St. Martin's Church* (1). *Bull Ring* (2). *A four-storey mechanical car park* (3) *served by two car lifts and electric trolleys with access from a back street. An air-conditioned podium* (4) *with service basement, retail markets on ground floor, one floor of car parking and two of shops. There will be a parcel delivery service from shop to car. Covered pedestrian ways lead into this shopping area from a new underground bus station below the 7-storey slab block* (5) *of offices or flats. A "jetty"* (6) *from the podium to the central island contains shops, restaurant and a roof-top nursery for shoppers' children. The island garden* (7) *is to be landscaped, presumably as shown, by the corporation. Subways* (8) *connect the island to the Rotunda office block* ((9) *architect, James A. Roberts). A thin bridge* (10) *connects the podium through a department store* (11) *with New Street Station. There is a void over the railway* (12). *The whole scheme owes a great deal to an earlier scheme, below, designed by James A. Roberts for the Property and General Investment Ltd.*

space entirely free of traffic, formed between the old church and the new shops and market. The barrow boys have their own open space on the sunken island, with pedestrians' access on either side, and Lord Nelson will be re-installed on the "prow" of the island above the new speakers' corner; whether the speakers will be heard above the shouting of the barrow boys and the roaring of the traffic is doubtful!

*

The massing of such a scheme is all important in any town design and the relationships here are fairly successful. The thin bridge acts as a visual end to the approach ribbon of Smallbrook Street and beyond it will be seen the Rotunda office block (architect, James A. Roberts) now under construction. This is reminiscent of the view up Ludgate Hill, where the railway bridge cuts across the view of St. Paul's, but in this case the bridge is thin and elegant.

*

The low podium increases the effect of space and the garden island will help to enhance the difference in height between the low part of the site and the 11-storey Rotunda, which is on the opposite side, where the ground level is at least 50 ft. higher. By setting the podium back from St. Martin's and keeping it low for its main part, the Victorian Gothic church will achieve far greater dignity and a real town square is created at a pedestrian scale. It also enables

new views of the spire of St. Martin's to be opened up.

*

The "jetty" tends to cut the space of the vast roundabout and is in some ways unfortunate: On the approach to the Ring Road at the top of Digbeth, opposite St. Martin's church, is a new office block with a four-storey car park podium. A "jetty" from this building across to the "prow" of the island would have given a far better sense of enclosure to the whole of the central site, encircled by the Ring Road, but such complete planning cannot be done when sites are let off for development by individuals without an over-all comprehensive plan.

*

While the elevations for this scheme are still in a sketch form, there is every indication that it may be ruined through too much "cosmetic" architectural treatment: sculpture, mosaic and other decorative features abound and, while there is everything to be said for colour and fun on a scheme like this, care has to be taken lest it reduces the massing of the buildings to a very trite and minor key.

*

The scheme owes much to another project put forward earlier by Property and General Investment Ltd., which had all but been approved by the Public Works Committee, when negotiations broke down on financial grounds. This scheme had been prepared by Birmingham architect, James A. Roberts, who did all the initial donkey work including protracted negotiations with British Railways, Midland Red Omnibus Co. and the various other interests involved, and who paved the way for the type of project now approved. Indeed, his own scheme obviously played a large part in influencing the final design which has been accepted, and the greater simplicity of his massing suggests that if he had been allowed to take it a further stage, he would have probably put forward as good a scheme as is now before us. The present scheme, however, has two great advantages, the Bull Ring space and the parking of all cars under cover. The latter point I believe is important, since with so many other buildings, roof tops cluttered with cars can be very ugly.

*

When negotiations with the original developers broke down the City re-advertised the site—with slightly revised terms of reference, and eleven applications were received. It is much to the credit of the Public Works committee that of the eleven schemes presented, the one selected was chosen on its architectural merit, and not on financial grounds alone. But it does seem rather sad that the architect responsible for two adjoining projects could not be encouraged to go forward with this major scheme and so provide the architectural unity which is so badly needed.

LESLIE GINSBERG

# The Editors

## THE DANGERS OF THE SECRET COMPETITION

THE well-known Birmingham developer, Jack Cotton, has dismissed upper level walkways and upper level shopping at Piccadilly Circus as utterly impractical. But in Birmingham those well-known London developers, the Laing Investment Co. Ltd., have incorporated both these ideas with whole-hearted enthusiasm in their scheme for the Bull Ring Centre. The Minister of Housing and Local Government might reflect upon this strange paradox before making his decision on the Piccadilly application.

There is also material for reflection by the RIBA in the "competition by tender" organized by the Birmingham Works Committee on the Bull Ring site. The idea for the comprehensive development of this area seems to have been suggested in the first place by a Birmingham architect, on behalf of a firm of developers. He also appears to have performed much of the work of negotiation and design that would—in London, for example—have been the responsibility of the planning authorities' architects. Because the negotiations with these developers broke down over finance, the Corporation has, in effect, had the services of a planning and architectural consultant free of charge, and all the competitors were able to build on his work and to develop or plagiarize his published ideas. It is satisfactory to know that the scheme approved by the Corporation has much to commend it, and that it was not chosen merely because it was the most attractive financial bid. It may well have been the best scheme, but as the others have not been published, the public can have no confidence that this was so. The whole affair leaves a nasty taste behind it, and the sooner the RIBA finds the way to bring competitions of this kind within the ambit of its regulations the better. Birmingham has been singularly lucky to get as good a tune as it has out of such a very poor machine.

## DOUBLE THE HOUSING STANDARDS IN 25 YEARS . . . ?

Can the present local authority house or flat be expected to meet the requirements of families 20, 40 or 60 years ahead (the minimum economic life of housing being 60 years) during which time our standard of living may have doubled or trebled? Will bedrooms be so readily shared, will cars be allowed to sit in the streets, will kitchens contain the mechanical equipment, will electrical services bear the heavy loads, will people tolerate the high noise level, the high condensation level, the low thermal insulation level and the limited hot water supplies of present-day housing? Above all, will people accept the congestion caused by the small floor areas?

The war, the slums, and the great housing shortage have caused people to accept with great thankfulness the modest

accommodation units of the official housing programme as well as the often inferior articles of the speculative builder. But this humble acceptance may not last much longer. Everywhere the press, T.V., wireless, advertising, amenity societies, schools and so forth are persuading and coercing the public to expect, or to strive for, higher standards. Most of these standards relate to domestic consumption and the home. Those commercial interests connected with motoring are fighting hard for more and better roads. Are they also fighting for private garage space on housing estates, and are the manufacturers of kitchen equipment, of laundry equipment, of sanitary equipment and of furniture and furnishings doing anything to ensure that the present and future housing programmes will be of adequate quality to take the equipment they manufacture? There is little sign of it.

The RIBA has submitted a very sensible if somewhat cautious report on housing standards to the relevant sub-committee of the Central Housing Advisory Committee, which points out in detail the hundreds of aspects of housing, from layout to lighting, where standards must be reconsidered and improved. But even here there is little indication of sufficient awareness of the obsolescence likely to be built in to the next generation's stock of houses.

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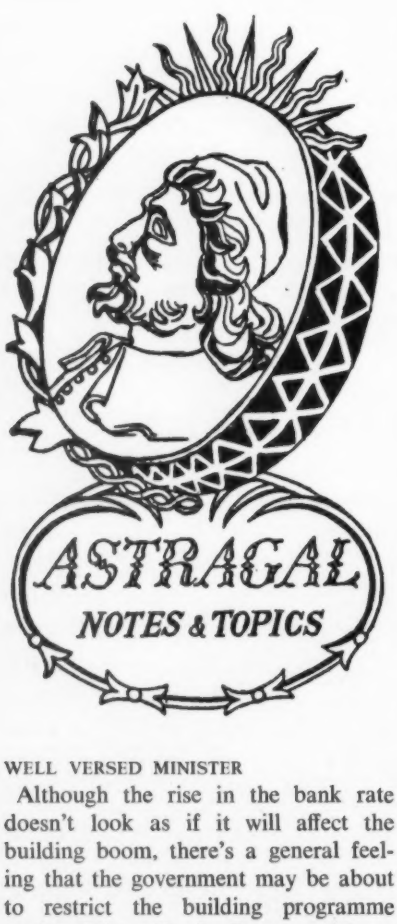


WELL VERSED MINISTER

Although the rise in the bank rate doesn't look as if it will affect the building boom, there's a general feeling that the government may be about to restrict the building programme again. When K. J. Pearce said so, speaking as retiring President at the LMBA luncheon, he got an unexceptionable reply from Edward Heath, the Minister of Labour. It was nice to hear that the government's aim is to achieve an expanding, balanced economy as a basis for advance planning and steady work—unless, of course, you realised that this sort of statement won't mean anything until every government department is budgeting for more than a year at a time.

*

Mr. Heath showed his admiration for the industry by quoting that bit about the beauty men create remaining as their memorial. He must be the sort of man in whom, to quote the other poet, hope springs eternal. How else could he be so cheerful, coming as he does from the constituency of Bexleyheath, which the building industry perpetrated between the wars?

CHEAP AT THE PRICE

I'm glad to hear Walter Bor is getting Percy Johnson-Marshall's old job at the LCC. As Group Planning Officer for north-east London he will, I know, look at every planning problem with an observant architectural eye—and that's an important asset in the LCC at the moment.

Who will get Mr. Bor's job—a principal assistantship? The salary offered, to a man who will be responsible for the civic design of one third of the LCC area, is shocking: £1,475 to £1,765. I know there's superannuation as well, but just look at *The Times* and see what is offered in other jobs: a solicitor for a contracting firm gets £2,500 plus a car and a pension; a sales manager gets £3,000 plus share of profits, car and top hat (tax free) insurance, and a salesman gets £1,500 to £2,000 and a pension. If the LCC and other authorities don't pay enough to attract top men, we can expect a good many planning and architectural disasters.

TRADE BIZARRE

You've still time to see the Furniture Exhibition at Earls Court (closing on February 6). It's very good value. "I don't know where else," said a Third Programme commentator, "you'd find chairs, tables and beds in such a variety of shapes, from the comically hideous to the truly elegant." At one firm's stand you'll find drawer handles looking like watches painted by Salvador Dali. At another you'll be told that all the furniture shown there is factory fresh (it sounds quite delicious). And one of this year's special treats is a plastic-fronted sideboard with satin-finished metal legs and wrought-iron trimmings.

*

It's all very entertaining. If you didn't laugh you would be overwhelmed with sadness at the things ninety per cent of the exhibitors have done to good wood. But there are a few enterprising manufacturers who know what a design is, and you'll find most—if not all—of them on the central stand. This is manned by the Council of Industrial Design which is displaying "some of the best new ideas from British designers, manufacturers and students." This was a good idea, because the central features act as an information kiosk for anyone who wants to know where to find good designs in the exhibition. If you make a note of the firms represented here and then visit their stands, you won't miss much.

*

Apart from the commercial stuff there are some entertaining sideshows. The best is a series of "budget rooms." Designers have been given amounts

ranging from £100 to £2,000 to spend on rooms of the same size, and their work is causing fury and delight to visitors. The cheap rooms are, of course, a little brutal looking, and I wished that at least one of the very expensive rooms could have been equally stark. We all know you can get a lush effect with a thousand or two, but is it possible to be brutal with so much money?

*

More about the Exhibition next week, when it will be reviewed by John and Sylvia Reid, whose own new range of designs for the dining room has, I believe, made news (on television and in the Press) more than anything else on view.


*The COID display at the Furniture Exhibition. The central illuminated column is by John Reid. See "Trade Bizarre."*

WHEN IS A PARK, ETC.

I hope Lord John Hope, Minister of Works, won't give way to pressure for Royal Car Parks as an emergency measure. These emergency measures tend to stay with us for ever. Even if Lord John tried to set a time limit to the misuse of London parks, his successors might have different ideas. The RFAC think we ought not to see high buildings from the parks: how much more important it is that we shouldn't see, hear and smell masses of cars.

SUPPORT FOR RAPPORT

Do you care about the move to abolish the proscenium arch? if you do —and it's something people either ignore or get fanatical about—you may like to send a cheque to the city treasurer of Chichester (Greyfriars, North Street) and help to build England's first revival of the wooden "O" in time for the first of a series of proposed summer drama festivals. The project for this "O"—straightened a bit to become a hexagon, with spectators on three sides and in the balcony—was designed by Powell and Moya. More about it in next week's JOURNAL.

OUTSIDE THE ARCHITECT'S RANGE?

I was a bit bothered by the winning design, from Miss Gillian Grant, for the Gas Council's Plan-a-Kitchen competition. You see, Miss Grant is not an architect, but a dietetics student at Torquay Technical College. And her design for a restaurant kitchen, shown in model form at the Olympia Hotel and Catering Exhibition, was so good that I wondered if architects could ever do as well on the same sort of job. Perhaps they should concentrate only on relating the kitchen to the building it forms part of. I'd like to see a kitchen competition for combined entries from architects and kitchen specialists.

BANHAM, GO HOME!

"Vitruvius Go Home" was perhaps a bit too smart as a title for Reyner Banham's characteristically stimulating and provocative—he called it subversive and unpopular—suggestion at the AA last week that aesthetics should be put on the same scientific and experimental basis as the rest of design. He contended that the attempt to abolish academic aesthetics without putting anything solid in their place had let them in again by the back door. Information was beginning to pile up about the influence of colour and form, and the effect buildings have on people, but architects didn't want to have it. They were satisfied with the horse and buggy aesthetics that went back to Vitruvius.

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All this provided rich material for debate, but the discussion, while good fun, did not carry things very much further forward. Too much time was spent talking about Vitruvius, who emerged from the evening with flying colours, acknowledged in the end, even by Dr. Banham, as an outstanding functionalist in his day. Ove Arup and Sir John Summerson firmly denied the possibility of rationalizing aesthetics, because they saw too many imponderables, while Raymond Erith and James Cubitt both suported Banham, though why either of them did do was not entirely clear. John Page convincingly preached the need to put architecture on a scientific basis and told Banham to go home and read Vitruvius: a piece of advice that ASTRAGAL took to heart.

GLASS BOXES

The Glass Benders' Association has just held a competition, open to architects and shopfitters, aimed at showing the effective use of bent glass in shopfront design. Two designs were required, one for a small-town grocer's, the other for a multiple store in a city centre. The only other design information in the conditions concerned the height and width of the shopfront. Nothing was said about the depth, and

*Cheltenham School of Architecture, formerly housed in the local College of Art, is now to be envied for its new home in the Pittville Pump Room (below). Built in 1825 to the design of John Forbes, the building was reduced to dilapidation by war-time military occupation, and has now been rescued by means of generous aid from the Pilgrims Trust, the Ministry of Works and local subscription. Robert Paterson, who teaches at the school, is architect for the restoration and conversion work involved.*

this combined with the fact that neither perspectives nor shadows were allowed, may explain why, for such a three-dimensional problem, most of the solutions were rather flat.

*

No startlingly novel ideas were submitted and a surprising number of competitors seemed to have hit upon the same gimmick as the First Prize winners. This was for a shopfront made up of a series of larger than life glass band boxes, each containing tiers of glass display shelves, some on a revolving turntable. This came off well enough for the multiple store but less convincingly for the small grocer. First prize for the latter went to Leonard Daniels, who is a qualified architect, and first prize for the big store to Richard Burley, who as far as I can gather is not. The designs are on view at the Building Centre until February 6. Assessors were John Reid, Fello Atkinson (architects) and L. R. Percival, a director of Pilkingtons.

INFORMATION SERVICE

Should the building industry have one authoritative centralized information service or not? This was the crux of a rather inadequate discussion enterprisingly organized by ASLIB (the government-sponsored Association of Special Libraries and Information Bureaux) in London recently. If those representing the users of information were not very clear on what they wanted, the purveyors of information, publishers and the passers-on of other people's information, were even more lame. Naturally Dargan Bullivant, speaking for the users, stood out as the only man present with a broad grasp of the subject, but even he did not fully seem to realize the great difficulty of achieving a comprehensive information service for this vast industry which would not become bogged in bureaucracy.

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The essential first stage, surely, is the creation of an advisory body on information, a body which will set standards and criticise articles and digests *before* publication to ensure clarity, accuracy and an even coverage of the vast field of building knowledge. Such an advisory body would be relatively easy to establish and not necessarily very expensive.

ASTRAGAL


*Sydney B. Downs*, A.R.I.B.A.

*John S. Walkden*, F.R.I.B.A.
*Head of School, The Regent Street Polytechnic School of Architecture.*

*George M. Rice*, A.R.I.B.A.

*D. C. Mallam*
*Director, Federation of Associations of Specialists and Sub-contractors.*

*A. I. Nellist*, A.R.I.B.A.

## Architects as Directors

SIR: I could not more strongly disagree than at present with a policy which would allow architects indiscriminately to become directors of building firms. In fact, since the present position is absurd in its inequality and lack of logic, I would go further and propose that Clause 5 be amended to say that no architect can accept salaried employment of any kind with a building firm. Those at present in such positions could be given two years to find an alternative job or resign from the RIBA.

I greatly fear our being premature about the directorships. After all, what is to be gained from such a radical change? I cannot see the present system lacking if properly applied. Those who wish for fine building will still go to an architect whereas those who want spec' building will not go near an architect or a good builder. Cost planning, job programming and the negotiated contract are the complete answer to the "all in" service and they enable us to retain a valuable independence of judgment. Also I think we have to admit that a change of the kind suggested would lead to widespread abuse at present. This may be unpalatable but who will deny it? It raises, of course, profound issues of education, selection and the future. The training of a profession to which a fuller integration may someday be entrusted is in our hands. It is clear that, if we succeed in this, we shall not need in future to fear similar abuse consequent on a change in the code. We shall then be passing, indeed, a vote of confidence in one another. This time is unhappily not yet, even though I believe the first tenets of the required educational policy to have been established.

I do not think, as some have suggested, that there is the remotest chance of our losing our lead of the building industry by refusing to change the code now. As our present resources are adequate we cannot but retain it. There is, however, need for a continuous probing into the future. It must be we who initiate such changes as are really necessary. I foresee, for example, an amendment (perhaps, in view of what appears above, an interim one) to the code of practice which would allow architects to develop building firms as extensions of their own practices. This could be the subject of a special individual application to the RIBA and an adverse decision subject to appeal at, say, intervals of three years. It would be, as it were, a further class of membership.

SYDNEY B. DOWNS

Coventry

## Piccadilly Circus Inquiry

SIR: I would be pleased if you would allow me, through your columns, to draw attention to a possible misunderstanding arising from your report of the inquiry into the proposal for the development of the Monico site.

Your report (January 14) mentions a resolution passed by the Students Committee of the Architectural Association supported by all the recognized schools except the Regent Street Polytechnic and by inference suggests that this School is in support of this particular proposal.

Certain principles of professional etiquette should be maintained. A school of architecture must be prepared to exercise its influence on public opinion through the results of its teaching rather than by joining in public condemnation of what is bad.

JOHN S. WALKDEN
*Head of School, the Polytechnic School of Architecture*

London

## Hospital Costs

SIR: Your most interesting cost analysis of the operating theatre block at Western General Hospital, Edinburgh, prompts me to write to you about costs for similar buildings here in Eastern Canada.

At first impression, the final cost figure of £8 5s. 7½d., even taking into account the site restrictions and client's working requirements, seems incredibly high for this type of building. Particularly so when one considers that boiler plant, main sewers, etc., are already provided and that items such as sterilizers, special lights and piped gas installation were not included and supplied by others.

To support this statement, let me say that here in Ontario our cost for an entire hospital, including heating plant, laundry, etc., and always making provision structurally and mechanically for future expansion, now averages $24·00/sq. ft. or approximately £8 10s. This would include sterilizers, elevators, special lights, gas piping systems, laundry, kitchen equipment. This is very

little more than the cost given for the theatre block, which seems remarkable when one considers the very much higher cost of labour and materials over here.

For example, ordinary terrazzo without special wheel stop base averages $6·30/sq. yd. (£2 5s.); however in an installation of the kind we are talking about, it is required that we provide conductive terrazzo or similar materials in order to reduce the danger of anaesthetic gas explosions. These, because of high labour costs in laying average from $27·00-$36·00/sq. yd. and must cover any area or corridor in which anaesthetics are given or through which an anaesthetized patient is wheeled. In this instance, it would appear that 50 per cent. of the first floor should be covered in this manner.

Similarly, any electrical outlets mounted below 5 ft. from the floor must be explosion-proof. These average $60-70 per single outlet of which we would provide not less than six per theatre and in a teaching hospital where cardiac and neurosurgical work is done, considerably more.

Again, the bed lift and bin hoist appear to work out at approximately £3,000, whereas the cost for a hospital elevator here would be about $15,000 (£5,357).

Moreover, we would normally use far more ceramic tile than is indicated here: floor to ceiling in the theatres, and a 4 ft. 6 in. dado in wash-up, sterilizing, scrub-up, anaesthetic, plaster and all toilets.

Our total for services would normally run to a slightly higher proportion of the total cost than for this particular job, which is understandable considering that this is an addition. All in all, the total cost seems extremely high. Our own cost of $24.00 is a recent one, 1958; and over the course of the last four years, during which we have built 12 hospitals or additions, our costs have been somewhat less.

Finally, there are some queries regarding the actual physical planning which I should like to ask, not with a view to being critical, but with a desire to learn more of the thinking that has gone into this particular project.

Firstly, there appears to be a very large area of glass in the theatres, particularly since they face east, and would, therefore, have to be covered during cases.

Secondly, the position of the wash-up room makes it necessary for all soiled linen, swabs, etc., to be removed through either one or the other of the theatres and thence into the "clean" corridor for removal.

Thirdly, the south anaesthetic room appears to be rather small for the use for which it is intended.

Lastly, when the next two theatres are completed, I would assume that the post-operative recovery room is to be doubled in size, since a normal complement here is 1·8 recovery beds to each operating room.

GEORGE M. RICE

Kingston, Ontario

Basil Spence and Partners write: We feel the reasons for the high cost figure were admirably stated in the comments on structural elements (frame) and in the cost comments at the end of the analysis. These very largely represent the cost of having to build in mid-air over existing installations. Naturally, one can build at ground level on a clear site for very much less.

The original design included a new central sterilising department at ground level below the theatre block, which, for reasons of policy, has so far been omitted. When built, this would of course lower the over-all cost per sq. ft. figure considerably—possibly by as much as 27s. to 35s. per sq. ft. if this area was fully developed.

We do not follow Mr. Rice's argument comparing the price per sq. ft. of this theatre block to the over-all price per sq. ft. of an entire hospital. Surely theatres are one of the more concentrated and expensive elements in a hospital, which also contains larger elements of relatively inexpensive development. These, when aggregated, will lower the over-all cost per sq. ft. of the hospital. This, in fact, would be the case if such an approach were adopted at the Western General Hospital.

Our comments briefly on other points are:

(*i*) As in Canada, the electrical outlets provided in all areas where anaesthetic gases are used are explosion-proof.

(*ii*) Tile finishes are generally *not* favoured as a matter of policy.

(*iii*) Even after our recent abnormally long and hot summer, the users' comment that the glass areas cause no problem whatever. Perhaps Mr. Rice is not familiar with the somewhat ephemeral quality of Scottish light. Incidentally, these theatres face west.

(*iv*) Mr. Rice has overlooked the hoist and linen chute in the dirty wash-up area, down which all swabs, etc., and linen go to the ground floor whence they are removed.

(*v*) A generally recommended figure for anaesthetic rooms at the time this block was designed was not less than 10 ft. by 12 ft.; this room is, in fact, 10 ft. 6 in. by 14 ft. It was appreciated both by the users and ourselves that this is less than ideal; the limitation was, however, accepted in order to add the X-Ray Room which was initially to be temporary, but later became permanent.

(*vi*) It is not proposed to double the post-operative recovery room, as it is the hospital's policy ot return all patients to wards as soon as possible, and they consider the present provision to be adequate for both developments.

Mr. Rice will appreciate that few, if any, architects in this country have had the opportunity of building new hospitals since the war, and no doubt when we have built 12, as he has, we shall have learned a great deal more about the many problems. This block, however, is a very specialised case.

## Nominated Sub-contractors

SIR: Mr. Bamford, whose letter you published in your issue of January 7, 1960, may, I am sure, be confident that if architects have recourse to nomination it is because they are convinced that the services and assistance of the specialist firms nominated will be of value to their clients. It is surely unnecessary to look further or to suggest that architects only do so under pressure of work.

Every specialist firm in this Federation welcomes the adoption by progressive main contracting firms of the new methods of management and contract planning procedures which Mr. Bamford describes; but if such methods and procedures are properly introduced and applied, they should to a great extent pay for themselves.

Mr. Bamford may also like to study, if he has not done so already, the very wise remarks of Mr. Pearce, President of the London Master Builders' Association, about the cost of building, in a recent speech reported in *The Builder* of January 1, 1960,

D. C. MALLAM
*Director, Federation of Associations of Specialists and Sub-contractors*

London

## Pro Savile Row

SIR: If architecture needs the services of an Anti-Ugly Action Group, couldn't a fund be inaugurated to supply them with well designed clothes and a few razor blades? At a first inspection of the group photograph in the ARCHITECTS' JOURNAL, I mistook them for Cuban revolutionaries, and it's more than likely that the occupants of Caltex House did the same.

If ugly buildings are a sin so is ugly dress. A protest against bad civic design (very laudable in itself) made by shambling activists of such astoundingly unaesthetic appearance is about as convincing as an appeal for vegetarianism made by Smithfield meat porters.

Are the architectural pots calling the kettles black? Or are they just so busy making a noise that they haven't had time to think about it?

A. I. NELLIST

Greenford

# DIARY

*Some Modern Developments in Highway Bridge Design.* Talk by C. S. Chettoe to the Institute of Highway Engineers at the ISE, 11, Upper Belgrave Street, S.W.1. 5.30 p.m.
FEBRUARY 5

*The Furniture Exhibition.* Earls Court.
UNTIL FEBRUARY 6

*The Future of our Inland Waterways.* Talk by Robert Aickman at The Planning Centre, TCPA, 28, King Street, W.C.2. 6.30 p.m.
FEBRUARY 8

*The Future of Interior Designers.* Lecture and Discussion by Stephen Garrett. Organized by the Institute of British Decorators and Interior Designers at the Royal Society of Arts, 6, John Adam Street, W.C.2. 7 p.m.
FEBRUARY 9

*Memorial Service for David Nenk.* At St. Paul's, Knightsbridge, S.W.1. 12.00.
FEBRUARY 10

*Corby Civic Centre Competition.* The four premiated designs submitted in this competition on exhibition at The Building Centre, Store Street, W.C.1.
UNTIL FEBRUARY 12

# DAVID NENK

A colleague writes:

David Nenk was a man in a million. A piercing intellect, flawless integrity and unswerving courage; these could only be admired and respected—but not imitated. Yet he taught a great many people a great many things.

During the last month or so of his life he complained that "people simply will not have a view of things." He certainly did not imply thereby the need for any unifying code or philosophy by which to judge the issues; he mocked nearly every "ism" without mercy. "Having a view of things" meant perhaps no more than a sense of relevance and a sense of proportion. He judged the heart of an issue and not the precedents, the implications, the repercussions, etc.; and he saw big things big and small things small. If, in his view, the heart of a matter was relevant and important, he acted. And then things happened. We owe largely to Nenk's shaping perspective our rationalized doctrine of value for money. Sensible people—even architects and administrators—have doubtless always tried to relate money to the value got for spending it. Nenk systematized in three ways: he encouraged by every means the new techniques of cost analysis and cost planning; he showed the stupidity, so widespread, of "cutting the finishes" when the real and larger extravances lay elsewhere, often undetected; and he saw that we should often spend more and not less money to get our standards right.

His name, with Stirrat Johnson-Marshall's, will always be associated with the concept and practice of development work. ASTRAGAL'S note of last week spoke truly of his personal qualities. The real measure of his contribution was that he found in his office a small group of dedicated architects and quantity surveyors working on school building and left a new approach to architecture, a new attitude to the whole building process, and a corpus of work nationally and internationally acclaimed.

It is clear that he influenced not only his own department but every department in Whitehall that had anything to do with building. His advice was widely sought, not least by the Treasury, and could rarely be resisted. His most astonishing *tour de force* was probably his single-handed success, through the Weeks' Committee, in reorganizing and civilianizing the War Office Works Department.

When he became Accountant-General in the Ministry of Education he turned his searching mind to the whole question of large-scale financial control. He quickly concluded that financial expenditure was not, in any real sense, controlled at all—either by Parliament, the Treasury or departments. What passed for control—the concentration upon accountability (verifying the vouchers, checking the arithmetic and preventing petty dishonesty) and the doctrine of candle-ends—infuriated him. Everybody was concerned for the pound that was lost and not for the 99 that were, though account-wise safe, the real quarry he was after. He was thinking profoundly about this when he died.

The straight truth is that he was and always would have been a giant in all and every company. That thirteen of his forty-odd years were given to the education service was golden luck.


## NFBTE

### *New President*

D. E. Woodbine Parish has been elected President of the National Federation of Building Trade Employers for 1960, and C. R. Setter has been elected the Senior Vice-President. Mr. Woodbine Parish, who was educated at Eton, was appointed chairman of Bovis Ltd. last year, after serving as chairman and managing director of Holliday & Greenwood Ltd. for 25 years. He has been a member of the NFBTE Council since 1947, he is known for his special interest in education, and has for some years been the chairman of the LMBA Education Committee. He is chairman of a study group set up by the Board of Building Education to advise the Institute of Builders.

Mr. Setter is chairman and managing director of Stone & Co. (Bristol) Ltd.

## ISE

### *Fire and Steelwork*

A paper on the subject of fire protection to structural steelwork by the application of expanded metal lathing and vermiculite and gypsum plaster was presented to the Institution of Structural Engineers on January 21 by A. R. MacKay of Frederick Snow & Partners, Consulting Engineers. The paper traced the history of fire protection, the types of protection commonly used and the advantages given to steelwork design by the advent of the universal beam and the new BS 449. It was suggested that a 10-storey steel frame, if encased in plaster, would show a saving of 8 per cent or more over a solid concrete encased frame. Savings in a higher building would be greater.

The attendance was so great as to require an overflow hall which is an indication of the interest in methods of reducing the cost of steel-framed buildings and the dearth of information on this particular subject.

The discussion rapidly developed into a battle between steel frame and reinforced concrete frame and claims were made that the use of lightweight casings coupled with the advantages of the new BS 449 would make the two media competitive. Our correspondent considers that the reinforced concrete structure will still prove the answer to multistorey buildings and particularly where the column layout allows a flat slab floor to be employed.

## COMPETITION

### *Hospital at Boston*

The Sheffield Regional Hospital Board will shortly invite architects resident in Great Britain, Northern Ireland and Eire to take part in an open competition approved by the RIBA for designs for a new hospital of some 470 beds to be erected at Boston, Lincolnshire. The Board have appointed John Murray Easton as the Assessor. The competition will be conducted in two stages, the preliminary stage comprising sketch plans showing the general layout, massing and composition of the scheme. Six competitors will be selected for the final stage. Each of the finalists will receive a premium of £500, and the winner will be awarded an additional £500.

## AA

### *Housing and Landscape*

A correspondent writes:

A small audience at the AA on January 20 heard Herbert Tayler, of Tayler & Green, give an illustrated talk on the housing work which his firm has carried out over a number of years for the Loddon RDC in Norfolk. They have built some 450 dwellings on scattered sites over the 15 square miles of the Council's area, and in doing so have demonstrated how enthusiasm, sensitive design and an appreciation of landscape can use a relatively small housing programme to produce some outstanding domestic architecture which, unlike most local authority housing, has a distinct local character.

The key to their success lies perhaps in the comment Mr. Tayler made in opening. He clearly regards the landscape as the most important element to consider when designing in the country, and he stressed by means of well chosen slides how true this is in the part of Norfolk where he builds. The country is generally flat, with vast skyscapes, wide fields, and large unpopulated areas, where any building or groups of buildings become an incident of great significance. With this always in mind, and after careful study and keen observation of the vernacular architecture, they have developed an approach to building in their own particular landscape which is highly successful.

Their dwellings have very wide frontages compared with the widths of 20-25 ft. common to most "council houses"; some of their bungalows, for instance, have frontages of 40 ft. This alone gives opportunities for design developments which narrower

frontages do not permit, and these have been fully used. Colour-wash on walls, patterned brickwork, tar, and many other local design elements are used in a discreet and thoroughly contemporary way to give their schemes a friendly domestic scale and atmosphere. Indeed their work may seem to some to verge on the "folksy," although always in impeccable taste.

Loddon RDC wisely accept advice from Tayler & Green on selecting sites for their schemes, and in this also the architects have shown a fine discretion. In all the schemes of which slides were shown, the placing of the groups in the landscape was so well judged, both in colour and form, that there is no doubt that it is this aspect of Tayler & Green's work which makes a great contribution to our post-war domestic building.

## THE RED HOUSE

### *A Morris Centenary*

To those for whom anniversaries are of interest, it may be worth noting that the Red House, Bexleyheath, which Philip Webb designed for William Morris, was being built a hundred years ago this Autumn. Though a comparatively humble affair, it could be called the grandfather of the modern house since, directly and indirectly, in Europe and America its influence was far reaching. With Wright's Robie House and Mies van der Rohe's Tugendhat House, it is one of the six or so milestones in the domestic architecture of the last century.

The impact the Red House had throughout the latter half of the nineteenth century is understandable. It is more difficult to comprehend what inspired it and how it came about. It owes little really to George Edmund Street, in whose office both Morris and Webb worked, and seems to be inspired more by the works of William Butterfield, whose particular brand of "structural Gothic" Webb so admired. Indeed, there is a certain similarity between the Red House and Butterfield's Vicarage at Coalpitheath, Gloucestershire, built in 1845, which Webb must have known. But the freshness, the feeling for texture and material, and the freedom from stylistic tricks which make it unique can surely be attributed to the client, William Morris.

According to Lethaby, Morris had discussed with Webb the planning of the house during a trip to France in 1858, and the first sketches appear to have been made at this time. The use of exposed brick wall was not new—both Butterfield and Street had made considerable use of it. But red brick was a fresh departure and may have been inspired by a visit by Webb to Tattershall Castle. Morris himself, however, loved red brick, and in *Glowing Wings* (1858) had written

> "Many scarlet bricks there were
> In its walls, and old grey stone;
> Over which red apples shone."

The house *was* William Morris; it also initiated the firm of Morris & Company and brought together that association of craftsmen and artists in the making of

*The Red House, Bexleyheath.*

furniture and the designing and printing of wallpaper and fabrics. And though much of the furniture may seem quaint today, many of the fabrics and particularly the wallpapers are some of the finest of their kind. Indeed, an early morning freshness seems to lie on the Red House and everything connected with it. It is good to know that it is well looked after by its architect owners and is probably in better shape than it has been since Morris left it. F. A.

## STAINES BRIDGE

### *An Explanation*

The bridge known and commented on as the Bell Weir Bridge, Staines, has now been officially named as Runnymede Bridge.

On October 22 we published a leading article entitled "Stick-in-the-mud Bridge" on the Staines Bridge controversy. This leader was based on the facts which emerged in a BBC television programme in which the principals of the two firms, the contractors and the engineering consultants, took part.

There is one important consideration which was not made clear at the time of the television programme. It is that the engineering consultants, Messrs. C. W. Glover & Partners, considered themselves under an obligation both to their client, the Ministry of Transport, and to their professional code not to enter seriously into the controversy. The effect of this was, of course, that their point of view was never properly put. Since then, a number of facts have been established. The controversy, as readers may remember, concerned the offer by one of the contractors, the Alderton Construction Company, tendering for the bridge to build an alternative version at 62 per cent. of the accepted tender and 70 per cent. of the contract period, and the linking of this offer to an actual design, prepared by a Danish engineer, Mr. Ingerslev, who is also one of the directors of the Alderton Construction Company.

There were two issues. The first was whether the design put forward by Alderton was an acceptable alternative. The second ways whether the general approach which this design represented was likely to produce a better result than that represented by the original design.

On the first issue, there seems little doubt that the design as submitted was not acceptable. Mr. Marples, the Minister of Transport, speaking in the House on November 4, said that "it fell far short of being a sound alternative." Alderton sent their design for "vetting" to two professors in the Technical University of Denmark, and these in their report stated that "the project is not finally worked out in all details and further consideration of details will give occasion for certain corrections."

Passing to the second issue, the chief points put forward against the Alderton design are as follows:

(*i*) That the piles are much too heavily loaded.

(*ii*) That there is a differential pile loading as between the piles nearest the river and those further back which would cause progressive deformation.

(*iii*) That the bridge is insufficiently strengthened against transverse forces derived both from floodwater and from traffic braking on the bridge.

(*iv*) That stresses in the superstructure far exceed permissible values.

(*v*) That the design required expansion joints in the Lutyens masonry which are not acceptable.

The report of the Danish professors agreed with the first of these criticisms, pointing out that to give the safety factor of two required in England, the concrete in the piles, as shown on the original Alderton drawing, would have to be increased by 77 per cent. They did not comment on the need for special joints in the brickwork, on stresses in the superstructure, or on transverse forces, but on the question of differential settlement they wrote as follows:

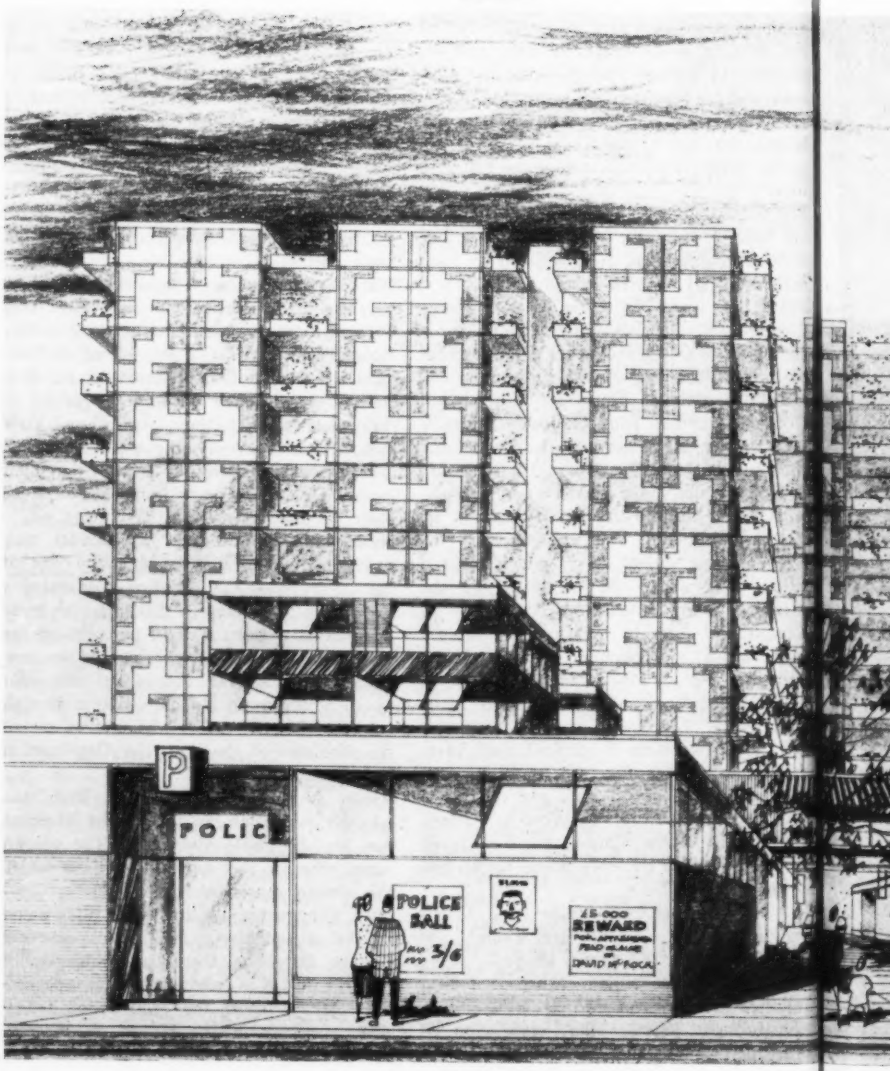
"Ingerslev & Partner's alternative project rests on the cantilever principle. The bridge consists in the middle of a suspended span, the beams of which are supported by cantilever arms. The suspended beams are provided with fixed bearings at one end and with expansion bearings at the other. The cantilever arms project from two pile foundations on either bank and are provided with counterweights shorewards. In this design the foundations are only influenced by vertical forces. The design used is statically determinate such that settlements, including differential settlements with concomitant angular motions, may occur without additional effects and thus without dangerous stresses in the construction.

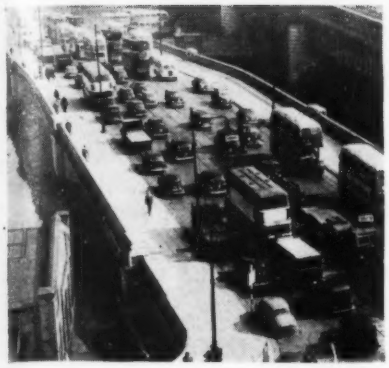
"The settlements . . . are of no consequence to the said design and may be largely counteracted by the establishment of a slight excess rise." Towards the end of their report they state that the Alderton design would "form an excellent basis for the preparation of a detailed project." In other worlds, the Alderton design is not the basis for a firm tender which could be considered by the Minister.

We regret that one of the illustrations to the leading article was based on a drawing by the engineering consultants, Messrs. C. W. Glover & Partners, which we had obtained, without their permission, from the contractors. This was an impropriety for which we tender a sincere apology. It has been pointed out that as this drawing incorporates part of the shore sections it gives the impression that the abutments are more massive than in fact they are.

# Glasgow th

After years of concentrating its efforts on peripheral housing estates of the most dismal quality, Glasgow Corporation has now embarked on a 20 year plan to rebuild its intensely congested slum-ridden areas. No less than 29 Comprehensive Development Areas are to be defined, and the co-operation of some of Scotland's best-known architects—Robert Matthew, Basil Spence, Ninian Johnston and J. L. Gleave—has been enlisted by A. G. Jury, the City Architect and Planning Officer. Is Glasgow making full use of the architectural opportunities this offers? Has Glasgow really advanced from a pre-occupation with housing, in isolation, to city planning? Is it sensible to exclude the central area from its CDAs? These are among the questions discussed in this article by Frederic R. Stevenson, senior lecturer in architecture at Edinburgh University, who was for several years intimately concerned with planning in the Clyde Valley while he was in the Department of Health for Scotland. In a second article he will discuss Glasgow's overspill problem.





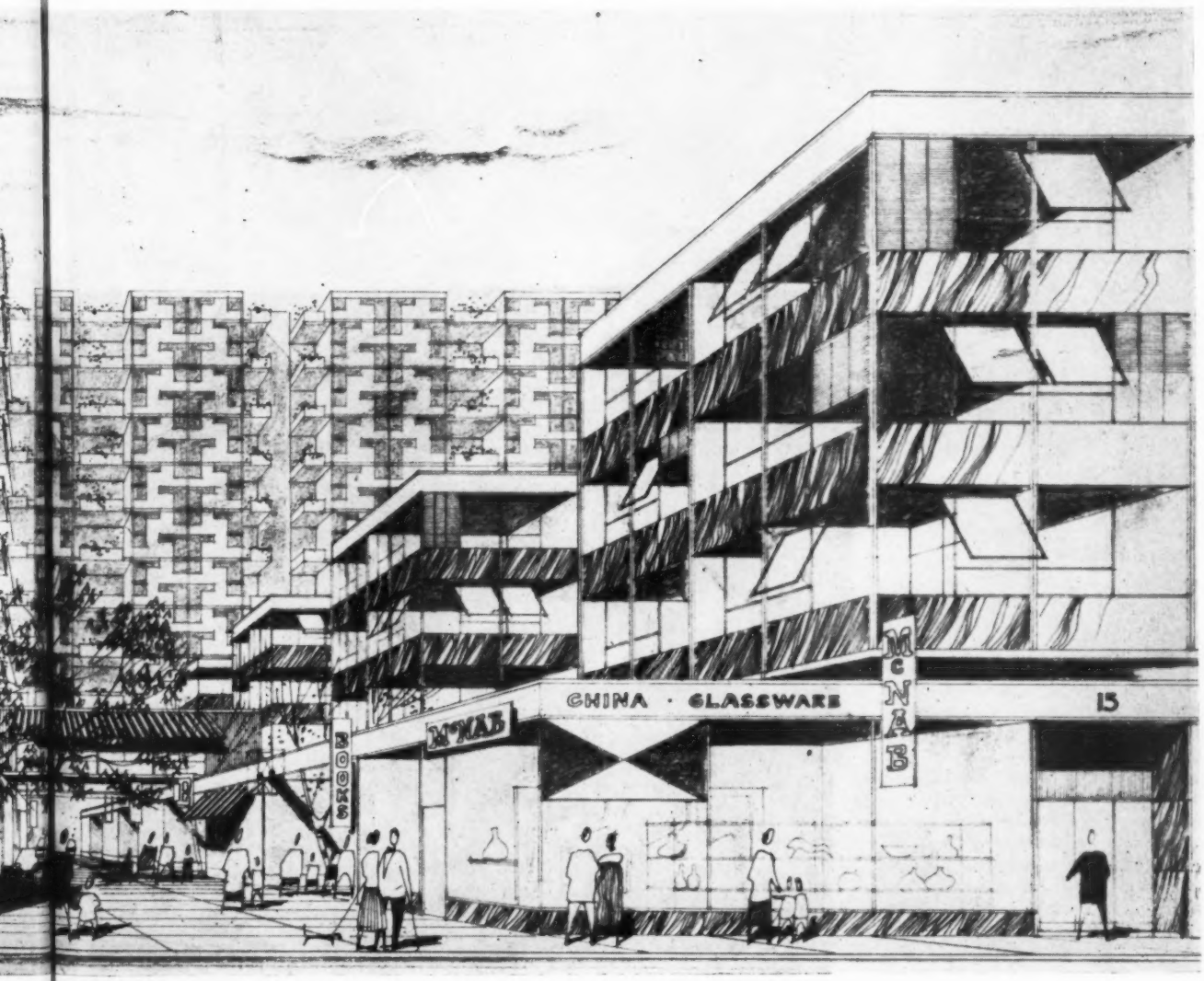
BACKYARD INDUSTRY (*far left*): *a characteristic grouping of workshops found in the hollow square of a 19th century flatted block. The Corporation is trying to clear this kind of thing away during redevelopment, but is hampered by the lack of any provision for small scale industry, warehouses and workshops in any of the new areas.*

GLASGOW SLUM (*centre left*): *old residential blocks of two periods. 18th century 3-storey buildings lead up to typical 19th century 4-storey block. Staggered windows indented, a common stair leading to four back-to-back flats on each storey. The archway is unusual, no doubt to connect the 19th century street with the older street in this picture.*

TRAFFIC (*left*): *one of the three road bridges which cross the Clyde, at a non rush-hour period. At rush-hour peaks these bridges seem to be entirely clogged with traffic, causing heavy delays.*

GORBALS OF THE FUTURE (*below*): *Basil Spence's scheme for the Gorbals. The tall block of maisonettes in which the links between the pieces are "hanging gardens." They are intended to give a reasonably sized area for each tenant where clothes can be dried, babies sunned and plants and flowers grown in tubs. Light vertical strips are the lift-and-staircase units. The set-back in the centre dramatises the pedestrian street which runs underneath through the scheme. This street takes the form of alternative street fronts and small squares, where four-storey development is hoped for with shops on the ground floor and office space above.*

# the 20 year redevelopment plan



# Glasgow

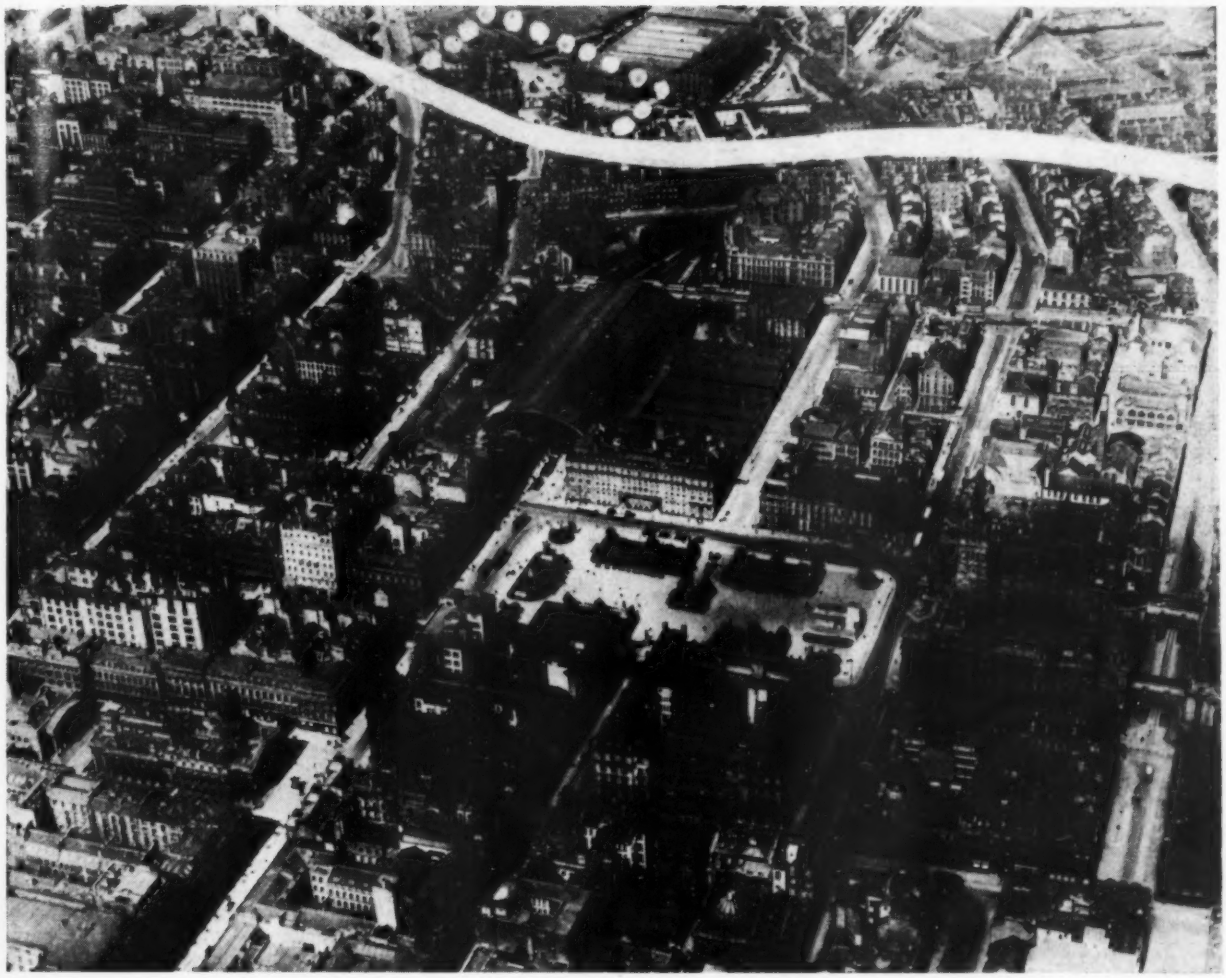
Glasgow has a planning problem basically different from that of other large cities in Britain, mainly because of its topography: a narrow river basin shut in by Highlands to the north and Southern Uplands on its boundaries to the south. Within a tightly-packed conurbation of only a few square miles live two and a half million people, one and a half million of them in the city itself, at densities which have reached 700 persons per acre, though now beginning to thin out.

By far the biggest population concentration in Scotland, Glasgow is the centre of Scottish economic life. The basis is steel, smelted from imported iron ore, rolled into structural form and turned into ships in the famous Clydeside shipyards.

Architecturally the city has five parts: the nineteenth-century shipyards and their industrial accretions; the Victorian downtown business centre, complete with an ornate town hall of the gas-lit age; a vast belt of four-storey nineteenth-century workers' flats; Victorian villa developments in the north-west and south-west; and an outer zone of local authority housing built between the wars with its accompaniment of bungalows. Amongst it all are "Greek" Thomson terraces and churches designed in a rebellious classical idiom and a few disregarded but precious fragments of Charles Rennie Mackintosh.

When the bungalows began to climb the surrounding hills Glasgow realized its predicament of having nowhere to extend once a recognized limit at 600 feet was reached. The first way out sought was the 1946 Bruce Plan to extend upwards by redevelopment at high densities. With a crash programme in mind, Bruce, the city's Master of Works, believed that Glasgow could deal in this way both with expansion and overcrowding, shocking statistics of which were coming to light, and even the bulge already foreseen during the closing part of the war was thought to be catered for in this plan. Bruce's drawings of skyscrapers in the general idiom of Hugh Ferris, but crude in detail and lacking townscape sense, did not gather wide support and failed in the only public appeal made.


GENERAL MAP OF GLASGOW WITH THE MAIN ROAD PROPOSALS: *The town planning zoning, which according to Scottish practice is marked in colour, does not come out on this illustration. Most of the shaded area is coloured red-brown, for residential use with other uses permitted. The central core, for commercial use, is hatched. The amorphous white patches are proposed areas of comprehensive redevelopment. Those described in the article are marked as follows: G—Gorbals area; P—Pollokshaws; A—Anderston Cross.*



AIR VIEW OF THE CENTRAL AREA: *In the middle is George Square, with the Municipal buildings and Queen Street Railway Station, which is proposed to be merged with Buchanan Street Station, seen at the upper edge of the picture. The resulting "Bahnhofplatz" is shown in a dotted white line. Buchanan Street runs from north to south at the upper left hand corner, continuing one row of dots. Like other air pictures in this series this must have been taken on a Sunday morning with no factory smoke about. The town planning shown here dates from the mid-19th century, before the railways, and the existence of so many streets has tended to ease the traffic problem which might otherwise have choked the city entirely. The Inner Ring Route would follow the line shown in white on the photograph and would more or less encircle the photograph on the other three sides just off the edge.*

## *Clyde Valley Plan*

Glasgow Corporation, however, were easily convinced that Bruce's policy was right, influenced by a desire to keep the city ratepayers where they were. Central government knew this financial problem and decided that no harm could come of working out the Bruce plan on paper. Clearly redevelopment must be undertaken on a big scale soon, whatever else needed to be done. The Secretary of State, however, had already made up his mind that a regional plan for the rest of the basin was the primary need, together with an independent assessment of Glasgow's overspill position. Thus the Clyde Valley Advisory Planning Committee came into being in 1943, with Abercrombie and Matthew as its Consultants.

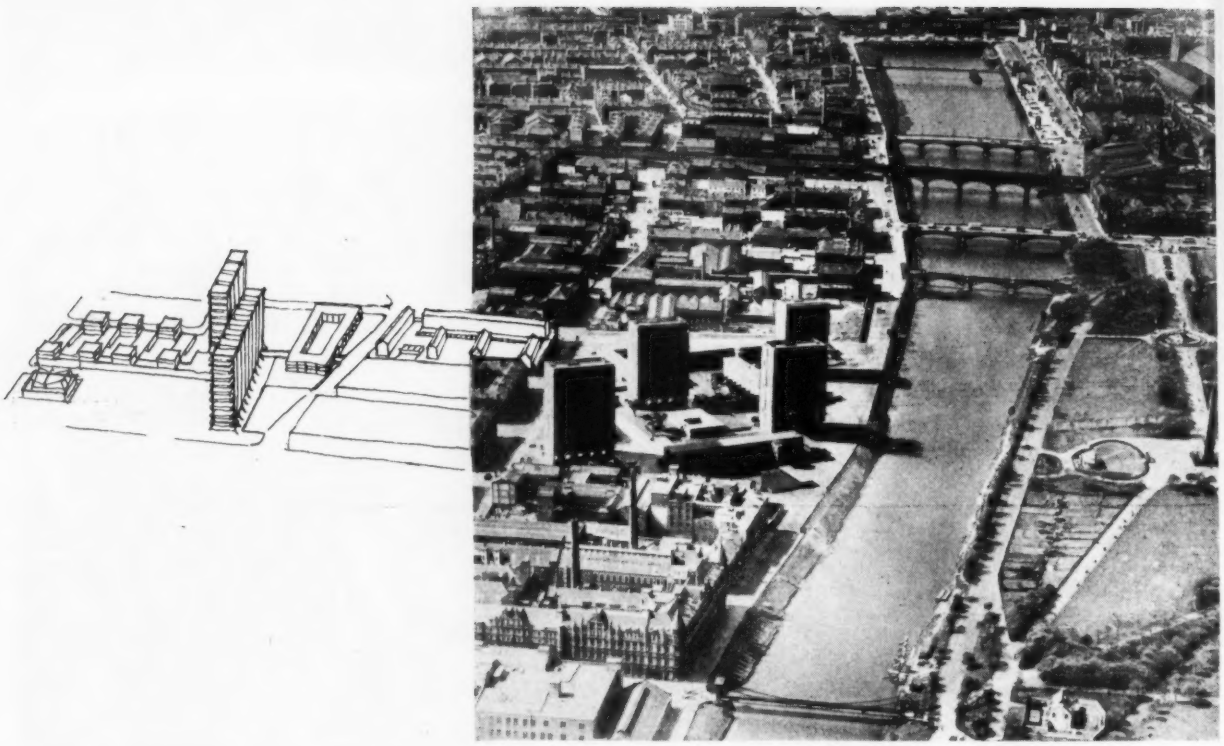
This Committee's Report, also published in 1946, caused consternation by demonstrating that with all its efforts at redevelopment Glasgow would still have an overspill of 200,000 people impossible to house within the city at respectable densities if industry and other necessary land uses were to be accommodated too. Four satellite towns to house the bulk of this overspill were proposed within the basin itself and the remainder consigned to existing towns over the basin's edge in the Ayrshire plain. This report, unofficially but widely called the Clyde Valley Plan, has never had more than advisory status, but the solid factual basis of its survey chapters claimed respect among those who could exercise unbiased judgement.

Its new towns were not intended to be replicas of Stevenage. They would be separated from the parent city only by narrow green strips artificially preserved. The green belt proposals are among the most interesting in the plan for they define the city's ultimate area with precision and put the Secretary of State in the position of having to decide once and for all whether Glasgow was to grow outwards or not, and if not whether there would be an overspill and what would become of that.

To ponder these questions took a number of years, during which Glasgow, not managing to launch the Bruce programme, pressed relentlessly outwards; but successive Secretaries of State have striven to preserve the recommended green belt limits though their occasional concessions have allowed some peripheral expansion. For all its unofficial status, The Clyde Valley Plan is thus the only regional plan in Britain used administratively by central government to give real effect to the principle of peripheral restriction.

The Scottish Office did not rely only on administrators to advise Ministers about these matters. A team of architects and planners was brought together, first under Matthew then Gardner-Medwin, and their study of the situation, covering industrial and sociological aspects besides housing, early revealed that the Bruce Plan would require widespread redevelopment at densities too high to contemplate, and that in any case available resources of labour and materials could not cope with the building works involved. Even to some who saw possibilities in a new high density urbanism, it was clear that the Glasgow problem would

# Glasgow



THE GORBALS RE-DEVELOPMENT: *Matthewtown in photo-montage. Spencetown in outline. Linking development with pitched roofs is City Architect's. Matthewtown has 17-storey blocks of flats with 4-storey maisonettes between. Observe the relationship with Glasgow Green across the river. Street on the left running up the picture is Ballater Street, proposed to form part of the Inner Ring which is cutting off Matthewtown from Spencetown. Immediate foreground to the left contains 19th century industry, in good condition and proposed to be retained. Just in the picture beside the Matthewtown flats are 4-storey hollow squares of buildings characteristic of 19th century Glasgow. More of these can be seen higher up the picture. Top right shows part of the central area with two of its railway stations. Light traffic and smokelessness signify that the picture was taken on a Sunday.*

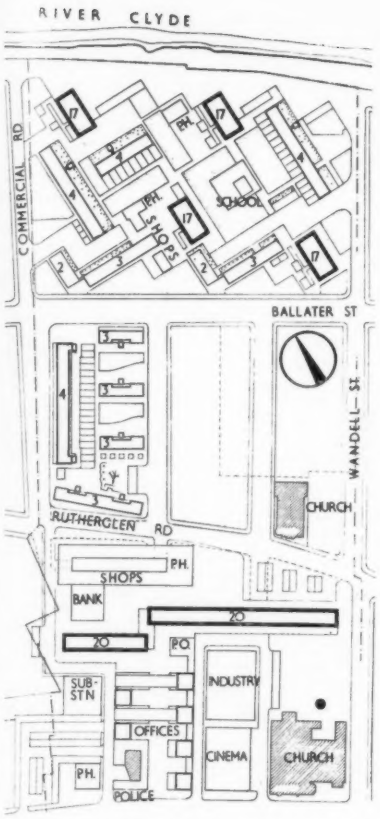
call for an overspill operation whatever redevelopment might ultimately be managed. As its first gesture, central government launched East Kilbride in 1946 as a new town, Glasgow strenuously objecting, although ten years were to pass before the second, Cumbernauld, was to begin. This was partly because of a diversion caused by the Town Development Act in England and Wales, for soon those who saw nothing but difficulty in promoting further new towns in Scotland were hot on the trail of this kind of overspill legislation. The Town Development Act for Scotland, delayed while controversy raged in a badly divided planning camp, came in 1957 and for a time at least its expectations now displace the other two Clyde Valley Plan new towns of Bishopton and Houston which thus remain green belt.

## *Redevelopment Starts*

When Bruce proposed his redevelopment programme he and others imagined a start made in the famous Gorbals, a dense crime-ridden slum immediately south of the city centre. The national press, radio and TV clamoured for action and in 1954 the area was designated as the first Glasgow CDA under the name Gorbals-Hutchesontown. Somewhat out of context, this project had clear public support and good work by the newly gathered planning staff under A. G. Jury as first City Architect, carried it through its statutory stages. This staff, a fragment by LCC standards, quickly became overloaded and it was realized that once a number of CDAs were launched outside architectural help would be needed. It was decided to bring in Basil Spence and Robert Matthew to deal with the Gorbals-Hutchesontown area in two halves linked by a small redevelopment which Jury undertook himself, using his housing organization.

The planning staff—still scarcely more than a nucleus of what is needed—set about submitting to the Town Council a report proposing no less than 29 such redevelopment areas to occupy 20 years (even with outside help), and earmarking two of these for an early start: Pollockshaws, a southern suburb with an old village centre: and a second central area slum called Anderston Cross. Gorbals, Pollokshaws and Anderston Cross are, therefore, the projects we have before us with which to judge the redevelopment programme.

All 29 areas are chosen for ripeness, not because they necessarily result in an improved City outside their own confines. The Glasgow Development Plan, approved—rather quietly—under the Town and Country Planning Act, dealt with little else than roads, sketchily at that, and gave no indication of a redevelopment strategy. It was thus left to Jury's team to bring into the redevelopment programme whatever arterial and sub-arterial road fragments could be reached by clever drawing of the CDA boundaries. This means that although little other co-ordination has been done between road projects and other land use requirements, Glasgow has the beginnings of a phased programme of road works related to town planning. In a city with a traffic problem second to none, necessary road works, if needs were properly confronted, would be much greater, and it is regrettable that no more is to be made of the system of outer and inner ring roads and radials for the whole Glasgow region, which was one of the important contents of the Clyde Valley Plan. Burghs outside suffer as badly as Glasgow does. Either get these roads made, it was argued by some, or do something better, for ring roads may not be the solution. A brief attempt was made to get a scheme considered to redevelop in one operation a ring of property partly ripe for demolition but partly not, to create the whole of the Clyde Valley Plan's "Inner Ring." It had plenty of sound sense behind it. Whether carried out or not it would have forced consideration of a most important redevelopment proposal known to have been taken quite far by British Railways: that of rebuilding Buchanan Street Station, a




MATTHEWTOWN AND SPENCETOWN WITH CITY ARCHITECT'S DEVELOPMENT BETWEEN: *The City Architect's development follows the Glasgow grid. Spencetown respects the east-west orientation of the grid but creates a super-block out of three blocks or grid units. Matthewtown likewise creates a super-block, but ignores the prevailing orientation.*

sprawling timber building with a wasteful track layout appropriately dealing with trains to the Highlands. This lies astride the general route the Inner Ring must follow across the North of the central area. Rebuilt it would accommodate Edinburgh trains at present run through an awkward and sinister tunnel into the older adjacent terminus of Queen Street full of the unbreathable air the tunnel emits like a pump as trains plunge through it. This would release the Queen Street site and transfer its approaching road traffic to a more suitable place. Here is a wonderful opportunity to combine railway, road and commercial buildings in one big related scheme which could give Glasgow a *Bahnhof* and *Platz* as good as famous continental ones, and put it into the lead in this respect among British cities. Every nerve in Glasgow ought now to be strained to bring this about, and first of all to force into light of day architectural drawings known to exist fully illustrating the scheme.

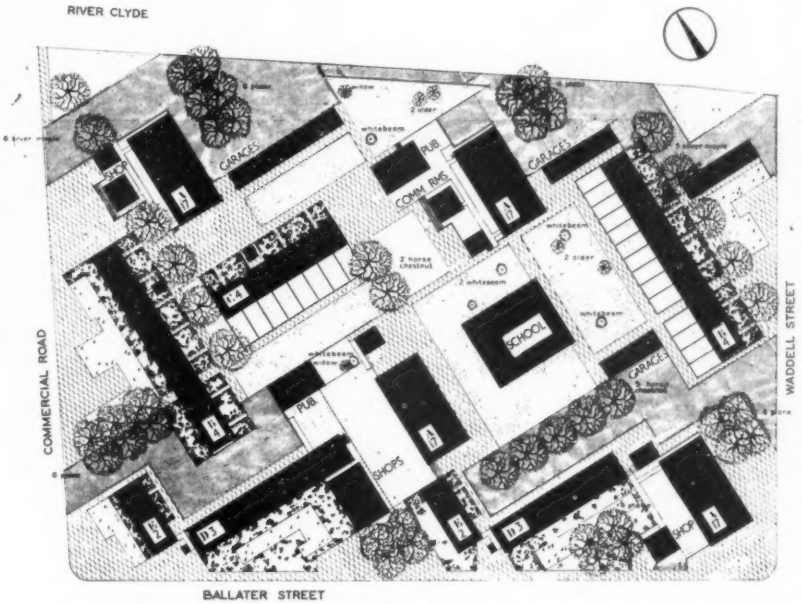
## *The Gorbals*

The Gorbals CDA comprises a predominantly residential area of 111 acres with an average density of 450 persons per acre on the South Bank of the river between Crown Street to the west and Waddell Street to the east bounded by Caledonia Road to the south.

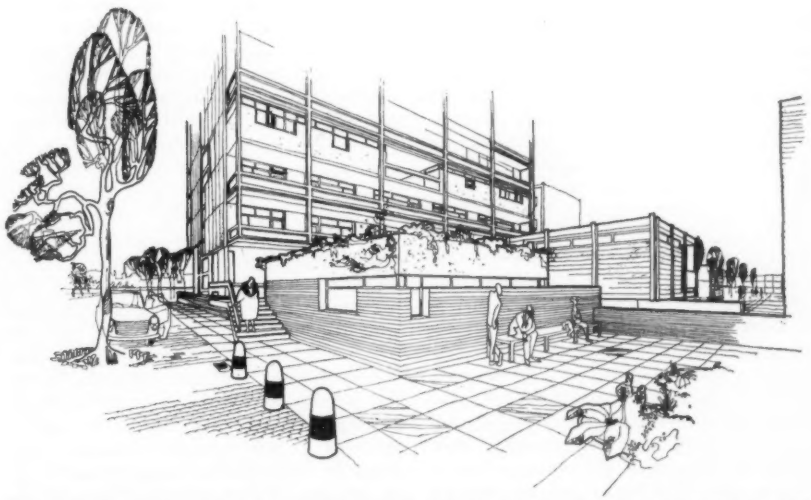
The outline plan for this area, designated by the Secretary of State in February 1957, established a framework for redevelopment in four 5-year stages, the first stage consisting of three development areas, of which Building Area B (designed by Matthew) forms the second part. The first development area, consisting of 96 dwellings in 4-storey maisonettes designed by the City Architect, was completed in mid-1958, the third area, designed by Basil Spence, will include the main shopping centre.

Through the area runs the proposed Inner Ring,, following Ballater Street which will separate Matthewtown from Spencetown and thus limit the chances that these two major developments may together form a precinct. Ineed. Matthewtown seems rather to belong to the river front—a sort of South Bank development of a kind Glasgow needs badly in another way to dignify the city centre's river frontage, much neglected architecturally since berthing began to move down-stream to deeper water. Things were different when the tobacco clippers were warped out into the narrow tidal fairway overlooked by good though sombre Georgian façades. Today a boat trip down the Clyde derives its pleasure from ship design, and cranes, not buildings.

In Matthew's development 428 dwellings are provided at a net residential density of 133·1 rooms per acre, in four 17-storey blocks of flats, three four-storey maisonette blocks, two three-storey maisonette and flat blocks and two two-storey flat blocks.




PLAN OF MATTHEWTOWN : *Storey heights are marked. Landscaping is in various kinds of hard surfacing, bringing in as much variation as possible. Trees are shown fully grown, raising the question whether they should not be mature trees at the start rather than saplings.*



*Base of the Matthewtown tall blocks in relation to lower buildings on the ground. Landscaping has to be mainly hard surface with vandal-resisting plants. The Corporation has a tree nursery which has been producing trees ready for planting in this and other redevelopment schemes. Possibly time will show that a few mature trees would do more to humanise the scene and have a better chance of survival.*

# Glasgow

*Characteristic vista through the Matthewtown scheme on a line diagonal to the city grid. Tall block contains flats on split-level arrangement which economises in circulation space. Access from lifts is at 2½-floor intervals. Zig-zag on gable marks these accesses where staggered windows light access corridors from the ends. Block on left is maisonettes. Vista continues to riverbank and picks up landmarks on further bank, emphasising this development's character as riverbank architecture rather than part of hinterland.*

Forty-nine per cent. of the dwellings have three apartments, 40 per cent. have two apartments, and the remainder have one apartment or four apartments. A nursery school, eight shops, 30 garages and two public houses are also incorporated in the scheme.

The tall blocks turn half right to face the afternoon sun and their upper floors will command a view of the whole Clyde shipping drama, up to and including nuclear Cunarders being built at Clydebank. They will also carry the eye to the hills lining the estuary as it turns south and on clear days upper floor tenants will see the 2,900-ft. summit of Goat Fell on the Island of Arran, also on days when hills and tall buildings stick up through the smog and supply another argument for Glasgow to build high. Smog is so bad that some November days are dark at noon: winter nights are unimaginable. A smokeless zone (one is proposed) would be like baling a life-boat with a bowler hat. Bruce's skyscrapers, had they been built, would have needed the much cleaner air of New York: a sort of Scottish Stuyvesant-town in a steam-heated city. Even after six generations of building big ships, Scottish technology is only now catching up with the idea of megalopolis, and has still very far to go. Smoke and dirt pose a problem of surface treatment for all Glasgow redevelopment. Architects concerned are searching hard for the right treatments. Matthew says he hopes for a certain rugged character on the ground itself. Stone will be used for retaining walls, steps, etc., and granite setts will be incorporated in paved areas. Grass and planting will be limited to relatively large areas raised above the general circulation level. Sunken gardens, playgrounds and small shops or community rooms are associated with the ground floors of the high blocks, and private walled gardens are provided to two of the maisonette blocks.

The plan is designed to minimize vehicular movement within the site, and no formal road system is provided; paved surfaces which are normally for pedestrian or recreational purposes will be used by essential vehicles following routes defined by bollards and low walls.

A consequence of Matthewtown's right face is that its landscape, pleasantly urban and free-flowing with vistas across the Clyde to Glasgow Green, has a sense of running diagonally to the city's grid. This raises the question: Do other developments take up the Matthew orientation or do they follow the Glasgow grid? Spencetown follows the grid and indeed looks so different from Matthewtown that there is a question of whether good neighbourliness has been affected (applying to this admittedly difficult context the Trystan Edwards ethic of civic design). If Glasgow is to lead a new ethic there must be a decision whether to proceed empirically like this or like Chandigarh and Brazilia to impose a universal formula.

Spencetown has its own ethic: the romantic virtues of contrasting forms grouped in a set piece like photographs of mountain scenery. As a mountain of apartments each with its rock-ledge garden, overlooking a little shopping street, Spence-town makes one think of Switzerland where little streets vanish into vast rock-faces broken up small. With its subtly dwarfed but insistent human scale, Spence's street is an intimate friendly thing opening at intervals into small courts with buildings on one, two and three floors. Unless dirt and gloom overwhelm it, this should be a place of great charm.

How exactly the rock ledges or hanging gardens are to be handled we are not told. Here is a unique landscape problem. One of its parts will be to find effective wind baffles without excluding light while at the same time allowing these gardens to make a feature of their altitude and exposure. It may be that some experiment here might stumble on the answer to the big sociological problem of flat tenants when they suddenly assume the dignity of mountain-folk. We hope that bureaucrats and councillors are taking this problem seriously, and oh what folly it would be to condemn the idea on cost as extra floor space. Important in the still open context of Glasgow density, is whether this at last is multi-storey *open* space on which an acreage

figure can be put and credited as such.

Another Spencetown question to be answered sociologically is: Who will shop in the shopping street? Its copious frontages need shops attracting custom from afar, but how will this get there? We are off the Inner Ring and away from main radials. Do people come from Matthewtown? How do they cross the Inner Ring: overpass or underpass? Nothing is provided yet and it looks as if an opportunity to deal imaginatively with levels has been lost at the town planning stage. The present link is through the ground-level pedestrial ways of the City Architect's scheme, whose tenants, the first new Gorbals folk, seem just to shop in the Inner Ring itself, crossing and recrossing with quiet nonchalance while laden trucks thunder by dockwards.

Design of blocks in both developments suffers somewhat from obsolete fire regulations which still prevail over proven Continental experience of fire control. Escape routes are duplicated and the assumption is that fire produces smoke in clouds sufficient to fill a hundred yards of staircase and corridor. Why doesn't it in Hamburg or Copenhagen? The fact that the furniture is better designed there can't make much difference to how it burns.

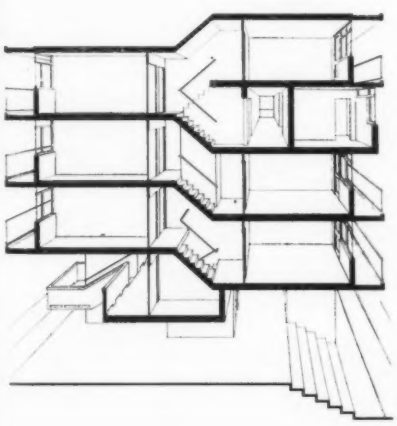
Spence uses the maisonette for his tall blocks: Matthew keeps them for his four-storey blocks with balcony access to the upper tier. For his 17-storey blocks Matthew uses split-level flats with an interesting variation of the alternate floor access corridor, taking us a stage beyond the Berlin Hansa Quarter experiments and also the most recent experience of the LCC. Each 17-storey block contains 38 two-apartment and 19 three-apartment flats in a reinforced concrete structure divided laterally by cross-walls into five bays and lengthwise by a vertical service and circulation spine. Internal access corridors, open at both ends and in the centre, occur at intervals of 2½ floors and each corridor provides access to 12 flats: five above, five below and two at corridor level, besides refuse chutes, incinerators, clothes drying area and pram stores. The corridors are linked by two lifts, with escape stairs at each end of the block. Primary alternative means of escape from flats is by linking balconies to adjacent flats. All living rooms and kitchens face south-west.

The four-storey maisonettes are of three and four apartments, of brick crosswall construction. Each house has a private balcony or a private garden, and balcony access is provided for the upper maisonettes with a refuse chute incorporated in a free standing stair tower. Electric underfloor heating is employed, with electric water heating and cooking, and each house has an individual drying cabinet.

The three-storey blocks consist of four-apartment maisonettes over two-apartment flats. Balcony access is provided for the maisonettes at first floor level; this balcony continues at right angles to afford access to the upper flats of the two-storey block. The internal services are similar to the four-storey blocks, though there are ground level chambers for dustbins instead of refuse chutes.

Work started on the site of Matthewtown at the end of 1958, and foundation piling, necessitated by the valley-bottom substrata was recently completed.

An interesting feature of the high blocks is that a proportion of the dwellings have internal bathrooms. They survived scrutiny even after a medical argument about the bactericidal effect of light. Now all Scotland waits to hear what Mrs. McRory thinks when the things go into use, assuming no electricity cuts to stop the mechanical ventilation, and a clear run down the one-pipe system—also a recent innovation in this suspicious city.



*Sectional perspective of the base of a 17-storey block at Matthewtown showing shrinkage of communications stairs leading to split-level flats with small single-room flats sandwiched in at 2½-floor intervals. Also sandwiched is the access corridor where the lifts stop. From the lift entrance you either walk up or down to your flat. The whole staircase continues as a fire exit.*

## *Pollokshaws*

The Pollokshaws CDA was approved close on the heels of Gorbals-Hutchesontown. At present it consists of two distinct architectural and topographical groups. The first on a hill with some pleasant nineteenth-century buildings, including a church, overlooking on lower ground what was once the village green called Shawlands Cross. The second is a dreary meandering main street of poor quality shops with houses above and behind these on either side industrial buildings. The whole area is bounded on its south-eastern flank by factories which, as "hard" property, are excluded meanwhile. Until 1912 Pollokshaws was a separate burgh and a chance exists through sympathetic treatment to give the new development there its own urban personality.

The gross residential density proposed, like Gorbals-Hutchesontown, is 160 persons per acre and to achieve this about half the new dwellings need to be in multi-storey blocks. Unlike other redevelopment areas where it is not expected that all the people displaced will be rehoused within the area, Pollokshaws is expected to take an additional number of families, raising its population by about 1,000 persons. It gives effect, therefore, in a sense, to the Bruce Plan by reducing overspill and poses the question whether in years to come large areas in this semi-suburban belt of the city ought to be redeveloped at high density. After all, its redevelopment was not undertaken because this was a suitable site for a knot of high-buildings but because land becomes available here by taking down cheap buildings. When property values fall throughout the rest of Glasgow's south side as both flatted blocks and villas become obsolete, high density replacement logically follows and will have to be prevented if it is undesirable. The Clyde Valley Plan called all this a belt of medium density allowing for increases in this way.

HIGH POLLOKSHAWS: *Part of J. L. Gleave's preliminary sketch scheme, not yet a formal proposal, drawn to establish character and the relative scale of old buildings to new. The ground treatment is likewise tentative, but aims at some formality within the forceful non-symmetry of the contours. The open space marked Shawlands Cross to the left exists as a decayed village centre, but is shown re-interpreted as a pedestrian shopping piazza. To the right of the scheme runs a railway in a deep cutting.*

Pollokshaws has been divided between two Glasgow architects, Ninian Johnston and J. L. Gleave, who inherit a fine Test Map* and some imaginative perspective drawings prepared by the Corporation as part of the CDA submission. One of the good ideas in this was a long pedestrian footbridge crossing a roundabout at the south-west corner of the area to bring into the scheme four tower-blocks possible to place there in an otherwise awkward position. This development seems doomed but the footbridge deserves to survive somewhere else and is the sort of thing which could rescue the separated parts of the Gorbals Scheme. There is even a case for something like this to join the Gleave part of Pollokshaws, the old Shawlands centre, and the Ninian Johnston part, for one of the defects of the CDA as approved by the Secretary of State is a permitted traffic route through the area from east to west, threatening to divide it into separate precincts. One would have thought a look

* Required in Scotland to test possibilities of redevelopment and illustrate planning principles.

# Glasgow

## *Anderston Cross*

at the Ballater Street mistake might have caused an administrative leap to safety here. Gleave's final scheme for the Shawlands area on the high ground looks promising. A group of tall slabs stands round the old buildings on the hill, repeating in a pleasanter way the well-known drama of Trinity Church, New York, surrounded by skyscrapers. Outside, the group stands foursquare as a single monument. How so monumental a group gets connected on the ground with the buildings, old and new, which stand below will be important. The present link is a curving access road up a landscaped hillside, but something stronger could be devised.

This area of 114 acres lies astride the Inner Ring where it bounds the west side of the city centre. The part within the central area is therefore approved for the appropriate uses: commerce and light industry; and might lead to a detailed consideration of these as buildings, which Glasgow has yet to give. In the other direction this scheme is also bisected by a route, the famous Argyle Street, which carries a thick stream of vehicles westwards out of the city to peel off into riverbank factories, docks and shipyards. Decisions on roads are, therefore, essential if Anderston Cross redevelopment is to be properly guided. The Inner Ring through here looks pretty on a map but becomes nonsense unless it continues out of Anderston Cross to become a bridge connecting with other road proposals on the South Side. It is difficult to see how this area can be approved for redevelopment without clearly implying that the new bridge is coming unless, of course, Anderston Cross is cut down in size to redevelop only Westwards. This would be a serious retreat*. Similarly a decision is needed whether Argyle Street is to carry arterial traffic through the area or whether this is to be diverted along a new route round the periphery. There has always been a strong argument for such a diversion, leading to a dockside artery which would replace the rest of Argyle Street westwards to serve both docks and industries more efficiently. Other bridges would be involved: over the Kelvin, a northern tributary of the Clyde, and in the form of elevated stretches of road to negotiate railway and industrial installations on the ground. A fascinating piece of architectural engineering could be created here to solve problems, infuse some inspiration into Glasgow's road design, and give people hope. Although a slum, full of substandard houses (3,376 dwellings at a density of 343 persons per acre), Anderston Cross is also industrial with a big acreage of warehouses and no less than 90 factories. The proposal to move a number of these is rousing inevitable opposition and this is therefore a test case to decide the overspill issue between the Corporation intending to clear industry out, and industry itself intending to stay until turned out, both here and in other heavily industrial zones along both banks of the river. The test map for Anderston Cross prepared by the City Architect's planning department, shows how the Inner Ring might be constructed. Following accepted modern planning principles, this map shows a certain schizophrenia between corridor streets and fully segregated traffic ways. It is much to be hoped that by the time the public enquiry comes round this issue will have been argued out and also that both road and bridge will stay in the scheme. A further refinement of the present test map model could force the Corporation to decide generally between the traditional *laisser-faire* programmes of street widening and the fundamentally different concept of segregated and graded traffic streams which redevelopment makes realistic. It is proposed that residential redevelopment will be carried out at a net accommodation density of about 150 habitable rooms per acre, and to achieve this density over half the dwellings will be in multi-storey blocks. It is also proposed to rehouse within the redeveloped areas a cross-section of families now living in the area. Despite the changes in zoning to increase the area of residential land, and the high density of new housing, a total of about 1,217 houses only will replace the 3,324 existing houses to be cleared. The balance of families displaced will be rehoused in other Corporation Schemes or in Overspill Reception Areas. Amenity open space and playgrounds will be incorporated in the residential development and there will be appropriate provision for shops and licensed premises for shopkeepers and publicans displaced by the redevelopment.

These will be in two centres, one immediately west of Anderston Cross and the other in Elderslie Street. These centres will also contain post offices, banks, consulting rooms, with sites for halls and other community facilities. The existing library, baths and most of the churches are being retained. Special treatment is proposed to preserve the fabric and improve the surroundings of the "Greek" Thomson church on St. Vincent Street. Two existing primary schools are being retained and provided with extended sites, and two new nursery schools will be provided.

## *The Central Area*

The great appeal of the Bruce Plan was its bold proposal to redevelop the whole central area on the super-block principle just as the most depressing aspect of the 29 Areas

* Since this article was written Scottish Home Department has been persuaded to allow the bridge to be built. The growing volume of criticism of the absurdity of allowing the Anderston development *without* the bridge seems to have been effective.

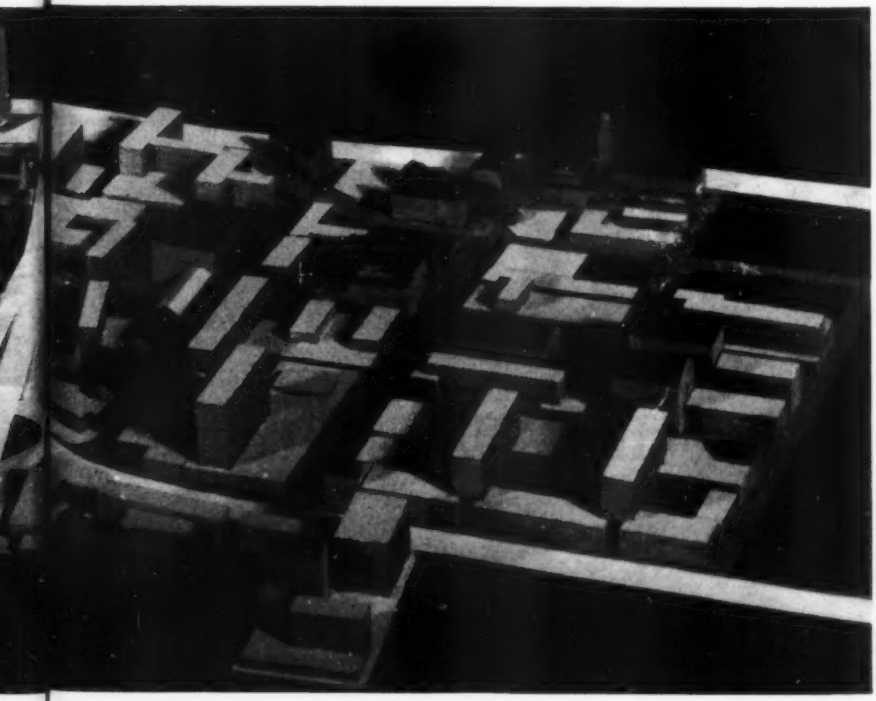
Report is the almost complete omission of this area. The area itself consists of tall buildings fronting narrow streets laid out on a grid pattern making all vehicles equal. Buildings are full of dark rooms and for years the streets have been one vast traffic snarl. Traffic trouble being predominant in the public mind, decisions are being taken as regards street use on police advice. In effect these now impose a super-block system, but without considering the shape of resulting redevelopment. Accesses to buildings are arbitrarily restricted on streets selected as trafficways and, on a first-come-first-served basis, made artificially easy on others which are selected for parking. In time this means the concentration of office redevelopment on streets where parking is allowed, and a blight on new building investment elsewhere but without assurance that the new concentration will be in the right places. To make matters worse, Glasgow business seems not to have noticed the relation and is fighting all traffic restriction whether rational or not. Tied perhaps by convention, a developer is trying to build an hotel on the busiest street crossing where delivery of passengers is already difficult. It is inconceivable that the Corporation and the Secretary of State could allow that, but the existence of such a proposal at all illustrates how little the real nature and possibilities of central area planning are understood.

Meanwhile the flight of business from this confused part of the city has begun, led by people who are not tied there by convention. Districts to the west, consisting of handsome nineteenth century terrace houses, are rapidly becoming a high-class business area, the Corporation permitting change of use though restricting such things as advertising. If pressure for office space rises in Glasgow as it has done in other European cities and if no major development for office use is promoted within the central area of the city to give good conditions of parking and access there, it is certain that somebody will start promoting multi-storey offices in some outer area. The Corporation will then be faced with allowing a kind of mid-town Glasgow to develop like mid-town New York, replacing down-town Glasgow for no better reason than neglect of an earlier and better opportunity.

Basically the reason is, of course, that the Corporation is primarily a welfare administration, whose main consideration in redevelopment is the building of houses. Business is not its concern: it has no Commerce Committee, nor is there any serious attempt to reach a common mind with the business community about the major land uses. One way out at the administrative level would be to adopt the American idea of a city manager. In temperament Glasgow often seems more like American and Canadian cities than English and a combination of transatlantic know-how in commercial redevelopment with the Welfare State machinery might be very effective.

Meanwhile as regards planning matters the Corporation has difficulty even in co-ordinating its present committees, three of which have a say in redevelopment: the planning committee, the housing and the highways committees. Even the 29 Areas Report is written so as to satisfy housing and planning committees separately, with half the areas labelled as slum clearance intended for rehousing and nothing else. There are signs, too, that in handling planning applications from day to day the Corporation's main concern is to prevent houses which are in use as such from becoming anything else. Time alone will tell whether emphasis on housing and rehousing can remain so strong and both planners and architects who watch the situation must wonder how long it will be before comprehensive development in Glasgow really becomes comprehensive in the intended sense of catering for all the primary land uses together.

A "GREEK" THOMSON *Church in the Anderston Cross Area, to get a new environment in the course of surrounding redevelopment. Alexander Thomson, nicknamed "Greek," was a 19th century Glasgow rebel against the Gothic revival but many of his buildings, including this, have a romantic grouping and a tower which is Gothic in feeling. Foreground industry is characteristic of the waste of space which unplanned land use involved before the days of planned control.*



ANDERSTON CROSS: *Model of the design by the City Architect's planning department, made from the "test" map. The main object is to test possibilities of redevelopment but it also displays principles of planning intended to be used during actual redevelopment. Some confusion of principle is evident between the idea of development in depth displayed to the left of the main road and the concept of frontage development—the corridor street—displayed to the right. Buildings to the right are mainly industrial, but this does not wholly explain the change of idea. The road in the centre is part of the proposed Inner Ring, seen crossing one of the radials. The crossing device seems to need more careful study.*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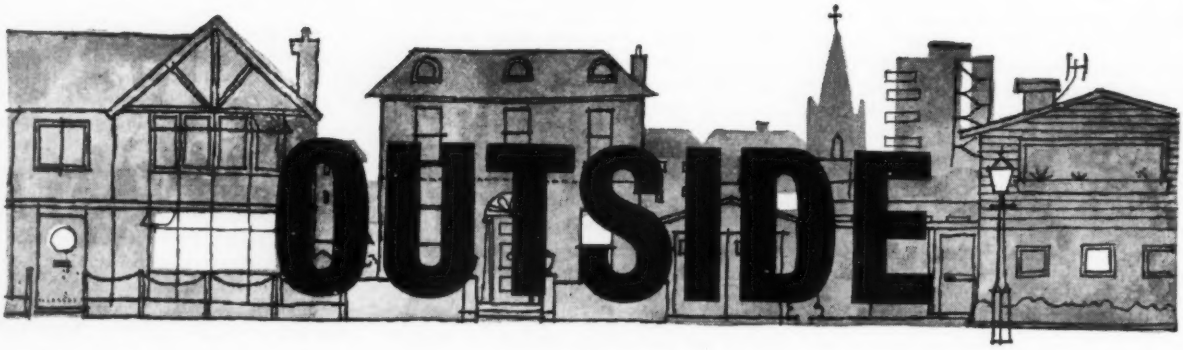


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technical section

## THE INDUSTRY

*From the industry this week Brian Grant describes a new aluminium facing, a range of letter plates, a system of pre-cast concrete structural units, polythene dampcourses for concrete rafts, a display of fibre boards, a combined internal telephone and door opener, and an ice-cube maker.*

**Aluminium facings**

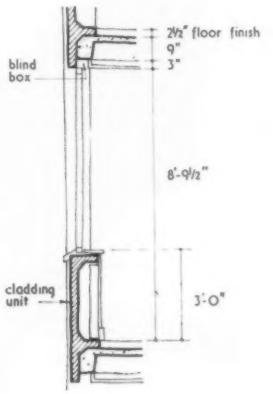
The illustration on the right shows the Fiat building, in Stockholm, which has been faced with Stenmar aluminium panels. These are made in either a plain, polished, or colour anodised finish, those in the photograph being in two colours. The panels have a cover width of 4 in. and are made in standard lengths of 16 ft. Fixing is relatively simple, as the panels interlock at the edges, and there is plenty of space in the joint for secret fixing by screws or other means. Internal and external angles are also produced and a ¾-in. wide filler strip. For external use the colours are limited to black, gold and blue, presumably on the usual grounds of fastness to light, but for internal work a further range of colours should be easily obtainable. The panels consist of longitudinal ribs about ¾ in. wide to a troughed pattern, while shallow ribs at the back allow anti-condensation air to circulate. Apart from curtain walling and fascias this would seem to be a useful material for shops and other types of interior decoration, as it could be dismantled without overmuch difficulty and used for alternative types of display. So far the panels have been available only in America and Scandinavia, but they are now being produced in this country and supplies should be ready in February. Price, in reasonable quantities, is 1s. 5d. per foot run, plain finish. (*Marsland & Co. Ltd., Conington Road, Lewisham, London, S.E.*13.)

**Letter plates**

A range of pleasantly simple letter plates is now being produced by Tudor Accessories, a firm perhaps best known as makers of car equipment. The letter plates are 10½ in. by 3½ in. overall, with a slot measuring 8¼ in. by 2 in. Prices, in chrome, bronze and satin chrome, are 17s. 6d., 18s. 6d., and 21s. (*Tudor Accessories Ltd., Beaconsfield Road, Hayes, Middlesex.*)

**Prefabricated structures**

Vinculum Structures is a system of precast concrete units suitable for buildings up to five storeys high. The basic planning unit is a bay 6 ft. 8 in. wide and 20 ft. deep to the centre line of the building, and 10 ft. or 13 ft. 4 in. floor to floor. The other components are floor units and columns and a 3-ft. wide spine beam spanning between internal columns and giving an uninterrupted level ceiling. External cladding units fit between columns and give a 3-ft. cill height. The system is designed to carry a 70 lb. live load plus 36 lb. for finishes and the structure provides a one hour fire resistance, though this can be increased if necessary. The roof structure consists of standard units which are surrounded by precast eaves units to form a raised edge, within which various types of finish and insulation can be laid. (*Tarmac Vinculum Ltd., Ettingshall, Wolverhampton.*)




*Below, Stenmar aluminium panels on the Fiat building in Stockholm. Above, section showing Vinculum structure unit.*

technical section

*Part of the display of fibre boards at the Fibre Building Board Development Organization Ltd.*

**Dampcourses for concrete rafts**

Concrete rafts laid either on the ground or on fill may well absorb moisture and can either break down in frosty weather or can be damaged if the fill contains sulphates. The B.C.L. blanket dampcourse seems to be an answer to this problem, as it provides a continuous waterproof membrane over the whole ground floor area at a cost of about 11d. a square yard. The film consists of polythene sheet 0·005 in. thick, which is supplied in rolls either 6 or 12 ft. wide: this is laid direct on the fill and any necessary seams are folded over in what a roofer would call a double-welted joint. The film is held down temporarily with a few bricks until the concrete raft is placed. (*British Cellophane Ltd., Plastic Films Division, Henrietta House, 9, Henrietta Place, London, W.*1.)

**Fibre boards displayed**

There is now, in Norfolk Street, a permanent exhibition of the full range of hardboard, fibre insulating boards and acoustic tiles marketed in the U.K. by the member firms of the Fibre Building Board Development Organisation. The exhibition is intended for reference, so that visitors can see and handle specimens of nearly 800 boards. Not all of them can be shown at once, but the display is to be changed regularly and all makes will be available on request. Hours of opening are 9.30 a.m. to 5.30 p.m., Monday to Friday. (*The Fibre Building Board Development Organisation Ltd., Stafford House, Norfolk Street, London, W.C.*2.)

**Answering the bell**

Flat and other dwellers who dislike opening a front door in case they find a brush salesman's foot in it will approve of the Ateavox combined telephone and door opener. The system is quite simple: the bell push at the door, or at the main entrance of the flat block rings an internal telephone bell and the householder can then hold a conversation with the caller through a loudspeaker-microphone unit at the front door. A further push-button allows the householder to open the electric lock on the door, which re-locks itself automatically when the door is closed. The system is supplied at a reasonable rent, which includes installation and maintenance. (*New Era Time & Telephone Systems Ltd., 5/7, Marshalsea Road, London, S.E.*1.)

*The BCL polythene blanket dampcourse.*

**Making ice cubes**

A new piece of equipment shown at the Hotel and Catering Exhibition was the Prestcold ice-cube maker, which will produce automatically up to 1,600 ice cubes a day and which is designed for installation under the bar counter. The standard cubes are 1¼ in. square, with a thickness of ⅝ in. but the last dimension can be adjusted to anything between ½ in. and ¾ in.

As well as electricity the unit needs a water supply (¼ in.) and a ¾-in. drain. As the ice cubes are made they drop automatically into a storage bin capable of holding 16 lb. of ice, or about 850 cubes, and the refrigeration process stops until some of the stored cubes are removed. Water for new cubes is fed in automatically. If a free-standing version is needed there is a conversion kit with two sides and a top, which can be finished to the required colour. (*Prestcold Division, Pressed Steel Co. Ltd., Cowley, Oxford.*)

**INFORMATION CENTRE INDEX FOR 1959**

***An alphabetical index covering Information Centre items and special articles published in the Technical Section during the twelve months ended December 31, 1959, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor, THE ARCHITECTS' JOURNAL, not later than March 14, 1960. This form will not be acknowledged.***

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# 19 CONSTRUCTION: DETAILS

## floor finishes for use with electrical floor warming systems

On Tuesday, January 12, the Electrical Floor Warming Association held a brains trust on floor finishes, in which representatives of the manufacturers of the main types of flooring took part. As much useful information was brought to light we present our report, not as a news item, but as a short technical article. Those who took part in the panel were representatives of p.v.c., rubber, linoleum and timber manufacturers, TDA, CCA and the Electrical Floor Warming Association. R. F. Weaire of the last named association was in the Chair.

Proceedings started with a statement from C. J. Wheeler (Thermodare) on temperature conditions. Mr. Wheeler pointed out that a figure of 75 deg. F. was generally accepted as the temperature of the floor surface in a floor warming installation. This, however, was very much of an average and, even where no abuse was made of the system this could easily vary from 65 deg. to 85 deg. in different installations at different times. The temperature at the top of the screed, on the other hand could be 90 deg. to 95 deg., but this was influenced by the resistance to the transmission of heat provided by the floor finish. For example a material with a high resistance (which, in effect, is a measure of its thermal insulation) such as hardwood blocks would precipitate a higher screed temperature than one with a low resistance. These temperatures, though, were never as high, in normal conditions, as would be obtained on a floor surface submitted to direct sunlight through glass with a south-west aspect in mid-summer!

The first questions went to E. W. Gerty of the Linoleum Manufacturers' Association, who explained that, though linoleum has a base of linseed oil there is no risk of the material hardening and becoming brittle due to prolonged heating drying out the oil. He went on to say that linoleum must be completely stuck down to a level screed with a gum spirit adhesive, for there is, naturally, a risk of linoleum stretching in those places where complete adhesion does not occur. He quoted two or three proprietary makes of suitable adhesive, but stated that any gum spirit adhesive produced by a member of his association would be satisfactory. He pointed out that quality of linoleum produced by members of the association does not vary irrespective of thickness and, on average, is of a quality about 15 per cent. higher than the minimum prescribed by the appropriate British Standard. His most important point concerned pre-heating the floor before laying linoleum. Linoleum should not be laid on a floor in which the heating is operating as it is then likely that the adhesive will dry out before a bond is achieved. If, on the other hand, the heating is switched on for about a week and then switched off at least 48 hours before the laying of linoleum this will achieve the two-fold effect of testing the installation and drying out residual moisture in the screed.

T. Thirley (British Rubber Flooring Manufacturers' Association) explained that natural rubber is a material with a specified life (irrespective of wear) largely determined by the chemist at the time of manufacture. As a general rule rubber used for flooring will have a life of about 20 years and whilst heat has a detrimental effect it is very slight and would not take 10 per cent. off the normal period of life. Where rubber is fixed to a floor which is heated, however, it is inadvisable to use the normal adhesive which is a petroleum spirit-based rubber compound as, once the spirit is dried out, heat will affect the fine rubber film of adhesive which remains. In this case a synthetic rubber should be used. To further questions concerning adhesives those members of the panel concerned were agreed that water-based mastics are unsuitable as the drying out induced by heat causes the mastic to become crystalline, or brittle. F. L. Brady (Marley Tile Co.) and P. H. Robin (Semtex, Ltd.) explained that two types of bituminous adhesive are used in the industry, one being water based (called " emulsion "), which is not suitable for use on heated floors and the other spirit based (" cut back ") which is.

Surprisingly few questions were directed to A. G. A. Saul, representing the Cement and Concrete Association, until towards the end of the evening. At first reluctant to commit himself on the question of drying out, or curing time for screeds, Mr. Saul suggested a minimum of two weeks for a 2½-in. thick screed (the generally accepted thickness) and preferably at least 28 days. Certainly the heating system should not be switched on until one month had elapsed from the time of laying the screed. Mr. Saul strongly advocated an integral slab and screed, achieved by laying the screed two hours after the pouring of concrete. In his view this is the only way of ensuring a satisfactory bond between the two. There was some opposition to this from the audience. Mr. Saul's analogy with road construction (where the screed is applied whilst the structural concrete is still green) was not well received. It was pointed out that an integral slab and screed made the electrical contractor's job more difficult and

technical section

that, furthermore, the builder himself was opposed to it on the grounds that screeds finished so soon were prone to damage during subsequent building operations. Mr. Saul rightly stuck to his guns by suggesting that it was time the building industry overcame this problem and most architects, mindful of the part played by intelligent site programming, will agree. He dropped some useful pieces of information from time to time, such as a rule of thumb for establishing bay sizes for an unreinforced screed, 4 ft. × 4 ft. for 1 in. thickness, 6 ft. × 6 ft. for 1½ in., 8 ft. × 8 ft. for 2 in., 10 ft. × 10 ft. for 2½ in., and so on. He also suggested that the metal tube used in rewirable systems was a form of reinforcement to the screed!

Both W. G. Bigger (Association of Flooring Contractors) and D. Murray (British Institute of Hardwood Flooring Specialists) were critical of the use of strip flooring on battens set in the screed where floors are heated. They were agreed that the best timber floor finish for this purpose was wood blocks set in adhesive and having a slight margin around each block which allowed some lateral movement of the blocks under humidity variation. No timber, whatever its age, as Mr. Bigger pointed out, is entirely stable. Various methods of stabilising timber have been evolved overseas and one or two of the more efficient methods are being introduced in this country. R. P. Woods, of the Timber Development Association, explained that, broadly speaking, this involved virtually "boiling" the timber. It was mentioned that timber which had undergone stabilising treatment could lose as much as 60 per cent. of its durability. Mr. Woods added that the flooring contractor should be informed at the earliest stage that it was proposed to use a floor warming system so that he could select the right adhesive. An 8 per cent. moisture content was regarded by the timber experts of the panel as a maximum for timber used with floor warming.

A question on the indenting of p.v.c. flooring under heat (admitted by the p.v.c. people present, who explained that, under normal conditions such indenting would be slight) brought to light some hair-raising stories about excessive heat build up under heavy items of furniture, such as plan chests and one instance of a carpet showroom in which carpets were piled 3 ft. high on a heated floor!

At least one member of the audience drew attention to the inadequacy of the published information and the need to co-relate data and present it in a usable form. He pointed out that architects' specifications were often not adequate and suggested a combined approach to the RIBA by the interested parties. The writer has heard this plea or ones along similar lines at each symposium he has attended and is wondering when the EFA and the various flooring manufacturers will take the hint. The amount of useful information which resulted from questions and problems of a practical nature and the impression that the experts at last week's meeting carry a good deal more useful information around in their heads, strongly indicate the need for a comprehensive handbook on the subject.

# 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.***

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**PRICE BOOK**

*Spons Architects' and Builders' Price Book 1959/60.* Edited by Davis, Belfield and Everest. (E. and F. N. Spon Ltd. 85th Edition 1959/60. 30s.)

An important new feature in the 85th Edition of this useful work is to be found in the comparative prices section where the authors have given comparative prices for pitched roofs per yard square on plan.

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9.67 design: general

**PLANNING**

*Planning.* E. and O.E. (S. Rowland Pierce, Patrick Cutbush and Anthony Williams). Eighth Edition. (Iliffe & Sons Ltd. 63s.)

This eighth edition of a venerable and useful office reference has seen a considerable re-write. Further, it has been broken into two parts: the first dealing with elements which are common to many buildings (parking spaces, lavatories and the like) and the second dealing with the separate building types. This in itself was a sensible piece of "planning" and has saved bulk without losing facts.

"Planning" is an almost indispensable guide to the step-hills of architecture. It contains two kinds of information. The first is dimensional data and the second is the relationship between rooms. The first is relatively easy to provide and can be referred to with great confidence: the second is far more difficult to provide and should be treated with some reserve. In fact the style of draughtsmanship chosen (inherited from an earlier age) gives the impression that the kind of space planning exemplified is more out of date than in fact it is, and there are sections which do not seem to have responded sufficiently to changes in planning practice. A case in point is office buildings. Throughout it is assumed that day time lighting will be by natural light only, but surely in practice Permanent Supplementary Artificial Lighting is likely to be the rule rather than the exception. The answer, of course, is that planning is always changing and that a publication of this kind cannot be up to date in every respect all the time. Allowing for this, there is no better time saver in a job's earliest stages.

technical section

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## 10.190 design: building types

### COLLEGES OF FURTHER EDUCATION

*Building Bulletin No. 5 New Colleges of Further Education.* (Third Edition.)

This Bulletin assumes a growing importance as educational building programmes concentrate on further education; and the issue of a third edition in less than a decade is evidence both of the validity of the original Bulletin, and the Authority's determination to keep abreast of developments. A forenote advises that the section on design will remain unchanged until its thorough revision follows the completion of the Development Group's project, but a number of important changes are made in the earlier sections. The four main types of function are retained in the section dealing with the schedule of accommodation, but a re-allocation of rooms transfers "the gymnasium or sports hall" into the "communal" category, and the library from this to the teaching category; while the use of the term "assembly hall" is dropped. This re-shuffle is given further point in the notes on administrative and communal accommodation, where a more empirical approach is urged to communal area planning, hitherto inhibited by conventional school design. This section could augur sweeping changes in design. Significantly, too, the total revision of recommended areas for libraries almost trebles their size, and a note in the section on teaching accommodation states that students, and in some cases equipment, are the controlling factors in determining areas. A new section urges the need for an analysis of the density of usage.

The same emphasis as before is placed on the need for economy in circulation areas and there is the same reluctance to prescribe standards for engineering services. The need for adaptability and the value of consulting the architect at the earliest stage are re-asserted. The additional cost items have been increased in number, with new reference to playing fields, and standards (surely inadequate to modern needs?) are set for car parking. The notes on cost retain the old classification of "factory-type" buildings at a lower cost.

The new approach to communal area planning is welcome, but there will be disappointments for architects seeking more official backing on some of the serious and typical issues. Lacking is the proper emphasis on the nature and complexities of the equipment, or any attempt to grasp the nettle of engineering costs, which in these projects often amount to 50 per cent. of the total. The division of accommodation into the cheaper "factory-type" buildings, and other more expensive areas, seems to be wearing thin, in spite of the paragraph seeking to define which is which. This terminology, carrying over-tones of the corrugated-sheet factory-shed, seems at least as outmoded as the "assembly hall." It would seem advantageous to establish one cost target for all the buildings, and another for engineering costs, the latter governable by reference to the type and amount of equipment.

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## 18.207 construction: theory

### STRUCTURAL DESIGN

*Advanced Structural Analysis.* Borg & Gennaro. (D. Van Nostrand Co. Ltd. 1959. 56s. 6d.)

The first four chapters of this American book provide the basic design methods—Maxwell Mohr, least work, elastic centre, slope deflection and moment distribution. These take up nearly half the pages of the book and although they are presented adequately can hardly be described as "advanced analysis." The 5th Chapter contains a detailed account of the theory of the elastic arch including deflection while Chapter 6 contains an interesting account of numerical and approximate methods of analysis of beams including the finite difference, potential energy and relaxation methods. Chapter 7 deals with torsion of non-circular sections, shear centre, restraint against warping, floor framing systems and shear lag. Chapter 8 covers plasticity and limit design.

In Chapter 9 four methods are given of shell analysis including approximate methods on simple beam action as well as membrane action.

Chapter 10 deals with temperature stresses in complex structures and an approximate procedure is given for temperature stress analysis of hulls of ships, aeroplane wings and nuclear reactor components.

Chapter 11 contains an account of digital computors for structural analysis.

Forgetting chapters 1-4 the remainder of the book can be fairly described as 'advanced' and of good value to engineers at all levels. The book is clearly set out with worked examples, there is a detailed chapter index at the front and a subject index at the back.

47
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## 19.225 construction: details

### ROOF COVERINGS

*Pitched Roof Coverings.* Peter Whiteley. (Architectural Press Ltd. 5s. 6d.)

This useful monograph is a reprint of three articles published in *The Architectural Review,* to which are added some tables which were intended to be published in the AR but for which there was no space. The author considers in turn unit coverings (*i.e.,* slates and tiles) corrugated sheets and fully supported roofings, listing in a conscientious and useful way all the material considerations which bear on the use of each. The real centre of gravity of the work, however, lies in the tables which line up, if not all, at least a very full selection of proprietary products, give their physical characteristics, the cost of material laid per square and an estimate cost per square of a complete roof including sufficient insulation to bring the roof up to a U value of .18 to .2. This is a worth-while exercise, for prices in this field do not change so rapidly as architects imagine. The finished roof prices are interesting. Prices per square for corrugated roofs vary between £29 and £41 15s., for tiles and slates between £31 10s. 0d. and £60 and for fully supported roofings from £31 to £70.

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628

## 25.136 water supply and sanitation

### SANITATION

*Domestic Sanitation.* F. Glanville Goodin and J. Downing. (The Estates Gazette Ltd. 50s.)

Surprisingly this is one of the first textbooks published which attempts to cover the whole field of domestic sanitation—*site and environment, hygiene of building, water supplies, distribution of water, building drainage, sewage disposal, ventilation and lighting, heating and hot water supply* and so on. Its contents are rather uneven. In parts the subject matter is dealt with in a way which can only be described as most thorough and knowledgeable; a case in point being the study of causes of dampness in existing buildings and methods of remedy. Other parts fall short of this standard. Under the section General Planning, for example, this statement occurs: "The use of intercommunicating doors between ground floor front and rear rooms has gained considerable popularity in recent years and ensures a certain flexibility," and there are other statements like this! Such vague pronouncements are curiously inconsistent with the down to earth treatment of *water supply and distribution, methods of testing drains* and so on. One wonders if the reason is not that those sections which are inadequately covered are, in fact, outside the province of this book.

As one might expect, the best parts are those dealing with drainage and plumbing and, as one who has had occasion to explore the mysteries of domestic sewage disposal—cesspools, septic tanks, biological filters, humus tanks—this reviewer was gratified to find most of the information he had been compelled to collect from a wide field gathered together at last between the covers of one book.

On the other hand too often whole slabs from the Public Health Act or the Model Building Byelaws are quoted when, in fact, the interpretation of the authors (undoubtedly experts) would be not only briefer but also much more helpful to students. From time to time a trace of pedantry is all too evident, as witness the description and drawings of obsolete water closet pans.

However, by putting into one volume the whole range of subjects dealt with separately and often inadequately by textbooks on building construction and services this book fills a large gap and, despite its shortcomings, is well worth shelf space. The drawings, of which there is a large number, are very good.

technical section

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| UDC No. | 625·8 |

# 19 CONSTRUCTION: DETAILS

## concrete base roads

In his first article (November 12, 1959) the author, W. Houghton-Evans, considered the principal governing road design in general. He then turned to the design of roads, first with granular, then with soil cement bases (November 26, 1959). This week he turns his attention to roads with a concrete base, describing conventional concrete design and practice in some detail, and concluding with a note on a proprietary process which uses a cement grout.

The architect will be familiar with concrete pavings. It is perhaps for this reason that they have often been used on building sites where other cheaper materials may have proved equally satisfactory. There are, however, conditions which only concrete can fully satisfy—hardness of surface and freedom from maintenance being the main ones. Its use on very poor sub-grades is recommended as, provided the formation is dressed to an even surface, a concrete slab can adequately distribute quite heavy loads without fear of collapse. The CCA has prepared an excellent series of memoranda on concrete roads, from which the following notes and diagrams are in the main abstracted, and which may be consulted for greater detail.

A sub-base should always be provided, for which the CCA recommends the following thicknesses:

**Table 1**

| | *Consolidated thickness of sub-base* | | |
|---|---|---|---|
| *Type of soil* | *Light traffic* | *Medium traffic* | *Heavy traffic* |
| Loam, silty soil with fine sand and clay and peaty soil | 3 in. | 6-9 in. Compacted in two layers | 9-12 in. Compacted in two layers |
| Clay soils and well-consolidated embankments | 2 in. | 3-4 in. | 4-6 in. |
| Gravel, chalk, rock and well-graded sandy soils | 1 in. | 2 in. | 2 in. |

The sub-base should be covered with waterproof paper, polythene sheet or other suitable membrane to prevent water from the concrete base being drawn into it.

The base may be designed from the following data:

**Table 2**

| | *Medium traffic* | *Light traffic* | *Very light traffic* |
|---|---|---|---|
| Expected intensity of traffic (commercial vehicles) per day | 150—450 | 45—150 | 45 |
| Thickness of unreinforced concrete slab (in.) on normal sub-grades (see Notes 1 and 2) | — | 8 | 6 |
| Thickness of reinforced concrete slab (in.) on normal sub-grades (see Notes 1 and 2) | 7 | 6 | 5 |
| Minimum weight of reinforcement (lb. per sq. yd.) | 7 | 7 | 5 |

*Note* 1: The slab thickness may be decreased by 1 in. for very stable sub-grades.

*Note* 2: Under the following conditions unreinforced slabs should not be used and the thicknesses given above for reinforced slabs should be increased by 1 in.: (i) on sub-grades susceptible to non-uniform movement, e.g., those of highly plastic clays or of peat; (ii) on embankments over 4 ft. high; (iii) on sub-grades where the water table may rise to within 2 ft. of the formation.

Suitable reinforcement is oblong mesh sheet, usually obtainable in sheets 17 ft. × 7 ft., greater widths being available. Rolls are difficult to bed flat and their use is not recommended. The mesh should be placed so that the longitudinal bars are parallel to the long side of the bay—which in narrow roads will normally be along the length of the road. A lap of 40 diameters should be given to longitudinal steel, but none to transverse steel. Corners of bays on weak sub-grades or with thin slabs may be additionally reinforced with "hairpin" bars. Additional bottom steel should be incorporated over recently dug trenches and other weak spots.

The purpose of reinforcement is primarily to prevent the opening up of cracks, and for this reason it should be placed at the top of the slab. Where the weight to be used exceeds 14 lb./sq. yd. it may be evenly divided top and bottom.

For batching by volume, where crushed rock is used, mixes should be not leaner than 1 cwt. cement: 2 cu. ft. of sand: 4 cu. ft. of coarse aggregate. With gravel, the proportions should be: 1 cwt. cement: 3 cu. ft. of sand: 5 cu. ft. of coarse aggregate.

For weigh-batching, the following mixes have been designed by the CCA to give minimum crushing strengths of 3,000 lb. per sq. in. at 28 days:

**Table 3**

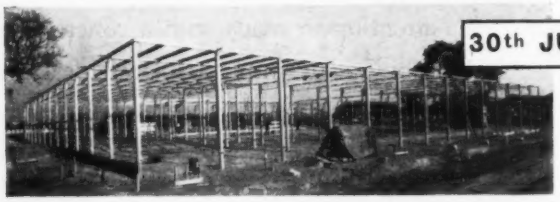
| | | *Mix proportions by weight* | | | |
|---|---|---|---|---|---|
| | | *Crushed rock aggregate* | | *Gravel of good particle shape* | |
| *Method of compaction* | *Maximum slump (in.)* | *1½ in. maximum size* | *¾ in. maximum size* | *1½ in. maximum size* | *¾ in. maximum size* |
| Hand tamper | 2 | 1 : 1⅔ : 3⅓ | 1 : 1½ : 3 | 1 : 2 : 4 | 1 : 1⅔ : 3⅓ |
| Normal vibrating tamper | 1 | 1 : 1⅔ : 4 | 1 : 1½ : 3½ | 1 : 2 : 4½ | 1 : 1⅔ : 3⅔ |
| Powerful vibrating tamper | ½ | 1 : 2 : 5 | 1 : 1½ : 4 | 1 : 2½ : 5 | 1 : 2 : 4½ |

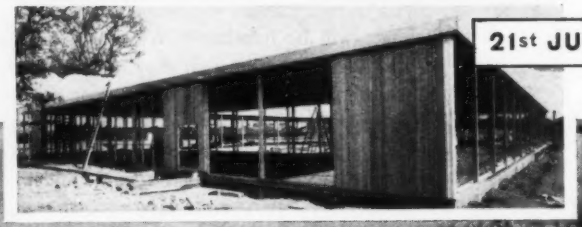
# CONTRACT TO COMPLETION IN 9 WEEKS, 5 DAYS...

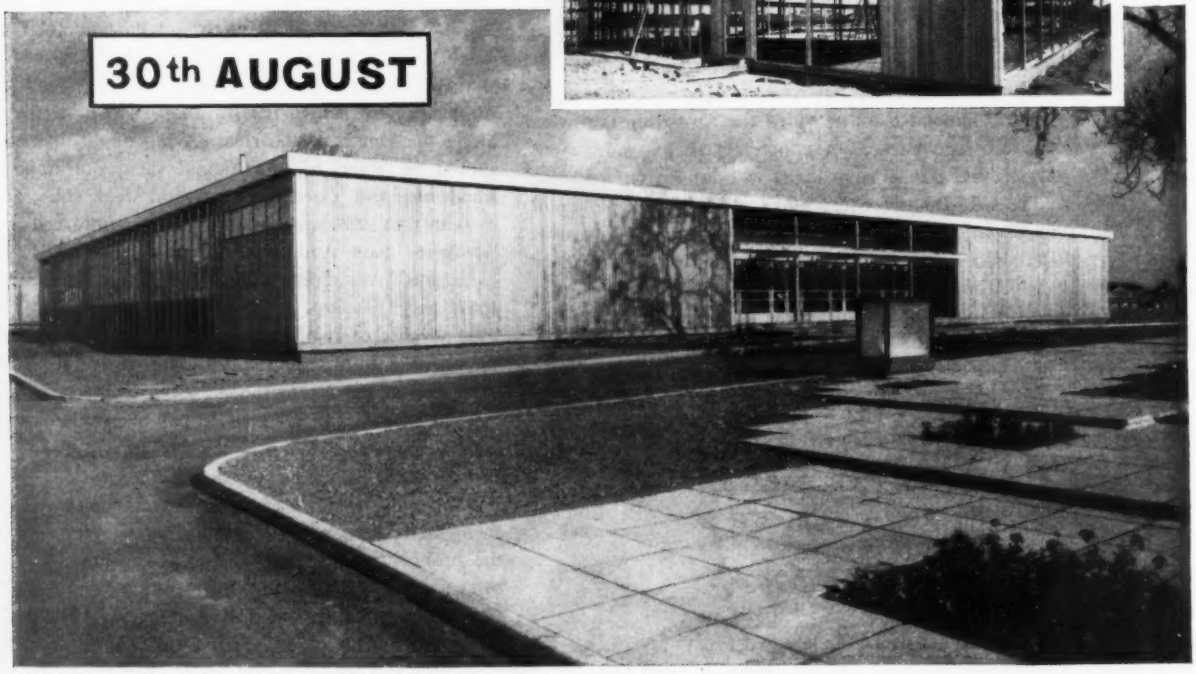
NEW OFFICE BLOCK FOR STANDARD—TRIUMPH DIRECTORS.

The contract for this new block of Directors' Offices for the Standard-Triumph Organisation, Coventry, was discussed and placed on 1st June, 1959. In the ensuing weeks Hills supplied and erected structural steelwork, roofs and eaves, glass curtain walling, timber cladding, entrance doors, windows, rooflights, double glass panels and venetian blinds, completing their part of the contract on 7th August following. The remaining suppliers finished on the 30th August.

***Another example of the way Hills System speeds occupation date.* May we send you full information?**


*Planning Eng.*, Sidney L. Elwood
*Architect in Charge*
A. G. R. Ore, Dip Arch (B'ham), A.R.I.B.A.

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P.10

technical section

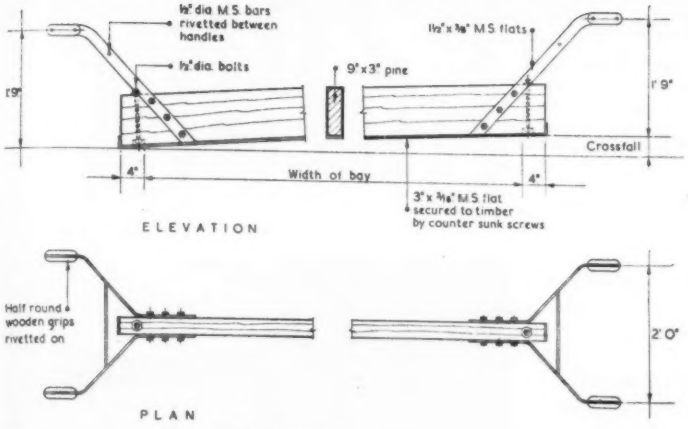



*Fig. 1. Hand tamper.*

*Fig. 2. Pneumatic tamper.*

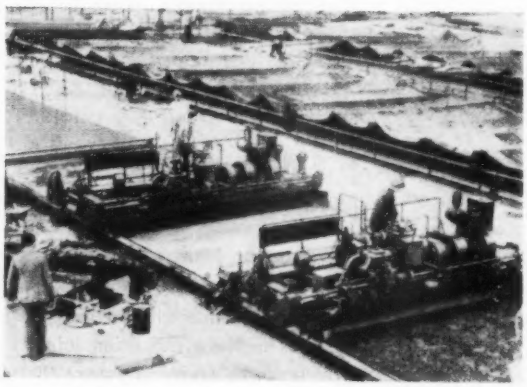


*Fig. 3. Compacting and finishing machines.*

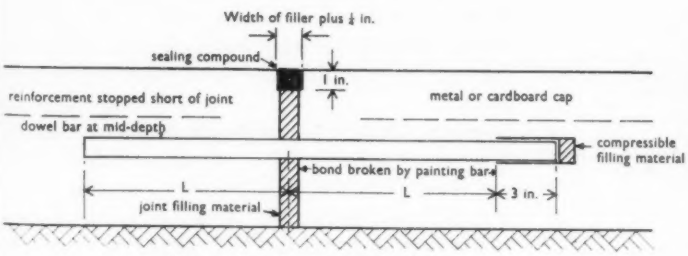



*Fig. 4. Detail of expansion joint.*

| *Thickness of slab* | *Diameter of dowel bars* | *Length of dowel bars* |
|---|---|---|
| 4 in. and 5 in. | Not recommended | |
| 6 in. and 7 in. | ¾ in. | 20 in. |
| 8 in. and 9 in. | 1 in. | 24 in. |
| 10 in. to 12 in. | 1¼ in. | 28 in. |

As always in concrete work, water content should be kept as low as workability will permit.

Forms of well-seasoned deal 1½ in. thick, or of stout metal section must be accurately aligned and securely fixed. They must be clean and oiled before placing commences.

Hand compaction may be done with a heavy iron-shod tamper, weighing not less than 7 lb./ft. run. Sixteen feet is the longest tamper two men can be expected to wield continuously throughout a day, and bay widths should be less than this. A vibrating tamper is easier to operate and gives better compaction, and the use of specialist plant permits very dry mixes with which greater strength is ultimately attained.

Finishing to give a good riding surface will usually immediately follow compaction, and will be discussed later. The period of curing will depend on water content and the weather. Precautions normal to cold weather concreting must be rigorously applied.

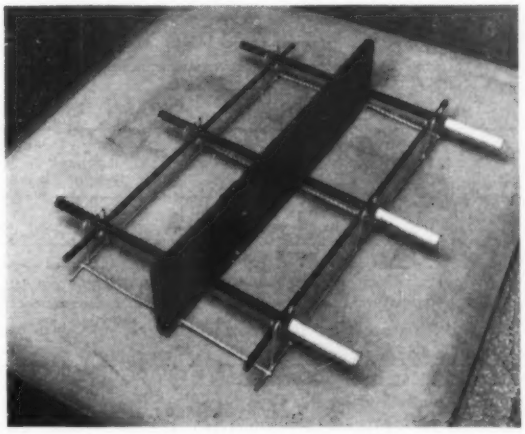
With normal Portland cement, 14 days curing should be allowed in winter, and 7 days in summer. Coloured cement may have been used in the topping, and this requires a further 7 days to cure. Three weeks to a month should elapse before traffic is permitted to use the road.

During the curing period the concrete should first be covered by hessian canvas kept constantly damp, or by waterproof paper so placed that air currents are excluded. Canvas " tents " supported on light framing may alternatively be used—especially during frosty weather. Recently, liquid curing media have been developed, and these may be sprayed on after surface water sheen has disappeared.

After initial set, the canvas or paper is replaced by 2 in.-3 in. of damp soil or sand for the remainder of the curing period. A 3 in.-4 in. straw or hay mattress is equally satisfactory, and has the added advantage of not washing away under rain. In cool weather canvas kept constantly damp or a liquid bituminous curing medium will suffice for the whole period.

Joints must be waterproof, must not induce stresses, nor impair riding qualities. Expansion joints are as in Fig. 4. In alternate bay construction, a full depth

*Fig. 5. Dowel bar expansion joint showing method of supporting the dowel bars.*



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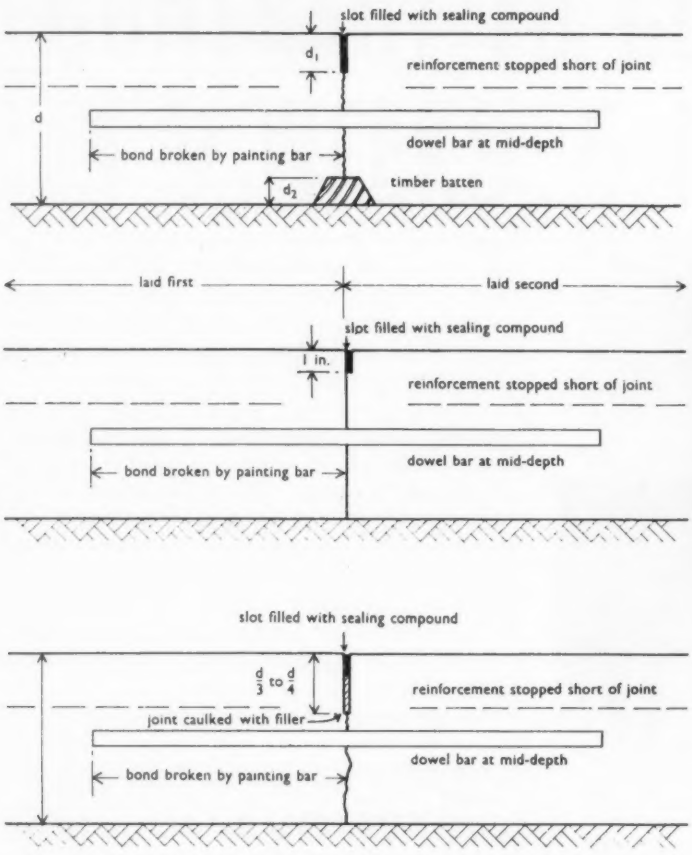



*Fig. 6. Dowelled contraction joints: top (a), usual version; below (b and c), version for use in alternative bays for small scale work or for a joint at the end of a day's work.*

$$d_1 = 1 \text{ to } 2 \text{ in. } d_1 + d_2 = \frac{d}{3} \text{ to } \frac{d}{4}$$

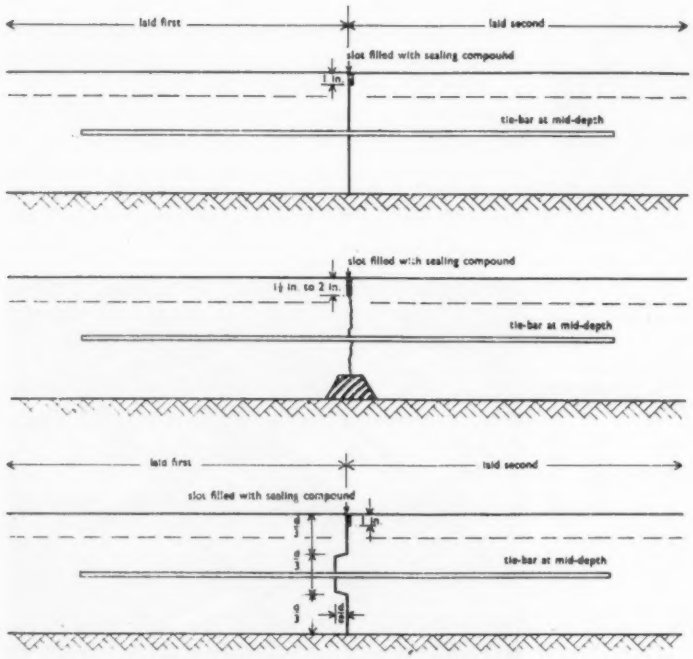



*Fig. 7. Longitudinal joints.*

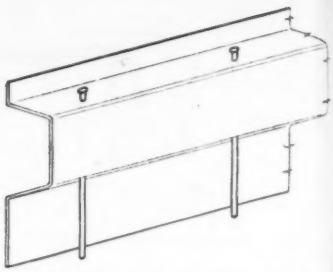


*Fig. 8. Detail of metal pressing for forming tongued and grooved joint.*

*Fig. 9. Laying Cheecol road.*

contraction joint as Fig. 6a may be used. In continuous construction, a "dummy" contraction joint as in Fig. 6b is preferred. Work should be planned to avoid the introduction of additional construction joints.

Where width exceeds 15 ft., a longitudinal joint as in Fig. 7 is required. Transverse joints on each side of a longitudinal joint should be in line, and joint intersections should never form angles less than 90 deg.

The spacing of joints should be as follows:

**Table 4**

| | | *Maximum spacing of joints (ft.)* | |
|---|---|---|---|
| *Thickness of slab not less than (in.)* | *Weight of reinforcement not less than (lb. per sq. yd.)* | *Expansion* | *Contraction or dummy* |
| 8 | 7 | 120 | None |
| 8 | Unreinforced | 120 | 15 |
| 7 | 7 | 100 | None |
| 7 | Unreinforced | 100 | 15 |
| 6 | 7 | 80 | None |
| 6 | Unreinforced | 80 | 15 |
| 5 | 5 | 60 | None |
| 4 | 5 | 40 | None |

Contraction joints will normally be spaced at regular intervals between expansion joints.

Care must be taken to ensure that dowels in expansion joints are straight and free to move. Seals must be non-extruding and waterproof. Special forms are made to facilitate construction of the tongued and grooved longitudinal joint, but with good sub-grades and light traffic this may be constructed as a straight butt.

To prevent spalling, arrises should always be rounded. Concrete roads may also be placed by methods other than those familiar in building. "Lean-mix" has already been described. The "Cheecol" process injects a cement grout onto a pre-laid aggregate. Macadamized or rolled concrete is formed in a sandwich comprising a 3-in. bottom course of 2-in. aggregate, a 2-in. layer of stiff 2:1 sand-cement mortar, and a top course similar to the bottom. The whole is rolled until mortar has worked its way evenly into the surface. Inexperienced gangs are unlikely to make a success of either of these last-named methods.

# BASA

*monthly supplement*

EDITORIAL

Up to the present, the space granted to the British Architectural Students' Association by the ARCHITECTS' JOURNAL has been used sporadically for the publication of papers by student members. The BASA executive now think that the space will be of more benefit to the Association as a whole if it is used primarily for reporting purposes. Students' papers, however, will continue to be published.

This change of emphasis from an academic to a reporting medium will alter the character of the BASA section. It will now act much more as the " glue " of the organization. This is a vital function; for all members should be informed as to the views of BASA, the activities of the executive, and about what is happening at the various schools.

The " new-styled " section will commence with an editorial. This will be followed by a report of recent happenings of interest to BASA members. Schools and students will be mentioned by name in connection with discussion groups, exhibitions, lectures, etc. And for those who want to express their opinions about student affairs or criticise BASA, there will be a correspondence column. Members of the profession as well as students are asked to contribute to this column provided the subject of the correspondence is of interest to BASA. Brief notes will also be included from BASA's present and ex-members who are working or travelling abroad. These notes should give students an idea of " job opportunities " throughout the world.

The success of the BASA issues in the AJ is now very much dependent on the close co-operation between the members of the Association and the editorial staff. *The Editors must be kept informed.* It is not enough that a school may not wish to be featured; for there is another side to that coin—other schools want to know what is going on elsewhere and this demands that all schools play their part. And since an issue will no longer have to rely solely on papers by members before it can go to press, the BASA section will appear regularly each month except during the vacations.

BASA representatives should send their news copy, preferably typed, to The BASA Editors, c/o The Building Centre, Store Street, London, W.C.1, by the tenth day of each month if they wish to have their school mentioned in the next month's issue.

## WHATS ON AT THE SCHOOLS

BARTLETT SCHOOL OF ARCHITECTURE

February 17, 5.30 p.m.
Robin Day.

BRIGHTON COLLEGE OF ARTS AND CRAFTS

February 1 to 10
New Towns Exhibition—Crawley

February 11 to 19
New Towns Exhibition—Basildon

February 18, 7 p.m.
Films: *The City, New Town* and *An Experiment in Towns*

February 22 to March 2
New Towns Exhibition—Bracknell

March 3, 7 p.m.
C. Bon—" The Development of Central Areas "

UNIVERSITY OF SHEFFIELD

February 19
Erno Goldfinger

## STUDENT'S VIEW

BASA's Bristol Conference last month went some way towards getting the Association on a new footing—a footing not just concentrated in London, but spread across the whole country. The "new-styled " AJ supplement was one means discussed and welcomed. Another was a decentralising policy to get the schools to participate actively in BASA's work. Liverpool Students' Association tell me that they have been asked to organize travelling exhibitions between the North of England Schools of Architecture. There seem to be ten schools in this group: Manchester, Sheffield, Leeds, Hull, Blackpool, Huddersfield, York, Blackburn, Hanley and Liverpool. Perhaps other small groups will start in a similar fashion, and then there may be an exchange of exhibitions not only between the schools but between the groups also. The Liverpool exhibition should be already completed by now; it summarises the recent work of the school. A " follow-up " exhibition of thesis drawings is under discussion.

I understand that there is a complete and comprehensive BASA exhibition of students' work already in circulation—the trouble is no one seems to know exactly where it is. It is rumoured that Belfast had it last. Who knows?

The Welsh School of Architecture caused some consternation and long faces (among students and members of the profession) at the Bristol Conference when Chris Mussen gave the report of the survey made by the Students' Society on architectural education. No doubt social scientists could find technical points to root out faults in what is acknowledged an amateur's valiant attempt to get a true picture of the state of the schools in the British Isles. But no one at the conference (and members came from all over the country) felt like challenging the findings of the survey. In fact one member of the profession stated that he had no doubt that the picture painted, dismal as it looked, was pretty near the truth. I understand the report is to be published in the next issue of this supplement.

With one Society lecture a week, Bartlett students may find it hard to select the best speaker of the term. They seem fairly decided, however, that the highlight of last term's lecturers was their Professor elect, Richard Llewelyn Davies, with a brilliant and stimulating talk on *Le Corbusier*.

Unlike the Bartlett, the University of Sheffield Architectural Society is pursuing a policy of having a few Society lectures in the hope that all of them will be of a high standing. Over a hundred students attended the first of last term's programme when John Reid spoke on *Light in Architecture*.

*BASA monthly supplement*

Rugby, football and an architectural exhibition thrown in for good measure brought Birmingham students up to see their Sheffield counterparts. Sheffield is most keen on this means of getting the students of the nearby schools together during the year. The combination of rugger, soccer, and an exhibition caters for all tastes.

It looks as though both Leicester and Glasgow Schools of Architecture have travelling exhibitions on the go. Perhaps they might like to let BASA have details if they are willing to have inquiries from schools who would like to benefit.

Some preparations have already been made for the Midland Architectural Students' Seven-a-Side Rugger Tournament. This is an annual meeting between Leeds, Oxford, Nottingham, Leicester, Birmingham, Liverpool, and some of the London schools. This year's tournament is at Oxford on March 9. For those who don't like rugger, but not excluding those who do, there is a dance in the evening.

The Welsh School of Architecture has just started a staff-student council with an almost equal ratio of staff to students. The students find it a useful "testing house" for new ideas and are very enthusiastic about the way in which it has already helped to bridge the gap between the students and staff. Pressure on the staff has been eased by two new arrivals, Mr. J. Thomas as a senior lecturer, and Mr. Kretchmer. Both come from Coventry where they were working on buildings for educational use. To Mr. Thomas and Mr. Kretchmer, BASA sends its congratulations.

BASA's new President, Hilary Chambers, is working hard with his executive to prepare the report on the Bristol Conference. As soon as it is ready, it will be sent out to members. A synopsis of this report appears below.

STUDENT

*Hilary Chambers, the new President of BASA.*

The conference, at the first of which BASA thoroughly discussed Architectural Education, adopted eight resolutions. The most important conclusions reached were that the lack of direction and general chaos in architectural education were the result of a lack of analytical method and a sound basis from which design could be approached. This report by Hilary Chambers, the Chairman, gives the resolutions and a summary of the findings of the discussions at the conference.

## REPORT ON THE BRISTOL CONFERENCE

Most of the delegates had arrived for the opening of the conference on Friday evening. The Secretary explained that the President, Jeremy Mackay-Lewis, was unable to be with us because of work commitments in Jamaica, and that he sent his apologies for his unavoidable absence and best wishes for the success of the conference.

The Chairman opened proceedings by explaining the resolutions proposed by the Steering Committee. The first four of these were designed to embrace all aspects of architectural education, firstly in general terms then as a creative process of analysis, synthesis and production. The last three resolutions were intended to establish a BASA policy on the Oxford Conference proposals on architectural education.

The conference then adjourned to the Royal West of England Academy School of Architecture, our hosts for the evening, where a dance and lively discussion round the bar continued into the small hours, ensuring a none too lively start on the following morning.

Saturday began with general BASA business, a summary of which will appear in our next supplement.

This was followed by the paper on Analysis given by Guy Oddie, A.R.I.B.A., the architect adviser to the University Grants Commission, and papers in the afternoon on Synthesis by Colin Wilson, A.R.I.B.A., of Cambridge University School of Architecture, and Production by Frank Jones, A.R.I.B.A., of Liverpool School of Architecture. A shortened version of all these is included in this issue.

The papers were concluded by a report produced by Cardiff School of Architecture on the present state of architectural education, based on a comprehensive questionnaire sent to all the schools. This shattered any illusion we might have had on the present calibre of students and staff, and summed up the general chaos and lack of direction in architectural education. The report will be given in full in the next issue of the BASA section in the *AJ*.

The conference then divided up into six groups to discuss the implications of the resolutions, make amendments and introduce new resolutions. When the conference met again on Sunday it voted on the resolution. The following paragraphs summarise the main conclusions and recommendations.

1. *Architectural Education*

The conference agreed that: "Architectural education should be based on a wide general education and should stimulate the student to evolve a philosophy related to a changing society and teach him to realize this philosophy in the technics of the society."

A wide general education was seen not only as a broad range of subjects at GCE level but also ideally a background of wide reading and general knowledge and social experience. Education in these terms should be encouraged to continue throughout the architectural course, for only in this way could the personality fully develop and the student achieve an understanding of fundamental human values.

The idea that architectural education should stimulate the student to evolve a personal philosophy related to society was seen as essential if the young architect was to be capable of designing with conviction and integrity. Philosophy in this sense was not a question of taste or whim, but an approach to architecture arrived at through an understanding of basic human values, of society and of the means by which this can be achieved.

Architectural education was then further discussed as a process of Analysis, Synthesis and Production.

2. *Analysis*

The conference agreed that: "Architectural schools should train students to adopt a logical method of analysis to architectural problems, this being essential to the creation of a valid architecture."

Analysis involves the review of all relevant facts and the assessment of their proper significance. It is one of the essential disciplines without which architecture will fail, yet schools approach analysis almost entirely empirically. The profession as a whole over-

looks many of the more important aspects of analysis which is one of the main causes of failure in modern architecture. The legacy of bad training has produced few architects able to tackle this problem. The conference felt that if the students could begin to understand the full implications of analysis they could make a valuable contribution in correcting this basic fault in architectural education.

There has been much talk on the importance of the analytical approach but without very much thought on how it should be put into practice. The conference in considering this made the following recommendations. 1. That the methods of analysis used in science and research generally should be examined, so as to evolve methods of analytical approach applicable to architectural problems. 2. That problems should be set in the schools which require wide reading, consultation with specialists, and research. 3. That students should be encouraged to examine and rationalise their research in written and diagrammatical analysis. 4. That students should formulate their own design programme by developing a brief given in outline only, this being an integral part of the architect's function in practice.

Another aspect of analysis which does not receive the consideration it should is sociology. The architect should use the sociologist to obtain information on the population structure when considering problems of rehousing, new shopping centres, etc., but more important, the architect should attempt to understand why people behave as they do, and what environment he must try to create in factory, home and office, appropriate to the people using them and the activities taking place therein.

3. *Synthesis*

This conference agreed that: "architectural schools should provide a training which will enable the student to gain a personal philosophy which, together with basic knowledge, experience and skills, will synthesise the results of his analytical studies into a valid architecture."

Synthesis is the ability which enables the architect to use his analysis, basic knowledge and experience and skills to create architecture. It contains within it the imaginative ability of the individual and also this idea of a personal philosophy initially touched on in resolution one, an idea which is at the centre of the creative process. Mr. Wilson in his excellent paper on the subject, showed by historical example how this was achieved by great artists of the past. He pointed out that El Greco, in discovering his personal "style" or philosophy, has taken what is important to him in the work of Titian, values of light, form, etc., and transformed them into something completely his own, destroying Titian in the process. Very little consideration to this most important aspect of architecture is given in architectural education. It is the second reason for the failure and lack of direction in modern architecture.

The following recommendations were made in trying to discover how this might be put right. 1. That the ideas behind architectural movements in general and the modern movement in particular and their present day relevance should be stressed in the schools. Only by understanding the ideas behind architectural movements in the context of their times, can the student begin to recognise which are of importance to him. It is by working through these ideas, together with a deep understanding of human values and society generally, that will enable the student to arrive at a personal philosophy. 2. That schools should encourage explanation, discussion and criticism, both informally and in student societies, and especially in the marking and criticism of design projects. Too often the student takes a passive part when his schemes are marked and criticised; there is little encouragement to discuss and explain his scheme, yet this is of vital importance if he is to clarify his ideas.

The question then arose: which skills are required by synthesis? A training in colour, art, sculpture, the appreciation of structure and materials, actual building of work designed, a critical awareness of one's surroundings both socially and architecturally, amongst others, were considered essential in this.

4. *Production*

The conference agreed that: "architectural schools should provide an education which, when supplemented by experience, will enable the young architect to realise his ideas in practice."

The following recommendations arose when discussing how far production should be tackled in architectural education:

1. That the student should be equipped with an overall knowledge of architectural practice and the building industry, in principle rather than in detail. To understand a subject in principle will enable the student to understand and solve related problems. If this were fully understood and applied in the schools a great deal of dead wood would be cut out of the syllabus. Too much time is wasted on detail which has only limited application.

2. That he should be given constant and expert advice and co-operation on structural and technical matters, upon which he will constantly rely when he enters practice.

3. That he should be encouraged to increase his organizing ability by participation in group schemes within the school curriculum, and by taking on responsibilities in societies, etc., so that he will be more capable of leading the building team. An ability to organize is essential if the architect is going to build with any competence, and yet it is hardly considered in the schools.

4. That he should be encouraged to take an active part in spheres of interest outside his own training. This not only has importance in developing organizing ability but also the personality. It may well lead to a circle of friends which will enable the architect to establish himself in practice.

5. That he should be kept constantly in touch with the actual production of buildings by site visits and talks by practising architects.

5. *Oxford Conference Recommendations*

The conference agreed that: "The standard of entry to the profession should be raised to the General Certificate of Education in 5 subjects, 2 being at Advanced level."

After considerable controversy it was felt that this was necessary to improve our standards, and also to deter those not suited to, or capable of handling the increasing responsibilities of the profession. Some concern was felt that scholastic ability is not necessarily related to architectural ability, and that anyone in this category should be catered for in pre-architectural school courses, or possibly by a special RIBA examination where any outstanding ability would become evident. Opinion was expressed that the new level of entry had still not the right depth of background for those entering the profession. By equalising our standard of entry with other professions we are competing for talent; this should be borne in mind and efforts made to attract school leavers of the right calibre.

6. *Technical Assistants*

The conference agreed that: "The Oxford Conference proposals for the establishment of an approved form of training for technicians should be rejected on the grounds that it simply recognizes an existing situation but does not examine whether this situation is desirable in the present or likely to continue in the future."

The Oxford Conference findings and recommendations on the question of technical assistants were rejected. Although the technical assistant does exist, it was felt that it was wrong to rationalize an existing situation without thorough analysis beforehand. There also seemed to be a contradiction between the preliminary inquiry into the work that these assistants do, very much routine work, and the recommended highly trained technicians. The technicians would be reluctant to do these jobs, when their skills could be used to much greater advantage elsewhere in the building industry. This technician does already exist in the building industry, trained more or less on the lines suggested; it would seem a rearguard action to propose this new man as the architect's "servant" at a time when

the architect is slowly achieving a working relationship with this highly trained person.

*7. Research*

The conference agreed that: "there is a deplorable lack of facilities for architectural research and therefore wholeheartedly endorse the Oxford Conference's condemnation of this situation, strongly recommending that the problems be given urgent consideration."

This resolution was recognized as one of the basic means by which the standard of architecture and architectural education could be raised.

*8. The Next Conference*

The conference agreed that:

"(i) There is a deplorable lack of alignment between architecture, the architect and architectural education in contemporary society.

"(ii) That a research group should be established to analyse the essence of the necessary co-ordination between the three, and to suggest how it can be established, with particular reference to its implications in architectural education."

This resolution was introduced during the course of the conference because it was felt that we must clarify the position more fully and in this way arrive at a more accurate picture of the scope and balance of architectural education. A BASA research group, and we hope other full-time research groups, established to do this would form the basis for the next conference, when architectural education will be examined in greater detail, and when questions of content and balance, of syllabus, teaching methods, examination and marking systems, etc., will be tackled.

A report of a paper given by Guy Oddie, B.Arch., A.R.I.B.A., Architectural Adviser to the University Grants Committee.

## ANALYSIS

"Analysis," said Mr. Oddie, "involves the review of all relevant facts and the assessment of their proper significance. Current architectural education ignores some facts of vital relevance, and thus handicaps the student in cultivating the judgment which balanced assessment requires. These factors are omitted, partly because of difficulties inherent in present teaching methods, but also because they are overlooked by the profession as a whole." Mr. Oddie went on to say that although there is much wrong with architectural education, it compares well with the educational systems within other professions. He granted that judgment, a factor of the greatest importance, was difficult to teach; but he emphasized the need for training students to focus their attention on all the facts relevant to a subject under consideration so as to appraise it adequately.

Four relevant facts were receiving insufficient emphasis in the education of architects. Firstly, politics and pressure of public opinion. The tremendous inertia in public opinion as to the merits and demerits of good architecture is not taken sufficiently into account; nor do we, the profession, face up to the fact that in this context, as in most, money talks loudest. Finance was mentioned as the next factor—from where does the money come? Two thousand million pounds is invested annually in building contracts, but the profession is seemingly unconcerned by the scale of this sum and about those who contribute it. Following on this is cost—namely, where does the money go? Costing is certainly not taught enough in the schools; nor is the fact that time in design and construction is a vital consideration in cost computation; and that availability and organization of skill and materials play their considerable part also. Finally, a building has more than just visual values: it requires standards of heating, lighting, finishes, and so forth, none of which can be adequately shown on the student's drawings. As the educational system works at present, the end-product of the student's work is little more than his drawings.

Mr. Oddie then examined the consequences of ignoring these important relevant facts. Architects, he thought, trained in this way at first led their imaginative life in an unreal world; but later found they had to earn their bread and butter in a less perfect and very real one which they therefore tended to regard as sordid, and less than they deserved. Further, there is the risk that this type of "artist" becomes so frustrated as to return to school life as a teacher to help produce more teachers. To make matters worse, the mid-nineteenth century break between architect and engineer has caused the former to develop a reliance on the glossy magazines for ideas together with the backing of certain key books as a more stable influence.

Society cannot be too much to blame for regarding the architect as a dispensable luxury. He is accepted as an expert in matters of appearance *only*—and only in cases when appearance is of paramount importance is the architect thought to be worth the risk and expense. It is no wonder that the architects of the present very rarely rise to the seats of power. Mr. Oddie asked the conference to consider the Renaissance masters, some of whom were engineers and soldiers, as well as architects; and who sometimes even received ambassadorial assignments. But how many architects have been on Royal Commissions recently, for instance?

The reason for the absence of the architect in public life, thought Mr. Oddie, was that architectural education tended to ignore those techniques conducive to dispassionate thinking and shrewd judgment. The excessive emphasis given to the drawing as the end-product of the student's work did not necessarily develop these qualities. The judgment of almost all architects seems to be purely in visual terms; and the values inherent in these judgments were much dependent on the current glossy magazines.

To remedy this, dispassionate thinking and shrewd judgment could be encouraged by courses such as Greats, PPE, and to a lesser extent science. But first and foremost there is the need for first-class brains. Such a combination of faculty and training can produce decision-makers on whose judgment governments can rely. Unfortunately, the architectural profession attracts few first-class brains, some second-class, while the rest probably fall into the third category. This could be because dispassionate judgment is at odds with creativity—but of the two, creativity is regarded as all important. There is by no means any certainty that first-class brains are needed to produce good design (Mr. Oddie here commented on a BASA resolution clause expressing concern that the RIBA Oxford Committee recommendation to upgrade school entrance requirements might exclude the exceptionally talented designer unless some "loophole" examination was provided).

How to organize architectural education to cope with its defects is no easy task. The curriculum in schools has over the years "growed like Topsy." Some courses like Building Science and Acoustics, recently added in many schools, should remain; other redundant courses could be partially replaced by subjects like Cost Control and Management. More attention could be paid to developing the basic disciplines of reading, writing and arithmetic—writing, especially, to exercise the ability of organizing one's thoughts. Generally, a reduction of exploratory craftsmanship techniques would be beneficial if replaced in a corresponding measure by academic techniques. It should be realized that genius is a rarity and not an expectation.

Mr. Oddie finally reminded the conference of the clash he mentioned previously between creativity and dispassionate assessment. The profession has a need to realize that it must come to terms with life as it is—that it must get on with the job at hand as best it can; and only then see what can be done about changing society. Too many tried to reverse this sequence. The profession

should see itself as part of the building industry; and that even in the design stages of a project building production involves a team of talents.

Genius, concluded Mr. Oddie, will emerge anyway.

During the subsequent discussion, Kenneth J. Campbell, A.R.I.B.A., pointed out how extraordinarily complex was the problem which Mr. Oddie had set before the conference in his paper. The architect was like a man with one foot on a moving boat and the other on the river bank. He was torn between the interests of the profession and those of the business man. This was not a problem to be taken lightly; nor should we be despondent about it. However the situation was not eased by the way architectural boundaries have been swept away only to be replaced by an obsession for originality. " Originality now bombardates in a vacuum " commented Mr. Campbell. It rushes up and down a cul-de-sac without any tendency to develop a vernacular. We cannot design in a void. In fact, the stronger the limitations, the greater the challenge to originality. The formulation of some sort of discipline is indispensable. The Gothic and Renaissance periods had their canons, but this is not the case today.

Two approaches might well be followed to give the student a discipline—the discipline of contemporary methods of construction, which would require a thorough understanding of skill and materials; and the discipline of logical thought. There is definitely insufficient logical thought in architects' offices, and likewise probably in the schools also.

A paper by Colin St. John Wilson, architect and assistant lecturer at the Cambridge University School of Architecture.

## SYNTHESIS

"So far as architectural ideas go, we live today in a chaos of unverified quotations, distorted dogmas, misapplied slogans, and mere notions offered as principles." JOHN SUMMERSON.

1. *The understanding of design process*

I want to start by introducing some definitions of the effective action of logic as an agent of design.

*Analysis* is the operation of breaking down information into its simplest working elements.

Its procedure is logical, clarifying requirements and testing proposals.

It has the neutrality of a tool.

*Synthesis* is the opposite mode: it is the building-up of separate elements into a connected whole. It is a process of invention.

Now there is no such thing as a logic of invention. But it does not follow that the products of invention contradict logic: to explain this we might use a model derived from scientific procedure that may clarify the nature of invention.

All laboratory experiment is dependent upon the use of hypothesis: equipment is set up to test the validity of propositions invented. The hypothesis however must stand or fall by the verdict of the experiment (analysis). It follows therefore that successful products of this kind of invention are not illogical though their construction was not achieved by the mechanism of logical deduction. It also follows that although the hypothesis " works " (*i.e.* meets all the requirements of the case) it may not necessarily be the only solution capable of doing this.

At this point the analogy breaks down as a model of architectural method because where the scientist will normally press for the *unique* solution in terms of rigorous conceptual economy no architect can write QED on his building.

In so far as this model determines the roles of hypothesis and analysis in invention it extends a little further the area of intelligible discussion between teacher and student. For instance the claim of Naive Functionalism to work solely by analysis and deduction can always be shown in practice to contain indeterminate relations: and disproof at this level releases one from a whole chain of false inferences on stylistic and moral issues. Similarly the claim to pure invention can be shown to cut itself off from its proper historical sources of action within the programme by refusing to submit to the test of verification: hypothesis without verification = fantasy.

Here the argument becomes more complex because realistic criticism today would reject as impossible the total exclusion of fantasy. On the contrary some element of fantasy acts at the root of all hypothesis. This is where the teaching of design too easily takes off into whimsical " play " or becomes bogged down in dogmatic recipes. Somehow one has to devise a course the development of which is reasonably open to positive observation, discussion and judgment. One way that this can be done is to conceive the aim of architectural design in terms of Organisation. Within specific limits of cost, technology, life-expectation, and environment the designer is required to understand and interpret somebody else's requirements (probably ill-defined): he then has to invent an appropriate pattern of organisation to fulfil those requirements to the maximum. Physical science builds up its picture in terms of pattern relevant to a given field. I take it that these terms allow for a reasoned consideration of all those aspects that for discussion and teaching purposes we have momentarily to separate out, namely, spatial distribution, circulation system, service canalisations, structure, plastic system, etc.: and that " pattern " in particular will be understood to demand the thematic correlation of these. Personally I would introduce some such value as Economy (maximum effect/minimum means) as a grid of value in criticising such pattern. A building will then be judged as presenting an argument about the given requirements with its own law of continuity and it will convince or not by its degree of economy, vigour, clarity and self-consistence.

Of course the contentious term is " plastic system " with its hidden connotations of style, A Style, " styling," anti-style. Effectively style makes the " argument " rigorous where the functions are indeterminate. In the appreciation of this I merely want to make, by a roundabout analogy one unpopular suggestion. Architectural education is much like the training of a jungle fighter. He is trained so that ultimately he can act in a completely self-reliant way under entirely unprecedented circumstances and with a speed that can be taken for " intuition." But in his course of training he will do strange exercises like skipping or shadow-boxing. If for shadow-boxing you substitute the work of a Master, I think that the analogies of coordination of movement and speeding-up of reaction have their counterpart in what " rubs off " in the process of re-enacting a Master's method. Hypocritically done this is mere cribbing. Refusal to take the plunge usually results in a sort of sleep-walk (over the magazines) in which the cliches come up and hit you from behind. Even for genius it seems you can't go round: you have to go through.

2. *The understanding of Modern Theory*

Techniques for the study of theory require reconsideration. The formal lecture-with-bibliography does not sufficiently involve the student. The system of tutorial classes centring upon the reading and discussion of essays is one model: the seminar system by which a larger class carries out a more extended analysis of a given theme permits a deeper penetration of the subject.

The disbanding of CIAM is a clear acknowledgment of the present disruption in theory. After a hundred years of Salvationist propaganda it was announced in 1951 that " the Modern Movement has won the day in England." The announcement has met with violent disagreement. To assess the true position it is necessary to handle one's sources of reference with extreme care for one is dealing not with history but with varieties of propaganda. *Space, Time and Architecture*, for instance, is

brilliant special pleading by the secretary of CIAM. And in reaction against this we now have propaganda turning in on itself, a MacCarthy witchhunt of red herrings and rigged retrials by a school of journalism that seemed often unable to distinguish between a bandwaggon for the fifties and a ghost train from the twenties. The picture of this situation is clearly drawn in my quotation from Sir John Summerson, and it seems clear that some reliable inventory and exposition of the facts and documents of the case is the minimum basis on which rethinking can start. Concepts that we take for granted confront each other in a stalemate of hidden contradictions.

One example: the kinds of propaganda to which I have referred all stem from the current modern theory which lies deeper than all questions of style, namely the Ideology of Utopia. A movement of radical protest, drawing strength from the Rationalist assumptions of the French Revolutionary thinkers, proposing the role of the architect as "philosopher in action" and transforming the built world to the unquestioned betterment of all, it contains an historical determinism based on the formula "Rationalism = Freedom." These ideas can be shown to have a strict historical provenance and this itself should be made clear to the student. But it can also be shown that the more popular slogans of propaganda although they derive largely from the same root include ingredients from eighteenth century empirical and picturesque theory and romance. The result is an extraordinary litany of "Promises-to-be-True": Truth to the Nature of Materials, to the Spirit of the Age, to Function, to Technological Advance, to the Good Society (1st and 2nd Industrial), to the Plan, to Economy, to Mass-Production, to Hygiene, to the Nature of the Site, and so on. It must be extremely embarrassing for students to be committed blindfold to a Hippocratic oath of such dubeity. For although cumulatively the contradictions incurred are monstrous their partial terms have become insinuated into our very language. I suggest that some such technique as the linguistic analysis of the philosophers be prescribed as therapy.

But although some good art-history would clear our vision ultimately we have to press for a convincing redefinition of the root term Rationalism. The equation Rationalism = Freedom is heavily discredited today: but architects simply cannot continue to live off a dwindling credit in public credulity. I am convinced that to detach our architecture altogether from its matrix in rationalism is to de-nature it and to split it cleanly into two components, on the one hand a branch of the packing-case industry, on the other a playground for fairies. Twenty years ago Aalto pleaded that "it is not the rationalisation itself that is wrong in the first period of Modern Architecture . . . (it is that) it has not gone deep enough." The re-definition of Rational architecture could begin in and around the schools. "Words are for those with promises to keep."

Résumé of an address given by Francis M. Jones, Lecturer at Liverpool School of Architecture.

## PRODUCTION

The training of the architect envisages a period of work in an architect's office in order that practical experience will demonstrate the reality of the matters dealt with in the theoretical teaching in the school. In some degree this reflects the general position of experience in the training of other professions but with significant differences. In other fields it is accepted, either that training will be theoretical and experience a matter of post-graduate development or that during training some of the teaching will occur under the direction of a practitioner in the subject of study. In this latter case the teaching is programmed to cover specific fields.

In architecture the position is different in that the tradition of the Articled Pupil persists and the student is expected to make the most of his opportunities as a subordinate draughtsman. The situation is understandable and arises from the dominance in architectural thinking of the precepts of the "arts and crafts" movement which has tended to set architecture aside from the academic tradition of the other professions. In many offices serious efforts are made to do more than this, but they do not alter the overall picture.

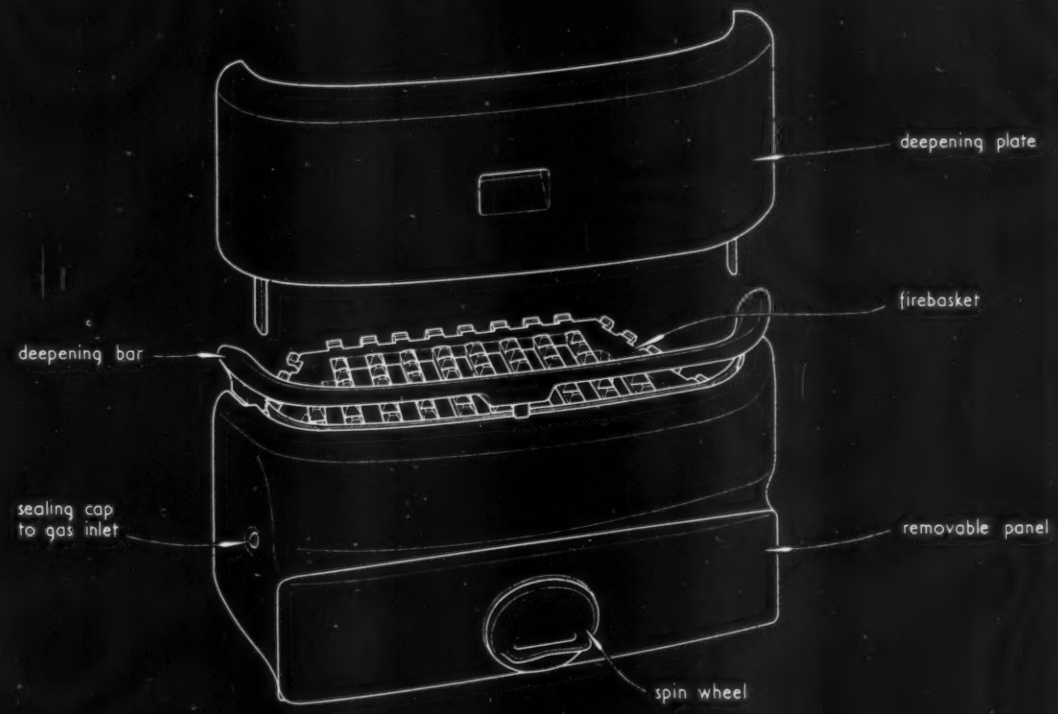
The system does not wholly succeed owing on the one hand to the variety of size and function in architect's offices and on the other to too narrow a view of the field which such experience is intended to illuminate. In an architect's office experience may be found of the organisational problems of communication but to see in action the organisational problems of building it is necessary to work in the builder's site office. The attitude that a student will gain this by working as a tradesman's labourer misses the point of the organisational lessons to be learnt. This is understandable as the significance of production methods as a factor in design is only now being appreciated and that, only to the extent that we realise the fact of its existence. The study of this field is in the earliest stages.

Consideration of the aesthetic influences of production, technique and organisation indicates that the weaknesses of the profession lie not in the lack of practical men but of theorists who can illuminate the lessons of practice and formulate those general universal principles which can lead to active unified developments in the thinking and actions of the profession. To realise that the problem of design will involve an understanding of the influences exerted by such things as the capacity of men to lift loads as against the capacity of machines to lift loads, the organisation of labour into trades or the nature and capacity of transport, must mean an appreciation of the need for research into the historical experience of the architect as an agent of production.

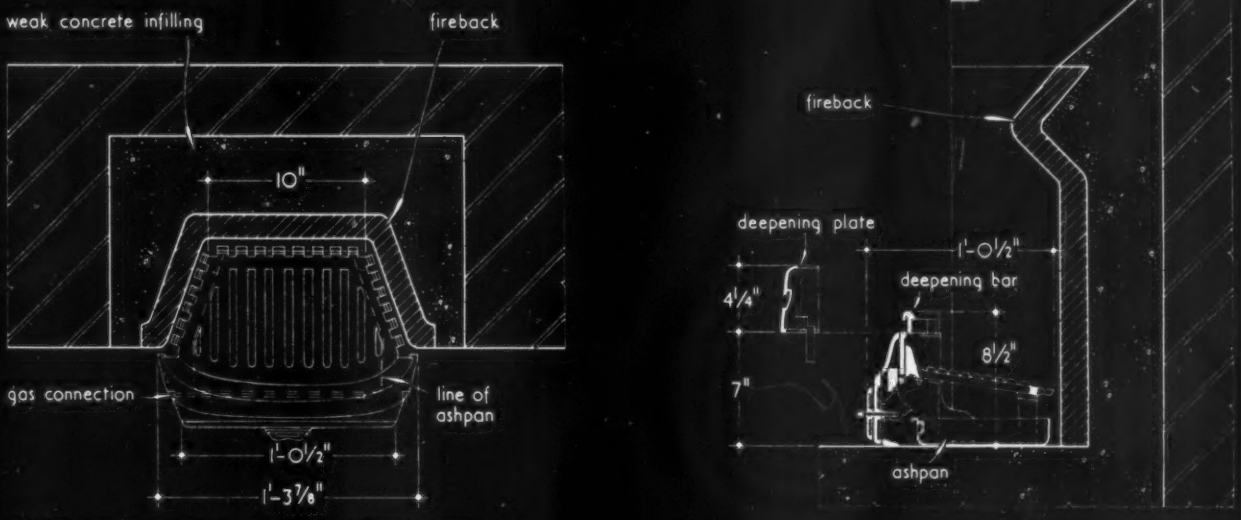
One cannot separate the economic and aesthetic factors of any influence in life and one cannot appreciate the point of economic factors unless they are also seen as aesthetic factors. In this issue of the importance of production methods it is of interest to consider that while much attention is paid to the theories of proportion of such architects as Palladio one never sees stressed that such theories always seem to have come to the forefront of thinking in periods of technological stability. The work of my colleage Dr. B. G. Morgan on the mediaeval master masons in which he demonstrates how a tool of production in the form of the mason's square could control the proportional relationships of mediaval buildings, is of direct significance to-day, when, in a period of technical instability, the attention of those architects interested in modular control of dimension seems to be concentrated on number problems of a Palladian character, rather than on the problems of production and their influence on sizing and proportion.

Considerations of this nature suggest that two periods of study one in each form of experience would be useful and it may be that the end of Third Year for site practice and Fourth Year for experience of an Architect's Office would be the best distribution. The student should be placed in the type of organisation necessary for the advancement of his individual training and should enter an office as personal assistant to an executive.

At this point in history the need for thorough, painstaking and wide research into all fields within or connected with the Arts and Sciences of Architecture must be continually stressed. To establish, maintain and improve standards of scholarship within the profession as a means to the improvement of practice must be the aim of all architects. Practice and theory are two sides of the same penny, not disparate and antithetical entities.




● PERSPECTIVE SKETCH OF FIRE.




PLAN AND SECTION OF TYPICAL INSTALLATION.

·A.B.M. ZONAL· FIRE. Manufacturer: Associated Builders Merchants Limited

# 29.B2. ·A.B.M. ZONAL· FIRE

**This Sheet** describes the Zonal fire which can be adapted for overnight burning. The fire is designed to fit a 16-in. Milner fireback but can be modified for fixing in a slightly narrower opening. The fire conforms to B.S. 2845: 1957 and bears the B.S. "kite mark" under licence no. 2924. It is recommended by the Coal Utilisation Council for rooms of 1,750 cu. ft. and by the Ministry of Power for local authority housing; it is approved by the Gas Council.

### Construction

The fire basket, front, deepening bar and plate are in cast iron. The deepening bar, which is supplied as standard for intermittent burning, lifts out and is replaced when required by the deepening plate which is supplied as an extra for overnight burning. The removable panel at the bottom of the front gives access to the ashpan and regulates the air supply to the fire by means of ratchets at the side.

*Gas ignition:* The fire is provided with a reversible fitting for gas ignition and a hole for the gas connection, sealed with an aluminium cap, is provided at each side. The fire can be supplied if required without the gas ignition fitting, but it does not in this case conform to B.S. 2845.

*Accessories:* A heavy gauge sheet steel ashpan and a cast iron tool for removing the pan, adjusting the air control and lifting the deepening bar and plate are supplied with the fire.

### Sizes

The fire is 1 ft. $3\frac{7}{8}$ in. wide overall at the front and 10 in. at the back. The overall depth of the fire is 1 ft. $0\frac{1}{2}$ in. and by removing the notched projections at the sides and back, the size of the grate can be slightly reduced.

The overall height of the fire is $8\frac{1}{2}$ in. with the deepening bar in position and $11\frac{1}{4}$ in. with the deepening plate.

### Air Control

The removable panel at the bottom of the front of the fire is adjustable to four positions, fully open for drawing up the fire, two intermediate positions and fully closed, further fine adjustment being effected by the spin-wheel.

### Recommended Fuel

Bituminous coal, anthracite or any smokeless fuel is suitable for use in the Zonal fire. Where coke is used it should be domestic open fire No. 2 grade, 1 to 2 in. in size.

### Fixing

The complete unit should be placed in the fire opening with the rear edge of front in contact with the end of the firecheeks. There should be a clearance of approximately $\frac{1}{4}$ in. between the back and sides of the fire basket and the fire back. The fire basket is removed and the positions of the fixing holes in the fire front marked on the hearth, which is then drilled and plugged to take $1\frac{3}{4}$ in. No. 12 wood screws. Before the fire front is fixed, the strip on the underside which makes contact with the hearth should be coated with fireclay as should also the back edges which meet the fire-cheeks.

The fire is fitted and pressed firmly into place, the screws with washers inserted through the fixing lugs and any surplus fireclay removed from under the removable panel. The gas connection can be reversed by releasing the central screw holding the burner in place. The gas connection may be concealed or may enter from either side, in which case the appropriate sealing cap must be removed from the side hole. Where the connection is concealed, care must be taken to ensure that it does not foul the ratchets of the air control of the ashpan.

The drawings on the lower face of the Sheet show a typical installation using a 16-in. Milner fireback.

### Finish

The fire is vitreous-enamelled in cream, black, copper lustre or pewter lustre. The deepening bar and plate are in fine cast and blacked finish.

*Compiled from information supplied by:*

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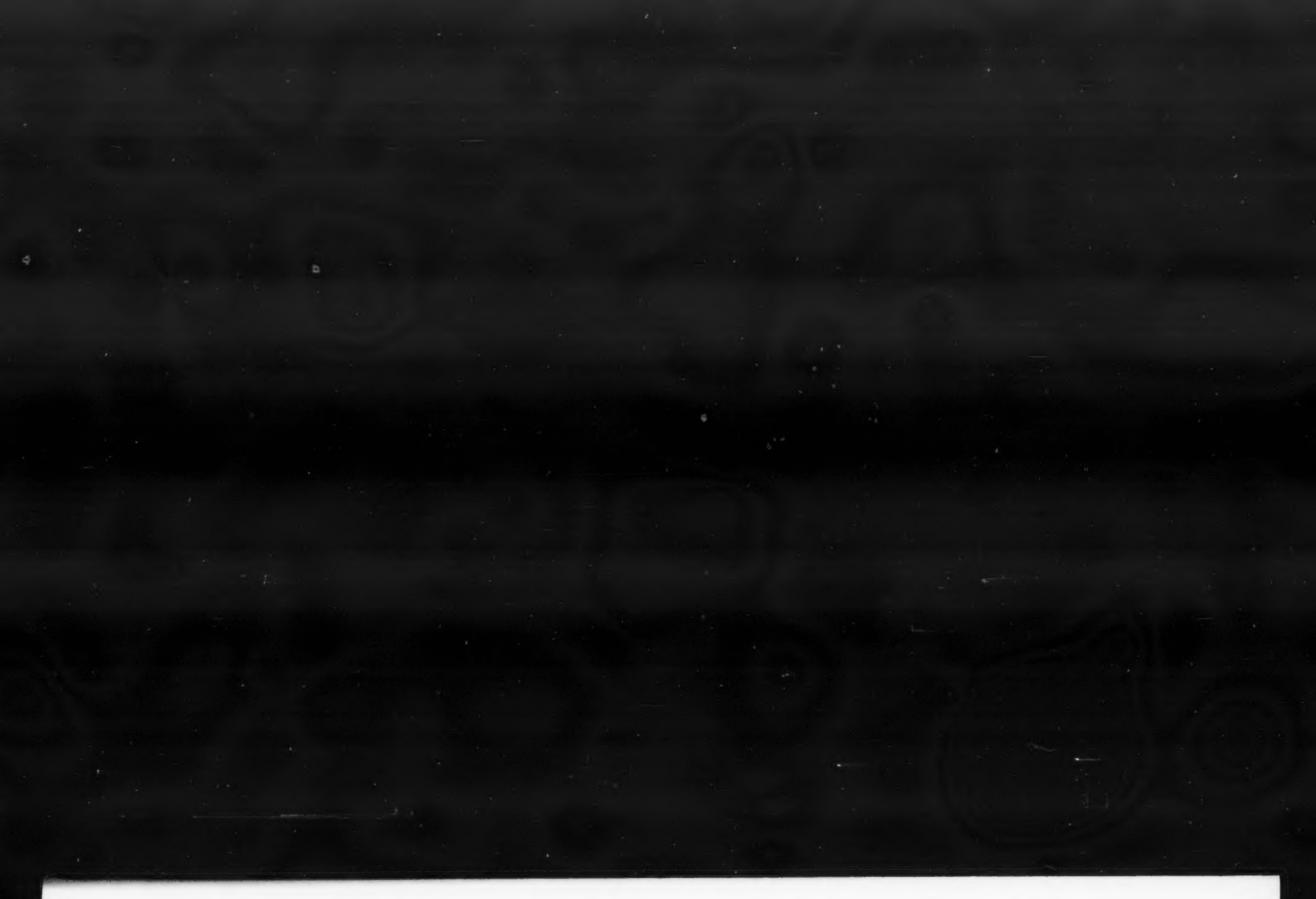

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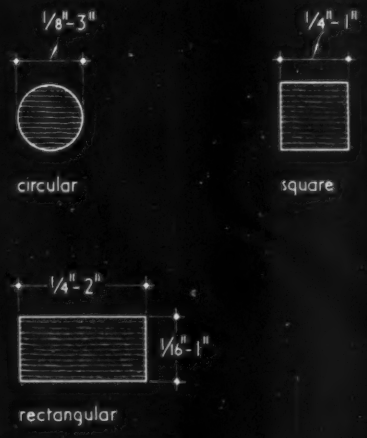
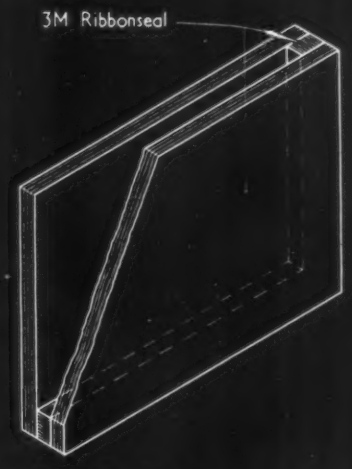
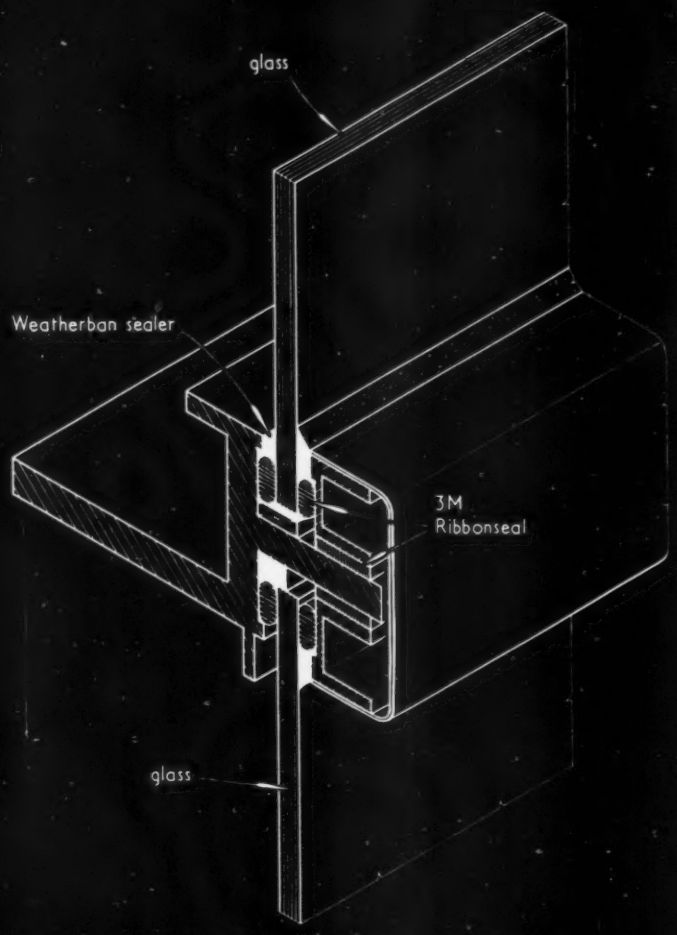


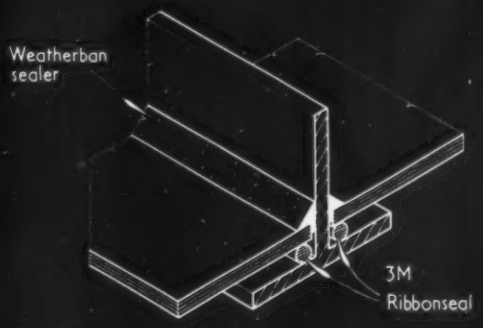

RANGE OF PREFORMED JOINT SEALING STRIPS.



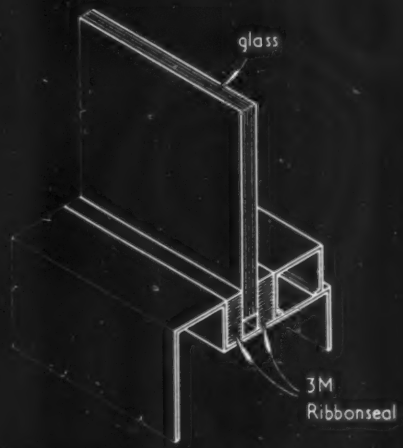

double glazing unit




TYPICAL APPLICATION OF SEALERS TO CURTAIN WALL.




roof glazing




double seal ( suitable where held under compression and tolerances can be closely controlled )

APPLICATION OF SEALER.

**3M BRAND RIBBONSEAL PREFORMED JOINT SEALING STRIP.**

Manufacturer: Minnesota Mining and Manufacturing Company Limited.

# 26.M5 · 3M BRAND RIBBONSEAL · PREFORMED JOINT SEALING STRIP.

**This Sheet** describes Ribbonseal, a synthetic rubber sealer which provides an effective and durable waterproof seal in joints where tolerances can be closely controlled. It is available in preformed sections in a wide range of sizes. No special equipment is required for its application and little or no cleaning up is necessary. The sealer can be painted immediately if required.

### Properties

Ribbonseal adheres under light pressure to clean, dry surfaces such as glass, wood, metal, stone, including marble, and other building materials. It is non-inflammable and non-toxic. It is resistant to fungi as has been demonstrated by the complete absence of growth of common air-borne moulds in optimum conditions while some sealers of similar type tend to support heavy to moderate growths even in normal temperature and humidity conditions. As it is 100 per cent solids, it does not present shrinkage problems. It does not contain ingredients that will craze plastic surfaces and can be used where a light-coloured flexible sealer is required.

The sealer has good resistance to sunlight, ultra violet light, ozone, salt spray, moisture and extreme climatic conditions. In service it will withstand temperatures between −40° F and 275° F, although tests have shown that $\frac{1}{16}$-in. beads of the material do not become brittle at −60° F and will withstand temperatures up to 350° F for short periods. The sealer is not intended to resist exposure to the action of solvents, but where resistance to solvents, oils, etc., is required, 3M Sealer EC1126 should be specified.

### Sizes

The drawings on the upper left face of the Sheet show the range of sizes in which Ribbonseal is obtainable: not all die sizes are available from stock, but can be manufactured as required for a minimum quantity of 5,000 linear feet. For special shapes, e.g., T sections, the manufacturer should be consulted.

The material is supplied either in 30-in. lengths in standard cartons, the quantity in a carton varying with the size of the strip, or in continuous lengths on reels, the quantity again depending on the size. A list of standard sizes available from stock with prices and quantities per carton or reel is available from the manufacturer.

### Uses

*Ribbonseal used alone* provides an effective weather-tight seal where it can be held in compression and where joint tolerances are closely controlled. It is mainly for use as a glazing or spacer seal, for example, between glass and rebate in glazing, between infill panels in metal assemblies and as a seal in double glazing units. It should not, however, be used on its own where the joint is subject to great dimensional changes due to differential movement, as in curtain walling. When used as a glazing seal, the resilience of Ribbonseal allows it to absorb the compression force of normal wind loading, yet to recover when the force is removed (see *Wind loading tests*).

*Ribbonseal used with Weatherban sealer:* Where Ribbonseal cannot be held under compression and tolerances closely controlled, Weatherban should be used, particularly where movement is excessive. Weatherban, which is fully described on Sheet 26.M4, is a two-part joint sealer which, after the addition of an accelerator, can be run into the joint with a caulking gun to take up any difference in fabrication and erection tolerances. Weatherban cures in situ to provide an effective and permanent weatherproof seal. Ribbonseal can be used as a gasket or spacer to position glass or panels in the frame while the Weatherban is applied and also reduces the amount of Weatherban required where joints are large. Sheet 26.M4 shows the use of Weatherban for curtain walls and expansion joints where movement is excessive.

### Wind Loading Tests

Laboratory tests revealed that $\frac{1}{8}$-in. Ribbonseal can absorb 2·5 lb./sq. in. under compression for 24 hours (about 2 per cent compression) yet recover completely in an additional 24 hours. This is equivalent to the force of a 70 m.p.h. wind on a 2 ft. 0 in. by 4 ft. 0 in. window. The higher the building and the larger the window area, the greater will be the wind loading with a corresponding increase in the compressive force on the sealer. Where the compressive force exceeds 2·5 lb./sq. in., it is necessary to use Neoprene buttons or strips (50 durometer). To decide whether supplementary Neoprene buttons are necessary, the following formula may be used to determine the force exerted on the Ribbonseal:

$$\frac{\text{Compressive force}}{\text{Area in sq. in. of Ribbonseal}} = \frac{L}{P \times W}$$

where L = total wind load on window (lb.), P = window perimeter (in.) and W = width of Ribbonseal (in.).

The following figures are extracted from a table in B.S. Code of Practice CP3 Chapter V (1952) as a guide to the worked example.

| Effective height of building (ft.) | Basic wind pressure $p$ (lb./sq. ft.) | | | |
|---|---|---|---|---|
| | Exposure A (V = 45 m.p.h.) | Exposure B (V = 54 m.p.h.) | Exposure C (V = 63 m.p.h.) | Exposure D (V = 72 m.p.h.) |
| Up to 10 | 4 | 6 | 8 | 10 |
| 40 | 6 | 9 | 12 | 16 |
| 80 | 9 | 12 | 17 | 22 |
| 120 | 10 | 14 | 19 | 25 |
| 160 | 11 | 16 | 22 | 28 |
| 200 or more | 12 | 17 | 24 | 31 |

*Example:* A window 2 ft. 0 in. by 4 ft. 0 in., exposure rating C (see table above) at an effective height of 160 ft. will be subject to:

Force of total wind = window area (8 sq. ft) × wind load (22 lb./sq. ft.) = 176 lb. total wind load.

$$\frac{\text{176 lb. total wind load}}{\text{144 in. (perimeter)} \times \frac{1}{2} \text{ in. (Ribbonseal)}} = 2{\cdot}44 \text{ lb./sq. in.}$$

### Application

The sealer is ready for immediate use after removal from the protective liner: care must be taken, however, not to allow it to become dusty or damp once it has been removed from the carton or reel.

Surfaces to which the sealer is to be applied must be clean, dry and free from oil and grease. Concrete and asbestos surfaces should be primed with 3M Primer U.K. 3456. Ribbonseal has sufficient tackiness to stay where it is placed, whether in vertical or horizontal positions, but can easily be re-aligned if required. Joints in Ribbonseal are easily made by overlapping the ends slightly and pressing together.

*Compiled from information supplied by:*

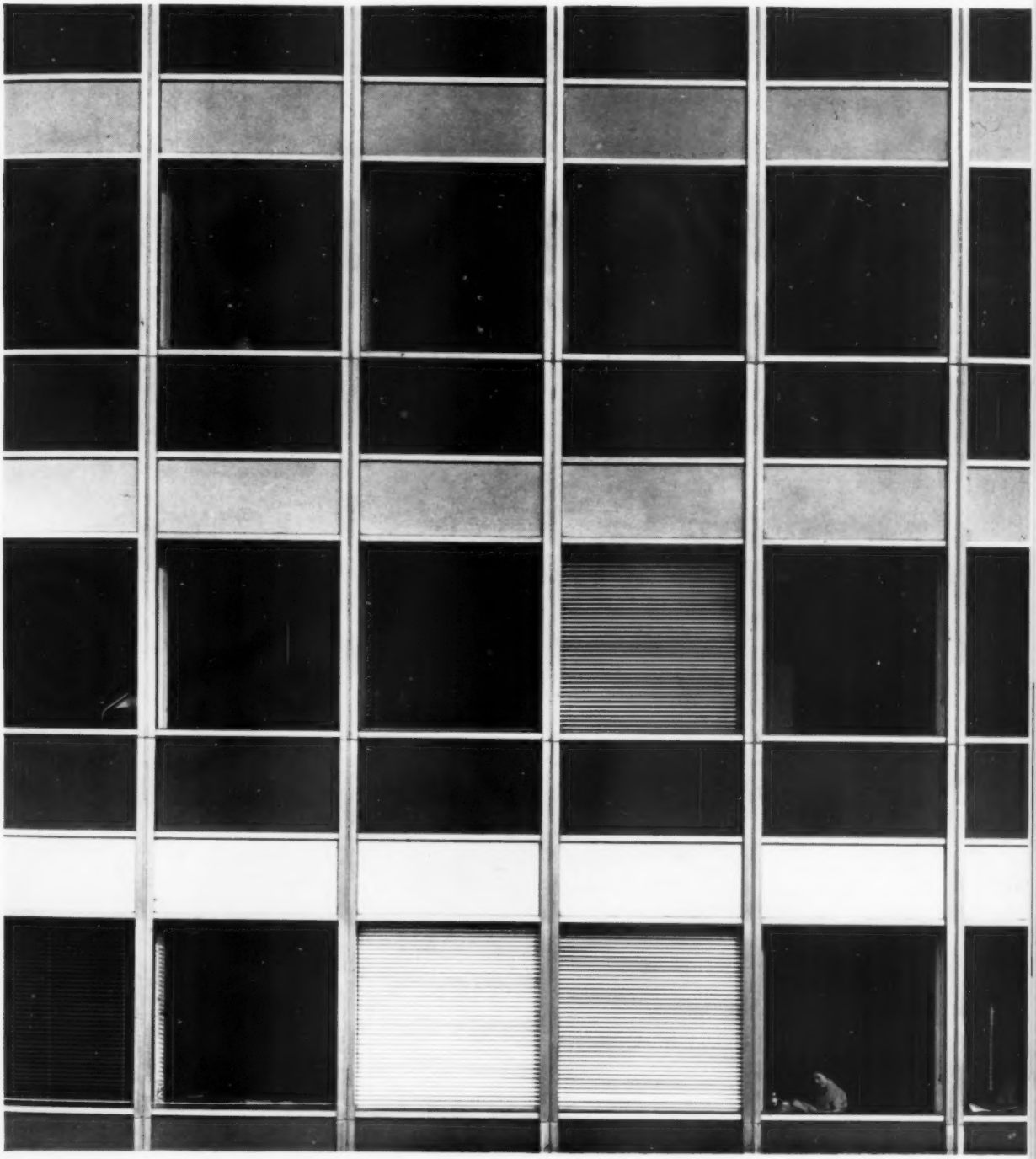
**Minnesota Mining and Manufacturing Company Limited.**
**Address:** 3M House, Wigmore Street, London, W.1.
**Telephone:** Hunter 5522.

working detail



# CURTAIN WALL: OFFICE BUILDING IN DUSSELDORF

*Paul Schneider-Esleben, architect (material supplied by Hans Haenlein)*

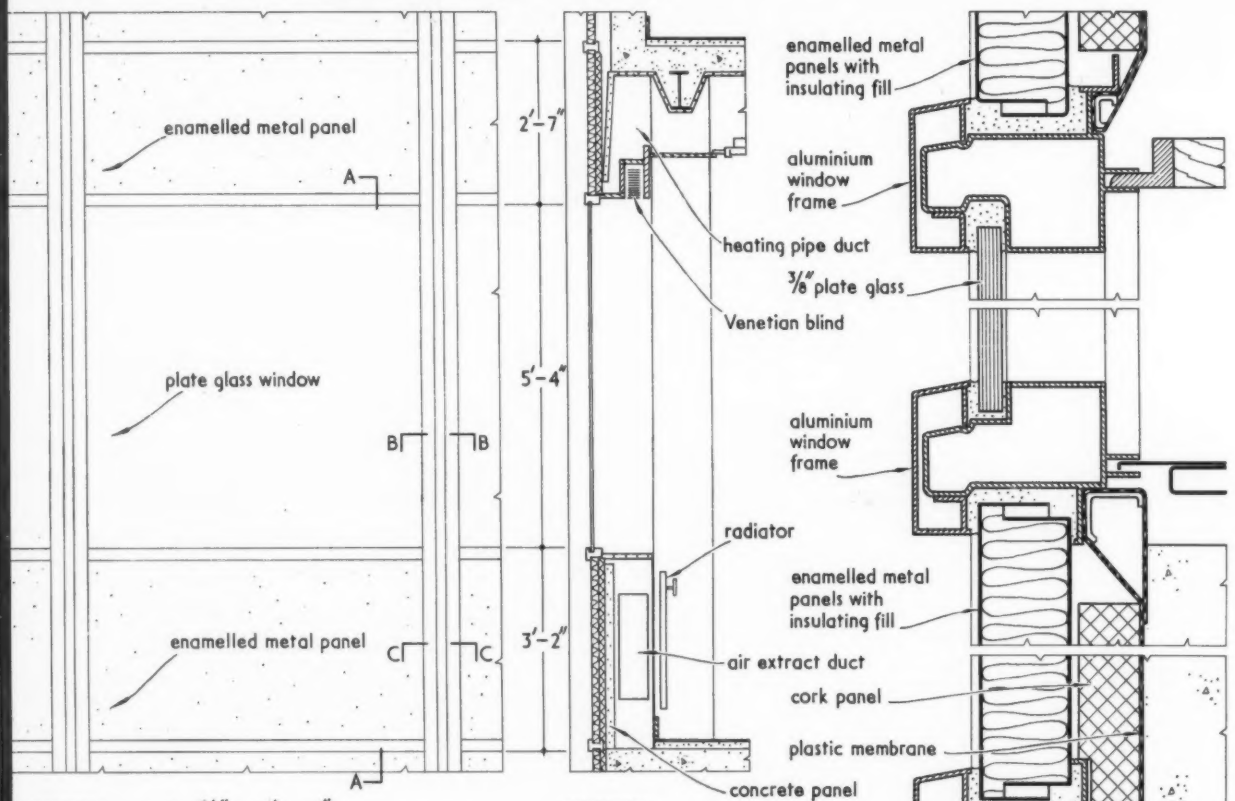


*Though preserving characteristic German proportions, this wall shows a great advance in sophistication. Note the division of the solid infill panels into two horizontal bands and the marking of the ceiling level externally. On the constructional side, note the use of the mullions to provide both an expansion joint and a guide for the mechanical hoist used for cleaning, also the presence of a loadbearing plaster-covered tubular steel column directly behind each mullion. Internal partitions butt against this column, the joint being made by means of a shaped rubber pad.*

working detail

# CURTAIN WALL: OFFICE BUILDING IN DUSSELDORF

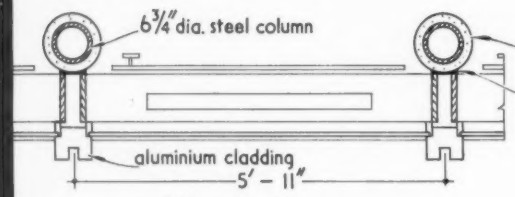
*Paul Schneider-Esleben, architect (material supplied by Hans Haenlein)*



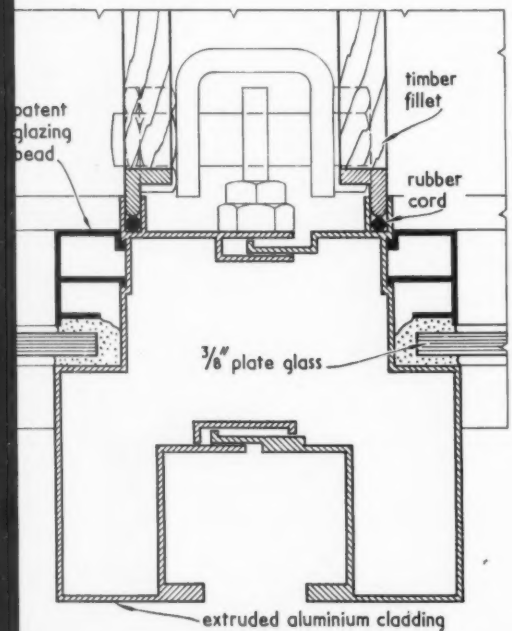

ELEVATION. scale 3/8" = 1' - 0"

SECTION.

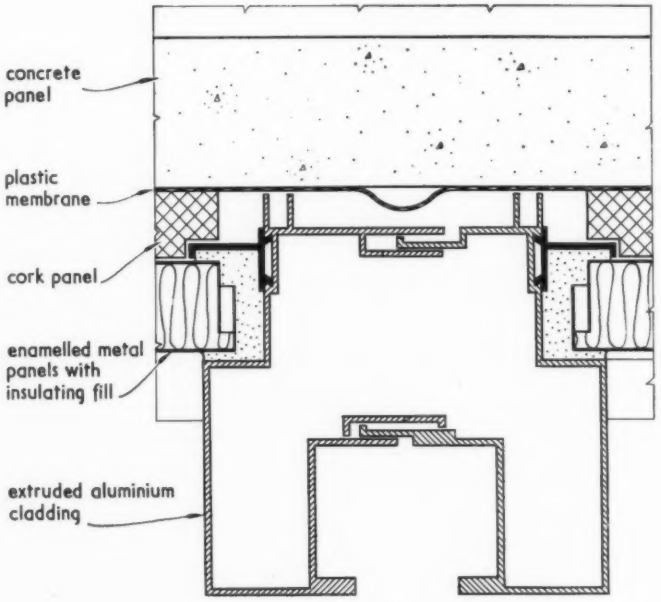
SECTION A-A. scale 3/8 full size




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




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




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

note: figured dimensions in feet and inches are approximate

# MARLEY

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*By appointment to*
HER MAJESTY THE QUEEN
The Marley Tile Co. Ltd.
Suppliers of Floor Tiles

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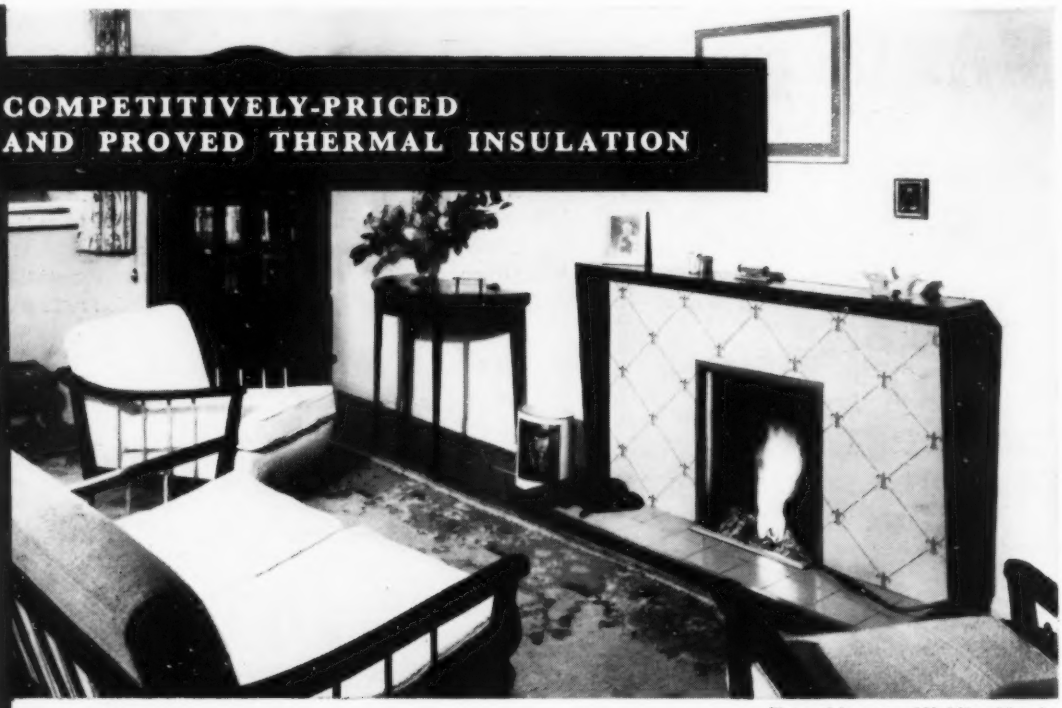
Marley de Luxe Vinyl tiles are 12″ × 12″
in two thicknesses: 80/1000″ and 1/10″

*A Marley de Luxe installation at "Donanne", Couturier, Tunbridge Wells*

MARLEY · SEVENOAKS · KENT *Sevenoaks 55255* · London Showrooms: 251 Tottenham Court Road, W.1

CUT THIS OUT AND KEEP FOR REFERENCE

# COMPETITIVELY-PRICED AND PROVED THERMAL INSULATION



*Photograph by courtesy of Ideal Home Magazine.*

At "New Britwell", a house at Maidenhead. *Architect:* Michael H. H. Bayley, A.R.I.B.A.

## PRACTICAL CONSTRUCTION

ROOF
Tiles on felt
2-3 inches slag wool.
CEILINGS
Plasterboard and skim coat.
EXTERNAL WALLS
Ground floor: 4½-in. brickwork, 2-in. cavity, 4-in. Thermalite, two-coat plaster.
First floor: Tyrolean rendering, 3-in. Thermalite, 2-in. cavity, 4-in. Thermalite, two-coat plaster.

## PRACTICAL CONSIDERATION

The owner writes regarding the efficiency of the Thermal insulation.

'The only further comment that I can add after nearly three years' occupation is that the heating system was unnecessarily large, the bedroom radiators only being used occasionally and it is only during very cold spells that it has to be stoked more than every other day."

## PRACTICAL CONFIRMATION

The thermal conductivity (k) of cellular concrete of 50 lbs. cu. ft. density according to the I.H.V.E. guide 1955 conditioned at 64° F/65%R.H. = 1.4 B.T.U.'s etc. This corresponds to the normal conditions in the average heated home during the winter months where a Thermalite inner leaf will have an equilibrium moisture content of approximately 4%

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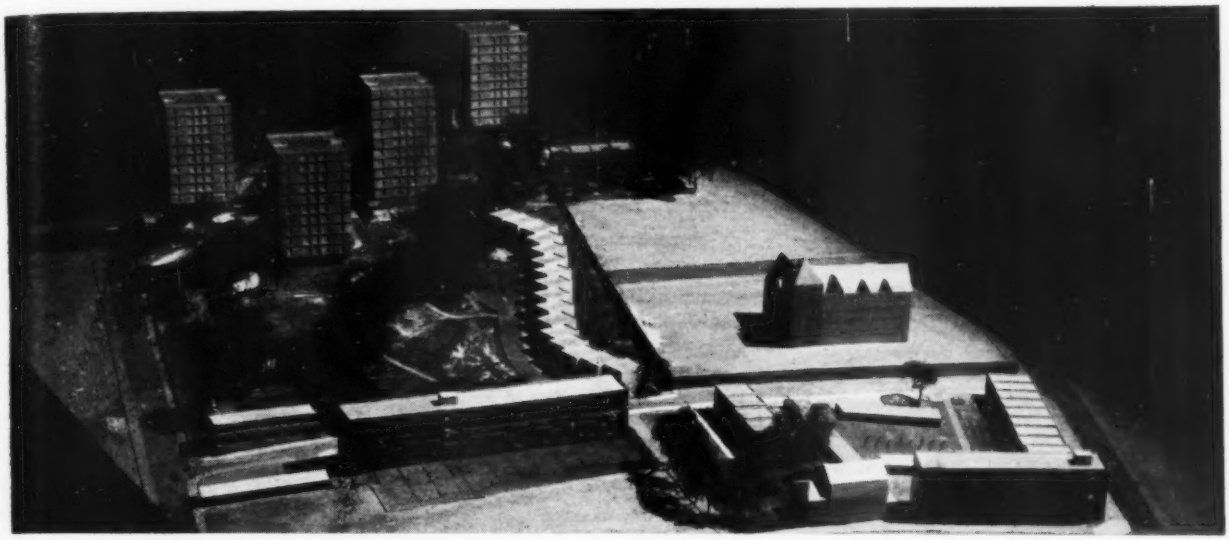
**THERMALITE**
*Loadbearing Insulating Building Blocks*

# NEW LCC HOUSING SCHEME AT WOOLWICH



*The LCC housing committee propose to develop an 8¾ acre site at Rockmount Road, Woolwich. The scheme is to provide 251 new dwellings at an estimated cost of £732,650. There will be four eleven-storey blocks of flats which will form a cluster of tall buildings at different levels on the steepest part of the site and which will command striking views over Woolwich. On the main part of the site, are a four-storey block of maisonettes and a two-storey block of flats for older people. A new road from these will be flanked by a stepped terrace of two-storey houses. The scheme was designed in the Architect's Department of the LCC.*

# Announcements

## PROFESSIONAL

Sir Percy Thomas & Son have opened a branch office at Ireland's Mansion, High Street, Shrewsbury. William Marsden, A.R.I.B.A., will be in charge. I. D. Owen, A.R.I.B.A., and I. L. James, A.R.I.B.A., are now associates of the firm.

Goodhart-Rendel, Broadbent & Curtis have changed the name of the firm to P. G. Broadbent & Partners and have taken into partnership P. V. Butler, A.R.I.B.A., J. F. G. Hastings, A.R.I.B.A., D. A. Reid, A.R.I.B.A., and H. F. Todd, L.R.I.B.A.

The County Architect, Middlesex County Council, has established a new Technical Information Group at his offices at 1, Queen Anne's Gate Buildings, Dartmouth Street, Westminster, S.W.1, and will be pleased to receive trade catalogues and literature.

Thomas F. Trower, F.R.I.B.A., has taken into partnership his son, Roger J. Trower, Dip.Arch.(Nottm), A.R.I.B.A. The firm will be known as Thomas F. Trower & Son, of 74, Upper Close, Norwich (telephone Norwich 25854).

C. B. Martindale, F.R.I.B.A., has now moved his branch office from 2, Assheton Road, Beaconsfield, Bucks, to new premises at 23, Wilton Road, Beaconsfield, Bucks (telephone Beaconsfield 103).

Alison & Hutchison & Partners have taken into partnership Walter Scott, A.R.I.B.A., and into associate partnership George Bowie, A.R.I.B.A., H. H. Macdonald, A.R.I.B.A., and John M. McIntosh, A.R.I.B.A. The style of the firm will remain unchanged.

R. B. Corless, A.R.I.B.A., has now moved to The Wennings, Hall Lane, Oulton, Nr. Lowestoft, Suffolk (telephone Oulton Broad 2473).

L. Cooke, A.R.I.B.A., has now moved to Eastgate House, Cheyne Walk, Northampton. The telephone number remains unchanged at Northampton 2751.

## TRADE

Warwick M. Dingley, Sales Director of Stanley Works (Great Britain) Ltd. has been appointed in charge of a European Marketing Organization which is being established to handle the marketing in Europe for all products manufactured by the Stanley factories in America, Great Britain and Germany.

Higgs & Hill Ltd., Crown Works, South Lambeth Road, London, S.W.8, have changed their telephone number to Reliance 7688.

The Wardle Engineering Co. Ltd. announce the retirement of J. H. Gordon, Sales Manager. He is succeeded by C. Atkins.

Polybond Ltd. have appointed E. R. Stuart a Sales Director of the firm.

William Willett Ltd. have now become a Holding Company and will trade under the following Subsidiary Companies: William Willett Estate Agents Ltd., William Willett (Builders & Decorators) Ltd., William Willett (Contractors) Ltd., Wellwood Properties Ltd., and Wellwood Estates Ltd.

Howard Farrow Ltd. announce that J. E. Sanders, A.M.I.C.E., and I. Tomlin, F.I.B.E., A.I.O.B., have joined the Board of the Company. N. S. Farrow, M.B.E., F.I.O.B., has been appointed Managing Director.

H. Newsum Sons & Co. Ltd. announce that R. E. Feakins, M.I.I.D., A.I.M.Wood.T., is now Commercial Manager.

W. S. Richards has been appointed Managing Director of Brightside Heating & Engineering Co. Ltd.

High Duty Alloys Ltd. have closed their Hillington, Glasgow, office and opened a new one at De Quincey House, 48, West Regent Street, Glasgow, C.2 (telephone Douglas 1500).

Wandsworth Electrical Manufacturing Co. Ltd. have moved their London office to Portman Chambers, 7/9, Baker Street, London, W.1 (telephone Hunter 3201).

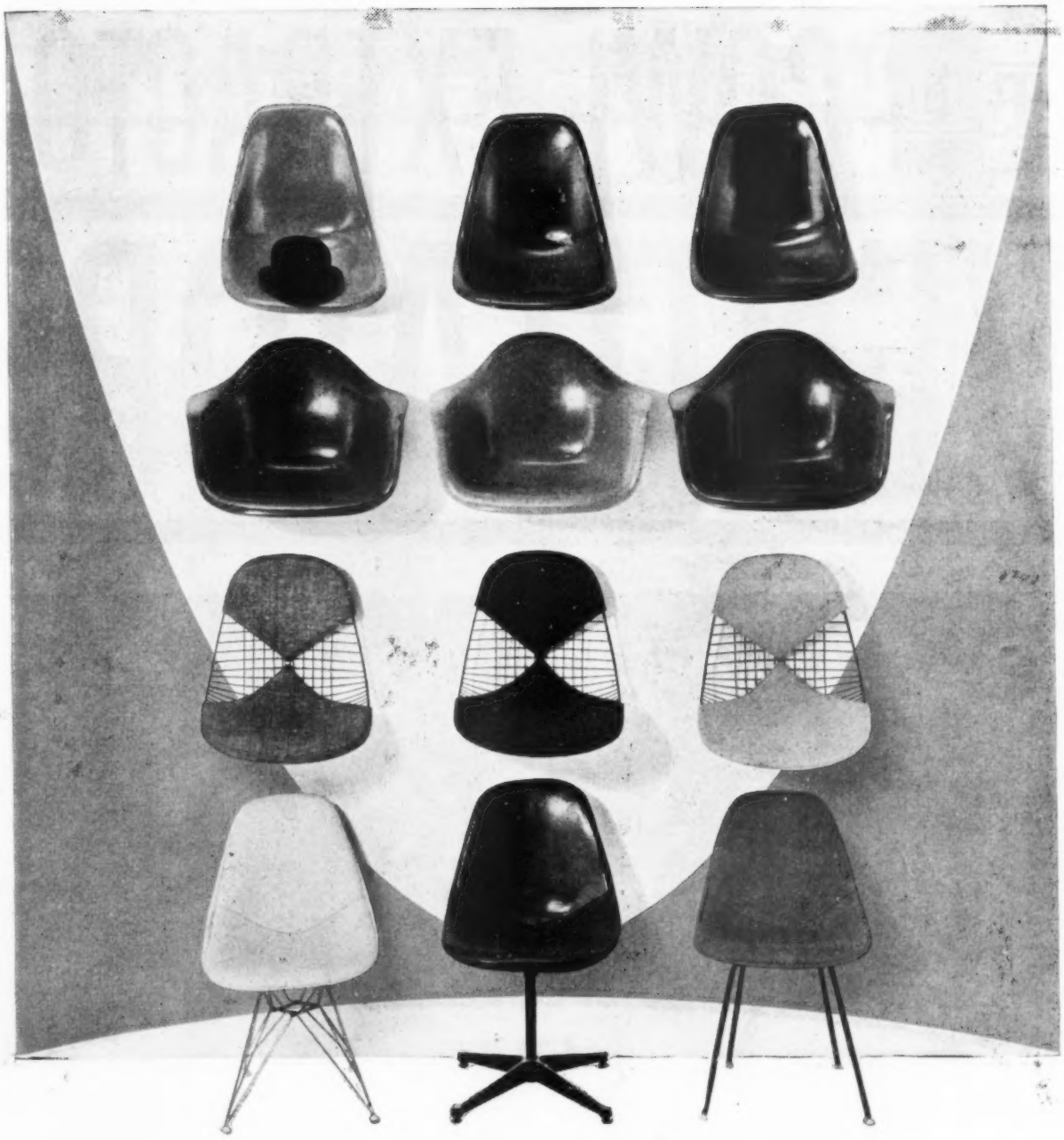
Hunting Geophysics Ltd. have merged with Hunting Aerosurveys Ltd. and the name of the new combined company will be Hunting Surveys Ltd.

Nife Batteries of Redditch have set up an additional sales engineering area known as the North Midlands area which will include Sheffield, Barnsley, Doncaster, Scunthorpe, Derby, Nottingham and Lincoln. The engineer in charge will be P. Sandels.

The Mastic Asphalt Employers' Federation has now moved to 75, Victoria Street, London, S.W.1 (telephone Abbey 7159).

A. Davey, M.I.H.V.E., is now Joint Managing Director of Norris Warming Co. Ltd. and N. Aldcroft Joint Managing Director of F. A. Norris & Co. Ltd. Both companies are subsidiaries of Norris Warming Holdings Ltd.

The Rawlplug Co. Ltd. announce the retirement of their Sales Manager J. Lawrence Stocks. His successor is P. D. Northover.



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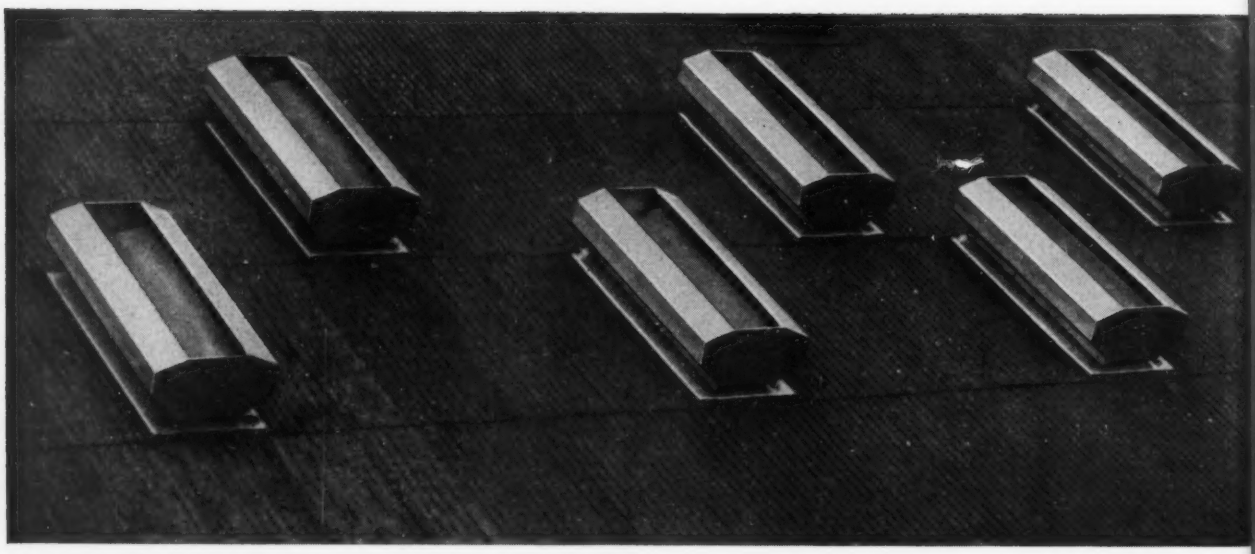
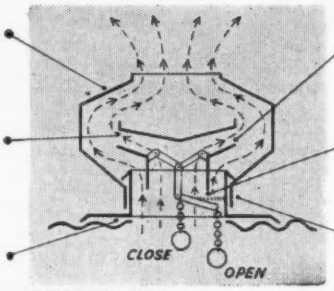
# TH COWL EXTRACTOR VENTILATORS



Anti-corrosive aluminium alloy cowling eliminates maintenance.

Baffle and adjustable dampers aerodynamically designed to eliminate turbulence—provide unrestricted outlet.

Base suitable for fixing into patent glazing or roof sheeting.




PATENT NUMBER: 819012

Adjustable dampers remotely controlled with pneumatic, hydraulic or mechanically operated shaft and lever gear.

Hand operated dampers spring loaded—positive snap action into open or closed positions.

Close fitting base eliminates down draughts—gives full protection against weather.

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Power operated ventilating shutters

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O.B.E., A.R.I.B.A.,
City Architect of Leeds.

*Contractor:*
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In the completed construction 1,036,000 3" 'Phorpres' Dapple Lights, 148,000 'Phorpres' Commons and 9,000 'Phorpres' Slip Tiles will have been used.

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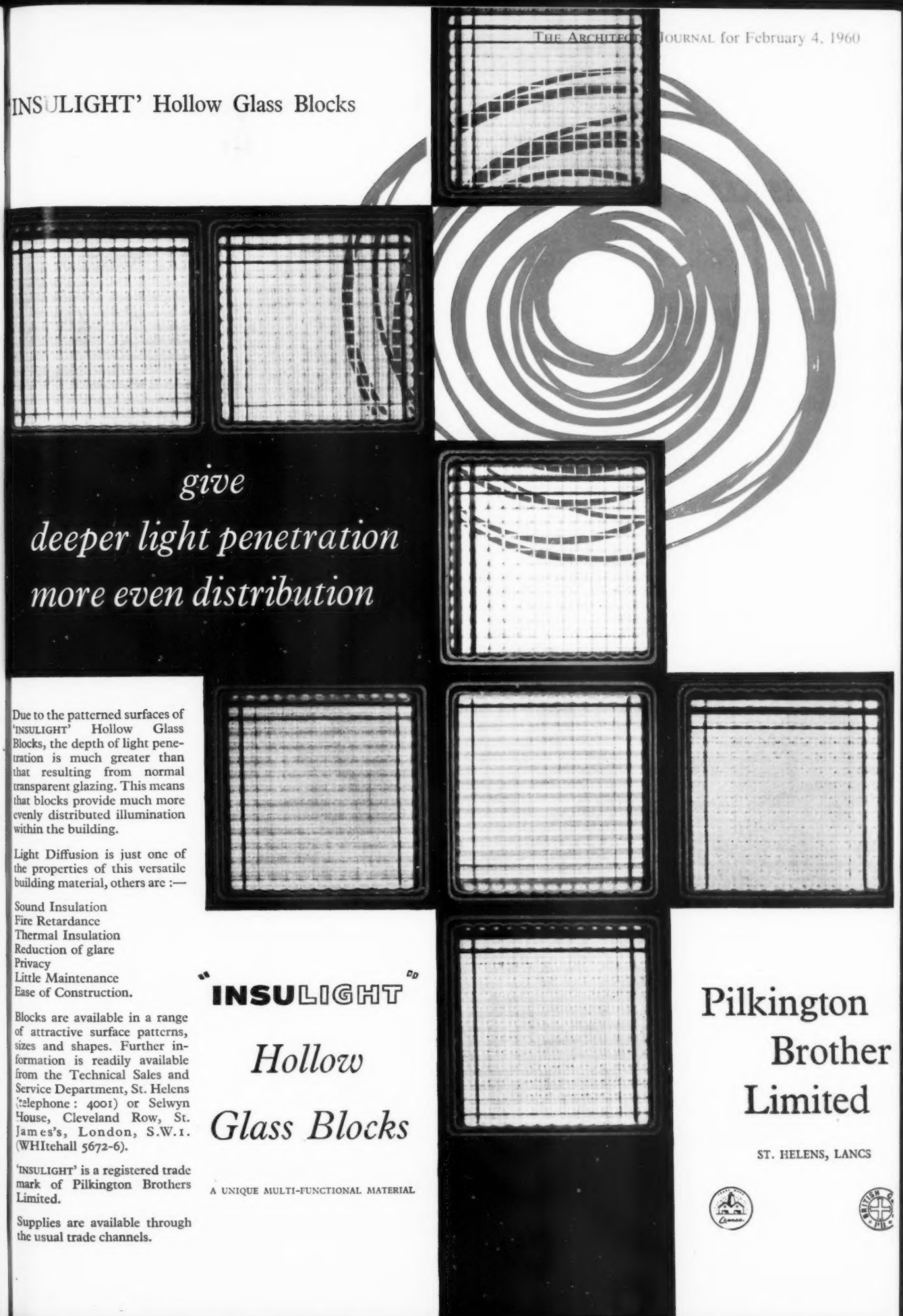
'INSULIGHT' Hollow Glass Blocks



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*deeper light penetration*
*more even distribution*

Due to the patterned surfaces of 'INSULIGHT' Hollow Glass Blocks, the depth of light penetration is much greater than that resulting from normal transparent glazing. This means that blocks provide much more evenly distributed illumination within the building.

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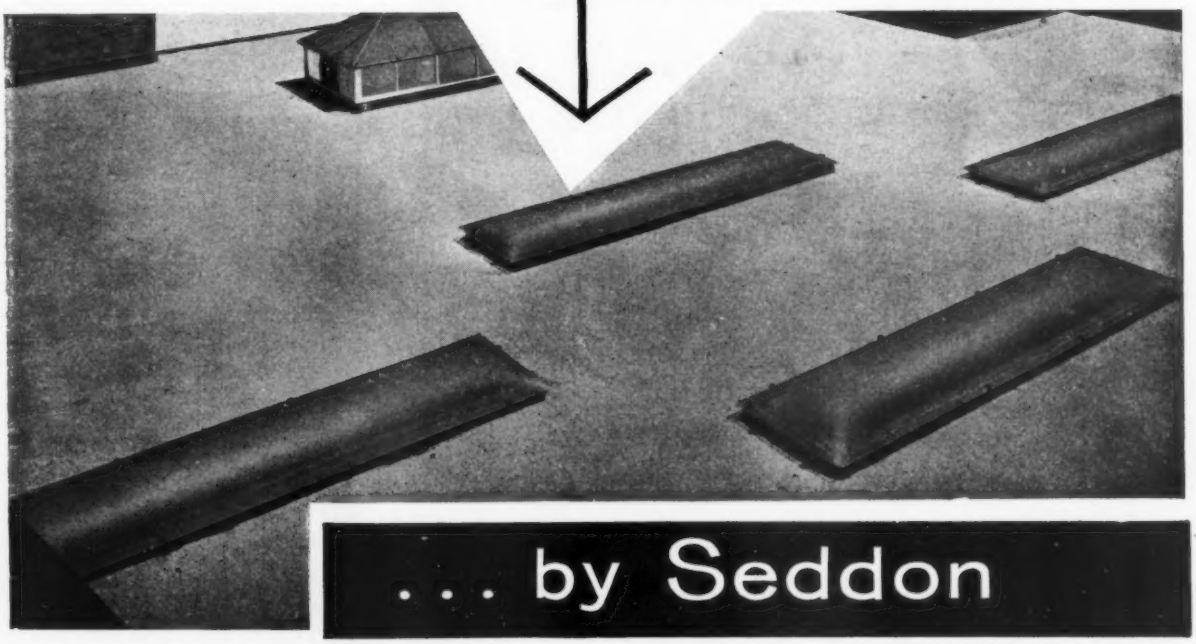


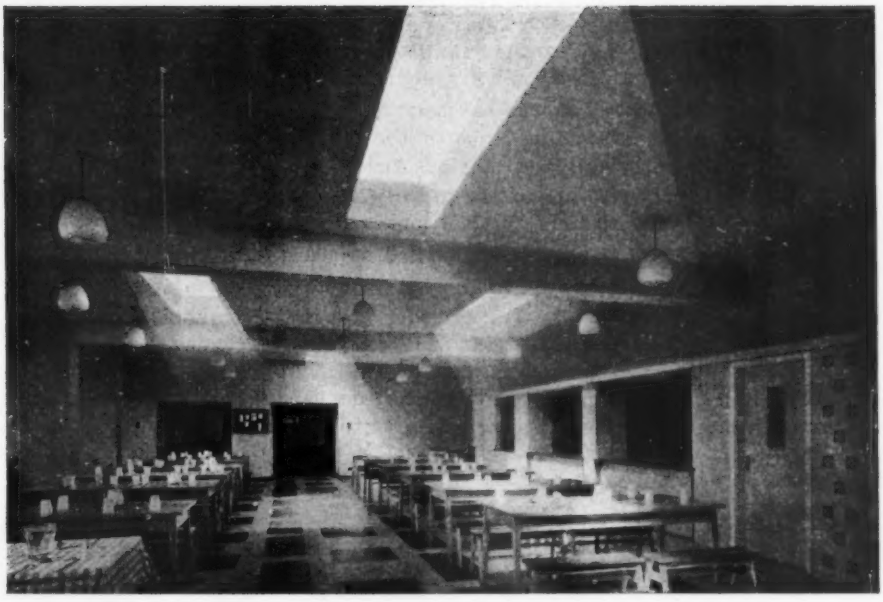
## ... by Seddon

Seddon Rectangular Domelights fitted to the roof of St. Gregory's R.C. School, Kirkby, Nr. Liverpool, are 175″ long x 48″ wide.

**Architect: Lionel Prichard & Son, 14, Dale St., Liverpool, 2**

Seddon one piece Glass Domelights can be fitted to flat, barrel or vaulted type roofs. Rectangular Glass Domes can be supplied up to 240″ x 42″. Standard sizes in length from 30″ - 108″ and widths from 30″ - 48″. Circular Glass Domes can be supplied up to 100″ diameter. Standard sizes from 18″ to 72″ diameter.

**Illustrated Brochure containing full particulars and specifications forwarded on request,**



**R. SEDDON & SONS (ST. HELENS) LTD., Warrington New Road, St. Helens, Lancs.**
Telephone : St. Helens 5451/2

Bowater House, Knightsbridge. Architects: Guy Morgan and Partners. 8′ x 4′ recessed lighting fittings over public road. Centre panel of each is close reeded 'Perspex' 3/16" thick. Surrounding panels are .040 'Perspex'. Each fitting holds two 5′ 80 watt fluorescent lamps. The laylights are hinged for maintenance — 'Perspex' being light enough to allow this. Set of amenity Lighting Columns with .040 'Perspex' diffusers and continuous fittings with .040 'Perspex' diffusers and black 'Perspex' ends under the low block in background. All fittings by Troughton and Young (Lighting) Ltd., Knightsbridge, London.

Amenity Lighting Columns with diffuser in .040 'Perspex'. The fitting holds four 2 ft. 40 watt fluorescent lamps.

Continuous fittings between columns under low block, with diffuser in .040 'Perspex' with black 'Perspex' ends. Each 5 ft. unit accommodates one 5 ft. 80 watt lamp.

## Troughton and Young (Lighting) Limited use 'Perspex' for lighting fittings at new Bowater House

Troughton and Young (Lighting) Ltd., have made exceptionally fine use of 'Perspex' acrylic sheet in the lighting fittings round the new Bowater House. 'Perspex' was chosen because it offers all these advantages :

★ Freedom from discolouration ★ Toughness and durability
★ Ease of cleaning ★ Superb appearance
★ Light weight ★ Resistance to atmospheric corrosion

'Perspex' can be heat shaped and is available in clear sheet and a wide range of attractive, transparent, translucent and opaque colours. Several grades of patterned 'Perspex' are available for diffusing finishes.

**'PERSPEX'**

*'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.*

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Telephone: Paisley 2406.
Gordon C. Reid, 86 Grange Loan, Edinburgh 9.
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# CLASSIFIED ADVERTISEMENTS

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

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

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

## Public and Official Announcements

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

EAST SUFFOLK COUNTY COUNCIL
ASSISTANT ARCHITECT—A.P.T. GRADE III (£880—£1,065)

Applications are invited for the above appointment which offers interesting and responsible work in connection with the Council's extensive programme of school and other building.

The starting salary will be fixed according to qualifications and experience; removal expenses will be paid in approved cases and the appointment will be subject to the provisions of the Superannuation Acts.

Applications stating age, qualifications, experience and present employment, together with the names of two referees, must be delivered to the County Architect, Mr. E. J. Cundliffe, A.R.I.B.A., County Hall, Ipswich, by Tuesday, the 9th February, 1960. 8059

COUNTY COUNCIL OF ESSEX
COUNTY PLANNING DEPARTMENT

Applications invited for post of PLANNING ASSISTANT, A.P.T. II (£765—£880) at Colchester. This is a new post in the development control section of an important area office and applicants must have had experience in development control.

All reasonable facilities, including day release, will be given to the successful candidates to enable them to obtain Corporate Membership of the Town Planning Institute.

Five day week; medical examination; superannuation.

Applications on forms obtainable from the County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, returnable by 20th February, 1960. 8054

COUNTY BOROUGH OF SOUTHAMPTON
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent posts:—

(*a*) SENIOR ASSISTANT ARCHITECT, Grade A.P.T. IV (£1,065—£1,220).
(*b*) SENIOR ASSISTANT ARCHITECT, Special Grade (£785—£1,070). Experience in School major projects an advantage.
(*c*) ARCHITECTURAL ASSISTANT, Grade A.P.T. I (£610—£765).
(*d*) SENIOR QUANTITY SURVEYOR, Special Grade (£785—£1,070).

Applicants should possess appropriate qualifications and should state their housing needs and commencing salary required.

Application forms from the Borough Architect, Civic Centre, Southampton, returnable by 13th February, 1960. 7993

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD
PRINCIPAL ASSISTANT ARCHITECTS II

Applications are invited for the above appointments on the permanent staff of the Board's Regional Architect generally in accordance with Whitley Council conditions of service.

The Board is undertaking a considerable programme of hospital development and the persons appointed would be engaged on varied and interesting work in connection with major projects in this programme.

The commencing salary will be at the minimum of the scale £1,195 × £45 (2) × £15(1) × £45 (2) × £30(1)—£1,420 plus London Weighting allowance of £50 per annum (scale under review). Applicants must be Associate members of the Royal Institute of British Architects and have had sound practical experience of the planning and construction of hospitals and public buildings and be capable of carrying through projects from commencement to completion. Applicants must also be able to undertake investigations of planning requirements, produce sketch schemes, and attend Committees.

Applications stating age, experience, qualifications, present appointment and salary, together with the names of three referees should be sent to the undersigned at 40, Eastbourne Terrace, London, W.2, by not later than 20th February.

E. G. BRAITHWAITE,
*Secretary.*
8161

ISLE OF WIGHT COUNTY COUNCIL
PLANNING ASSISTANT required. A.P.T. Special Grade, £785—£1,070. Permanent post. Candidates should be suitably qualified. General planning duties mainly in connection with the preparation of Town Maps.

Applications, on forms obtainable from the Clerk of the County Council, County Hall, Newport, I.W. Closing date 15th February, 1960. 8056

BOROUGH OF WARWICK
APPOINTMENT OF
SENIOR ARCHITECTURAL ASSISTANT

Applications are invited for a Senior Assistant to work immediately under the Chief Architectural Assistant in the Borough Surveyor's Department. Salary A.P.T. III (£880—£1,065), entry in the scale according to qualifications and experience. The position is permanent and subject to Medical Examination; housing accommodation will be provided if necessary and removal expenses paid.

Applicants must have passed at least the Finals of the R.I.B.A.

The post offered is for the design and site supervision of large Housing Estate Development incorporating shops, multi-storey flats, etc., and for the general supervision of Direct Labour Staff.

Applications, stating age, qualifications, experience and the names and addresses of two referees, should be sent to the Borough Surveyor, 23, Jury Street, Warwick, not later than Monday the 15th February, 1960.

HECTOR SETON BROWN,
A.M.I.C.E., A.M.I.W.E.,
*Borough Engineer & Surveyor.*
23, Jury Street,
Warwick. 8045

COUNTY BOROUGH OF SOUTHEND-ON-SEA
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following posts:—

ASSISTANT ARCHITECT, Special Classes Scale (£785 × £40 (6) × £45—£1,070).
TECHNICAL ASSISTANT (Architectural), Grade A.P.T. II (£765 × £25 (1) × £30 (3)—£880).
ASSISTANT QUANTITY SURVEYOR, Special Classes Scale (£785 × £40 (6) × £45—£1,070).
STUDENT HEATING ENGINEER (General Division salary range £210—£655).

Candidates must be suitably qualified and experienced.

The appointments will be subject to the provisions of the Local Government Superannuation Acts and the National Joint Council's Scheme of Conditions of Service so far as adopted by the Council. Medical examination.

Applications, stating age, qualifications and experience, with the names of two referees, should be submitted to the Borough Architect, 30, Alexandra Street, Southend-on-Sea, forthwith.

Canvassing will disqualify. Any candidate who is related to member or officer of the Council is required to disclose the fact.

ARCHIBALD GLEN,
*Town Clerk.*
8077

BOROUGH OF TOTTENHAM

Applications are invited for the following Posts:—

ASSISTANT ARCHITECT (Established)—APT. Special Grade = £785—£1,070 per annum. Applicants must have passed Parts I and II of the R.I.B.A. final or special final examination or their equivalent and to have had at least five years' experience (including period spent on theoretical training).
ARCHITECTURAL ASSISTANT (Established)—APT. II = £765—£880 per annum. Applicants must have at least passed R.I.B.A. intermediate examination or equivalent.
ARCHITECTURAL ASSISTANT (Established)—APT. I = £610—£765 per annum. Applicants must have at least passed R.I.B.A. intermediate examination or equivalent.

London Weighting Allowance of £10, £20 or £30 p.a. according to age.

Commencing salaries within grades according to ability and experience.

Application form and conditions of Appointment from Borough Engineer (AJ), Town Hall, Tottenham, N.15. Applications to be delivered by Monday, 15th February, 1960. 8183

BOROUGH OF ILKESTON

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT within the Grade APT IV (£1,065—£1,220).

Commencing salary to be according to qualifications and experience.

HOUSING ACCOMMODATION AVAILABLE.

Canvassing disqualifies.

Application forms and conditions of appointment obtainable from A. O. Marshall, Borough Surveyor & Water Engineer, Town Hall, Ilkeston, to whom they are to be returned by Wednesday, 24th February, 1960.

J. YATES,
*Town Clerk.*
8207

THE ROYAL INFIRMARY OF EDINBURGH AND ASSOCIATED HOSPITALS
ARCHITECTURAL ASSISTANT

Applications are invited from candidates holding the Intermediate certificate of the R.I.B.A. and having practical experience. Varied and interesting work. Starting salary £525 to £605 per annum according to age and experience. Apply in writing to Personnel Officer, Royal Infirmary, Lauriston Place, Edinburgh, 3. 7647

BOROUGH OF TWICKENHAM

Applications are invited for the following posts:—

(*a*) 1 PRINCIPAL PLANNING ASSISTANT (A.P.T. V £1,220—£1,375 p.a.).
(*b*) 1 SENIOR ASSISTANT ENGINEER (A.P.T. IV £1,065—£1,220).
(*c*) 1 JUNIOR ASSISTANT ENGINEER (A.P.T. I £610—£765).
(*d*) 2 SENIOR ASSISTANT ARCHITECTS (A.P.T. IV £1,065—£1,220).
(*e*) 1 ASSISTANT ARCHITECT (A.P.T. II £765—£880).

Posts (*a*), (*b*) and (*d*) must have passed the final and (*c*) and (*e*) the intermediate examination of their appropriate technical institute.

All plus London Weighting Allowance. Application forms obtainable from Borough Engineer, Municipal Offices, Twickenham, to be returned by 12th February, 1960.

W. H. JONES, *Town Clerk.*
8180

CITY OF WESTMINSTER
JUNIOR ARCHITECTURAL ASSISTANT (Male) APT I (£610—£765) p.a. plus London Weighting). Permanent pensionable post. Candidates should be good draughtsmen with some experience of working drawings for minor building works and must be studying for the R.I.B.A. examinations.

Applications giving age, qualifications and experience, and names, etc., of two referees to Town Clerk, Westminster City Hall, Charing Cross Road, London, W.C.2, by 20th February, 1960. 8164

CITY AND COUNTY OF NEWCASTLE UPON TYNE
CITY ARCHITECT'S DEPARTMENT

The City Architect will be pleased to receive applications for the following appointments in the Department in connection with the New Town Hall project:—

SENIOR ASSISTANT ARCHITECTS (Two vacancies)—A.P.T. Division Grade IV (£1,065—£1,220 per annum).

These posts will offer ideal opportunity for Architects wishing to work on an important building involving finishes of high quality. It is anticipated that work on the site on the first three blocks of the New Town Hall will commence in April, 1960, and the whole project is estimated to cost over £2,000,000. A high standard of design ability and an appreciation of and experience in good quality building work is essential.

Application Forms and full particulars may be obtained from George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18 Cloth Market, Newcastle upon Tyne, 1.

Closing date for receipt of completed applications—Thursday, 18th February, 1960.

JOHN ATKINSON,
*Town Clerk.*

Town Hall,
Newcastle upon Tyne, 1.
28th January, 1960. 8165

MANCHESTER REGIONAL HOSPITAL BOARD
ARCHITECTURAL, ENGINEERING AND SURVEYING STAFF

A substantial expansion of the hospital capital building programme offers valuable opportunities to ambitious Architects, Engineers, and Surveyors. Vacancies are available in the following grades. The salary scales quoted are at present under review.

(*a*) Principal Assistant Grade Scale II—£1,195—£1,420 a year;
ARCHITECTS.
(*b*) Senior Assistant Grade—£1,050—£1,245 a year;
ARCHITECTS
QUANTITY SURVEYORS
ENGINEERS (Mechanical, Heating and Ventilating)
ENGINEERS (Electrical).
(*c*) Assistant Grade—£730—£1,055 a year;
ARCHITECTS
SURVEYORS (Land and Quantity)
ENGINEERS (Mechanical, Heating and Ventilating)
ENGINEERS (Electrical).
(*d*) Sub-professional Grade—£545—£765 a year:
ARCHITECTS
SURVEYORS (Land and Quantity).
(*e*) DRAUGHTSMEN—£445—£660 a year.

Candidates for posts listed under (*a*), (*b*) *and* (*c*) must possess full professional qualifications and for posts under (*d*), intermediate qualifications. Draughtsmen must have had at least 3 years' previous experience. All posts are subject to National Health Service conditions and are superannuable. Application forms, to be returned by 29th February, 1960, are obtainable from the Secretary of the Board, Cheetwood Road, Manchester, 8. 8194

CITY OF STOKE-ON-TRENT
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

*a.* ASSISTANT ARCHITECTS
(Final R.I.B.A.) Special Scale £785—£1,070.
*b.* ARCHITECTURAL ASSISTANTS
(Inter-R.I.B.A.) A.P.T. I £610—£765.

Commencing salary within the range according to experience.

Applications to J. R. Piggott, T.D., F.R.I.B.A., City Architect, Kingsway, Stoke-on-Trent, by Friday, 19th February, 1960.

HARRY TAYLOR—*Town Clerk.*
8168

### KENT COUNTY COUNCIL

NEW POSTS are offered in the office of the County Architect to assist with the Council's expanding building programmes which include many large and interesting projects.

ARCHITECTS possessing design ability and with experience in the design and control of building projects.

A.P.T. Grade V £1,220—£1,375
A.P.T. Grade IV £1,065—£1,220
Special Scale £785—£1,070

ENGINEERS with experience in the design and supervision of installations in all types of buildings.

Electrical (senior post) Scale B £1,280—£1,485
Heating and Mechanical
A.P.T. Grades IV-V £1,065—£1,375

QUANTITY SURVEYOR with experience in preparation of estimates, bills of quantities and final accounts.

A.P.T. Grade IV £1,065—£1,220

CLERICAL ASSISTANT to Technical Librarian.

Clerical Grade I £595—£670

Candidates for posts in A.P.T. Grade IV and above must be corporate members of the appropriate professional institution. Those for the special architectural scale must have passed Parts I and II of the final R.I.B.A. examination.

The posts are on the permanent staff of the Building Department and are superannuable. Commencing salaries within the scales according to qualifications and experience. N.J.C. conditions of service.

Application forms and further details from County Architect, Springfield, Maidstone. Closing date 25th February, 1960 8167

### CITY OF PETERBOROUGH
### CITY ENGINEER'S DEPARTMENT
### ARCHITECT'S SECTION

Applications are invited for the undermentioned appointments:—

(*i*) TWO SENIOR ASSISTANT ARCHITECTS: Grade A.P.T. IV, £1,065—£1,220 per annum.

(*ii*) TWO ARCHITECTURAL ASSISTANTS: Grade A.P.T. II, £765—£880 per annum.

Applicants for (*i*) should be Associates of the R.I.B.A., or its equivalent at one of the recognised schools of architecture, and for (*ii*) to have passed the Intermediate examination R.I.B.A.

The assistants appointed will work as a team and will be engaged for the completion of a redevelopment scheme adjacent to the Cathedral, estimated to cost £300,000, comprising houses, flats, maisonettes, etc., in multi-storey blocks, of framed and load bearing construction. Experience in housing and flat design and cost control will be an advantage. Possibilities exist for permanent engagement for suitable assistants.

The scheme at present is in the sketch stage and assistants are required for preparing complete working and detail drawings, etc., where good draughtsmanship and knowledge of construction are essential.

Housing accommodation will be provided if required.

Application forms, together with conditions of appointment, are obtainable from Mr. L. H. Robjohn, M.B.E., A.M.I.C.E., City Engineer and Surveyor, Town Hall, Peterborough, and should be returned by 3rd March, 1960.

C. PETER CLARKE.
*Town Clerk.*

Town Hall,
Peterborough.
January, 1960. 8182

MAINTENANCE SUPERINTENDENT required to supervise building maintenance staff working in London Area. Applicants should have wide experience of building and maintenance work of an industrial character, be good organisers with ability to control operations and possess sound knowledge of estimating, measuring and builders accounts. Salary range £1,020—£1,075. Applications giving age, experience and qualifications to Divisional Manager (SV.105), British Road Services Limited, 238, City Road, London, E.C.1. 8200

### SOUTH EASTERN ELECTRICITY BOARD
### ARCHITECTURAL ASSISTANT

Surveyor's Section, Board Headquarters

Annual salary £795—£870 under N.J.C. Grade IV. Applicants should have experience in the preparation of working and detail drawings for offices, stores, workshops, garages, showrooms and electricity substations and be at Intermediate level of an appropriate professional body. Superannuable. Applications, quoting AJ and naming two referees, to the Surveyor, Seeboard, 10, Queen's Gardens, Hove 3, Sussex, by 17th February, 1960.

GEORGE WRAY.
*Secretary.*
8101

### ORPINGTON URBAN DISTRICT COUNCIL

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT in the Engineer and Surveyor's Department at a salary in accordance with A.P.T. Grade II (£765—£880 per annum) plus London weighting allowance.

The person appointed will have an opportunity to assist in the Council's large Capital Programme in hand and envisaged. Further details and the general conditions of appointment may be obtained from, and completed applications should be sent to, the Engineer and Surveyor, Civic Offices, The Walnuts, High Street, Orpington, Kent, by Saturday, 13th February, 1960.

Housing accommodation will be considered.

L. W. FREEMAN,
*Engineer and Surveyor.*
21st January, 1960. 8099

### BOROUGH OF HARROW

Applications are invited for the following appointments in the Department of the Borough Engineer and Surveyor:—

BUILDING SURVEYORS—APT. Grade III (£880 to £1,065 per annum, plus London "Weighting") for works of maintenance and improvements to Municipal properties, chiefly Schools.

Applicants must possess a sound knowledge of building construction and services, and have extensive experience of specification writing.

Commencing salaries will be in accordance with qualifications and experience.

Contributions towards removal expenses will be considered.

The appointments will be subject to the Local Government Superannuation Acts; and to the National Joint Council's Scheme of Conditions of Service.

Application forms, obtainable from me, should be returned not later than Saturday, 13th February, 1960.

D. H. PRITCHARD,
*Town Clerk.*

Town Clerk's Office,
Harrow Weald Lodge,
92, Uxbridge Road,
Harrow, Middlesex. 8131

ASSISTANT ARCHITECTS required with experience in design and construction of multi-storey housing, shops, garages, baths and washhouses, depots, etc. Salary scale £785 to £1,070 per annum and £880 to £1,065 per annum plus "weighting" of £30 (£10 less if under 26 years). Commencing salary according to qualifications and experience. Five-day week (Saturday morning rota one on in seven). Canteen available. Application forms obtainable from Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3, for return by first post Monday, 15th February, 1960. 8107

### CARDIGANSHIRE COUNTY COUNCIL

Applications are invited for the under-mentioned vacancies in the County Architect's Department, County Hall, Aberayron:—

(*a*) ASSISTANT ARCHITECT (Special Grade, £785—£1,070).

(*b*) ARCHITECTURAL ASSISTANT on the salary grade from £210 to £655, starting salary according to age and experience. For an applicant with R.I.B.A. Intermediate the salary grade with be £610—£765.

Applicants for (*a*) must be Associate Members of the Royal Institute of British Architects, with experience.

Forms of application and further details obtainable from the County Architect.

Applications to be returned to the undersigned by not later than 29th February, 1960.

J. E. R. CARSON,
*Clerk of the Cardiganshire County Council.*

Swyddfa'r Sir,
Marine Terrace,
Aberystwyth, Cards.
22nd January, 1960. 8110

### VACANT POSTS IN THE PUBLIC SERVICE OF THE UNION OF SOUTH AFRICA
### TOWN AND REGIONAL PLANNING COMMISSION

TOWN PLANNER, GRADE II/III—£1,380 × £60 — £1,560/£1,700 × £50 — £1,900 × £600 — £1,320 ON CONTRACT FOR 5 YEARS IF MARRIED, OR 3 YEARS IF UNMARRIED, AT PIETERMARITZBURG, NATAL.

*Requirements:* A recognised diploma in town planning gained as a post-graduate qualification after obtaining a recognised university degree in Civil Engineering, Architecture or Surveying. Other qualifications in town planning will also be considered. Appropriate post-qualification experience in town and/or regional planning practice, Civil Engineering, Architecture or Surveying will be taken into consideration in determining the commencing salary on the basis of one notch for each completed year of experience to the maximum of the higher scale. No candidate in possession of the required qualifications will receive a commencing salary of less than £850 per annum and those with at least five years' post-graduate experience qualify for appointment to Grade II posts.

*Conditions of Service:* 34 days' accumulative vacation leave per annum plus 120 days' sick leave on full pay and 120 days on half pay in a three-year cycle; congenial working conditions. Contracts may be renewed or permanent appointment offered on completion of contract.

*Duties:* The work of the office ranges from regional planning on the broadest basis to detailed town planning and basic research. Owing to the diversity of the work, a large measure of initiative and independence of thought are expected.

1. Application forms and particulars regarding appointment requirements, conditions of service, notes on Natal and the contract to be entered into with the Government of the Union of South Africa may be obtained from the Immigration Attaché, South Africa House, Trafalgar Square, London, W.C.2, upon request.

2. The successful candidates, their wives and wholly dependent children as well as a limited quantity of luggage will be transported at State expense from their places of residence to Pietermaritzburg in the Union and back on completion of the contract, if so desired.

3. Completed applications must be sent to the Provincial Secretary, Pietermaritzburg, Natal. Original testimonials and certificates should not be submitted.

4. The closing date for the receipt of applications is the 21st March, 1960. 8092

### BOROUGH OF HEYWOOD
### APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited from persons who have passed the R.I.B.A. Intermediate Examination for the above mentioned appointment in the department of the Borough Engineer and Surveyor, at a salary in accordance with A.P.T. Grade II (£765—£880) of the Scale of Salaries.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, to the National Joint Council's Conditions of Service and to one month's notice in writing on either side.

The successful applicant will be required to pass a medical examination.

Consideration will be given to the provision of housing accommodation.

Applications endorsed "Architectural Assistant," stating age, qualifications and experience and accompanied by copies of two recent testimonials should reach the undersigned not later than Thursday, 25th February, 1960.

Canvassing in any form will be a disqualification.

W. R. PARKER, *Town Clerk.*

Municipal Buildings,
Heywood.
25th January, 1960. 8190

### BARNET URBAN DISTRICT COUNCIL
### ARCHITECTURAL ASSISTANT
(Housing and General)

Applications are invited for the appointment of an Architectural Assistant, salary in accordance with A.P.T. Grades III or IV, according to qualifications and experience.

Duties are likely to include design and construction of Council housing and other buildings, maintenance of existing public buildings and town planning redevelopment.

Applications, stating age, qualifications and experience, together with the names and addresses of two referees, should reach the Engineer & Surveyor, Ravenscroft House, Wood Street, Barnet, Herts, on or before 12 noon on Thursday, 11th February, 1960.

ALFRED S. MAYS,
*Clerk of the Council.*

Municipal Offices,
Wood Street,
Barnet, Herts.
22nd January, 1960. 8102

### BOROUGH OF LUTON

Applications invited for:—

(*a*) SENIOR ASSISTANT ARCHITECTS, A.P.T. IV (£1,065—£1,220).

(*b*) ARCHITECTURAL ASSISTANTS, A.P.T./Special (£610—£1,070).

(*c*) HEATING ENGINEERING ASSISTANT, A.P.T. III (£880—£1,065).

Applicants for posts (*a*) must be A.R.I.B.A. and should have had considerable practical experience.

The grade and commencing salary for (*b*) will be within the range stated according to experience and qualifications.

The Corporation is undertaking a considerable development programme of varied and interesting work including Public Library, Baths Establishment, Cleansing and Transport Depots, Schools and other civic schemes.

Consideration will be given to the provision of housing accommodation and payment of removal expenses in approved cases.

Application forms from Borough Architect, Town Hall, Luton, returnable by 15th February, 1960. 8111

### BRACKNELL DEVELOPMENT CORPORATION

Applications are invited from Corporate Members of the R.I.B.A. for the following vacancies in the Chief Architect's Department:—

(1) ARCHITECT, Grade VI (£1,163—£1,390).

(2) ARCHITECT, Grade IV (£1,065—£1,220).

Superannuation schemes, medical examination. Housing available. Apply by 19th February, stating post applied for and giving age, education and qualifications, experience and appointments held (with dates and salaries), and names of two referees, to General Manager (A.), Bracknell Development Corporation, Farley Hall, Bracknell, Berks. 8113

STEPNEY MBC require TEMPORARY BUILDING SURVEYING ASSISTANT. Salary £815—£1,100 p.a. Applicants must have suitable qualifications and be experienced in preparation of drawings and specifications for the improvement and conversion of residential properties. Apply to Borough Engineer at Municipal Offices, 227 Commercial Road, E.1. 8198

STEPNEY MBC require TEMPORARY ARCHITECTURAL ASSISTANT. Salary £815—£1,100. Applicants must be members of the R.I.B.A. and experienced in design, construction and administration of large building contracts. Apply to Borough Engineer at Municipal Offices, 227 Commercial Road, E.1. 8197

STEPNEY MBC require TEMPORARY ARCHITECTURAL ASSISTANT. Salary £795—£910 p.a. commencing according to qualifications and experience. Apply to Borough Engineer at Municipal Offices, 227 Commercial Road, E.1. 8196

### WORCESTERSHIRE COUNTY COUNCIL

Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade APT. II (£765—£880). (The vacancy is in the Section concerned with major School projects.) The County Council owns some housing accommodation for which a successful candidate may apply.

Application forms and further particulars can be obtained from L. C. Lomas, F.R.I.B.A., County Architect, 14, Castle Street, Worcester, not later than 19th February, 1960. (V.247) 8206

BUILDINGS SURVEYORS

Architect's Dept., L.C.C., has vacancies in Building Regulation Div. and District Surveyors' Service for work in connection with applications under London Building Acts and byelaws. District Surveyors' offices are located in Metropolitan Boroughs and work involves negotiations with developers and supervision of works in progress.

Up to £1,135 (under review) commencing accdg. to quals. and expce. Appln. form and partics. from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/111/59, County Hall, S.E.1 (2628). 8202

GLENROTHES DEVELOPMENT CORPORATION
TOWN CENTRE DEVELOPMENT

Applications are invited for appointment of THREE ARCHITECTS on Salary Grade rising to £1,375 per annum with placing according to age and experience.

Applicants should be A.R.I.B.A. and have sound experience in the design and construction of COMMERCIAL and SHOPPING Premises appropriate to Town Centre Development. Additional experience of Public Buildings and composite house and shopping, etc., projects would be an advantage.

Houses to rent available if required. Medical examination under Superannuation Scheme. Application forms from Secretary and Legal Adviser, Glenrothes Development Corporation, Glenrothes, Fife, to be returned by 18th February, 1960. 8203

BOROUGH OF JARROW

Applications are invited for the following appointments:—

(*a*) CHIEF ASSISTANT ARCHITECT
Salary within Grade A.P.T. IV/V (£1,065—£1,375) according to experience.
Applicants to be A.R.I.B.A. or equivalent.

(*b*) ASSISTANT ARCHITECT
Salary Grade A.P.T. II (£765—£880).

Details and application forms obtainable from the Borough Engineer, Town Hall, Jarrow, Co. Durham. Completed applications must reach the undersigned not later than Monday, 22nd February, 1960.

H. L. ROTHFIELD,
*Town Clerk.*

Town Hall,
Jarrow. 8129

AIR MINISTRY Works Designs Branch requires in LONDON and Provinces, ARCHITECTURAL ASSISTANTS with adequate training and drawing office experience. O.N.C. (Building) an advantage. Work includes site layouts, sketch plans, working drawings and details for variety of technical and domestic buildings in permanent and semi-permanent construction. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 working days leave per year initially. Overseas tours for which special allowances granted. Salary in LONDON ranges from £680 (age 25) to £900 p.a. for men; from £673 to £868 p.a. for women; somewhat lower in PROVINCES. Commencing salary dependent on age, qualifications and experience. Applicants, who must be natural born British subjects, should write to Air Ministry, W.G.c., Lacon House, Theobalds Road, London, W.C.1, or to any Employment Exchange (quoting Order No. Kings Cross 3744 giving age, details of training, qualifications, full particulars of former posts held and copies of any testimonials). Candidates selected will normally be interviewed in London and certain expenses reimbursed. 7498

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

The Council require SENIOR ARCHITECTS in salary grades A.P.T. IV (£1,065—£1,220) and Special Grade (£785—£1,070) for their extensive and interesting building programme which includes schools, colleges, old people's and children's homes, clinics, ambulance, fire and police stations, and other public buildings. Architects appointed will be employed at the Central Office in Wakefield solely upon capital works dealing with building projects from sketch plans to completion.

Applications are also invited for the undermentioned posts at the Central Office:—

JUNIOR ARCHITECTURAL ASSISTANTS
Grade A.P.T. II (£765—£880).
Grade A.P.T. I (£610—£765).

Applications to be submitted as soon as possible on forms to be obtained from and returned to the undersigned.

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

Bishopgarth,
Westfield Road,
Wakefield. 6607

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
ARCHITECTURAL DRAUGHTSMEN

Unqualified architectural assistants required in the Housing Division. Candidates must have drawing board experience in an architect's office and preference will be given to those proposing to qualify by evening study though others will be considered. Full programme of new work and opportunities for promotion. Starting salaries according to age and experience. Form and particulars from Hubert Bennett, F.R.I.B.A., Architect to the London County Council, County Hall, S.E.1, quoting reference AR/EK/21/60. (180) 8136

COUNTY BOROUGH OF TYNEMOUTH
BOROUGH SURVEYOR'S DEPARTMENT
STAFF

Applications are invited for the following posts:

(1) SENIOR ASSISTANT ENGINEER—A.P.T. IV (£1,065—£1,220).

(2) SENIOR ASSISTANT ARCHITECT—A.P.T. IV (£1,065—£1,220).

(3) SENIOR ASSISTANT QUANTITY SURVEYOR—A.P.T. IV (£1,065—£1,220).

(4) ASSISTANT ARCHITECT—Special Grade (£785—£1,070). Salary according to qualifications and experience.

(5) JUNIOR ASSISTANT ARCHITECT—A.P.T. I (£610—£765).

(6) ASSISTANT QUANTITY SURVEYOR—A.P.T. I (£610—£765) or II (£765—£880) according to qualifications and experience.

The Department has a full and varied programme of work, including 4-storey flats, Municipal Offices, Main Drainage, Sea Defence Works and a five-year Road Programme.

Application Forms, together with Conditions for Appointment, are obtainable from D. M. O'Herlihy, O.B.E., B.Sc.(Eng)., M.I.C.E., 16, Northumberland Square, North Shields, to whom they should be returned by the 20th February, 1960.

The Corporation may assist in the provision of housing accommodation for posts (1), (2) and (3).

FRED. G. EGNER,
*Town Clerk.*

20th January, 1960. 8122

ADMINISTRATIVE COUNTY OF LEICESTER

(*a*) SENIOR ASSISTANT ARCHITECT £1,075—£1,220.

(*b*) ASSISTANT ARCHITECT £785—£1,070.

Candidates for (*a*) must be chartered members of the R.I.B.A., have had considerable experience and be capable of taking charge of contracts from inception to completion; for (*b*) must have passed Parts I and II of the R.I.B.A. final and be capable of executing working drawings.

Lodging allowance and removal expenses may be paid to a married man.

Apply by February 19th on form obtainable from County Architect, 123, London Road, Leicester. 8138

THE SOUTH WALES ELECTRICITY BOARD

SENIOR ARCHITECTURAL DRAUGHTSMAN

Applications are invited for the position of Senior Architectural Draughtsman at the Board's Headquarters, St. Mellons, Cardiff.

Salary: D.5—£790/£890 per annum. N.J.B Agreement.

The successful applicant will be required for work in connection with Offices, Showrooms, Workshops and Buildings to house electrical gear and machinery and must be capable of working up from designs to the completion stage, including all necessary detailing. He must have obtained or be studying for Membership of the R.I.B.A.

Applications stating age, present position, present salary, qualifications and experience should be addressed to the Secretary of the Board, St. Mellons, Cardiff, so as to reach him not later than Tuesday, 23rd February, 1960.

Envelopes should be marked 20/60. 8135

COUNTY BOROUGH OF DERBY
BOROUGH ARCHITECT'S DEPARTMENT

(*a*) SENIOR ASSISTANT ARCHITECT, A.P.T. GRADE IV. (£1,065—£1,220 per annum). Qualifications: A.R.I.B.A.

(*b*) SENIOR ASSISTANT ARCHITECT, Special Grade (£785—£1,070 per annum). Qualifications: A.R.I.B.A.

(*c*) JUNIOR ARCHITECT, General Division. (£210—£595 per annum). Qualifications: Probationer R.I.B.A.

OR

ASSISTANT ARCHITECT, A.P.T. Grade I. (£610—£765 per annum). Qualifications: Intermediate R.I.B.A.

(*d*) JUNIOR QUANTITY SURVEYOR, General Division. (£210—£595 per annum). Qualifications: Student member R.I.C.S. with previous experience in Quantity Surveyor's Office.

OR

ASSISTANT QUANTITY SURVEYOR, A.P.T. Grade I. (£610—£765 per annum). Qualifications: Intermediate R.I.C.S. with good experience in working up Bills of Quantities and Final Accounts, measuring on site and taking off for small works

Commencing salary according to qualifications and experience. Permanent superannuable appointments, subject to one month's notice and to medical examination.

National Conditions of Service.

Forms of application obtainable from and to be returned to the Borough Architect, The Council House, Corporation Street, Derby, not later than Monday, 22nd February, 1960.

G. H. EMLYN JONES,
*Town Clerk.*

28th January, 1960. 8148

FIFE COUNTY COUNCIL

ARCHITECTURAL DRAUGHTSMEN required for County Architect's Department. Salary Scale Executive Division II and III, i.e. £675 to £795 per annum. Superannuation Scheme. Applicants must be skilled and accurate draughtsmen with experience in Architects and Drawing Office routine. Housing may be available. Applications stating age, qualifications, post held and previous experience with details of present salary and copies of recent testimonials by 17th February to the County Clerk, County Buildings, Cupar. No canvassing. 8195

PADDINGTON BOROUGH COUNCIL
DRAUGHTSMAN (£640—£795)

Starting salary according to qualifications and experience. Suitable for probationer member, R.I.B.A. Applications should state age, experience, present and past appointments, names of two referees and should reach me by 15th February, 1960 (quoting A.452).

W. H. BENTLEY,
*Town Clerk.*

Town Hall,
Paddington, W.2. 8188

BOROUGH OF EALING

ARCHITECTURAL ASSISTANT, A.P.T. IV (£1,095 to £1,250 inclusive). Must hold recognized architectural qualifications.

JUNIOR ARCHITECTURAL ASSISTANT, A.P.T. I (£610 to £765 plus London Weighting). Must have passed inter-R.I.B.A. or its equivalent.

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

Closing date 10th February, 1960.

E. J. COPE-BROWN,
*Town Clerk.*

8172

STEVENAGE DEVELOPMENT CORPORATION

Applications are invited for an ASSISTANT ARCHITECT on New Towns Salary Grade III—£880/£1,065—initial salary according to qualifications and experience.

Candidates should have experience of the design and construction of modern buildings and the successful candidate will be engaged on varied and interesting work relating to the building of a New Town which will include Shopping Centres, Housing and Multi-storey Flats, Office Blocks and Industrial Buildings.

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

Applications giving full details of experience and names of two referees should be sent to the Chief Administrative Officer, Aston House, Aston, nr. Stevenage, Herts., by Wednesday, 17th February, 1960. 8179

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

(*a*) SENIOR ASSISTANT ARCHITECTS
(*b*) ASSISTANT ARCHITECTS

Applications are invited for the above appointments on the permanent staff of the Board's Regional Architect, generally in accordance with Whitley Council conditions of service.

The Board is undertaking a considerable programme of hospital development and the persons appointed would be engaged on varied and interesting work in connection with major projects in this programme.

Applicants for (*a*) must be associate members of the Royal Institute of British Architects and should have had considerable experience in preparing working and detailed drawings and specifications and supervising work on individual projects. In addition applicants should have enthusiasm for hospital work and experience in contemporary construction and design. Previous experience of hospital planning and construction would be an advantage but is not necessary. The post offers a good opportunity to anyone wishing to gain experience in this field.

Salary (under review) £1,050 per annum × £30(3) × £35(3)—£1,245 per annum plus £50 per annum London Weighting allowance.

(*b*) must be Associate members of the Royal Institute of British Architects and capable of preparing working and detailed drawings and specifications and supervising work on individual projects; experience of hospital planning and construction an advantage. The commencing salary will be fixed according to age and experience with the scale (under review) £730 × £25(2) × £30(2) × £35(5) × £40(1)—£1,055 per annum.

Applications stating age, experience, qualifications, present appointment and salary together with the names of three referees should be sent to the undersigned at 40, Eastbourne Terrace, W.2, by not later than 20th February.

E. G. BRAITHWAITE,
*Secretary.*

8162

SURREY COUNTY COUNCIL

Applications invited for the following appointments:—

1. ASSISTANT ARCHITECT, SPECIAL GRADE (£785—£1,070 p.a. plus £30 p.a. London Allowance). This grade is particularly suitable for newly qualified Assistants. Must be A.R.I.B.A. and experienced in design and detailing.

2. ARCHITECTURAL ASSISTANTS, Grade I (£610—£765 p.a. plus up to £30 p.a. London Allowance according to age). Must be of good general training, preference given those who have passed Intermediate R.I.B.A.

Candidates will be appointed at the appropriate point within the scale according to age and ability.

Full details, present salary and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 8211

HERTFORDSHIRE COUNTY COUNCIL
DEPUTY COUNTY ARCHITECT

Applications invited for the above appointment on the salary scale £2,670—£2,935. Applicants must be members of the Royal Institute of British Architects.

No application forms will be issued. Applications, giving the names of three referees, to reach the Clerk of the County Council, County Hall, Hertford, by 22nd February, 1960. 8132

SOUTH OF SCOTLAND ELECTRICITY BOARD

Applications are invited from Registered Architects for a superannuable appointment as an ASSISTANT ARCHITECT in the Construction Section of the Chief Engineer's Department.

Applicants should have had experience in the design, planning, erection and maintenance of such buildings as offices, workshops and stores.

Salary, N.J.B., Class AX/EX, Grade 7—£840/£1,065 per annum.

Applications, quoting reference E6/60, should be submitted on the standard form, which may be obtained from the Secretary, South of Scotland Electricity Board, Inverlair Avenue, Glasgow, S.4, and returned not later than 19th February, 1960. 8153

COUNTY BOROUGH OF WOLVERHAMPTON
BOROUGH ENGINEER'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) PRINCIPAL ASSISTANT ARCHITECT—Salary Grade A.P.T. IV (£1,065—£1,220).
(*b*) ASSISTANT ARCHITECT—Salary within the Special Scale—£785—£1,070.
(*c*) ARCHITECTURAL ASSISTANTS—Salary Grade A.P.T. I (£610—£765).

Commencing salaries according to qualifications and experience.

Housing accommodation will be considered and married candidates may qualify for the Council's temporary subsistence or travelling allowance.

Payment of casual user's car allowance may be granted in respect of post (*a*).

Applications, stating age, qualifications, training and experience, and naming two referees, to the Borough Engineer, Town Hall, Wolverhampton, by Monday, 15th February, 1960. 8160

## Architectural Appointments Vacant

3s. *per line; minimum* 12s. *Box Number, including forwarding replies,* 2s. *extra.*

**ASSISTANTS required for busy Architect's City office; Laboratory and Industrial projects. Intermediate standard or above. Apply to: Secretary, Fairlough and Morris, Temple Chambers, Temple Avenue, E.C.4. FLE. 6296.** 5933

BEA require a SENIOR ASSISTANT ARCHITECT. Applications are invited from men who are Registered Architects with at least five years' post-qualifying experience. A thorough knowledge of all stages in the production of working drawings and a good sense of contemporary design are essential. Shop design experience would be of advantage. The post would suit a man of initiative with sound administrative ability and capable of assuming full responsibility for a variety of tasks working under the direct control of the Chief Staff Architect. The work may involve travelling in the UK and on the Continent. Salary, depending on qualifications and experience, in the range £1,060—£1,480. Full details and application form, to be returned not later than 16th February, 1960, from Personnel Officer, Head Office, British European Airways, Bealine House, Ruislip, Middlesex. 8139

**RONALD WARD & PARTNERS have immediate vacancies for ASSISTANT ARCHITECTS with initiative and some experience, for interesting, commercial, industrial and civic projects. Salaries commensurate with ability. Apply, 29, Chesham Place, S.W.1. BELgravia 3361.** 5634

ARCHITECTURAL ASSISTANTS AND DRAUGHTSMEN required for progressive pensionable positions in Berkshire. Full details to Box 8078.

**ARCHITECTURAL ASSISTANT at Final standard required by Buckinghamshire office. Interesting and varied work with scope for initiative and responsibility. State age, experience and salary required to Box 5871.**

**ARCHITECTURAL ASSISTANTS, Senior and Junior, required by firm in High Wycombe for commercial and industrial schemes. Scope for responsibility and experience. Five-day week. Write Box 6636.**

**TREHEARNE & NORMAN, PRESTON & PARTNERS, have vacancies for ARCHITECTS and ASSISTANTS with imagination and designing ability to assist with important new developments in the London area. Apply in confidence to 83, Kingsway, London, W.C.2. (HOL. 4071.)** 6429

**QUALIFIED ASSISTANT ARCHITECTS required, minimum three years' office experience, preferably in London. Minimum salary £1,000 according to ability and experience. Theo. H. Birks, 38, Portland Place, W.1. LAN 7236.** 7126

**INTERMEDIATE standard ASSISTANTS required, minimum two years' office experience. Minimum salary £750 according to ability. Theo. H. Birks, 38, Portland Place, W.1. LAN. 7236.** 7127

**SENIOR ARCHITECTURAL ASSISTANTS, and JUNIORS up to about Intermediate standard, required for varied industrial and commercial work in West End Office. Scope for initiative and advancement. Salary from £500 to £1,000 according to age and experience. Five-day week. Write, giving full details, to Box 7220.**

**ARCHITECTURAL ASSISTANT required, with at least two years' office experience. Apply in writing to Thomas Mitchell & Partners, 20, Bedford Square, London, W.C.1.** 7282

**RCHITECTURAL ASSISTANTS of Final and Intermediate standard required for work on industrial buildings. Excellent opportunities in an expanding London office. Apply, stating age, experience and salary range, to the Chief Architect, Nuclear Civil Constructors, 52/56, Carnaby Street, London, W.1.** 7480

**£1,000** p.a. ASSISTANT ARCHITECT required to work on theatre projects. Apply, stating experience and qualifications, to Devereux and Davies, 3 Gower Street, London, W.C.1. 8155

**ARCHITECTURAL ASSISTANTS required by Hasker & Hall, L./F.R.I.B.A., for senior and intermediate positions. Good salary with scope for initiative and responsibility. Write to 13, Welbeck Street, W.1, or telephone WELbeck 0061.** 7743

**NORMAN & DAWBARN require experienced ARCHITECTS for interesting projects both here and overseas. Applicants should be good designers. Salaries from £900 upwards. Phone or write for an appointment to 7, Portland Place, W.1.** 7745

**LEWIS SOLOMON, KAYE & PARTNERS, rapidly expanding practice, require ARCHITECTS and ASSISTANTS with initiative and competence to work on major design projects in the London area. These projects include Comprehensive Development Schemes, Hotels, Schools, Offices, and Luxury Flats. Good salaries according to ability and experience, luncheon vouchers, five-day week, and excellent working conditions. Write 5, Holborn Circus, Thavies Inn House, E.C.1, or telephone CITy 8811, quoting SLB in both instances.** 7700

LARGE SCALE Development in London and Industrial Buildings in Home Counties. High office blocks and residential flats. Four ASSISTANT ARCHITECTS required. Senior and Intermediate standard. West End Office. Five-day week. Good salaries and bonuses. Box 8086.

**SENIOR AND INTERMEDIATE ASSISTANTS required. Sound knowledge of contemporary design and construction. Ring VICtoria 7088 for an appointment.** 8079

**ASSISTANT required, Final standard, for varied practice in Kingston office of Barber, Bundy & Greenfield, F./A./A.R.I.B.A. Salary by arrangement. Reply to 5, Apple Market, Kingston-upon-Thames.** 7637

**EXCELLENT opportunity for SENIOR and INTERMEDIATE ASSISTANTS in a permanent and progressive appointment with Midland firm of Architects who are working on large projects of an advanced type of design, including comprehensive development schemes, multi-storey office buildings, multi-storey flats, shopping centres, schools, banks, public houses and industrial projects. Apply Box 7638.**

**JOHN H. D. MADIN, Chartered Architect, 83/85, Hagley Road, Birmingham 16, has further vacancies for SENIOR and INTERMEDIATE ASSISTANTS. Suitable senior assistants would be required to take full responsibility for large scale interesting projects.** 7639

**GOTCH AND PARTNERS, ARCHITECTS OF LONDON AND BRIGHTON, require ASSISTANTS, both Senior and Junior. Salary according to ability and experience. Five-day week. Write or telephone for appointment 8, City Road, London, E.C.2. Monarch 3235.** 7906

**QUALIFIED ARCHITECT required. Bristol. Industrial/commercial experience. Scope for individuality and freedom of expression. Good salary. Interesting work. Pension scheme. ASSISTANTS of Intermediate standard also required. Details of experience to W. H. Watkins, Gray and Partners, 1, Clare Street, Bristol, 1.** 7868

**JUNIOR ARCHITECTURAL ASSISTANT required in Wembley. Write stating age, experience and salary required. Box 7834.**

**ARCHITECTURAL ASSISTANT required with good general training, capable of taking charge of London Office. Good opportunity for progressive young architect. Write giving particulars of qualifications and salary required to Box 7870.**

**LEAMINGTON SPA—Quick & Lee (Guy Silk, F.R.I.B.A., A.A. Dip.; A. S. Gasson, F.R.I.B.A., F.R.I.C.S.), Chartered Architects, require immediately ASSISTANT, of Intermediate-Final standard, with ability and experience. Applications, giving full particulars, to: 11, Waterloo Place, Leamington Spa, Warwickshire.** 7871

**BRIGHTON & HOVE.—ASSISTANTS in all grades required. Details please to: H. Hubbard Ford & Associates, F/A.R.I.B.A., 51, Church Road, Hove, 3, Sussex.** 7877

**TOOLEY AND FOSTER require a senior (qualified) ASSISTANT for interesting and varied work on school and general projects with opportunities for taking responsibility and supervising work in progress. Salary will be according to age and length and type of experience. Five-day week; voluntary superannuation scheme. Apply by letter only to: Midland Bank Chambers, Buckhurst Hill, Essex.** 7829

**TOOLEY AND FOSTER require immediately an ARCHITECTURAL ASSISTANT of Intermediate standard for interesting and varied general work with opportunities for taking responsibility. Salary will be according to age and length and type of experience. Five-day week; voluntary superannuation scheme. Apply by letter only to: Midland Bank Chambers, Buckhurst Hill, Essex.** 7830

**WATFORD, Herts.—Two ARCHITECTURAL ASSISTANTS, of at least R.I.B.A. Intermediate standard, required for lively, varied and expanding practice. Write or telephone: Dawe, Carter & Partners, 33, Clarendon Road, Watford—27296.** 7832

**ARCHITECTURAL ASSISTANT required in Wembley. Experience in design and construction of industrial buildings and office blocks. Write stating age, experience and salary required. Box 7833.**

NORMAN & DAWBARN invite applications from ARCHITECTURAL ASSISTANTS at Intermediate/Final standard with at least three years' office experience. Salary approximately £900 upwards. Write to: 7, Portland Place, W.1, giving full particulars. 7800

ARCHITECTURAL ASSISTANT, Final standard, required. Interesting and contemporary work. Five-day week. J. Seymour Harris & Partners. EDG. 4571. 7852

ASSISTANT (R.I.B.A. Intermediate or Final) required in City Office. Varied and interesting schemes from design stage. Five-day week, luncheon vouchers. State age, experience and salary required, to Box 7856.

SENIOR ARCHITECT urgently required for small but expanding London practice with a wide variety of work. Good all round experience with design ability is essential and there is a promising future for a man of the right calibre. Salary initially within the range £1,000—£1,200 p.a. Details please to Alan S. Raimes & Associates, 6, Holborn Viaduct, London, E.C.1. 7858

ARCHITECTURAL ASSISTANTS required. Intermediate and Final standards. State age, experience, salary, etc. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. 7866

ARCHITECTURAL ASSISTANTS, Intermediate standard, required in London Office with varied practice. Interesting projects. Five-day week. Write, giving particulars of age, experience, etc., to Box 906, c/o 7, Coptic Street, W.C.1. 7864

WELLS, HICKMAN & PARTNERS need a keen ARCHITECTURAL ASSISTANT capable of working without supervision. Several years' experience, sound knowledge of construction and very good draughtsmanship are vital. Salary in the region of £700. Please ring TER. 1404 for appointment. 7919

ARCHITECTURAL ASSISTANTS, from R.I.B.A. Intermediate Standard, are required in the Nottingham office of a firm engaged on an extensive school and church programme. Applications stating qualifications, experience, and salary, etc., to: Messrs. Reynolds & Scott, F/A.R.I.B.A., 72, St. James's Street, Nottingham. 7915

ARCHITECT'S Department in City requires an ASSISTANT of about Intermediate R.I.B.A. standard with some office experience. Salary £700—£750 and work of an interesting and varied nature. Secure future for suitable applicant. Write giving particulars of age, experience and salary required. Box 8080.

ARCHITECTURAL ASSISTANT with good knowledge of building construction and drawing required in the Architect's Department of a London Property Company. Mainly domestic development. Luncheon vouchers. Five-day week. Write age, experience and salary required. Box 7969.

ARCHITECT'S well established office, Charing Cross, require qualified SENIOR ASSISTANTS and INTERMEDIATE ASSISTANTS. Varied type of work. Good salaries commensurate with experience. Five-day week. Write Box 7968.

ARCHITECTS, London Office, have vacancies for a number of competent ARCHITECTURAL ASSISTANTS. Excellent opportunity for men with drive. L.V., 5-day week and pension scheme. Write Box JA/102 c/o 95, Bishopsgate, E.C.2. 7966

QUALIFIED ARCHITECT required, age approximately 28-35 years, particularly interested in high quality Exhibition and Interior work, to take charge of small design studio. Salary £1,500—£2,000. Box 7949.

**£1,000** p.a. ASSISTANT ARCHITECT required to work on central library project. Apply, stating experience and qualifications, to Devereux and Davies, 3 Gower Street, London, W.C.1. 8156

ARCHITECTURAL ASSISTANT required for university laboratories and other buildings. Good draughtsman with knowledge of building construction. At least five years' office experience. Reply giving details of experience and salary desired to Caroe & Partners, 16, Great College Street, Westminster. 7948

THERE are vacancies in our design teams for keen types of all grades who enjoy working in groups on very varied projects, such as schools, commercial work, churches, etc., etc. Five-day week. Three weeks' holiday. Excellent salaries progressively reviewed. Arthur Farebrother & Partners, 99, Seymour Grove, Manchester 16. 7946

MICHAEL LAIRD requires ASSISTANTS, with some experience, to work primarily on housing and/or office buildings (with optional admixture of alterations in rural areas); initiative and reliability prerequisite for joining young and happy office (within salary range £750—£1,000 p.a.) at 65, Castle Street, Edinburgh. 7936

GLASGOW. ASSISTANTS, Qualified and Intermediate standard, required for interesting projects. Five-day week, three weeks' annual vacation, salary ranging from £744 to £1,032 according to experience. Honeyman, Jack & Robertson, Chartered Architects, 195, Bath Street, Glasgow, C.2. 7940

ASSISTANTS required in West End Architects' Office. Salary up to £1,300. Box 8046.

ARCHITECTS required for interesting work in progressive office. Salary according to age and experience. Apply in writing to Oxley and Bussey, A./A.R.I.B.A., 91, Pinstone Street, Sheffield, 1. 8048

TWO ASSISTANTS required: one at Intermediate standard and one qualified with some years office experience, for small busy office. Salary according to experience. Ring LANgham 1732 or write to F. G. Frizzell, A.R.I.B.A., 80, Portland Place, W.1. 8022

CHARLES PIKE & PARTNERS require ASSISTANTS for interesting schemes. Training Colleges, Technical Colleges, Schools, Hostels. Salary according to experience, £700 to £1,050. Write 14, Lincoln's Inn Fields, W.C.2, or phone Holborn 3532 for appointment. 8023

SENIOR ASSISTANT ARCHITECTS, qualified and experienced, for Coventry office. ARCHITECTURAL ASSISTANTS, Intermediate or Finals standard, for Liverpool office. Important, interesting and varied work. Five-day week, pension scheme. Write giving experience and salary required to Hellberg and Harris, F./F.R.I.B.A., 13, Queen Victoria Road, Coventry. 8000

ARCHITECTS' Office with modern approach to design requires ASSISTANTS of Intermediate and Final standard, London or Reading, for interesting and varied work. Good salary. Eric G. V. Hives and Sons, 80, Wimpole Street, Cavendish Square, W.1, and 46, Queen's Road, Reading. Apply in first instance to Reading (Telephone 55484/5). 8002

ARCHITECT requires CHIEF or SENIOR ASSISTANT, also JUNIOR ASSISTANT for interesting work including shops, offices and schools. Apply in writing stating age, experience and salary required to Roff Marsh, F.R.I.B.A., M.T.P.I., 125, London Road, Chelmsford. 8001

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have immediate vacancies in their Welwyn Garden City office for SENIOR and JUNIOR ASSISTANTS. Write stating age, salary and experience to the above at Midland Bank Chambers, Howardsgate, Welwyn Garden City, Herts. 7995

ASSISTANT required, Intermediate to Final standard, for interesting commercial and industrial work. Salary commensurate with ability and enthusiasm. Good office conditions, lunch facilities. Apply in writing to Alan A. Briggs, F.R.I.B.A., 10, Fleet Street, London, E.C.4. 7994

CROYDON. Experienced and competent SENIOR ARCHITECTURAL ASSISTANT required. Write stating fullest particulars to Graham Crump & Denis Crump, F./A.R.I.B.A., 43, George Street, Croydon. 7988

CROYDON. Alert, practical ARCHITECTURAL ASSISTANT required. Intermediate standard. Write giving particulars of experience, age, and salary required to Graham Crump & Denis Crump, F./A.R.I.B.A., 43, George Street, Croydon. 7989

YOUNG ASSISTANT required. Good draughtsman, Intermediate standard. Salary £400—£450 p.a. Five-day week. Telephone REGent 7551. 7986

INTERMEDIATE standard ARCHITECTURAL ASSISTANT required immediately for work on exhibition and ancillary buildings. Write, giving details of age, training, and experience, if any, to Staff Architect, Olympia Limited, Kensington, W.14. 7626

ARCHITECTURAL ASSISTANTS required in West End office. Should have good knowledge of building construction and several years' office experience. Box 7777.

GEORGE WIMPEY & CO., LIMITED. An expanding programme of work in the Architects' Department offers good opportunities to ARCHITECTS AND ASSISTANTS keen to apply their knowledge and ability to progressive design and construction techniques. The work covers varying types of Industrial, Commercial and Domestic Projects of considerable size and interest. Permanent appointments, with good salaries and covering a wide range of experience, are immediately available at Head Office. Five-day week; Pension scheme available for successful applicants wishing to make a career with the Company. Applicants should write to: E. V. Collins, A.R.I.B.A., Chief Architect, 27, Hammersmith Grove, London, W.6. 7980

ARCHITECTURAL ASSISTANT required for Agricultural practice. Salary £400—£600. Quick and competent draughtsman. Some knowledge of agricultural buildings an advantage. Write, stating age and experience, to R. A. Bennett & Partners, Chartered Surveyors & Land Agents, 29, Sheep Street, Cirencester, Glos. 7983

CAPABLE ARCHITECTURAL ASSISTANTS (all grades) required in a modern office in Hemel Hempstead. Interesting and varied work. State age, training, qualifications and/or experience. Box 7978.

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A. G. PORRI & PARTNERS have immediate vacancies for ARCHITECTURAL ASSISTANTS of Intermediate/Final standard with at least three years' office experience. This is a small but expanding office engaged on large scale projects. Apply in writing to 13, Gt. James Street, Bedford Row, W.C.1, stating experience and salary required. 8013

COLLCUTT & HAMP will welcome applications from experienced and enterprising STUDENT ASSISTANTS who are eager to pursue their studies and to take a responsible part in the work of a varied, interesting and busy practice. The office is very pleasantly situated, and the staff, though young, are keen and experienced. Five-day week. Phone: PRI 9157. 80, Prince Albert Road, Regents Park. 8017

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ARCHITECTURAL ASSISTANTS required, R.I.B.A. Intermediate standard with some office experience. Varied and interesting work. Five-day week. Good salaries for keen and competent people. William Crabtree, F.R.I.B.A., 8, Robert Adam Street, W.1 (WELbeck 9909). 8033

ARCHITECTURAL ASSISTANTS, Junior and Intermediate level, required for Manchester Office of Bank Architect's Department, having an extensive programme of new construction and improvements. Applications giving age, experience and salary required to Box 8035.

£1,000/£2,000 p.a. will be paid to experienced competent ARCHITECTS by a private practice in the City of London. The work will be primarily on the drawing board on new and interesting projects of magnitude. A high standard of design and detailing ability is required. Please apply in writing to Box 8041.

ASSISTANT ARCHITECTS and STUDENTS are desperately required to help on schemes for hospitals, offices, colleges, housing, showrooms and a power station, scattered from Scotland to Nigeria, with ship interiors floating between. All the work, however, is done from our new offices in High Paddington. Please telephone for an interview. George, Trew and Dunn, Paddington 6611. 8043

ARCHITECTURAL ASSISTANT required with two or more years' practical office experience, salary £800—£900 per annum. Apply by letter only stating age, experience and qualifications to Stock, Page and Stock, FF.R.I.B.A., Fanshaw House, Fanshaw Street, N.1. 8008

INTERESTING and permanent position offered to Architectural Assistant at Welwyn Garden City. Excellent office conditions and variety of work.—Chas. W. Fox, F.R.I.B.A., National Provincial Bank Chambers, Welwyn Garden City. 7913

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PART TIME WORK. Qualified woman architect requiring part time office work, e.g. 3-4 days per week or equivalent, is invited to telephone Gerrard 3584 for an appointment. Small central London office with easy access by Northern and Central lines. 8201

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FARMER AND DARK require experienced ARCHITECTS, all levels, Offices, Laboratories, Factories, Schools, etc. Apply in writing stating salary required. Romney House, Tufton Street, S.W.1. 8191

ARCHITECTURAL ASSISTANT required of up to intermediate standard. Must be capable of handling small contracts and executing site surveys. Salary up to £600 per annum according to ability. Apply in writing giving full details of experience, etc., to Marsh & Waite, A.R.I.B.A., 14, King Street, King's Lynn, Norfolk. 8178

RESIDENT ARCHITECT required for period of 2 years to supervise new residential buildings for Fouran Bay, the University College of Sierra Leone. Salary £2,000 p.a., house, passages, etc. Write to Frank Rutter, F.R.I.B.A., 2 Finchley Road, London, N.W.8, marking envelope confidential. 8192

ARCHITECTURAL ASSISTANT required in Birmingham Office for preparation of working drawings, specifications, etc. Ability to drive a car an asset. Salary according to experience. Pension Scheme. Box 8187.

ARCHITECTURAL ASSISTANTS required immediately. Intermediate or final standard. 5-day week. Salary according to experience. Write or 'phone David Landaw & Partners, Chartered Architects, 7 Hill Street, W.1. GRO 5564/5. 8188

ARCHITECTURAL ASSISTANT required for City Office. Qualifications unnecessary, but experience in the preparation of working drawings essential. Salary £1,000 per annum, plus Luncheon Vouchers. 5-day week. Box 8189.

SMALL London office with general practice requires ASSISTANTS with some experience to assist in administration of contracts. Write experience and salary required to Box 8173.

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ARCHITECTURAL ASSISTANTS wanted, Intermediate and Final. Please write stating age, training and experience and salary required to: S. W. Wendes, 30, Quay Street, Newport, I.W. 8177

EXCEPTIONAL opportunity occurs for ARCHITECTURAL ASSISTANTS of Intermediate standard to gain experience in busy modern office dealing with industrial and commercial architecture at home and overseas. Scope for originality and contemporary design. Five-day week. Address applications, giving age, experience and salary required, to Stuart Bentley, F.R.I.B.A., Company Architect to the Dunlop Group of Companies, Fort Dunlop, Erdington, Birmingham, 24—marked "Architectural Assistants." 8090

J. DOUGLASS MATHEWS & PARTNERS have three vacancies for ARCHITECTURAL ASSISTANTS. Salary range £700 to £1,000. Group system operated, giving opportunity for taking part in all aspects of work. Graded salary system. Annual Bonuses. Pension Scheme. Luncheon Vouchers. 3, Ebury Street, London, S.W.1. 8093

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SIR HUGH CASSON, NEVILLE CONDER & PARTNERS urgently require SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS for work on a wide variety of projects. Please write or telephone, 35, Thurloe Place, S.W.7. KNI. 4581. 8096

ARCHITECTURAL ASSISTANT urgently needed in Head Office of a large private practice; Intermediate/Final standard with a few years' office experience; salary up to £850, according to experience and ability. Superannuation scheme for married men. Apply in full detail to: Ruddle & Wilkinson, F/L/A.R.I.B.A., Long Causeway Chambers, Peterborough. 8100

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RICHARD COSTAIN LIMITED wish to appoint additional STAFF to their Architects' Department. There are vacancies for men recently qualified or near qualifying, who are interested in multi-storey and industrial buildings. Qualified men with several years' experience will also be considered for a more senior appointment. Please write to: Personnel Officer, 111, Westminster Bridge Road, London, S.E.1. 8104

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requires
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The Company requires Assistants who have experience in the design and construction of modular buildings and who can contribute experience in expanding a predominately timber construction into steel and concrete variants which will embrace materials from brick to plastics. The work covers the design and supervision of complete projects, from schools to canteens and offices, and the salary range is £750—£1,100, commencing salary will be at any point in this scale.

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A SMALL expanding practice in Hampstead carrying out varied and interesting projects requires the services of a Qualified ARCHITECT, aged 25/30, with drive and initiative, willing and able to accept responsibility, in return for the fitting rewards of a progressive practice. Will applicants kindly write details of age, experience and salary required to: Kenneth C. Saunders, Lymington House, 341, Finchley Road, London, N.W.3. 8108

INTERMEDIATE STANDARD ASSISTANT required for varied practice in either Kingston, Guildford or Dorking office of Barber, Bundy & Greenfield, F/A/A.R.I.B.A. Salary by arrangement. Reply to 5, Apple Market, Kingston-upon-Thames. (KIN. 0011.) 8112

ARCHITECTS' CO-PARTNERSHIP require qualified and nearly qualified ASSISTANTS with some experience for work on University Research Laboratories and Special Schools. Write to 44, Charlotte Street, W.1, or phone LANgham 5791. 8140

J. W. BEAUMONT & SONS, 51, Mosley Street Manchester, 2, have vacancies for experienced ARCHITECTURAL ASSISTANTS. Please apply in writing, giving details of experience and qualifications. First class draughtsmanship important. Pension scheme in operation. Salary by agreement. 8115

JUNIOR ASSISTANTS and DRAUGHTSMEN required for progressive office. Good salary and prospects. Applications to James Parr, Architect, 132a, Nethergate, Dundee. 8116

ARCHITECTURAL ASSISTANTS required by Consulting Engineers for work on Power Station and other industrial buildings. Write, stating age, experience and salary required, to C. S. Allott & Son, North Parade, Manchester, 3. 8117

GRENFELL BAINES & HARGREAVES require SENIOR ASSISTANTS with at least four years' experience for interesting variety of work in their Manchester Office. Salary about £1,200 p.a. Please apply to: D. A. Cobb, 423, Oxford Road, Manchester, 13. 8118

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ASSISTANT with office experience required for varied and interesting work. Opportunity for men with initiative to take responsibility. Salary up to £750 according to experience. Stewart & Hendry, F.F.R.I.B.A., A.M.T.P.I., 90, Fenchurch Street (Royal 6216). 8210

**£1,000** p.a. ASSISTANT ARCHITECT required for major office project. Apply, stating experience and qualifications, to Devereux and Davies, 3 Gower Street, London, W.C.1. 8157

CIVIL ENGINEERING or ARCHITECTURAL ASSISTANT (not necessarily qualified) for sales appointment with London Company having world-wide interests, and manufacturing products used in building construction. Applicant should be aged 25-30, able to read drawings and should have site experience. He would be required to visit Civil Engineers, Architects and construction sites and to prepare specifications. Salary according to age and experience, pension scheme available. Write with full details to Box 8131.

SEELY AND PAGET have an immediate vacancy in their City Office for an experienced and responsible ASSISTANT. Salary range £842×£52(4)—£1,050. Write: 41, Cloth Fair, E.C.1, or Telephone: MET 8511. 8208

JUNIOR ASSISTANT required for work in connection with exhibition and ancillary buildings (not stand design). Write giving details of age, training and salary required, to Staff Architect, Olympia Limited, Kensington, W.14. 8205

TOOTING ARCHITECT offers scope for initiative and training in busy and varied small office practice. Write age, experience and salary to G. E. Spicer, A.R.I.B.A., 45, Chillerton Rd., S.W.17. 8120

COSY busy Holland Park office requires inter. ASSISTANT. Tea served by ex model girl. Applicant need not be "house trained" but this would help. PARk 7042. 8106

ARCHITECT'S ASSISTANT. Ability to survey buildings and good draughtsmanship essential. Time-off for studies if desired. Reply in writing stating age, training, experience and salary. G. R. Vaughan Ellis, Chartered Architect, N.P. Bank Buildings, Liskeard, Cornwall. 8121

ASSISTANT required for small contemporary practice. Salary up to £1,000 dependent on ability. Write giving concise details, age, experience, qualifications and present salary. Dore and Wurr, "Buttsmead," Eastcote High Road, Pinner, Middx. 8149

YORKE, ROSENBERG & MARDALL require ASSISTANT ARCHITECTS. Applicants please state age, training and experience to Y.R. & M., 2, Hyde Park Place, W.2, or ring AMB 4521. 7642

ARCHITECTS with busy practice in Brighton require ASSISTANTS with practical experience for varied work. Salary up to £750 per annum. Five-day week, pension scheme, etc. Box 5848.

ARCHITECTURAL ASSISTANT with experience in Schools, Light Industrial Work and Housing, required immediately. Permanent position to suitable applicant. Living accommodation can be provided. Write in own handwriting to—Scales & Howard Bradford, National Provincial Bank Chambers, Terminus Road, Eastbourne. 8150

SIR ROBERT TASKER & PARTNERS immediately require ARCHITECTURAL ASSISTANTS (Final and Intermediate) in office with varied practice. Write to No. 3, Field Court, Gray's Inn, W.C.1, or telephone Chancery 5957 stating salary required. 4913

SENIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required in company's architectural department in Nottingham, working on pre-fabricated systems and the design and construction of traditional buildings. Qualifications desirable but not essential. Varied experience and enthusiasm required. Please write to Staff Architect, W. J. Simms Sons & Cooke Ltd., Building and Civil Engineering Contractors and Pre-fabricators, Haydn Road, Sherwood, Nottingham. 8163

ARCHITECTURAL ASSISTANT required essentially one with wider interests in industrial as well as domestic building at home and overseas. Vacancy is with a Westminster professional firm whose work covers wide range including airport buildings, large administration offices as well as the industrial side. Experience and initiative the desirable features though qualifications undoubtedly advantageous. Age range say up to 35. Remuneration to be adjudged on ability. Box 8171.

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LONDON ARCHITECTS require ASSISTANTS of Intermediate and of Final Standard for work on large scale University development. Salaries commensurate with experience. 5-day week. Telephone WHI 2552 or write Box 8176.

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EXPERIENCED ASSISTANT required to supervise Architects' office, West London. Interesting and varied work. Box 8170.

SENIOR ARCHITECTURAL ASSISTANT required. Busy Office, Market Town. Applicant must be entirely experienced with domestic work and capable of acting on own initiative. Experience more important than qualification. Salary range £650—£900 according to experience and ability. Marsh & Waite, Chartered Architects, 14, King Street, King's Lynn, Norfolk. 8151

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BIRMINGHAM. Clifford Tee & Gale, F/F.R.I.B.A., require experienced Senior ASSISTANTS and experienced Intermediate standard ASSISTANTS for interesting industrial and commercial work in a congenial atmosphere. Five-day week. Three weeks' holiday after two years' service. Profit-sharing scheme. Pension scheme. Please apply to Mr. R. G. Cox, F.R.I.B.A., 43, Frederick Road, Birmingham, 15. Tel.: EDGbaston 3676. 8133

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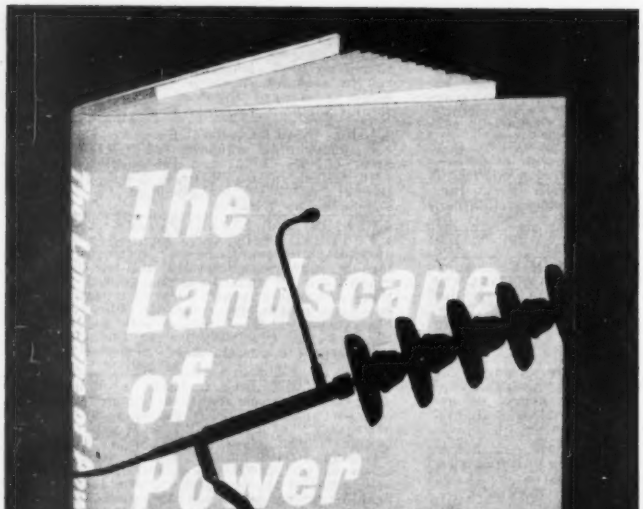
ARCHITECTURAL ASSISTANTS, senior and junior, wanted. Apply in writing, stating experience and salary desired, to Ian G. Lindsay & Partners, 17, Great Stuart Street, Edinburgh, 3. 8127




## The Landscape of Power
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THIS BOOK *is addressed to everyone who cares about Britain's landscape. Sylvia Crowe, the eminent landscape architect, is not a preservationist. She accepts the fact that you cannot put the clock back; she accepts the essential need for the construction of immense oil refineries, nuclear reactors, power stations, and the network of the electricity grid. 'This network of power' she says, 'opens up a prospect of future wealth for the country, of clean industry and more efficient agriculture.' What she will* not *accept is that the introduction of these vast new structures into the landscape need necessarily ruin it, and in this practical, lucidly written handbook she calls for more thoughtfulness among those who are responsible for their construction. She shows, with text, photographs and diagrams, that giant buildings and their accessories can be incorporated in the landscape without destroying it—indeed, that given skilful design and sensitive siting they can in some circumstances enhance the natural scene.*

*There are nine chapters in the book and they deal with The New Industrial Age; Power and National Parks; Nuclear Power Stations; Hydro-Electric Power; Electric Transmission; Oil; Airfields; New Industries in Old Areas; Conclusion. Size* 8¾*in.* × 5½ *in.* 116 *pages including over* 70 *diagrams and halftone illustrations.* 16*s. net, postage* 10*d.*

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A CAPABLE DRAUGHTSMAN seeking varied and interesting appointment in Industry is required immediately by expanding Company specialising in designed Acoustics. He should have design ability, preferably some estimating knowledge and be prepared to accept responsibility. Commencing salary £750 to £850, according to qualifications, with good prospects. Apply Sound Control Limited, Acoustic Engineers, Colneside Works, West Drayton, Middx. Tel. West Drayton 3685, Ext. 17. 8184

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A. G. DAWTRY,
*Town Clerk.*

Westminster City Hall,
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|---|---|---|
| Abbey Building Supplies Co., Ltd., The | 130 | 0001 |
| Acme Flooring & Paving Co. (1904) Ltd. | 116 | 0004 |
| Aidas Electric, Ltd. | 56 | 0009 |
| Airscrew Co. & Jicwood, Ltd. | 94 | 0011 |
| Alumin Building Components, Ltd. | 23 | 0019 |
| Architects' Benevolent Society | 128 | 0023 |
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| Associated Lead Manufacturers, Ltd. | 74 | 0036 |
| Assoc. of Vermiculite Exfoliators | 67 | 0144 |
| Atkins, W. S. | 130 | 0961 |
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| Bendz, Ltd. | 110 | 0056 |
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| British Transport | 128 | — |
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| Broads Mfg. Co., Ltd. | 115 | 0112 |
| Brooks Ventilation Units, Ltd. | 21 | 0114 |
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| Cement Marketing Co., Ltd., The | 95 | 0136 |
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| College of Estate Management, The | 122 | 0772 |
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| Colt Ventilation, Ltd. | 53 | 0150 |
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| Corrie, J. B. (Flextella), Ltd. | 108 | 0228 |
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| Crittall Aquafont Group, Ltd. | 106 | 0885 |
| Croggon & Co., Ltd. | 2 | 0171 |
| Crompton Parkinson, Ltd. | 24 | 0172 |
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| Dialled Despatches, Ltd. | 110 | 0837 |
| Dixons Paints, Ltd. | 112 | 0183 |
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| Eastwoods Sales, Ltd. | 88 | 0198 |
| Ellis School of Architecture, The | 130 | 0202 |
| Engravers' Guild, Ltd., The | 117 | — |
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| Falk Stadelmann & Co., Ltd. | 35 | 0214 |
| Falk Stadelmann & Co., Ltd. | 45 | 0893 |
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| Gyproc Products, Ltd. | 13 | 0266 |
| Gypsum Mines, Ltd. | 103 | 0720 |
| Harrisons (Birmingham), Ltd. | 120 | 0281 |
| Haskins Rolling Shutters | 92 | 0285 |
| Hathernware, Ltd. | 130 | 0691 |
| Heaton, Wallace | 122 | 0955 |
| Heatrae, Ltd. | 109 | 0287 |
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| Lewis, G. W. Tileries, Ltd. | 64 | 0352 |
| Lillieshall Co., Ltd., The | 105 | 0910 |
| London Brick Co., Ltd., The | 90 | 0366 |
| London County Council | 122 | — |
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| Standard Patent Glazing Co., Ltd., The | 119 | 0585 |
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| Stott, James, Ltd. | 98 | 0602 |
| Stramax Ceilings (G.B.), Ltd. | 102 | 0603 |
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