

THE ARCHITECTS' JOURNAL

MAR 23 1960

FINE ARTS



Standard contents

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

NEWS and COMMENT

Trafalgar's Notes and Topics

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TECHNICAL SECTION

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formation Centre

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he Industry

CURRENT BUILDING

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[Vol. 131

ARCHITECTURAL PRESS

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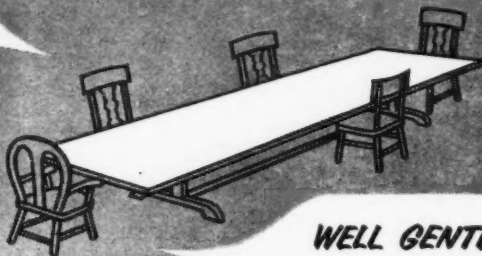
★A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to I one week, II to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

ILA	Institute of Landscape Architects. 1, Park Crescent, Portland Place, W.1. Museum 3473
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2. Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1. Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1. Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3. Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1. Welbeck 9966
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1. Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee). Fire Research Station, Boreham Wood, Herts. Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2. Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1. Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1. Hyde Park 7070
MOH	Ministry of Health. 23, Savile Row, W.1. Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1. Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1. Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2. Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, Berkeley Square, W.1. Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1. Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 14 Howick Place, Victoria Street, S.W.1. Victoria 1600 & 6477
NAS	National Association of Shopfitters. 2, Caxton St., S.W.1. Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1. Abbey 5111
NEF-MAI	National Employers Federation of the Mastic Asphalte Industry. 21, John Adam Street, Adelphi, W.C.2. Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1. Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4. Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1. Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1. Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington. Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3. Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1. Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1. Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1. Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1. Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh. Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1. Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1. Whitehall 5322/9245
RFAC	Royal Fine Arts Commission. 5, Old Palace Yard, S.W.1. Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1. Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2. Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1. Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1. Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1. Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3. Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1. Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1. Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2. Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4. City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1. Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4. City 5040
WDC	War Damage Commission, 6, Carlton House Terrace, S.W.1. Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1. Grosvenor 6636

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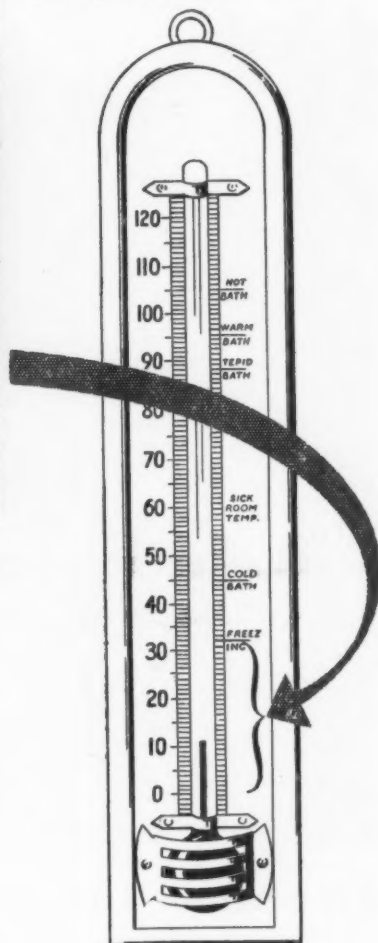


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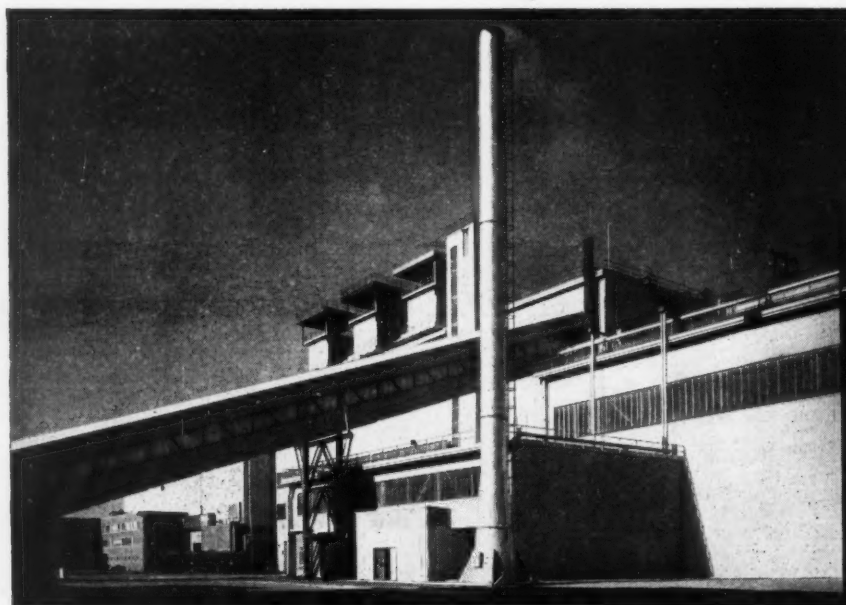
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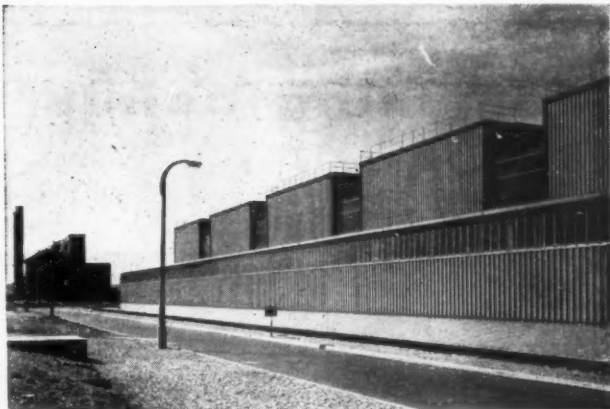
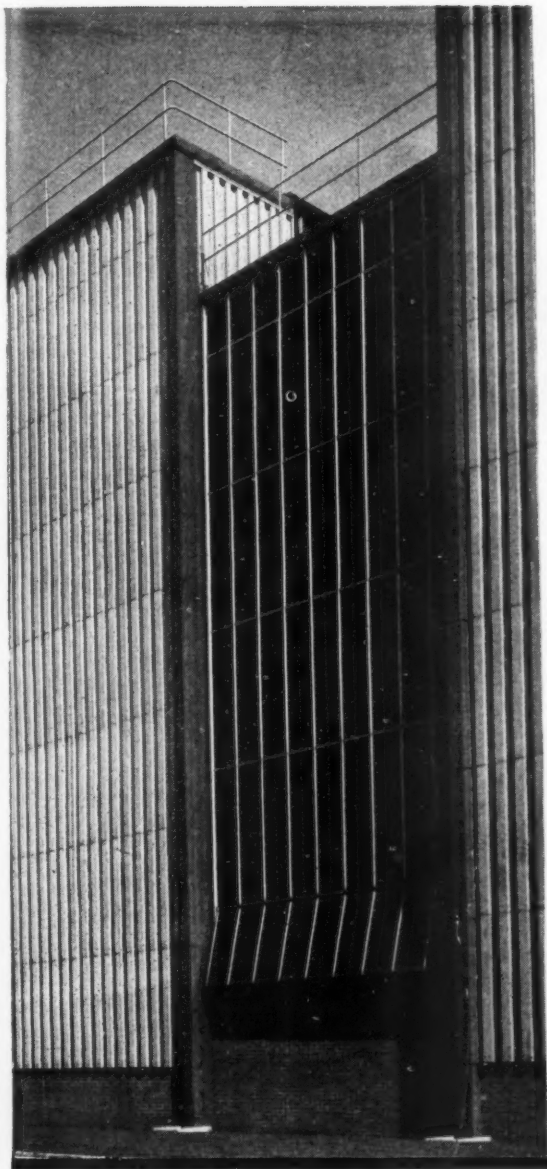
Sir Percy Thomas & Son, Cardiff, Swansea and Shrewsbury.

Consulting Engineers:

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The Steel Company of Wales works at Port Talbot and Swansea are among the best known post-war industrial developments.

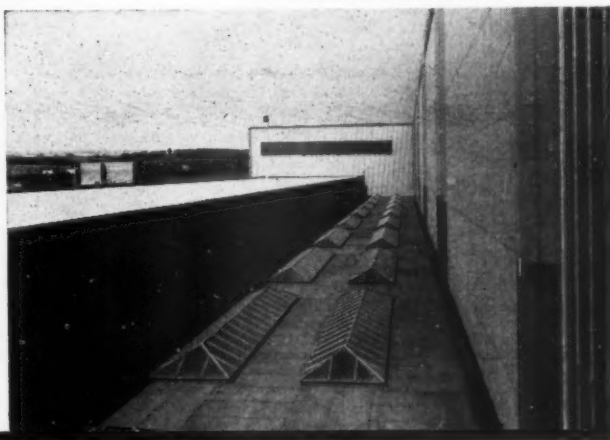
What is perhaps less well known is the part aluminium played in their construction. Williams & Williams ALUMINEX PATENT GLAZING was chosen for its speed of erection, favourable balance between prime and maintenance costs, and the ease with which broken panes of glass can be replaced at any time.



Close-up of Aluminex Sidewall Glazing on the west side of Velindre Works.

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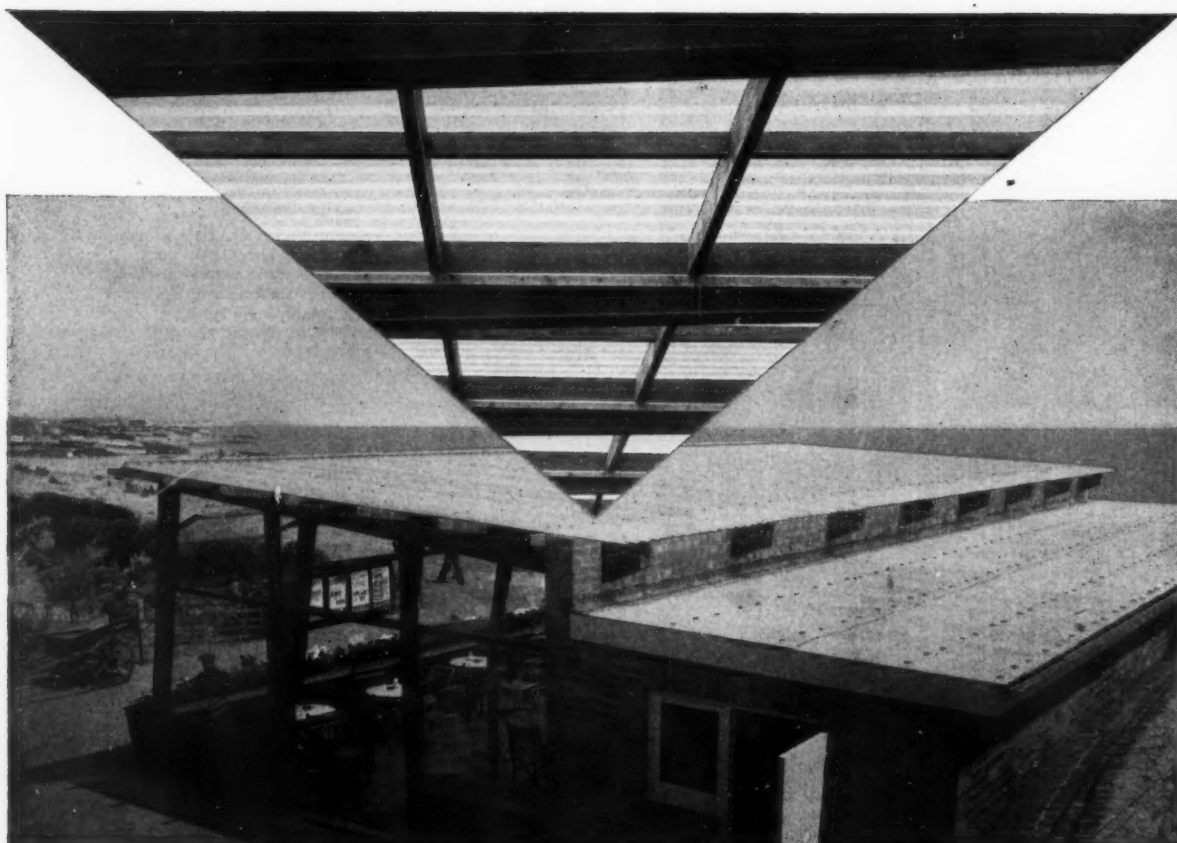
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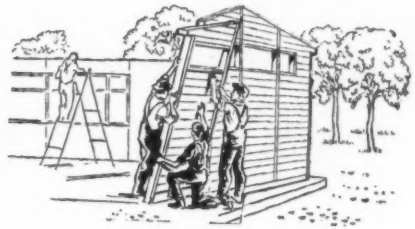
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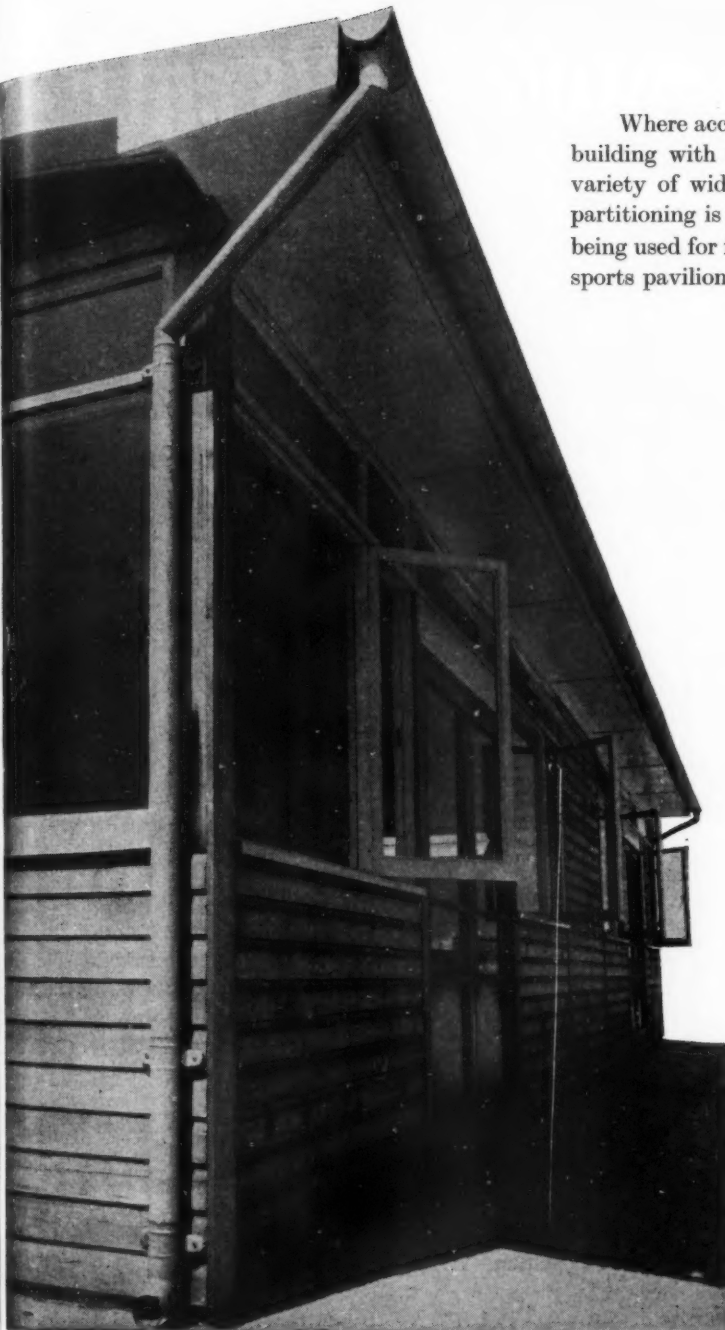


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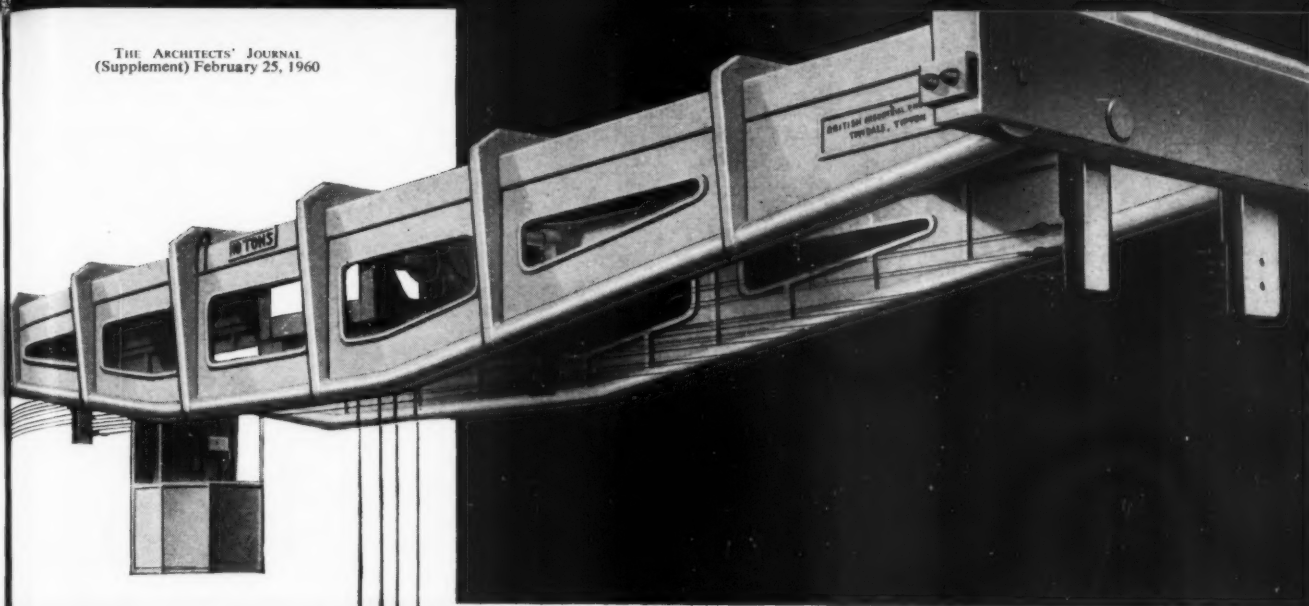
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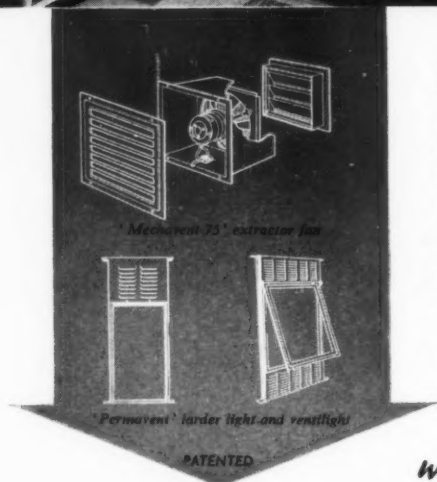
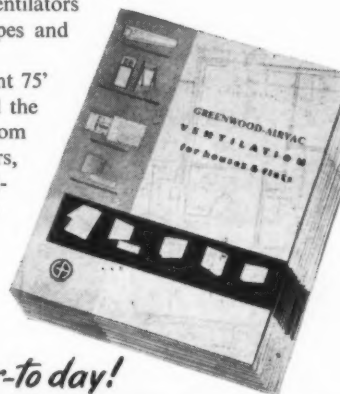


(above) 'The Cricketers,' Woodford—Architect: C. P. Sapin, (Chief Architect)
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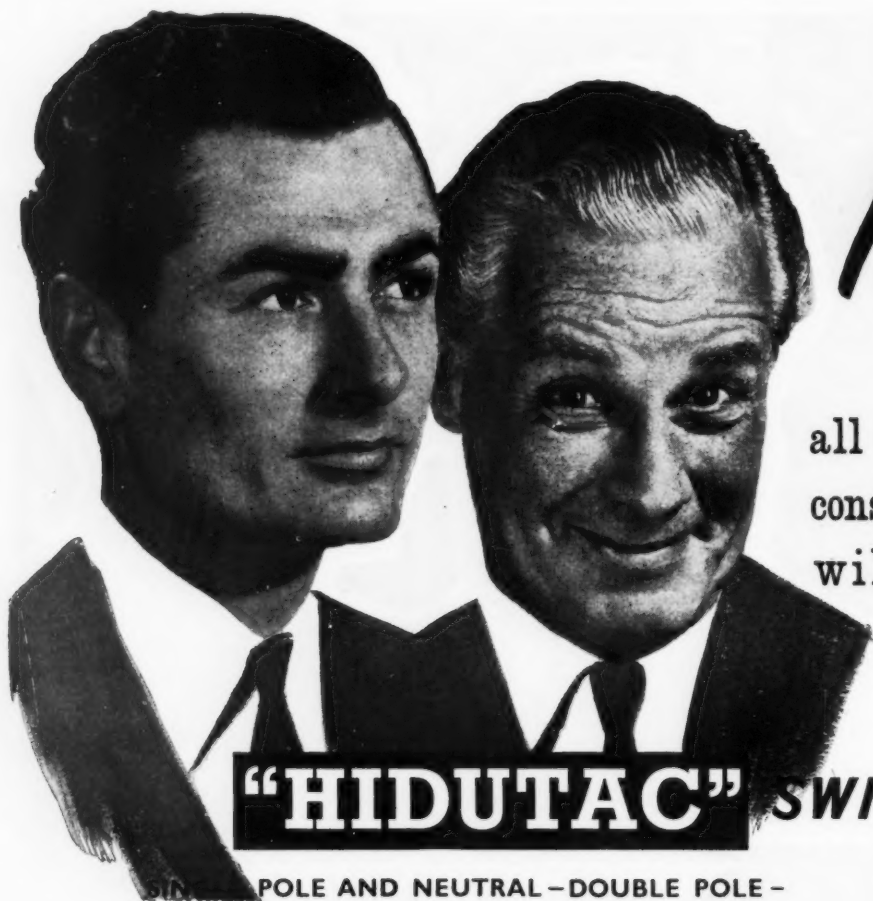
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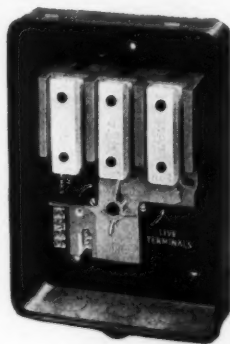
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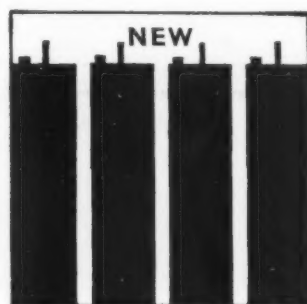
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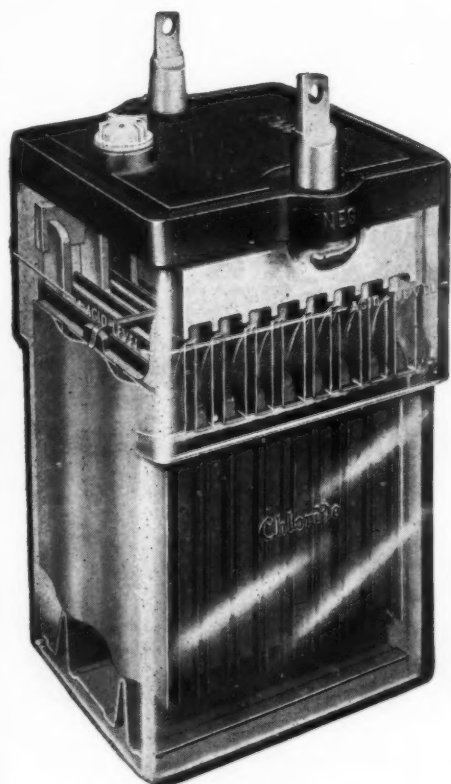
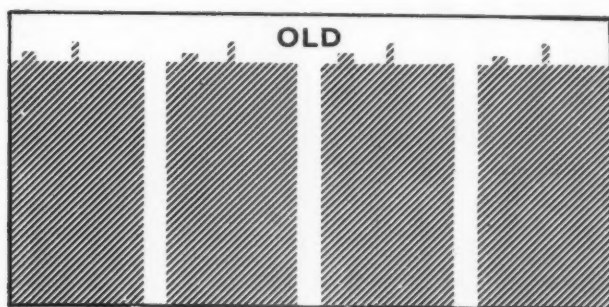
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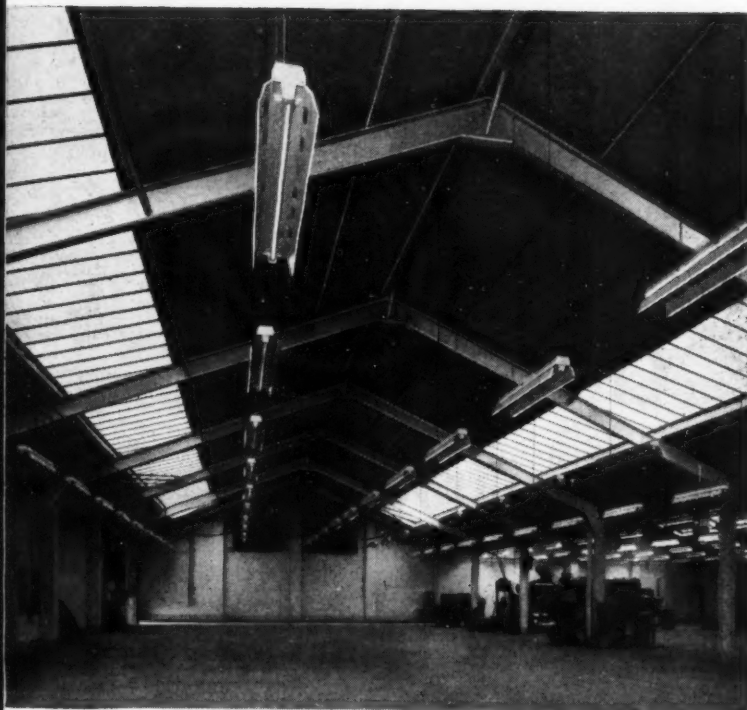
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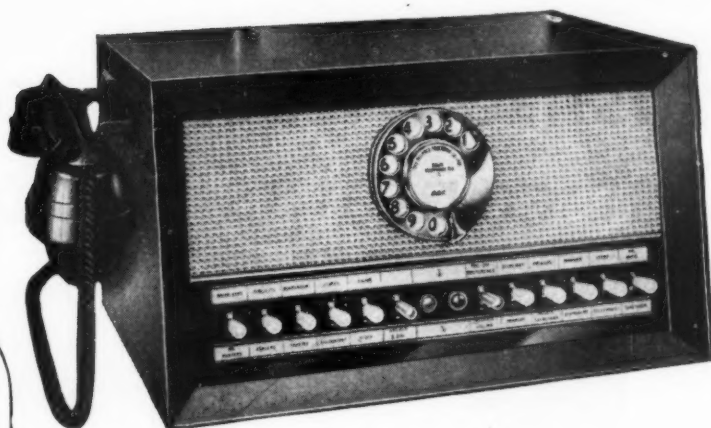
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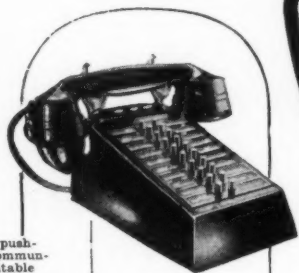
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and green ba

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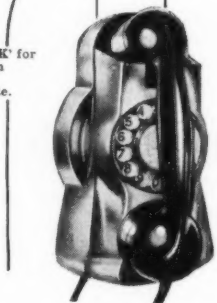
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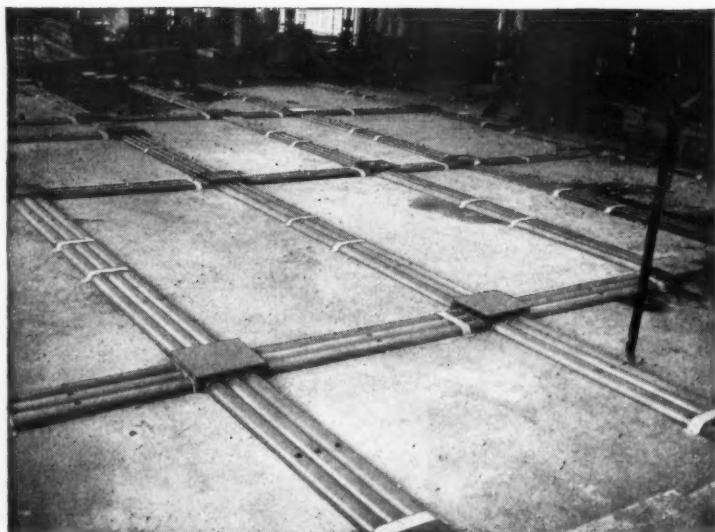
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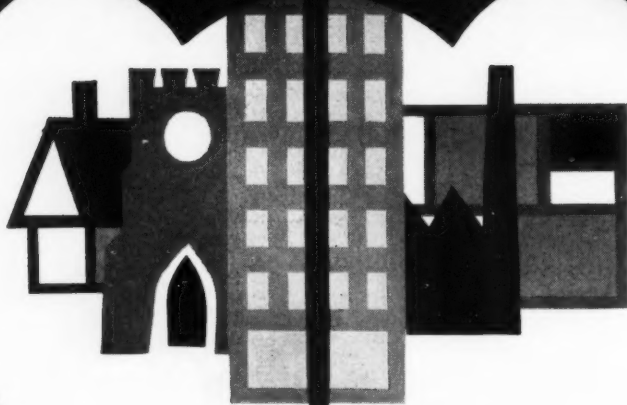
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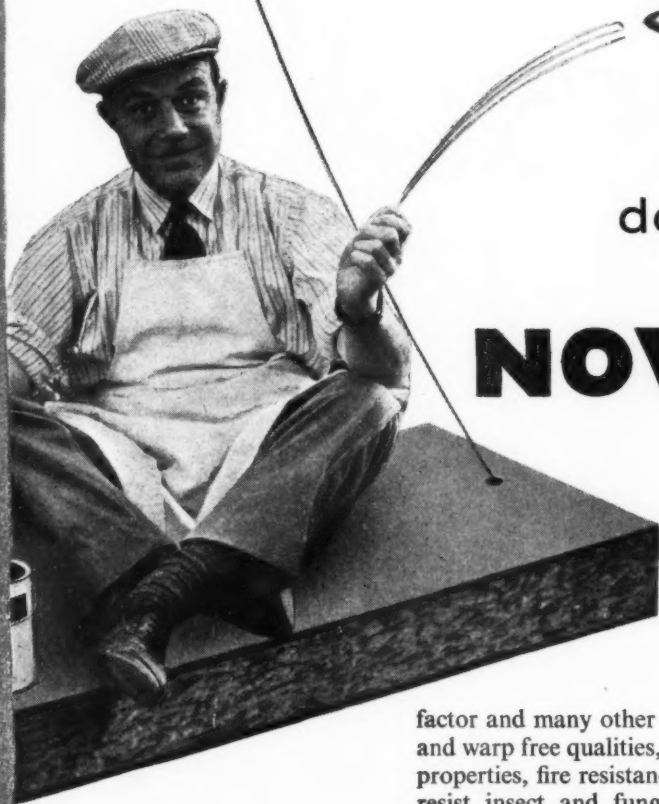
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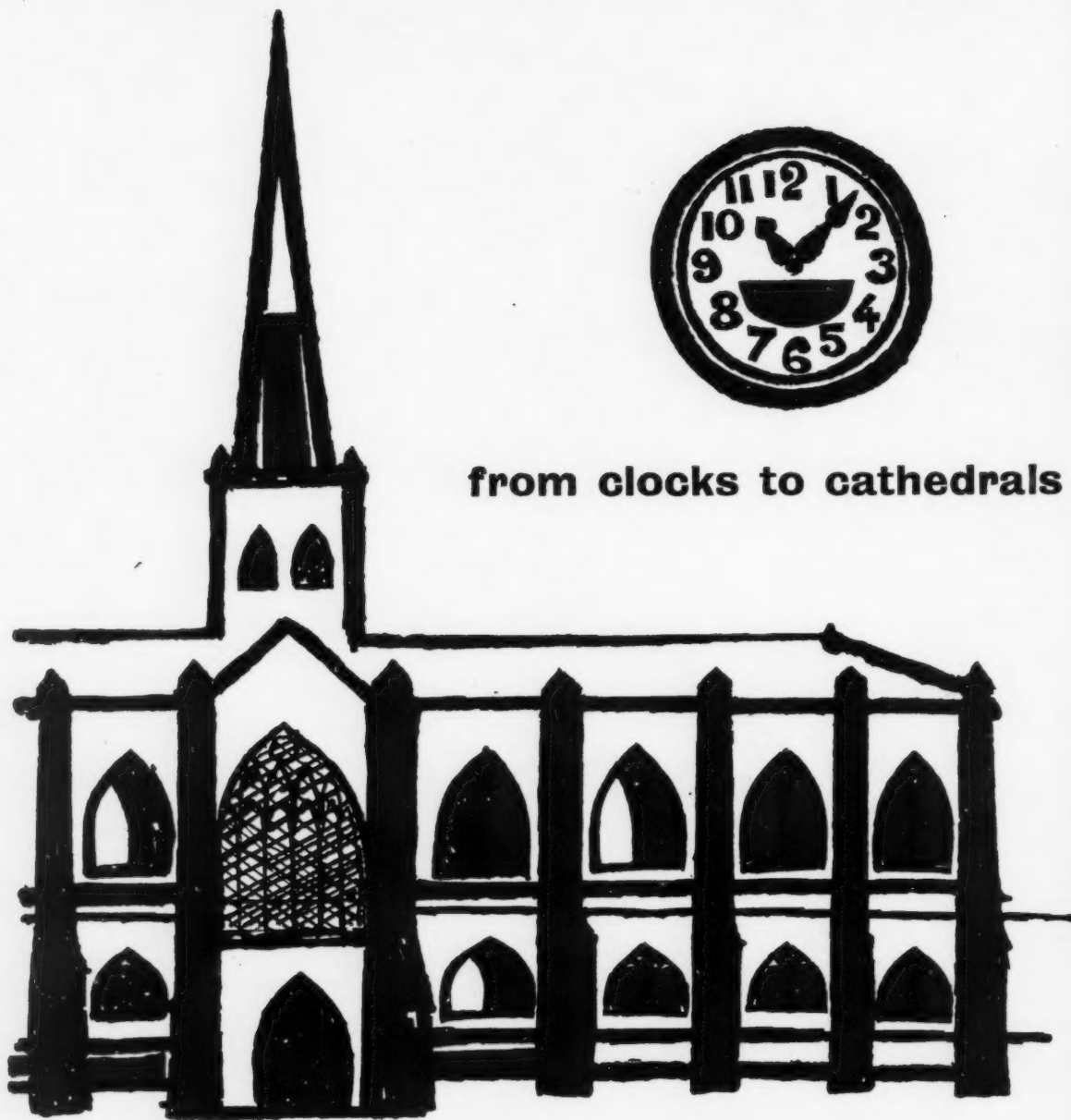
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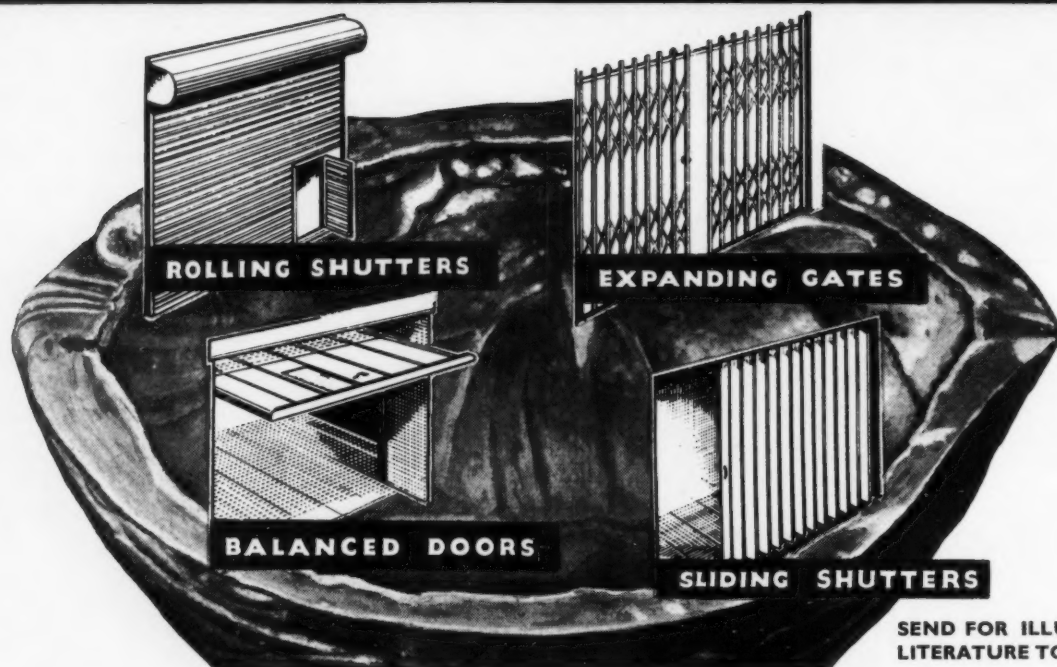


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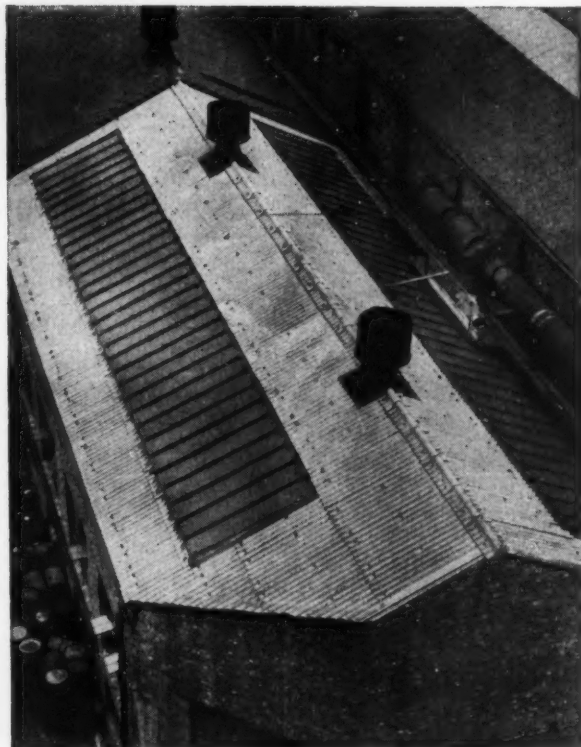
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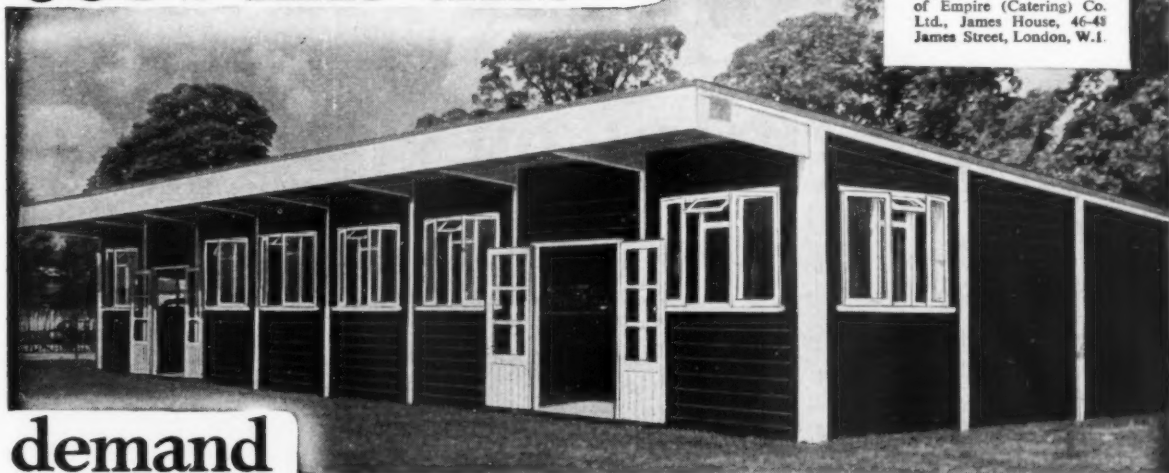
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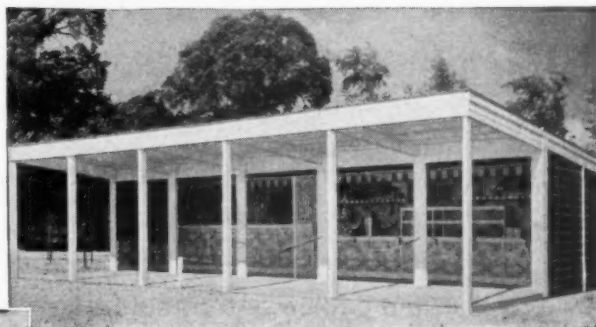
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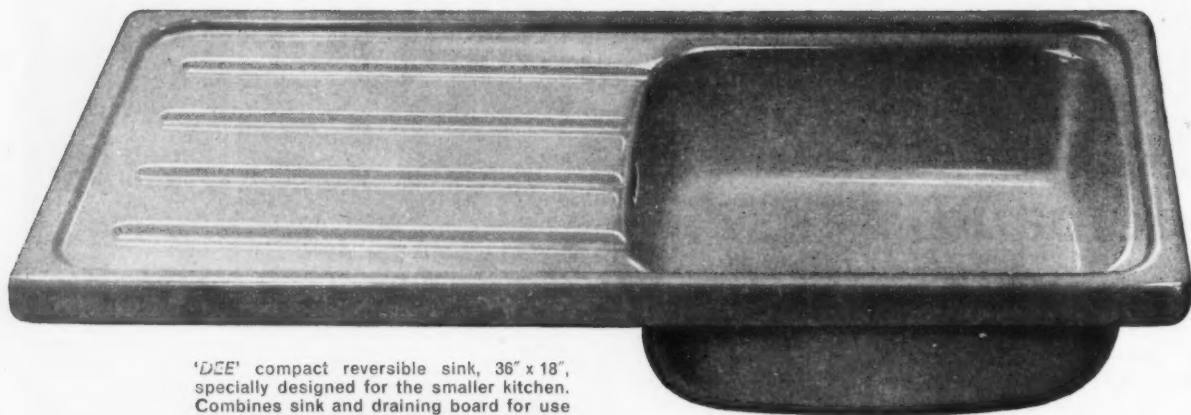
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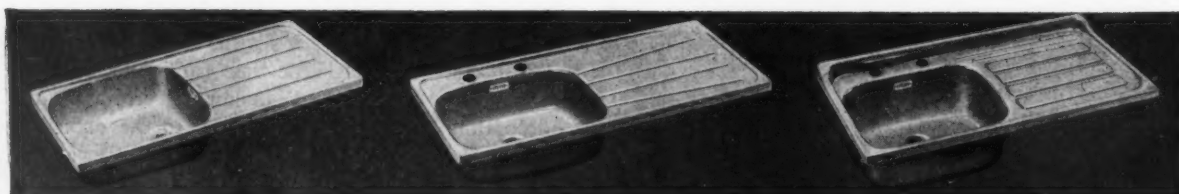
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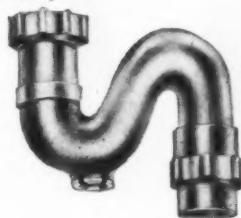
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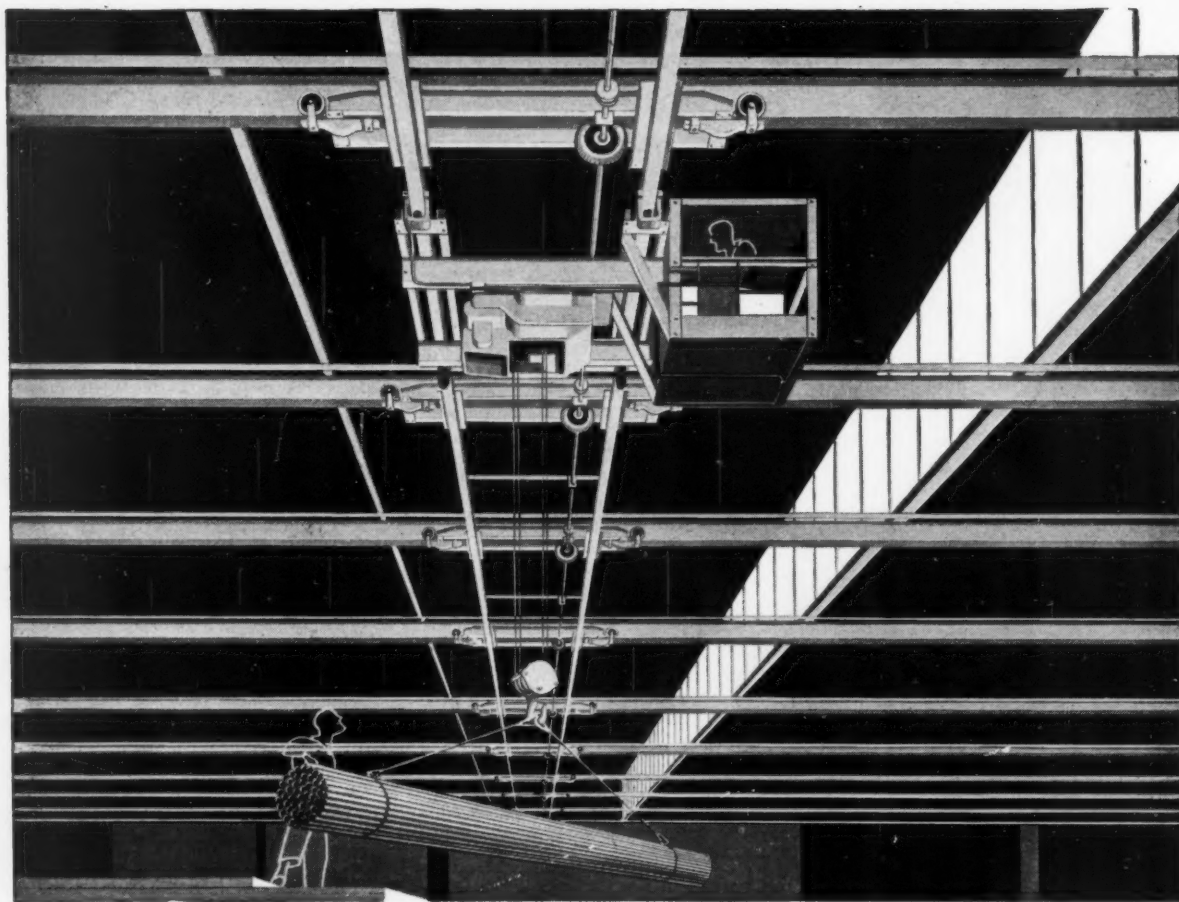
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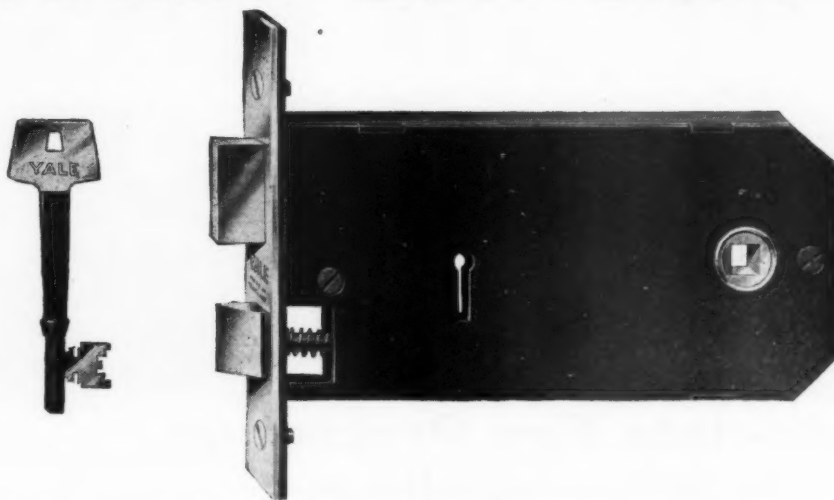
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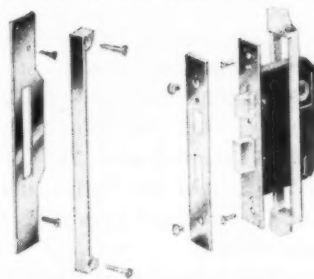


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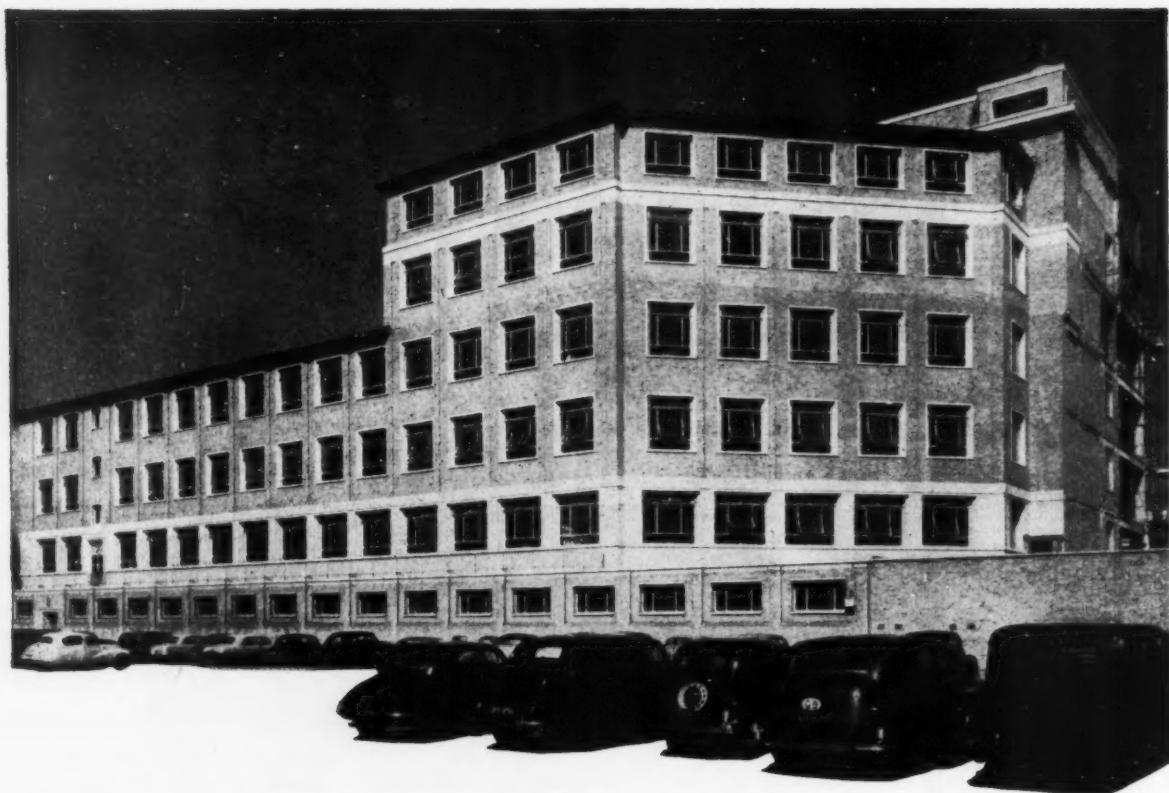
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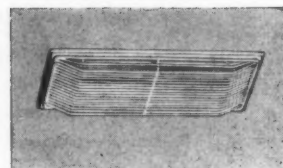
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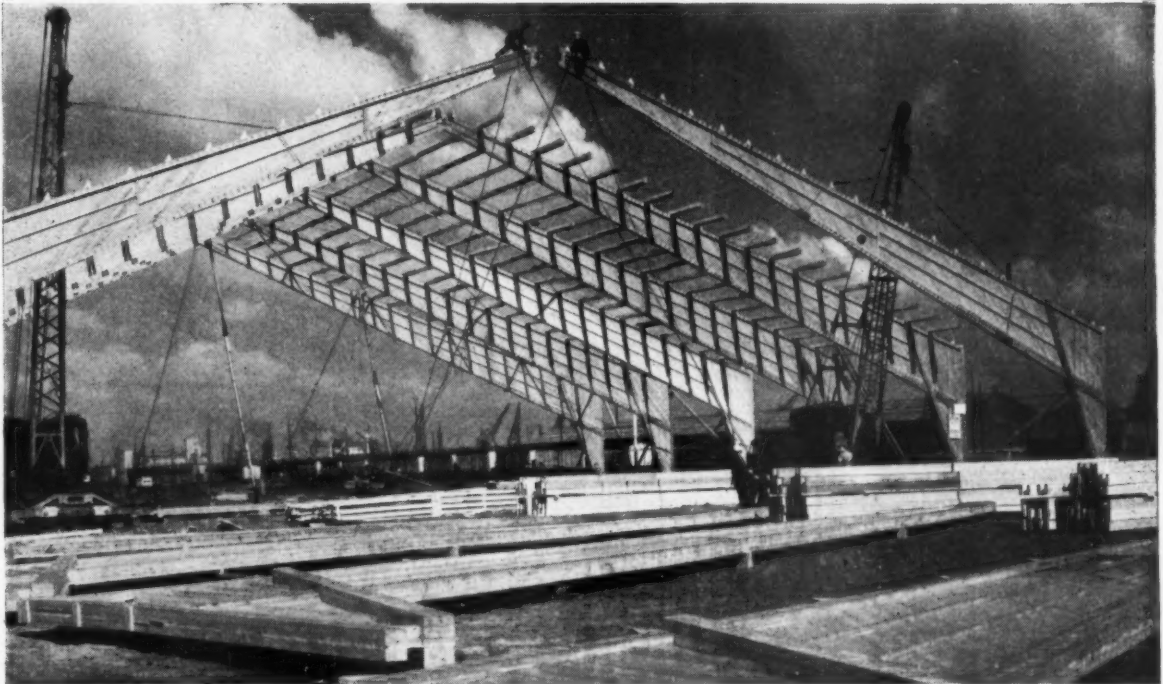


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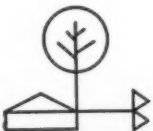
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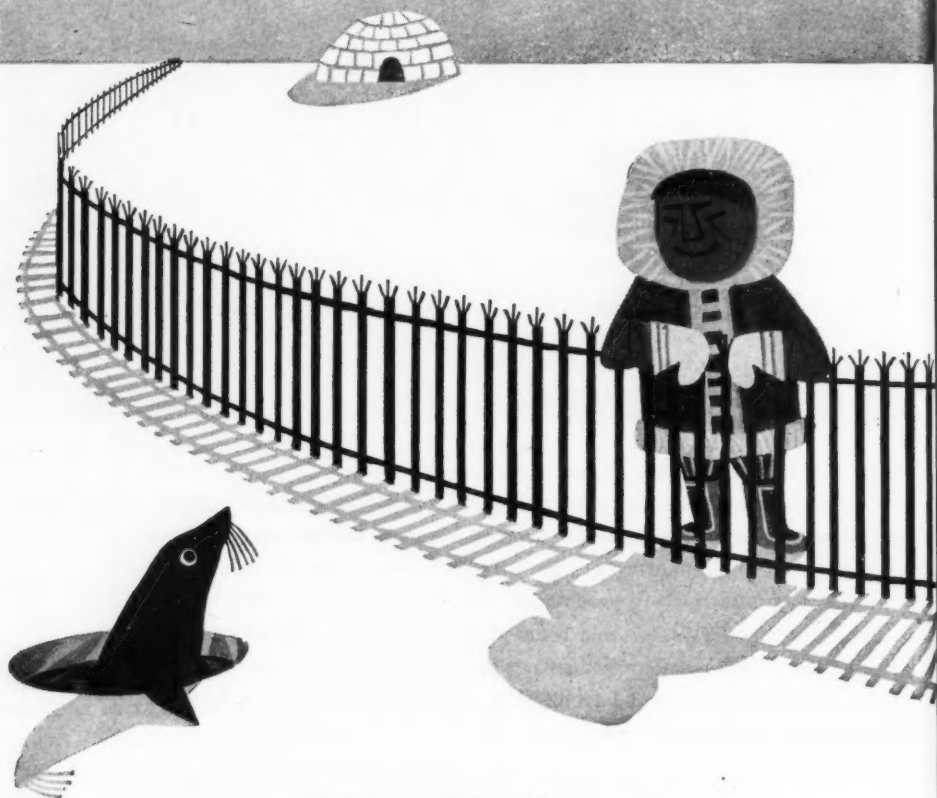
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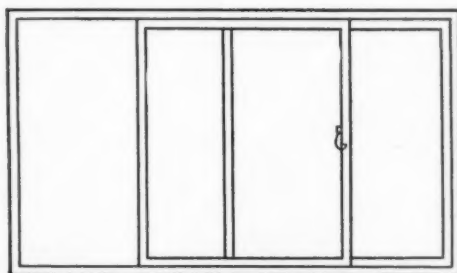
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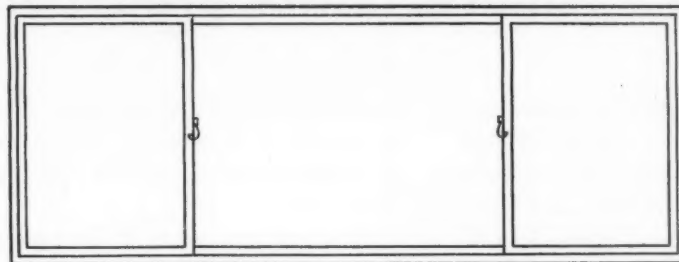
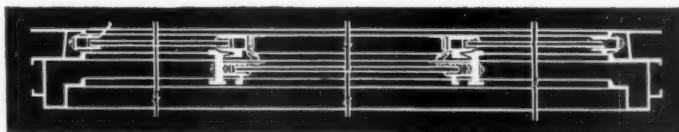
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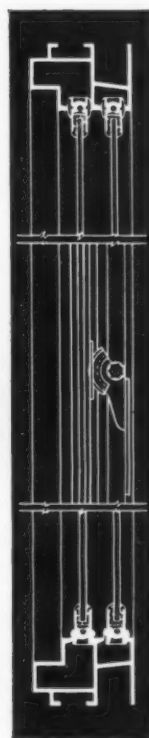
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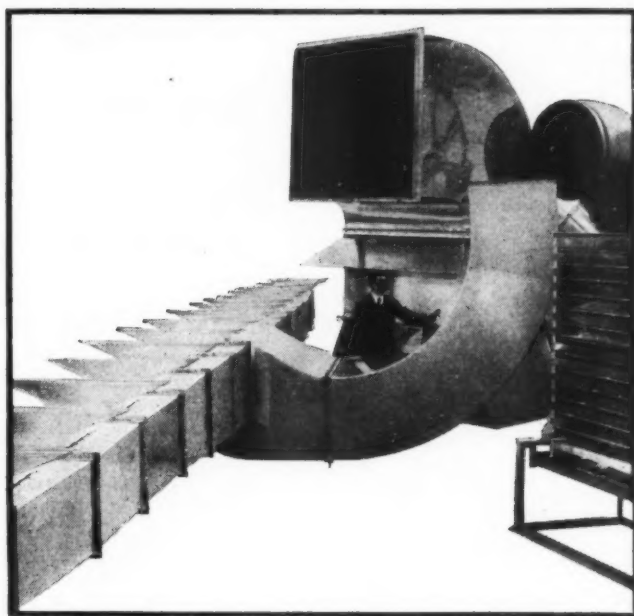
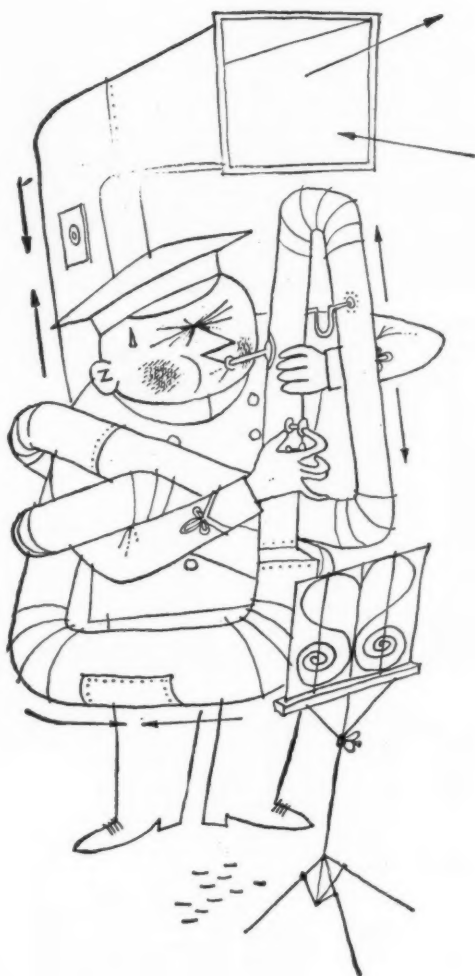
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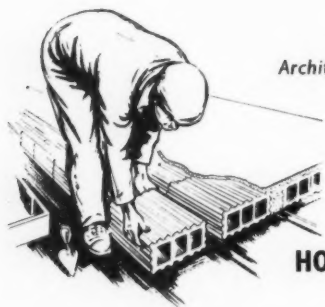
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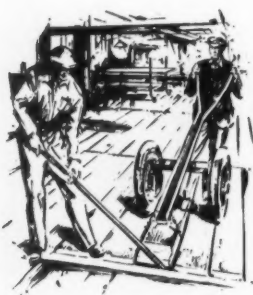
Flats at West Hill, Highgate
Architect: Eric Lyons, Esq.
F.R.I.B.A.

CONCRETE DESIGN & CONSTRUCTION



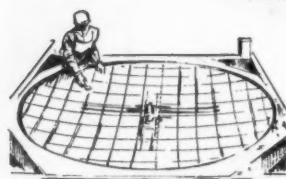
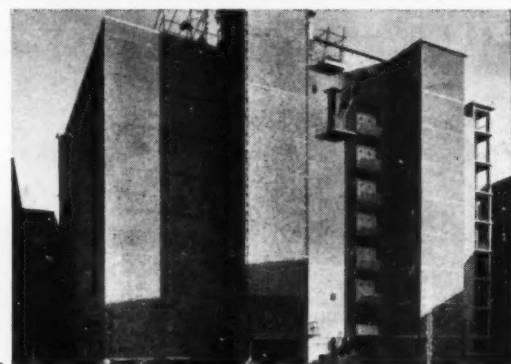
24-29 Hyde Park Square
Architects: Messrs. Clyde Young &
Bernard Engle,
F/A.A.R.I.B.A.

HOLLOW-BLOCK FLOORS



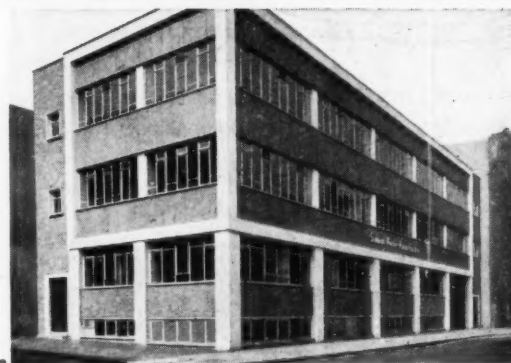
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BRADFORDS

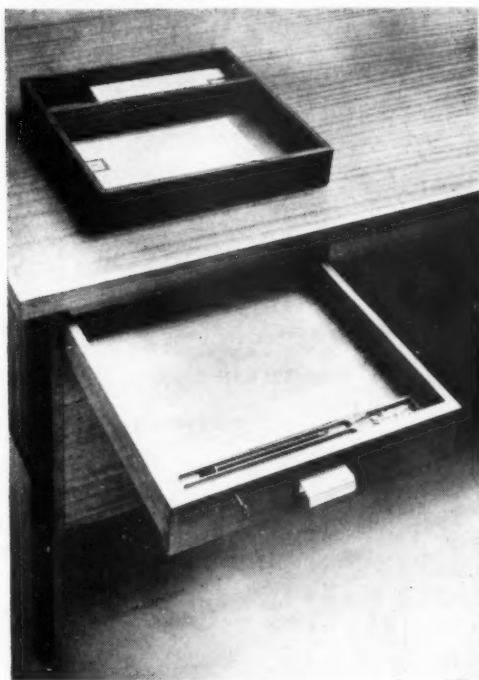
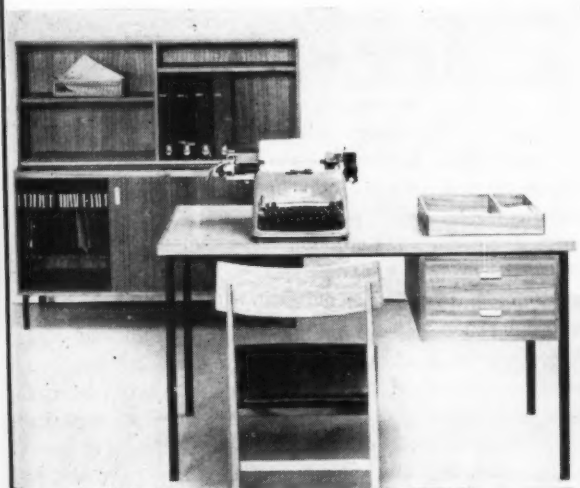
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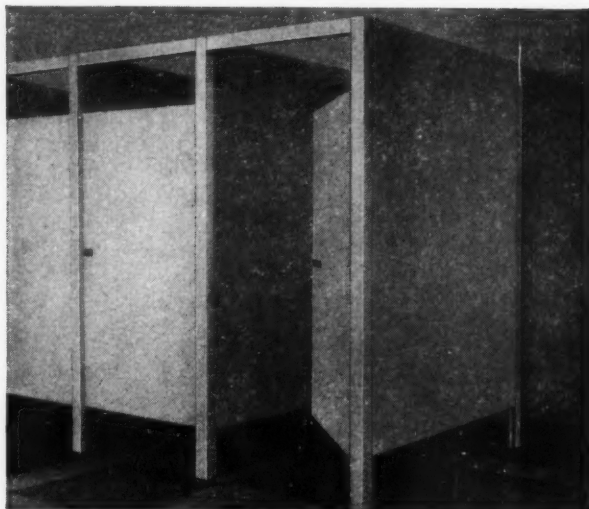
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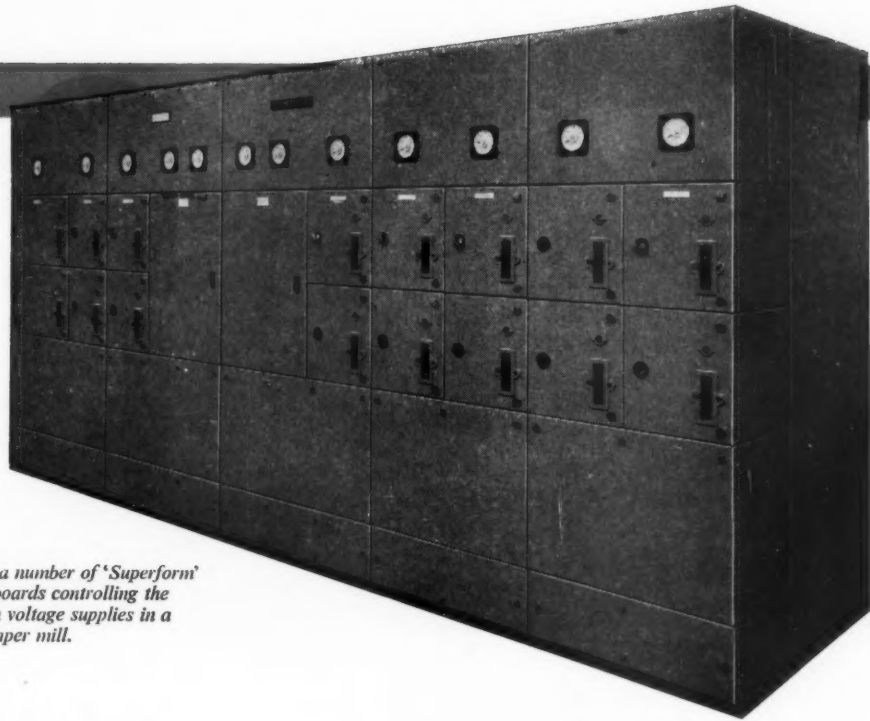
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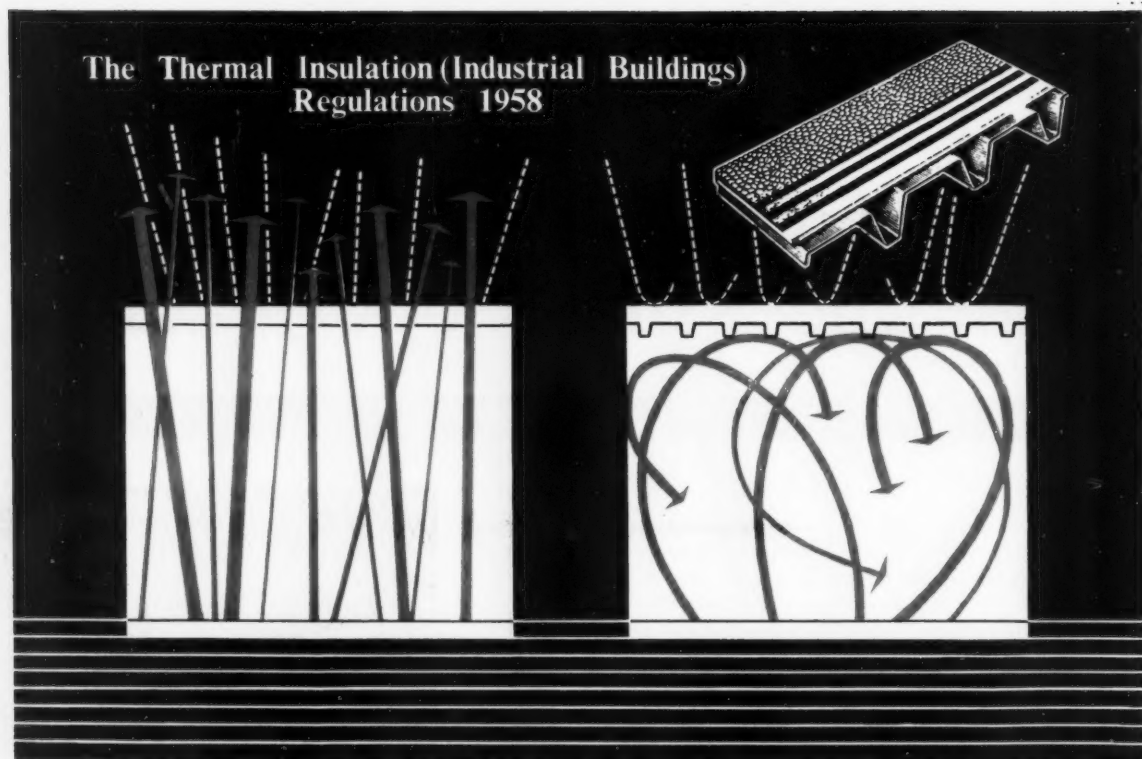
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Briggs "BITUMETAL" with 1 in. Cork Board		0.21 (approx.)
Briggs "BITUMETAL" with 2 in. Cork Board		0.13 (approx.)

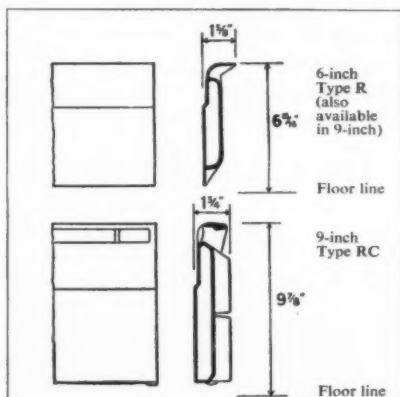
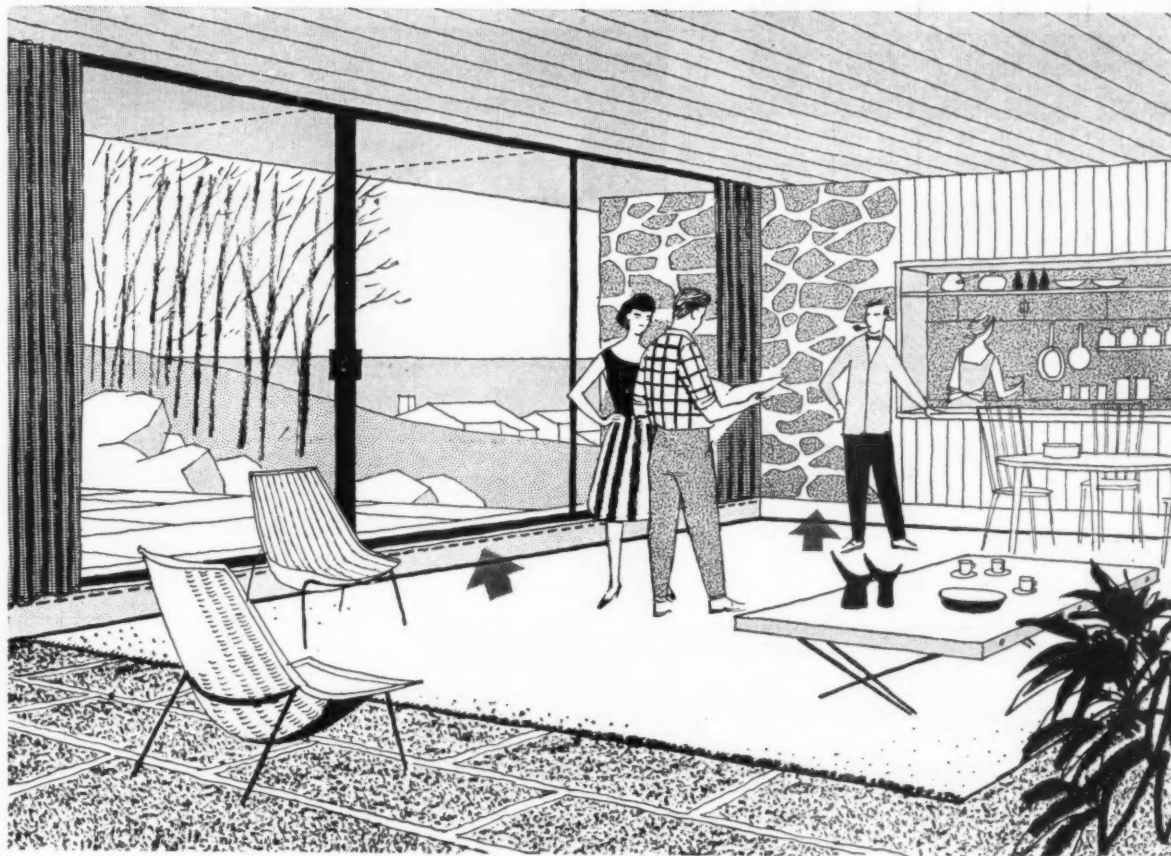
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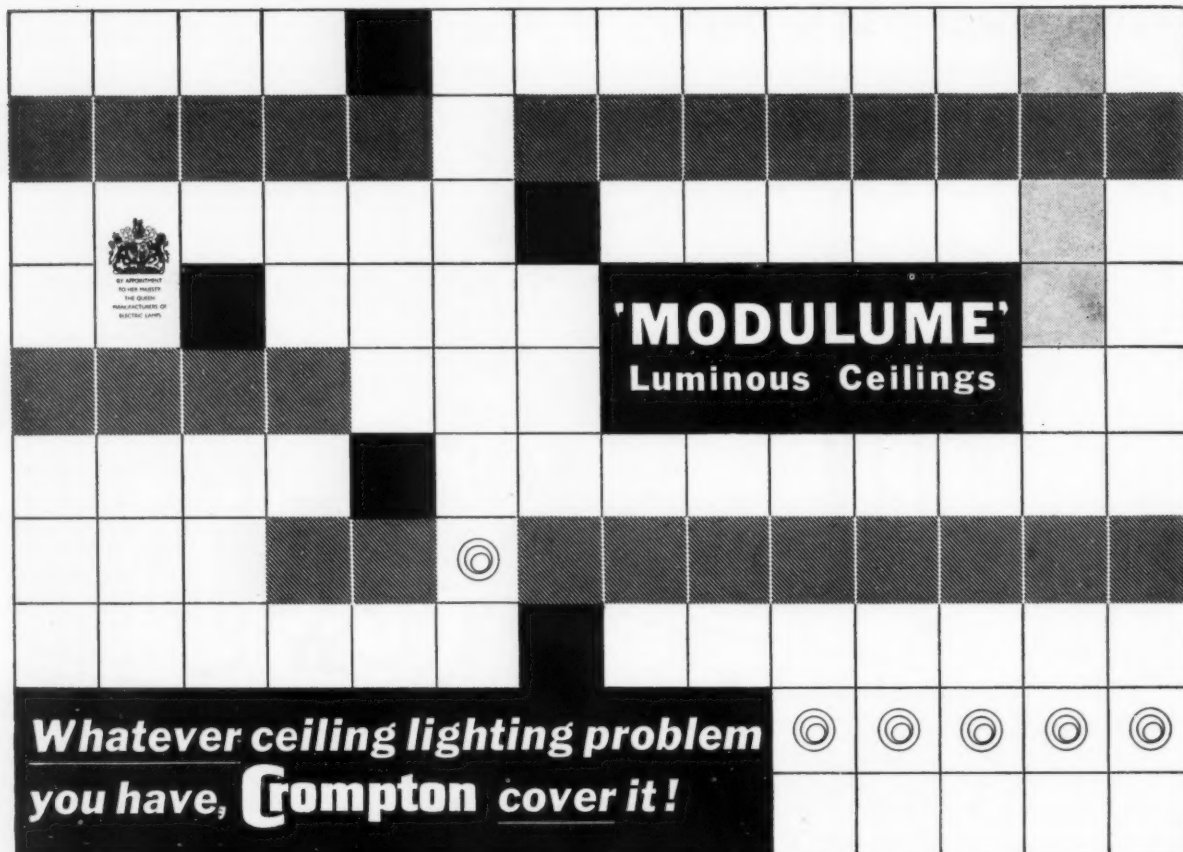
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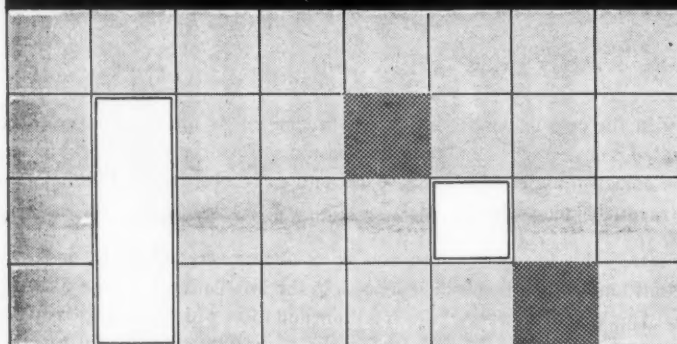
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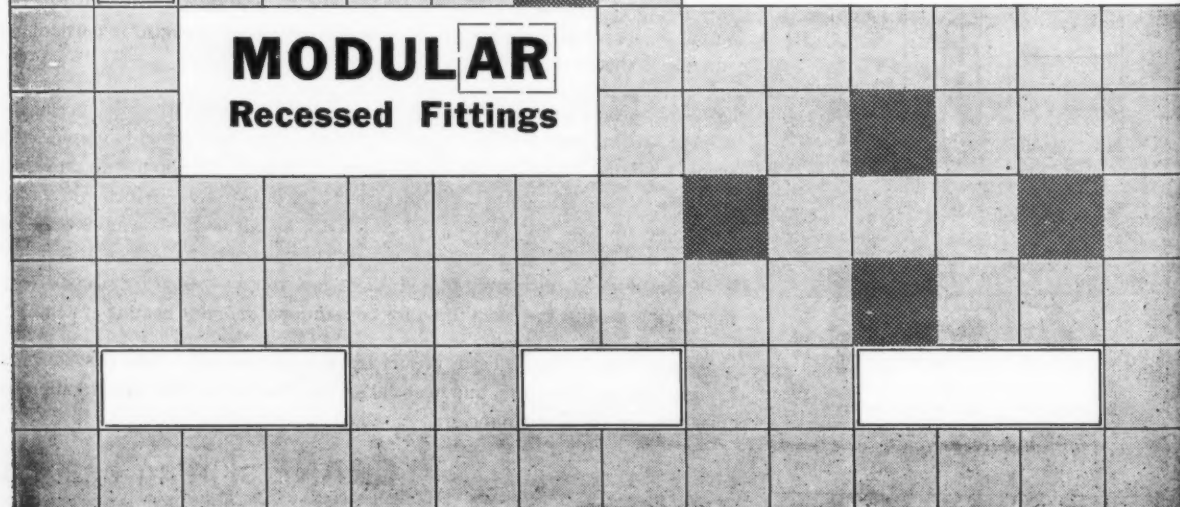


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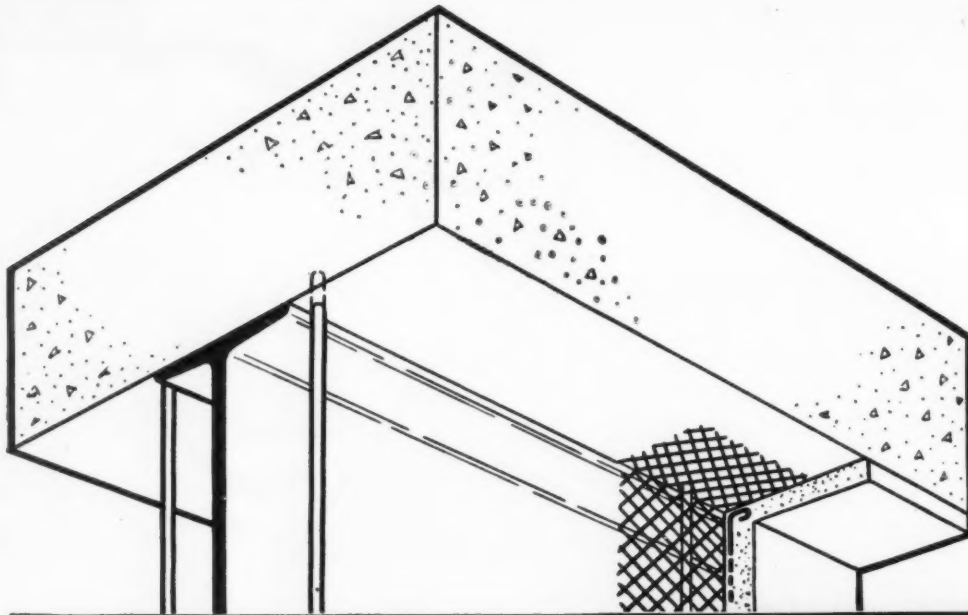
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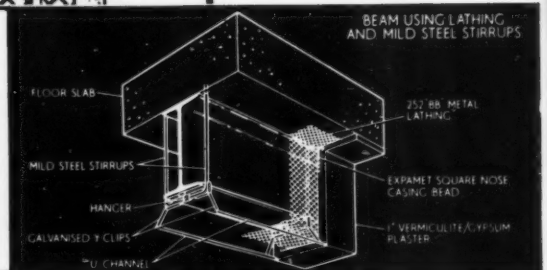
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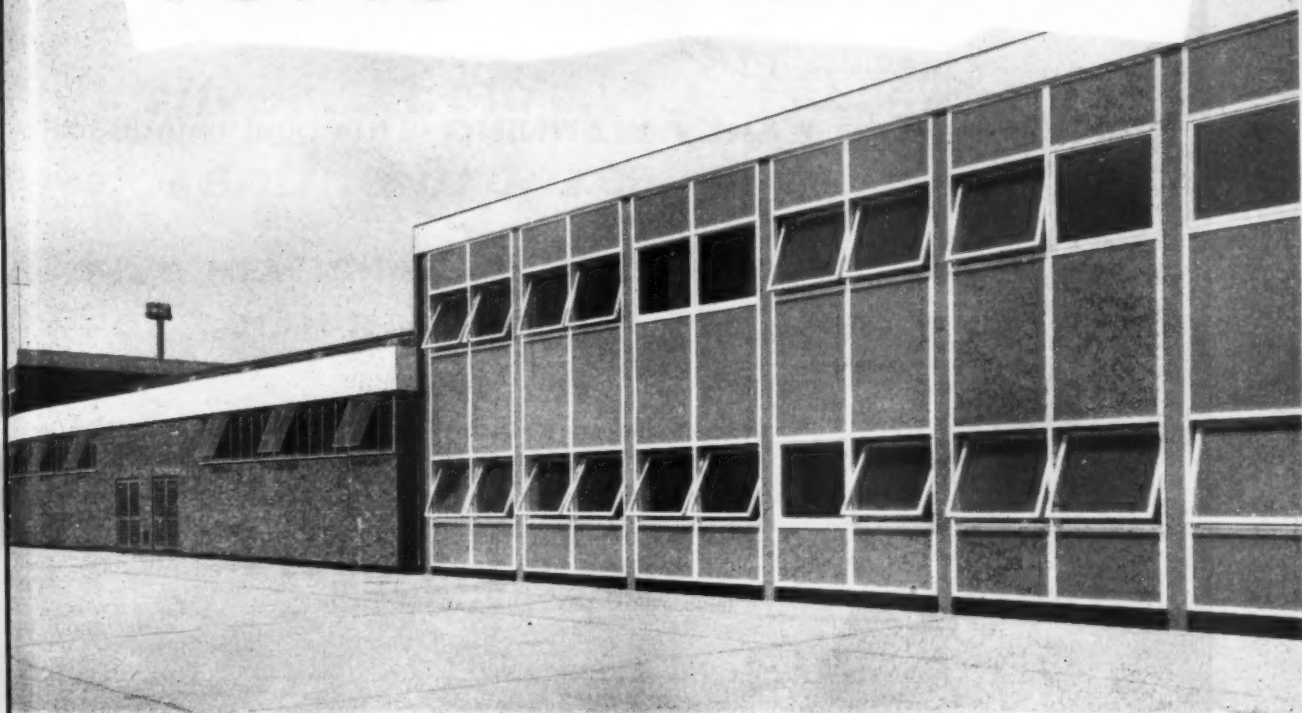
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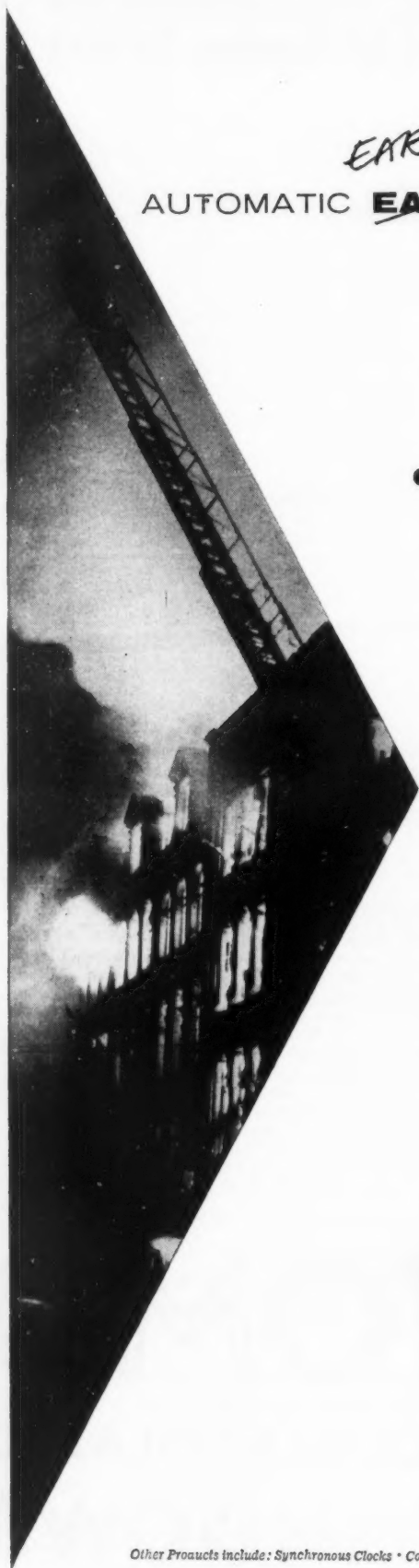
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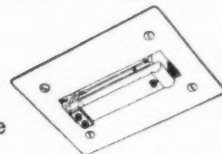
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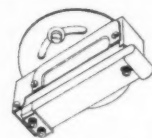
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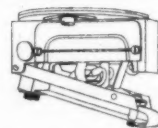
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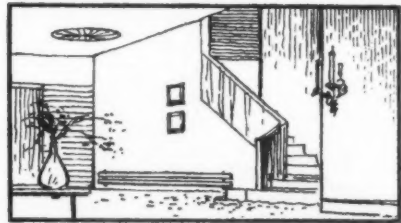
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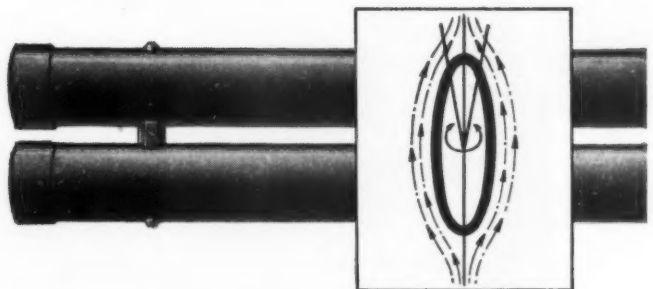
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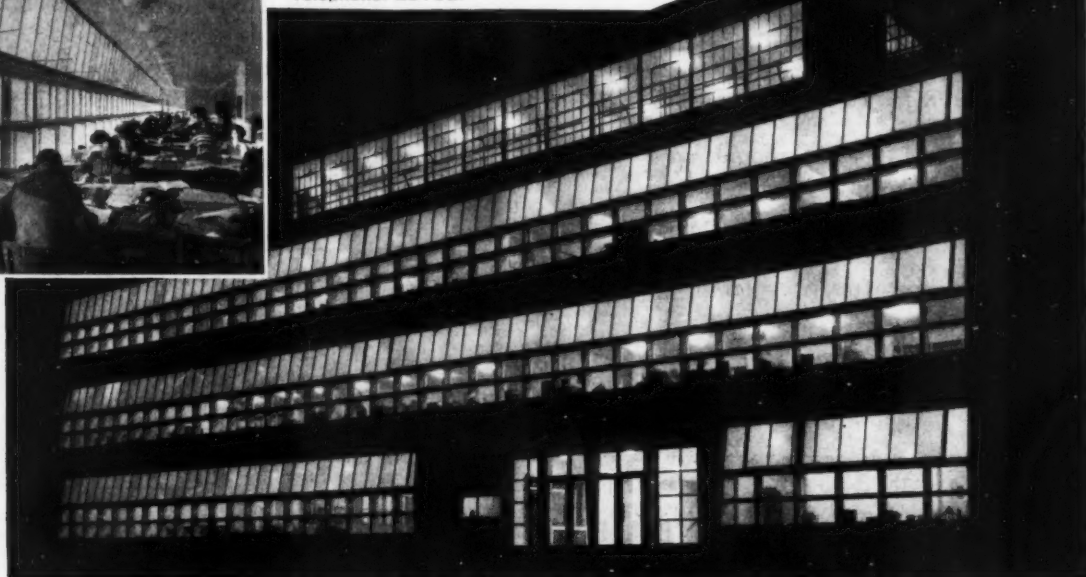
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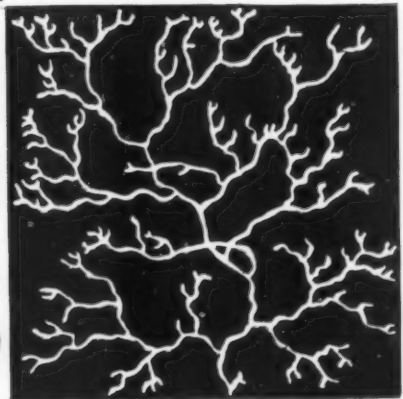
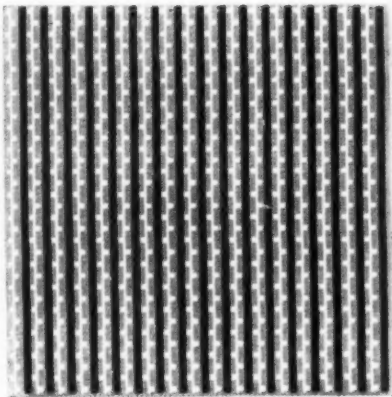
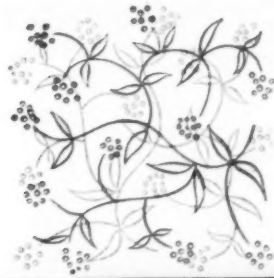
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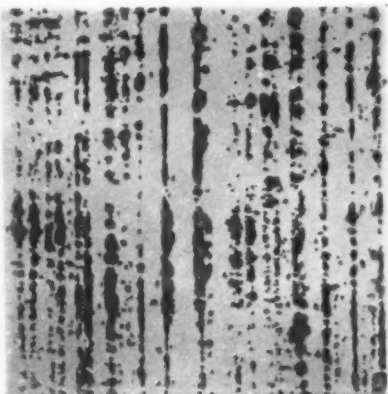
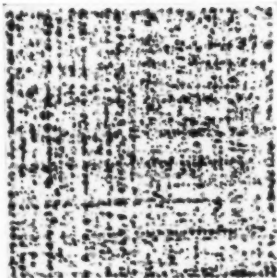
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Architect: Maurice H. J. Bebb L.R.I.B.A.

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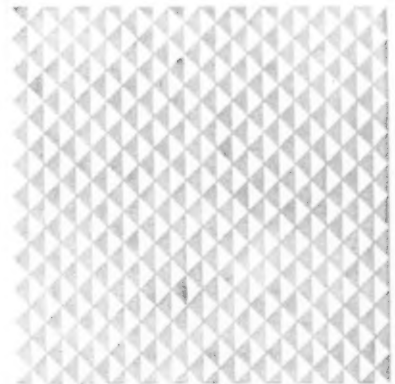
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at...



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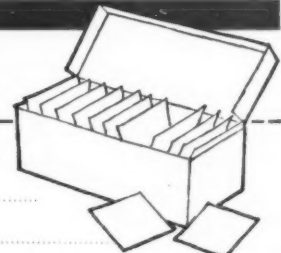


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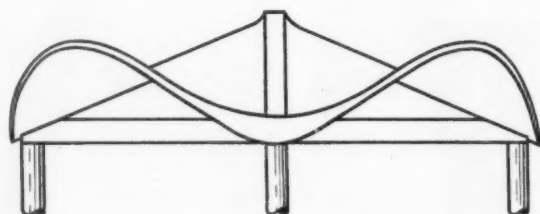
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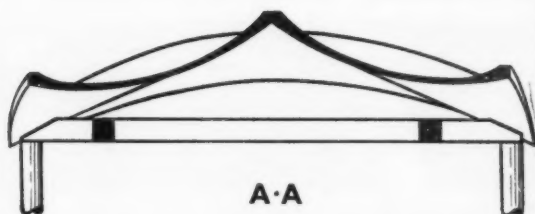
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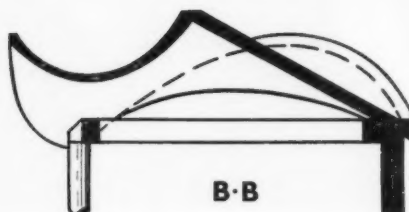
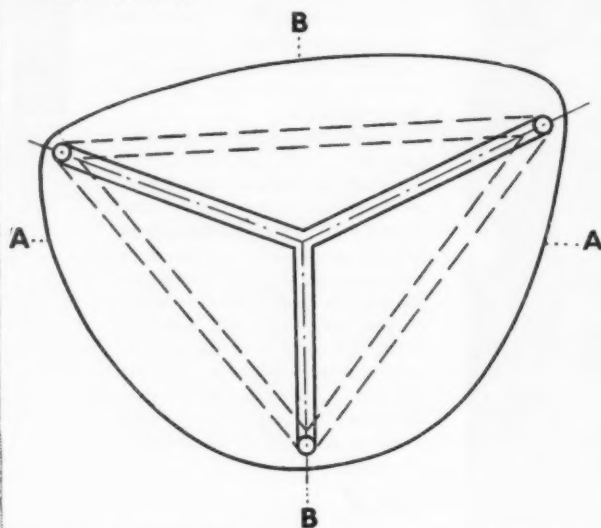
9



FRONT ELEVATION



A-A



B-B

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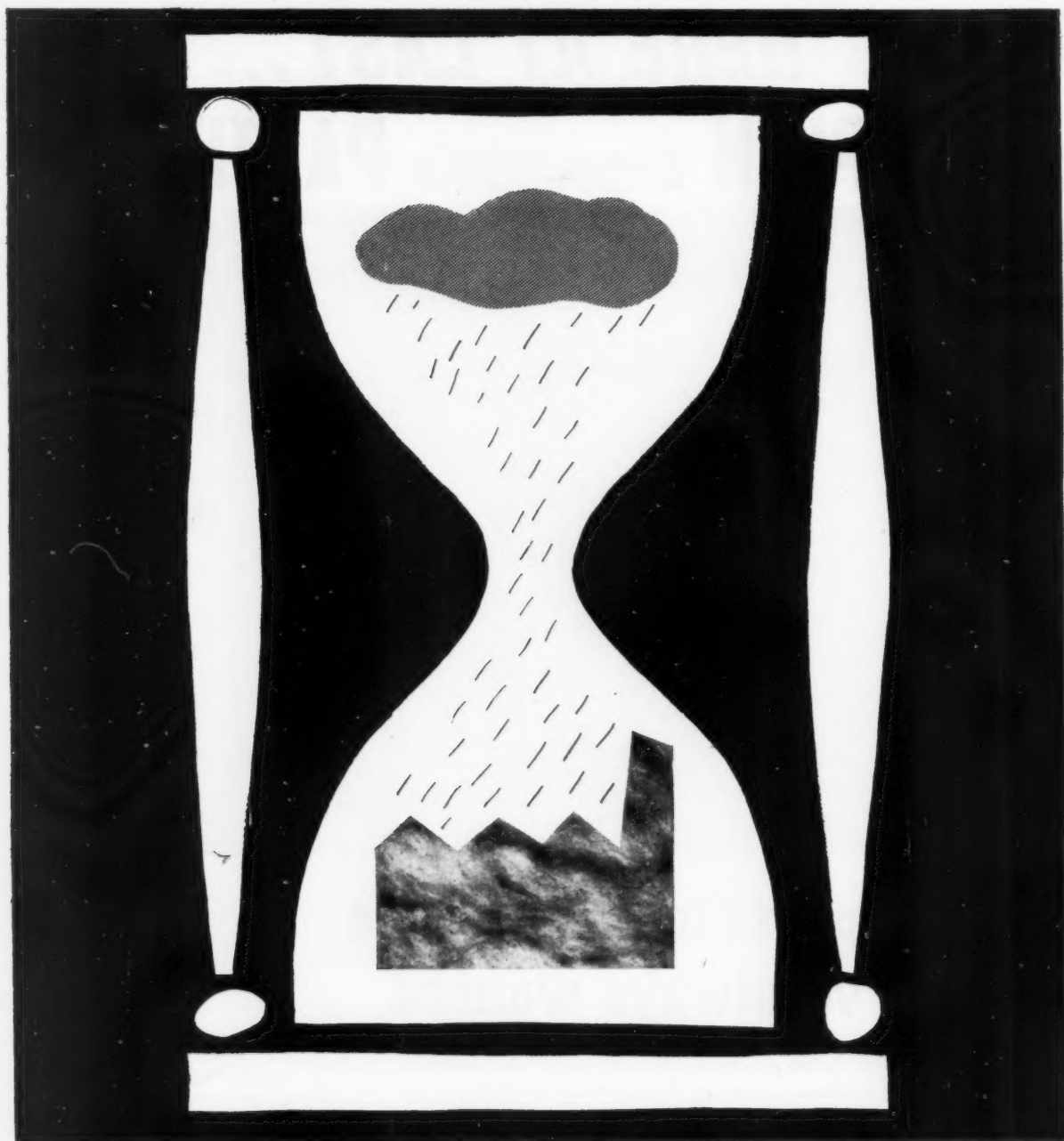
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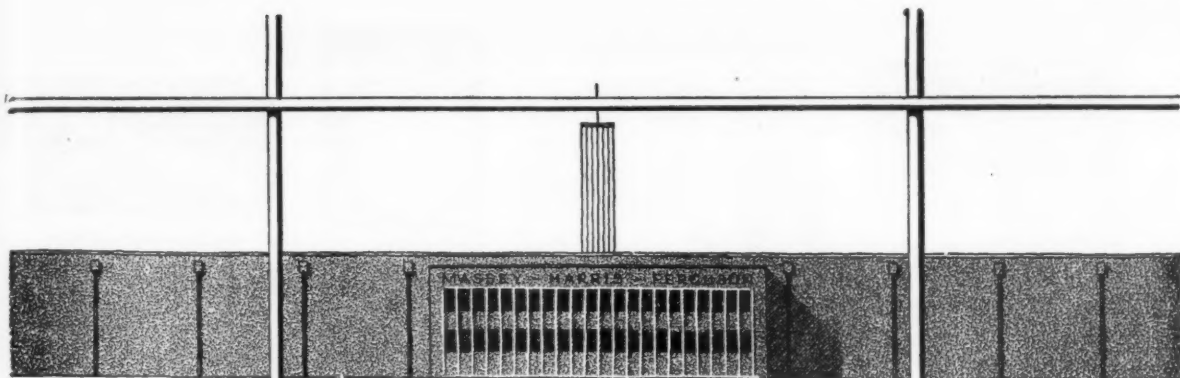
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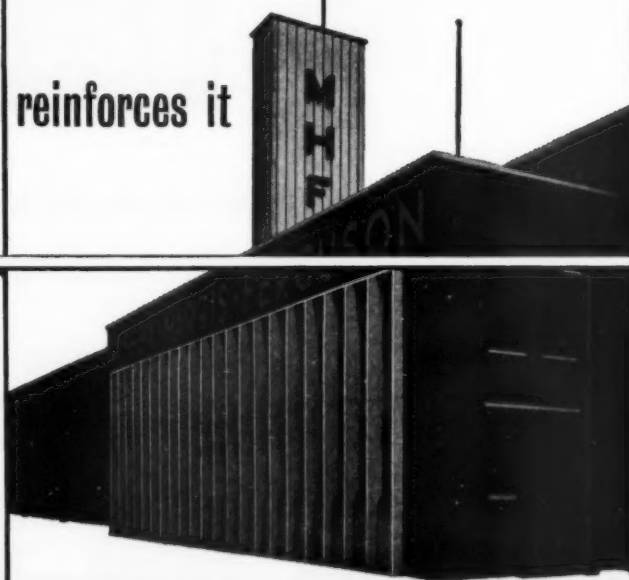
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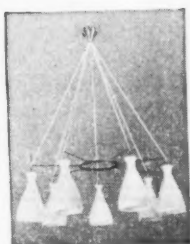
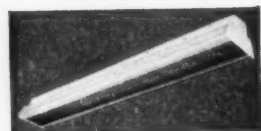
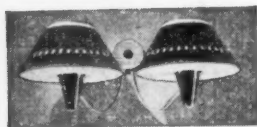
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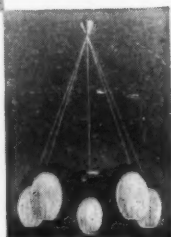
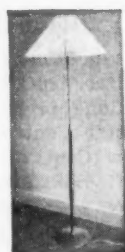
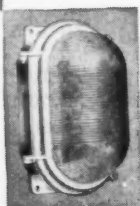
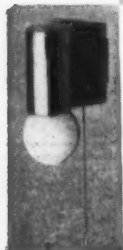
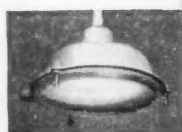
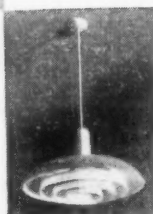
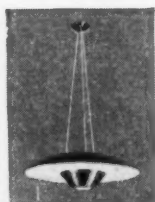
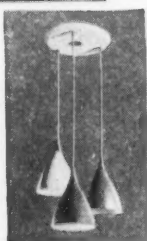




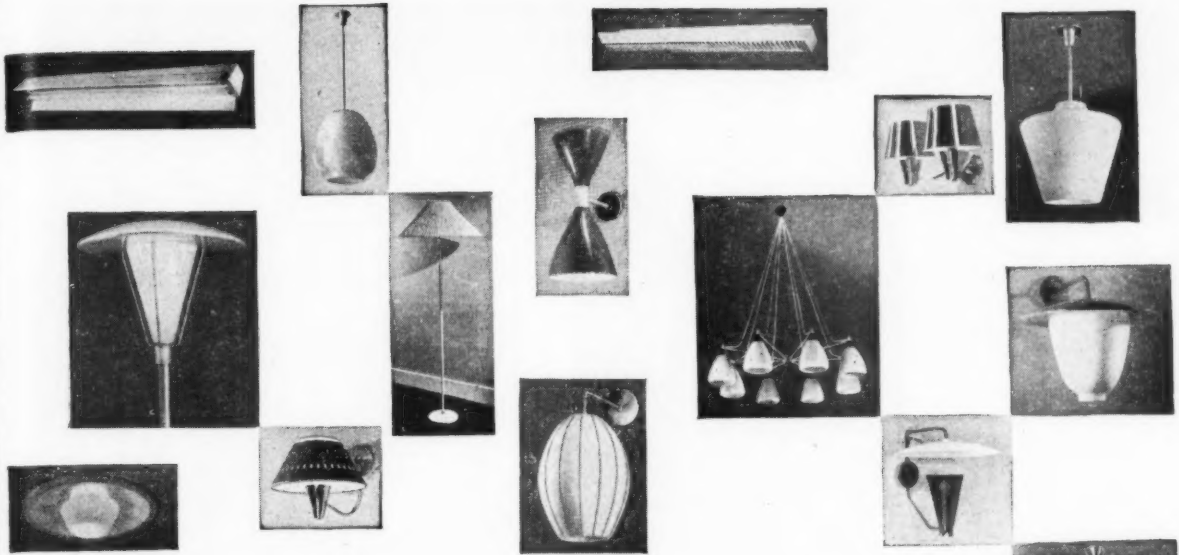
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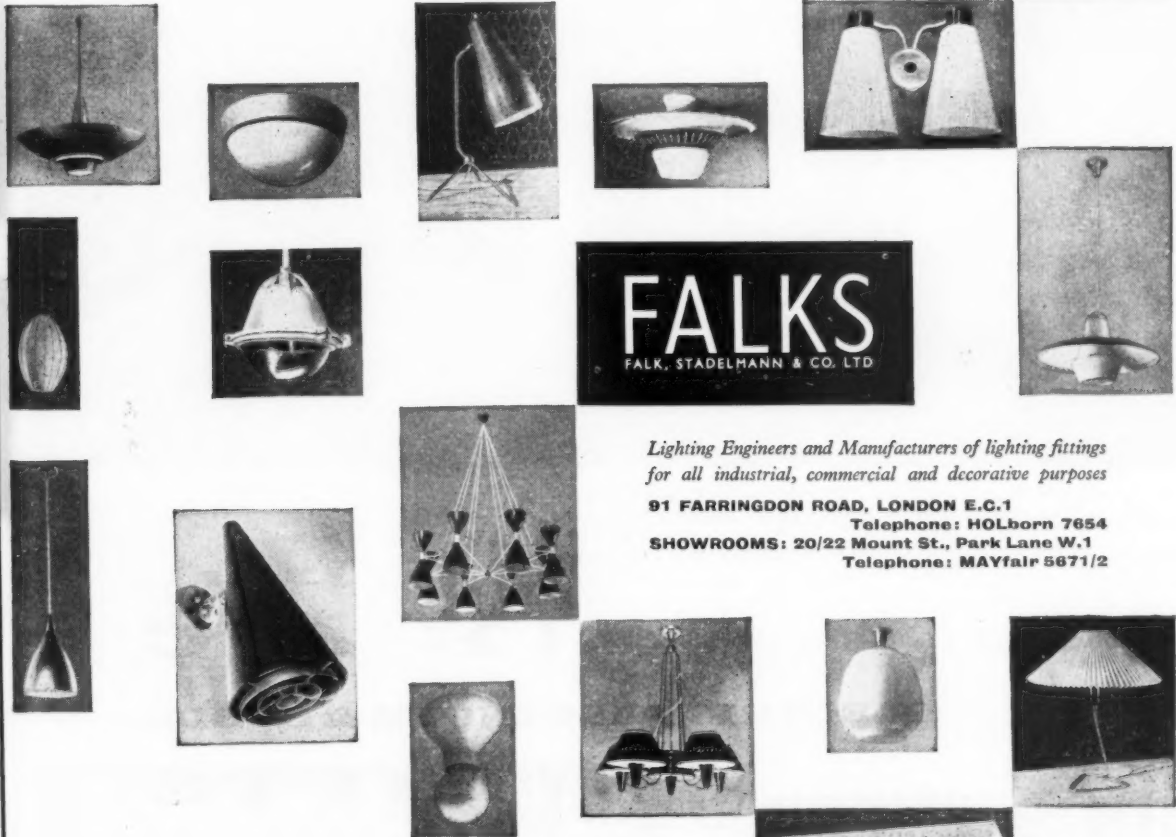
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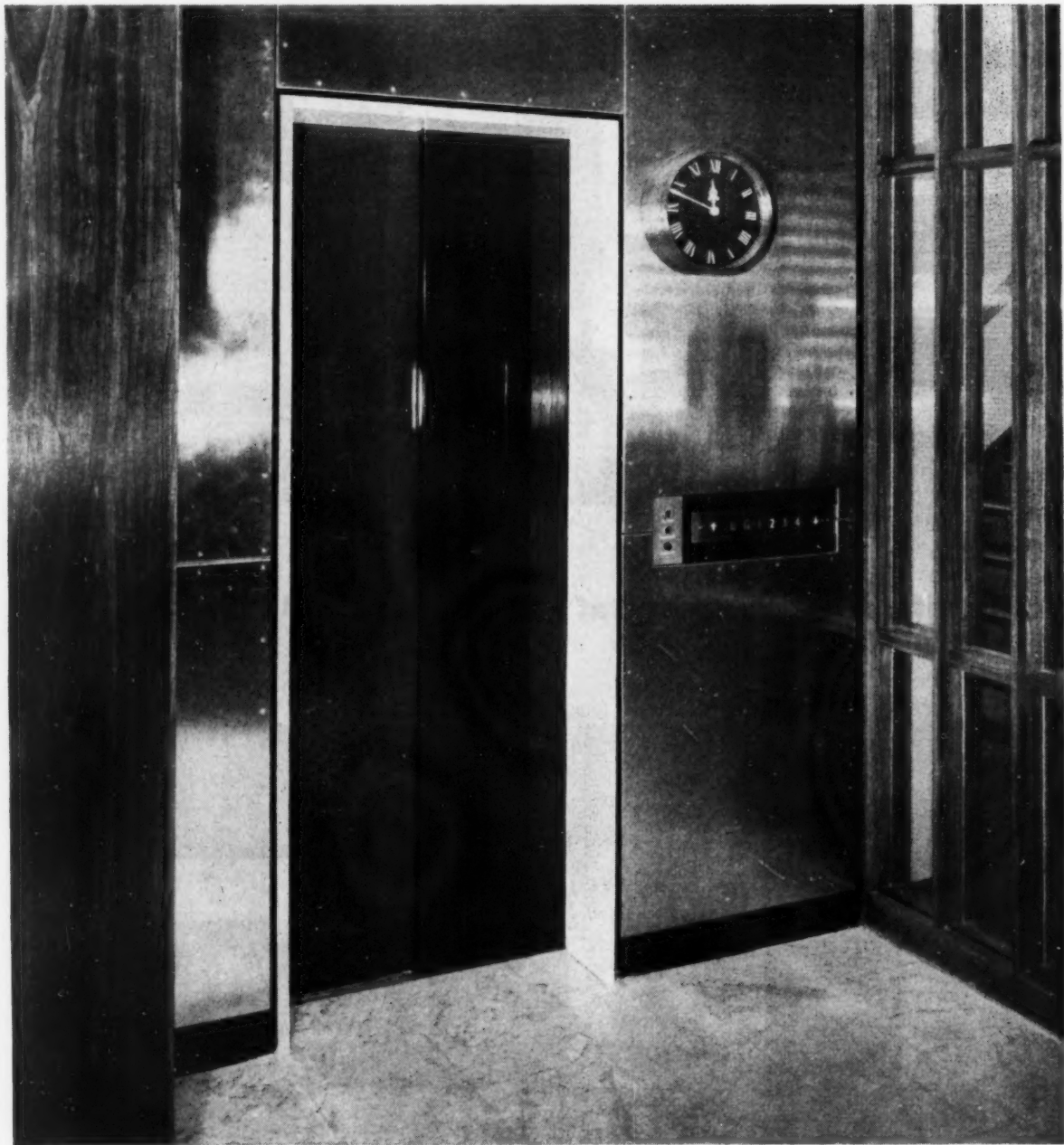
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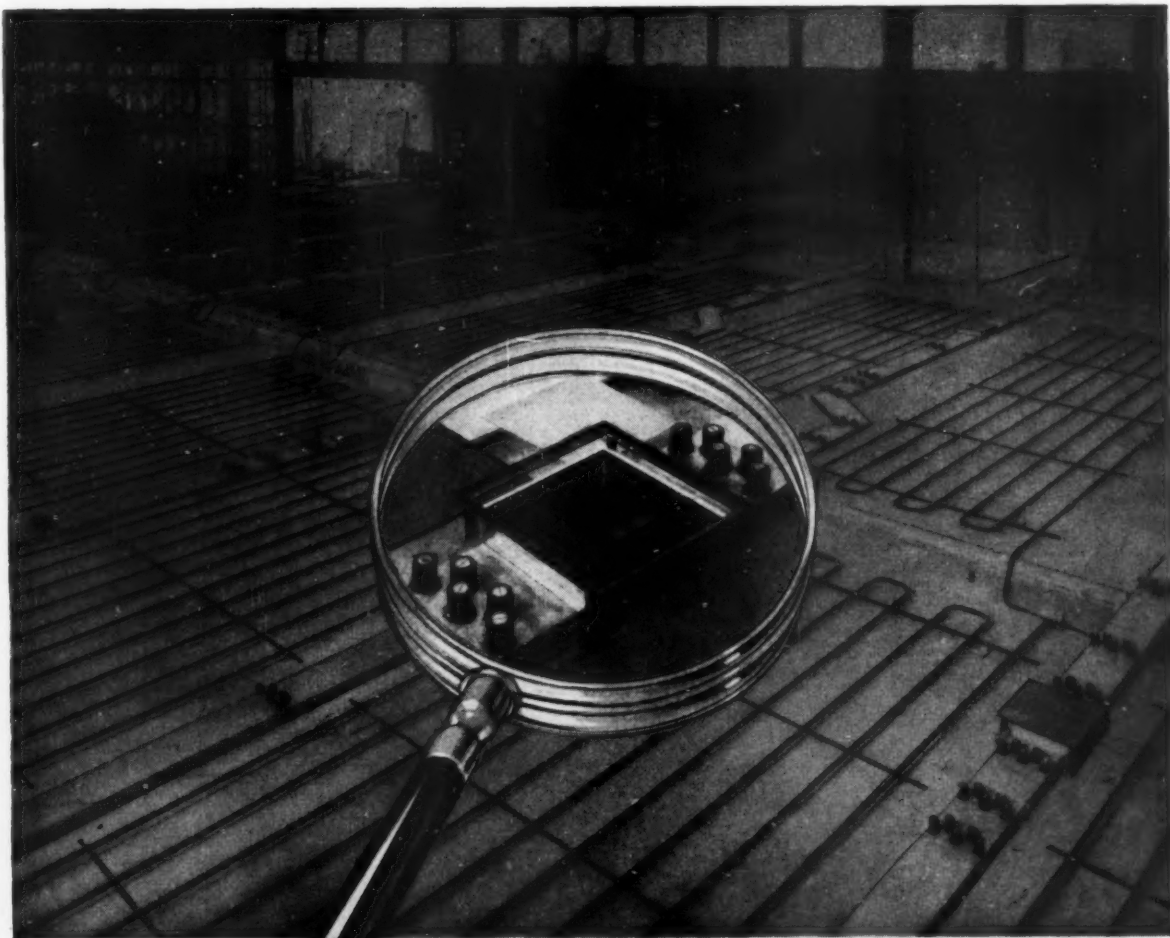
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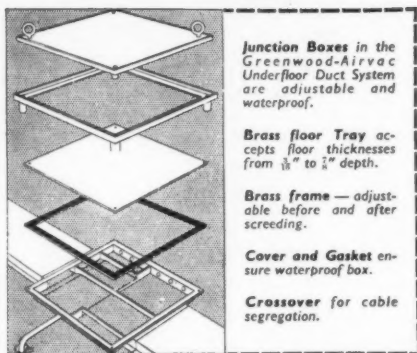
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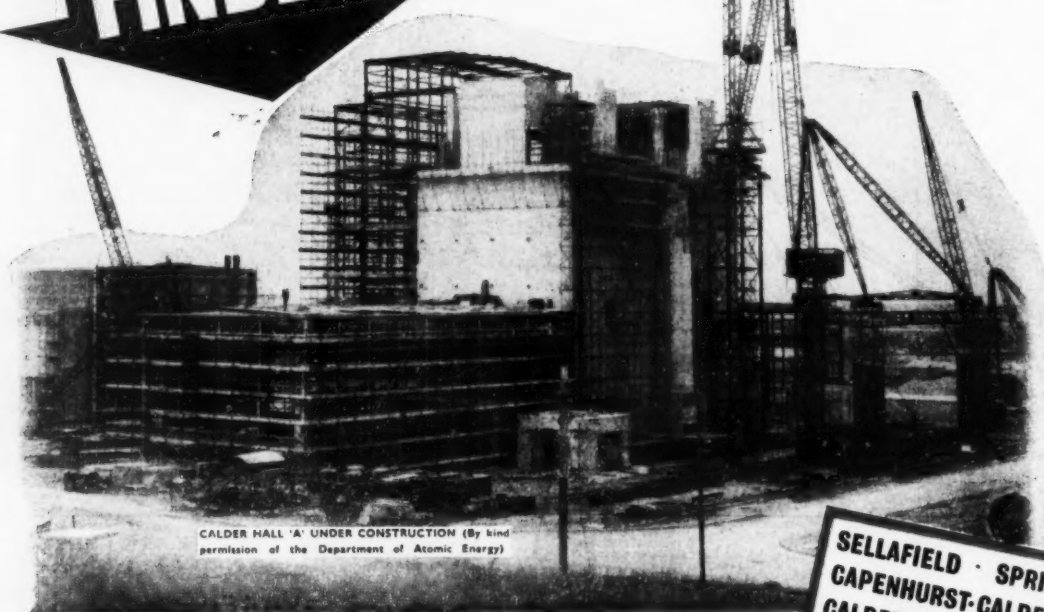
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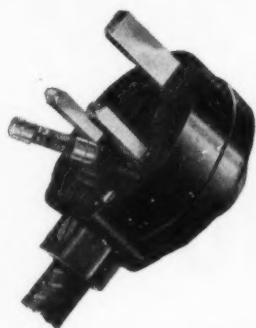
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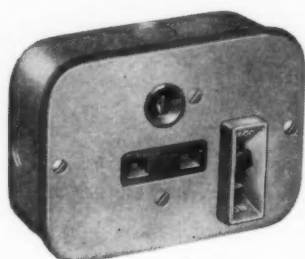
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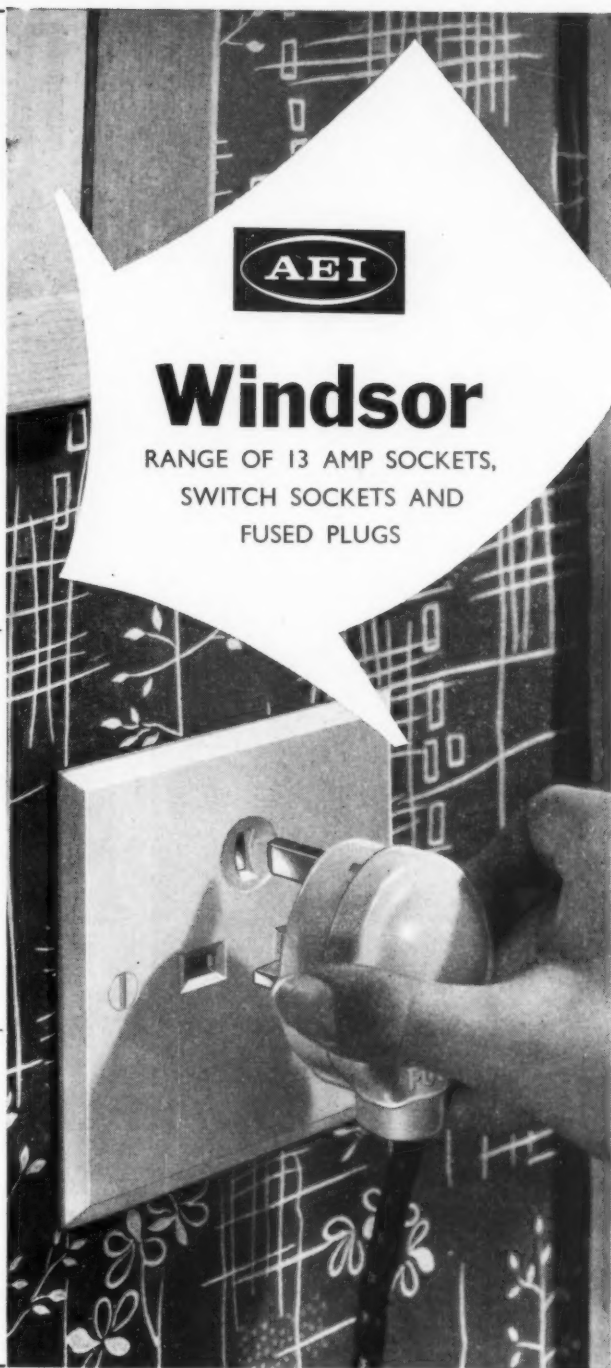
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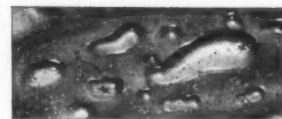


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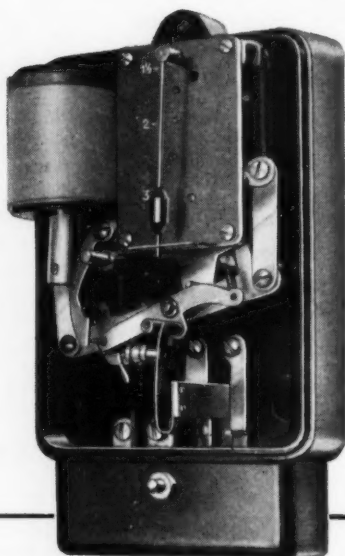
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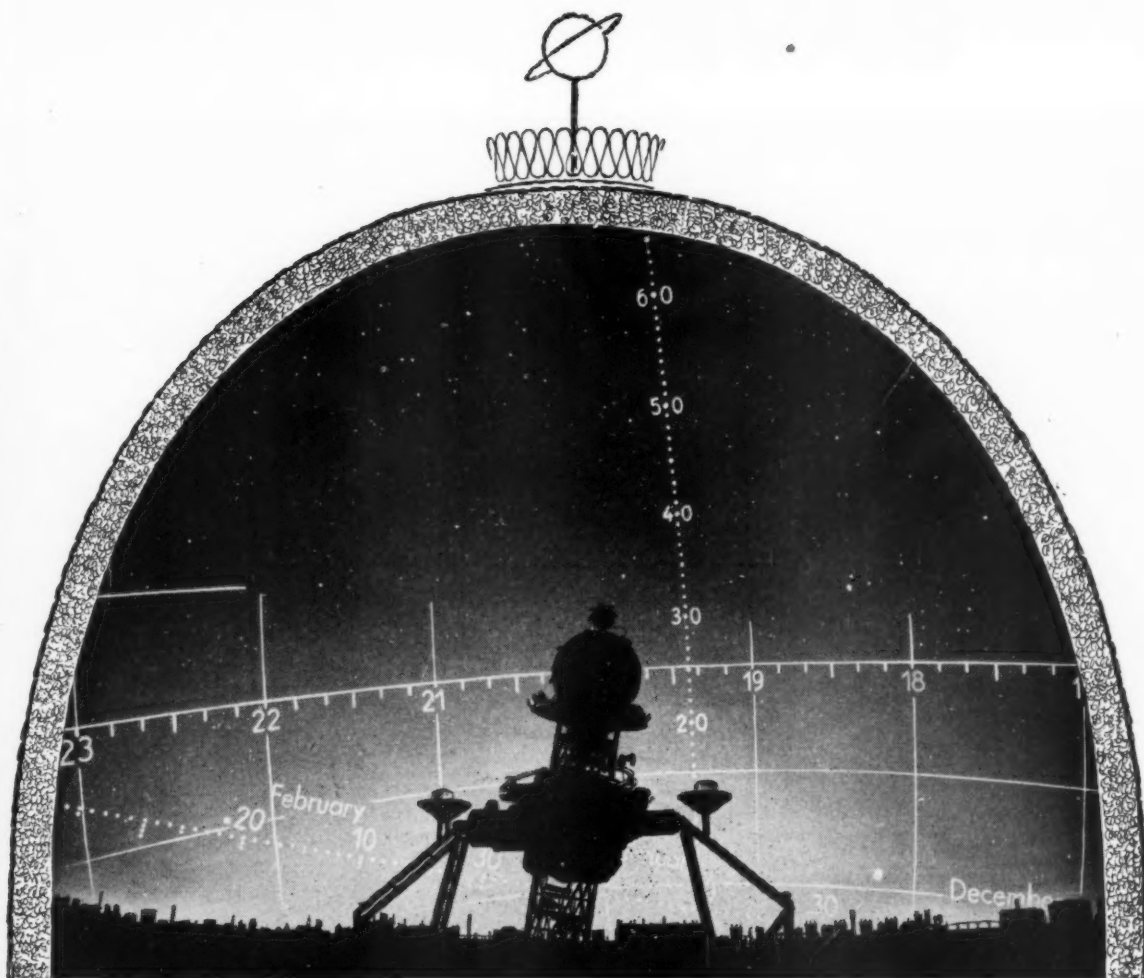


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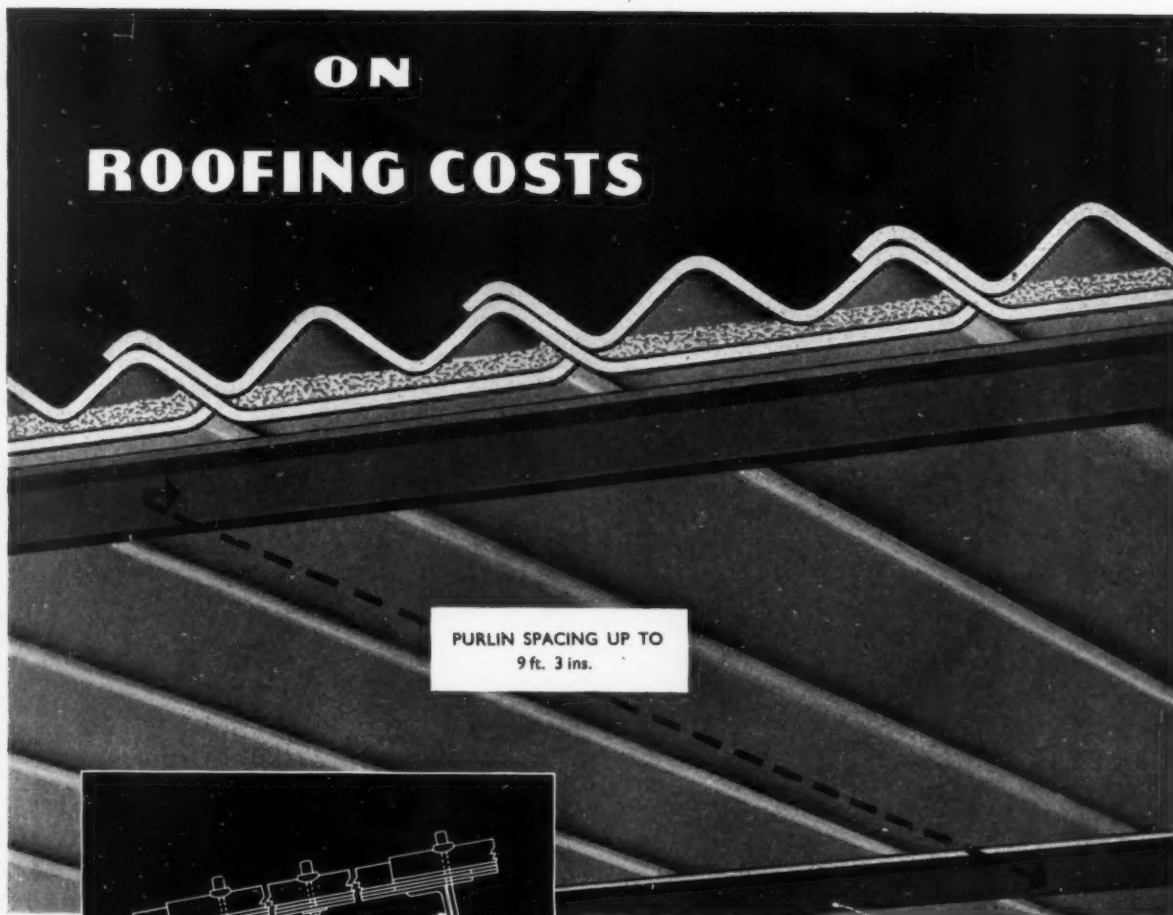
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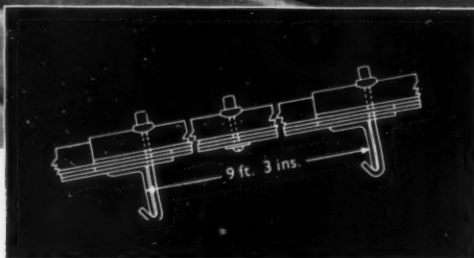
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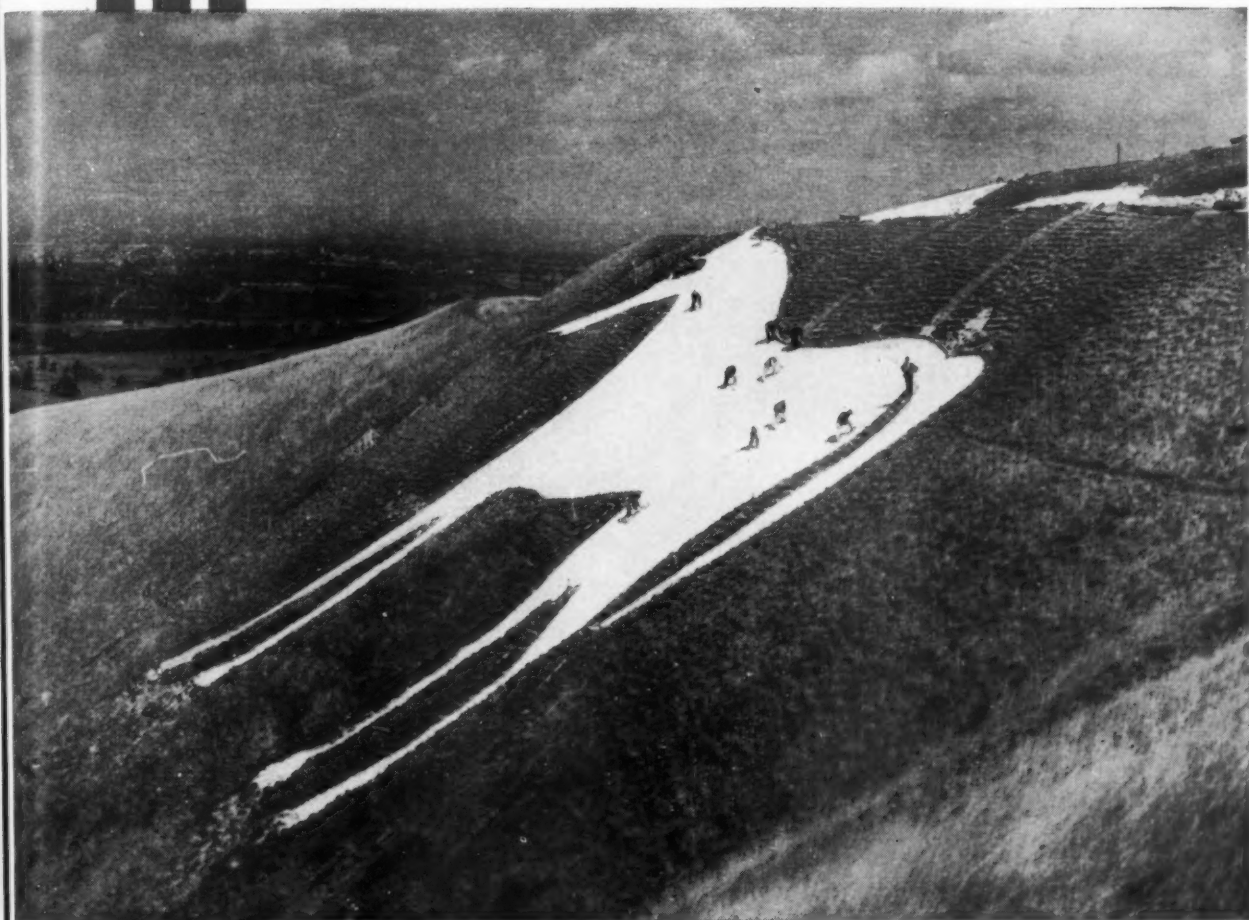
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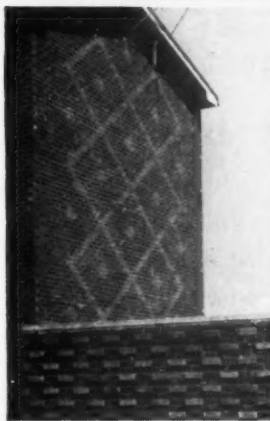
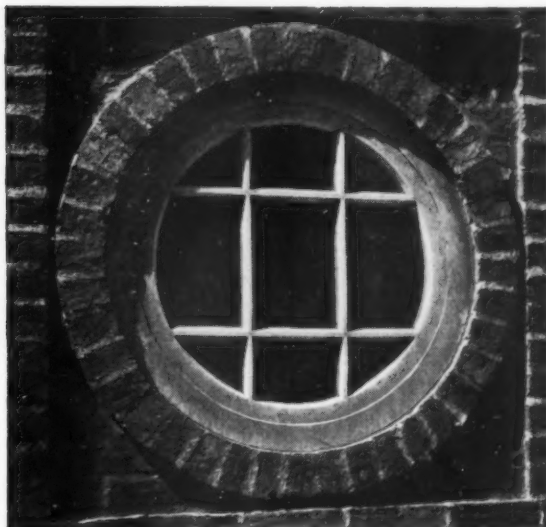
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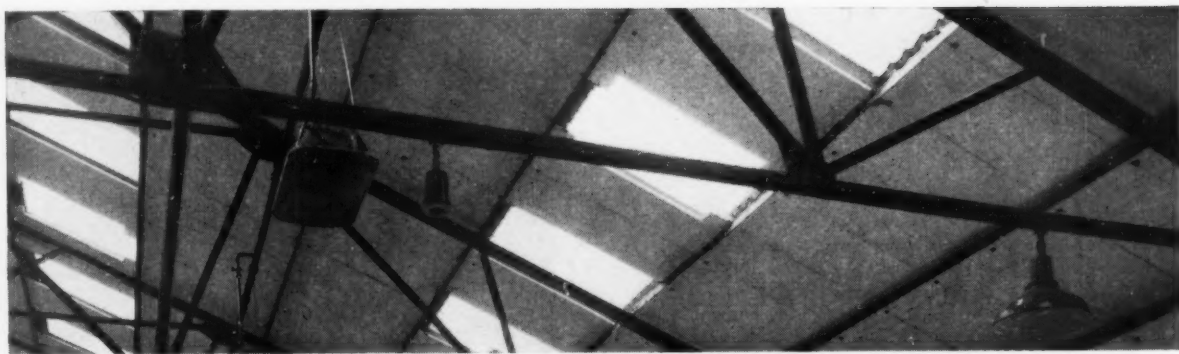
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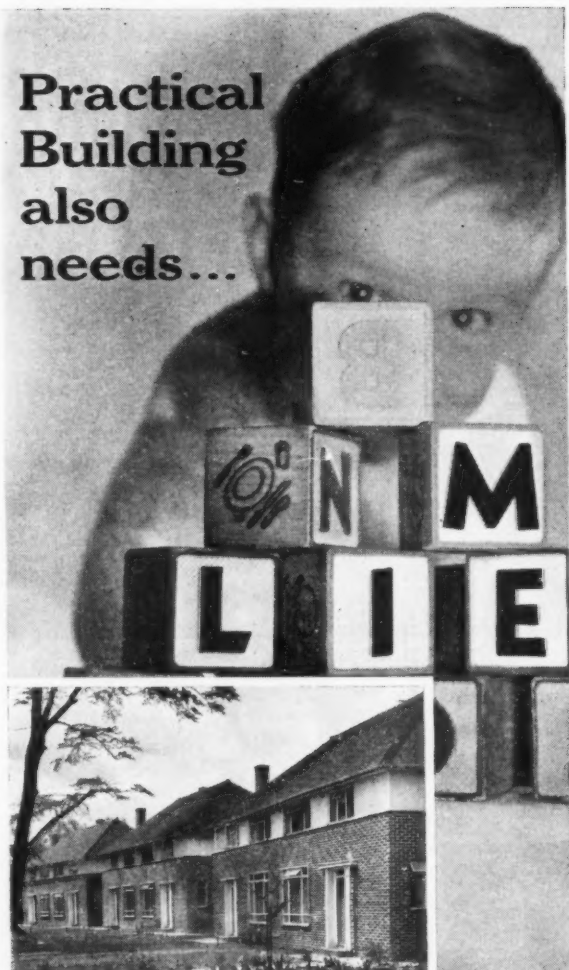
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The Architects' Journal

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Not Quite Funny



Last summer a firm of "land agents" in London called Darling & Inglis advertised for sale "Just for Fun" freehold plots on 88 acres of rural White Land two miles from Ockley (30 miles south of London) in Surrey.

"As your own country estate free from city noises," they offered, "there would be several ways of using the land outside the scope of the planning act—picnicking, cooking over a camp fire, pitching a tent, creating a garden or a tennis court, agricultural uses, etc.

"According to the planning act," they contended, "you can station a caravan on your own land for a considerable period before applying to the local authorities for its permanent use on the land."

Over 1,000 people applied and, up to last week, out of 98 plots, all but 12 had been sold for prices ranging from £140 to £180 an acre.

The strange thing is, however, that all this is not quite as simple as it looks. There are just a few snags.

One: Messrs. Darling & Inglis do not actually complete formal purchase of the land for another month.



*"Just for Fun"
plots in Surrey;
freeholds
available for
anyone who
wants land in
the country. A
similar scheme
is planned for
Dorset writes
Peter
Rawstorne in
this week's
"Not Quite
Architecture"*



Two: Under Class 4 of a General Development Order of the TCPA Act, the total time you can use such land for any purpose without permission is 28 days in any one year.

Three: Appalled by the possibility of 200 caravans squatting among the trees of their picturesque countryside the very few local inhabitants forced a public enquiry last August 8.

Four: As a result of this the Minister of Housing last December ordered all the caravans to be removed, and the rough gravel roads to be taken up, by the end of last week.

The roads have most certainly not been taken up and, as the pictures taken a few days ago show, there is still a little caravan settlement of aggrieved landowners. Two families at least have nowhere else to go.

The possibility of this was forecast last July in an article in *The People* which blamed, however, the authorities and not the sellers or the purchasers.

Seeking more information I asked Raymond C. Deith (an accountant and Common Councillor of the City of London) who had originally bought the land in 1956 "for use

as an agricultural holding" and decided to sell it after two years "having been advised that it was too wet and unsuitable" for farmland.

While declining to quote any figures, Mr. Deith said he had lost on the deal because his selling price did not cover his purchase price plus the cost of laying on water "for agricultural purposes."

He said he had negotiated all along with the lawyers of Darling & Inglis (Howe & Rake of London) and understood from them that their clients "wanted to use the land to raise broilers or something."

Mr. Deith also said: "I did not know they were actually selling the land as a caravan site or anything else and, although we exchanged contracts last December, completion of the purchase is not due for another month."

"Considering what has happened it is very strange that they are still selling, but provided that full information is disclosed to the purchasers this is, I suppose, reasonable."

At his office-home at Grand Drive, S.W.10, Angus Darling the agent said: "It is entirely up to the purchaser to look into any permissions that are necessary. All I do is to

say to them 'here is a piece of land. If you want it you can have it.'

"I am heartily sick of talking to the local council about this. They have given me no help at all. All they do is to tell you what you cannot do—they never tell you what you can do."

A. A. Huggins (Deputy Clerk, Dorking & Horley Rural District Council) told me that his council had supported the local residents at the enquiry because "the May 1958 Development Plan lays down that the land should, for the most part, remain undisturbed."

"It is part of the countryside and any proposals for new buildings of any sort would be restricted. As it stands now any use to which the land can be put is of a very minor nature. The Minister's decision restricts all non-agricultural use and without appeal to the Local Court of Summary Jurisdiction you cannot even put up a tent there."

"Anyone who intends to buy land would be wise to consult us first. We are, after all, here to give advice and people should not rely on what they have been told from outside."

I asked H. V. Charlton, of Isleworth, Middlesex, if he had talked to the council before buying his two-acre plot on the north side of the site. He said he hadn't, but intended to do so soon.

"I bought the land fully knowing that it was restricted in its uses," he said. "All we wanted was a place on which to picnic in private—we wanted to own our own piece of woodland. I am retired now and this is one little way of acquiring that piece of country we all hope to own."

"I am glad a caravan colony is not being permitted, but I am quite positive that once the fuss had died down the authorities will grant permission for a carefully-built hut that blends in with the surroundings."

"I certainly would be disappointed if ultimately I cannot put up a little something

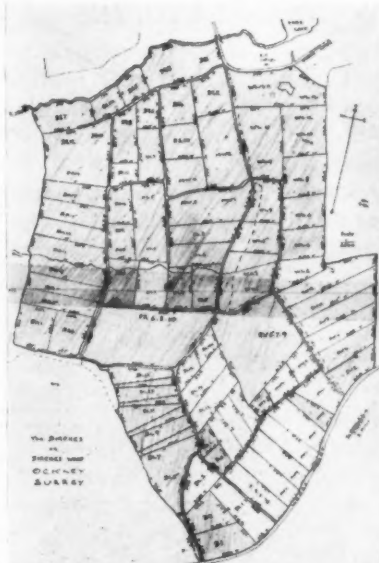
like that for my wife and myself to use."

Mr. Charlton I am sure was not thinking of the advice in the sales pamphlet, but with respect to him I quote from it:

"If you did eventually succeed in obtaining planning permission for a house or a caravan the value of the land would be at least four times more than what you paid for it."

As building land is worth about £1,000 an acre in the area could it not mean a flood of appeals against which the council would be forced to yield? Human nature being what it is, the prospect is certainly tempting. A much respected estate agent of Dorking, a Mr. Crow, told me that he thought the land, as bare woodland, is worth about £25 an acre. To clear it for agricultural use would cost another £60 an acre.

If it is worth £25 an acre and is being sold at an average of £150 an acre then between the total value of the 88 acres—£2,200—and the gross income—£13,200—is an appreciation of £11,000.



A plan of the 88 acres offered for sale. Those sold are shown grey.

A 600 per cent change in value since Mr. Deith first bought it and Mr. Darling has nearly sold it.

The story does not stop here. Similar plans are envisaged by Darling & Inglis to develop a site near Poole Harbour in Dorset. A London architect, Robert Barber, told me that he had written to both the County Planning Officer of Dorset and the Civic Trust pointing out the danger. He has not yet received a reply to either of his letters.

Somewhere, somebody is making a packet. It is certainly not the freeholders who have, incredibly enough, bought land they know they can hardly use.

"They say," said Mr. Crow of Dorking, "that a fool crosses London Bridge every day."

This is not quite funny.

PETER RAWSTORNE

First comments by the RIBA on the Report of the Royal Commission on Doctors' and Dentists' Remuneration, a key table from which is printed right. It will be noted that the architects are the lowest paid.

"Why has society placed such a relatively low value on the services of the architect? The disclosure of the architect at the bottom of the scale of professional earnings, published in the Report of the Royal Commission on Doctors' and Dentists' Remuneration, brings into sharp focus the fundamental questions that have been concerning the profession and the Institute in recent years.

"Is the architect's standard of education and training on a comparable level with that of other professions?

"Have we flooded the market with too many architects and thus debased the coinage?

"What kind of service, both in quality and extent, ought the architect to provide? To what scale of fees does this correspond? Is the RIBA scale too low in relation to the volume and complexity of work that modern buildings require from the architect, and would the client be willing to pay more?

"Could the level of efficiency in architects' offices be increased to enable more adequate rewards to be given within the existing scale of fees? Should the architect's work be differently organised, with greater reliance on non-professional assistance, on standardisation, on central information and technical services?

"Is there any real public understanding of the functions of the architect?

"Questions also need to be asked about the other professions to try to understand the factors that may have influenced the present relativities—Do they have a higher proportion of members working in industry, with its relatively bigger rewards? Has their organisation of private practice any features from which architects might profit, e.g., the solicitor with his managing clerk? In public service, do other professions have such a high proportion of their members in the relatively junior grades?

"The Commission's report is likely to serve as a sharp thorn in the flesh of the various Committees of the Institute that are considering these problems, although much more in the way of both fact-finding and heart-searching will be needed before either they or the profession at large find the answers—or indeed can interpret this report satisfactorily.

"Some analysis of the findings of the survey of architects' incomes in relation to those of other professions will appear in the April issue of the *RIBA Journal*."

The Editors

THE SUBMERGED TENTH?

THE one encouraging fact about the findings of the Royal Commission on Doctors' and Dentists' Remuneration is the list of questions and comments (printed above) which the RIBA promptly issued when the Commission's report showed that the architect, in the most active years of his life, earned less than ten other professions. At least we have a professional institute which has not been caught napping, an institute which is aware of the problem, and has started to enlist the staff to deal with it, even if it has not yet found any answers.

It must be remembered that the financial position of the architect abroad may not be much better. The report shows that the financial position of the architect in Belgium, Canada,

A table of career earnings in a professional life extending from the age of 30 to 65 showed this for 1955/56:

MEDICAL	£
All N.H.S. doctors	84,000
DENTAL	
General dental practitioners	79,000
OTHERS	
Accountants	71,000
Actuaries	105,000
Barristers	92,000
Advocates	72,000
Solicitors (England and Wales)	88,000
Solicitors (Scotland)	67,000
Architects	54,000
Surveyors	63,000
Engineers	59,000
University teachers	63,000
Graduates in industry	84,000

Australia and the USA ranks well below doctors, dentists and lawyers, although these figures are not really suitable for direct comparison.

What course should the RIBA take? We do not think the low pay of architects should be accepted, because low pay means a small share of the nation's brainpower, and, judging by the nation's second-rate environment, we need a far larger share.

The RIBA's course, we suggest, is twofold. First, to encourage more discerning clients, without whom higher standards of building will be impossible, and who will willingly, therefore, pay the piper better. Second, to undertake a thorough study of the profession's offices in order to discover, to put it succinctly, the keys to real architectural efficiency in practice and in finished building. Every aspect of organisation and design must be studied and analysed and an efficient procedure synthesised by a special staff of efficiency experts enlisted by the RIBA. This know-how must then be made available to all architects, and become compulsory teaching in schools. Only thus will the hire of the architect become more worthy of his labour. In the meantime, we suggest, all RIBA pursuits that are not directed to such an urgent programme of reform and which sap energy and finance should be abandoned.

COST ANALYSIS REPORT WELCOMED

The AJ Study Group on Cost Analysis (whose recommendations the JOURNAL is proposing to follow as far as possible), has had its report approved as "a good interim measure" by the RIBA Cost Research Committee, pending the findings of a suitable alternative framework. The RIBA's letter giving these views appears on page 316, and is rather more encouraging than the letter alongside from the RICS.

The RICS very reasonably plead that the subject of cost analysis requires much further study before any recommendation for the adoption of any particular system can be made. We agree that more study is needed, and we would be interested to learn of other methods of presenting cost information in a publishable manner. In the meantime we intend carrying on publishing cost analyses; this is the only systematic cost record available, and we hope readers will continue to assist us by providing a reliable series of analyses covering a wide range of building types.

In so doing it should not be supposed that we are satisfied with our standards. We are not entirely happy about certain details of cost analysis, or for that matter with the standard method of measurement. We are aware, in Peter Trench's apposite phrase, that quantity surveyors are purveyors of "second-hand historical information." We know the limitations of analysing prices and not costs. But we can't do more here than state our unease, and wait for BRS and other research bodies to develop a more efficient system. In the meantime, we join in, and are thankful for, the congratulations given by the two Royal societies to the AJ Study Group, and we will continue, humbly, to do our best.



DISCORD

A thought for thinking architects—and the RIBA press officers. In less than a month, Dr. Doxiadis will be here to give the Annual Discourse. Most of us know nothing about him beyond the name and that his speciality is something called *Oekistics*. This science has, doubtless, a specialized vocabulary, or uses ordinary words in a special way, and no doubt involves the use of concepts that will be unfamiliar to his hearers. In order to avoid the sort of embarrassments and backbiting that have followed the last two Discourses, could the RIBA please issue a short introduction to *Oekistics* and its terminology so that we can come to the Discourse prepared in mind?

PRIZE ERRORS

This year's awards for the trade and technical literature competition (organized by the Building Centre and the RIBA) are disappointing. The whole point of the architect intruding in the business of producing trade literature was to get for himself technical references that were better in every way—in size, shape and content. But this year two awards of exceptional merit have gone to publications that don't meet these requirements—Troughton and Young's *Lighting Fitting Catalogue* and the CCA's *Concrete Quarterly*. The first is good of its kind, but its

typographic eccentricity makes it more of an advertisement than a work of reference, and the second, though well produced and readable, is feature stuff which shows how to have fun with concrete and isn't a technical reference at all. It will be a pity if firms find they can win this competition with "impact" literature and without much technical information.

FOR DIFFICULT REFERENCE

What possible reason can there have been for giving the new RIBA Kalendar such a large and floppy format? The old one was compact, easy to use, and fitted comfortably among the other reference books on the ordinary bookshelf. The new one has twice the page-size, won't stand up in a shelf, and will madden all librarians and club secretaries who will no longer be able to put it among the similar reference books where their members will expect to find it. They will think architects have no sense when it comes to functional planning. And where are the architects themselves expected to keep it?



Sailing, with hair streaming behind them into the teeth of a gale, stone-age Britons are shown by artist Alan Sorrell transporting a stone on an inadequate raft to Stonehenge. The illustration is from an excellent if somewhat romantically illustrated Guide to Stonehenge and Avebury by R. J. C. Atkinson, published by H.M.S.O. (price 3s.) for the Ministry of Works. Incidentally, asks Astragal, does the author, when describing the site near Amesbury as Woodhenge, know that a trial site also called Woodhenge was discovered at Arminghall, Norfolk, in 1929? And finally, what is a "henge"?

I don't object to the cheerful red cover as a change from the genteel cream, but the cover is too thin for the size. The typography inside is neat enough in its 1930-ish sanserif style, though not particularly easy on the eye. In one respect at least it, too, is highly unfunctional: as one runs one's eye down the list of members, the one thing that has been made to stand out really prominently is the year when each member joined the Institute—surely not the piece of information one tends to seek in a hurry?

*

When the Kalendar comes to be reprinted, I hope there will be further and more sensible thoughts.

DONE-IT-THEMSELVES EXHIBITION

How can we make sure that machine-made articles are well-designed? The Crafts Centre claims that standards of design and taste can be set by the individual craftsman. That seems to me a fantastic claim in these days when taste is influenced so much by the mass-produced shapes seen in the windows of shopping centres. And in the Centre's exhibition at the RIBA too many of the exhibits—especially the pieces of furniture—show that the craftsman tends to mess up his designs by displaying his virtuosity. The more successful exhibits are those, like Ruth Duckworth's ornamental pots and William Newland's amusing terracottas, which are unlikely to influence mass-production designs.

*

Curiosities for the paradox collector include a silver tea and coffee set which seems to imitate the machine aesthetic and a long shagreen staff, with onyx, lapis lazuli and rock crystal topped with a helmeted silver Roman bust—a mace for the Company of Scientific Instrument Makers. The exhibits are well displayed, but although the catalogue gives credit to Kosset Carpets, Atlas Lighting and Beck and Pollitzer there is no mention of the designer's name.

CLORE REFORM?

"Mr. Clore buys a village," said the *Sunday Express*, and under that headline was printed one of the saddest stories to be seen for a long time in a newspaper that specialises in disasters. Apparently the financier, Charles Clore has "taken over the mantle" of

Dame Henrietta Barnett, founder of Hampstead Garden Suburb, by acquiring £6m. worth of property there. This is terrible news. For all its unexciting and cottagy appearance, the Suburb represents a planning achievement we can be proud to show visitors as an example of what we did fifty years ago. It was the first modern neighbourhood in the world, with its homes for families of different sizes and different incomes and its community buildings, churches, schools and open spaces. And of course it was run on a leasehold control basis by a special non-profit-making organization. Will someone tell us how and why the transaction took place and assure us that people with small incomes won't get driven out by increased rents? Or am I worrying unnecessarily? Is Mr. Clore spending £6m. for the sake of his health? This is something the anti-uglies may have to tackle.

NATIONAL LARKS

It is only right that Britain, as an eager little ally, should join with Alaska and Greenland in providing a missile warning station so that the United States can be sunk with all guns firing in the next holocaust. And it was considerate of the Americans to agree to the site being moved from the north of Scotland to England so that we can hit back as we go under too. But why—and ASTRAGAL has got his values right—must the contraption be sited in a National Park? No one has advanced a clear reason. Of course, if the Government drives ahead with its development of the National Parks the rest of Britain might become quite attractive by comparison.

BUILDERS IN THE NEWS

ASTRAGAL has learnt of two occasions last week when builders showed themselves in a rather new light. The first was a relatively minor, off-the-record occasion when the new President of the London Master Builders, E. J. Cook, entertained the building Press to lunch. What he said is not for quoting, but it breaks no confidence to say that in his survey of the state of the industry today, and in his quick, assured answers to questions, the President showed himself to be a rather new type of builder-president. He is neither plain builder nor business man. He is a civil engineer—a bachelor of science—as well as a director of Costains. His

manner suggests, beneath the charm, that he doesn't suffer fools gladly—not even architectural fools. Fair enough.

*

The other occasion was a magnificent dinner at the Guildhall—the second of what one hopes will become a very fair tradition—for the Institute of Builders. This old Institute (founded 1834) has in the last few years, thanks to a handful of senior builders and progressive presidents and a very capable, diligent new secretariat, started to acquire the eminent position in the building industry that an educational, indeed near-professional, body deserves. The dinner, the speeches, and not least, the Guildhall itself, made the evening a memorable one.

AN AA TRAGEDY

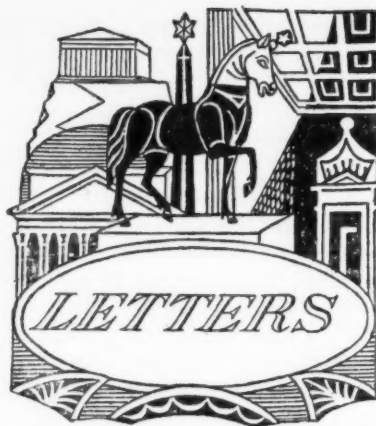
One item of no-news, so to speak, is worth recording. Sir David Eccles in an excellent speech (briefly reported elsewhere in this issue, I'm told), said that the proposed London College of Building, embracing architecture, engineering, quantity surveying and building, of which so many of us have such high hopes, has now nearly been negotiated. The educational bodies from which it will be formed have not been announced, but ASTRAGAL learns with regret that the AA, which broke off, and then tried to resume, negotiations, is not concerned—a tragedy for which the AA is largely responsible.

MORE HOUSES

There always seems to be room for another book on the English House, and Robert Jordan's* has the great merit of setting no limits. It covers a thousand years and almost every type from the mediaeval castle to LCC point blocks; and, since it is necessarily an outline and crams a great deal into a slim book, it is somewhat formless. What it lacks in meat or elegance it certainly makes up for in content. To ASTRAGAL's unscholarly eye Jordan seems to have included every house of consequence from Hedingham to Ham (all three groups). An ideal book, as the reviewers say, for the budding architect or the enthusiastic layman.

ASTRAGAL

A Picture History of the English House by Robert urnaux Jordan. Edward Hulton. 35s.



Anthony Williams, A.R.I.B.A.
Assistant Secretary, RIBA.

Ian G. Neilson,
Under-Secretary, RICS.

Dr. A. I. Roughton

D. G. Davies

David Croghan

Andor Gomme

A. Howard, A.R.I.B.A.

A. T. Morris, M.I.C.E., A.M.T.P.I.
Borough Surveyor, Shrewsbury.

H. W. Joynes
Public Relations Officer
Stramit Boards Ltd.

Cost Study Group

SIR: The former RIBA Cost Research Committee welcomed the report of the JOURNAL Study Group on Cost Analysis as an attempt to standardize the presentation of cost undertaking this important study. As you know, the work carried out by the RIBA Committee is now being continued by the Management Committee, and the Cost Research Liaison Committee on cost matters continues with the RICS Cost Research Panel.

The presentation and analysis of cost information is a subject which merits continued study, and the Royal Institute understands that a Working Party has been established by the RICS Cost Research Panel to actively conduct a further study in the light of the techniques of the profession as a whole, and for their part they wish to carry out this study before making any recommendation to the quantity surveying profession to adopt any particular system.

In the meantime our Cost Research Committee regarded the JOURNAL Study Group's recommendations as a good interim measure, and they recommended that until a suitable alternative framework could be

put forward, architects and their quantity surveyors should use the definitions suggested by the Study Group as a reasonable working tool.

ANTHONY WILLIAMS
Assistant Secretary, RIBA

London

SIR: The report of the JOURNAL Study Group on Cost Analysis has been considered by the RICS Cost Research Panel, who have instructed me to convey to you their views.

The Panel welcome the report as an attempt to standardize the presentation of cost information and congratulate them on their initiative in undertaking this important study.

The subject is, however, one which requires much further study before a recommendation to adopt any particular system can be made to the quantity surveyors' profession. The Cost Research Panel are establishing a Working Party actively to conduct this further study in the light of the techniques of the profession as a whole.

IAN G. NEILSON
Under-Secretary, RICS

London

Cowards in Cambridge?

SIR: My attention has been drawn to two letters in your issue of February 11 under the title, "Were Architects Afraid?" As one of the people endeavouring to organize the widespread opposition to the proposed scheme, may I say that the answer seems to us to be "yes."

One eminent architect agreed to appear for us provided that he approved our alternative (which he did), and provided that Sir William Holford was not appearing on the other side. Two others, while strongly disapproving of the Planning Office proposals, did not wish to get involved in possible future complications.

The Civic Trust, incidentally, were as fully informed as the circumstances of extreme secrecy in which the proposals were wrapped permitted. They were even given an opportunity (denied the ratepayers), of inspecting in addition to the Edger Scheme, all the other models submitted to the City Council, and while in some circumstances I would agree with Colonel Post's last paragraph the implication, that the centre of Cambridge is a trivial matter, is hardly borne out by the interest taken in it by the *New York Times* for instance, or the Canadian Broadcasting Corporation.

I am afraid that the *laissez-faire*, peace-at-any-price, attitude of the architectural profession has been an eye-opener to the layman, and I too am left with an unpleasant taste in my mouth.

A. I. ROUGHTON

Cambridge

SIR: I was interested to read Mr. Waide's letter (February 11) in which he contrasted the Piccadilly inquiry with that recently held in Cambridge about the Redevelopment scheme for the Lion Yard. It is true that the latter Inquiry was concerned with planning proposals; nevertheless it was im-

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possible to miss the strong undercurrent of feeling against the architectural form which the Edger scheme had been given in the model and drawings exhibited in Cambridge throughout the summer.

This feeling had been strengthened by the Royal Fine Art Commission's forthright condemnation of the whole design, and at the Inquiry was to be expressed not only by all the objectors but also by the chief expert witness for the Planning Authority, Sir William Holford. It now seems certain that even if the Minister approves the plan in entirety, the Planning Authority, aided by Sir William, would seek substantial changes in its architectural form. They would thus be confronted, as were the LCC on the Monico site, with the problem of effecting a change of heart in a developer chiefly interested in economic returns. It is to be hoped that they would be much more successful, but even so, the question remains, whether it is ever possible to make a mediocre architectural composition into a first class one, merely through the application of constructive criticism, and negative planning controls.

D. G. DAVIES

Cambridge

SIR: In answer to Mr. Waide (AJ, February 11) I must point out that at no time was any potential architect witness asked by the body of objectors with which I am associated to support anything other than a *comprehensive* development for the Lion Yard site in Cambridge. It was our case to query the arbitrary extension of the area originally designated for redevelopment in the Cambridge Plan.

As was shown in evidence, the original site had to be inflated if it was to attract the attentions of any development company, to which the local planning authority seem determined to sell out. This inflation will involve, if accepted by the Minister, the destruction of one side of Petty Cury—a thriving and attractive shopping frontage. If this is done the citizens will acquire a sixty-year financial liability, for they will pay the compensation to existing owners and in other ways subsidize the new commercial exploitation. They will also suffer the impact of an additional 500,000 sq. ft. of offices and shops (an increase on the existing provision variously estimated up to 50 per cent), which must inevitably assume, on this small site, a vast metropolitan scale within an already highly stressed tension ring of college and university buildings—a purely arbitrary position if one regards the geographical and geometrical centre of present-day and future Cambridge.

The four thousand interested people who signed a petition for a more moderate development were sufficiently far sighted to question the scale of the Edger Investments proposals; to produce an alternative plan; to consider the three-dimensional implications of development on this site; to express the great need in Cambridge for an auditorium (Lion Yard is the only remaining central area site); to suggest a public library in a pedestrian court, rather than on a traffic island as in the scheme supported by the planning authority; to anticipate realistically

the regional significance of the official proposals; to consider consumer requirements; and to agree with the Chief Constable's common-sense assessment of traffic conditions.

Surely these are all matters for comment by architect witnesses?

Mr. Waide's assurance that there will be complete public control of the area if his proposals are accepted by the Minister is encouraging—the novel and highly secret competition among development companies which was held to select a design was not a good beginning. The Edger project is in the true "have-a-go" vernacular, and we who possibly shall have to live with it earnestly hope that it is indeed "illustrative only."

DAVID CROGHAN

Cambridge

Glasgow

SIR: The last section of Mr. Stevenson's article points out that the central part of Glasgow has not been included as a Comprehensive Development Area because it is not primarily a housing area and the Corporation doesn't see it as its job to reorganize the business quarter of the city. Perhaps another reason is that it isn't really suitable for CDA treatment if this means a wholesale replanning of the area on a new street plan. Unlike Mr. Stevenson I do not find it confusing: the grid in the essential area round Ingram Street (planned in the 18th, not the 19th, century, and still retaining some original buildings) doesn't make all vehicles equal, because it is not an exact grid like the rather later developments to the west.

But Mr. Stevenson is obviously right that it is inadequate; and it is very unfortunate that the city seems to be making so little provision in the centre for new office building and the appropriate car-parking. In fact, along the northern and eastern edges of the old business area, along and around George Street, Cathedral Street and High Street, is a region which badly needs redevelopment. New business premises here might do something to bring back some prosperity to the oldest part of the city which lost all its character with the wanton destruction of the Old College and the merchants' houses in the 19th century. Glasgow High Street is now a dingy and squalid canyon, and the surroundings of the cathedral an utter disgrace: yet no CDA is planned, except for the residential area to the north-west of the cathedral (*i.e.*, away from the old centre). If no space is found for new offices here, it will be very difficult to resist the pressure not only for more accommodation but for new office buildings among the fine streets to the west. The city has so far been successful in preventing a wholesale alteration of the appearance of this splendid collection of urban architecture, but there is a limit to what can be done by adaptation, and Blythswood must not be allowed to go by default as so much of the old city has.

Meanwhile, may I correct an impression which Mr. Stevenson may—unwittingly?—have given to readers who do not know Glasgow? His article suggests a grimy Victorian slum only occasionally given a char-

acter it doesn't deserve by some crumbling churches and terraces. In fact much of the quality of the 18th-century centre still remains, with many good buildings; and to the west, up to and beyond the University, is a magnificent display of architectural planning which has few equals in Britain. Any proper plan for Glasgow must include realistic provisions for rescuing these things from the threat of being engulfed and destroyed.

ANDOR GOMME

Glasgow

Hospitals

SIR: Welcome as is the RIBA Hospitals Orientation Course in July, it is, being only a day course, exclusive in nature, and is based on the common assumption that the only people *really* interested in the broader issues of any form of specialized design are the architects and those few senior members of their staff who can safely be given the time off.

I would dispute this assumption on the following grounds:

- (i) The hierarchy is not static, and those excluded from the pearls of wisdom today have high hopes of wearing them tomorrow.
- (ii) It is commonly assumed as a basis for team work that the better the overall picture the irk has of the job he is working on, the more efficiently he will operate and the more enthusiasm he will demonstrate.
- (iii) The Ministry of Health is as short of architects to do their work as any other client, and in addition have an expanding programme. In lieu of a salary above subsistence level, it may be that a course, more available to architects who are not at the moment engaged in hospital work, will attract them to that type of work by virtue of its intrinsic fascination.
- (iv) It might be safe to say that of assistants engaged in hospital work, a favourable proportion are interested in hospital work. A course, therefore, similar to the one proposed, but calling for less generosity (or far-sightedness) on the part of the employer, would be unlikely to fail through lack of students. It would, I suggest, be an investment.

A. HOWARD

London

Iron-Framed Buildings

SIR: ASTRAGAL'S note on Menier's factory in France and the boat store at Sheerness Dock Yard, which dated from 1860, as the first multi-storey framed buildings is I think a little wide of the mark. An iron-framed multi-storey flax spinning mill was erected in Shrewsbury in 1796 by Messrs. Benyon, Bage and Marshall, and is still in use as maltings.

A. T. MORRIS
Borough Surveyor

Shrewsbury

Movable Partitions

SIR: In the article "Partitions and Walls" appearing in your issue of December 3, the writer asks whether it is true that the trade needs movable partitions which can be "moved around with child-like simplicity." As implied in the article, it is obviously a

question of degree and how much one has to pay for a non-demountable partition compared with the cost of a reasonably good truly demountable and flexible partitioning system.

My own company have been supplying partitioning in very simple and in more elaborate forms for some 12 years, and it is our experience that the demand for something that can be shifted around has come from industry and commerce, and their architectural advisers. In the days of shortages, building licences and material licences, Stramit developed their system of aluminium extrusions into which the standard Stramit panels could be fitted and the number of units and combinations were almost limitless. We have on record, a case where one of our partitions in aluminium framing supplied for an office in Central London has been taken down and re-erected five times into new and larger offices with very small wastage of material and with very great ease and convenience to both occupants and landlord.

With reference to our Movafush partitions, mentioned in your article, I think I should point out that this is an extension to our Stramit partitioning methods rather than something entirely new. This system has had considerable success overseas and the present arrangement is the outcome of past experience of what is required. Movafush has specifically been developed so that practically any one panel can be taken out to allow a doorway unit to be inserted or moved without great disturbance of the whole partition wall.

This system was introduced to the home market as a standardized article, not because we think it is particularly clever in itself, but because as a result of our experience in both home and overseas markets we know that something of this type really meets a need for a truly demountable partition with the added advantage of a high degree of thermal and sound insulation.

H. W. JOYNES
Public Relations Officer,
Stramit Boards Ltd.

Uxbridge

DIARY

Exhibition by the Crafts Centre of Great Britain. In the RIBA Gallery, 66, Portland Place, London, W.1.

FEBRUARY 19 TO MARCH 9

The Profession in Contemporary Society. Talk by W. Allen. At the RIBA, 66, Portland Place, W.1. 6 p.m.

MARCH 8
Architecture in Evolution. The Annual Discourse by Constantinos A. Doxiadis. At the RIBA, 66, Portland Place, W.1. 6 p.m.

MARCH 10
Colour Trends in Interior Decoration. British Colour Council Exhibition at 13, Portman Square, London, W.1. Monday to Friday, 10 a.m.-4.30 p.m.

UNTIL MARCH 18



TCPA

Growth of Planning Appeals

It takes about six months to determine an appeal under section 16 of the '47 Planning Act, said Philip Allen, deputy secretary of the Ministry of Housing and Local Government, at a meeting last week of the TCPA to discuss planning appeals. Mr. Allen said that his Minister thought that was too long, bringing planning into disrepute, and he wants to speed up the departmental machine and encourage local authorities to hasten theirs. Mr. Allen described how planning appeals (excluding advertisements) have increased each year: in 1956, 6,699 appeals; in 1957, 6,921; in 1958, 7,499; in 1959, 8,857 appeals, and in January of 1960 there were 935 appeals, the first month with over 900. Of the '59 total of 8,857 cases, 1,736 appeals were allowed, that is 30.6 per cent. (it was 32 per cent. in previous years), 3,937 appeals were dismissed, 2,533 were withdrawn, and 649 remain a backlog to be settled.

It is probably fair to say, continued Mr. Allen, that the rising curve of appeals is keeping in line with the rise of planning applications. A sample survey had shown that there were about 400,000 applications in the year ending March, 1958. Of these 360,000 were granted, 40,000 were refused, and of these 9,000 went to appeal. From 1955 to '58 planning applications increased by 13 per cent. and appeals by 12 per cent. About 1.8 per cent. of planning applications end in an appeal. Nine-tenths of the applications are permitted, only one-tenth is refused.

The biggest single category of appeal was for the single house in a rural area: 1,100 cases in 1959. Second (and nearly double the '58 figure) were appeals for housing estates at 1,000. Third were 427 appeals for petrol stations.

In one year the average number of applications for all counties was 8.6 per 1,000 population. In the north-east, the figure was only 6.7. In the south of England (except London and Middlesex) the number was in the 'teens or even up in the twenties.

Mr. Allen said that the Minister believed appeals could be reduced if: planning policies are made clear; planning refusals are adequately explained; if developers are encouraged to discuss proposals in advance. He had increased the number of inspectors from 85 in 1957 to 128 at the present. He has also considered setting up tribunals to deal with advertisement appeals and for appeals concerned with design and appearance ("only 2 per cent. of the total—small but troublesome though they are"). And he has considered allowing inspectors to settle appeals on the spot if both parties agree. So far the Minister has not felt able to pursue either suggestion.

Opening the discussion which followed, J. G. Jefferson, West Sussex County Planning Officer, pointed out that there was no evidence that there were more planning appeals in a tough authority than a lenient one. As land values rise there will be more appeals. The way to reduce the number was to reduce the chances of success in an appeal.

This proposal for toughness and high standards caused some unrest in the packed hall (300 seats for 500 applicants). A representative of the Oxfordshire County Council pointed out that by letting refused applicants meet the council the Oxford rate of appeals was half the number other counties had. A spokesman for Carlisle stated that the people aggrieved by the grant of an application had no right of appeal, which was unjust. Desmond Heap said forthrightly that to worry about the number of appeals was boloney. An expanding economy meant a lot of building. So to have appeals for only 2 per cent. of the planning applications was a satisfactory state of affairs. More staff were needed at the Ministry, however, to reduce the delay after an enquiry had taken place. Replying to the many points raised, Philip Allen said that the Minister had agreed that the law should be amended to make the enforcement of the Act easier against transgressors. The chairman, Sir Sydney Littlewood, president of the Law Society, described by Mr. Heap as one who "had never had it so good," ended the discussion with a few comments. He thought delegation of powers a mistake. Small authorities had a great deal of prejudice against large commercial interests and what he described as "heavy cases." For these the six-month delay in holding an inquiry was often necessary in order to prepare a case. He thought much time could be saved if both sides agreed in advance to accept the inspector's decision.

LEEDS

New City Architect

The Birmingham Deputy City Architect, J. R. Sheridan-Shedden, has been appointed City Architect of Leeds. The vacancy created at Birmingham is an extremely important one, as this city has a vast volume of building work in hand and on the drawing board. The salary is £2,870—£3,370.

EDINBURGH

Housing Research Unit

Research by the Edinburgh University Housing Research Unit, under Professor Robert H. Matthew, is divided into four sections: One, a sociological study of the factors which turn a group of dwellings into a community, including the effects of landscape, communal facilities, mixing types of families, open space and privacy, and provision for the motor car. Two, a study of the factors which make a house a home: emphasizing such factors as occupancy by one family throughout that family's changing size, the relevance of family habits and a detailed study of the space required for: sleeping, washing, cooking and eating, watching television, hobbies, homework and storage. Three, the problem of pedestrian and vehicular access to each house, or to groups of houses. Four, a study of construction for a house which puts the results of those studies into practice. This will include prefabrication, cost analysis and cost in use. The research team will travel abroad to study housing and to contact similar study groups. At two stages during the first five-year research period the conclusions reached will be used as a basis for building housing. The first of these, 90 houses at Prestonpans, is in the sketch plan stage. A second group of 800 dwellings at Cumbernauld is being designed.

The team consists of:

F. R. Stevenson, A.R.I.B.A., M.T.P.I., Senior Lecturer, member of the Danish Institute of Architects, who has travelled in the U.S., Canada and Europe, was formerly deputy Chief Architect, Department of Health for Scotland.

H. R. Wedgwood, A.R.I.B.A., Senior Research Assistant, who has worked in London, Zürich, Athens and for three years at BRS.

J. A. Grey, and M. J. Calthrop, Research Assistants. A. Zammit, research student, sent by the Maltese government, an experienced housing architect. N. Dunhill B.Sc. (Econ.), a sociologist. A. W. Winkle, A.R.I.C.S., quantity surveyor. A. C. Patterson, joiner technical assistant.

IOB

Building: Key Industry

Was the building industry, the key industry in investment, "improving its organization, its management and its trade at a rate likely to meet the minimum demands of an economy capable and striving to double its standard of life once every 25 years?" asked Sir David Eccles, the Minister of Education, when proposing the health of the Institute of Builders at their annual dinner at the Guildhall last week. The answer, he thought, was doubtful. "Which comes first," he asked, "the failure of an industry to expand, or the necessity for the Government to put a brake on that industry when it becomes overloaded?" Very neatly David Eccles thus answered those who blamed the industry's troubles on being "messed about

by the Government." The manpower in the industry, he pointed out, has remained stationary for quite a long time. It therefore follows that productivity must increase, and without increasing costs (to avoid inflation), if the industry is to meet the country's demands.

"Have you calculated and have you faced up to," asked Sir David, "what the volume of new construction will have to be in, say, the year 1970, if the British economy has been expanding at 2½ per cent. compound interest over the decade in front of us." He went on to say that he hoped the IOB's new pattern for education would help breakdown the old-fashioned barriers between architects, surveyors and builders. He did not doubt that the architect should lead the team, but as chairman of a round table "not as some aloof transmitter of indigestible revelations from on high."

G. O. Swayne, President of the IOB, responding, said that all the Institute's schemes for the improvement and development of building education would not flourish "unless and until the architectural profession, local authorities and the general building public—but particularly the architectural profession—are persuaded that it is in the interests of its clients for my Institute's qualifications to be accorded the recognition they deserve as a measure of competence to practise building."

'ARCHITECTURE TODAY'

RIBA/Arts Council Exhibition

The RIBA and the Arts Council of Great Britain are to present jointly, under the title "Architecture Today," an exhibition at the Arts Council Gallery, 4 St. James's Square, in July, 1961, at which time the IUA Congress will be taking place in London for which the RIBA will act as hosts. The exhibition will be selective and will aim to show some of the best work of the past ten years: it will not attempt to represent the general achievement in particular categories of building.

Further details will appear in May, when British Registered Architects with offices in this country will be invited to apply for entry forms if they wish to submit material for consideration by the Selection Committee in due course. Entries will not be limited to buildings in Great Britain and work completed abroad by British Registered Architects will be welcomed.

BC FORUM

Factory Flooring

Gontran Goulden, opening the last Forum of the season at the Building Centre on February 17, explained that both the subject (Factory Flooring) and the speakers (Arthur L. Hall of Harry Weedon & Partners, and Dr. F. C. Harper of BRS) were chosen by the Building Research Station.

In fact, as Dr. Harper points out, the Forum was built round the booklet *Floor Finishes for Factories*, the third volume in the Factory Building Studies series, published last year.*

Two kinds of information emerged in the course of the evening: reports on products which have come on the market since the publication of the booklet and comments on established practice. The only wholly new product to come to light was an ¼-in. polyester type floor. This (on the testimony of a speaker from the audience) has been on trial for some two years in this country and six years in Switzerland. Its virtues were not made clear, but it is expensive and contractors were unanimous that it makes a nasty (but transient) smell when laid. Dr. Harper drew attention to a German 1½-in. high density concrete pressed tile which will shortly be on the market, but an indignant supplier in the audience pointed out (amid cheers) that an identical English product had been on the market for some years.

A number of established materials was discussed. Comment was made of the high absorption of end grain wood blocks and the consequent difficulty of keeping their appearance. In the places where they are most used (i.e., engineering shops where heavy castings are handled), much damage is done to them by the habit of leaving stray waste on the floor. This habit cannot apparently be stopped as the men are customarily on piece-work and the Unions object if they are obliged to lose time in picking up waste.

There was an interesting discussion on clay tiles: apparently the doctrine put forward in BRS Digest 7 that clay tiles are dimensionally stable has been disproved by the directional expansion of the tiles lining the bottom of the fountains in Trafalgar Square; but the amount and cause of expansion has not yet been discovered. Granolithic received much, rather inconclusive, attention. One flooring contractor contradicted the BRS preference for the monolithic floor and the use of a power float. Dr. Harper blamed most failures on the use of too much water and it seemed generally agreed that the commonest cause of failure was the fact that the flooring contractor was too often compelled to make up time lost by the preceding trades (and by the architect).

Lastly, an interesting point came to light concerning income tax and the client. It seems that BRS find the greatest difficulty in persuading clients to install a more expensive floor, giving a longer life, since the cost of maintaining and re-laying a floor is deductible from income tax and the original cost of the floor is not. A difficulty of the same order is found in the mental attitude of management and in the customary preference for spending money on "plant" as against spending it on building. If an architect can persuade his industrial client that his floor is a part of his plant, his chances of obtaining agreement to a relatively high expenditure are greatly increased.

* HMSO, price 1s. 9d. Reviewed in AJ Information Centre, October 8th, 1959.

RIBA

New Freedom of Lighting

Our specialist editor on lighting writes: Under this title on February 16 at the RIBA, two speakers, Dr. Hopkinson and John Bickerdike, gave a joint discourse on the use of permanent artificial lighting as a partial substitute for daylight in buildings, particularly in the case of multi-storey development on urban sites. As Dr. Hopkinson pointed out, a comparatively rapid and significant change is taking place in our idea about lighting, particularly in relation to levels of illumination and to planning. On the one hand levels of both natural and artificial lighting, used as the basis for the layout, design and equipment of buildings, were going up and up. It would seem on the other hand that there were occasions arising with greater frequency, because of these higher standards, where daylighting requirements tended to severely restrict the architect in his planning. With this in mind the BRS Lighting Section were currently studying the technique, already in fairly wide use in the USA, whereby the daylighting of interiors could be supplemented by permanent artificial sources.

As far as both speakers were concerned this was not a matter of using artificial lighting as a "topping up" of bad or inadequate daylighting, but an attempt to achieve a well-balanced environment by a skilfully designed combination of the two types of source. One of the examples shown by slides and by the display of models actually employed for experimental purposes was that of the development project by MOE for Harris Technical College at Preston. For planning reasons the architects had arrived at a series of relatively deep rooms in a multi-storey block with windows on one side only. In order to have adequate daylighting it would be necessary to have a ceiling level of about 14 ft., so that potentially there were economic advantages in studying the alternative of having a lower ceiling and relying on a certain amount of supplementary artificial lighting.

The main aim of the model study was to determine what level of such lighting was required, on the one hand to avoid an interior which appeared gloomy, and on the other not to destroy the dominant character of the daylighting. This was done by the method of subjective appraisal, that is to say by getting a number of skilled observers to examine the appearance of the interior, without reference to a light-meter, and to make a series of adjustments to the level of artificial lighting in the model so as to achieve this optimum balance between the two sources of light. The level of illumination best suited to this particular design of room would appear to be, as a result of these studies, about 40 lumens per sq. ft.

At the same time it has been possible by this technique of model study to examine other aspects of design, such as the best colour of fluorescent tube to adopt, and the disposition in the interior of the artificial sources. One of the problems is, of course,

that daylight is continually changing in amount and in its colour, so that from an idealistic point of view the supplementary artificial lighting should vary in these ways to match. For economic and technical reasons, however, this is not practical, at least for the next few years.

At the same time the model studies seemed to suggest that supplementary artificial lighting which was fixed in colour and amount was an acceptable and workable solution, provided that "Daylight" tubes were used, and that a level of the order of 30 to 50 lumens per sq. ft. was provided. One of the problems to which at the moment there would appear to be no ideal solution resulted from the fact that this order of level was higher than that normally required at night-time: how could this change-over to a lower level be achieved without causing the occupants of the building to become discontented? One idea was to have two entirely separate installations such as fluorescent for supplementing the daylight, replaced by filament lamps at night-time. Another, adopted for the Preston Technical College, has been to arrange for half the supplementary lamps to be switched off during the break between afternoon and evening classes.

Both speakers stressed strongly that in their view the use of permanent supplementary artificial lighting was the best way of overcoming urgent problems in the lighting of buildings in high density development, and that it was of primary importance in using this new technique that the fenestration and the artificial installation be designed together.

Dr. Hopkinson strongly deprecated the type of interior which was principally artificially lit, with a small strip view window, and stipulated that daylight should remain the dominant source in the interior. In the discussion he also expressed the view, although he said there was no solid evidence available to support it, that it was a deprivation to expect people to work in a totally artificially lit environment. This opinion was endorsed by several speakers from the floor, although John Bickerdike pointed out that there were already many people who worked under such conditions, and they did not seem to suffer from any ill effects.

John Bickerdike also carried forward into the broader picture the question of the use of permanent supplementary lighting, particularly with respect to office buildings. One important theme he developed was the question of taxation, by which it was more advantageous for firms to rent office accommodation rather than to buy it. It seemed that many organizations were prepared to pay phenomenally high annual rents, up to about a third of the capital value of the space they occupied. Hence the office building developer was immensely active in London and the other big centres in this country. Where an architect was employed by such a developer, he was usually re-

quired to fulfil a strictly commercial requirement, and was working in a vacuum since he had no contact with the eventual occupiers of the building. Under these circumstances it was difficult to provide a good working environment, particularly with regard to lighting, bearing in mind the nuances in design which were inherent in providing good supplementary artificial lighting.

Perhaps the most important issue raised in the discussion was the question of the economics of the use of this technique as compared with normal daylighting. From what Dr. Hopkinson said it would seem that at least at the moment there is no body of information available pointing either way, although he was reasonably optimistic that supplementary artificial light would in many cases be the cheaper method.

The value of this meeting, as D. E. E. Gibson pointed out from the chair, was particularly that architects who had heard the intimate story of one of the many facets of BRS work could ask questions about it, and could examine some of the models used in the experimental studies. Obviously this sort of meeting benefited the profession, and gave it a better appreciation of the Station's programme.

One must add that it is gratifying to see John Bickerdike, as an ex-BRS architect now in private practice, maintaining as much as ever his angry-young-man attitude to the way in which design is hampered by the forces of legislation, taxation and commercialism. This meeting was also a reminder to the profession that Dr. Hopkinson is one of those rather rare people who is not only a leader in his particular field, but at the same time has the ability to explain clearly and cogently to architects, in a language they can understand, the significance to them of what he is doing.

NEWS IN BRIEF

A conference on the problems that arise when Church authorities ask an architect to design a new church building is to be held in Birmingham from April 4 to 7, by the Birmingham University Department of Extra-Mural Studies. The department also announces a study tour of modern churches in Germany from May 20-28, with a possible extension to June 2. The cost is 34 or 48 guineas. Information about the course or the tour can be got from the Director, the Department of Extra-Mural Studies, The University, Birmingham, 3.

The Council of the Incorporated Association of Architects and Surveyors has elected W. J. Clark as its President for 1960-1.

T. W. Gregory, at present Deputy City Architect, Gloucester, has been appointed Deputy City Architect and Planning Officer, Coventry.

Of the 293 candidates who entered for RIBA Final Examinations held in November and December 57 passed the whole examination, one passed subject to approval of Thesis, 46 passed Part 1 only, and 149 were relegated.

Grangemouth is a small seaport on the Firth of Forth about twenty-five miles west of Edinburgh. As a part of the Glasgow overspill plans the Burgh intends to nearly double its present population to 30,000 as quickly as possible and there is room for numerous types of industrial development. The necessity for a new shopping centre prompted an enlightened Town Council to promote a competition for which there were 51 entries. The conditions stressed that this competition was for (a) a district shopping and communal activity centre in a modest sized town and (b) that the subsoil would not support heavy loads. George Grenfell Baines, the assessor, has now announced his award. The winning premium of £1,500 goes to Philip S. Cocker of Glenrothes, Fife. The second and third premiums, of £750 and £500, have been merged and divided equally between the four runners up, who are R. Gorbing, E. J. Askew and T. D. Carter of Stevenage; Frank Dolezal, Carl Hunter and Thomas Reilly of London; J. B. Kennedy, J. B. Fitzgerald, R. R. Black and D. Bain of Belfast; and B. Z. Gillinson, C. H. Barnett and R. Allen of Leeds. The assessor also commended two other designs for virtuosity of presentation; the first by G. Worsley and J. K. Hunt and the other by Alison & Hutchinson & Partners. The Burgh decided to award an honorarium of £100 each to these designers. Space does not allow for reproduction of the set of conditions but Mr. Grenfell Baines, himself an experienced competitor, has obviously worked very hard to present the competitors with a clear picture of what was required and says that he has been extremely impressed with the efficiency of the promotion by the Burgh of Grangemouth. Below are extracts from his report.

GRANGEMOUTH SHOPPING CENTRE

Competition Results and Assessor's Report

A total of 51 designs was submitted, many showing good ideas, and all a keen interest in the project. Practically all could be described as modern, while the total amount of design thought and drafting effort together with the quality of leading schemes, fully justifies the Burgh Council's enterprise in promoting the competition.

This new district Shopping Centre and the adjacent housing is essentially a combined town planning-architecture design problem and on this basis the solutions have been judged.

Many designs showed quality and originality in their architectural aspects, not matched, however, by their town planning which it must be realized is something more even than large-scale architecture. Thus while recognizing the limitations of existing surroundings (indeed the precise reason for the Council's effort to bring about an improvement by holding a design competition), it

was essential above all things that the scheme should be a good neighbour, open to and readily merging with the surroundings, rather than entirely dismissing them by turning inwards to a self-contained respectability largely displaying backs and service areas to the rest of the district.

When solving problems of this nature it is necessary first to establish the areas of activity, and then to evolve the best routes of communication to serve them with safety, efficiency and comfort. Already, however, the site was bounded by an important district road, Kersiebank Avenue to the west, and by Loanmead Avenue to the north. In addition, points of approach were provided by Avonbank Avenue to the south boundary, and Oxbang Road to the north-east corner. Competitors had to maintain the district road lines, but were given freedom to use or discard the existing points of approach. In the event all of the premiated

designs have made good use of existing roads within their context of spaces.

My review of the designs for areas of activity has been governed by the two main purposes, shopping and housing, each having a common problem of accommodating means of transport.

In the shopping area the following were considered important:

1. For the shopper—interest and comfort.
2. For the shopkeeper—attractiveness, efficiency and tidiness.
3. For the developers—economical use of space and suitability (in appearance and construction) for phasing.
4. Sympathetic siting of bank, pub and petrol station, so that each and all made a visual as well as social contribution to the project: easy to deal with as clear-cut entities and appearing as such in a scheme that would still be good looking while awaiting their appearance. Not an easy set of conditions to meet.
5. "Open" aspect to other parts of the town, particularly the areas to the west and south, yet along with this, pleasant arrangements of spaces inside the scheme giving visual and physical impressions of protection.

6. Separate systems of pedestrian and vehicle spaces, connecting in safety for convenience; the pedestrian spaces gracious, the vehicle spaces efficient and adequate.

In the housing, these factors have been considered important:

1. Adequate external space to give light and air with privacy to the internal spaces of the dwellings themselves.
2. Private gardens for as many of the larger units as possible.
3. Public spaces for children's play in safety near home, and for adults' rest and recreation.

4. Adequate open space for the growth of medium sized trees and for easily maintainable areas of grass and shrubs.

In the common problem of accommodating transport, adequate area in the right place is the obvious aim:

1. For the shopper—easily seen perimeter parking near the shops.
2. For the shopkeeper—garage space immediately adjoining the service yards and goods stores.
3. For the householder—a garage as near to his house as possible.
4. For his visitors—parking spaces distributed to give service over as wide an area of the housing as possible.

Obviously these criteria must be resolved in conjunction with an efficient communication system, as I am happy to say they have, particularly in the winning scheme.

It has been considered of paramount desirability to solve these service, parking and garaging problems in a seemly and tidy manner, largely *within* the site, so that the scheme presents a good and lively appearance to the rest of the town, particularly on the west, north and east boundaries. Very regrettably, many competitors do not seem to have thought this important.

There seemed to be every reason for disposing of the shops and houses largely in two clear areas, shopping to the west—

Grangemouth Shopping Centre Competition:

towards the town, housing to the east—towards the school; areas which yet were well linked by communications and architectural scale and character.

So much for the areas of activity. Systems of communication to serve them include traffic roads and footpaths; the former already largely described as existing to be augmented by service inlets which did not bisect the site (creating short cuts which might be dangerous) and therefore needed adequate turning space at terminations; the latter ranging from general pedestrian ways to serve the housing up to some form of paved precinct for shoppers, open principally to the Overton Road-Kersiebank Avenue junction but accessible as well from other directions.

Other features of the road communications were expected to include:

1. Provision for safe and convenient bus stops.
2. Safe crossings of the main junction opposite the site entry.
3. Easy entry for goods to shops and pub.
4. Easy "in" and "out" (free from parking) to petrol station.

5. Good and convenient access for goods delivery and local authority services vehicles to houses bearing in mind the proximity of a shopping centre providing all everyday needs, and the likely relative lightness of the refuse load, remembering the conditions called for "clean" means of heating. These then were the functional aspects on which the designs were judged.

Technically I looked for sound methods of construction, particularly bearing in mind the difficult sub-soil conditions; for attention to thermal and sound insulation; external finishes requiring a minimum of maintenance compatible with reasonable initial cost; use of local materials wherever practicable; and finally, general planning of internal spaces which would lead naturally to simple construction in matters of collecting loads towards the foundations, and easy erection at site.

Next to sound building fabric comes good and adequate services, particularly heating in the houses and flats, also compact internal plumbing protected from frost and maintenance; adequate electrical services, especially power points, and attention to ventilation, particularly of internal lavatories and bathrooms.

Economically I have been concerned with an overall expenditure which could be matched by the expected return in rentals, remembering that the scheme should offer better conditions for living and business than are available now; then that within this global figure the disposition of monies should be aimed at expenditure and economy in the right places to give real value for money. To these ends the following contribute: compactness of planning; simplicity of construction—it must for instance be faced that two-storey housing built with conventional materials and methods is still the most economic, particularly where foundation problems exist—systematic cost control by analysis which ensures *during the*

design stage that money is scientifically used to meet, with adequacy, economic stresses as and where they occur, whether they be heavy—as for first quality floor finishes, for hygiene and maintenance, and efficient heating services for comfort and full use of space, or light—in the case of providing the minimum amount of building fabric to protect a motor vehicle from the weather. It was for these reasons competitors were asked to complete outline cost plans and close consideration has been given to these in the assessment.

Full success of the competition requires, of course, that the satisfaction of functional, technical and economic problems should be attended by the highest possible aesthetic qualities; in short, that the winning design should display a balance of usefulness and grace, capable of sound and economic realization.

Broadly speaking the aesthetic qualities sought fall into two groups—first the three-dimensional proportions of external spaces, their relationships, contrasts and means of connection, and second the quality of surfaces and profiles, depending on good proportions of wall and windows, good taste in choice of materials for walls, roofs and pavings, and sensitivity of detailing. These largely concern externals, appropriate at this stage of the design, but providing they are adequately met by a designer, it is reasonable to assume the same hand will in due course be equally effective in creating pleasing interiors.

That elusive and desirable quality of urbanity reputed largely to be absent in New Town development, was particularly hoped for. Deriving to a large extent from proximity of buildings and pavings, strong contrasts in the spaces between buildings such as open squares, narrow alleys and short narrow streets; contrasts in heights of buildings and the play of trees and grass against architecture and paving, and finally relying on a strong degree of continuity in skylines.

It is vital also that a scheme like this should be designed to the right scale, that is to say, the general dimensions of buildings—length, breadth, height—together with the sizes of subsidiary elements as doors and windows should be of an order appropriate to the purpose of the scheme—the sole reason for its existence. In this case—the problem of a district centre in the midst of housing in a small town—an essentially modest and human scale was required not only of the buildings but, subject to meeting the needs of light and air, of the spaces between and surrounding them. Many designs, even some of those premiated, tended to aim at creating a larger than desirable scale leading to monumentality and pretension that would have appeared incongruous. Lastly, the aesthetic qualities of the design rely on consistency and sensitivity in expression: these are matters of proportion, choice and relationships of shapes to give interest without stridency, repose without dullness.

On these bases and criteria the designs have been judged.

FIRST PRIZE

EXTRACT FROM COMPETITORS' REPORT: The first design aim, to segregate foot from wheeled traffic in both the shopping and housing areas has been achieved by designing the whole site as a small superblock with a central east-west pedestrian system. There is also pedestrian right of way on the perimeter footpath.

Motorists using the shops will park in perimeter lay-byes which will also be used to a limited extent by the flat tenants.

Pedestrians will be discouraged from using service areas by the lack of footpaths and the fact that entry to them from the flats is often through the garages.

To reconcile the need for intimacy required by the climate with the need for adequate daylight, single storey shops with three squat blocks of flats over have been designed.

An animated atmosphere for the centre in the evening as well as the daytime is promoted by the following: 1. The pub on the main corner with its banquet hall. 2. Residents will have to pass through the square to and from the bus stop. 3. Lights in the flats over the shops. 4. The petrol service station will always be busy during the evening. 5. Cafés and the fish and chip shops will be open. 6. Some shops will be lit up.

Approximate estimate of cost:

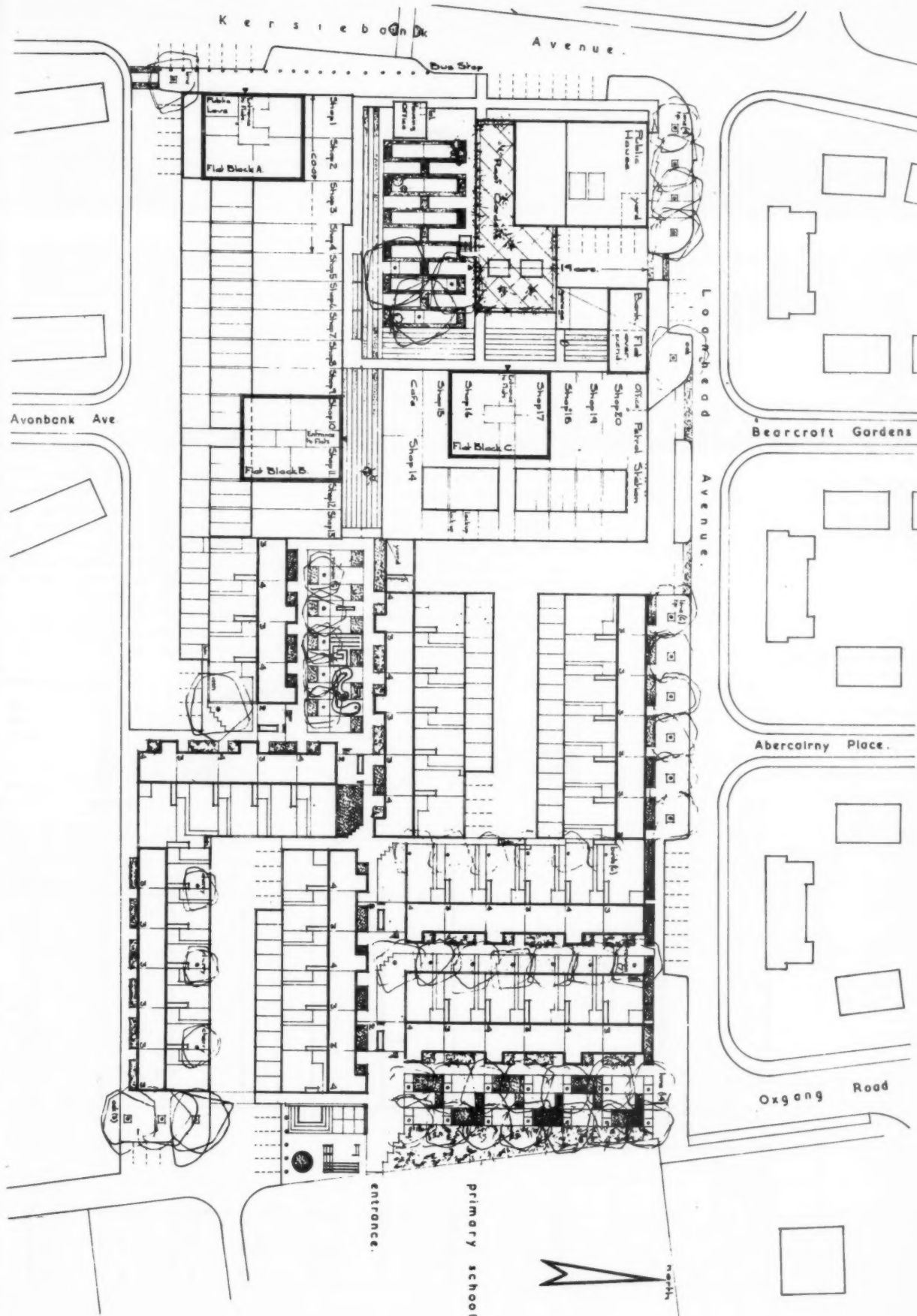
	£
Shops	73,544
Dwellings	139,017
Garages & car parks	10,833
Ext. works	12,106
	<hr/>
	£235,500

EXTRACT FROM ASSESSOR'S REPORT: This design adequately contains all the desiderata described in the first part of my report. The scheme is simple, the architecture lively and graceful without pretension and may be said to possess the right regional character; the specification is adequate and shows a firm grasp of the practical aspects of translating the design into actual building and civil engineering. Floor areas, dimensions of spaces, widths of access roads, turning space and paths are adequate and in accordance with the conditions. Certain minor details of design might be criticized and easily remedied without in any way affecting the character of the scheme. For example, service access to the school site on the east might be more convenient if located at the north-east corner. The articulation between the two-storey bank and one-storey shops might be strengthened. Certain continuations of the shop canopy appear to be superfluous, particularly across the space between the shops and the roof garden to the public house. Then the space between the pub and the south block of shops might be reduced with gains in propinquity and interest. Perhaps the pub could be provided with a sheltered beer garden opening from lounges to the south.

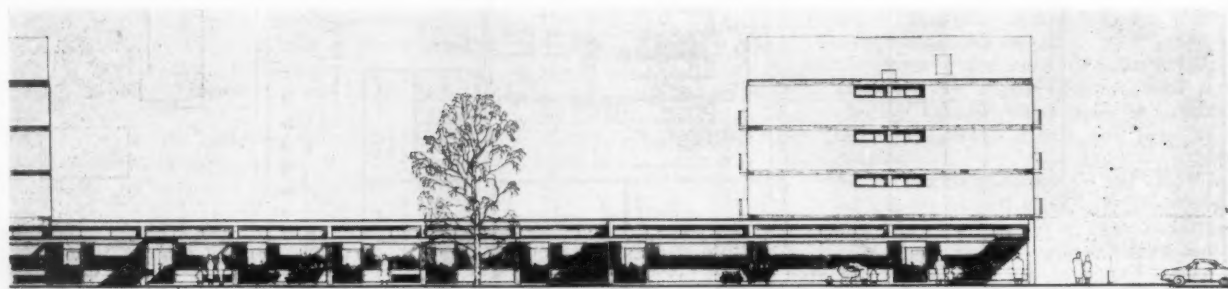
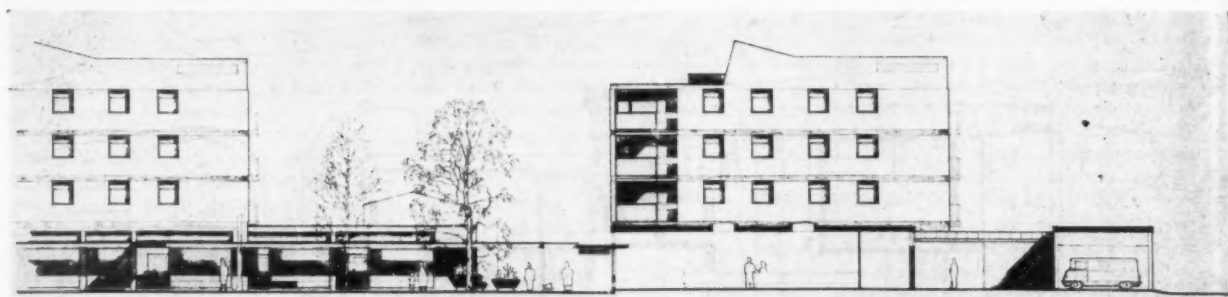
In describing a painted finish to natural concrete the author states "if a more logical

WINNING DESIGN BY PHILIP S. COCKER

Site plan.



Grangemouth Shopping Centre Competition : FIRST PRIZE - WINNING DESIGN

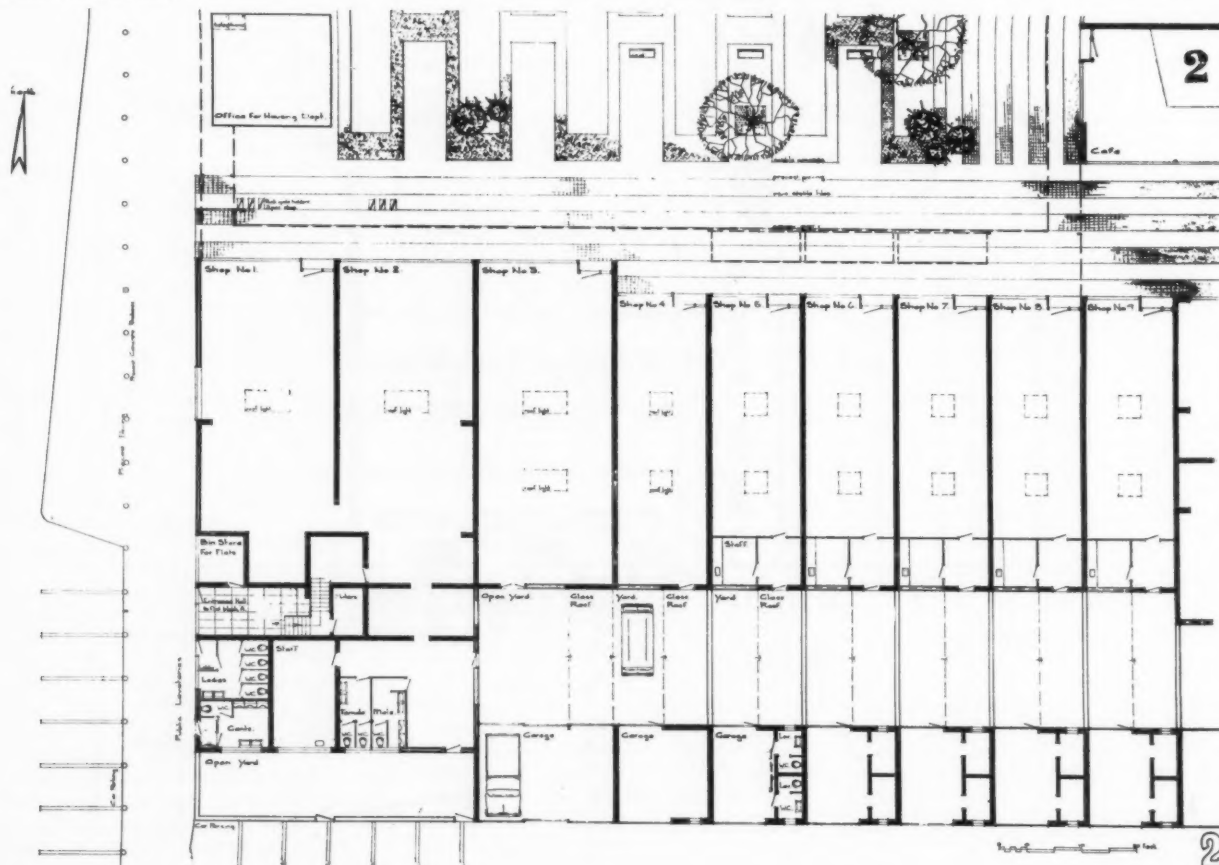


Elevations to shopping area. Top, elevation to shops 16, 15 and cafe, and section through shop 5 and west elevation of flat block B. Above, elevation to shops 1 to 9 and north elevation of flat block A.

way of finishing concrete black exists, it will be found." It is suggested a more logical way would be to choose aggregates carefully and then leave well alone. But these are really minor points scarcely affecting a first-class town planning design expressively presented in good modern architecture, free from frills and extravagances likely to date. In spite of the high housing density achieved, all the large family houses have pleasant private gardens big enough to

establish quality and small enough to maintain in an auto-tele age. The main west to east walk through the shopping square and on by the Housing, through the pends below the cleverly planned two-apartment flats which link the main housing terraces preserving the skyline and the sense of enclosure, right on to the school grounds, will be a continual joy of changing vistas, contrasts in spaces and architectural character. Equally satisfying will be the north to

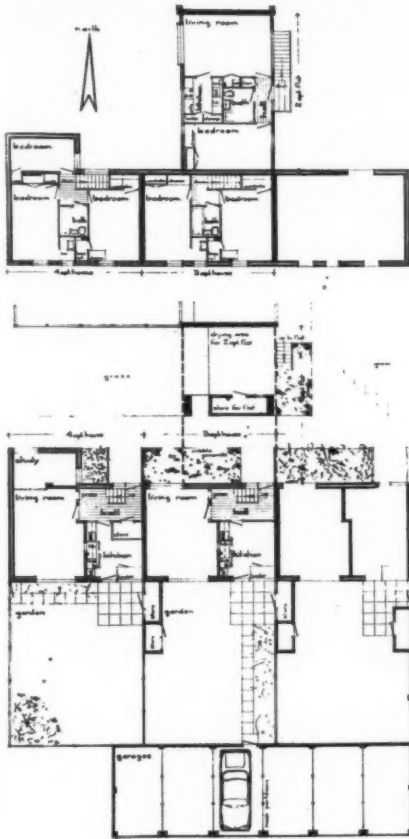
Detail of shopping area.



Ground

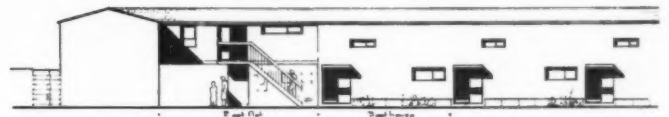
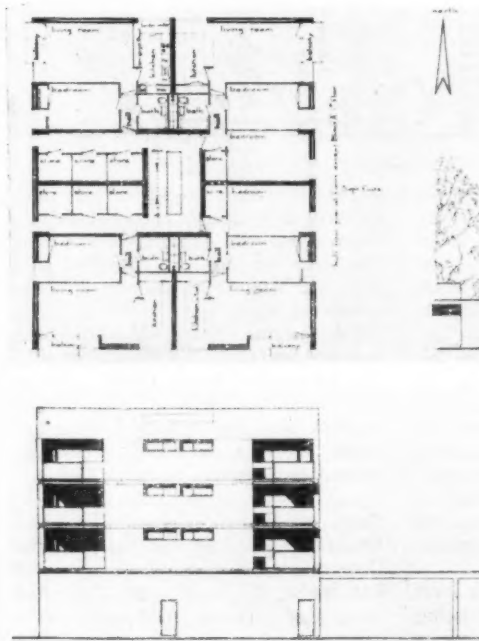
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block
block

BY PHILIP S. COCKER continued

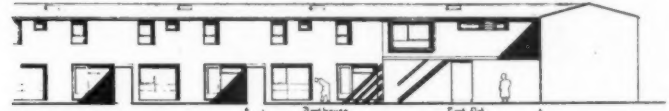


Ground and first floor plans of two-storey houses.

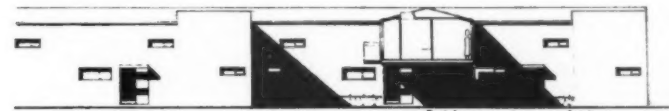
Below, typical plan of flat block and elevation to Kersiebank Avenue. Bottom, south elevation of flat block A, and cross section through shop 1 and flat block A.



East elevation of two-storey housing block



West elevation



North elevation



Elevation of typical gable

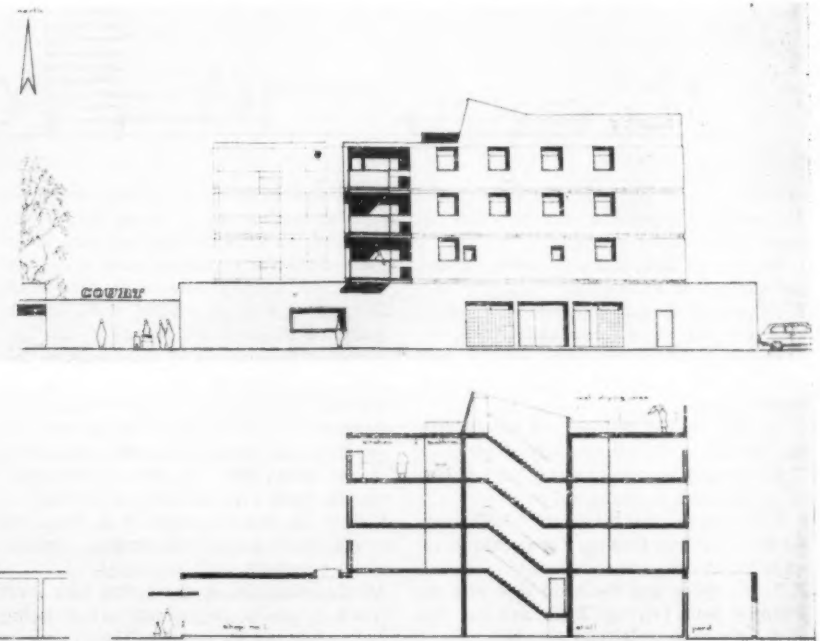


Cross section through 4-apartment house and garage

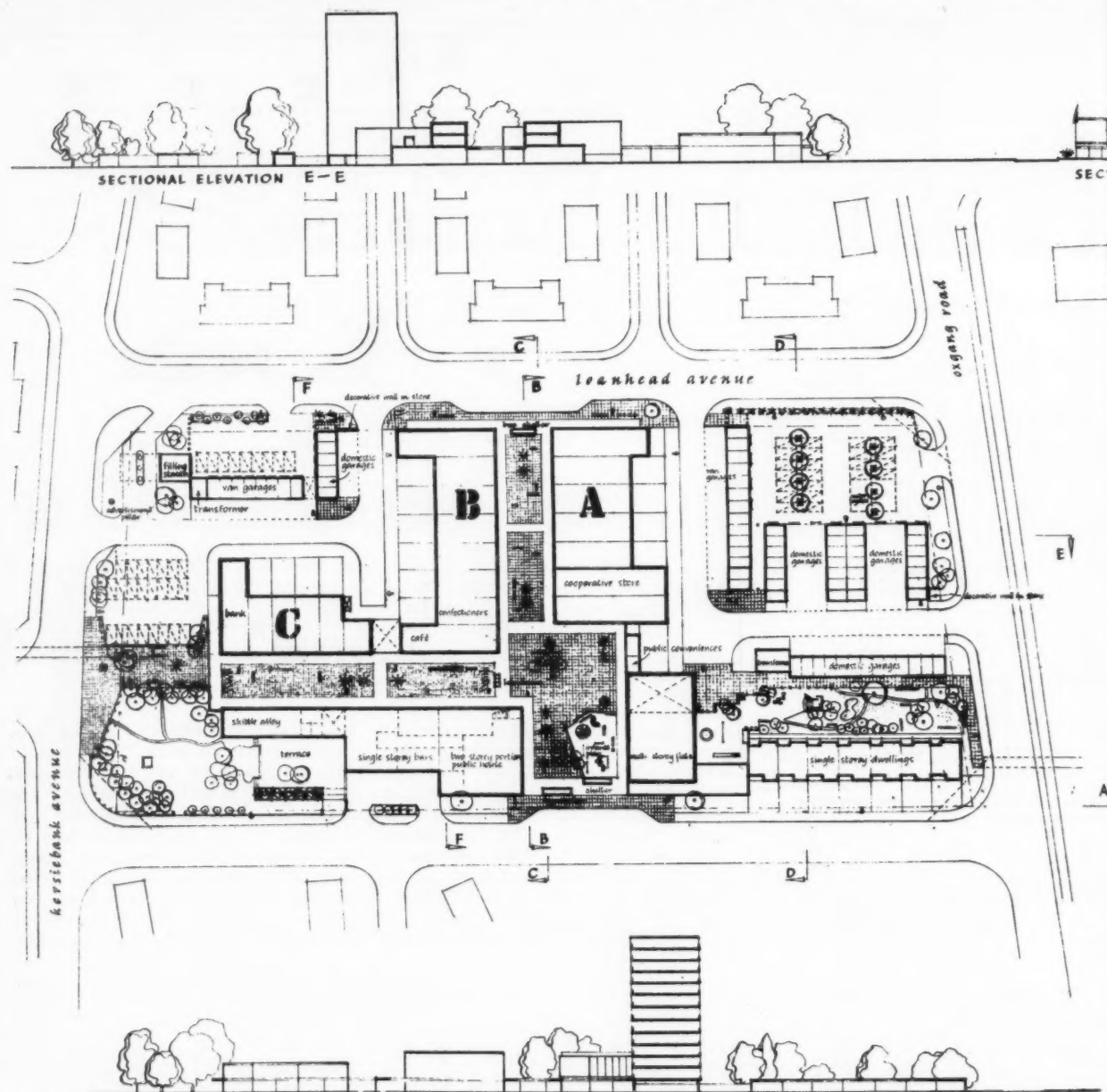
south cross walks where disruptive through views (a fault in many schemes) have been skilfully avoided.

Particularly commendable is the idea of grouping the flat accommodation in three square "towers" over the single-storey shops. These towers have been subtly placed to carry the eye round the compass of the shopping centre viewed from whatever angle. The entrance to the flat blocks make pleasant breaks in the shop fronts and provide through ways into the shopping centre from housing to the south.

Adequate spaces for garaging commercial vehicles with covered and open yard, and storage space contiguous all at one level, are given to every shop, the provision for the Co-operative store being particularly good. Private garages and parking places generally are in exact accordance with the conditions, their disposition being admirably contrived for convenience and seamliness.



Grangemouth Shopping Centre Competition : EQUAL SECOND PRIZE-WINNING



Site plan, north is to the top.

EXTRACT FROM COMPETITORS' REPORT:
The conception of the scheme relies on seven fundamental principles:

1. To provide complete segregation between pedestrians and vehicles.
2. To provide complete undercover, comfortable shopping.
3. To design the centre looking inwards upon itself and not to preserve the poor outward-looking views.
4. To provide a pedestrian link for children and parents to the adjacent school site.
5. To create a shopping centre with a feeling of vitality both by night and day.
6. To appreciate that the centre is sufficiently far from existing facilities for people to require the use of public transport.
7. To recognize that the main view into the centre is from Overton Road and that this is also the main pedestrian approach.

The shops are designed in three blocks, two running north-south as giving the best aspect and the third running east-west. All of these are served by service roads at the rear. The pedestrian ways between the shop blocks are prohibited to all wheeled traffic with the exception of prams and bicycles.

Access to the centre is by three ways on foot from any direction, when once within the site there will be no roads to cross. By public transport arriving at one of the lay-byes and thence under cover immediately and thirdly by car where they can park at the north-east or south-west and proceed on foot.

8 ft. 6 in. wide canopies 9 ft. from the ground are provided, with crossing canopies where necessary.

All the vistas inside the centre have been closed to create an intimate urban feeling and to shut out the exterior. This is done by

a focus for each pedestrian way on an emphasized panel on the end building by means of bas-relief sculpture or tiled murals. The views out from the open ends of the ways are stopped by shelters, kiosks and advertising panels.

All the perimeter roads will be designed as one-way bus routes.

The tall block of flats is placed on the east-west pedestrian axis to give maximum dramatic effect and to form a screen to the cooling towers in the middle distance.

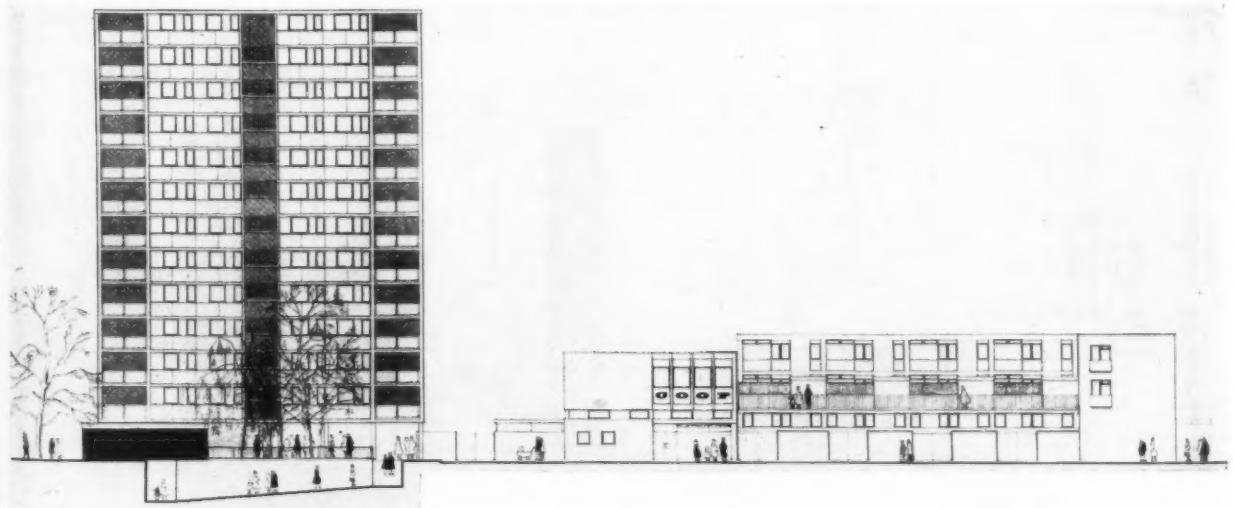
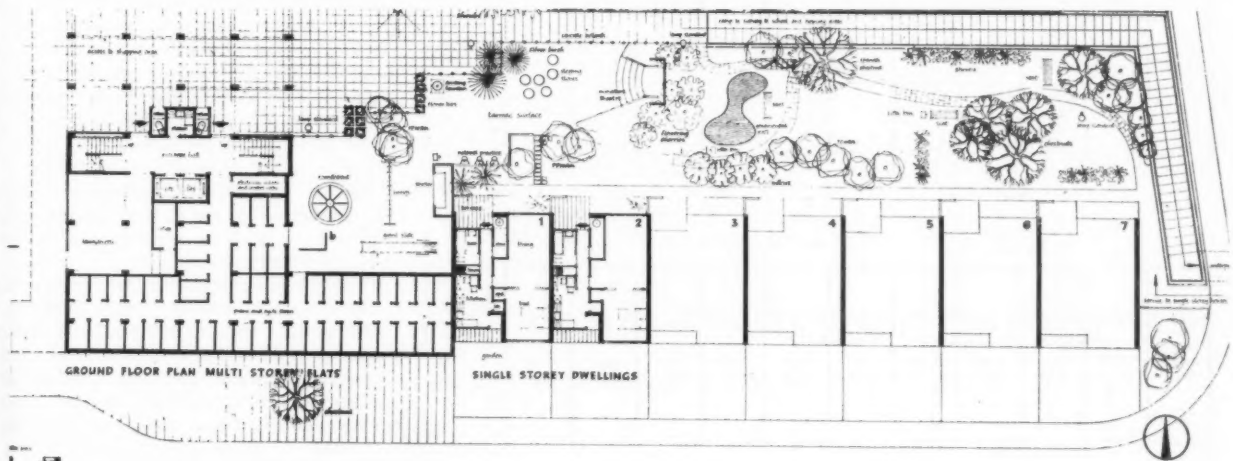
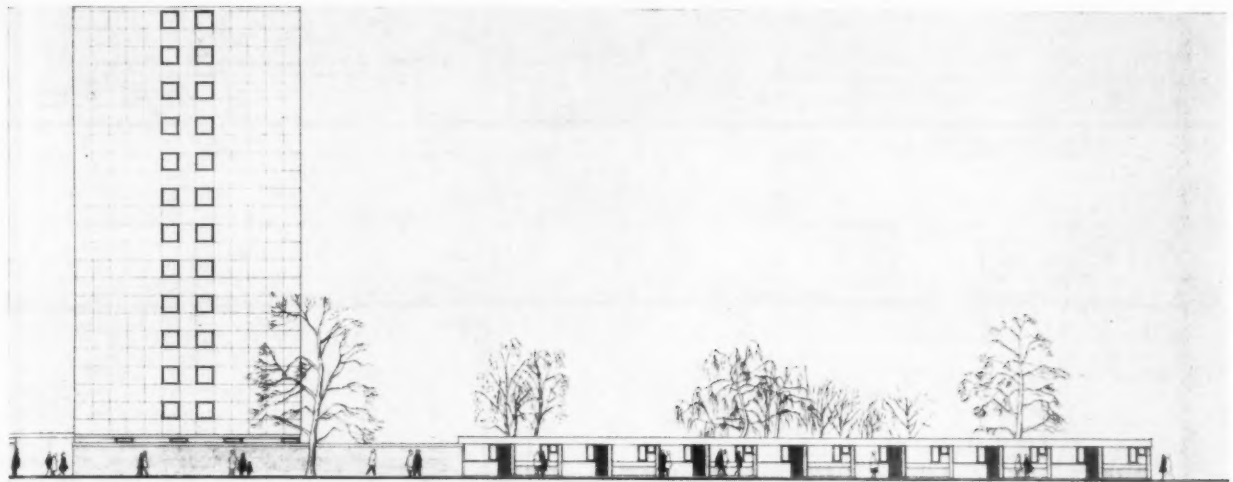
Approximate estimate of cost:

	£
Shops, etc.	88,319
Dwellings	210,282
Garages, etc.	32,000
Ext. works	62,800
	<hr/>
	£393,401

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DESIGN BY R. GORRING, E. J. ASKEW AND T. D. CARTER

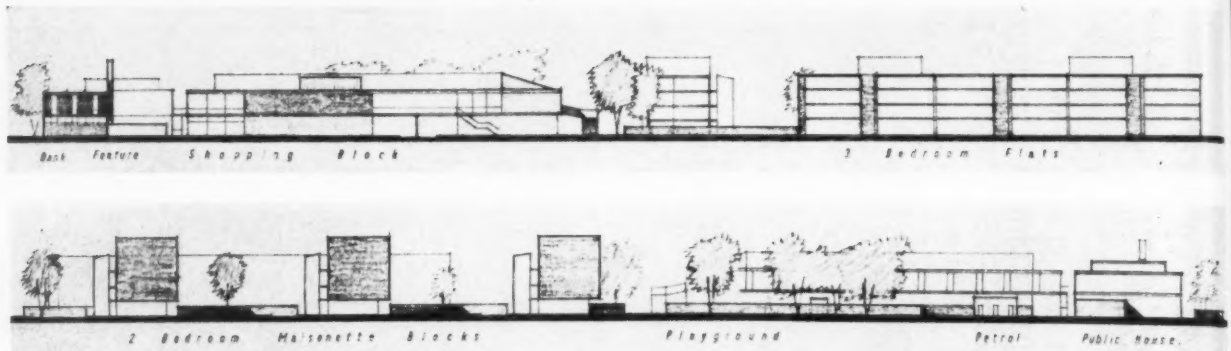


EXTRACT FROM ASSESSOR'S REPORT:
This design displayed considerable skill and sensitivity in the layout of the shopping centre, and a thoroughness in attention to detail that could well be studied by every competitor not excluding the winner. The architecture is lively but mixed; sometimes well proportioned and attractive and allied to good detailed planning, but this com-

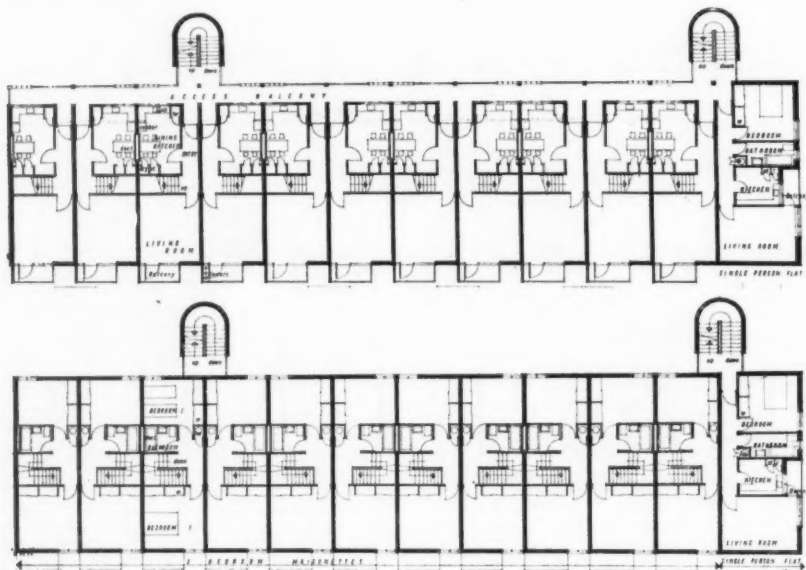
petitor chose to place almost the whole of the dwellings in a high and inevitably heavy 13-storey building on this very weak subsoil without in any way suggesting other than a conventional piled foundation. It is significant that his unit cost per dwelling is well above the average of the other four pre-miated competitors and that the ratio of building to usable floor area is high.

Top, south elevation and (centre) ground floor plan of 13-storey block of flats and single-storey dwellings. Above, east elevation of multi-storey flats and shops.

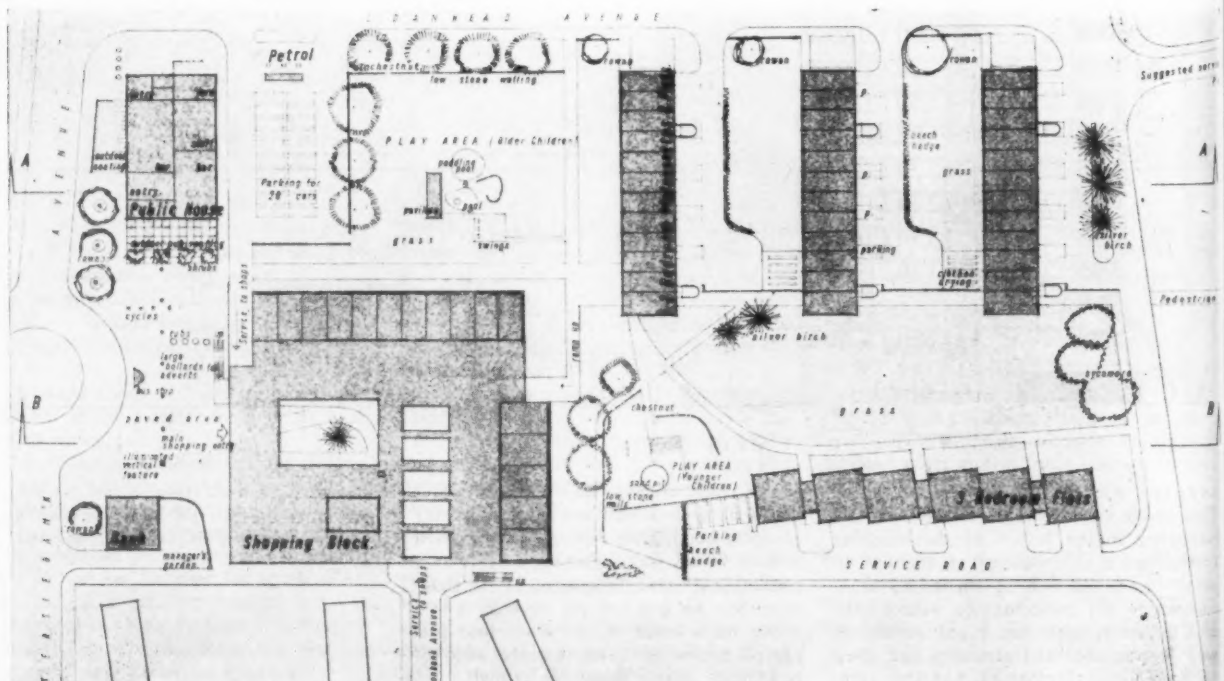
Grangemouth Shopping Centre Competition : EQUAL SECOND PRIZE-WINNING DES



Top, south elevation. Above, north elevation.



Above, first and third, and second and fourth plans of maisonettes. Ground floor contains stores and car park. Below: site plan (north is to the top).



EXTRACT FROM THE COMPETITORS' REPORT: The site proposed is bleak and we have decided to keep the whole area self-contained. We have kept the line of Avonbank Avenue which enters the site at ground level and continues as a service road to the shopping centre. We consider it essential to keep pedestrians separate from vehicles and have therefore placed the shopping area on the first floor level. The shops are designed to have garages, service areas and yards on the low level.

We consider it necessary to group the housing into larger blocks to maintain a good proportion of the site as open landscape and in order to preserve a pathway to the site of the nursery school.

Generally, the construction for the shopping centre is an r.c. concrete frame, pre-stressed and pre-cast with traditional infill panels and walls. Local bricks will be used where possible. External walls to maisonettes will be two skins of concrete blocks with roofs of timber insulated with woodwool. Care will be taken to ensure a lively pattern of paving. The area between the blocks of maisonettes will be fully landscaped and this

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Approx

Shops
Dwelling
Garages
Ext. wo

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low stone walling

PLAY AREA (Older Children)

PARKING

GRASS

PLAY AREA (Younger Children)

PARKING

GRASS

PLAY AREA (Older Children)

PARKING

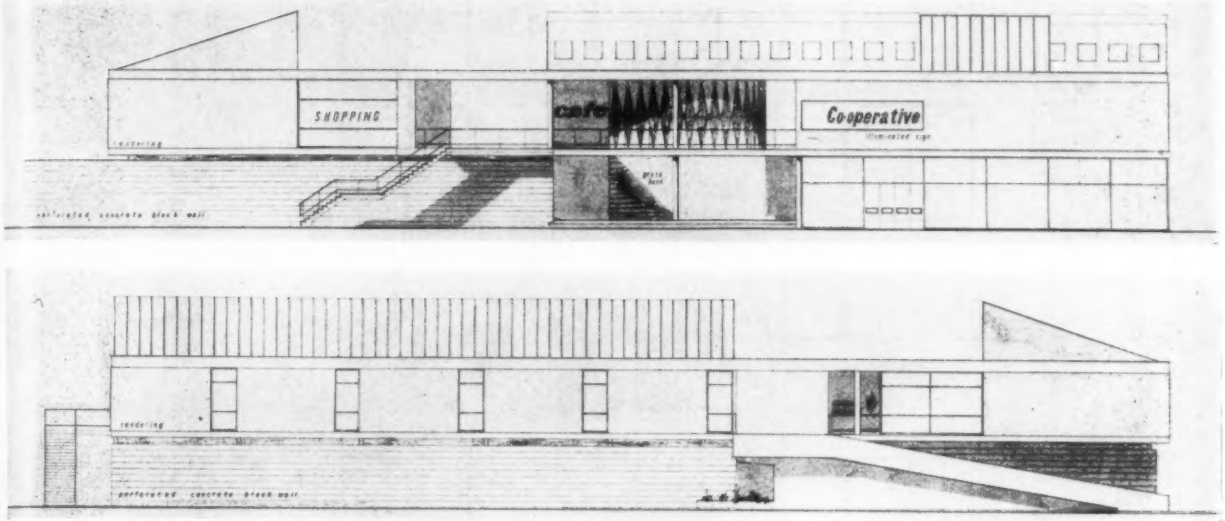
GRASS

PLAY AREA (Younger Children)

PARKING

GRASS

DESIGN BY B. Z. GILLINSON, C. H. BARNETT AND R. ALLEN



should provide a pleasant space which the residents can enjoy on a communal basis. Approximate estimate of cost:

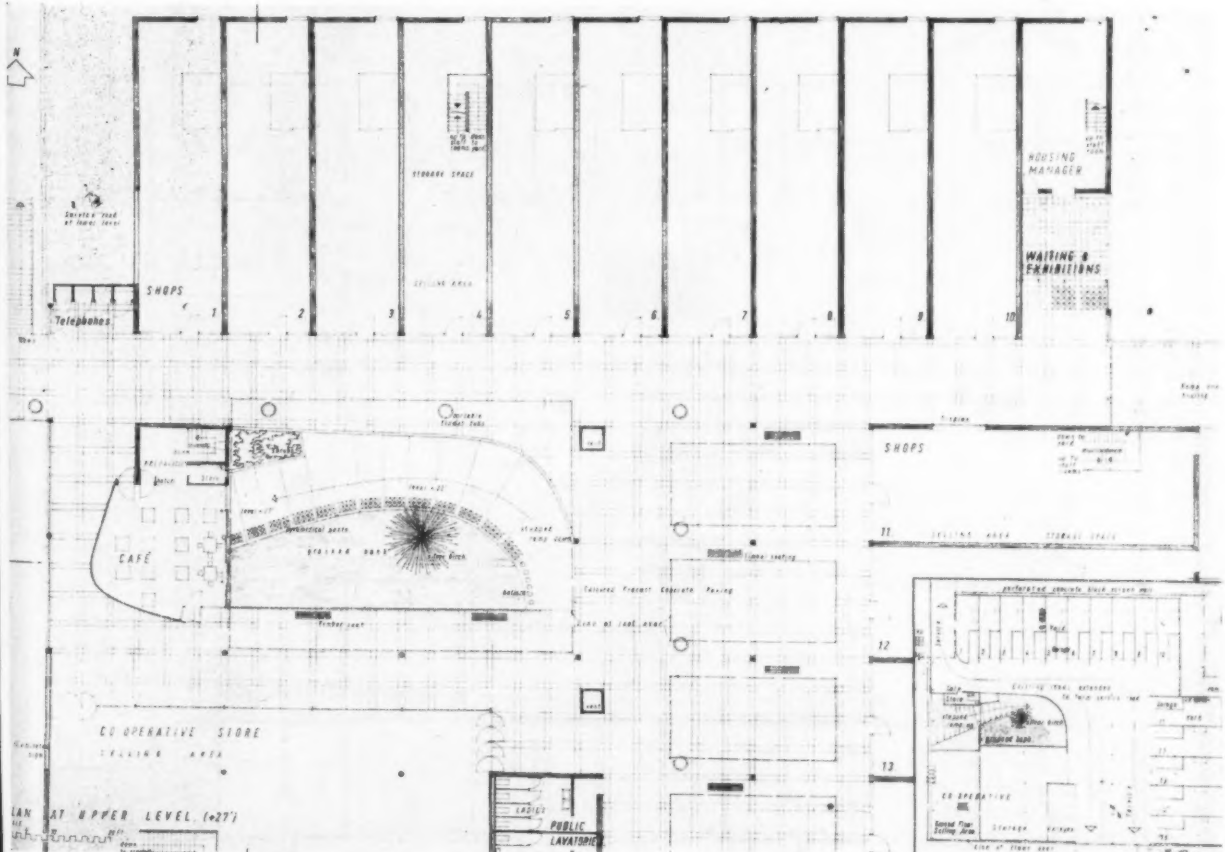
	£
Shops	58,305
Dwellings	196,440
Garages	6,540
Ext. works	16,190
	<hr/>
	£277,475

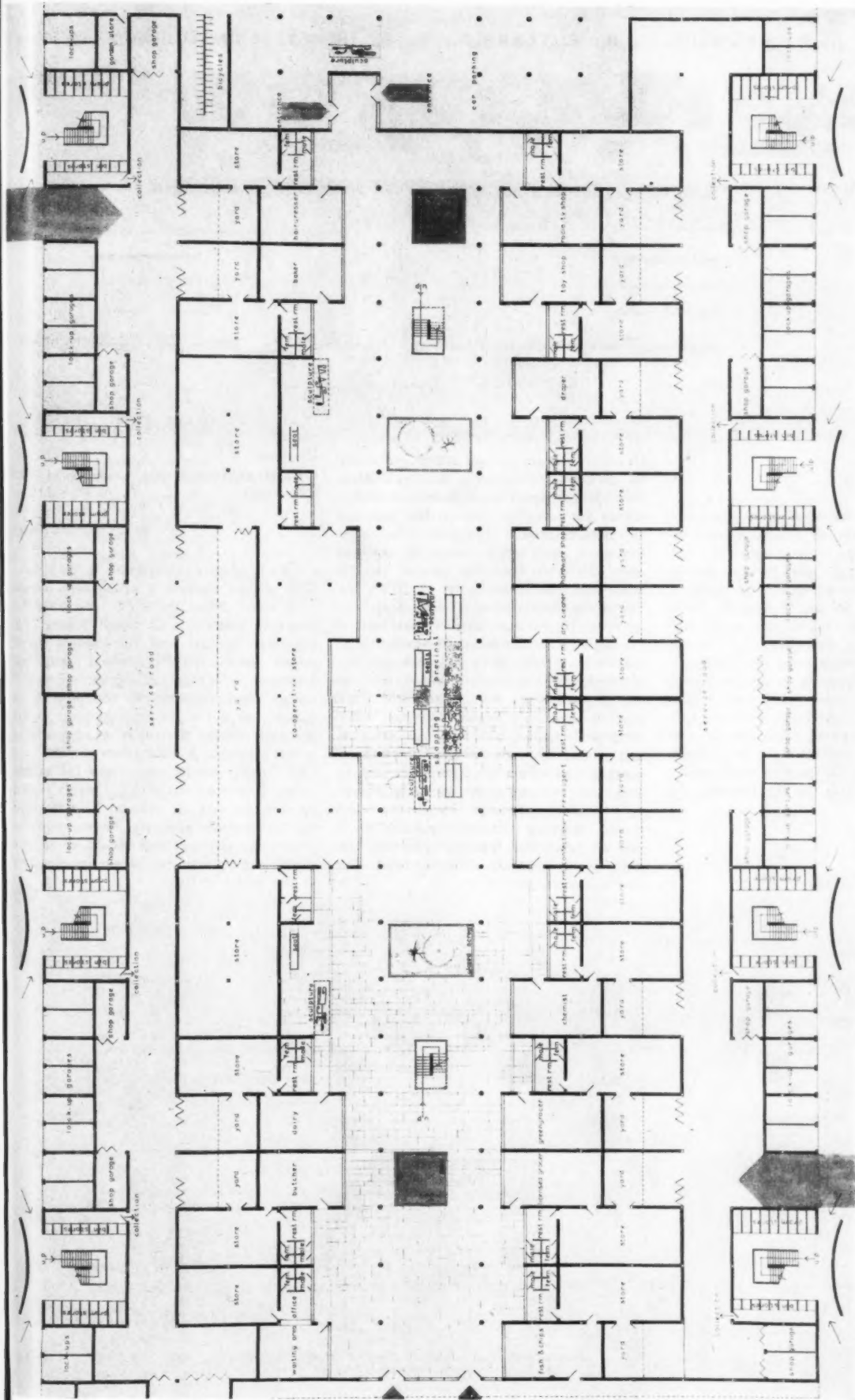
EXTRACT FROM ASSESSOR'S REPORT: This design endeavours to compensate for

the flat site by raising practically the whole of the Shopping Centre to first floor level. Many other Competitors thought it necessary to do this, but none with the same skill and sympathy in landscape or the same ingenuity of planning which I have considered worthy of mention. Though showing great skill in designing the shopping block this Competitor's Housing disappoints, being hard in expression and despite a very tidy layout (particularly in the matter of accommodating vehicles), not showing much subtlety in landscape layout and architecture.

Top, west elevation of shopping block. Above, east elevation.

Below, part plan of shopping block at upper level (plan at lower level inset).



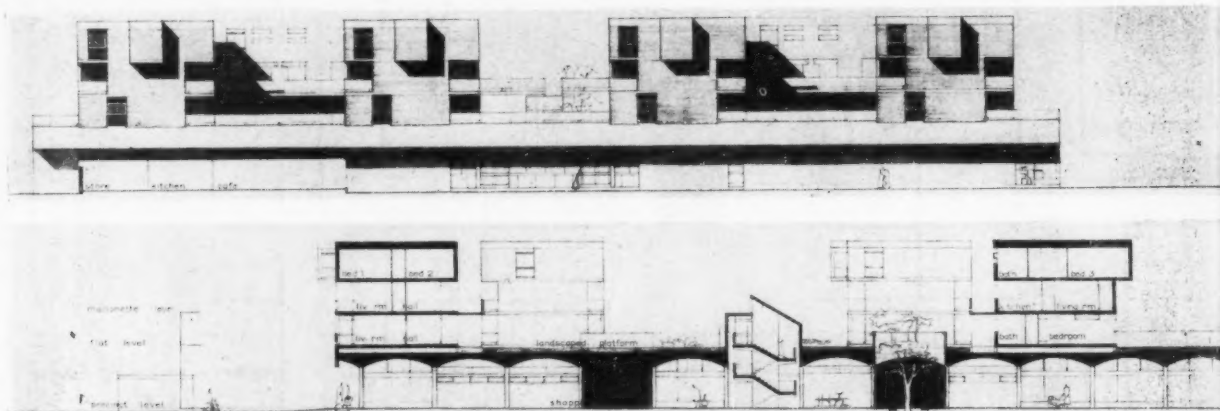


Ground floor plan.

EXTRACT FROM COMPETITORS' REPORT:
The following considerations were considered of primary importance. 1. Traffic segregation. 2. Northern climate. 3. Lack of

vistas. 4. Possible phasing of contract. 5. District shopping and communal centre. Our basic solution is a covered shopping precinct roofed by a "landscaped platform"

forming a "site above a site" for the construction and amenity of the dwellings over. Congestion of traffic at the west end of the site has been avoided by the abolition of

Grangemouth Shopping Centre Competition:**DESIGN BY J. B. KENNEDY, J. B. FITZGERALD, R. R. BLACK AND D. BAIN continued***Top, west elevation. Above, half west-east section.*

the round-about, leaving Overton Road and Kersiebank Avenue as a simple junction, and also by altering the proposed bus route as indicated in the site plan, part of Overton Road having only west-east way traffic. Commercial vehicles use two service roads brought into the site on the north and south away from the main traffic circulation and contained under the platform. Shops requiring frequent service are placed on the north side, their service road coming from Loanhead Avenue. Private cars approach the shopping centre at the east end of the site away from the main traffic stream. The main car park is partly under cover and extends to the site boundary. A

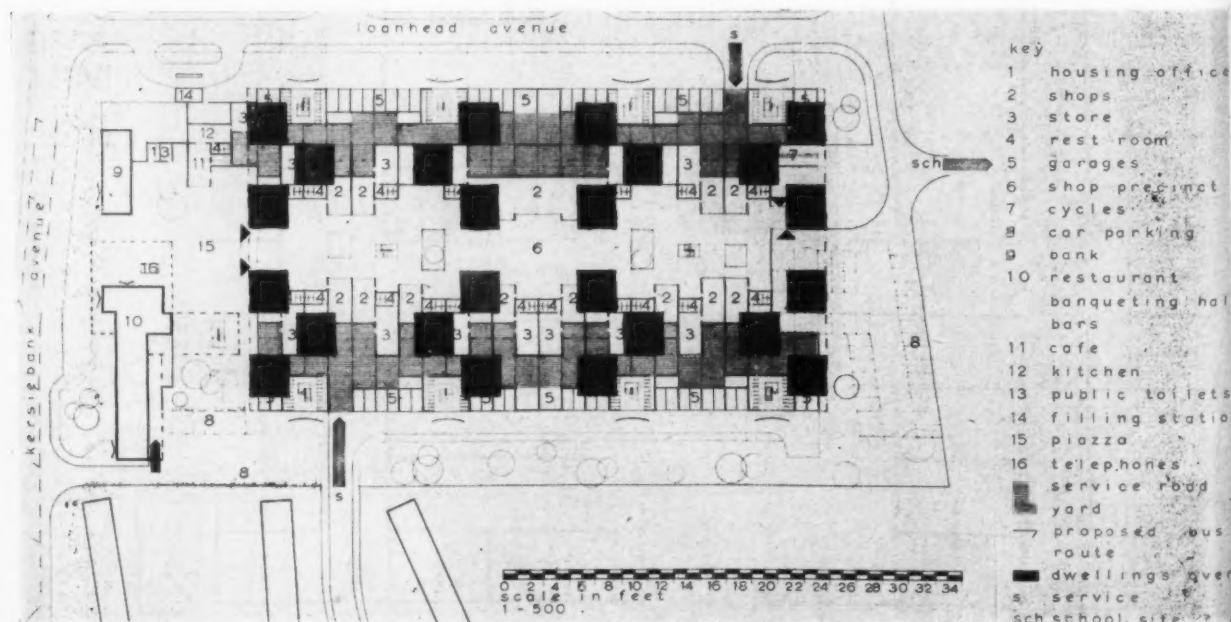
second car park to the west serves the restaurant and public house.

Dwellers' lock-up garages are placed under the platform on the north and south sides. Dwellers, shoppers and pedestrian circulations are separated from traffic nuisance and from each other. The dwellers approach the upper levels to the houses by means of open staircases from the ground on the north and south sides.

The covered-in shopping precinct is particularly suitable for a northern climate and in this design it has been carried further—over the noisy service areas and lock-ups. To avoid the feeling of "corridor space" or arcade the small and large shops are planned with a "random frontage." The communal facilities such as bank, restaurant and pubs are planned independently and are concentrated around the important western approach. A reinforced concrete *in-situ* barrel-vaulted platform forms the roof to the shopping precinct supported on a grid of reinforced concrete columns. The 3-storey dwellings are of 11-in. brick with *in-situ* concrete slab floors.

Approximate estimate of cost:		£
Shops, etc.	...	71,974
Dwellings	...	150,000
Garages, etc.	...	16,080
Ext. works	...	11,946
		£250,000

EXTRACT FROM ASSESSOR'S REPORT:
This scheme receives a prize for a single "big idea" filling the whole site with the shopping under a vast raised piazza, the dwellings in flats and maisonettes being poised above a largely artificial landscape. Ingenious in conception, vigorous in architecture, showing capability and promise in design, but not a full appreciation of the planning context, nor really, in spite of the author's report, a feeling for climate. This scheme would suit a very hot sunny climate where the shade of the piazza would be welcome and the brilliant light through the few openings adequate. To maintain the scheme at Grangemouth would entail the creation of an artificial climate, particularly in the matter of light.

Site plan (north is to the top).

EQUAL

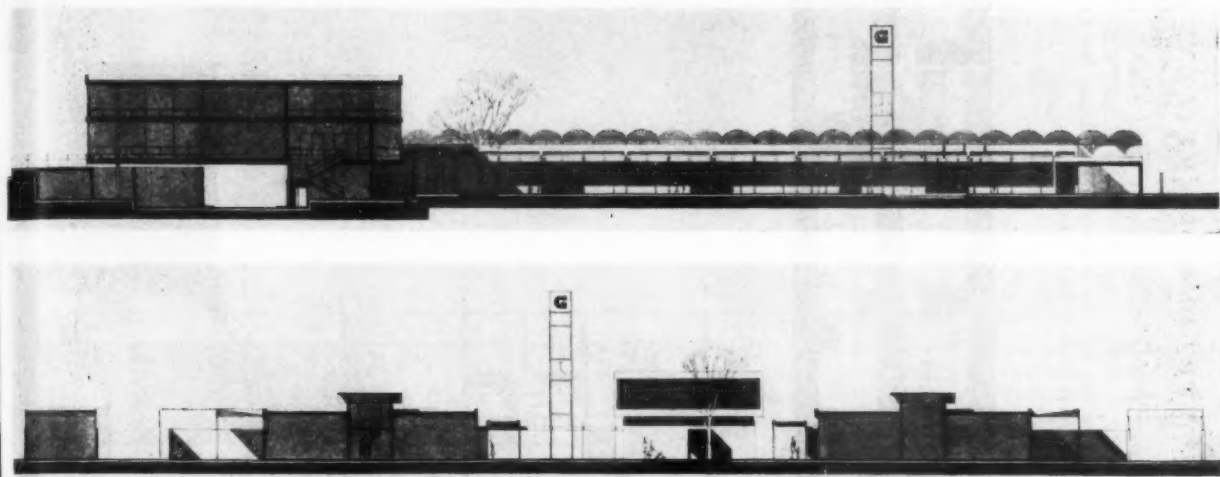
Top, east-u

KEY

1. Service
2. Lock-up
3. Storage
4. Glass ro
5. Shops
6. Bank
7. Cycle pa
8. Car park
9. Public ho
10. Pub gard
11. Petrol fil
12. Lock-up
13. Small chi
14. Play area
15. 2-apartm
16. 3-apartm

Site plan (n

EQUAL SECOND PRIZE-WINNING DESIGN BY F. DOLEZAL, C. HUNTER AND T. REILLY



Top, east-west section. Above south-north section.

KEY

1. Service drive
2. Lock-up garages
3. Storage yards
4. Glass roof cover
5. Shops
6. Bank
7. Cycle parking
8. Car parking
9. Public house with service yard under
10. Pub gardens
11. Petrol filling station
12. Lock-up garages
13. Small children's play area
14. Play area
15. 2-apartment type dwellings
16. 3-apartment type dwellings

EXTRACT FROM THE COMPETITORS' REPORT: The desired environments for shopping and housing are diverse enough to warrant a solution which divides the site into two distinct areas. This is further justified because these are lock-up shops, and it allows development of either part of the scheme separately. Both areas are laid out on a similar grid, thus visually correlating the masses of the buildings and providing a structural rhythm to the whole. A further link is provided by the public house which literally bridges the gap between the two areas and provides a focal point. Service access to the shopping area is by two roads running parallel to the north and south boundaries. Private vehicles have no use for these. Cars enter the site at the gap between the housing and shopping areas. The great majority of pedestrians will approach the site from the west. A main entrance is developed here

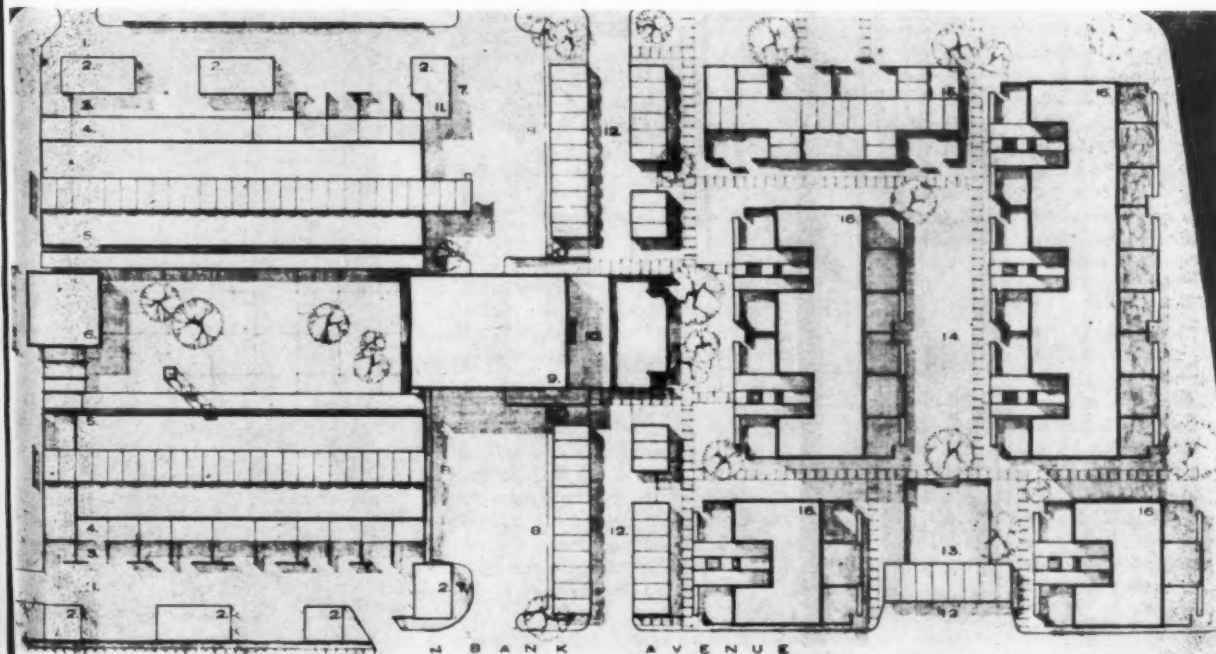
between the bank and the south row of shops. The clock tower is designed to provide a point of reference within the court and to give the whole centre a feature distinguishable from the distance.

Seventy-eight housing units are provided, 56, 3-apt. type and 14 4-apt. type housed in four blocks of two storey (four floors) maisonettes and eight 2-apt. type court houses. The housing is grouped to form a neighbourhood unit, but also privacy. A playground for small children is provided to the south.

	£
Shops, etc.	68,950
Dwellings	139,460
Garages	15,000
Ext. works	60,000

£283,410

Site plan (north is to the top).



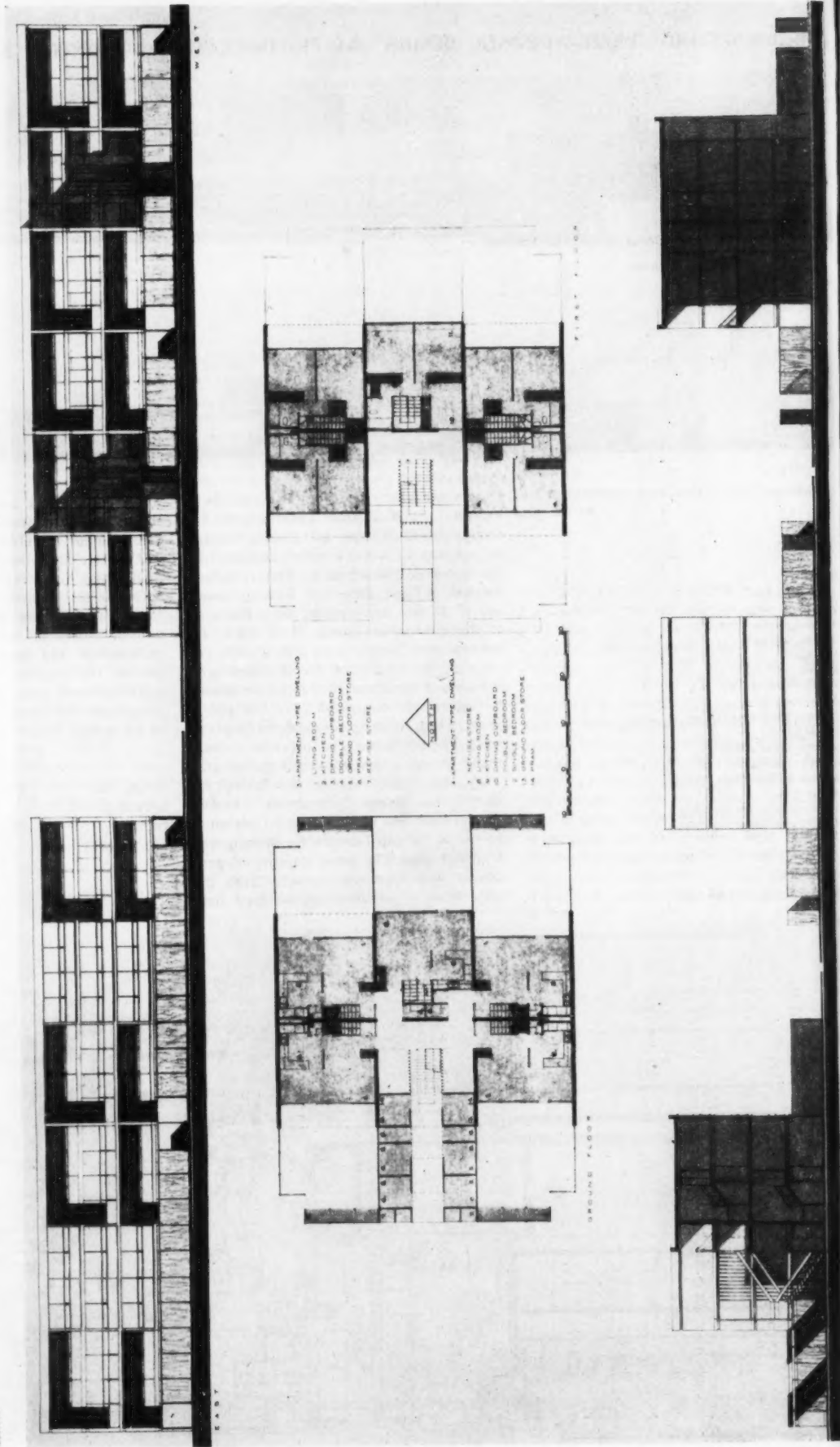
Grangemouth Shopping Centre Competition:

EQUAL SECOND PRIZE-WINNING DESIGN BY F. DOLEZAL, C. HUNTER AND T. REILLY continued

and groups, and inventive and arresting methods of construction resulting in exciting and novel forms. The architecture has a blend of sensitivity and firmness with the winner.

EXTRACT FROM ASSESSOR'S REPORT:
This is a beautifully and competently presented scheme of almost mathematical precision, with very interesting house plans

good scale. It would, however, be a more expensive scheme to build, not so amenable to phasing and in feeling less human than the winner.



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THE INDUSTRY

This week Brian Grant describes a forced warm air heating system, pitch fibre cable conduits, plastic finished partitioning, Perspex sinks and baths, extractor fans, kitchen waste disposal and aluminium-coated steel.

Warm air heating

One of the latest systems to be introduced to the field of whole house heating is forced warm air. Of the comparatively few firms already marketing equipment in this country it is not surprising that one should be Canadian. About the middle of last year

The 50,000 BTU's/hr. forced warm air heating installation by Lincoln Furnaces Ltd.



the Barlin-Scott Manufacturing Co. Ltd. of Hamilton, Ontario, formed a UK subsidiary, Lincoln Furnaces Ltd., who now undertake warm air heating installations throughout Surrey, Kent and south London.

Air is drawn into the boiler, which may be oil- or gas-fired, heated and forced by fan through ducts, set either below floor or at ceiling level, and out into each room through registers. The boiler in the photograph is of the vaporising burner type and is contained in a simple metal cabinet 5 ft. 2 in. high, 1 ft. 6 in. wide and 1 ft. 10 in. deep and may be installed in the kitchen. It has an output of 50,000 BTU's/hr., governed by an air-circulating fan which moves 550 cub. ft. of air per minute. For larger installations boilers of 75,000 and 100,000 BTU's/hr. capacity are available, both pressure-jet operated. The boiler may be converted easily and quickly from oil to gas.

Ducting is light-gauge galvanized steel, rectangular section for the principal run and 4 in. diameter for the branches. A neat elbow piece comprising four rotating sections enables any angle or bend to be coped with. Where the system is designed for a new house, ducting may be embedded in the concrete floor slab or laid between joists if the floor is of timber. In either case the registers would be set in the floor. The register has adjustable louvre blades and may be "shut off" by hand. In existing housing where it is difficult to place the ducting under the floor it may be simpler to expose it at ceiling level. It is no more obtrusive than radiators.

Temperature control is regulated by thermostat usually fixed to the wall in the living room. Domestic water heating can be provided by an internal coil. The manufacturers claim that an installation for full heating to a three-bedroom house can be carried out for between £250 and £300. (Lincoln Furnaces Ltd., Oxted Mill, Oxted, Surrey. Telephone Oxted 3999).

Pitch fibre cable conduit

A new list of Union pitch fibre cable conduit covers both heavy grade for use without concrete protection and the lighter grade with spigot and socket joints for use where the conduit is to be embedded in concrete. Both grades are made in diameters (internal) from 2 in. to 6 in., with the necessary bends and spacers. Conduit is produced in lengths up to 8 ft. and can easily be cut to length on

site; the makers also produce a simple tool for making the taper joints. The list is to A4 size. (Union Pitch Fibre Pipes (Great Britain), Ltd., Tolpits, Watford, Herts.)

Internal partitioning

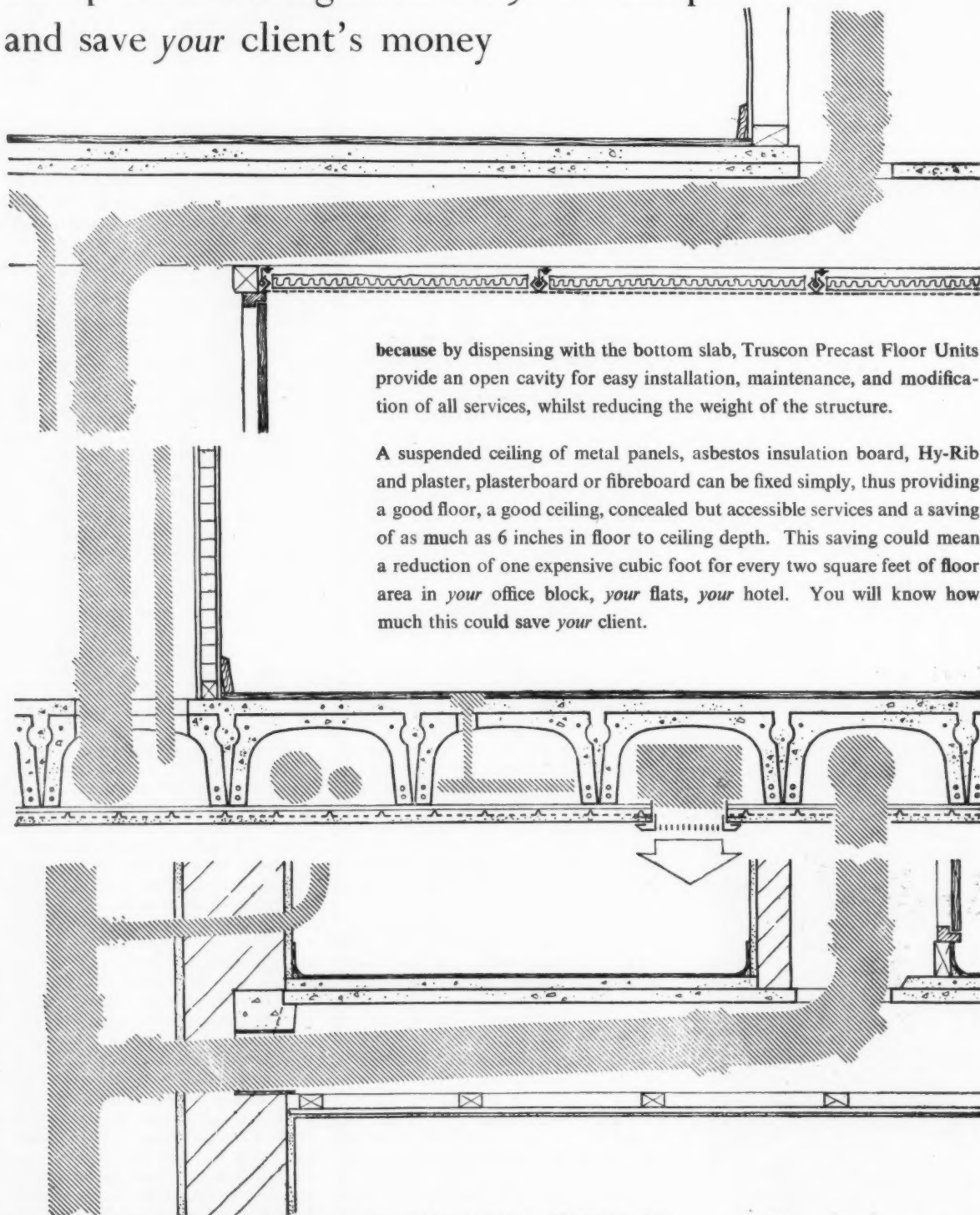
Crittall have recently introduced a new plastic finished steel partitioning, the main advantage of which is that it needs no painting, and can be washed and cleaned with ordinary detergents. The material used seems much the same as John Summers' Stelvetite, in which a layer of p.v.c. is bonded to the steel sheet before forming. Standard colours at the moment are black, red, grey, green and white, but other colours are likely to be available before long, and it can be a considerable advantage to have different coloured doors as well as partitions available as a change from the usual olive green or grey. The partitions have the usual internal ducts for electrical and telephone cables with removable cover plates. A further new development is the use of plastic glazing strips instead of putty, which simplifies glazing and gives a neat finish. (The Crittall Manufacturing Co. Ltd., Braintree, Essex.)

Sinks and baths in Perspex

Two or three weeks ago ICI staged a small exhibition of coloured sinks and baths made in Perspex, including a bath which had been used for over seven years and which still seemed to be in extremely good condition, though a very close inspection showed a network of very fine scratches which were not perceptible at a distance of more than six inches or so. Sinks, lavatory basins and draining boards are now made by a number of firms, and in various colours, and the coloured baths, particularly, are surprisingly cheap. The main point to watch with the sinks is burns from hot dishes straight out of the oven, and from lighted cigarettes. Mild scouring powders can be used for cleaning, but not metal wool. Bath installations need a little care to make sure that thermal movements do not crack the outlet flange: a short length of lead from the trap will provide enough freedom, but steel pipe should be avoided and it is probably best to use polythene. Taps should be fitted as usual, but mixers and hand showers stand fairly high from the roll, and a piece of 1-in. thick timber underneath will distribute the load well enough to avoid trouble if users pull them-

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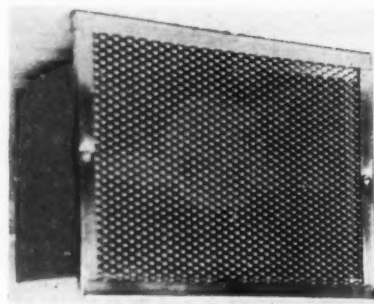
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technical section

selves out of the bath by holding on to the fitting. (ICI Ltd., Plastics Division, Black Fan Road, Welwyn, Herts.)

Extractor fans

The illustration on the right shows the Ventwallator extractor fan, which has been designed to fit the standard 9-in. × 6-in. air brick, whether in a 9-in. or 11-in. wall. Power consumption is 30 watts, and the price is only £5 15s. 0d. The internal grille is gold anodized and the motor is suppressed against radio and TV interference. (R. W. Beach & Co., 18b Washwood Heath Road, Washwood Heath, Birmingham.)



The Ventwallator extract fan.

Disposal of kitchen waste

The Wastrel waste disposal unit is driven by a ½-h.p. motor and will deal with all kinds of kitchen waste, including bones, but not with tins. All waste is placed in the hopper and anything not flushed away by the water supply is mechanically chopped



The Wastrel waste disposal unit.

small by the motor-driven cutter. The unit is made as a self-contained unit as shown in the illustration, but it can also be fitted to any horizontal surface large enough to take the stainless steel feeding cone. It should prove a useful fitting in restaurants. (Imperial Machine Co., Victoria Works, Edgware Road, Cricklewood, London, N.W.2.)

Aluminium-coated steel

The hot dipping of steel in aluminium, a process presumably somewhat similar to galvanizing, has been carried out for some considerable time in America. The product is low in cost and has excellent corrosion resistance, particularly in sulphurous atmos-

pheres, while it will also resist temperatures up to 750 deg. C. It can be worked with all the usual sheet metal techniques, including seam and spot welding. The process, known as Aludip, is now being used in this country and a limited range of sizes and gauges is already available. (Coated Metals Ltd., Palmerston House, Bishopsgate, London, W.C.2.)

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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711

2.140 planning: general

PLANNING TEXTBOOK

Principles and Practice of Town and Country Planning by Lewis Keeble. 2nd Edition. Published by Estates Gazette. 50s.

This is a standard textbook first published in 1952. It is an able apologia for planning as it has been interpreted in this country during the last decade or so. Mr. Keeble takes the view that the correct basis for planning is to find out what people want and then to give it to them. Clearly what people want provides an important starting point and on this basis the book is essential reading; but, in a society which knows little or nothing about planning, some more positive leadership must be expected of those who make planning their profession.

(94)

725-5

10.191 design: building types

HOSPITAL LIBRARIES

Hospital Library Services. Published by King Edward's Hospital Fund, 34, King Street, E.C.2. 2s. 6d.

A recommendation that all hospitals should

contain a library, and that wherever a new hospital or extension is being planned the architects should include library accommodation and consult with a professional librarian consultant about it, has recently been made by the King Edward's Hospital Fund.

The proposal is one of a series of recommendations for increasing the number and raising the quality of hospital libraries, the result of a Survey of hospital libraries in the North West Metropolitan Region's hospitals.

This disclosed that 32 out of the Board's 133 hospitals have no libraries, and that only nine of the 31 public library authorities covering the areas co-operate with their local hospitals by supplying books—though some apparently pass on their throw-outs. This is not so black as the figures look, for there is only one hospital of more than 200 beds in the Region which has no library service, but the report is very (politely) critical also of the quality of the libraries themselves.

The report not only makes general recommendations for improvement, but contains a most useful chapter on the components of a library, outlining the special problems involved, and making detailed recommendations on accommodation, how much space is taken by how many books, height of shelving, and essential equipment—including the best type of book trolley for a 70-year-old voluntary woman to manhandle up and down steps and through the winding corridors of our present-day hospitals.

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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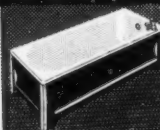
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technical section

Light cladding

Although the system of wall construction usually referred to as "the curtain wall" has become a commonplace of modern architecture, technical references are still few and insufficient. In 1957 R. Michael Rostron, a Liverpool trained architect, was awarded a Leverhulme Research Fellowship to make a study of modern cladding techniques. In May, 1959, he presented his completed study to Liverpool University and was awarded a Master's degree. In view of the special interest of this subject and of his able and comprehensive handling of it, we are publishing the substance of the technical part of his report in the form of twelve articles, the first of which appears this week.

Owing to shortage of space, we and our author have had to forgo the introduction which would normally be expected in a publication of this kind. Something, however, must be said about the author's use of terms. Because "curtain wall" has for long been used indiscriminately to describe many different elements, the author found it unacceptable. Instead, he has preferred the term "cladding," using "cladding" alone to designate a non-loadbearing enclosure and "light cladding" to mean a type of cladding which needs a secondary means of support or attachment.

Structures enclosed by cladding he divides into three main classes according to their visual appearance: *Sheath-wall*: the cladding envelopes the structure but the subsidiary structure is visible.

Sheeted wall: the cladding envelopes the structure (as in a sheath wall) but, being composed mainly of overlapping opaque sheets, conceals the subsidiary frame. *Panel wall*: certain structural elements project through the cladding. Panel walls are divided into three sub-categories: *Grid panel wall*: both floors and columns (or cross walls) pass in front of the cladding. *Horizontal panel wall*: only the floors (and intermediate horizontal beams) pass in front of the cladding. *Vertical panel wall*: only columns or cross walls pass in front of the cladding. Other terms used are: *Framing system*: non-structural subsidiary frame. *Framing element*: a component of the framing system. *Panel*: any component or assembly fixed into an opening.

17 CONSTRUCTION: GENERAL**light cladding, 1 heat transmission**

It may be some years before we receive full, authoritative guidance on the design of the "curtain wall" (or, as the author of these articles prefers to designate it, "light cladding"). Meanwhile, architects must draw the best inferences they can from such few studies as exist. The author of these articles, R. Michael Rostron, is an architect who received a Leverhulme Research Fellowship precisely to study this subject. His object was to gather together information obtained from all existing sources, whether published in this country or America; to add to it the findings of a survey made by himself of some 60 to 70 cladding structures in Great Britain; and to present the whole in a comprehensive form. His first article is concerned with what is perhaps the most critical of all aspects of lightweight structures: heat transmission. In it he discusses three matters: the need to determine for opaque panels minimum acceptable U values based on the ratio of glazed to opaque areas of wall surface; the importance of avoiding "cold bridge" effect; and the control of solar radiation.

SIB File No. (21) G

UDC No. 69-022-325

The divorce of the wall from its load-bearing function has made it possible to concentrate on its technical perfection as an environmental filter rather than a barrier, and the recent attention given to the thermal properties of materials and combinations of materials used in the non-structural wall is a measure of both the increased standards of comfort such a wall can offer and of the reduced capital and maintenance costs for heating which accompany low rates of heat transmission.

The changed concept of the wall and the multiplicity of materials of which it is composed have, however, made the accurate prediction of heat transmission an exceedingly complex operation in which traditional methods of attaining low heat transfer no longer apply. The fact that in nearly 40 per cent of buildings visited by the author during the last two years internal thermal comfort was unsatisfactory is an indication of the difficulty experienced by architects in assessing the thermal behaviour of lightweight cladding.

There appear to be three main reasons for this failure to translate theory into practice:

1. An unwillingness to consider the wall thermally as a single element;
2. A reluctance, principally on the part of manufacturers, to eliminate thermal by-pass in framing members;
3. An underestimation of the effect of solar radiation on internal temperatures.

These factors have all emerged from the use of the lightweight non-structural wall and the attendant increased areas of glazing. They apply, in varying degrees, not only to the sheath wall, but to all types of light cladding.

Heat flow in panels and windows

It is possible without much difficulty to achieve a U value of 0.15 for an opaque panel. This is given as a satisfactory maximum value in the report *Curtain Walls of Stainless Steel*, published in 1955 by the School of Architecture, Princeton University, although

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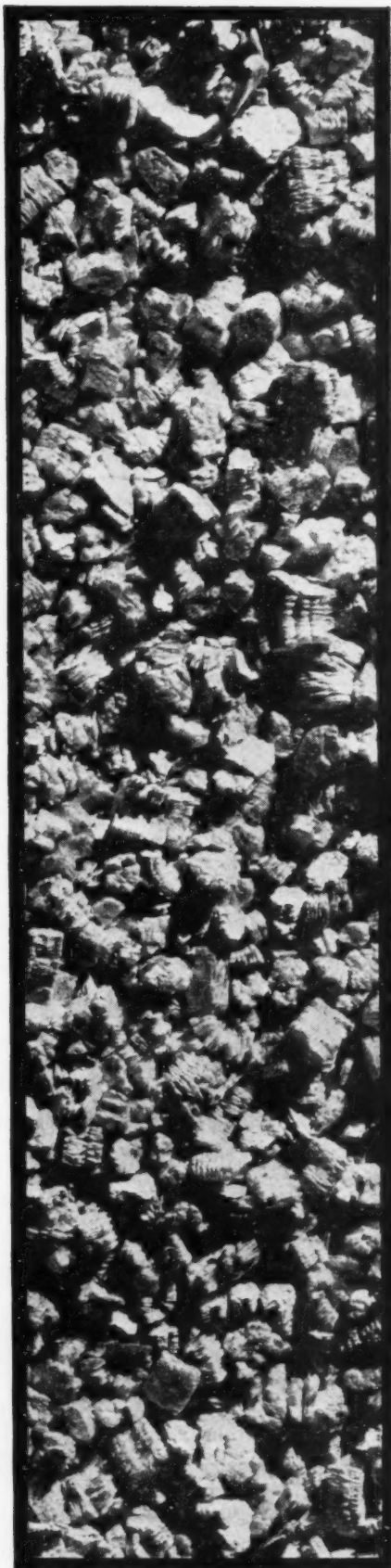
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technical section

Thomas A. Markus* gives a higher figure (0.20). These figures, however, can be misleading. The loss of heat through large areas of single glazing and framing elements may increase these values to nearer 0.60 for the entire wall, and the goal of 0.15 BTU for the wall assembly given in the Princeton Report is frankly impossible with present cladding systems. As will be shown later, it is more practicable to have a series of maximum panel U values according to the type and proportion of glazing in the wall.

Our main concern is the overall heat transmission through complete wall assemblies. BRS is conducting a series of field tests on erected walls under varying exposure conditions, but it will be some years before the results of these tests are complete. Until then calculation will be necessary, and in order to obtain results of any value for the complete wall, very exact values for the components—glass, panel and framing—are required and a high degree of accuracy is necessary for any correction factors used.

Manufacturers of proprietary panels in most cases supply corresponding U values, but it is essential that these values are the result of practical tests, since reliance on calculation is at best an approximation. When non-proprietary, combination or built-up panels are used, overall U values must, until BRS tests are complete, necessarily be calculated.

The majority of panel U values, whether calculated or obtained by experiment, take no account of the effect of solar heat on the opaque panel. Apart from problems of excessive expansion and possible physical deterioration, high external surface temperatures caused by absorption of solar radiation may considerably modify the air-to-air transmittance. The degree of absorption will depend on the colour and texture of the outer skin; light coloured surfaces will reflect a large portion of the energy contained in solar radiation, whilst darker colours will absorb the energy and convert into heat. Smooth, bright textures, although reflecting short wave radiation, will absorb some of the longer wave energy, and their surface temperature may become greater than a light coloured matt surface. The amount of absorbed heat transmitted into the building will depend on the internal construction of the panel. Most of the heat will be dissipated by convection on both sides of the skin and a cavity behind, ventilated to the outside, will carry away the majority of heat convected to the inside of the panel. The form and ventilation of the panel cavity will therefore be determined by climatic location. In tropical climates a very efficient system of cavity ventilation combined with light coloured matt surfaces will be necessary to prevent excessive solar heat gain. In colder climates this heat may, when external temperatures are low, be a useful contribution to comfort, and a sealed cavity or an internally ventilated cavity could be an advantage, provided condensation problems are satisfactorily solved.

Whilst the reasonably accurate prediction of the thermal transmittance of an opaque panel is possible,

the corresponding predictions for translucent and transparent panels are extremely complex. As windows may account for 70 per cent or more of the entire wall, this is a serious matter. The main difficulty is that thermal transmittance values for glass vary over a much greater range than other materials. Orientation and exposure affect U values to a far greater extent and the control of solar energy is much more difficult than with opaque panels. In many cases examined by the author, the gain in heat through glazing due to solar radiation exceeded the heat loss by conduction and convection and the wall had a high negative U value during periods of strong sunlight, which changed to a high positive value in dull weather and at night. The factors to be taken into account in assessing the U value at a given time are:

1. Orientation.
2. Exposure.
3. Intensity and angle of sunlight falling on the glazing.

The first two factors are reasonably constant for each wall and U values for single and double glazing have been published by the Institute of Heating and Ventilating Engineers. It should be emphasized that such figures allow for the relative constants of orientation and exposure but necessarily omit the variable effect of solar radiation. They should either be ignored or used with the utmost caution for large glazed areas exposed to sun.

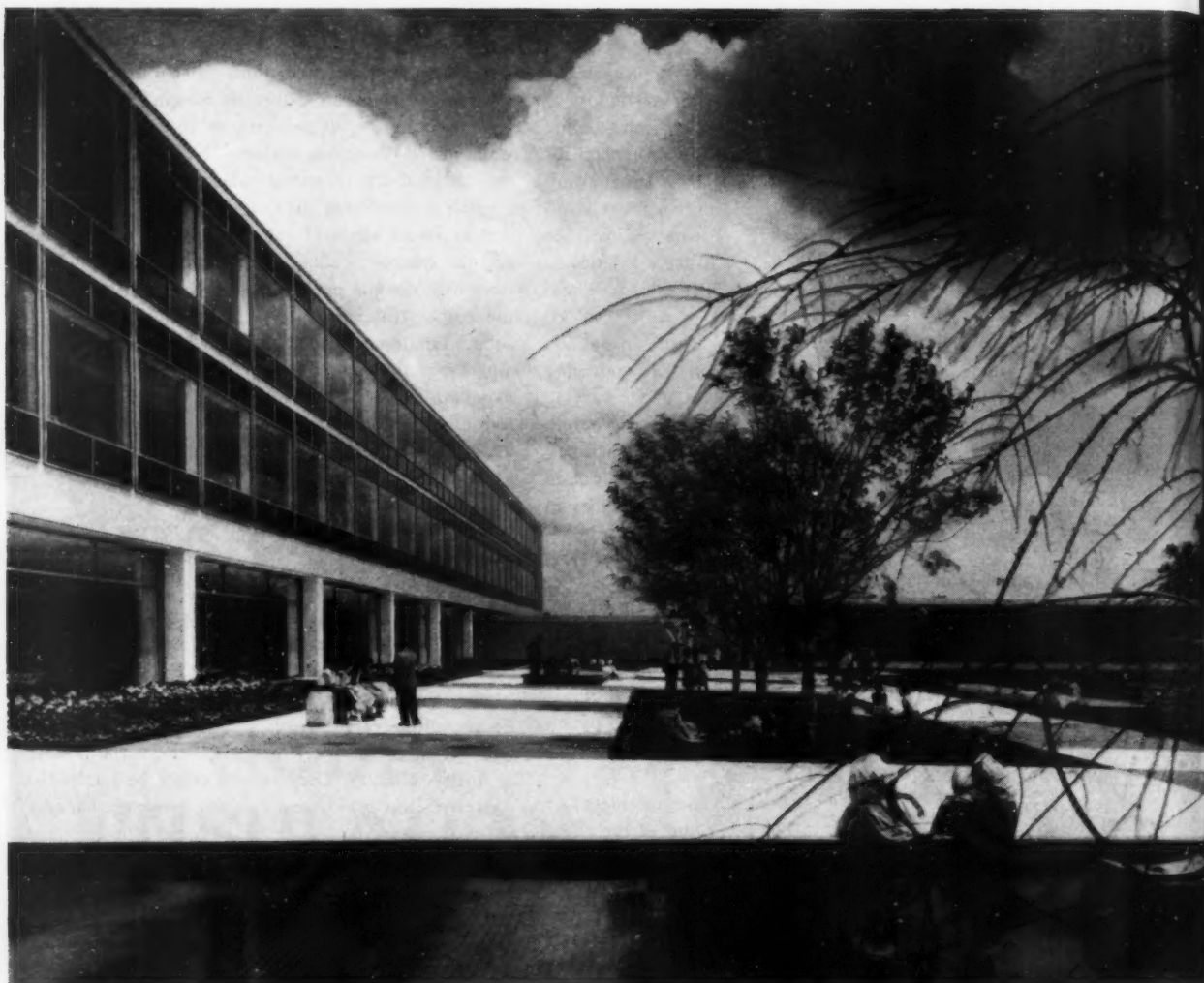
As the area of glazing increases, the relative importance of opaque panel U values will decrease, and any recommendations for desirable panel U values must be made in this light. It can be shown, for instance, that if an opaque panel is replaced by a panel of different U value, the ratio of the change in U value of the panel to the resulting change in U value of the complete wall is inversely proportional to the ratio of panel area to wall area. For example, assuming a ratio of panel to wall to be 1:8, a decrease in the U value of the panel of, say, 0.16 will result in a decrease in the U value of the wall of 0.02. If the ratio of panel to wall is 1:4, the total U value will be decreased by 0.04 and so on.

It is, however, more important to know how a change in the U value of a panel proportionally affects the U value of the wall. For instance, if a panel U value is decreased by one-tenth, by what proportion is the U value of the wall decreased? If it is only decreased by, say, one-hundredth, the value of the increased thermal resistance is negligible.

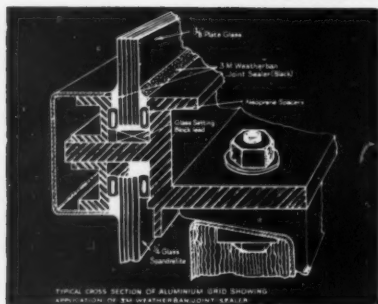
Fig. 1 has been compiled to show the proportional change in the U values of walls using single or double glazing when the U value of the panel is changed by 10 per cent. It is seen that:

1. When the ratio of panel to wall area is small (less than 1:4), the U value of a wall containing double glazing is changed by approximately twice that of a wall containing single glazing.
2. When the ratio of panel to wall area is small, the proportional change in U value of the wall is negligible.

* T. A. Markus, "The Glass Curtain Wall: Heat Transmission," ARCHITECTS' JOURNAL, p. 781, November 21, 1957.



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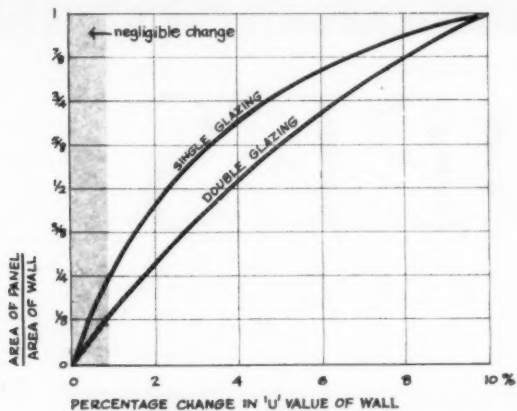
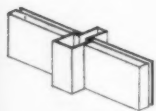
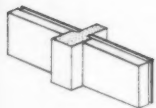


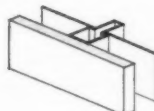
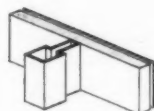
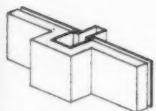
Fig. 1. Percentage change in U value of wall when U value of panel is changed by 10 per cent and either single or double glazing is used.



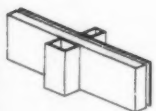
Formation of cold bridge by mullion of high thermal transmittance



Avoidance of cold bridge by mullion of low thermal transmittance e.g. timber, plastic

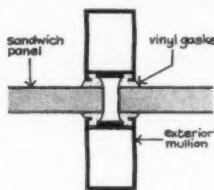


Avoidance of cold bridge by alternative positioning of panel insulation

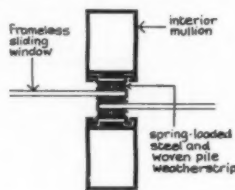


Avoidance of cold bridge by use of split mullion

Fig. 2. Thermal by-pass and possible solutions.



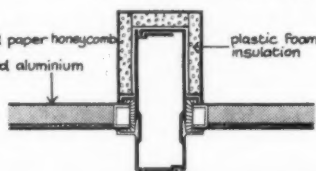
Plan at panel level



Plan at window level

A. SPLIT MULLION

Sandwich Panel:
aluminium
polystyrene-filled paper honeycomb
hardboard
porcelain-enamelled aluminium



B. INSULATED MULLION

Fig. 3. Avoidance of through conductivity at mullions. (Detail of Imperial Oil Building, Sarnia, Ontario; architect, John B. Parkin).

These results may be translated into three general conclusions involving recommended maximum panel U values:

1. When the panel constitutes more than 50 per cent. of the wall area, a maximum U value of 0.15 is desirable for the panel.
2. When the panel constitutes less than 50 per cent. of the wall area, a maximum desirable panel U value is 0.20 when double glazing is employed and 0.25 when single glazing is employed.
3. The U value of the panel is of minor importance when the panel constitutes less than 25 per cent. of the wall surface area (single glazing) or less than 12 per cent. of the wall surface area (double glazing).

Thermal by-pass

The effect of thermal by-pass, or the formation of "cold bridges" of a material of high thermal transmittance connecting internal and external surfaces may considerably reduce a low inherent thermal transmittance of a panel. In very cold climates, through connections of metal may cause actual discomfort. A box mullion, for instance, may, in very low temperatures, emit "cold radiation" to such an extent that a person standing near the cold surface will lose heat to that surface and as a result feel cold.

If we consider a panel one foot square with a "k" value of 0.25 BTU/sq. ft./hr./in. deg. F, its thermal transmittance will be 0.20 BTU/hr. deg. F for a panel 1 in. thick. If a steel connection $\frac{1}{2}$ in. diameter is introduced into the panel, it will transmit along its length 0.43 BTU and the total thermal transmittance will be increased from 0.20 to 0.40, an increase of 100 per cent. If the connection is of aluminium, the thermal transmittance will be increased to 0.68, an increase of 240 per cent.

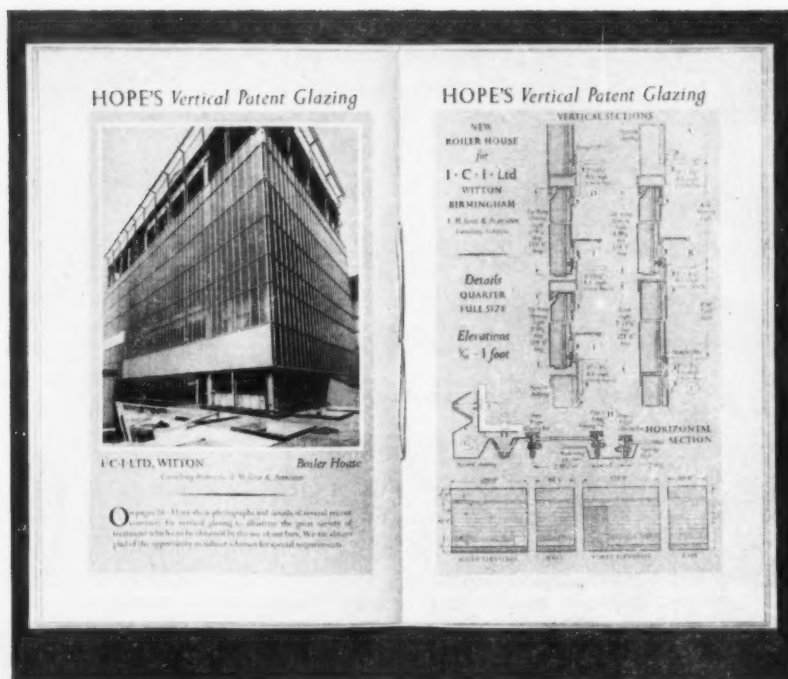
These changes in heat transmission rates are too large to be neglected. Allowance must be made in both design and calculation if the benefits of a well insulated panel are not to be seriously reduced.

Thermal by-pass may occur:

1. At the edges and at through connections in the panel. Reduction of the U value will be greater if the outer skin of the panel is of metal. It has been found that tortuous metal paths at the edges of panels add little to the thermal resistance, and the most effective procedure is to keep all through and edge connections to a minimum and to use thin metal or plastic connections wherever possible.
2. At framing members. Heat losses through continuous framing members may increase the calculated inclusive thermal transmittance by as much as 15 per cent., but this can be considerably reduced by the use of materials of low conductivity, such as timber, by the careful positioning of insulation and by the use of discontinuous framing. Fig. 2 shows these principles in diagrammatic form and Fig. 3 gives examples of split and insulated mullions.

Where such special precautions are not taken, it is suggested that a correction factor of 1.10 for steel framing and 1.12 for aluminium framing be applied

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technical section

to the inclusive U value of the wall to allow for extra thermal loss.

The modification of the transmission rates of glazing by window frames is identical in principle with thermal by-pass at panel edges, but solutions are more difficult. Table 1 gives correction factors for single and double

Table 1. Factors applicable to U values of glass to correct modification by frame. (Reproduced from ASHAE Guide.)

Window description	Percentage glass	Correction factor	
		Single glazing	Double glazing
Frameless	100	1.00	1.00
Aluminium	80	1.10	1.30
Steel	80	1.00	1.20
Timber	80	0.90	0.95
Timber	60	0.80	0.85

glazing in various framing materials when no special precautions are taken. The use of split mullions or mutually insulated double windows will reduce heat flow at the edges of glazing and directly through frames, but it should be noted that the simple device of using timber frames reduces the U value of single glazing by up to 20 per cent.

The comparatively large loss of heat caused by cold bridges through the wall is a serious matter which has received far too little attention from architects and manufacturers on this side of the Atlantic. The use of insulated framing members may be counted on the fingers of one hand and we have yet to see a proprietary split mullion-transom framing system in Britain. Until more thought is given to this problem, excessive heat loss, condensation and deterioration of internal finishes must cause much unnecessary expenditure on running and maintenance costs.

Transmission of solar heat through windows

Of the solar energy falling on glass, about one-tenth is reflected and the remainder is absorbed and transmitted in proportions depending on the characteristics of the glass. The absorbed energy heats the glass which emits long wave radiation to both sides. The transmitted energy is reflected and absorbed by objects in the room which in turn emit low temperature long wave radiation to which glass is opaque. There is thus a progressive build-up of long wave energy inside the room, and this accounts for the "greenhouse effect" or heat build-up inside glazed surfaces.

Published U values for glazing make no allowance for this build-up of heat. In dull weather and at night they will be reasonably accurate, but when glazing is exposed to sunlight, the heat gained by solar radiation may be equal to or more than the heat lost by convection and conduction. In all cases the action of direct sunlight on glass causes extreme variations in the U value.

It is generally considered that solar heat gain through windows in Britain is negligible. BRS Digest 98 merely considers it "a welcome addition to comfort" and Markus* only regards it as causing "a substantial reduction in heating costs." It may, therefore, come as

a surprise to architects who consider windows only a heating liability to learn that, of 53 buildings examined by the author, in 20 of them (38 per cent.) summer heat gains through windows were described as "uncomfortable"—uncomfortable enough in two office buildings to cause wholesale whitewashing of glazing and installation of air conditioning units.

The variation in U value of glazing between strong sunlight and night conditions (which may be as much as 150 per cent.) suggests that where sunlight falls directly on large areas of glazing an alternative method of assessing heat transmission is required. In such conditions, which are not confined to the tropics, some form of control over the amount of radiation entering a room is necessary. Such control will, ideally, be capable of varying at will the inclusive U value of the glazing, and its nature will depend primarily on the external temperature and on the amount of direct and diffuse solar radiation. In climates where external temperatures are high and constant, solar radiation must be excluded at all times in order to keep internal temperatures below external, and a fixed type of control would be suitable. In climates where external temperatures vary during the year over wide limits, control must be flexible enough to exclude radiation in warm weather and retain it during cold weather.

Solar radiation at the earth's surface is composed of 3.5 per cent. ultra violet, 33.0 per cent. visible and 63.5 per cent. infra red radiation. When direct field measurement of radiation is impracticable, it is possible to calculate* the amount of direct radiation falling on a vertical surface from the expression:

$$I_h = S I_0 k^{\cos e} \cos e \cos f$$

where

I_h is the solar intensity on a vertical surface at hour h, S is the fraction of hour h during which the sun shines, I_0 is the solar constant (446 BTU/sq. ft./hr.).

k is the transmission coefficient of the atmosphere,

e is the solar altitude at hour h on the 15th of the month,

f is the angle of the sun from the normal to the wall. To this calculated value of direct radiation must be added indirect radiation from the ground, water, adjacent buildings, etc., which varies with site. An average value for indirect radiation is 15 per cent. of direct radiation.

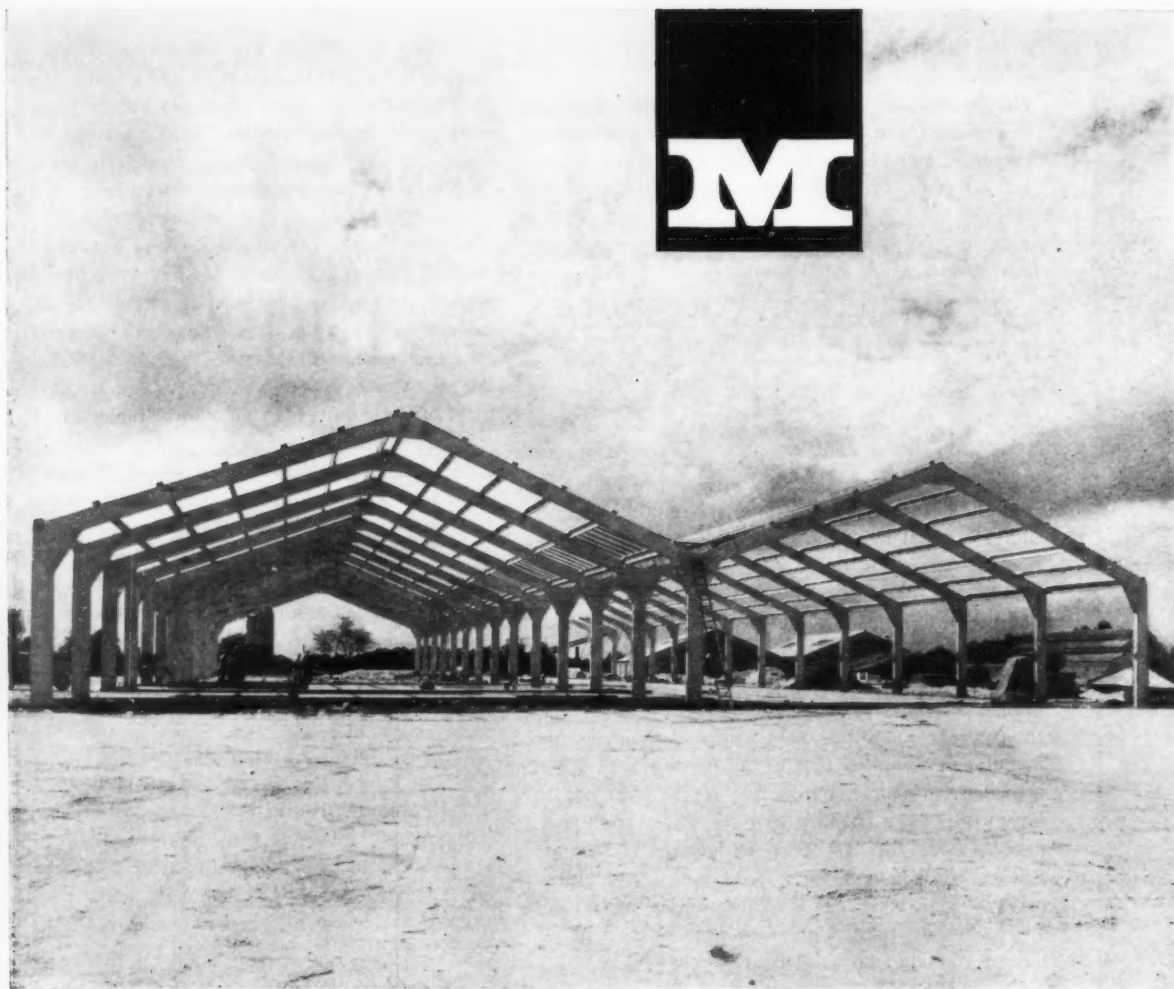
Values calculated on this basis are in fairly close agreement with those obtained by direct measurement. Generally, radiation decreases with latitude, but the low transmission coefficient of the atmosphere in industrial areas results in a reduction in the value for a non-industrial area of the same latitude by up to 20 per cent.

To assess the effect of solar radiation on internal conditions, it is necessary to know the proportion of radiation transmitted inwards by the glass. A. F. Dufton(†)

* N. S. Billington, "Solar Heat Gain Through Windows," *RIBA Journal*, Vol. 54, p. 177, January 29, 1947.

† A. F. Dufton, "Note on Heat Absorbing Glass," *J. Soc. Glass Tech.*, 1931, 15, p. 208

* Ibid., p. 778.



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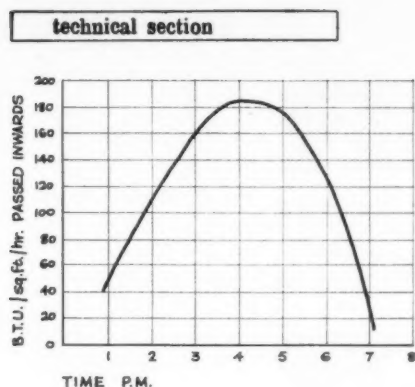


Fig. 4. Graph calculating total heat put into room at any time.

has proposed an empirical heat transmission factor for single glazing of:

$$F_s = T + \frac{A}{2 + \frac{1+E}{k}}$$

where

F_s is the radiation transmission factor,
 T is the transmission coefficient of the glass,
 A is the absorption coefficient of the glass,
 E is the radiant emissivity of the glass,
 k is the thermal conductivity of the glass.

Under normal conditions of exposure, this may be reduced to:

$$F_s = T + \frac{1}{3} A.$$

For double glazing the calculation is rather more complex. Assuming transmission and absorption coefficients of T and A for the outer pane and t and a for the inner pane,

$$F_d = Tt + \frac{2}{9}A + \frac{11}{12}Ta.$$

These expressions enable the calculation of the total heat input into the room at any time, a typical result being shown in Fig. 4. The total loss of heat from the room may be evaluated by means of U values for the composite wall and from these two results can be deduced the nett heat level in the room at any time. Alternatively, a curve may be plotted to show at any time the gross U value of the wall caused by the nett result of conduction, convection and radiation. When large areas of glazing are used, a variable U value obtained in this way will produce a far more accurate prediction of heat transmission than the conventional single value. The elaborate nature of the calculations, however, suggests that a series of tabulated results are necessary covering the variables of geographical location, exposure, aspect and construction. Such tables are available in America for a wide range of areas and enable the calculation of heating and cooling loads to be made with comparative ease.

Control of solar radiation

Provided complete data is available, the amount of radiated heat entering a building may be calculated. Such items as wind conditions, atmospheric absorption and the amount of sunshine vary not only from place to place but from hour to hour. In addition, as the number of variables increases, their individual accuracy must increase to give a result which is of use. Under tropical conditions greater accuracy is possible due to the narrower limits of variables, but in temperate climates a very flexible system of sun control is necessary to allow for changes in local conditions. Control of solar radiation may be achieved in five ways:

1. By correct orientation.
2. By means of physical barriers which prevent direct sunlight from falling on the glazing.
3. By means of heat absorbing glass in fixed, movable or reversible frames.
4. By ventilation.
5. By the removal or reduction in area of glazing.

The most valuable work on the thermal behaviour of glazing and on the design of integral barriers, such as louvres and eggcrate devices, has been carried out by Victor and Aladar Olgyay*. Their two most important results are, firstly, that improper orientation of a bi-laterally windowed building can increase cooling loads received through the wall more than $2\frac{1}{2}$ times, and secondly, that even partial shading is far more effective in reducing solar heat gains than is the use of heat absorbing glass.

Correct orientation is the most economical method of controlling radiation. In summer, results show that the south side receives substantially less heat than the east or west, although this difference decreases with latitude. In winter the situation is the opposite; the south side receives the most heat in northern latitudes when it is most desirable. East and west walls receive the same amount of heat, but at different times of day and, since the west side receives the greatest radiation impact in the warmest hours of the day, it is the least desirable exposure of the two. This suggests that south exposure is preferable to west when solar heat gains are to be reduced to a minimum, and that physical methods of control should be confined in this country to south-west and west elevations.

It is unlikely that the use of integral louvres and eggcrate devices is economically practicable or sufficiently flexible for general use in this country, except in the most southerly areas where prolonged summer radiation may be expected. In these cases fixed devices such as those used on the Unesco building in Paris (Fig. 5) may be advantageous. On the south-west front, tinted glass screens are bracketed out from the wall face, whilst on the elevation which curves from south-east to east, horizontal louvres of precast concrete occur at each floor level.

* Victor and Aladar Olgyay, "Solar Control and Shading Devices," Oxford University Press, 1957. Victor and Aladar Olgyay, "Thermal Behaviour of Curtain Walls," Princeton University School of Architecture Research Study No. 6, June 1957.

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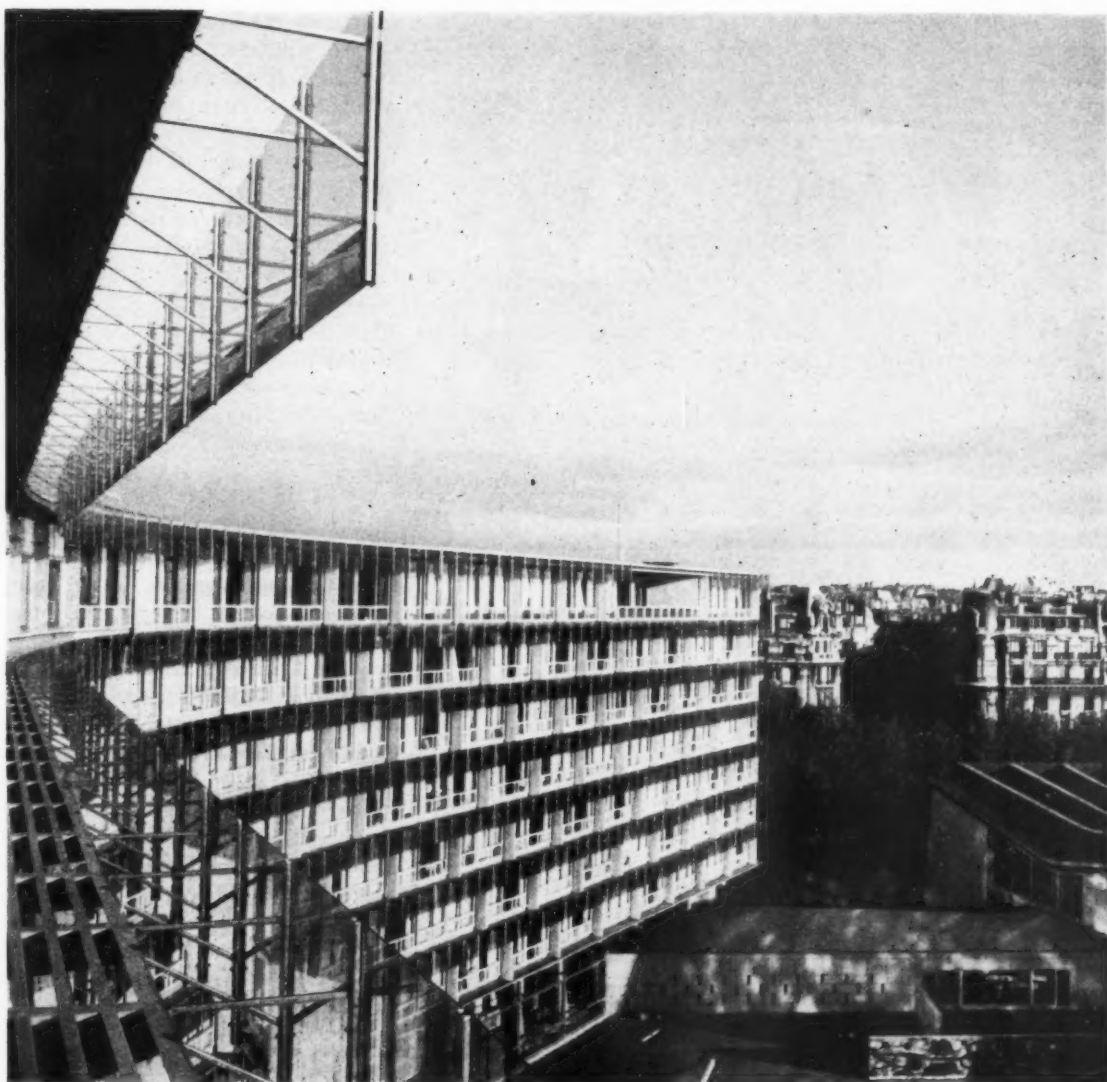
Applied barriers, such as pinoleum and Venetian sun blinds can provide efficient protection in latitudes where the intensity and duration of sunlight is insufficient to warrant the cost of integral barriers. Such screens must be used externally to take full advantage of their radiation retardant properties. If they are used internally, they will not intercept the heat rays until after they have entered the building, and little heat will be excluded.

Solar retardant or heat absorbing glass is very expensive and its use is generally confined to those positions where clear vision must be maintained or where air conditioning requires no natural ventilation. Heat absorbing glass acts as a filter to high wavelength radiation; whereas normal sheet glass transmits about 75 per cent. of solar infra red rays, heat absorbing glass will allow as little as 18 per cent. of the solar

energy to pass through. This reduced transmission rate is balanced by a corresponding increase in absorption. The temperature of heat absorbing glass will, therefore, be higher than ordinary glass under similar conditions. The glass becomes a radiator to both the outside and inside of a building, and in order to prevent the single pane heat resisting glass from becoming a serious panel heat radiator, the emitted heat must be prevented from entering the room. This may be achieved by providing adequate ventilation above and below the glazing to remove warm air and to reduce the temperature of the glass. A more efficient (but more expensive) method is to use double glazing, a ventilated cavity increasing its effectiveness.

A sheet of clear glass on the inside of a sheet of heat-absorbing glass both seals the layer of warm air from the room and acts as a radiation filter to the long wave

Fig. 5. Tinted glass screens on the Unesco building in Paris.



technical section



Fig. 6. Suggested areas where control of solar radiation is necessary. Area A: no control necessary. Area B: control required where glazing to wall ratio exceeds 65 per cent. Area C: control required where glazing to wall ratio exceeds 55 per cent.

heat emitted by the latter, to which it is opaque. By this, a reduction of radiation from 45 per cent. (single sheet of heat-absorbing glass) to 35 per cent. is achieved. It is important to note, however, that the relative position of the two panes is vital. If the ordinary glass is placed on the outside, an increase in radiation (from 45 per cent. to 73 per cent.) results, due to the higher temperature of the inner pane. This fact may be used to take advantage of solar energy in winter by using a reversible double window. In the summer the absorbent glass would be on the outside with the clear glass on the inside; in winter the clear glass on the outside and the absorbent glass inside.

The remaining methods of sun control—ventilation and the removal or reduction of glazed areas—are the least effective, but may be satisfactory where solar radiation is limited. Mention should here be made of the internal use of Venetian blinds. It is generally considered* that their use combined with openable windows is sufficient to control the most severe solar radiation experienced in this country. It must be remembered, however, that any screen used internally will not prevent solar energy from entering the building. In practice light coloured Venetian blinds behind the glass will reflect a proportion of the radiation back to the outside, but all radiation absorbed by the blinds will be trapped inside the building, and the blinds may become a serious source of radiated heat. Ventilation between the blinds and the glazing may carry away much of this heat, but top and bottom ventilation will be necessary to ensure a vertical flow of air over the blind. An open window in front of the blind may make matters worse, as the hot blind will tend to warm incoming air.

Whilst it is true that in many cases in this country internal blinds and top and bottom ventilation will be sufficient to control solar radiation, on a large number of exposed south-west and west elevations in areas which receive intense sunshine, some external control will be necessary. In the Princeton University Research Study No. 6, *Thermal Behaviour of Curtain Walls*, the Olgyay Brothers have given an alternative method of calculating the amount of radiated heat passing through glazing using the "sol-air" temperature concept, which reduces the joint effect of solar radiation and air temperature to a single parameter. Fig. 6 is based on a series of tables prepared by the Olgyays for varying sol-air temperatures and on the author's own observations made over a period of years. It shows that the country may be divided into three areas. In Area A, no solar control will generally be necessary, whatever the proportion of glazed area to wall area. In Area B, control of some sort will be necessary when the glazing/wall ratio exceeds 65 per cent., and in Area C when it exceeds 55 per cent. These areas and ratios should not be regarded as inflexible; obviously each case must finally be decided in the light of local conditions, but they do give some indication when thought should be given to the problem.

* T. A. Markus, op. cit., p. 781. Building Research Station Digest No. 98, *Light Cladding*, HMSO, May, 1957, p. 5.

working detail

FURNITURE AND FITTINGS: 87

WARDROBE: SHOWROOM IN HELSINKI

Heikki Siren, architect (material supplied by H. S. Sami)

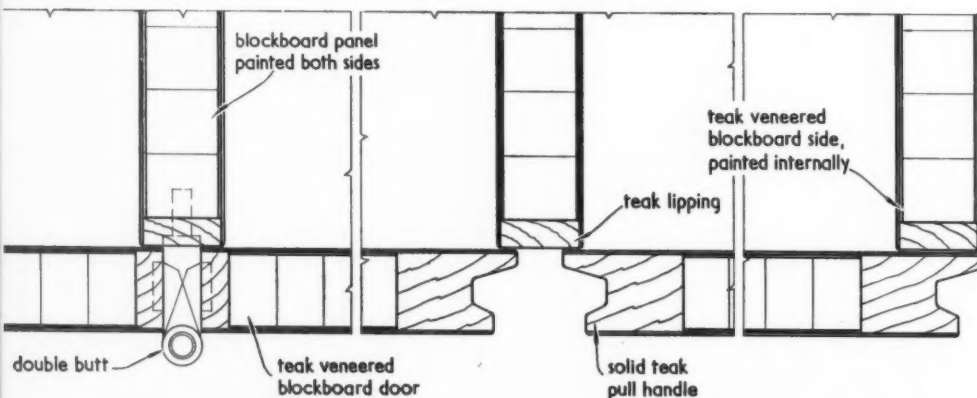
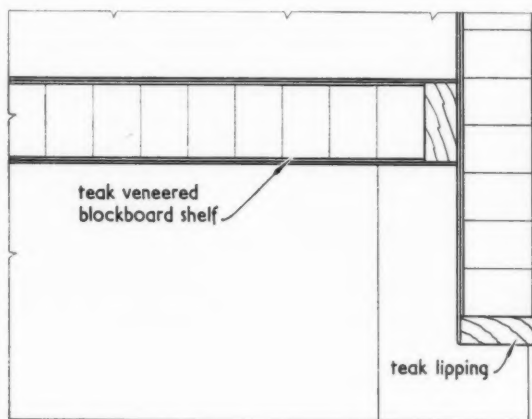
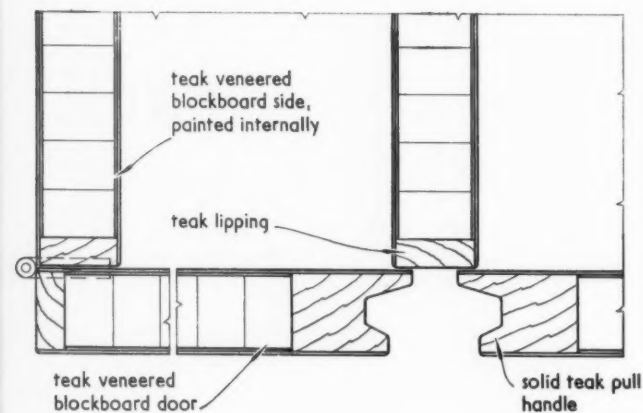
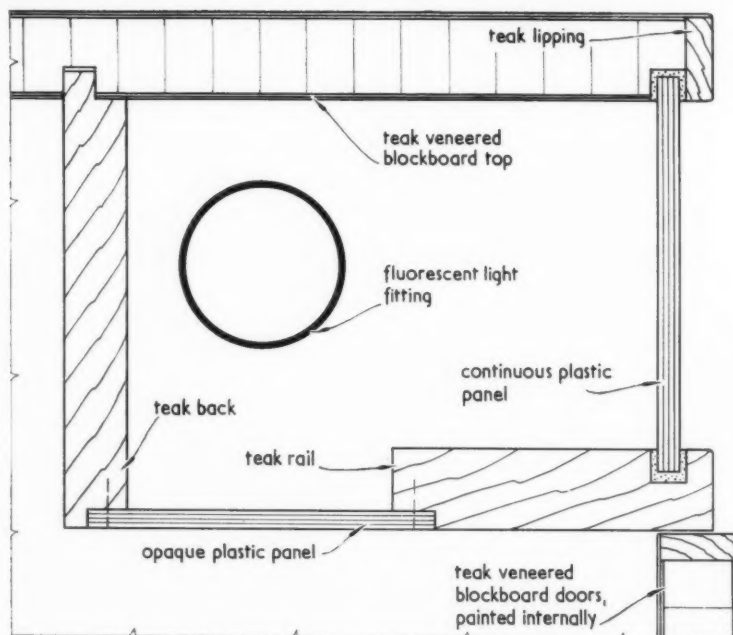
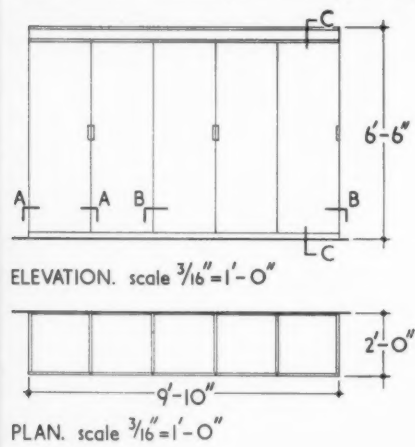
This is a good example of a style of joinery which is particularly suited to blockboard. Note the elimination of rebated frames, the grooved hand pull in the fore-edge of the doors and the effect of elegance produced by painting all internal surfaces of the carcassing except the task liping.

working detail

(74)
FURNITURE AND FITTINGS: 87

WARDROBE: SHOWROOM IN HELSINKI

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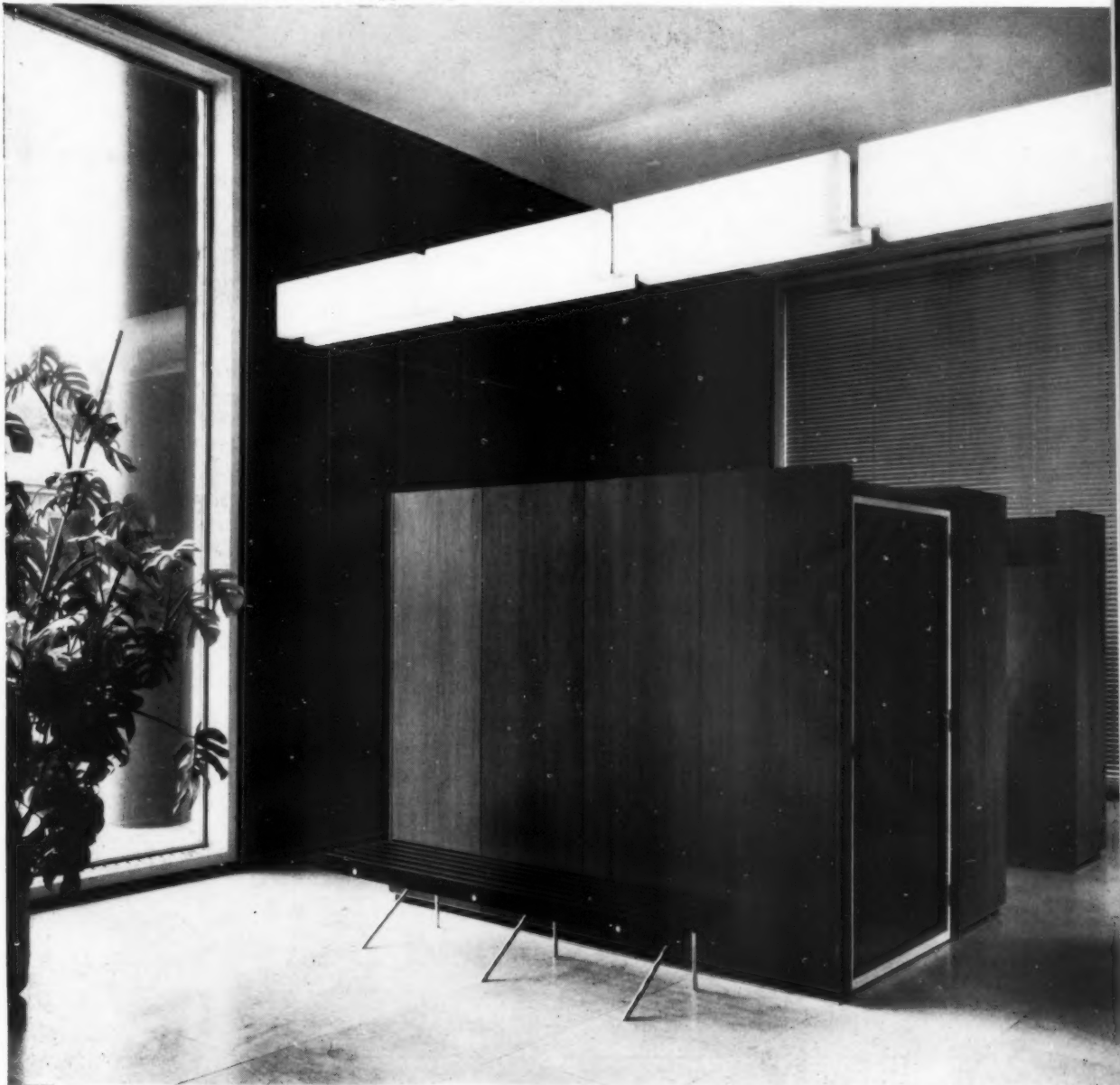
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TELEPHONE BOXES: OFFICE BLOCK IN DUSSELDORF

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

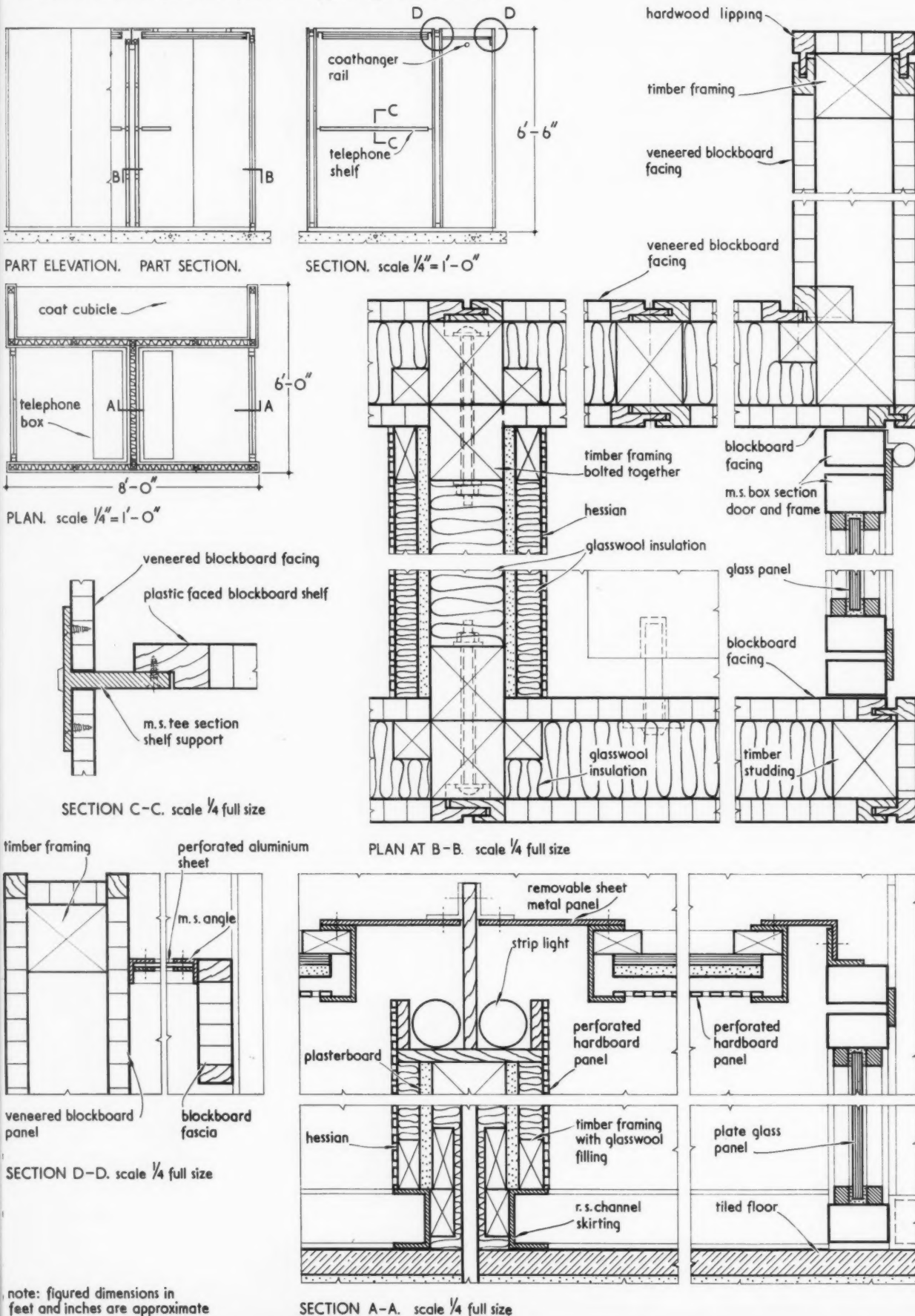


These telephone boxes depend for their acoustic effectiveness on a sound-absorbent dividing wall. Note the deep tongued and grooved joints of the blockboard facing panels.

working detail

TELEPHONE BOXES: OFFICE BLOCK IN DUSSELDORF

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

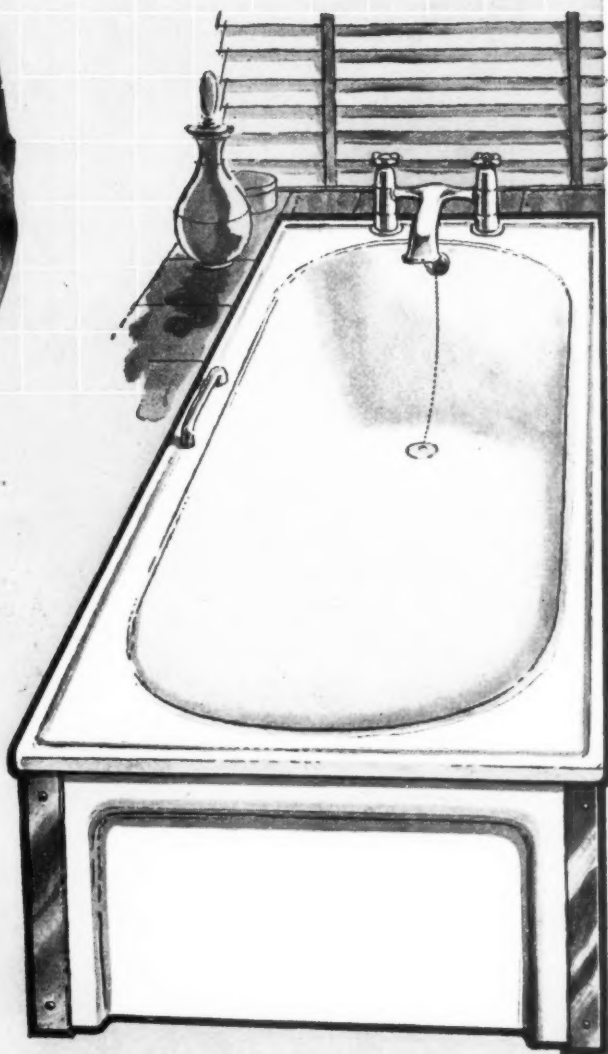


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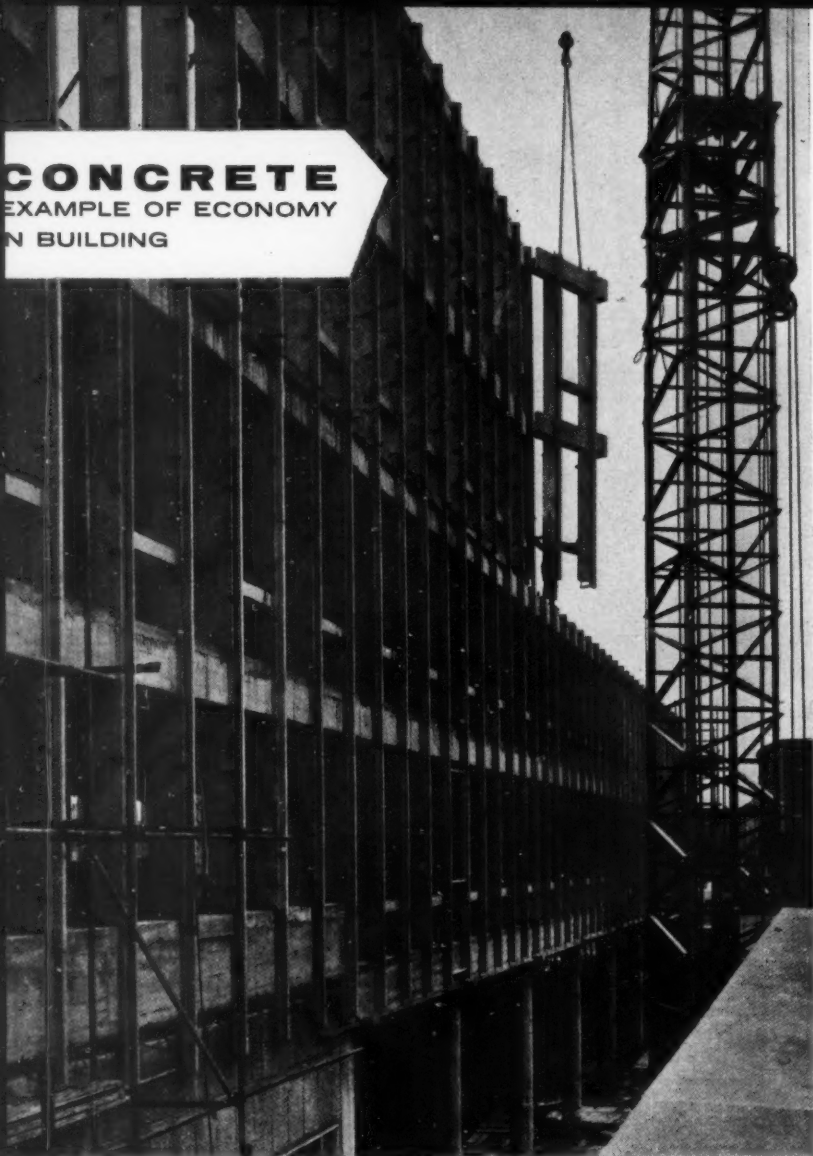
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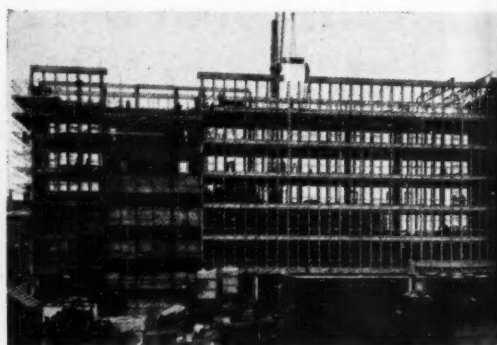
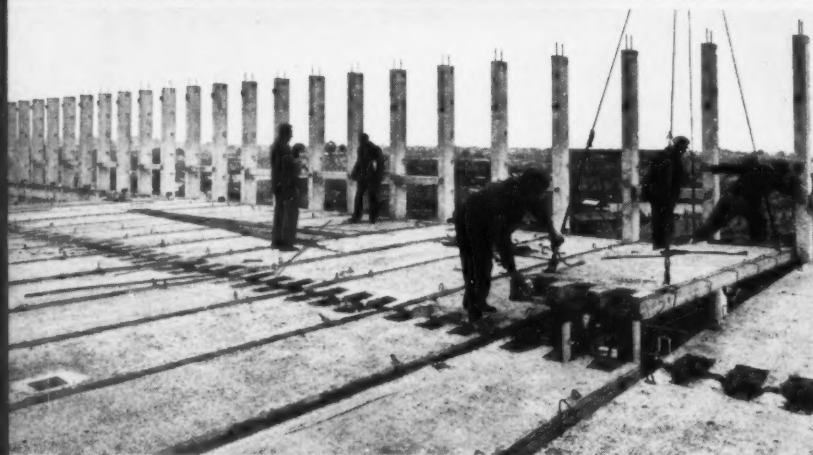
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ABOVE: General layout of precast concrete H-frame between first floor and roof.

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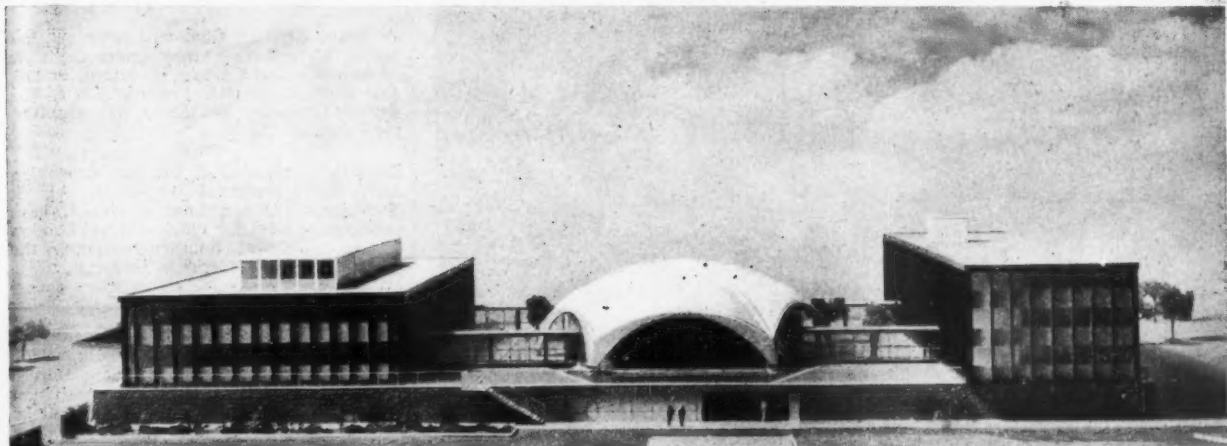
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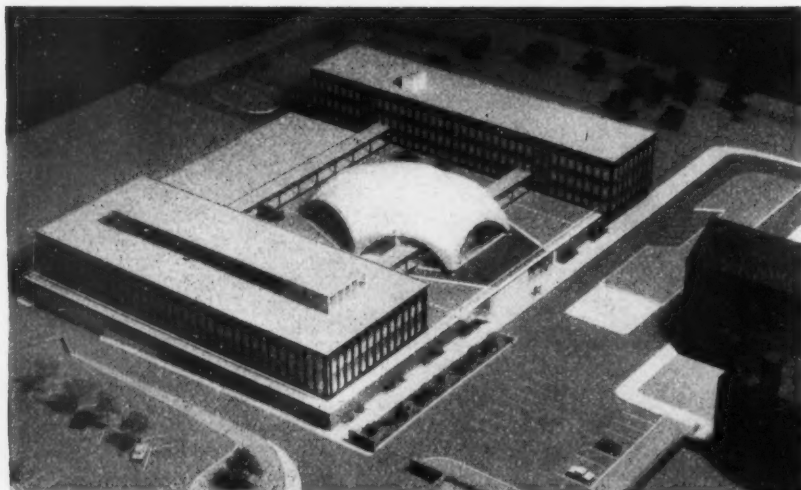
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main entrance hall. The balanced distribution of the teaching block and the academic block about the main entrance and the lecture halls is contained within a podium base which extends under each of the blocks. The structure will be a precast reinforced concrete frame expressed externally by the vertical members. Floors will consist of a hollow cell and rib construction. The cladding to the structure above the podium will be infill panels fixed to a pre-cast upstand wall beam behind, and the podium walls themselves will have a random-coursed rustic granite finish. Consulting architect to the development plan is Professor Robert Matthew and the structural consultants are C. V. Blumfield and Partners.

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PROFESSIONAL

A. Leslie Cuming, Chartered Architect, has joined Mrs. Belle Farrow under the style of Pomeroy and Cuming, architects, at 176, Old Brompton Road, London, S.W.5. The firm of Pomeroy and Short was dissolved on February 15.

John De Bremeacker & Partners, consulting civil and structural engineers, of 3, Southampton Place, London, W.C.1, have now opened a branch office at Royal London House, Lansdowne, Bournemouth, under the direction of J. W. Perks, M.I.Struct.E.

TRADE

Under an agreement concluded between the Crittall Manufacturing Co. Ltd. and Curtisa S.p.A. of Bologna, Italian design techniques in the field of curtain walling etc., will be made available to architects in the UK.

The Hire and Sales Division of Scaffolding (Great Britain) Ltd. has changed its name to SGB Building Equipment Division.

Wates Ltd. have formed a new engineering division to be known as the Construction Division of the Modular Concrete Company.

CORRECTION

The Information Centre item which was published on February 18 as 18.206 Construction: Theory, Structural Design, Advanced Structural Design by Cyril S. Benson (Batsford Ltd. 1959. 50s.) should have been numbered 18.210. We apologize for the error.

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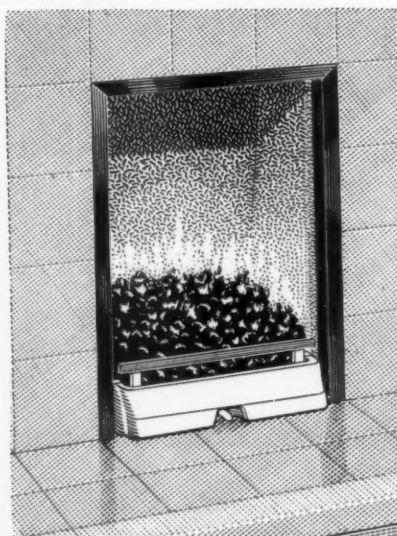
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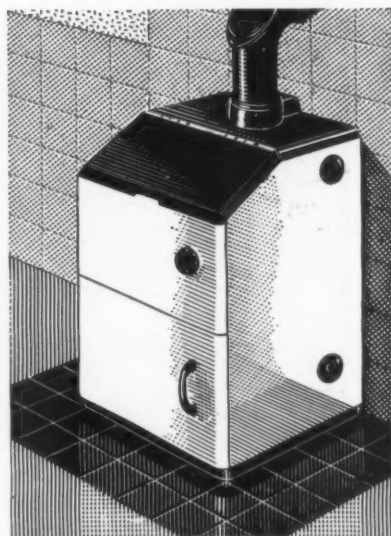
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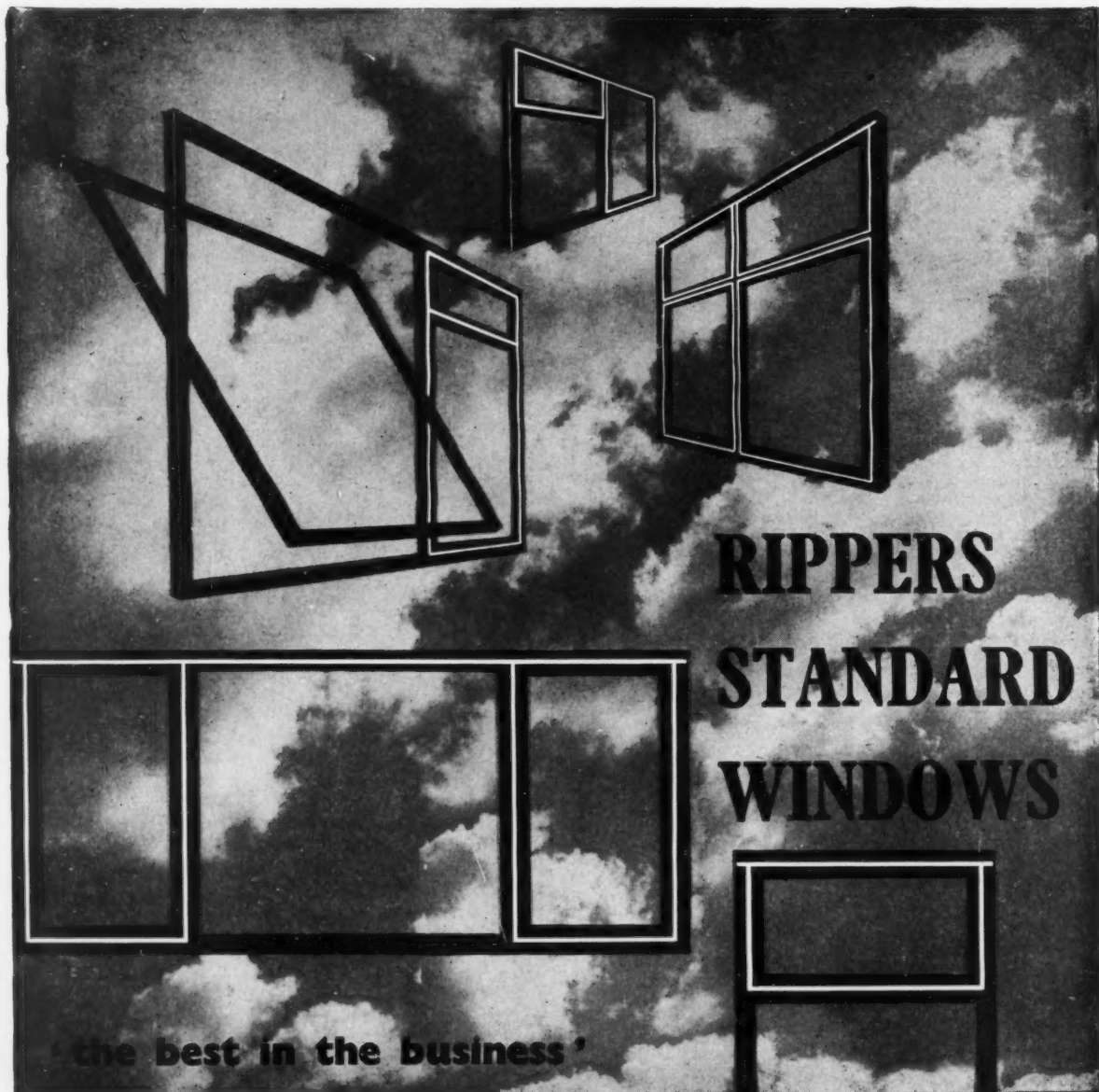
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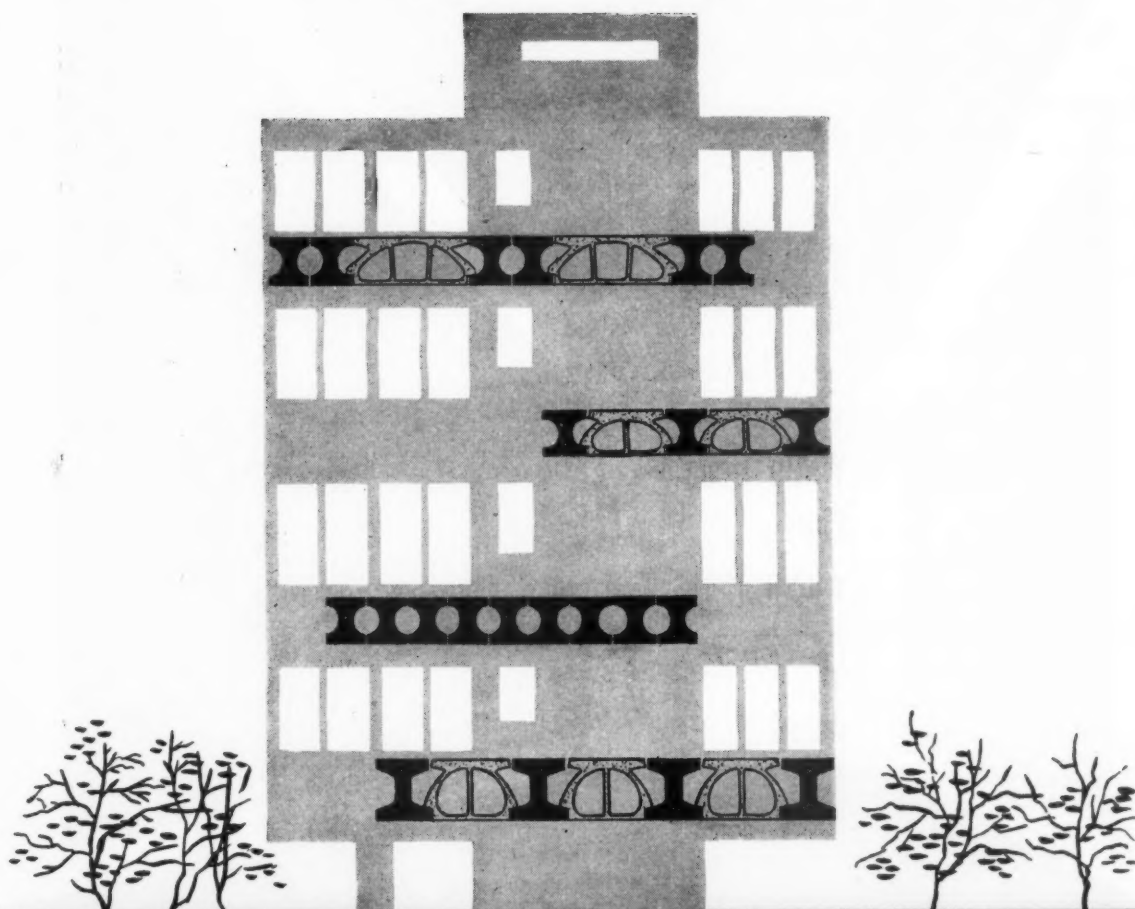
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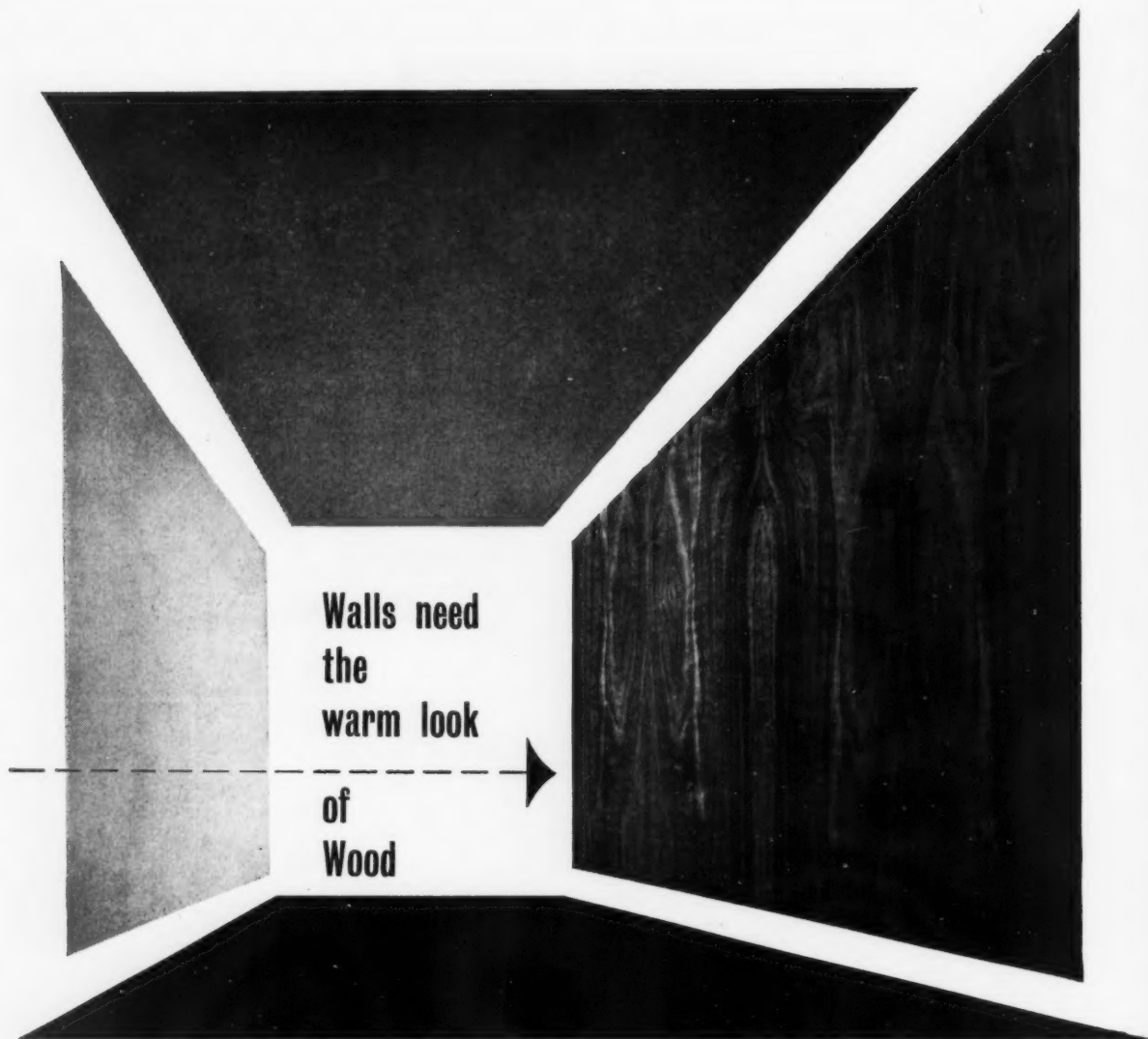
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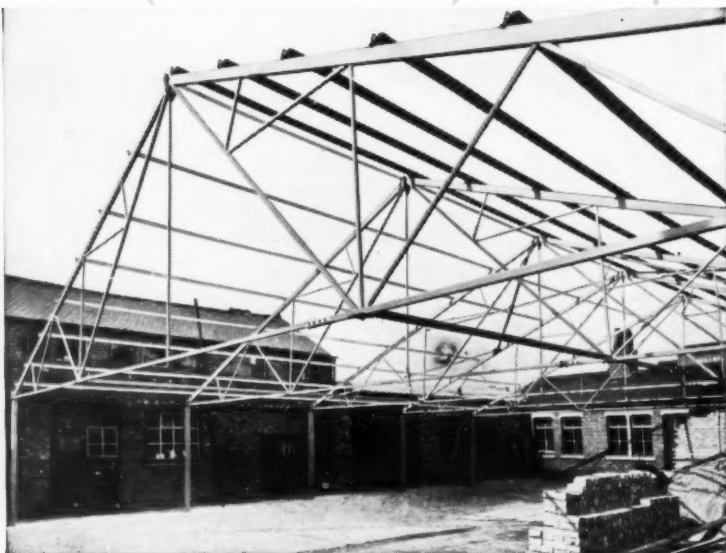
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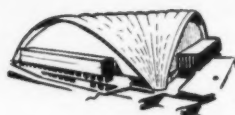
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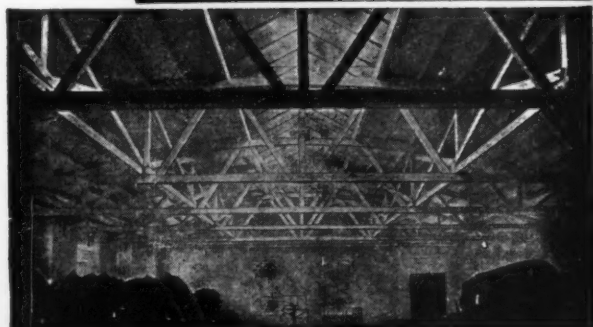
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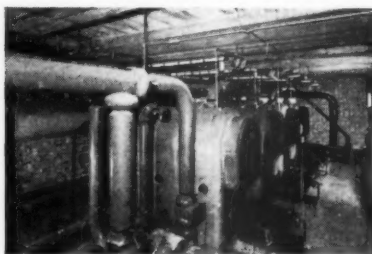
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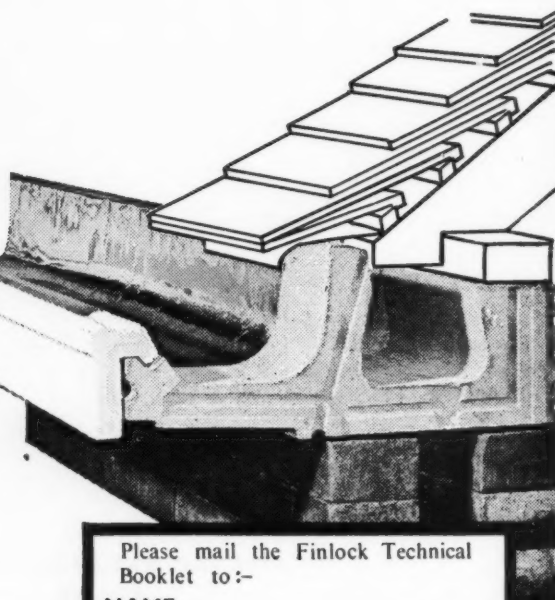
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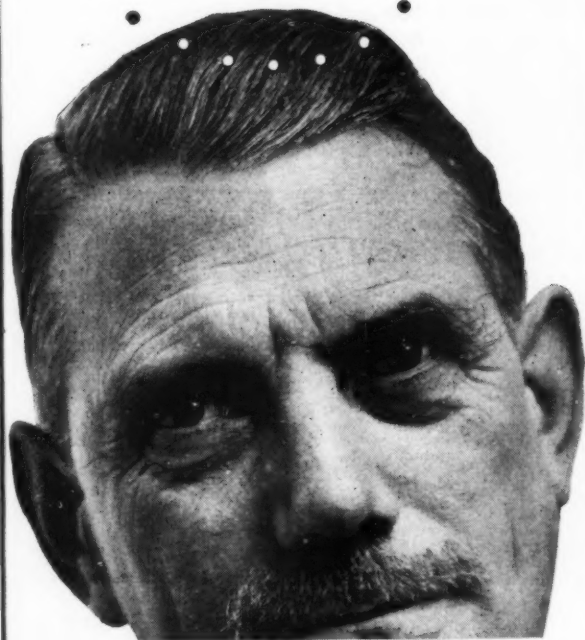
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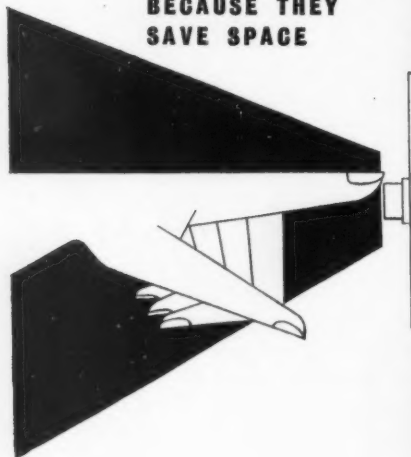
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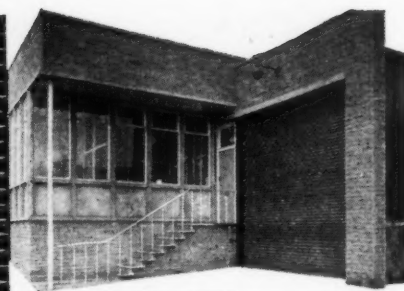
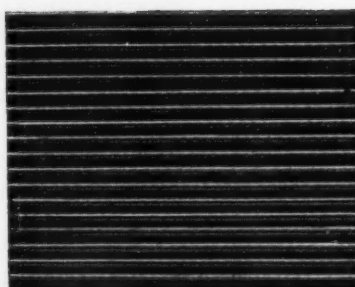
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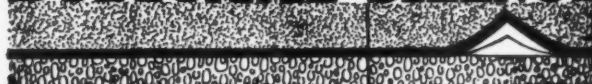
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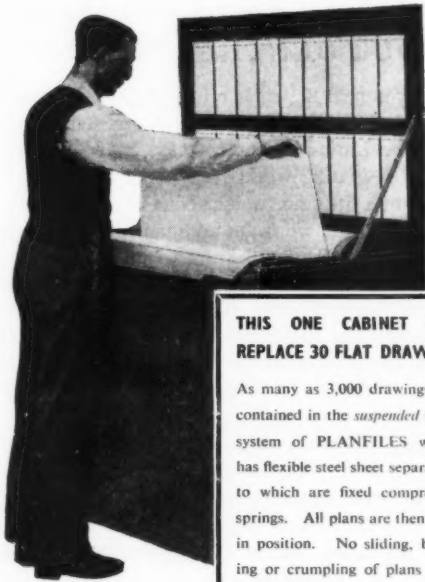


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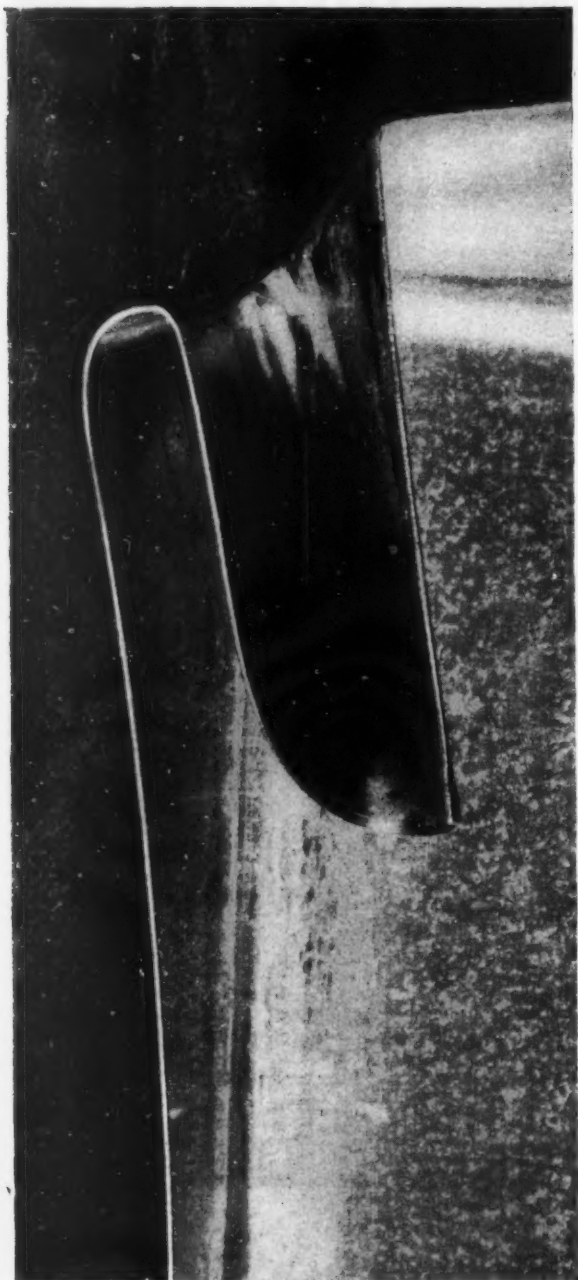
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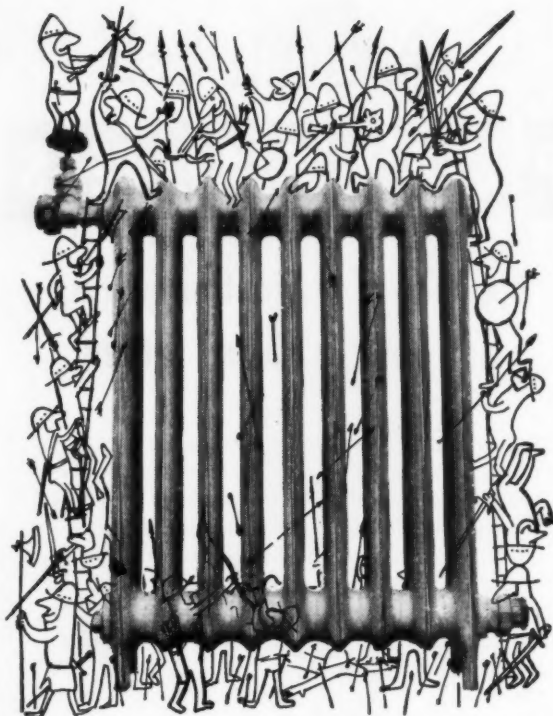
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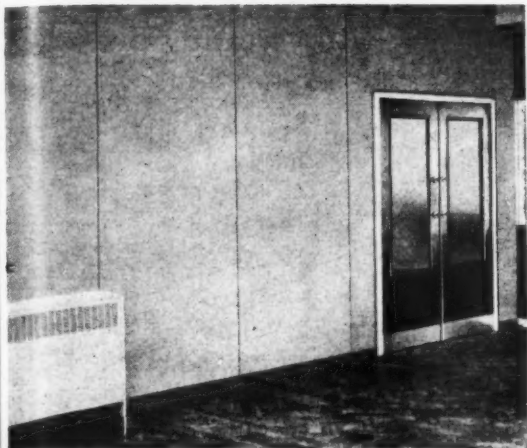
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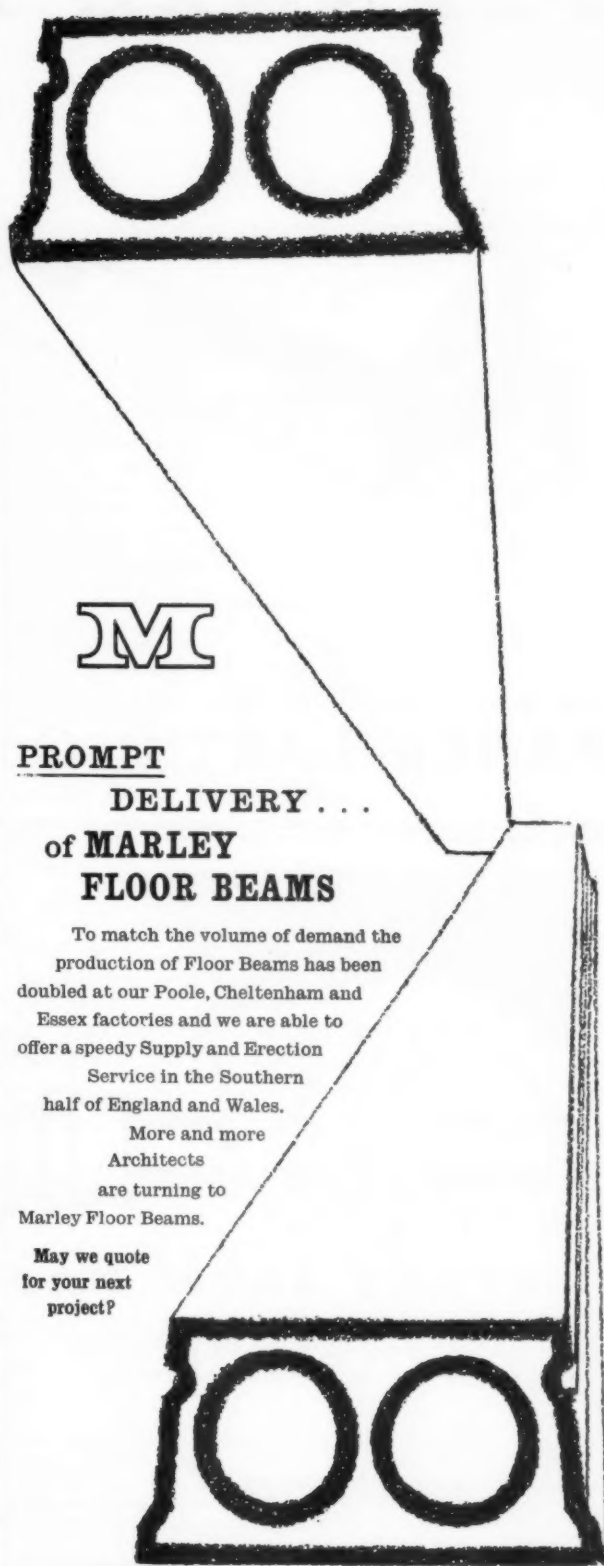
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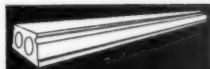
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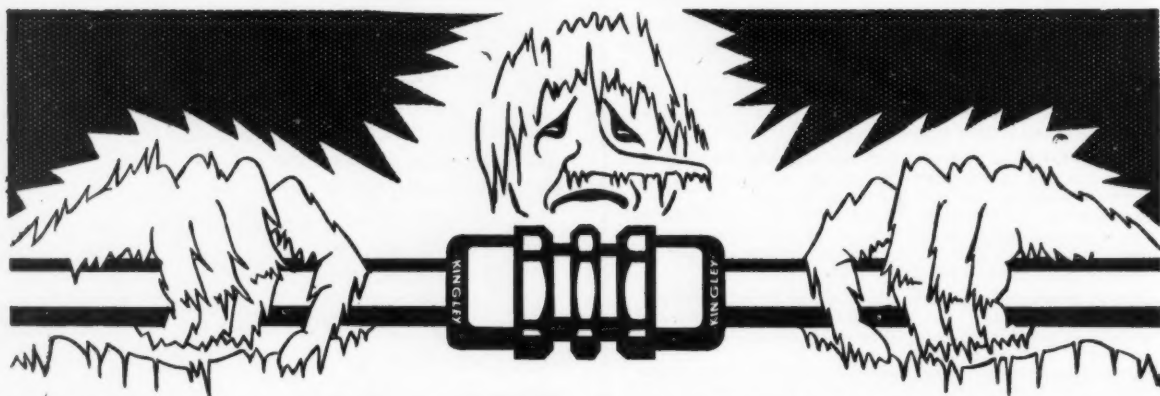
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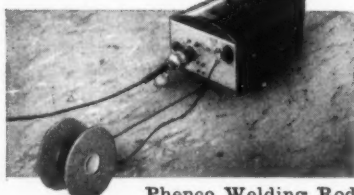
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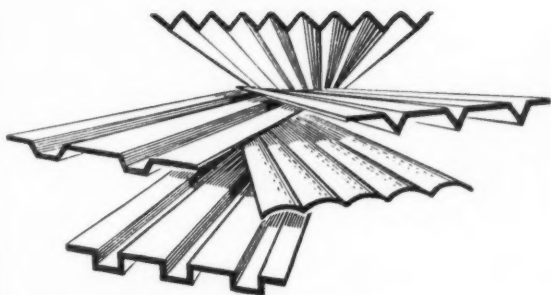
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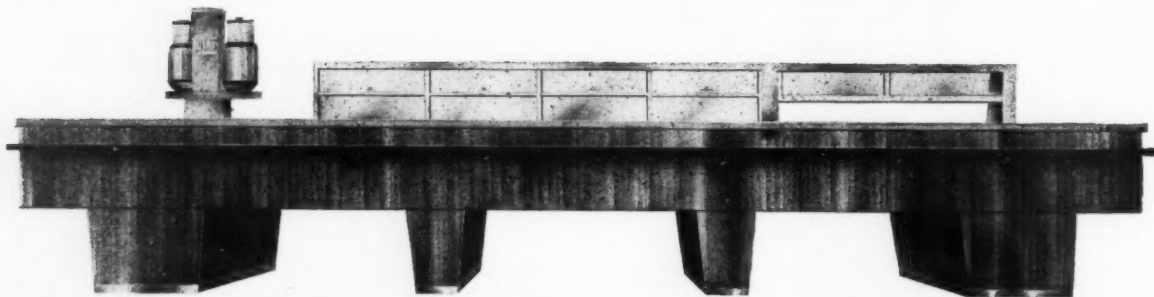
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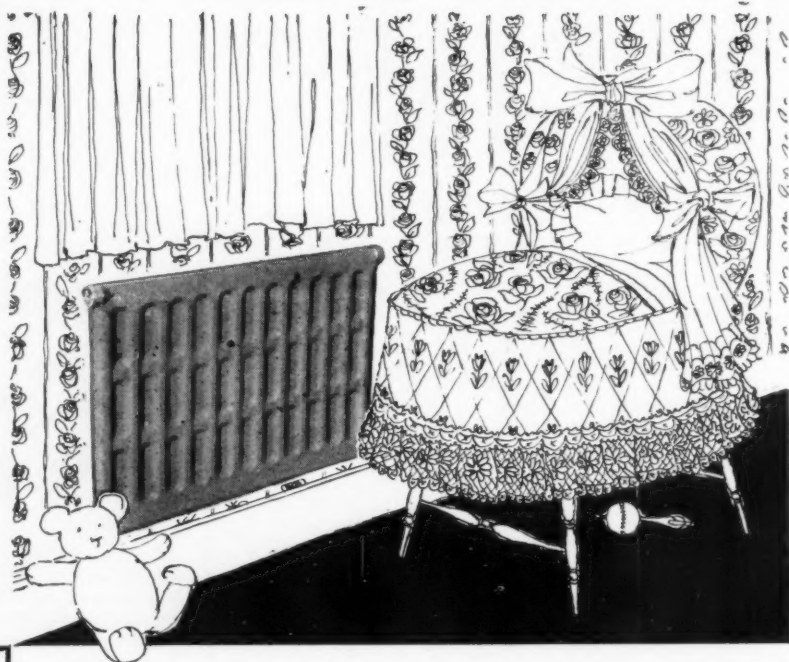
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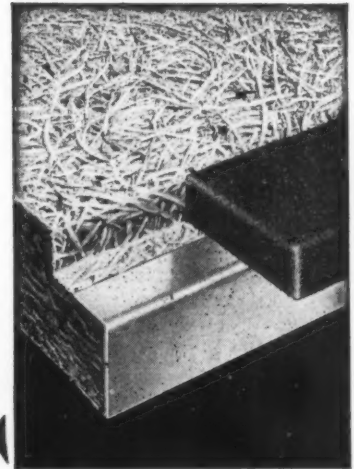
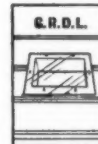
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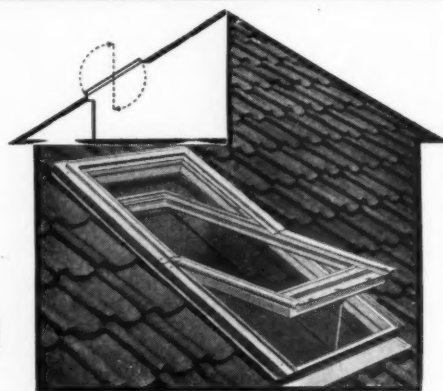
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Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

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.

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Salary ranges from £880 (at age 26) to £950. Commencing salary dependent upon age, qualifications and experience. Applicants, who must be natural born British subjects, should write stating age, qualifications and previous appointments including type of work done, to Manager (P.E.2) Professional and Executive Register, Ministry of Labour, Atlantic House, Farringdon Street, London, E.C.4. No original testimonials should be sent. Candidates selected will normally be interviewed in London and certain expenses reimbursed. Only applicants selected for interview will be advised. 8336

LONDON COUNTY COUNCIL ARCHITECTS (up to £1,135 (under review)) reqd. for Housing, Schools, and General Divns. Full and varied programme of new work incl. schools, multi-storey flats and Town Development. Starting sal. accdg. to quals. and expe. Partics. and appln. forms from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/113/59 County Hall, S.E.1. (2630). 8328

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 expe. Appln. form and partics. from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/113/59, County Hall, S.E.1 (2628). 8320

CWMBRAN DEVELOPMENT CORPORATION APPOINTMENT OF ASSISTANT ARCHITECTS APT.III/IV

Applications are invited for the above superannuable posts in my Department in the Salary Range £880-£1,220 with a commencing salary according to Qualifications and experience.

Candidates should be Associates of the R.I.B.A. with suitable office experience and should have had good experience in house design, construction and layout, experience in shop design would be an advantage.

Housing accommodation will be made available to the successful applicants if needed.

Applications stating age, experience, details of present and former employment (together with applicable salaries) and the names and addresses of two referees must reach the undersigned by first post on Monday, 7th March, 1960.

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

Victoria Street, Cwmbran, Mon. 8486

ARCHITECTS AND BUILDING SURVEYORS Vacancies in Architect's Department, London County Council, for Architects or Building Surveyors experienced in surveying existing buildings, preparing sketch schemes, working drawings and specifications and supervising works in progress, for the complete internal replanning and modernisation of the older blocks of Council flats (jobs up to £50,000).

Applicants should have initiative, a real interest in this type of work and the ability to act on their own judgment since the maximum opportunity will be afforded for each to carry his own job through from survey to completion. Salaries ranging from £700-£1,135 (under review). Promotion by merit.

Application form from Hubert Bennett, F.R.I.B.A., the Architect to the Council, County Hall, S.E.1. quoting ref. AR/EK/25/60. (210). 8495

BOROUGH OF SOLIHULL APPOINTMENT OF CLERK OF WORKS Applications are invited for an additional appointment as Clerk of Works in the Architect's Section of the Borough Surveyor's Department at a salary in accordance with Miscellaneous Grade VI (£715×£20(3)×£775 per annum). This appointment has become necessary on account of the considerable programme of housing and other works at present being undertaken.

Applicants should have been apprenticed in the building trade and have had considerable experience as craftsmen and general foremen.

In appropriate cases housing accommodation will be provided as soon as possible, and half reasonable removal expenses paid.

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

Applications giving full particulars as to age, past experience and appointments held, together with the names and addresses of two referees, should be sent to the Borough Surveyor, 90, Station Road, Solihull, Warwickshire, so as to reach him not later than 1st March, 1960.

W. MAURICE MELL, Town Clerk.

The Council House, Solihull. 8485
5th February, 1960.

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Applications are invited for:—
(a) ASSISTANT ARCHITECT. Salary within Special Grade, i.e., £785-£1,070 p.a.

(b) ARCHITECTURAL ASSISTANTS (two). Salary within Grade A.P.T. II, i.e., £765-£880 p.a., plus London weighting in all cases, 21-25 years, £20 p.a., 26 years and over £30 p.a.

Preference will be given to candidates for (a) who have passed the examination for Associateship of the R.I.B.A. and who must be capable of preparing sketch designs, full working drawings, specifications, supervision of building contracts, etc. Applicants for (b) should have passed the intermediate examination of the R.I.B.A. and must have good general architectural experience. Five-day week. Housing accommodation if required will be made available for (a) and for one of the appointments (b). Further particulars and conditions of service and form of application obtainable from the undersigned, which when completed must be returned by 7th March, 1960.

GEORGE HOOPER, Clerk & Solicitor.

Town Hall, Hayes, Middlesex. 8413

COUNTY BOROUGH OF SOUTH SHIELDS APPOINTMENT OF ARCHITECTS

Applications are invited for the following appointments in the Borough Engineer's Department:—

PRINCIPAL ASSISTANT ARCHITECT Applicants must be suitably qualified and experienced and the salary will be in accordance with A.P.T. Grade IV (£1,065-£1,220 per annum). ASSISTANT ARCHITECTS

Applicants to have received training in Architecture and the salary will be within A.P.T. Grades I-III (£510-£880 per annum) according to age and experience, or alternatively, special grade for suitably qualified applicants.

Housing accommodation will be made available if necessary to successful applicants on Grade IV and Special Grade, and those appointed will be required to pass a medical examination for Superannuation purposes.

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields, and should be returned to him not later than noon, Monday, 29th February, 1960.

R. S. YOUNG, Town Clerk. 8364

BOROUGH OF LARNE

The Larne Borough Council invite applications for the position of TOWN PLANNING OFFICER and BOROUGH ARCHITECT. Commencing salary within the scale £1,210 × £45 to £1,525, will be determined according to qualifications and experience.

The appointment will be subject to the provisions of the Local Government (Superannuation) Act (N.I.), 1950.

Candidates must be registered architects by examination, possess a recognised qualification in Town Planning and have adequate experience in Town Planning work. The work is of an interesting nature including a Redevelopment Scheme and general expansion following recent industrial development. Housing accommodation will be provided if required.

Preference will be given to duly qualified candidates who have served with any of H.M. Forces during war time, provided the Council is satisfied that such candidates can or will within a reasonable time be able to discharge the duties efficiently.

Applications giving date of birth, full particulars of qualifications and experience, together with two recent testimonials, must be lodged with the undersigned not later than 12 noon on Friday, 11th March, 1960.

The appointment is subject to the sanction of the Ministry of Health and Local Government. Dated this 9th day of February, 1960.

R. LYTTLE, Town Clerk.

Gardenmore House, Larne, Co. Antrim, N. Ireland. 8465

BOROUGH OF ENFIELD BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade A.P.T. I (£610-£765 per annum, plus a London Weighting Allowance of £10-£30 per annum according to age).

Applicants must have had experience in the preparation of plans, specifications, etc., including the maintenance of public buildings.

Saturday mornings are normally free of duty. Application forms obtainable from H. D. Peake, M.Sc.(Eng.), M.I.C.E., Borough Engineer & Surveyor, 7 Little Park Gardens, Enfield, Middx., returnable to the undersigned.

CYRIL E. C. E. PLATTEN, Town Clerk. 8454
Enfield, Middx.

BIRMINGHAM REGIONAL HOSPITAL BOARD

ARCHITECT'S DEPARTMENT

(a) ASSISTANT ARCHITECTS (ref. Arch. 1)

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(b) ARCHITECTURAL ASSISTANTS (ref. Arch. 2)

Salary £545 (at age 21 years or over)-£766 per annum. Point of entry according to experience. Inter-R.I.B.A. essential.

(c) ASSISTANT QUANTITY SURVEYORS (ref. Arch. 3)

Salary scale £730-£1,055 per annum. Starting salary according to age and experience. Final R.I.C.S. and experience in taking off and preparing bills of quantities and settlement of final accounts essential.

(d) SURVEYING ASSISTANT (BUILDING) (ref. Arch. 4)

Salary scale £545-£765. To assist in survey of existing hospital buildings and preparation of record plans. Inter-R.I.C.S. (Building Division) essential. Must be a neat draughtsman with experience in measurement and plotting of surveys to all scales.

All posts superannuable. Five-day week. Written applications, quoting reference of post desired and naming two referees to the Secretary, E.H.B., 10, Augustus Road, Birmingham, 15, by 7th March, 1960. 8438

COUNTY BOROUGH OF SOUTHAMPTON BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited for the following appointments:—

(i) ASSISTANT QUANTITY SURVEYOR, salary within the Special Scale £785-£1,070. Applicants must be chartered quantity surveyors, preferably with experience in municipal housing including multi-storey flats and shopping centres.

(ii) ASSISTANT ARCHITECT, Special Scale, £785-£1,070. Applicants must have passed Parts I and II of the R.I.B.A. Final examination and have had experience in housing design and construction and estate layout, preferably with a municipal authority.

(iii) ARCHITECTURAL ASSISTANT, A.P.T. Grade II, £765-£880. Applicants are required to have passed the Intermediate R.I.B.A. examination or its equivalent at one of the recognised schools of architecture, and preferably have had experience in local government housing.

The appointments are subject to N.J.C. conditions of service.

Consideration will be given, if necessary, to the provision of housing accommodation. Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, by Monday, 7th March, 1960. 8437

LONDON COUNTY COUNCIL ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECT/PLANNERS. Tasks include three-dimensional planning in Comprehensive Development Areas and all other important areas of new development throughout London, including those associated with road improvements. Up to £1,135 (under review) according to experience and qualifications. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, EK/23/60, County Hall, S.E.1. (208). 8244

FYLDE RURAL DISTRICT COUNCIL APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment in the Engineer and Surveyor's Department at a salary within A.P.T. Grades I and II (£610-£880) according to experience and qualifications. The Council's immediate future programme includes the erection of new Council Offices.

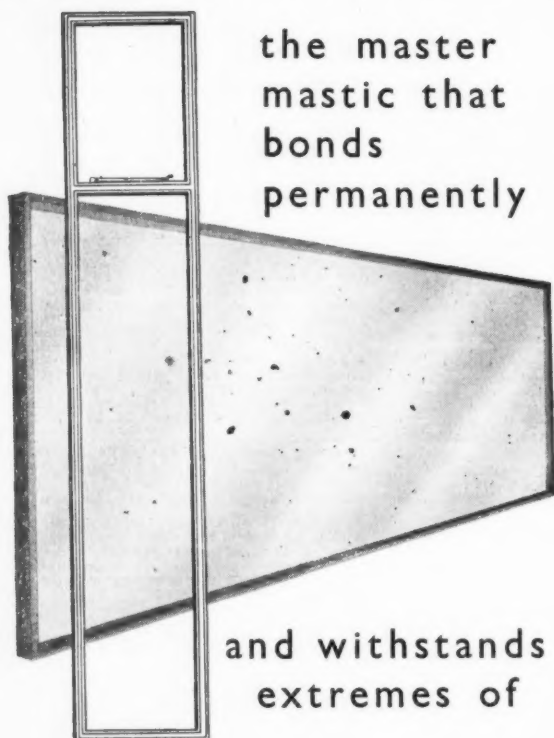
The appointment will be subject to the National Scheme of Conditions of Service and the Local Government Superannuation Acts. Consideration will be given to the provision of housing accommodation, if required.

Applications, stating age, qualifications and experience, together with copies of two recent testimonials, should reach the undersigned not later than 7th March, 1960.

W. WEBB, Clerk of the Council.
Council Offices, Wesham, Kirkham, Near Preston, Lancashire. 8602

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EBBW VALE URBAN DISTRICT COUNCIL

Appointment of CHIEF ASSISTANT ARCHITECT (Non-designated post), Grade A.P.T. IV (£1,065-£1,220).

An architect (Degree, Diploma or A.R.I.B.A.) is required to lead a small, but enthusiastic young group in the Architect's Department, working on the new Civic Centre in Ebbw Vale. The project includes Municipal Offices with Council Chamber and a covered swimming pool for immediate construction, and a large Public Hall to follow. Other interesting schemes include a small Public Hall, Community Centre and an extensive Housing Programme.

The salary will be in accordance with Grade A.P.T. IV, the appointment being subject to three months' notice on either side, to the passing of a medical examination, and is superannuable.

Alternative Saturday mornings are free and there are Canteen facilities.

The Council will provide housing accommodation if required and consideration will be given to the payment of reasonable removal expenses. Ebbw Vale is situated in close proximity to the beautiful Usk Valley and Brecon Beacons National Park.

Forms of application may be obtained from the undersigned and applications are to reach him by not later than Wednesday, the 2nd day of March, 1960.

HOWARD J. WILLIAMS,
Clerk of the Council.

Council Offices,
The Walk,
Ebbw Vale, Mon.

8427

BOROUGH OF WALTHAMSTOW
BOROUGH ARCHITECT'S DEPARTMENT
Walthamstow is a municipal borough within the County of Essex, population 113,000, rateable value £1,747,737. It is a progressive authority and there is a large programme of interesting architectural and redevelopment schemes to be undertaken.

Applications are invited for the undermentioned vacancies on the permanent staff of the Borough Architect.

- TWO SENIOR ASSISTANT ARCHITECTS, A.P.T. IV (£1,065-£1,220).
- FOUR ARCHITECTURAL ASSISTANTS, A.P.T. I/II (£610-£880).
- TWO ASSISTANT QUANTITY SURVEYORS, A.P.T. II (£765-£880).
- ONE JUNIOR QUANTITY SURVEYOR, General Division (£210-£595).

The above salaries do not include the London weighting allowance.

Applicants for post (a) must be professionally qualified and have had extensive experience. For one of these posts, experience in redevelopment schemes and in the design and supervision of new industrial estates would be an advantage. Applicants for posts (b) and (c) should have the appropriate qualifications. Applicants for post (d) should have had experience in working up Bills of Quantities.

The Council will make 100 per cent. advances to successful applicants for house purchase in this or adjoining boroughs.

Application forms may be obtained from the undersigned.

Closing date for receipt of applications: 4th March, 1960.

G. A. BLAKELEY,
Town Clerk.

Town Hall,
Walthamstow, E.17.
12th February, 1960.

8536

ARCHITECT'S DEPARTMENT, SALOP COUNTY COUNCIL

Applications are invited from qualified Architects for the post of SENIOR ASSISTANT ARCHITECT on A.P.T. Grade IV (£1,065-£1,220 p.a.). A disturbance allowance or weekly separation allowance will be payable to a married man taking up this appointment. Conditions of service and application forms obtainable from RALPH CROWE, A.A.Dipl., A.R.I.B.A., A.M.T.P.I., COUNTY ARCHITECT, COLUMB HOUSE, LONDON ROAD, SHREWSBURY. Closing date 12th March, 1960.

8621

BOROUGH OF HARROW

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

CHIEF TECHNICAL ASSISTANT (MAINTENANCE), A.P.T. Grade IV (£1,065 to £1,220 per annum plus London "weighting").

Applicants should be suitably qualified and experienced to organise both routine and long-term maintenance improvements and service installation works on approximately 5,000 dwellings, together with all municipal properties (except schools).

The person appointed will be responsible for works carried out by direct labour (under a Works Superintendent) and by Contract.

TECHNICAL ASSISTANT (BUILDING BYE-LAWS), A.P.T. Grade II (£765 to £880 per annum, plus London "weighting").

Applicants should be qualified Building Inspectors.

The duties will be mainly in the office advising callers regarding the Council's Building Byelaws and other matters normally dealt with in a Building Inspector's section.

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, 5th March, 1960.

D. H. PRITCHARD,
Town Clerk.

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

8535

COUNTY BOROUGH OF SOUTHEAST-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).

A Post is available for a suitable candidate. 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.

8511

BOROUGH OF EDMONTON

BOROUGH ARCHITECT'S DEPARTMENT

QUANTITY SURVEYING ASSISTANT (TEMPORARY)

Candidates should have passed the first examination of the Royal Institute of Chartered Surveyors and be studying for the Intermediate. Excellent opportunity to gain valuable experience in a Borough Architect's Department. Time off and financial assistance for studies. Five-day week. Salary within Grade A.P.T. I-£610-£765 plus London weighting £10/£30 according to age.

Applications on forms obtainable from the Town Clerk, Town Hall, Edmonton, must be delivered by the 5th March, 1960.

8531

WEDNESFIELD URBAN DISTRICT COUNCIL

ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited for the position of CHIEF ASSISTANT ARCHITECT at a salary in accordance with A.P.T. Grade IV (£1,065 to £1,220).

Candidates must be qualified and have had considerable experience in the appointment for which they make application.

The district is developing rapidly and offers exceptional experience.

The National Joint Council Conditions of Service will apply and the successful candidate will be required to contribute to a Superannuation Scheme and also undergo a medical examination.

Housing accommodation will be provided, if necessary, and reasonable removal expenses will be paid.

Applications, stating age, qualifications, experience, with the names of two referees, must be received by the undersigned by not later than 4th March, 1960.

J. HENWOOD JONES,
Clerk of the Council.

Council Offices,
Alfred Squire Road,
Wednesfield,
Staffs.

8550

COUNTY BOROUGH OF ROCHEDALE

BOROUGH SURVEYOR'S DEPARTMENT

Applications are invited for the post of ASSISTANT ARCHITECT in the Housing Section on Special Grade (£785-£1,070 p.a.). The successful applicant if fully qualified will be offered, subject to conditions, housing accommodation.

Canvassing will disqualify. Relationship to any member or senior official of the Council must be disclosed. Appointment subject to medical examination.

Applications, stating age, qualifications, experience and names of two referees to Borough Surveyor, Town Hall, Rochdale, by 7th March.

K. B. MOORE,
Town Clerk.

8532

BOROUGH OF PRESTWICH

BOROUGH ENGINEER'S DEPARTMENT

APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the position of Architectural Assistant at a salary in accordance with Grade A.P.T. I (£610-£765).

The commencing salary will be fixed at a point within the scale commensurate with qualifications and experience.

Applications, stating age, qualifications, experience, etc., together with the names and addresses of two referees, should be received by the undersigned not later than 7th March, 1960.

C. A. CROSS,
Town Clerk.

Town Hall,
Prestwich,
Lancs.

8509

BOROUGH OF ROMFORD

Applications are invited for a post of PRINCIPAL ASSISTANT ARCHITECT within the salary range £1,250 to £1,405 per annum. Applicants must be fully qualified and must have at least three years' experience subsequent to qualification. Interesting and varied work available. In appropriate cases housing accommodation will be provided and removal expenses paid. "Essential User" car allowance. Five-day week.

Full particulars and conditions can be obtained from the Town Clerk, Town Hall, Romford, to whom applications for the appointment are to be sent by the 11th March.

8599

NORTHUMBERLAND COUNTY

PLANNING DEPARTMENT

(a) JUNIOR PLANNING ASSISTANT (Development Control) required on A.P.T. Grades I-II (£610-£880).

(b) LANDSCAPE ASSISTANT required on A.P.T. Grades I-II (£610-£880).

Salary for both appointments according to qualifications and experience. Application forms and further details from County Planning Officer, County Hall, Newcastle upon Tyne, 1. Forms to be submitted by 12th March, 1960.

8624

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PAVING BRICKS

**CITY OF PORTSMOUTH
CITY ARCHITECTS' DEPARTMENT**
Applications are invited for the appointment of ASSISTANT ARCHITECTS, A.P.T. Grade IV (£1,065-£1,220), commencing salary according to experience. Successful candidates will be engaged on new Civic Offices, Technical College, Schools, Swimming Baths, Multi-storey Flats, Old People's Homes, etc.
Applicants must be Associate Members of the R.I.B.A.
The Council will consider the provision of housing accommodation at an economic rent in suitable cases.
Applications, giving full details of experience and the names and addresses of two referees, must be delivered to the City Architect, 1, Western Parade, Portsmouth, not later than Monday, 14th March, 1960.
Canvassing will disqualify.

V. BLANCHARD,
Town Clerk.
8588

**PETERLEE DEVELOPMENT CORPORATION
APPOINTMENT OF CHIEF ARCHITECT**
Applications are invited for the appointment of Chief Architect to the Peterlee Development Corporation on a salary scale of £2,050 rising by annual increments of £100 to £2,550, the commencing salary to be fixed according to the experience of the person appointed.
Applicants must have a qualification of the Royal Institute of British Architecture and experience in the Architectural Department of a new town corporation would be an advantage.
Housing accommodation will be available if required.
The position is superannuable, and is terminable by three months' notice in writing on either side. The successful applicant will be required to pass a medical examination.
Applications, giving details of experience, age and qualifications, together with the names of three referees, should be forwarded to the undersigned not later than Friday, 4th March, 1960.

A. V. WILLIAMS,
General Manager.
8505

Shotton Hall,
Peterlee,
Co. Durham.
8505

**THE URBAN DISTRICT COUNCIL OF
KEYNSHAM
APPOINTMENT OF ARCHITECTURAL
ASSISTANT**

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. I (£510-£765).
Applicants should be capable of preparing full working drawings from sketch stage under the direction of the Architect on an interesting programme, including 3-storey houses, civic offices, library, shops, sports pavilion, etc.
Appointment will be for period of two years, subject to one month's notice on either side and to submission of satisfactory medical report.
Applicants should be in process of obtaining a technical qualification; preference will be given to those having passed Intermediate Examination of the R.I.B.A.
Applications, stating age, qualifications and particulars of experience, and the names of two referees, to the Clerk of the Council, Council Offices, Keynsham, Bristol, by Monday, 7th March, 1960.
Applicants should state whether they are related to any member or senior officer of the Council.
Canvassing will disqualify.

8607

**HAMPSHIRE COUNTY COUNCIL
ASSISTANT ARCHITECT, A.P.T. Grade IV (£1,065-£1,220), required for pensionable post in office of the County Architect. Candidates must have passed the Final Examination of the R.I.B.A. and have had considerable experience, preferably in the office of a Local Authority. Assistance with removal and other expenses in approved cases. Five-day week. Canteen facilities.**
Application forms (send s.a.e.), returnable by 1st March, from Clerk of the County Council, The Castle, Winchester.
8578

**BASILDON DEVELOPMENT CORPORATION
DEPARTMENT OF ARCHITECTURE AND PLANNING**

ARCHITECTS with ability and experience in contemporary design required for Groups working on large Town Centre, Industrial, and Housing Development. The town is less than half way towards its ultimate development as the largest New Town.
Salary ranges will be:
A.P.T. VI/VII (£1,163-£1,485).
A.P.T. IV (£1,065-£1,220).
A.P.T. III (£880-£1,065).

A house or flat can be provided. The posts are superannuable.
Applications on the proforma, obtainable from the Chief Architect/Planner, to: The General Manager, Basildon Development Corporation, Gifford House, Basildon, Essex, by Friday, 11th March, 1960.
8611

**COUNTY BOROUGH OF WEST HAM
BOROUGH ARCHITECT AND PLANNING
OFFICER'S DEPARTMENT**

Applications invited for the following posts:
(a) GROUP ARCHITECT: APT IV.
(b) DEPUTY GROUP ARCHITECT (2 posts): Special Grade.
(c) ASSISTANT PLANNING OFFICER: Special Grade.
(d) ARCHITECTURAL ASSISTANT: APT II/Special Grade.
(e) ARCHITECTURAL ASSISTANT: APT I. (London Weighing in addition.)
Commencing salary according to qualifications and experience.
Application Form and Details from: Thomas E. North, OBE, FRIBA 70, West Ham Lane, Stratford, E.15, returnable by 14th March, 1960.
8575

**CUMBERNAULD DEVELOPMENT
CORPORATION**
There are 2 vacancies for ARCHITECTURAL ASSISTANTS, GRADE D (Reference A-4) on the Staff of the Development Corporation (L. Hugh Wilson, Chief Architect & Planning Officer), for a variety of interesting projects in this hilltop town.
Inter R.I.B.A. necessary.
Salary Scale £610-£880 per annum. Starting salary according to experience.
Assistance with housing in appropriate cases.
Local Government Superannuation, subject to medical examination. 5-day week.
Write quoting reference number of post, to the General Manager, Cumbernauld Development Corporation, Cumbernauld House, Cumbernauld, Glasgow, for application form to be returned completed by 11th March, 1960.
8582

JUNIOR ASSISTANT ARCHITECT. The London Hospital, Whitechapel, E.1, has vacancy in the Architect's office. Salary scale £565-£795 p.a. Starting salary dependent on qualifications, age and experience. The post is equally suitable for a junior or someone nearing retiring age. Applications, with full details, to the House Governor by March 5th.
8598

**KIRKBY URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL
ASSISTANT**
Applications are invited for this appointment in the Engineer and Surveyor's Department. Salary within Grades A.P.T. I/II (£610 to £880 per annum).
This newly created Authority is engaged on an extensive Capital Works Programme and will give the successful applicant opportunities for wide experience.
Assistance may be given with housing accommodation in suitable cases.
Applications, stating age, experience and qualifications, together with the names and addresses of two referees, to the undersigned not later than 14th March 1960.
Canvassing disqualifies. Relationship to be disclosed.

W. BYRON,
Clerk of the Council.
8561

Kirkby Hall,
Hall Lane,
Kirkby, nr. Liverpool.
8561

**DUNDEE COLLEGE OF ART
SCHOOL OF ARCHITECTURE**
Principal: H. ADAM CRAWFORD, R.S.A., D.A.
The Governors of the Dundee Institute of Art and Technology invite applications for the following posts:
SENIOR LECTURER AND STUDIO INSTRUCTOR.

Salary Scales: Men £1,300-£50-£1,550.
Women £1,268-£1,550.
GRADE I LECTURER
Salary Scales: Men £850-£50-£1,350.
Women £835-£1,350.

Plus 5 per cent at each point on each scale.
Scales are at present under revision.
Applicants should be members of the R.I.B.A. and preferably be holders of a Degree or Diploma of a recognised School of Architecture. A Degree in Town Planning would also be an advantage.
Applications should be lodged within 14 days from the date of this advertisement, or as soon as possible thereafter, and should be on the prescribed form which, with full particulars, may be obtained from the undersigned.
F. RAYMOND WILKINSON,
Clerk and Treasurer.
8585

Bell Street,
Dundee.
17th February, 1960.

**SURREY COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT**
Applications are invited for the following posts in the Development Plan Section at HEAD-QUARTERS at Kingston-upon-Thames for work on Town Maps, areas for comprehensive redevelopment and similar work.
(a) One GRADE IV (£1,065-£55/£50-£1,220+ London Allowance). To prepare schemes for comprehensive redevelopment and to advise on layouts and design. Experience in this work is essential. Applicants must be corporate members of the Town Planning Institute and preference will be given to those holding a further qualification in architecture.
(b) One SPECIAL (QUALIFIED) GRADE post (£785-£40/£45-£1,070+ London Allowance). To be responsible for work on certain Town Maps and other Development Plan and research work. Applicants must be Corporate Members of the Town Planning Institute.

Applications endorsed "Confidential-Vacancies" stating age, qualifications and experience, with details of present post and salary and the names of two referees, should be sent to the County Planning Officer, "Elmhurst", Penrhyn Road, Kingston-upon-Thames, not later than 14th March 1960.
8590
**WORCESTERSHIRE COUNTY COUNCIL
ARCHITECT-PLANNER required for urban renewal, particularly in shopping centres. Salary £1,065 rising to £1,220.**
Application forms and further particulars may be obtained from:-
The County Planning Officer, County Buildings, Worcester (W.125).
8430

**CITY OF LINCOLN
ASSISTANT ARCHITECT
SPECIAL GRADE: £785-£1,070**
Applications are invited for the above appointment on the established staff of the City Architect, dealing with Schools, varied Architectural Works and New Housing. Commencing Salary within the Grade according to qualifications and experience.
The appointment will be subject to the Local Authorities' Superannuation Act and the successful applicant will be required to pass a medical examination.
Housing accommodation may be available if required.
Applications giving full particulars together with the names of two persons to whom reference may be made should be submitted to Mr. R. B. Alexander, F.R.I.B.A., M.T.P.I., City Architect, Stamp End, Lincoln, not later than 14th March, 1960.

J. HARPER SMITH,
Town Clerk.
8620

Town Clerk's Office,
Lincoln.
18th February, 1960.

COLLEGE OF ESTATE MANAGEMENT (Incorporated by Royal Charter)

ST. ALBAN'S GROVE, KENSINGTON, W.8

THE COLLEGE PREPARES FOR

THE B.Sc. (ESTATE MANAGEMENT) DEGREE OF THE UNIVERSITY OF LONDON

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THE TOWN PLANNING INSTITUTE

THE INSTITUTION OF MUNICIPAL ENGINEERS

THE ENGINEERING INSTITUTIONS' JOINT PART 1

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POSTAL COURSES START AT ANY TIME
DAY CLASSES for the Degree start in October; all other DAY
and EVENING CLASSES start in April

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THE CANALS OF ENGLAND by Eric de Maré. 'Historical, topographical and technical... a well-documented, well-written and highly informative book embellished with many photographs of distinction and the reproductions of informative old prints...' Clough Williams-Ellis in JOURNAL OF THE TOWN-PLANNING INSTITUTE.

Price 21s. net, postage 1s. 3d.

Second impression.

The Architectural Press 9 Queen Annes Gate SW1

**CITY OF PLYMOUTH
CITY ENGINEER AND SURVEYOR'S
DEPARTMENT
PLANNING SECTION**

Applications are invited for the following appointments:—

- (i) SENIOR PLANNING ASSISTANT—
APT. Grade V (£1,220—£1,375).
(ii) PLANNING ASSISTANT—
APT. Grade II (£765—£880).
or APT. III (£480—£1,065)

according to experience and qualifications.

Requirements—Technical Qualifications

Applicants for appointment (i) must be Corporate Members of the Town Planning Institute, and an additional qualification will be an advantage.

Applicants for appointment (ii) must have passed (or be exempt from) the Intermediate Examination of the Town Planning Joint Examination Board.

Requirements—Experience

Applicants for appointment (i) must have had extensive planning experience with a large urban authority.

Housing accommodation

Consideration will be given to making this available if it is desired.

Removal Expenses

It is the practice of the Corporation to pay half the cost of household removal expenses up to a maximum contribution of £25.

Age Limit

Both appointments are superannuable subject to medical examination and the age limit is 40 years, or 45 years if serving with another local authority.

Applications

Forms are available from the undersigned and must be returned by March 12th, 1960.

J. ACKROYD,

City Engineer and Surveyor.

The Guildhall,
Plymouth.

8616

**OXFORD REGIONAL HOSPITAL BOARD
CONTEMPORARY HOSPITAL BUILDINGS**

Architects who wish to work (in association with W. J. Jobson, Regional Architect) on projects in this most interesting field of development are invited to apply for the following permanent posts:—

- SENIOR ASSISTANT ARCHITECT, £1,050 to £1,245 per annum.
ASSISTANT ARCHITECT, £730 to £1,055 per annum.

(Salaries are at present under review.)
Previous hospital experience is not necessary. Further particulars may be obtained from the Secretary, 43, Banbury Road, Oxford, and applications, quoting two referees, should be received not later than 18th March, 1960. 8564

LEEDS REGIONAL HOSPITAL BOARD
Applications are invited for the following appointments:—

- (a) SENIOR ASSISTANT ARCHITECTS—Salary Scale £1,050/£1,245 per annum. New entrants to the Service will commence at the minimum of the scale.
(b) ASSISTANT ARCHITECTS—Salary Scale £730/£1,055 per annum.
(c) ASSISTANT QUANTITY SURVEYOR—Salary Scale £730/£1,055 per annum.

The commencing salaries for posts (b) and (c) are dependent on relevant practical experience and may be at an incremental point above the minimum of the scale, provided that the additional increments given do not exceed the number of years by which the candidate's age exceeds 23.

- (d) ARCHITECTURAL ASSISTANTS—Salary Scale £545/£765 per annum.
(e) DRAUGHTSMAN (ARCHITECTURAL) —Salary Scale £425/£635 per annum.

The commencing salaries for posts (d) and (e) may be at an incremental point above the minimum of the scale relevant to each year of practical experience, provided that the additional increments given are not more than the number of years by which the officer's age exceeds 21 and the starting salary does not exceed £630.

All salary scales quoted are under review. Candidates should possess the following qualifications:—

- Appointments (a) and (b) Associate Members of the R.I.B.A., (c) Associate Member of the R.I.C.S., (d) Intermediate Examination of the R.I.B.A., (e) suitable training including not less than three years' drawing office experience.

The establishment of the Board's Architectural Staff is to be increased to meet the substantial increase in the Hospital Building Programme and the above architectural posts will provide young architects with opportunities to gain experience in the design and erection of good quality buildings.

The Board's offices are in pleasant surroundings and an excellent canteen is available on the premises.

Applications, stating age, qualifications and experience, together with names and addresses of two referees, to the Secretary, Park Parade, Harrogate, by 15th March, 1960. 8565

NORTH RIDING EDUCATION COMMITTEE

Applications invited for the post of ARCHITECTURAL ASSISTANT: salary N.J.C., A.P.T.I. £510 × £39—£765; commencing salary according to previous experience; Local Government Superannuation; canvassing disqualifies; closing date for completed applications 12th March, 1960.—Further particulars from F. Barracough, County Hall, Northallerton. 8471

**MIDLANDS ELECTRICITY BOARD
DRAUGHTSMAN** required in the Architectural and Constructional Section of the Engineer's Department of the Birmingham and District Sub-Area.

Duties will include assisting in the preparation of outline and working drawings for new buildings and alterations to existing buildings. Appropriate qualifications will be an advantage. Salary £620/£740 per annum, N.J.B. Schedule "D," Grade 6. Superannuable.

Apply, by letter, within 14 days, stating age, qualifications, experience, present position and salary to: Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.

F. W. CATER,

Secretary.

8586

**CITY OF SHEFFIELD
APPOINTMENT OF SENIOR GROUP LEADER
ARCHITECT (EDUCATION)**

SALARY SCALE—£1,215 × £60(2) × £55(2) to £1,445. Applications are invited for the above mentioned appointment on the permanent staff of the City Architect, Mr. J. L. Womersley, F.R.I.B.A., Dist. T.P., M.T.P.I.

The post ranks next to the Chief Assistant Architect and the successful candidate will be required to deputise for him as the occasion demands on Education work, in addition to taking charge of a group responsible for the design and supervision to completion of major works on new schools and colleges.

Temporary housing accommodation available and reasonable removal expenses paid.

Applications stating age, education and training, qualifications, experience, present and past appointments (with dates and salaries) and the names and addresses of two persons to whom reference may be made, should reach the undersigned by Wednesday, 9th March, 1960.

JOHN HEYS,

Town Clerk.

Town Hall,
Sheffield, 1.

18th February 1960.

8625

**CITY OF BIRMINGHAM
DEPUTY CITY ARCHITECT**

Applications are invited from suitably qualified Architects for the appointment of Deputy City Architect, at a salary of £2,870 per annum, rising by annual increments of £100 to a maximum of £3,370 per annum.

A memorandum giving details about the scope of the appointment and general conditions may be obtained from the undersigned.

Applications must be received by me not later than 18th March, 1960.

A. G. SHEPPARD FIDLER,

City Architect.

8584

CITY OF CANTERBURY
Applications are invited from persons who have passed the Final Examination of the R.I.B.A. for the appointment of an ASSISTANT ARCHITECT, Special Scale (£785—£1,070). Commencing salary according to qualifications and experience.

Applicants should have had good general experience and be capable of preparing accurate working drawings.

Housing accommodation available if required. Applications, together with the names of two referees, must reach the City Architect & Planning Officer, Mr. John L. Berbers, F.R.I.B.A., A.M.T.P.I., not later than Thursday, 10th March, 1960.

Canvassing will disqualify.

J. BOYLE,

Town Clerk.

Municipal Buildings,
Canterbury.

8569

**CITY COUNCIL OF NAIROBI
APPOINTMENT OF PLANNING ASSISTANTS,
GRADE I AND GRADE III
CITY VALUER'S DEPARTMENT**

Applications are invited for the following posts:—

PLANNING ASSISTANT, GRADE I

A permanent established post in the consolidated salary scale inclusive of overseas leave pay and passage privileges, £1,635 × £50 to £2,085 per annum. Applicants should be Associate Members of the Town Planning Institute or hold equivalent qualifications.

PLANNING ASSISTANT, GRADE III

A permanent non-established post in the consolidated salary scale inclusive of overseas leave pay and passage privileges, £1,354 × £50 to £1,484 × £50 to £1,684 per annum. Applicants should be over 21 years of age and have passed the Intermediate Examination of the Town Planning Institute or equivalent examination.

Preference will be given to applicants who have had experience in an office of a Local Planning Authority employed in the preparation of Development Plans.

The successful applicant must pass a medical examination.

A summary of main Terms of Service and application forms are available from the East Africa Office, Grand Buildings, Trafalgar Square, London, W.C.2, and applications should reach the Establishment Officer, P.O. Box 30037, Nairobi, KENYA, by 31st March, 1960.

Canvassing will be a disqualification.

HAROLD AYREY,

Town Clerk.

City Hall,

Nairobi, Kenya.

15th February, 1960.

8573

**GLOUCESTERSHIRE EDUCATION
COMMITTEE
GLOUCESTERSHIRE COLLEGE OF ART AT
CHELTENHAM AND STROUD**

Principal: R. S. G. Dent, RE, ARCA, RWA

Applications are invited for the post of STUDIO INSTRUCTOR on the Staff of the Cheltenham School of Architecture which is now housed in its new premises in the Pittville Pump Room. Applicants should have had some years of professional experience and should hold recognised qualifications. Salary in accordance with the Burnham Technical Scale Grade II £700 × £27/10/- to £1,150 p.a. Plus additions for appropriate training, qualifications, and teaching or office experience. Further information can be obtained from the Principal, Gloucestershire College of Art, St. Margarets Road, Cheltenham, to whom application forms must be returned by Thursday, 17th March, 1960. 8619

**MIDLANDS ELECTRICITY BOARD
SENIOR DRAUGHTSMAN (ARCHITECTURAL)** required at the Birmingham & District Sub-Area Headquarters.

A thorough technical training and practical experience in the design of and the preparation of complete working drawings for new buildings and alterations to existing buildings are essential. Appropriate qualifications desirable.

Salary within the range £620/£890 per annum (N.J.B. Schedule "D," Grades 6 or 5) according to qualifications and experience. Superannuable. Apply, by letter, within 14 days, stating age, experience, present position and salary to Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.

F. W. CATER,

Secretary.

11th February, 1960.

8587

**BOROUGH OF POOLE
APPOINTMENT OF ASSISTANT ARCHITECT,
SPECIAL GRADE (£785—£1,070)**

Applications are invited for the above appointment. Candidates should have passed the appropriate professional examinations. Starting salary will depend on age and experience.

This is an appointment to deal with a rapidly expanding capital programme, and the work will be interesting and varied, but experience in educational projects would be an advantage.

Application forms from the Borough Engineer, Municipal Buildings, Poole, to be returned to me by Friday, 11th March, 1960.

J. G. HILLIER,

Town Clerk.

8623

**METROPOLITAN BOROUGH OF HACKNEY
APPOINTMENT OF SENIOR ASSISTANT
ARCHITECT—GRADE A.P.T. V**

BOROUGH ENGINEER'S DEPARTMENT
Applications are invited for the above-mentioned appointment at a salary within Grade A.P.T. V (£1,220—£1,375 p.a.) plus London weighting allowance.

Candidates must be Associate Members of the R.I.B.A. with good architectural ability and experience in the preparation of design and specifications for housing schemes and other buildings.

Town Hall, Hackney, E.8, returnable by 9 a.m.
Application forms obtainable from Town Clerk, Monday, 14th March, 1960. 8557

**PADDINGTON BOROUGH COUNCIL
ASSISTANT ARCHITECT (£815 to £1,100)**

Starting salary according to qualifications and experience of the successful candidate, who should preferably be A.R.I.B.A., with experience in the design and supervision of building works of some magnitude and a knowledge of local authority requirements. Applications should state age, qualifications, present and past appointments with dates, names and addresses of three referees. Applications should reach me by 7th March, 1960 (quoting A.455).

W. H. BENTLEY,

Town Clerk.

Town Hall,
Paddington Green, W.2.

8590

ASSISTANT ARCHITECTS required with experience in design and construction of multi-storey housing, shops, garages, baths and wash houses, depots, etc.

Salary scales £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. 5-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, 14th March, 1960. 8613

TECHNICAL ASSISTANT (ESTATE) required in Surveying Department of London office. Applicants must be members of a recognised professional institute and have experience of the management of a large number of scattered properties of all types, but mainly industrial. A sound knowledge of property law, leases, dilapidations, valuations for purchase and rent, rating and office administration is required, with the ability to initiate action in such matters and to handle them with limited supervision. Salary £1,115—£1,220. Applications giving age, experience and qualifications to Divisional Manager (SV.109), British Road Services Limited, 238 City Road, London, E.C.1. 8615

UNIVERSITY OF EXETER

Applications are invited from persons with suitable training and experience for appointment as CLERK OF WORKS in the University (full-time permanent appointment). Further particulars from the Secretary of the University. Salary scale £850 x £50-£1,050 p.a. Superannuation Scheme. Closing date for applications, 5th March, 1960. 8692

Tenders Invited

36s. per inch; each additional line, 3s. including forwarding replies, 2s. extra.

BOROUGH OF MARGATE NEW LIBRARY, WESTGATE

TENDERS are invited for the erection of a new Public Library at Westgate. Form of Tender, Specification and Bills of Quantities may be obtained from the Borough Engineer, 38, Grosvenor Place, Margate at whose office plans may be inspected by appointment. Tenders, in the envelope provided, are to be delivered to the undersigned not later than 12 noon on Saturday, 19th March, 1960. The Council does not bind itself to accept the lowest or any tender.

T. F. SIDNELL,
Town Clerk.

Town Clerk,
40, Grosvenor Place,
Margate.
12th February, 1960. 8552

Architectural Appointments Vacant

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

ASSISTANT EDITORSHIP, ARCHITECTS' JOURNAL offers exceptional opportunity for initiative to a man deeply interested in architecture and planning able to contribute to editorial policy of a traditionally independent and outspoken Journal. Apply Executive Editor, The Architects' Journal, 9 Queen Anne's Gate, S.W.1. 8650

ASSISTANTS required for busy Architect's City office; Laboratory and Industrial projects. Intermediate standard or above. Apply to: Secretary, Fairclough and Morris, Temple Chambers, Temple Avenue, E.C.4. FLE. 6395. 8533

RONALD WARD & PARTNERS have immediate vacancies for **ASSISTANT ARCHITECTS** with initiative and some experience, for interesting commercial, industrial and civil projects. Salaries commensurate with ability. Apply, 39, Chesham Place, S.W.1. BELGRAVIA 3361. 8538

ARCHITECTURAL ASSISTANTS required for busy office with interesting and varied work. Intermediate and Final R.I.B.A. standard. Salary £750 to £950 p.a. Five-day week. Apply in writing or telephone Covell & Matthews, 34 Sackville Street, London, W.1. REGENT 2291. 8305

ARCHITECTURAL ASSISTANT (Senior Designer) required for busy office with interesting and varied work. Salary £1,200 p.a. Five-day week. Apply in writing or telephone Covell & Matthews, 34 Sackville Street, London, W.1. REGENT 2291. 8306

QUALIFIED ASSISTANT wanted in small office. Salary in region of £1,000 p.a. Stanley R. Nevell & Partners, Abbey 3971. 8502

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 (ROL. 4071). 8429

ARCHITECTURAL ASSISTANT required, with at least two years' office experience. Apply in writing to Thomas Mitchell & Partners, 30, Bedford Square, London, W.C.1. 7283

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

SEELY AND PAGET have an immediate vacancy in their City Office for an experienced and responsible ASSISTANT. Salary range £342 x £52(4)-£1,050. Write: 41, Cloth Fair, E.C.1. or Telephone: MET 8511. 8208

ARCHITECTURAL 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

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

ARGE 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.

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

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

KERN ARCHITECTURAL ASSISTANTS, Final and Intermediate Standards, with desire for responsibility wanted immediately. Only good draughtsmen welcome. Site experience available, as well as drawing office. 5-day week. Details to Felix Walter, F.R.I.B.A., 4 Raymond Buildings, Gray's Inn, W.C.1. or phone HOLBORN 0535. 8286

ARCHITECTURAL ASSISTANTS REQUIRED. Why travel to Town when I can offer TWO ASSISTANTS, Inter-Final grade, first class work on Stores, Office Buildings, Factories, Dance Halls, etc. Five-day week, bonus scheme, luncheon vouchers, use of cars on job visits and for summer holidays. Pleasant surroundings with easy access to Morden Underground and Southern Electric Merton Park Station. 146, Mostyn Road, S.W.19. Tel.: LIBERTY 8181. 8318

JUNIOR required in Staff Architect's Department of well known City firm. Salary £6 to £7 per week. Apply Box 8227.

ARCHITECTURAL ASSISTANTS required at our Poole and Bolton offices, salaries £500-£1,000 according to experience. Reply to W. Leslie Jones & Partners, 59 High Street, Great Missenden, Bucks. 8276

ARCHITECTURAL ASSISTANTS. Four Intermediate or similar standard architectural assistants, must be good draughtsmen mainly for industrial work with considerable practical experience, required immediately. Salary ranging from £750 to £900 p.a. plus Christmas and holiday bonuses. Write giving full particulars in the first instance to: Barnes, Challen & Cross, Architects and Engineers, 74, Gloucester Place, London, W.1. Tel.: WELBECK 0297. 8296

JOHN & SYLVIA REID require an assistant **ARCHITECT** aged between 25 and 35, with a good educational background and at least 3 to 4 years' office experience, who is capable of becoming Senior assistant. Must be keenly interested in Architecture and a wide variety of related design problems including caravans, furniture, domestic equipment, exhibitions, etc. Good prospects for someone who is conscientious and welcomes responsibility. Please reply in writing stating age and salary required to 88, Talbot Road, Highgate, N.6. 8288

ARCHITECTURAL ASSISTANTS required. A Probationer up to Intermediate R.I.B.A. level, or Students R.I.B.A. Facilities given for study design at London schools. Hare & Part, A.A.R.I.B.A., 29, Elm Street, Ipswich. 822

LEICESTER Progressive office requires interesting work. C. Edmund Wilford & Son, 2, Hastings Street, Leicester. 8221

ARCHITECTURAL ASSISTANTS required for City Office. Good Draughtsmen, previous office experience and sound knowledge of construction. Varied and interesting work. Apply stating age, experience and salary required to Box 8329.

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

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

ASSISTANTS required immediately. Intermediate to Final standard, with some office experience. Interesting positions giving plenty of scope for responsibility and contract supervision in West End Office. Tel. MAYfair 9556 or Box 8174.

ELIE MAYORCAS requires **SENIOR ASSISTANTS** with minimum of three years' office experience in this country. Write, giving particulars of architectural education and experience, and salary required, to: 13, David Mews, Baker Street, W.1. 8089

C. H. ELSON & PARTNERS require **ASSISTANTS** for work on theatres, laboratories, shops, stores and town centre redevelopment, etc. Apply to 10, Lower Grosvenor Place, S.W.1. VIC. 4304. 8114

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. (KTN. 0011). 8112

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. 7858

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

ARCHITECTURAL ASSISTANTS required to work in the Eastbourne area. Applicants should state age, experience and salary required. Box 8461.

ARCHITECTURAL ASSISTANTS required by Harker & Hall, L.F.R.I.B.A., for senior and intermediate positions in their offices in London and Warwickshire. Good salary, with scope for initiative and responsibility. Write to 13, Welbeck Street, W.1. or telephone WEL. 0061 or Knowle (Birmingham) 3502. 8474

ARCHITECTURAL ASSISTANTS required for practice in West End, for large interesting commercial projects. Preferably with inter R.I.B.A. or R.I.C.S., and some general office experience. Superannuation scheme and five day week. Salary according to experience. Write to Cotton, Ballard & Blow, 5, Baker Street, W.1. or telephone WELBECK 3364. 8240

RICHARD SHEPPARD, ROBSON & PARTNERS require **ARCHITECTURAL ASSISTANTS**, Intermediate or Final standard. 5 Southampton Place, W.C.1. CHANCERY 4261. 8289

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 TEL 1404 for appointment. 8585

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. 8584

£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 8505.

ARCHITECTURAL ASSISTANTS Due to the expansion of our Architects Department applications are invited for the above positions in the Birmingham Head Office of our large building organisation.

Candidates should be of Intermediate R.I.B.A. standard or equivalent and capable of producing half-inch and full size details with a minimum of supervision.

Salaries range up to £800 p.a.

Assistance in housing accommodation may be given in appropriate cases.

Apply in first instance giving brief particulars of experience and salary required to: Box 8507.

JUNIOR ARCHITECTURAL ASSISTANTS/ DRAUGHTSMEN required for Architects Department in large firm of Land Agents & Surveyors, at both Ipswich and Chelmsford. Five-day week, salary in range £400-£600. Interviews at Chelmsford and Ipswich, but apply in writing in first place to E. F. Logan, A.R.I.B.A., Staff Architect, Coval Hall, Chelmsford. 8387

SENIOR ARCHITECTURAL ASSISTANT required for industrial and London conversion work. Salary according to experience. Please write, stating qualifications, experience and age, to J. Kennedy-Hawkes, Chartered Architect, 27, Emperor's Gate, South Kensington, S.W.7. 8397

SENIOR ASSISTANTS required for varied work in our Norwich and Bury offices, capable of taking full responsibility and working on own initiative. Practical experience essential. Salary by arrangement according to experience and ability. Full details to: Piper, Whalley and Partners, A.R.I.C.S./A.R.I.B.A. Architects and Surveyors, 88, Thorpe Road, NORWICH 21766

BRONEK KATZ & R. VAUGHAN require a Senior and Junior ASSISTANT. REGENT 5401. 8390

FARMER AND DARK require experienced **ARCHITECTS**, all levels. Offices, Laboratories, Factories, Schools, etc. Apply in writing, stating salary required: Romney House, Tuford Street, S.W.1. 8391

COURTAULDS

ASSISTANT ARCHITECTS COURTAULDS has vacancies for School trained Architects in its Coventry and London Offices for interesting work with good prospects. Candidates should write for a detailed form of application to the Director of Personnel, Courtaulds Limited, 16, St. Martin's-in-the-Grand, London, E.C.1, quoting reference number B.54

SCHERRER & HICKS require qualified **ASSISTANTS** for interesting and varied work on schools and other projects with opportunities for taking responsibility. Salary according to age, length and type of experience. Reply in writing to 19, Cavendish Square, W.1. 8378

ARCHITECTURAL ASSISTANTS, Intermediate or above, required for interesting U.K. and Tropical work by London firm in new offices, pleasant surroundings, Wimbledon. No town travelling: five-day week. Write or telephone J. E. Harrison, Eagle House, High Street, Wimbledon, S.W.19. WIMBLEDON 4244/5

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TWO ARCHITECTURAL ASSISTANTS required, approximately Intermediate standard, in small central London practice. Varied work on office, commercial, hotel and school projects; also shopfronts and interiors. Opportunity for handling jobs from sketch design to completion including site visits. Salary range £600-£950 depending on age and experience. Write or phone: Michael R. Blampied & Partners, 63a, Great Russell Street, W.C.1. CHANCERY 7399. 8395

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. 8418

ARCHITECTS' Department in City requires an **ASSISTANT** of about Intermediate 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 8412.

ERNO GOLDFINGER requires **ASSISTANTS** with sound knowledge of construction. Expanding programme of work includes office buildings, schools, shops, factories, local authority and private housing. Local Authority Rates. Telephone: HYDE Park 5557. 8404

FULLY experienced **ASSISTANT ARCHITECT** required for interesting and varied work on School and general projects with opportunities for taking responsibility. Salary according to experience and ability. Write in detail to Harry W. Smith & Son, F/A.R.I.B.A., 29, George Street, Oxford. 8445

ASSISTANT, about Intermediate standard, a good draughtsman, required for enterprising young office. Norrish & Stainton, 2, Augustus Road, Edgbaston, Birmingham. Telephone EDGBASTON 1854. 8446

SERIOUSLY minded **ASSISTANT** wanted to work with no longer young but not yet fossilised Architect who believes in thoughtful design, thorough detailing, and individual responsibility. The office is small, the work varied and interesting. Salary offered commensurate with ability. Please telephone CENTRAL 5766 or write Box 8433.

LOUIS DE SOISSONS, PEACOCK, HODGES, & ROBERTSON & FRASER have vacancies for young qualified, and junior **ASSISTANTS** in their Exeter Office. Applications, giving details of experience, age and salary, should be sent to 3, Baring Crescent, Exeter. 8442

J. M. AUSTIN-SMITH & PARTNERS require qualified **ASSISTANTS** (maximum age 30) to be responsible for jobs both on their own and in conjunction with more senior assistants. Apply in writing, giving all relevant details to 8, Sackville Street, London, W.1. 8429

EXPERIENCED ARCHITECTURAL ASSISTANT required by Architects whose practice is concerned mainly with multi-storey flats and housing estates. Write giving details of experience to Kenneth Parker & Associates, 4, Liverpool Terrace, Worthing, Sussex. 8426

SENIOR ASSISTANT with good practical experience required for domestic and general work in small office. Able to take charge of jobs and work on own initiative. Fred Greenwood, F.R.I.B.A., 18, The Green, Richmond, Surrey, S.W.1. 8425

ARCHITECTURAL ASSISTANTS required. Up to Intermediate standard. Salary £600-£700 per annum. Five-day week. Write giving full particulars of experience, to Johns, Slater and Haward, F/A.R.I.B.A., 32, Foundation Street, Ipswich. 8423

RAGLAN SQUIRE & PARTNERS require Intermediate/Final **ARCHITECTURAL ASSISTANTS** for projects home and overseas. Please write, stating age, experience and salary required, to 3, Hobart Place, S.W.1. 8424

ROBERT MATTHEW & JOHNSON, & MARSHALL have vacancies in their Edinburgh and Dundee offices for **ASSISTANTS** at salaries from £800 upwards; wide variety of University, Hospital and Housing projects. Applications should be marked "Confidential" and addressed to 31, Regent Terrace, Edinburgh 7. 8492

CROYDON. Experienced and competent **SENIOR ARCHITECTURAL ASSISTANT** required. Write stating fullest particulars of experience to Graham Crump & Denis Crump, F/A.R.I.B.A., 4, George Street, Croydon. 8500

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. 8501

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. 8378

VACANCIES exist for **ASSISTANTS** of Preliminary to Final Grades. Salary Range £600-£900 per annum. Interesting work and good prospects. Apply in writing to: H. Hubbard & Lloyd, F.R.I.B.A., 35 South Audley Street, London, W.1. 8498

TWO ARCHITECTURAL ASSISTANTS required, Intermediate R.I.B.A. standard, who have had good office experience. Salary £600-£800 according to experience. Reply giving particulars of age and experience and salary required to: Francis W. Keyworth, L.R.I.B.A., 20, Park Road, Melton Mowbray and 31, Friar Lane, Leicester. 8400

ASSISTANTS, all grades, from Intermediate to young Senior wanted. Generous profit sharing bonus in addition to appropriate salary. We want Assistants interested in congenial working atmosphere, good design and active work on industrial, school, hospital, hotel, etc., projects. In writing, Bernard Taylor & Associates, 16, Kennedy Street, Manchester, 2. 8476

ARCHITECTURAL ASSISTANTS required for varied and interesting work. Must have sound knowledge of construction and be good draughtsmen. Medium-sized office with congenial atmosphere. Five-day week and luncheon vouchers. Salary according to age, experience and ability. Phone TEMPLE Bar 3785 for interview. 8477

SENIOR and JUNIOR ASSISTANTS required in small West End Office. Interesting and varied work. Good salaries according to ability, age and experience. Candidates should have a sound knowledge of construction and design. Write or telephone for an appointment to J. D. Shearer, A.R.I.B.A., 13-14, Golden Square, London, W.1. REG. 6545. 8479

ARCHITECTURAL ASSISTANTS REQUIRED NOW!! Please write with details of experience and salary to Michael Lyell, A.R.I.B.A., 16, Yeoman's Row, London, S.W.3. 8484

ARCHITECTURAL ASSISTANT (Intermediate standard) required, capable of making site surveys, preparing sketch plans, working drawings and specifications. Please apply, stating age, experience and salary required, to R. E. AKERMAN, F.R.I.B.A., Chief Architect, United Dairies Ltd., 31, St. Petersburg Place, W.2. 8489

ARCHITECTURAL ASSISTANT required at Final standard for interesting and varied work in small office. Write, giving qualifications and experience to: T. A. Bird & R. M. T. Tyler, 13, Welbeck Street, W.1. 8450

PERSONAL Intermediate **ASSISTANT** required for Architect in Holland Park. Office is a private residence. Salary by arrangement. PAR. 7042. 8452

ARCHITECTURAL ASSISTANT, Intermediate standard, required for West End office of Consulting Engineers and Architects. Starting salary £500 to £750 p.a. according to experience. Telephone Secretary, HYDE Park 2051 for appointment. 8453

ARCHITECTS. Two qualified energetic **ASSISTANTS** required. Good salary, excellent prospects. Progressive West End Office. Full particulars to Box 8455. 8455

SOUTHAMPTON Office requires Senior and Junior **ASSISTANTS** for mixed practice, commercial, industrial and hospital work. Write in first instance to E. M. Galloway & Partners, F/A.R.I.B.A., 10, Portland Street, Southampton. 8457

URGENTLY required—A young **ARCHITECT** or **ASSISTANT** near Final stage wishing to gain real and intimate experience before qualifying for his own practice is offered an interesting post in a pleasant office in the West Midlands. Contemporary outlook, young staff. Full particulars in confidence to Box 8458.

MORRISON & PARTNERS require a further **ASSISTANT** in their Sheffield office. Applicants should preferably be qualified with some experience and a keen interest in design. Starting salary probably about £900 per annum, but will vary according to ability. Apply to: 15, Northumberland Road, Sheffield, 10. 8361

LOUIS DE SOISSONS, PEACOCK, HODGES, & ROBERTSON have immediate vacancies in their London office for **Senior ASSISTANTS**. Write stating age, salary and experience, to the above at: 3, Park Square Mews, Upper Harley Street, N.W.1. 8369

REIGATE. Senior and Junior **ASSISTANTS** required. Senior post is opportunity for young man with some experience to take charge of small but rapidly expanding office. Work is varied and prospects excellent for the right man. Apply by letter only to J. R. Stammers, Alders Road Reigate. 8375

SENIOR ARCHITECTURAL ASSISTANTS required in salary range £700-£1,000 to take control of varied and interesting jobs of all sizes. Experience in colour and design of interiors and fittings and good presentation draughtsmanship an advantage. Five-day week, excellent working conditions and holidays. Please write, giving full details of experience and qualifications, to Deacon & Laing, 65, Goldingford Road, Bedford. 8376

ASSISTANT required by City Architects. Final standard. Ability in design and able to work on own initiative. Varied practice, five-day week. Office also at Lougham, Essex. AVENUE 5629. 8378

JUNIOR ASSISTANT required for busy practice. Interesting and varied buildings, design and detail drawings in all stages. Five-day week. Holiday arrangements honoured. Shaw & Lloyd, 74, Great Russell Street, Bloomsbury Square, W.C.1. MUSUM 9653. 8334

CO-OPERATIVE WHOLESALE SOCIETY LTD. **ARCHITECTS' DEPARTMENT, MANCHESTER** **ASSISTANTS** of Final and Intermediate standard required on a variety of interesting commercial and industrial projects. Commencing salaries within the range of £700-£1,150 with good prospects of advancement. The posts are pensionable. Five-day week. Three weeks holiday.

Application, stating age, experience, qualifications and salary required, to G. S. Hay, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 8377

DENYS LASDUN & PARTNERS require **ASSISTANT ARCHITECTS**. Applicants please state age, training and experience to 3, Albany Terrace, N.W.1, or ring HUN. 1822. 8382

MONRO AND PARTNERS require **ARCHITECTURAL ASSISTANTS** of Intermediate, Final R.I.B.A. standard in their London, Watford, and Glasgow offices for work on interesting industrial and commercial projects. Salary range £800-£1,000 p.a. Non-contributory Pension scheme. Five-day week. Apply in writing to 32, Clarendon Road, Watford. 8609

SENIOR ASSISTANT urgently required for pleasant office in Gray's Inn. Interesting and varied practice. Salary up to £1,100. Telephone CHANCERY 8387. 8335

BERNARD H. DALE & PARTNERS require **ARCHITECTURAL ASSISTANTS** at their Southampton offices. Please apply to 19, Carlton Crescent, Southampton, stating experience and salary required. 8344

ARCHITECTURAL ASSISTANT, about Intermediate standard, required for general practice in North Devon Office. Pension scheme. Box 8124.

LONDON ARCHITECTS' OFFICE requires **ARCHITECT** for University work. Candidates must be well above average, with 5 to 7 years responsible experience. Salary about £1,200. Telephone WHI. 2552 for interview or apply in writing to Box 8175.

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.

WORCESTERSHIRE. Required immediately in busy office, **SENIOR** and/or **JUNIOR ASSISTANTS**. Must be good draughtsmen with keen sense and appreciation of design. Programme of varied and interesting work in pleasant surroundings. Pemberton & Bateman, F/A.R.I.B.A., 21, Vine Street, Evesham. 8212

ARMSTRONG & MACMANUS would welcome applications from progressive **ASSISTANTS** requiring interesting work in smaller office. Please write 28, Gloucester Place, W.1, or telephone WELBECK 2273 for appointment. 8310

MUNBY SMITH & HAMPTON, Chartered Architects, 46a, Kings Road, Chelsea, S.W.3, require **ASSISTANTS** with office experience. Salaries £750-£1,000. Wide variety of work. KEN 6221. 8594

ARCHITECTURAL ASSISTANTS with initiative and capable of working with a minimum supervision required. Salary by arrangement. In the range of £1,000-£1,500 p.a. Tel. P. G. Frome, A.R.I.B.A. MON 0237. 8595

FRY, DREW & PARTNERS require qualified, experienced staff for work in England, West Africa and elsewhere. Reply, giving qualifications, experience, etc., to 63, Gloucester Place, W.1. 8596

TWO young partners with very busy and varied expanding practice, urgently require an **ASSISTANT ARCHITECT** accustomed to responsibility and with real design ability. Write giving full details of experience, qualifications, age and salary required. All letters answered. Silvertown & Welton, A.A.R.I.B.A., Dip.Arch., 36, Weston Road, Southend-on-Sea, Essex. 8597

NORTH LONDON. Established practice requires **ASSISTANT R.I.B.A.** Intermediate standard. Principally industrial and commercial work. Five-day week. Please send full particulars and salary required to Box 8599 or telephone PAL 1186/7.

ARCHITECTURAL ASSISTANTS, male or female, required. Intermediate standard. Wide variety of work on drawing board and on site. Offices, factory and domestic work. Five-day week. Salary approximately £900 according to age and experience. Phone WHI 5833 Ex. 50 for appointment. 8600

ARCHITECTURAL ASSISTANTS up to Final standard required immediately for varied and interesting domestic, commercial and industrial work. John Mowlem & Co. Ltd., 91, Ebury Bridge Road, S.W.1. 8601

ARCHITECTS, London Office, have vacancies for a number of competent **ARCHITECTURAL ASSISTANTS**. Excellent opportunity for men with drive. L.V.s., five-day week and pension scheme. Phone LON 7282. 8604

ARCHITECTURAL ASSISTANT required for busy West End office. Salary according to age and experience. Apply to Maurice Sanders, F.R.I.B.A., 24, Harley Street, W.1. 8606

H. T. CADBURY-BROWN requires qualified **ASSISTANT**, with some experience, to take charge of job. Salary £1,200. Telephone MAYfair 6296 or write to 17, Clarges Street, W.1. 8608

EXCELLENT opportunity for a senior top line ARCHITECT who would like to be associated with three of the largest architectural projects in the country giving opportunity for designing almost every type of building. Accommodation provided in Georgian house in Edgbaston. Apply John H. D. Madin, A.R.I.B.A., Chartered Architect, 83/85, Hagley Road, Edgbaston, Birmingham. 8634

ASSISTANT, with enthusiasm for modern design, required by small congenial private practice. Opportunity to run own jobs. Commencing salary about £700, according to experience. Challen & Floyd, 7, Cromwell Road, S.W.7. KEN 8334 and 8549. 8610

ARCHITECTURAL ASSISTANT, Intermediate to Final standard, required for office in Wolverhampton. Apply: Norman & Dawbarn, 7, Portland Place, London, W.1. 8614

EXPERIENCED ASSISTANT, R.I.B.A. Intermediate standard, for varied work, including Domestic and Industrial, in Plymouth Office. Salary from £550-£700 according to experience. Reply with full details, including salary required to Box 8617.

GRENFELL BAINES & HARGREAVES require ASSISTANTS in their Manchester Office for a variety of interesting work. Salaries from £800 to £1,500 according to experience and ability. Five-day week, salary reviewed annually, overtime paid in cash or in additional leave. Apply D. C. Cobb, Associate Partner, 423, Oxford Road, Manchester. 8618

OPPORTUNITY in small office for the right man. Could begin with evenings and weekend assistance on working drawings and details, leading to full time as soon as possible, with opportunities for advancement. Age, say 25-30, good draughtsman; Intermediate or Final standard. Mainly industrial projects. Albert E. Barnard, F.R.I.B.A., Abbey House, Victoria Street, S.W.1, or phone RIVERSIDE 6355 evenings. 8626

ARE you an idealist-realist looking for opportunities with a young expanding firm where integrity and potential are valued? Telephone or write to D. J. McLennan and Partners, 12-15, Great Turnstile, W.C.1. HOL 7332. 8627

ARCHITECTURAL ASSISTANT required:

NATIONAL firm of Building and Civil Engineering Contractors require an ARCHITECTURAL ASSISTANT in connection with their housing development schemes.

Applicants must be capable of designing houses and bungalows with the minimum of supervision and produce all necessary relative drawings. A sound knowledge of building construction is essential.

The post is permanent and progressive and a pension scheme is in operation. Commencing salary between £750 and £900 p.a. plus half-yearly bonus.

Apply Box No. DL 4523, c/o Whites, 72 Fleet Street, London, E.C.4. 8567

ARCHITECTURAL ASSISTANTS required in a new and expanding Architects Department on developments work for housing, multi-storey flats and shop design.

Applicants should have a sound knowledge of construction and be able to prepare working details. Salary will be commensurate with ability and experience.

Enthusiasm will be duly rewarded.

Applicants should apply giving full details to:-

The Chief Architect,
A. J. Wait & Co. Ltd.,
Wellington Crescent,
New Malden, Surrey. 8634

MAX LOCK & PARTNERS require ARCHITECT, Final Standard, with practical experience, for their Bedford Office, 5-day week. Apply in writing to G. W. Kinz, 5a Harpur Street, Bedford. 8633

DEVEREUX & DAVIES require capable and enthusiastic ARCHITECTURAL ASSISTANTS salary £750 per annum or according to experience and ability. 3 Gower St., Bedford Sq., London, W.C.1. 8628

DEVEREUX & DAVIES require capable and enthusiastic ASSISTANT ARCHITECTS salary £1,000 per annum or according to experience and ability. 3, Gower St., Bedford Sq., London, W.C.1. 8629

ARCHITECTS, Sydney Greenwood, A.R.I.B.A., Chief Architect, John Laing and Son Limited, requires ASSISTANT ARCHITECTS and ARCHITECTURAL ASSISTANTS in all grades to work on a wide range of projects in an office that is continually expanding. Salaries will be commensurate with experience. ASSISTANT ARCHITECTS should be Associates R.I.B.A. with some experience in one or more of the types of project listed below. ARCHITECTURAL ASSISTANTS should be of Intermediate standard or equivalent. Projects in hand include: Major Commercial developments; Industrial projects including factories, laboratories, etc.; Multi-storey dwellings; Schools; Housing; Proprietary systems. The office offers opportunity for advancement and for close collaboration with all other branches of the building industry. Applicants should apply in the first instance to Personnel Manager (A.A.I.B.), John Laing and Son Limited, Building and Civil Engineering Contractors, London, N.W.7. 8551

ARCHITECTS' CO-PARTNERSHIP requires an ASSISTANT for responsible position in connection with design and building of important university Research Laboratory. Write to 44, Charlotte St. or 'Phone LAB. 591. 8635

ARCHITECTURAL ASSISTANTS urgently required in small but expanding Architectural Department of building and Civil Engineering Contractors. Offices S.W.1. Salary £700-£1,000 according to experience. Brief details to Box 8636.

BICESTER Architects require experienced ASSISTANT for industrial and commercial work, able to drive an advantage but not essential. Salary according to experience, minimum £800. Box 8554.

ARCHITECTURAL ASSISTANT required, Intermediate standard. Salary £600-£800 per annum according to experience. Apply: Ian Fraser & Associates, Chartered Architects, 30-31, Barton Arcade, Manchester, 3. Telephone: Deansgate 4233. 8519

ARCHITECTURAL ASSISTANTS up to Final standard required immediately for varied and interesting domestic, commercial and industrial work. John Mowlem & Co. Ltd., 91, Ebury Bridge Road, London, S.W.1. 8518

ASSISTANT ARCHITECTS with some experience wanted in expanding office for interesting and varied work including Universities, Offices, Hospitals and Multi-storey Flats. Five-day week. (Within easy access of sailing, climbing and ski-ing.) Salary from £1,100 dependent on experience. Apply in writing to Basil Spence & Partners, 40, Moray Place, Edinburgh, 3. 8517

STAFF DESIGNER requires young and enthusiastic ASSISTANT of Intermediate R.I.B.A. standard to assist in development of shops and factories, etc. Five-day week, bonus. L.V.s Write to: G. K. Deighton, Radio Rentals Ltd., 70, Wigmore Street, W.1. 8516

GOLLINS, MELVIN, WARD & PARTNERS require a SENIOR ARCHITECTURAL ASSISTANT for their Sheffield Office. Write: 281, Glossop Road, Sheffield 10, or telephone Sheffield 29922 for an appointment. 8515

J. W. BEAUMONT & SONS, 51, Mosley Street, Manchester, 2, have a vacancy for a SENIOR ARCHITECTURAL ASSISTANT. Salary £1,000 per annum. Please apply in writing giving details of experience and qualifications. Pension scheme in operation. 8514

ARCHITECTURAL ASSISTANTS, Intermediate or Final standard, required by Borys, Rigby Childs & Glover. Interesting tropical work. Salary £750 to £1,000, according to experience. 6, Welbeck Street, W.1. Tel.: WELBECK 1681. 8512

HEAL & SON have vacancy for STAFF ARCHITECT, full responsibility for own work. Interest in Interior Design essential. Reconstructions of houses, offices, showrooms, etc. Write to Design Director, 196, Tottenham Court Road, W.1. 8510

SENIOR ASSISTANT ARCHITECT required by Wates Ltd. for housing and commercial work. Commencing salary up to £1,150-£1,200 per annum, according to qualifications. Scope for responsibility and progress. Intermediate Grade ARCHITECTURAL ASSISTANTS also required at a commencing salary of approximately £750 per annum. All appointments are permanent and superannuable, 5-day week, generous profit-sharing bonus scheme after short period. Write, stating age, experience and present salary to: Personnel Manager, 1260, London Road, Norbury, S.W.16. 8632

MARKET RESEARCH. A large company in Manchester manufacturing materials for the building industry has a vacancy in its Market Research Department for a SENIOR ASSISTANT. Applications are invited from men with architectural and sales experience and a recognised professional qualification would be an additional advantage. A sound knowledge of building principles is required and the ability to lecture on building subjects. The commencing salary will be attractive and conditions of service are very good. Apply giving details of age, education, qualifications, experience and present salary to the Chief Personnel Manager. Box 8622.

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, Hammer-smith Grove, London, W.6. 8612

ASSISTANTS required in London Architects' office. Varied and progressive work includes large scale housing development. Previous office experience essential. Five-day week. Box 8556.

ARCHITECTURAL ASSISTANT required for approximately six months with the possibility of a permanent position if desired. Banks, 5, London Road, Bicester, Oxfordshire. Phone Bicester 308. 8559

ARCHITECTURAL ASSISTANTS required in small London office, Final or Intermediate standard. Varied work. Write experience and salary required to Box 8560.

QUALIFIED ARCHITECTURAL ASSISTANT, preferably with London experience, required for moderate sized practice. Age 25-35. Competent to handle contracts on own initiative. Salary £960 or by arrangement according to merit. Box 8562.

NEW ZEALAND major Architectural Practice, chiefly engaged Commercial and Bank work, requires: (a) ASSISTANT ARCHITECT, with A.R.I.B.A., plus subsequent experience, salary range £1,050-£1,200; and (b) ARCHITECTURAL ASSISTANT of approximately R.I.B.A. Intermediate standard, with about six years' sound training, range £800-£900. Capability govern rate applicable, commencing salaries subject six monthly increase according to progress. Good opportunity enterprising capable men, either single or married considered, housing prospects for latter, three years assured engagement, apply passage paid subject minor conditions. Apply Airmail with snapshot, personal and experience details, small recent eighth working drawing, to Mitchell & Mitchell and Partners, P.O. Box 187, Wellington, New Zealand. 8520

ARCHITECTURAL ASSISTANTS required in expanding Architect's office in following professional grades: Grade IV, £800-£1,000 per annum; Grade V, £1,000-£1,200 per annum. In deal with local authority housing, commercial and industrial contracts, agricultural development etc. Applicants in grade IV and V to be mentee to initiate and run own contracts. Apply stating age and full details of experience to A. Roscoe-Hudson, A.R.I.B.A., 14, Market Place, Faringdon, Berks. 8529

ARCHITECTURAL ASSISTANTS AND DRAUGHTSMEN with initiative required for interesting and varied work on new Power and Pump Houses and Industrial buildings. Architectural Assistants should be of Intermediate standard and capable of preparing working drawings and specifications with minimum supervision. Draughtsmen should have a good training in modern building construction and have had at least four years' experience in an architect's office. Pension scheme, five-day week. Luncheon vouchers. Apply with full particulars to J. D. & D. M. Watson, 67, Tuford Street, Westminster, S.W.1. 854

LEWELLYN SMITH & WATERS require experienced ASSISTANTS to work on an interesting and varied programme of large and small projects. Salary according to ability in the range £800-£1,200 in return for a sound knowledge of construction and an interest in good draughtsmanship. L.V. Pension Scheme. Please apply with details of previous experience to 103, Old Brompton Road, S.W.7. Also vacancy in Worcester Office for experienced Assistants of R.I.B.A. Intermediate standard. Apply to 33, Foregate Street, Worcester. 8528

ARCHITECTURAL ASSISTANT, Intermediate standard, required for small busy office, variety of work, salary up to £750, dependent on experience. Apply: John L. M. Williams, L.R.I.B.A., 66, Station Buildings, Altrincham, Cheshire, Tel. 5006. 8540

£1,500 P.A. with future prospects offered to qualified ARCHITECT with five years' experience in London developments to join practice near Hyde Park Corner. Box 8547.

COMPETENCE essential. Qualifications second class. ASSISTANT capable of supervising small contracts in varied practice. Levitt, Commerce House, Biggleswade, Beds. 8546

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS required. Bridgewater, Somerset. Write Box 8545.

SENIOR ARCHITECTURAL ASSISTANT required in busy practice with interesting and varied projects in hand. Five-day week. Salary £800-£1,000. Graham Crump & Denis Crump, F.A.R.I.B.A., 43, George Street, Croydon. 8544

ARCHITECTURAL ASSISTANTS required in Croydon office. Intermediate standard with several years' office experience. Interesting and varied work. Salary £600-£800 according to abilities. Five-day week. Graham Crump & Denis Crump, F.A.R.I.B.A., 43, George Street. 8543

QUALIFIED ASSISTANT ARCHITECT required for the preparation of working drawings for interesting civic projects. Write giving details of experience and salary required to Robert Potter and Richard Hare, F.A.R.I.B.A., De Vaux House, Salisbury. 8542

CHARLES PIKE & PARTNERS require experienced ASSISTANTS. Salary according to ability. Phone HOL 3532 for appointment, or write 14, Lincoln's Inn Fields, W.C.2. 8541

TWO experienced ARCHITECTS urgently required to work on Hospital and Town Centre Projects. Salary up to £1,200. Write full particulars. Box 8539.

WEIGHTMAN & BULEN require an experienced SENIOR ARCHITECT to handle large school projects from sketch design to completion. Opportunity for responsible individuals to exercise initiative in progressive atmosphere. Starting salary £1,200 or more for above average ability, bonus and pension scheme. 5-day week. Send full particulars in confidence to 76, Rodney Street, Liverpool. 8537

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GOTCH AND PARTNERS, Architects of London and Brighton, require ASSISTANTS of intermediate standard. Salary according to ability and experience. Five-day week. Write or telephone for appointment: 8, City Road, London, E.C.2. Monarch 3630. 8538

BRIAN & NORMAN WESTWOOD & PARTNERS urgently require a SENIOR ASSISTANT for work on a wide variety of projects. Please write to 21, Suffolk Street, S.W.1. 8533

BRIGHTON, ARCHITECTURAL ASSISTANT required immediately for small busy practice, with sound knowledge of construction and used to domestic development. Good salary and prospects. Box 8526.

ARCHITECTURAL ASSISTANT required for university laboratories and other buildings. Good draughtsman with thorough knowledge of building construction and some office experience. Reply giving details of experience and salary desired to Caroe & Partners, 16, Great College Street, Westminster. 8525

MEDIUM sized Architects office in Victoria area with young and energetic staff require a SENIOR and JUNIOR ASSISTANT. Salary approximately £1,100-£600 respectively, two weeks' holiday, 5-day week. Annual bonus. Varied and interesting work includes shops, offices, factories, etc. Tel. SLOane 0833. 8524

RALPH TUBBS, 46, Queen Anne Street, W.1, requires qualified ASSISTANT ARCHITECTS with both imagination and experience. Please apply by letter with brief particulars. 8523

E. NORMAN-BAILEY & PARTNERS urgently require ARCHITECTURAL ASSISTANTS for large scale schemes. Intermediate and Final standard. Salaries according to qualifications and experience. Ring VIC 7088 for appointment. 8522

ASSISTANTS required for established West End practice. Intermediate to Final Standard. Three weeks' holiday. Salary according to experience. Sutcliffe, Taylor & Partners, Wel. 9237. 8521

HAMPTON COURT, Kenneth Wood requires ASSISTANT, post intermediate standard, able to run contracts and take some responsibility in developing and varied practice. Write details to Merton House, Vine Road, East Molesey, Surrey. 8520

ARCHITECTS' Department, Schweppe's Group, require ASSISTANTS, five years' experience, of intermediate to Final standard, to work in new offices on factory extensions, new depots, offices and canteens. Assistant will be required to undertake full administration of contracts. Survey knowledge is an advantage. Salary by arrangement, canteen facilities available. Please telephone AMB 1212, Extension 326, or write to the architect, Schweppe's Limited, 50, Eastbourne Terrace, Paddington W.2. 8563

VINCENT BURR AND PARTNERS urgently require another ARCHITECTURAL ASSISTANT of not less than intermediate standard. Great scope for future promotion. Large and varied practice. Salary according to experience. Apply by letter only to 85, Gower Street, London, W.C.1. 8568

SENIOR ARCHITECTURAL ASSISTANT, qualified or up to Final standard, required for busy all-round practice in Manchester. Salary £1,850 to £1,250 according to experience and qualifications. Superannuation scheme. Box 8571.

TWO JUNIOR ARCHITECTURAL ASSISTANTS required for busy general practice. Five-day week. Consideration given to assistants wishing to continue part-time architectural study. Good prospects for right persons. Salary by arrangement. Write stating age and experience to Richardson, Son & Knowles, A.A.R.B., 27, High Street, Rickmansworth, Herts. (Tel. Rickmansworth 3143). 8572

ARCHITECTURAL ASSISTANTS of intermediate standard required in London office of Architects with large and varied practice. Comfortable working conditions. Five-day week. Box 8577.

ARCHITECTURAL ASSISTANT, alert and with initiative, required for central Edinburgh office. Salary £700-£900. Interesting work of very varied nature. Four-roomed flat available if desired. Box 8579.

GRAVESEND and Rochester—Opportunity in expanding Offices. MALE or FEMALE ASSISTANTS required on wide variety of work. Pension Scheme. Salary up to £1,000 p.a. Evening interviews if required. Write or phone: George B. Clay & Partners, A.A.R.B., 299, Parrock Street, Gravesend. Tel.: Gravesend 1401/2. 8583

HARRY S. FAIRHURST & SON have a vacancy in their Manchester office for a SENIOR ARCHITECT. Applicants must be qualified. Remuneration from £1,500 to £2,000 a year depending on experience and ability. Work in progress includes academic, scientific, commercial and industrial projects. Please write, giving details of training and experience, to 55, Brown Street, Manchester 2. 8593

Architectural Appointment Wanted
per line; minimum 12s. Box Number, including forwarding replies 2s. extra.

PART-TIME employment in London seeks Architect from the Continent (38). 9 years' experience in this country, car owner. Please write Box 8320.

LOCUM Architect with 11 years' post-graduate office experience, mainly private practice, will 'keep an eye on things' for 3 weeks in Southern England to allow principal to take holiday. Exchange details Box 8491.

Other Appointments Vacant

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

DESIGNER wanted with some Architectural knowledge and minimum two years' practical experience. Must be able to prepare perspectives high class interiors. Portman Square. Salary up to £750 plus travel facilities. Opportunities for advancement. Apply Box 8456.

ARCHITECTURAL MODEL MAKER. A superlative craftsman who can quickly make mock-up models as an aid to design, as well as highly finished models for display is required for the Edinburgh office of Robert Matthew & Johnson-Marshall. A keen and talented man will be able to make for himself a position of importance and can look forward to an excellent salary and conditions. Written applications to 31, Regent Terrace, Edinburgh, 7. 8350

SENIOR and JUNIOR ARCHITECTURAL DRAUGHTSMEN required for work in connection with the preparation of Housing Development and Flat Schemes. Varied and interesting work. Permanent and progressive position. Pension and Luncheon Voucher Schemes. Salary according to ability and experience. Write or phone: Percy Bilton Ltd., Bilton House, 54/55, Uxbridge Road, Ealing, W.5. Telephone EALING 7777. 8128

SENIOR and JUNIOR DRAUGHTSMEN and **ARCHITECTURAL ASSISTANTS** required in the department of a multiple retail organization. The work involves travelling, surveys, & in. and 1/2 in. working details. A good standard of draughtsmanship is essential, with some perspective experience desirable for the senior posts. Please reply to Box 7961, stating age, experience, and salary required.

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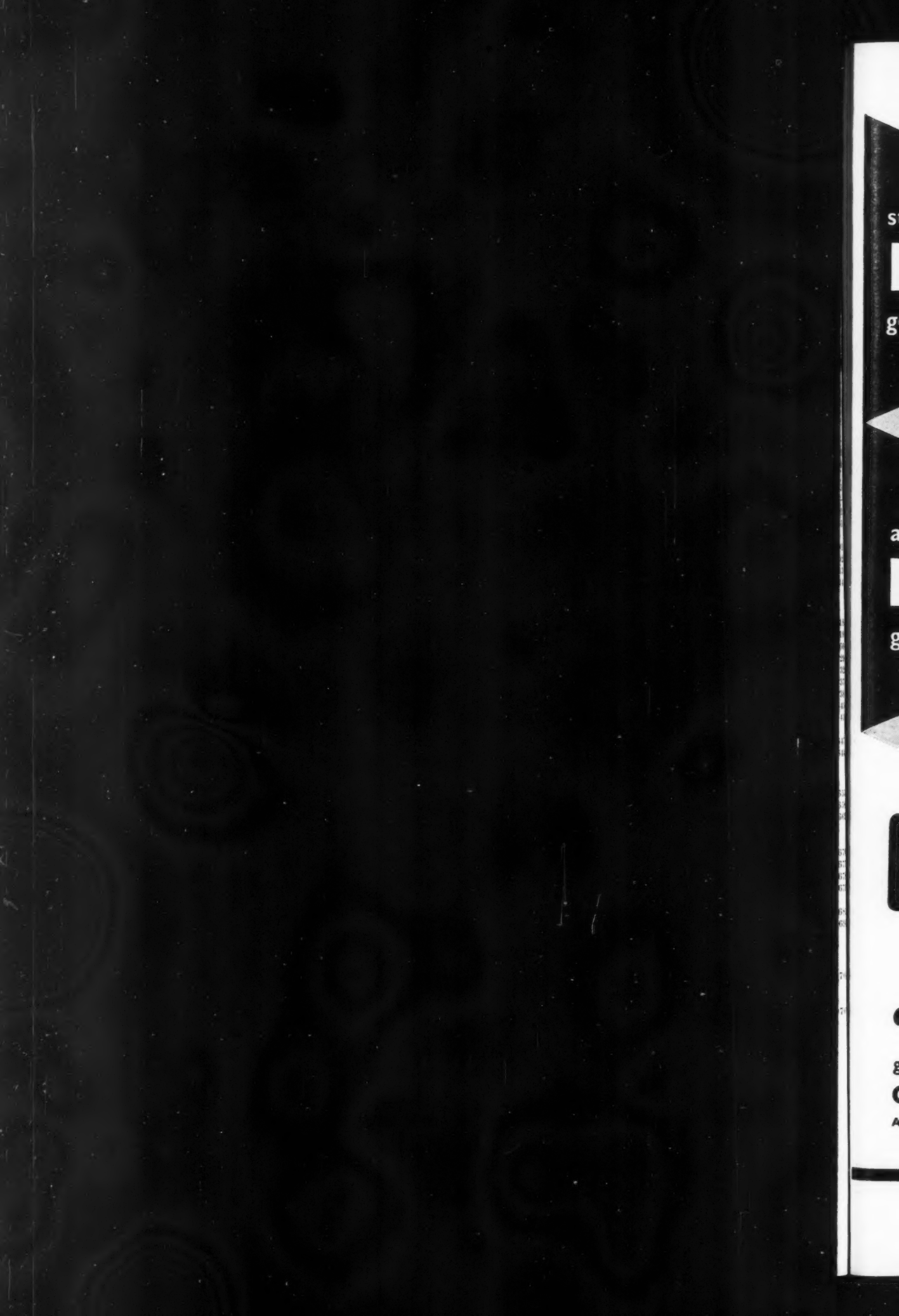
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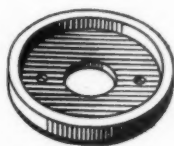
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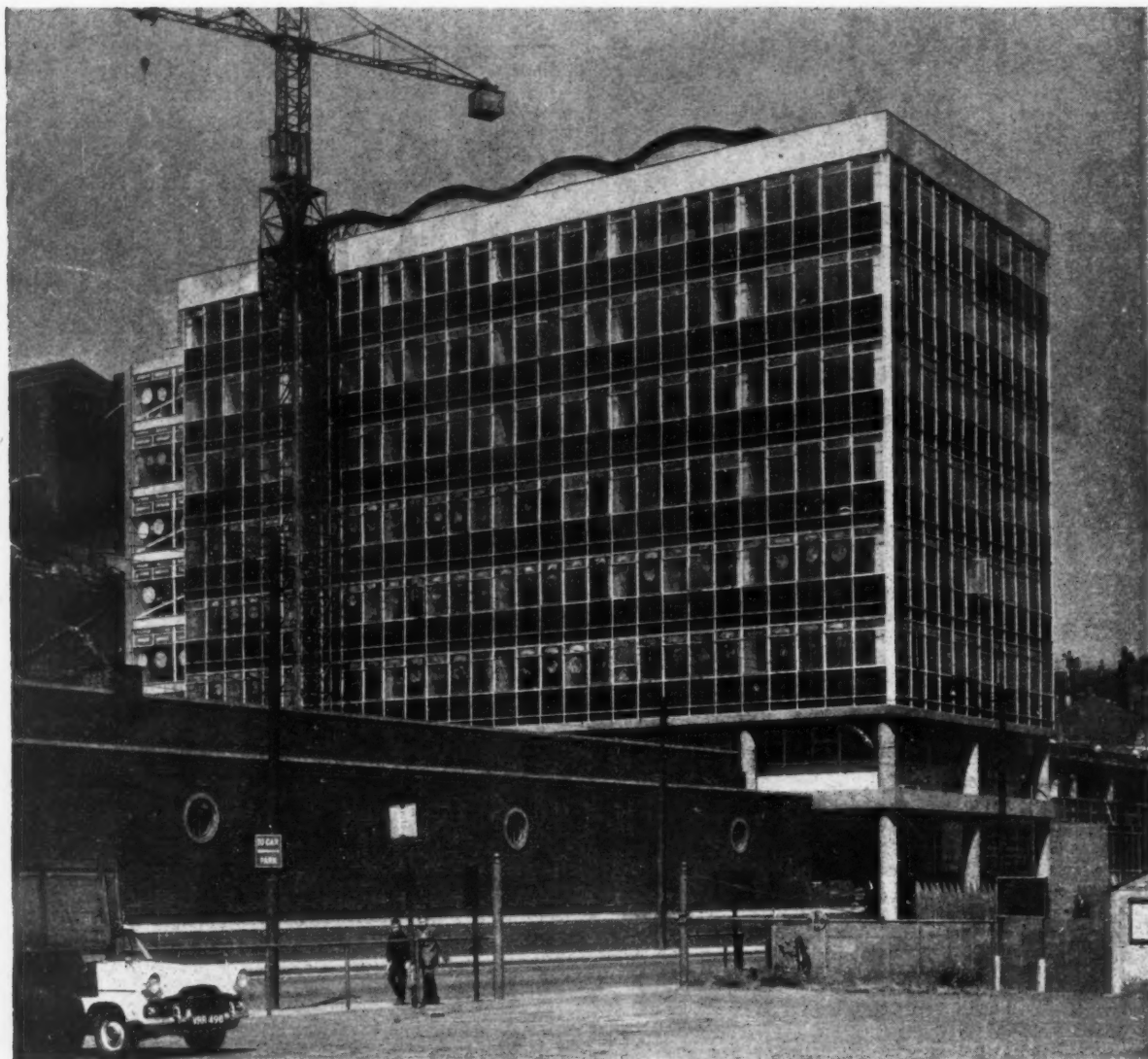
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