

# THE ARCHITECTS' JOURNAL



## standard contents

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

## NEWS and COMMENT

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

## TECHNICAL SECTION

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

## CURRENT BUILDING

*Major Buildings described:*  
*Details of Planning, Construction, Finishes and Costs*  
*Buildings in the News*  
*Building Costs Analysed*  
*Architectural Appointments Wanted and Vacant*

No. 3414] [Vol. 132

THE ARCHITECTURAL PRESS  
9, 11 and 13, Queen Anne's Gate, Westminster,  
S.W.1. 'Phone: Whitehall 0611

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Registered as a Newspaper.

★A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to I one week, I 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 Asphalt Mine Owners and Manufacturers Council.	14, Howick Place, Victoria Street, S.W.1.	Victoria 1600 & 6477
NAS	National Association of Shopfitters.	2, Caxton Street, S.W.1.	Abbey 4813
NBR	National Buildings Record.	31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers.	10, Storey's Gate, S.W.1.	Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalt 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 4459
NFHS	National Federation of Housing Societies.	12, Suffolk St., S.W.1.	Whitehall 1631
NHBRC	National House Builders Registration Council.	58, Portland Place, W.1.	Langham 0064/3
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
RIB	Rural Industries Bureau.	35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
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
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
SNHIPC	Scottish National Housing.	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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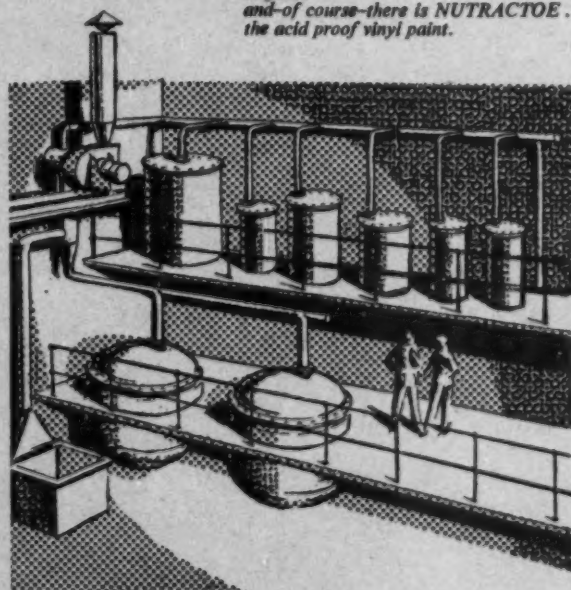
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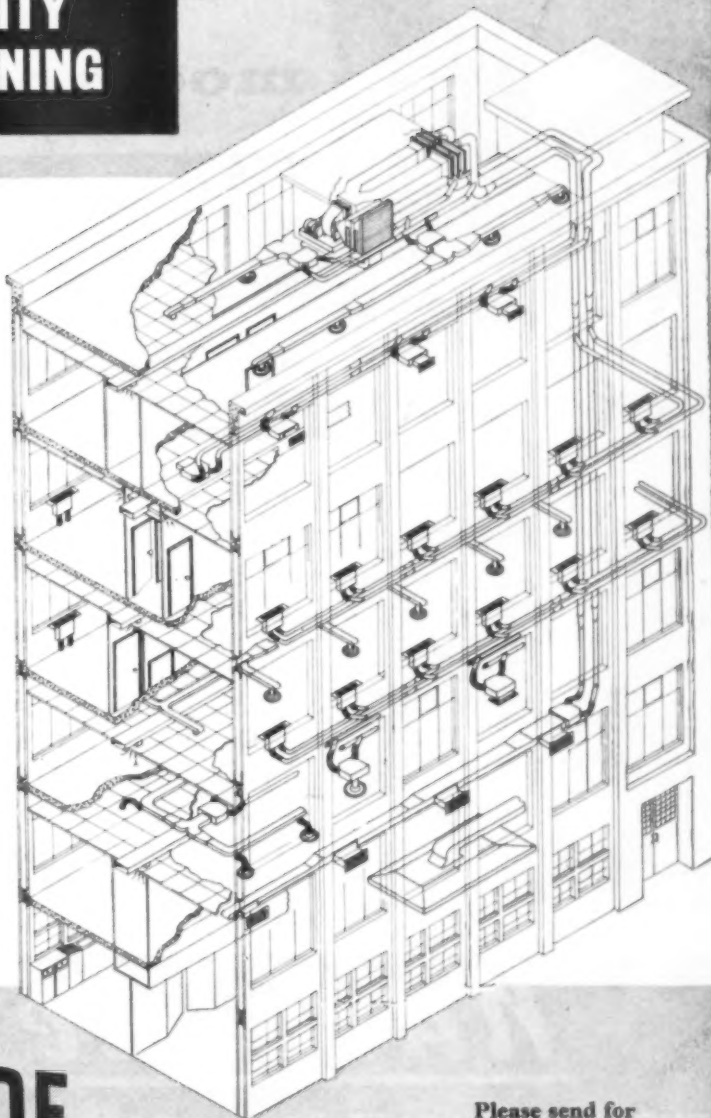
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- **FLEXIBILITY**—treated air delivered to each room from a central plant at exactly the temperature and velocity desired.
- **SELECTIVITY**— independent control of temperature can be provided in each room individually.
- **QUIETNESS**— the level of sound in operation is extremely low.



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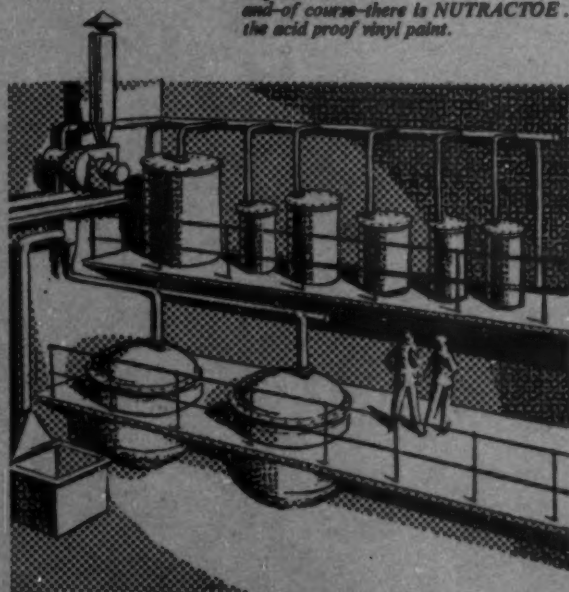
Your designs used or schemes prepared without obligation for complete installations. No job too small or too large. Our knowledge and experience is available for application to your problem of dealing with noxious and corrosive fumes.

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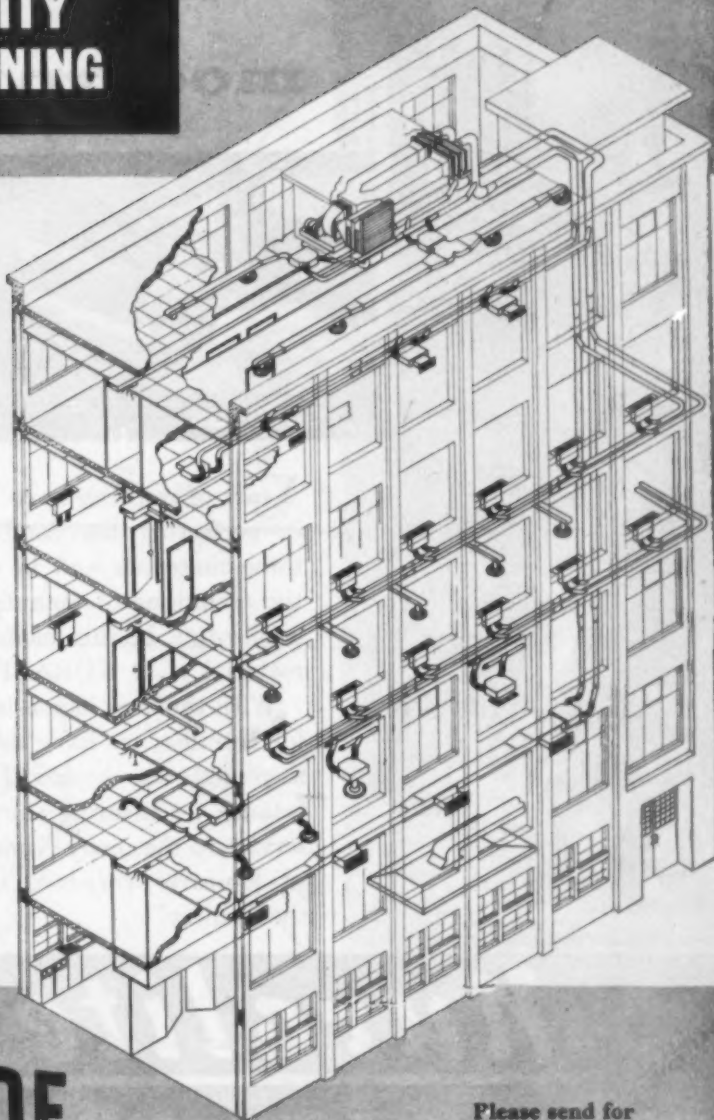
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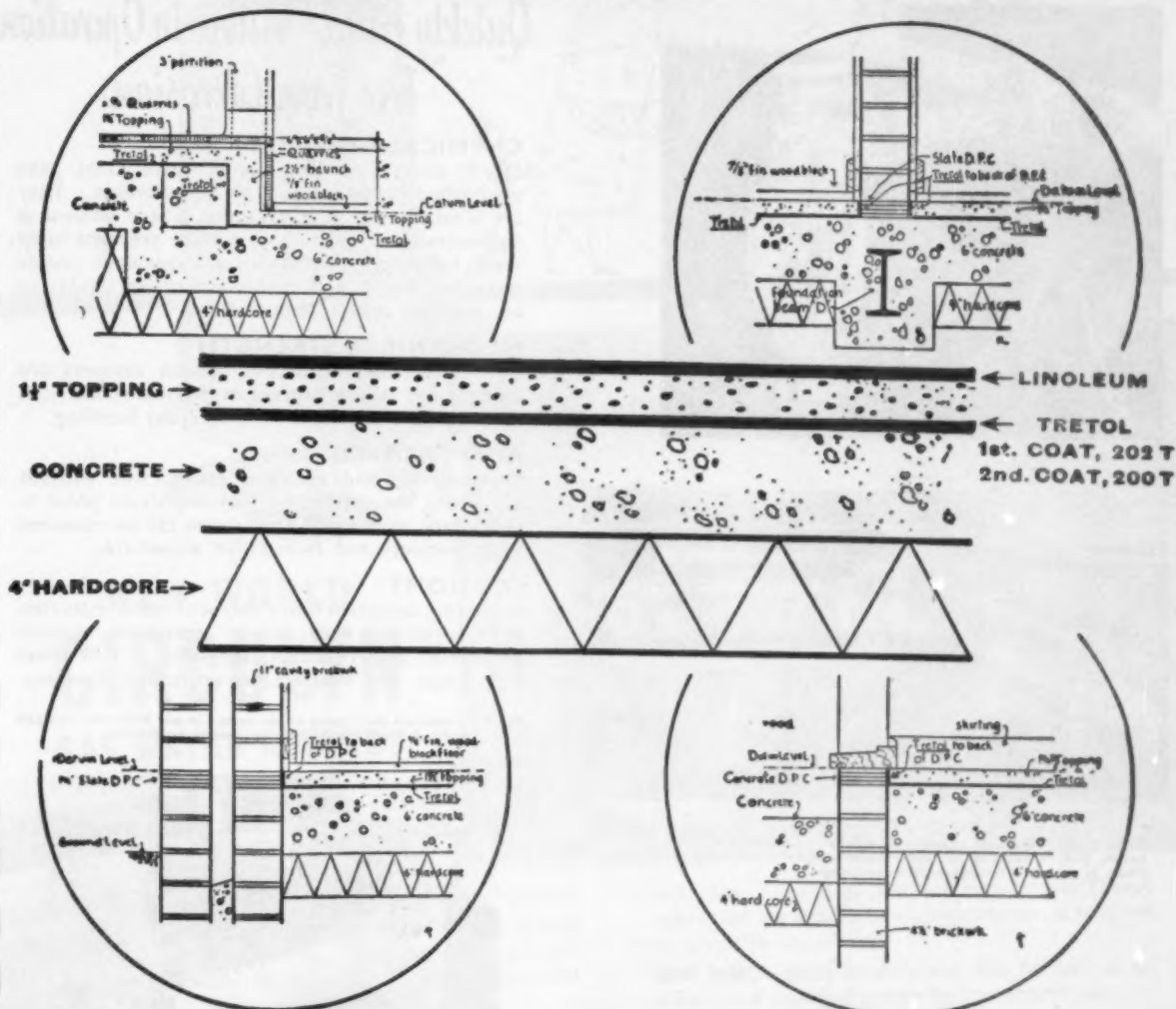




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Where ground floors are to receive a floor covering, the use of a continuous Bitumen Membrane is essential. Not only is this necessary to prevent dampness, but also rising moisture vapour, the latter being injurious to most types of floor covering and to health.

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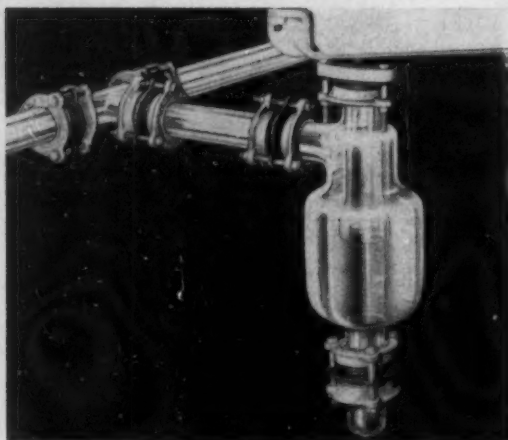
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The system can withstand sudden temperature changes and severe degrees of thermal shock. It is sufficiently strong to survive everyday handling.

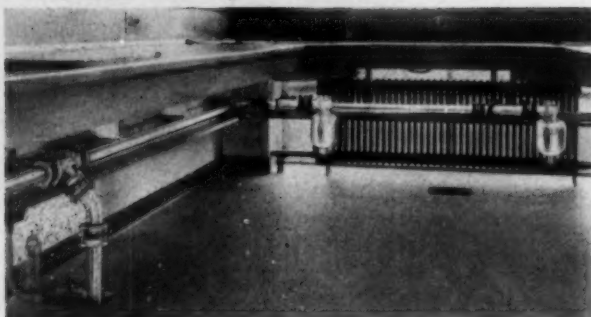
## ADAPTABILITY

Replacements and additions easily made without disturbing the system . . . an important point in temporary buildings. The system can be removed in its entirety and re-installed elsewhere.

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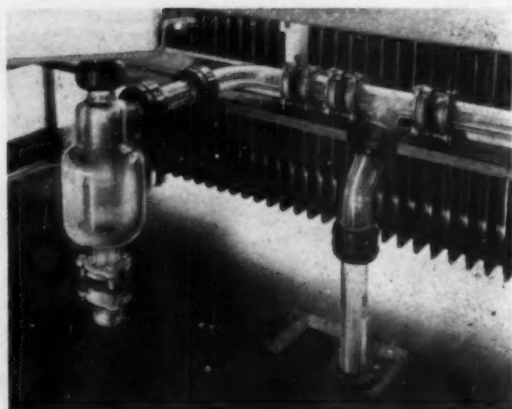
Initial cost compares favourably with other materials and together with their corrosion-resistant properties and resultant long-life, Q.V.F. Glass Sink Traps and Waste Lines are sound economy.

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(Photo. by courtesy of Nottingham Technical College).

Sink Trap fitting below laboratory bench).  
(Photo. by courtesy of Nottingham Technical College).



# Q.V.F.

L I M I T E D

*The Chemical Engineers in Glass*

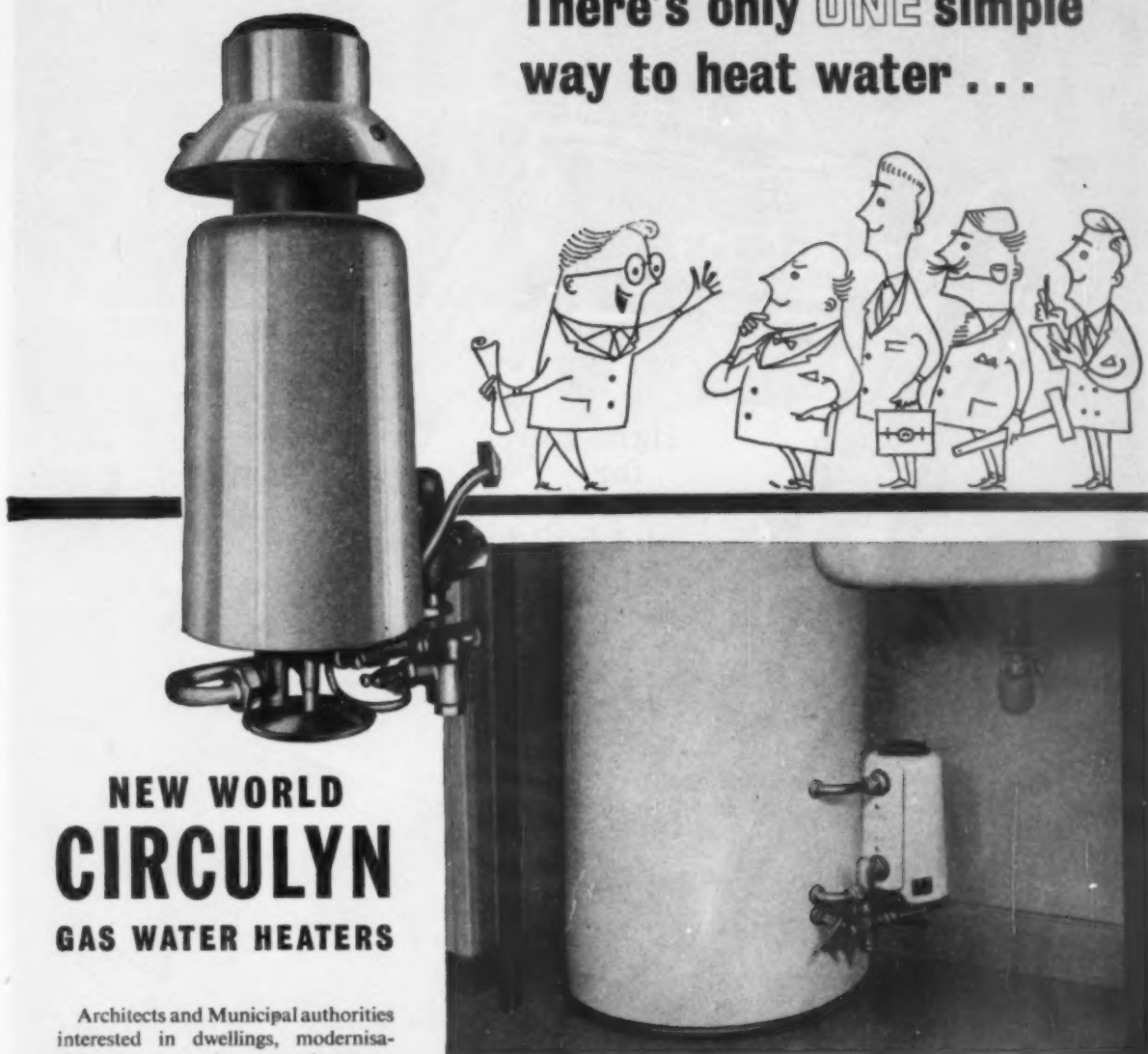
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**NEW WORLD** Water Heaters also can be used as an auxiliary to a solid fuel system for intermittent use.

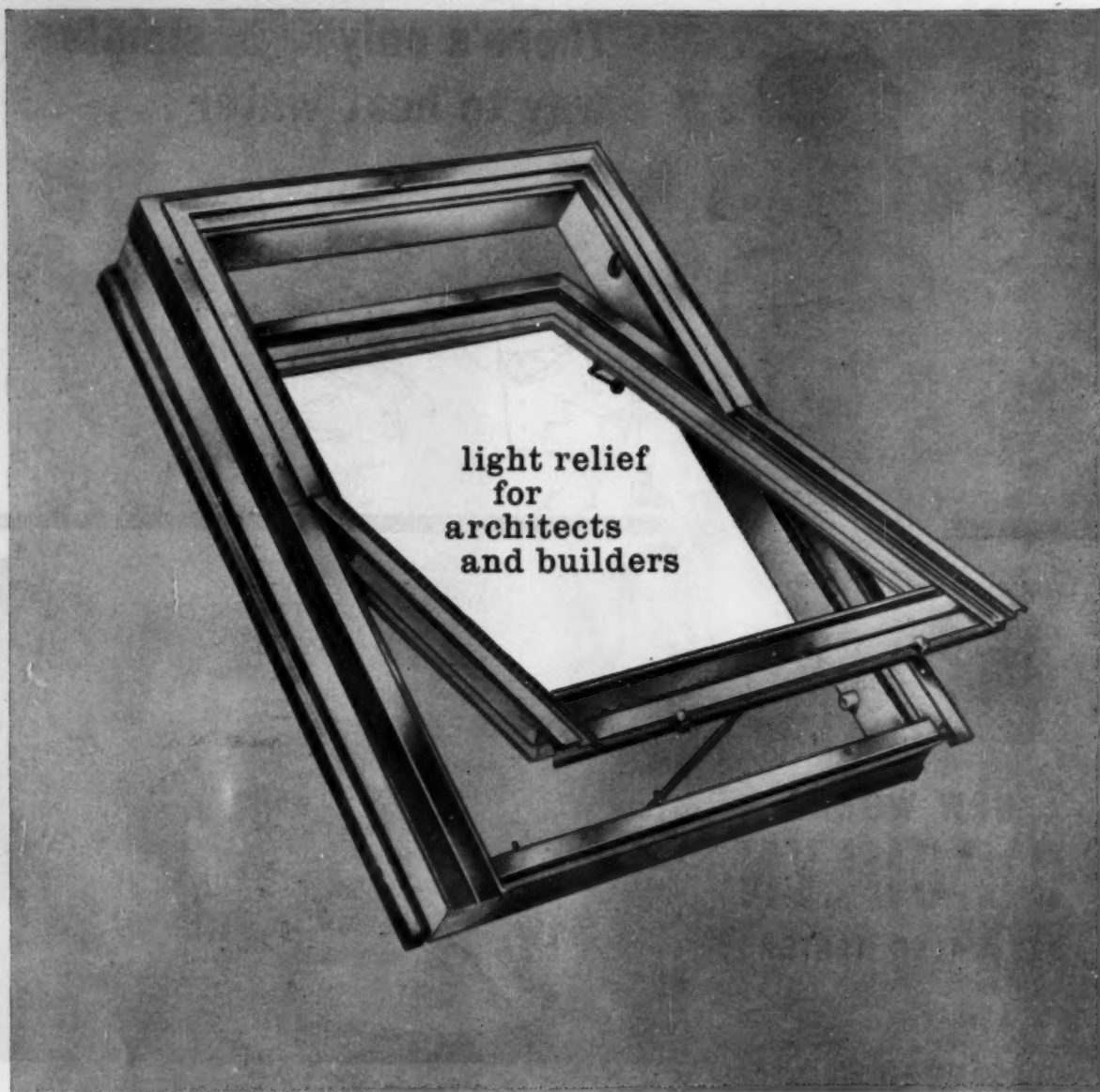
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**Lowest running costs.** The big news in central heating these days is the amazing cheapness of the solid fuel systems. For example, the average weekly running cost for a two- or three-radiator system can be as little as 9/9d! Just compare that with oil, gas and electricity—see chart on right.

**Lower installation costs.** Compared with oil, solid fuel systems are much cheaper to buy and install. The new solid fuel boilers are really streamlined and require very little attention. They are thermostatically controlled and finished in gleaming vitreous enamel in a range of modern colours.

**N.C.B. Housewarming Plan**—offers a personal loan to cover the cost of a central heating installation. Low interest—five years to pay—tax relief.

**Lowest maintenance costs.** Solid fuel systems cost practically nothing to maintain. But with other fuels, skilled maintenance is necessary and this can cost from £5 to £15 per year—another 2/- to 6/- a week on the running cost.

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6 or 7 radiators and hot water ▼			
2 or 3 radiators and hot water ▼			
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<b>SMALL ANTHRACITE</b> in gravity feed boiler	12/- per cwt	—	14/1d
<b>GAS</b>	1 1/4d therm plus, say, 2/8d a week standing charge	16/1d	23/6d
<b>ELECTRICITY</b>	1d unit (No standing charge included)	18/2d	29/10d
<b>OIL</b>	1 1/5d gallon	12/10d	22/8d
* plus 2/- to 6/- a week maintenance cost.			

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central heating  
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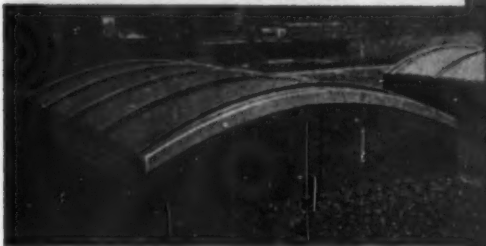
ISSUED BY THE COAL UTILISATION COUNCIL



# Ventilation *plus* daylight

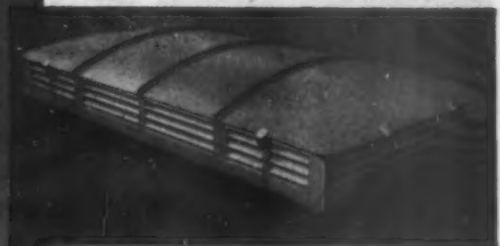
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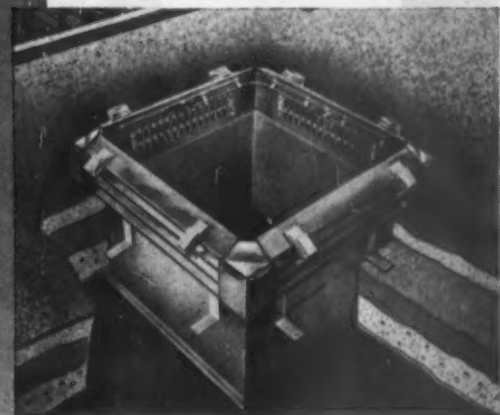
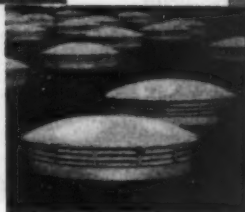
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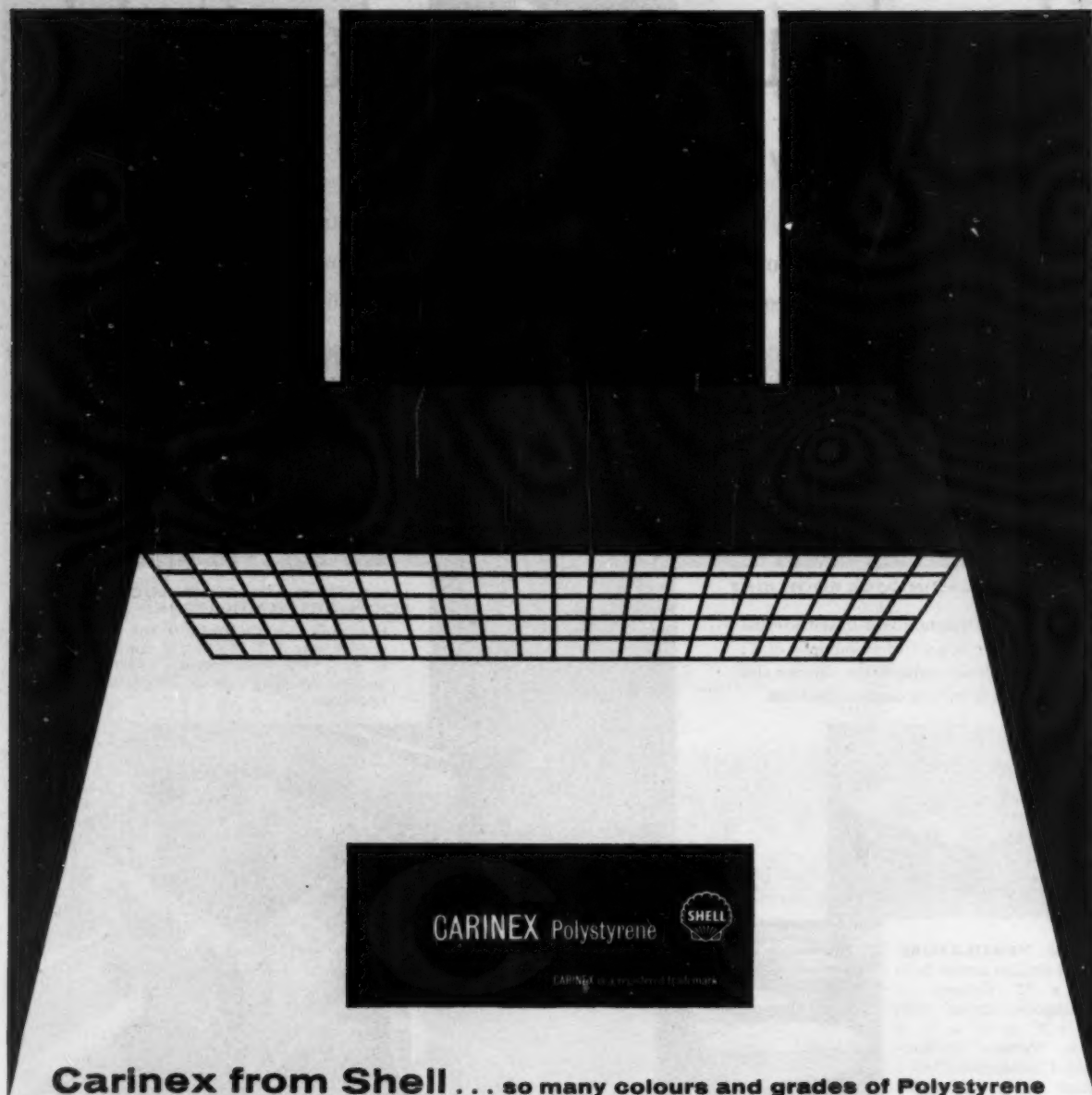
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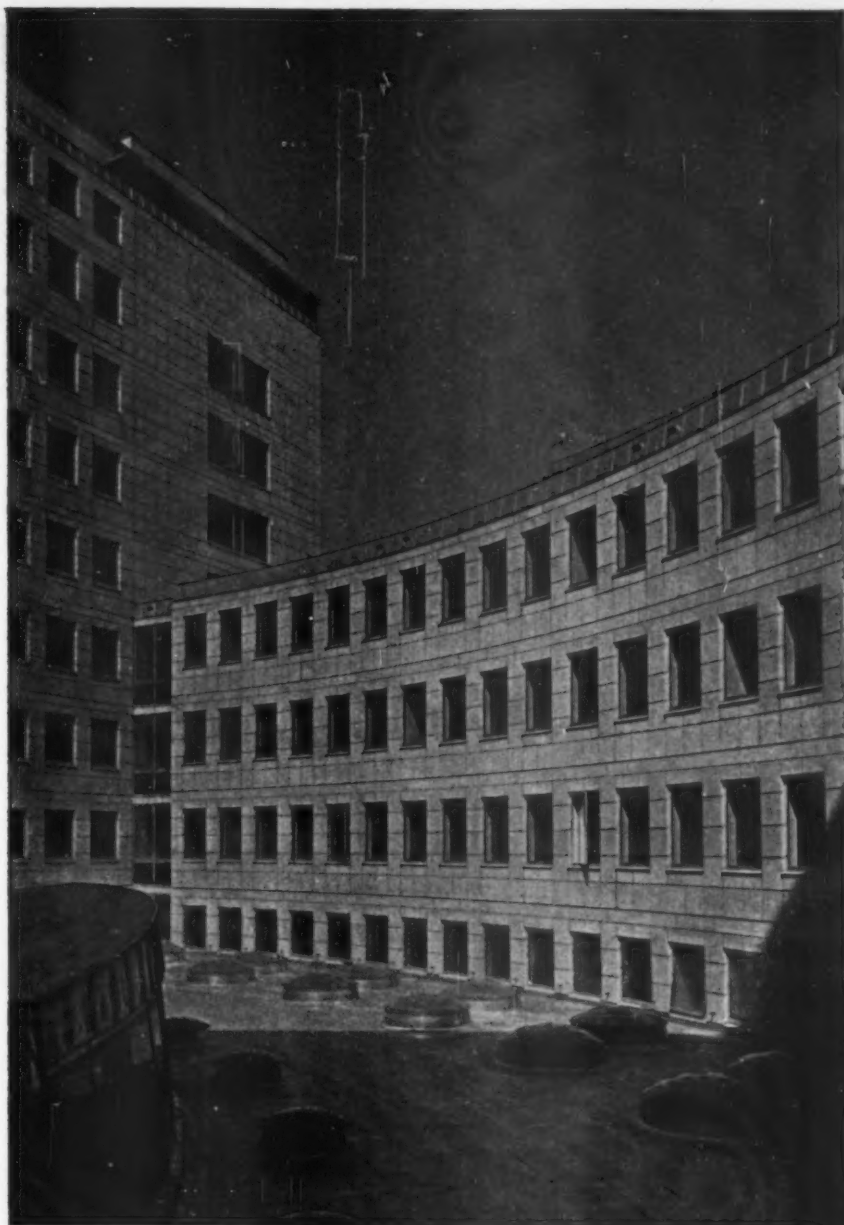
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Welkko Malmio

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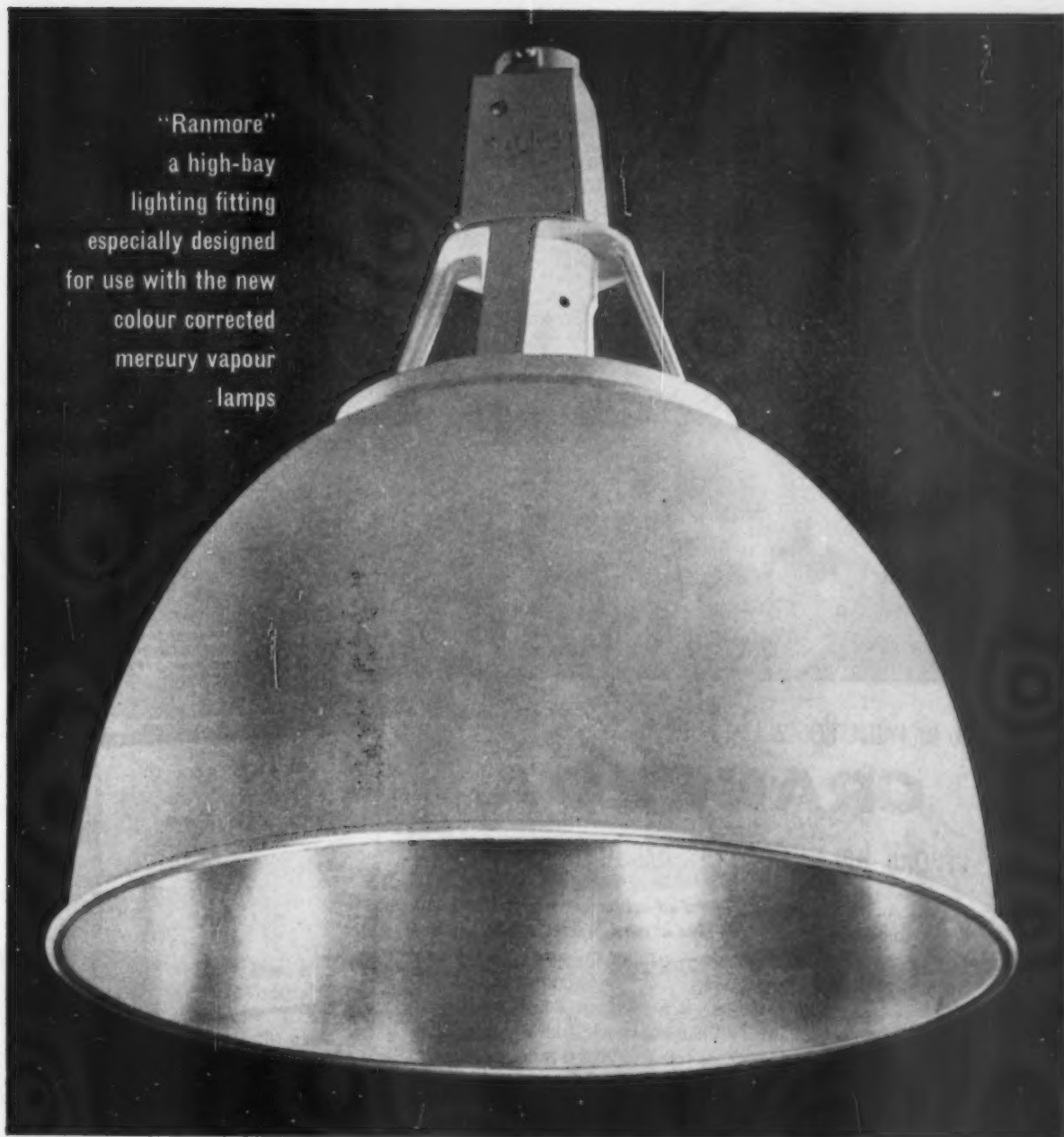


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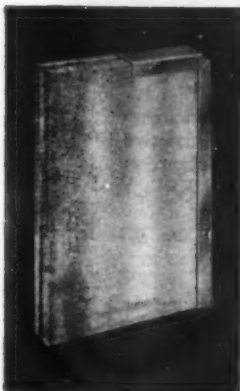
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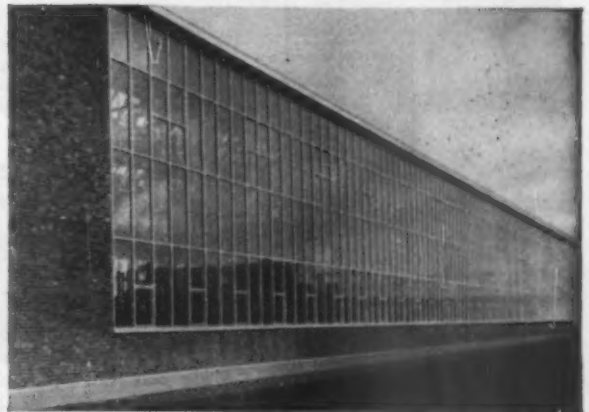
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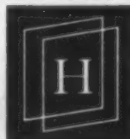
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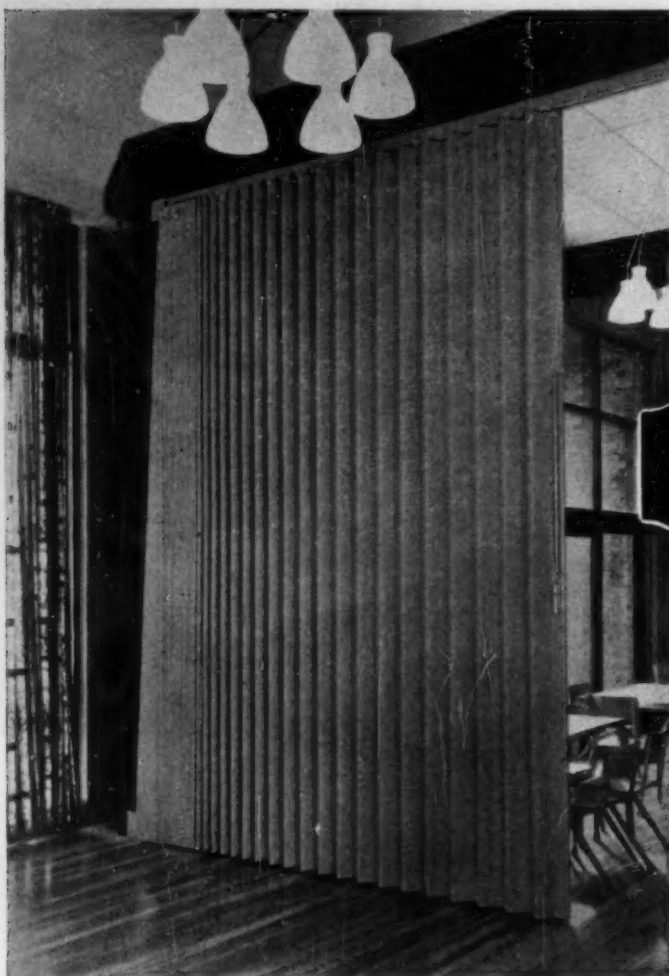
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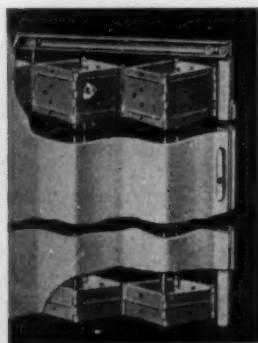
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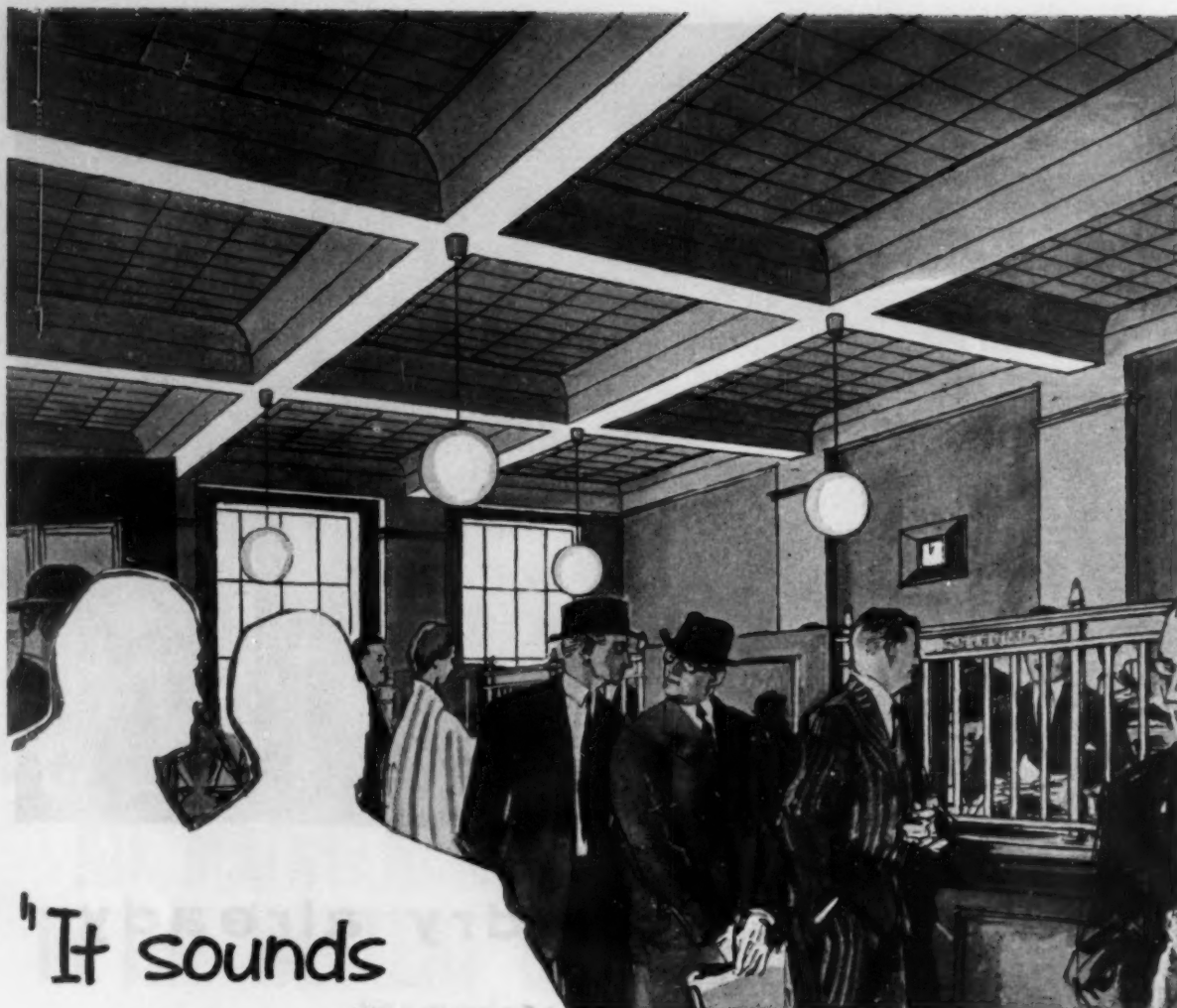
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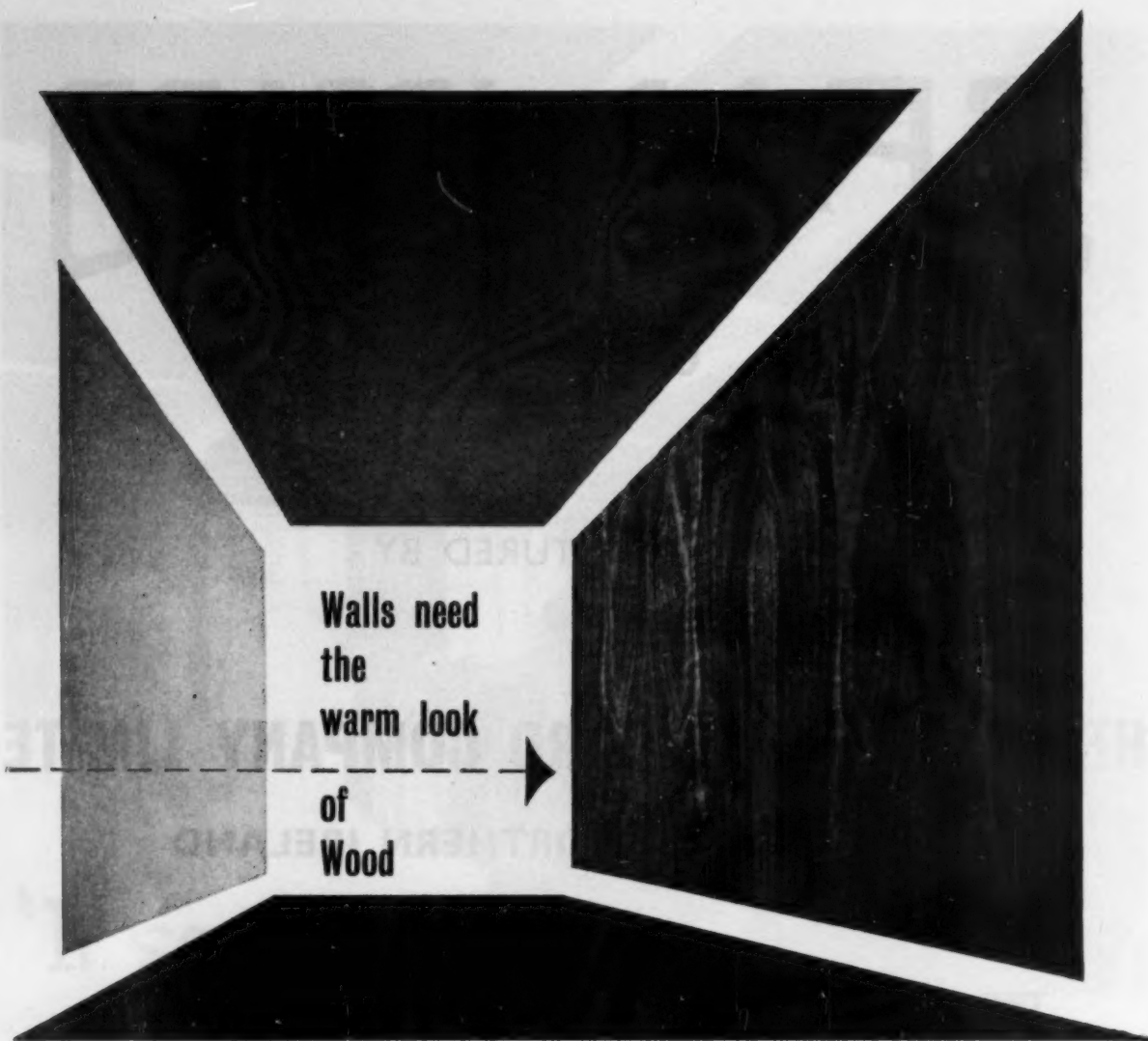
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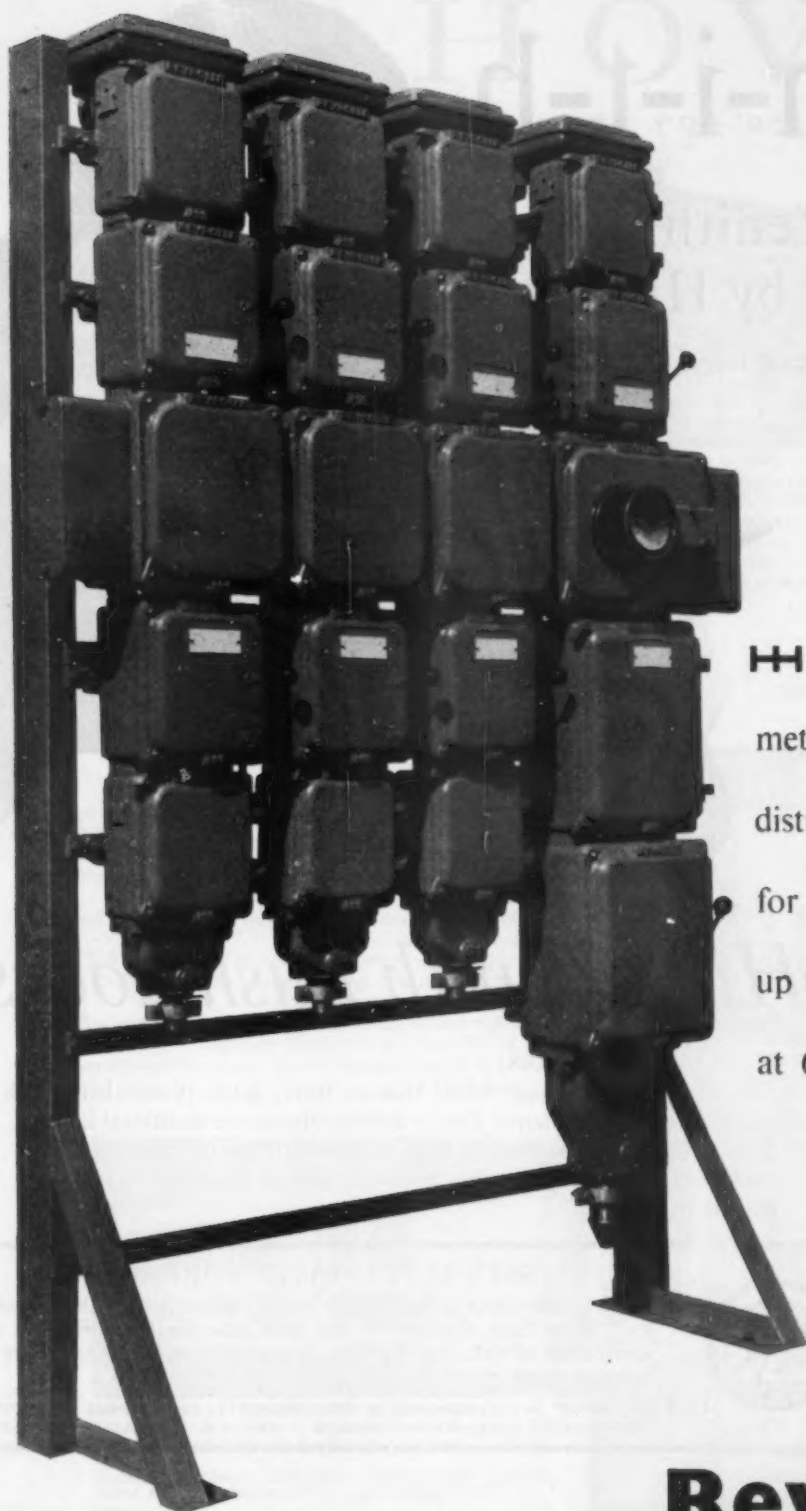


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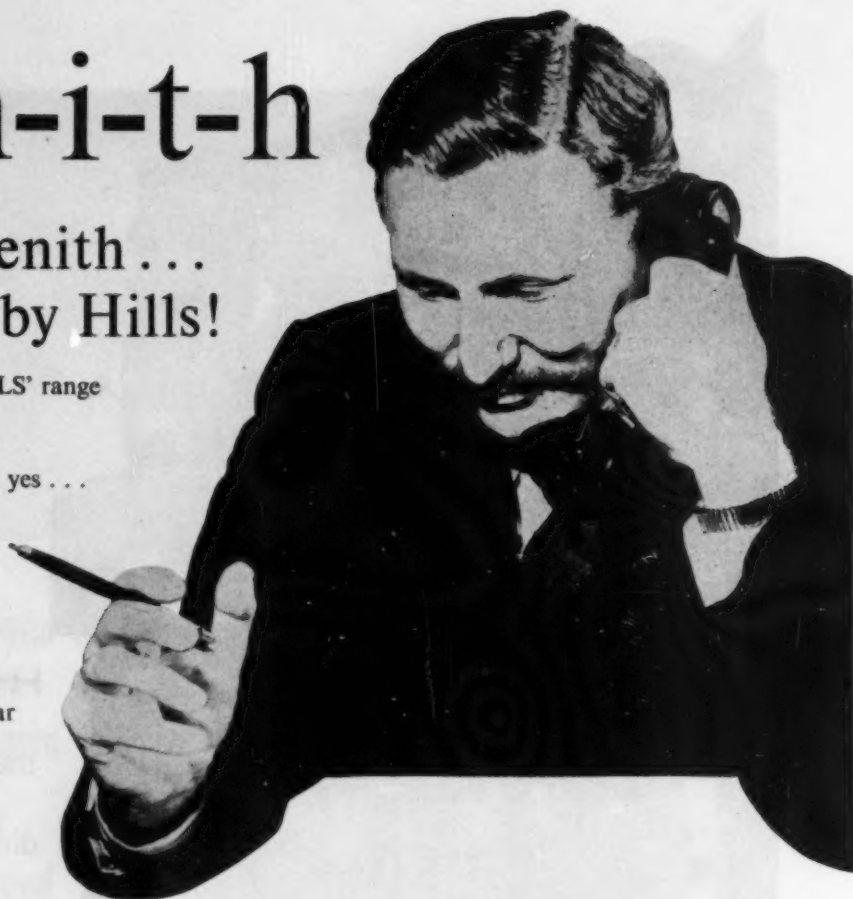
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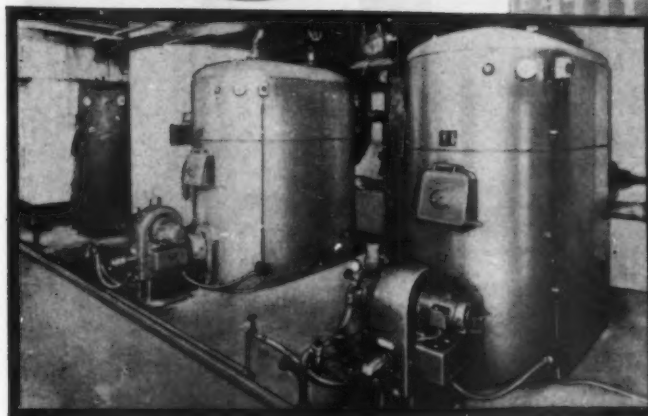


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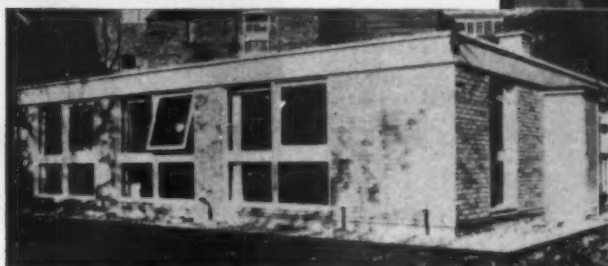
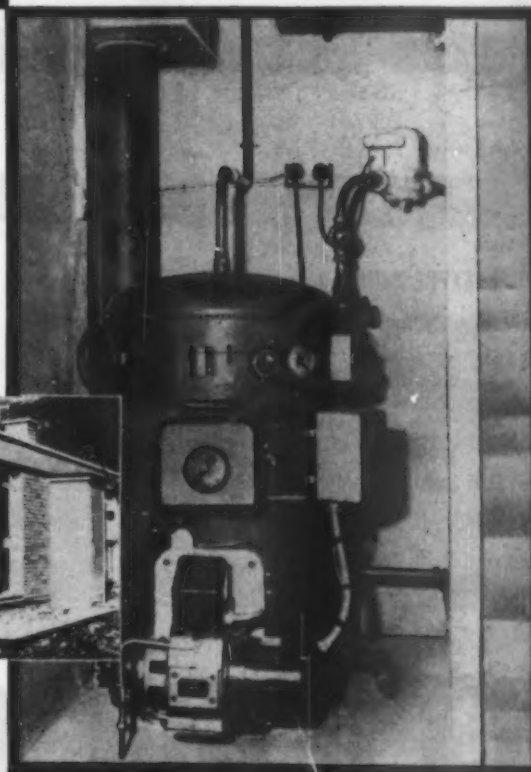
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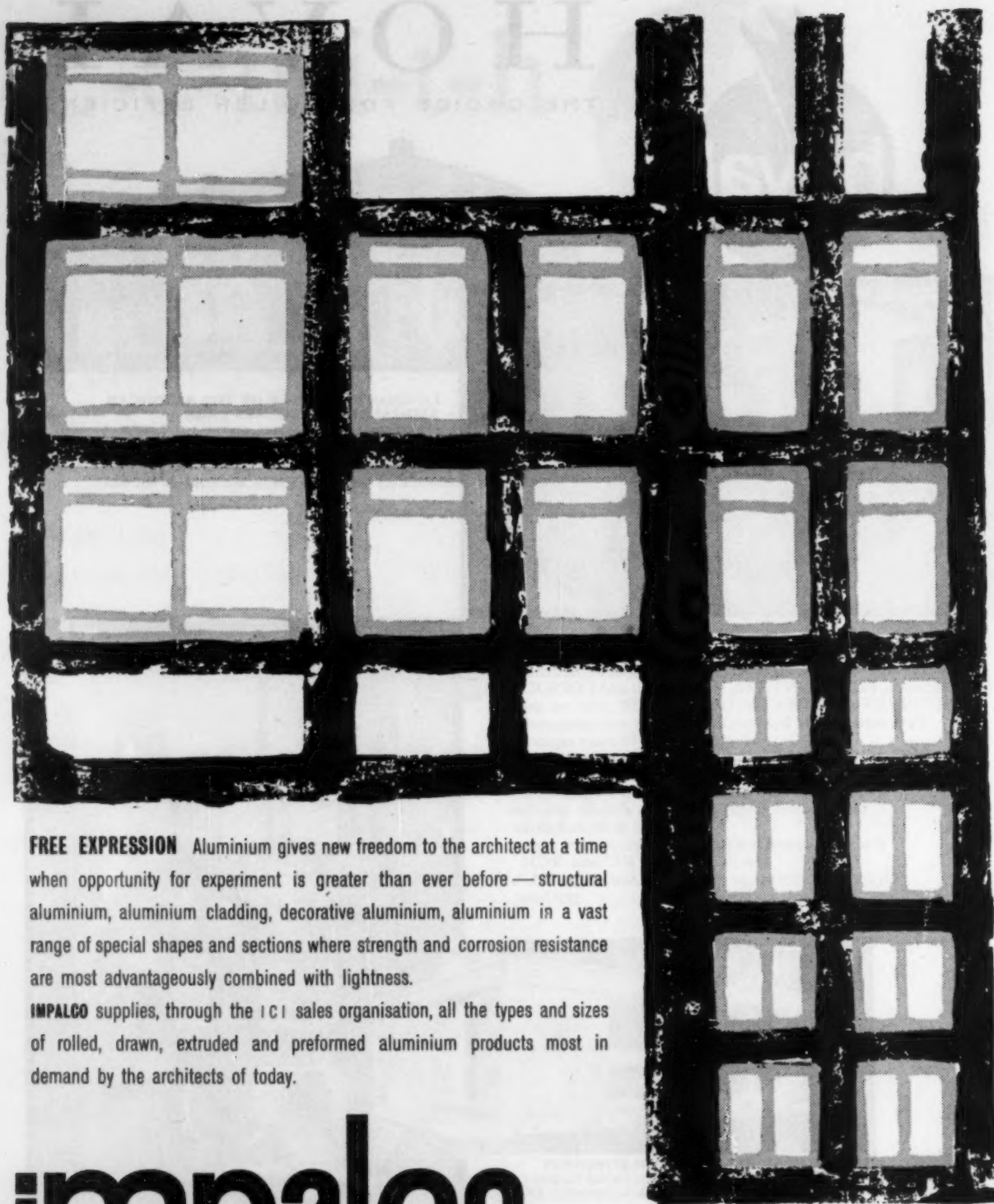
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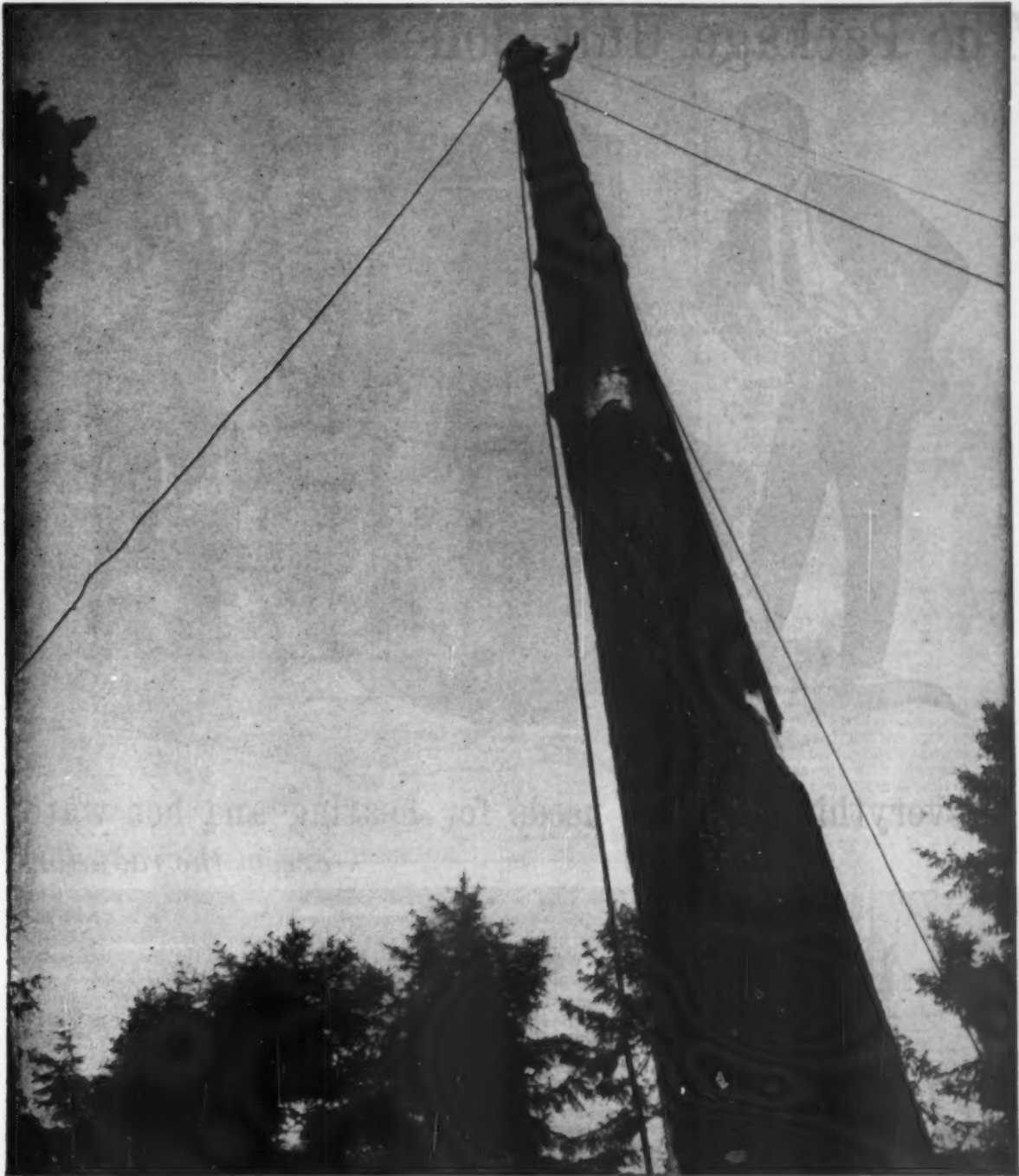


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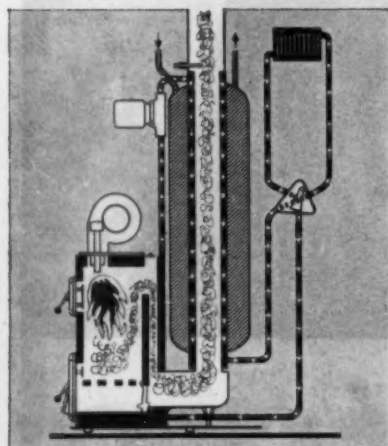
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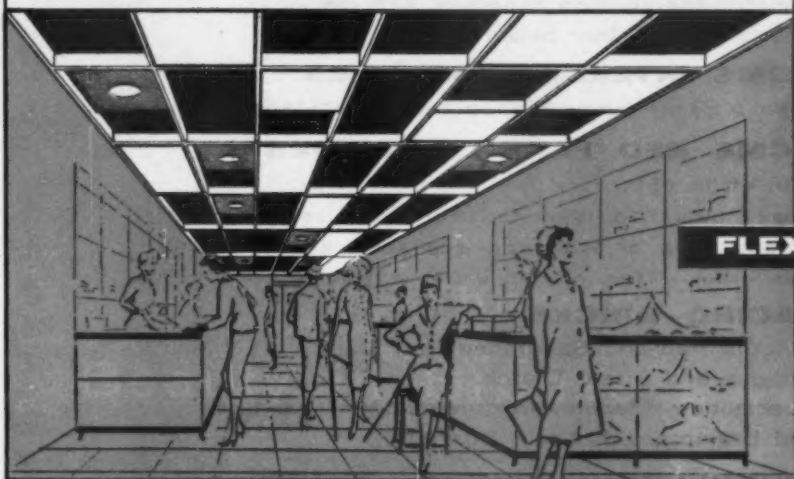
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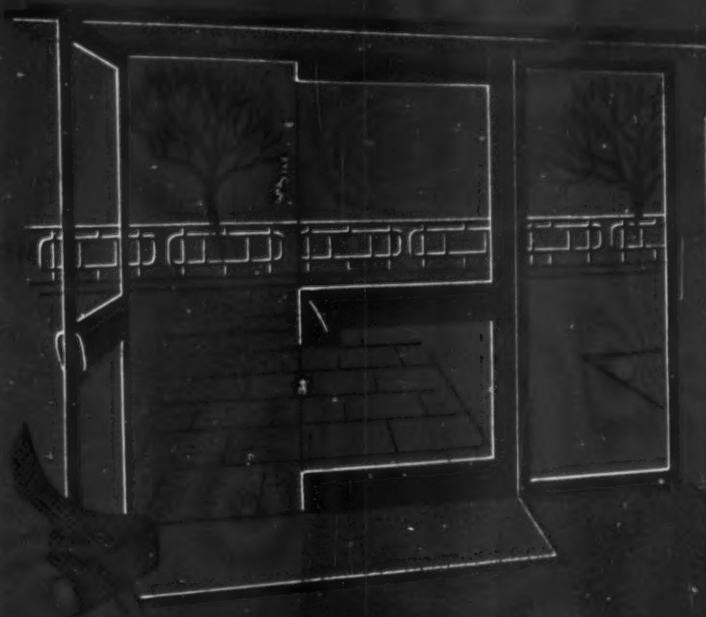
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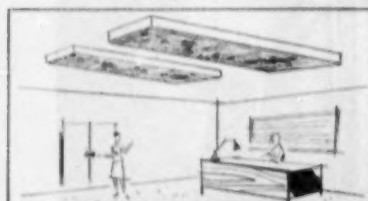
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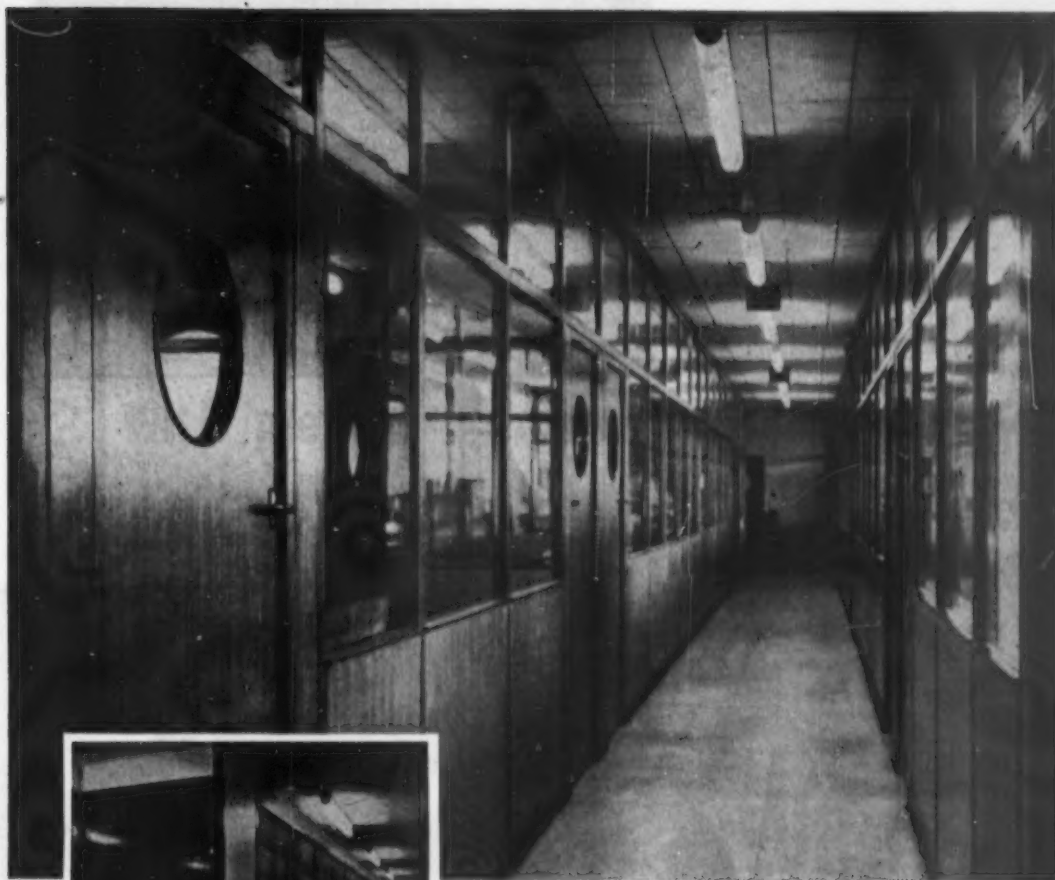
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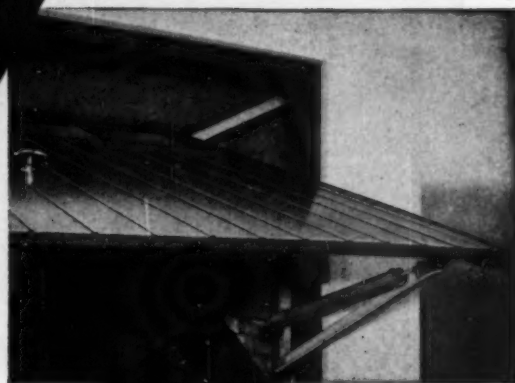
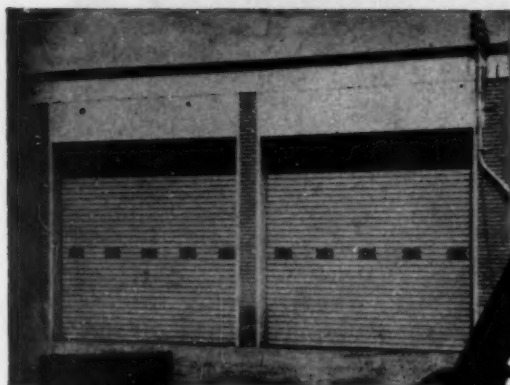


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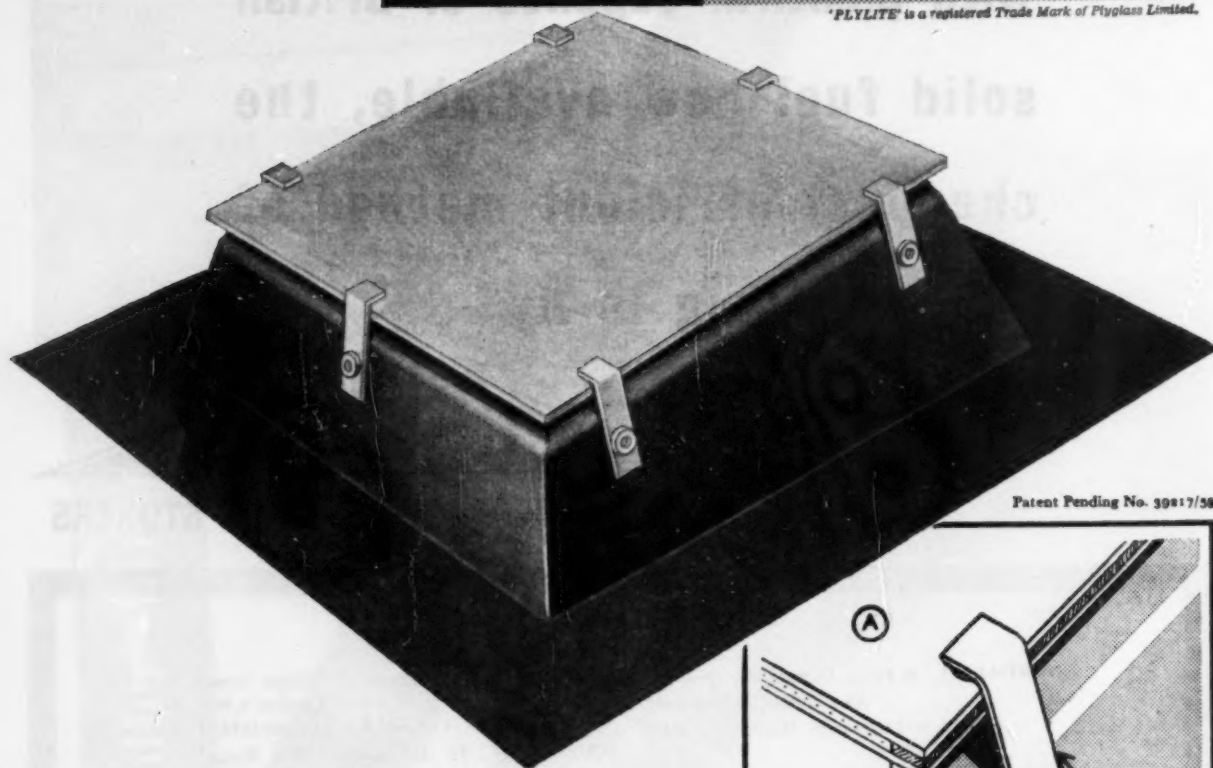
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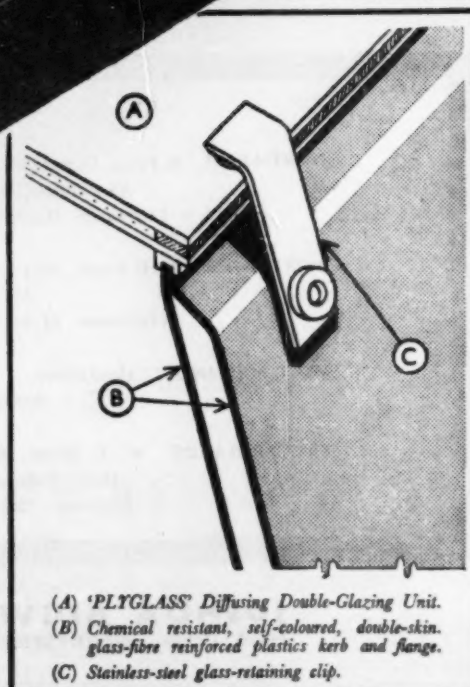
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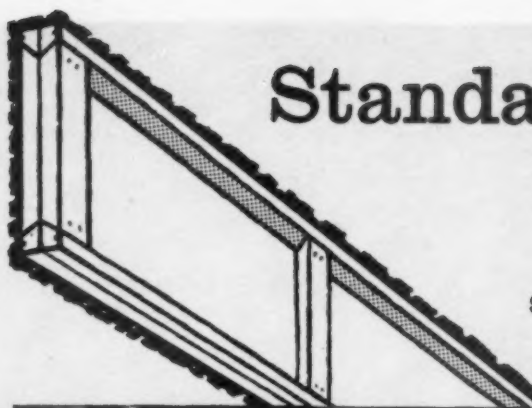
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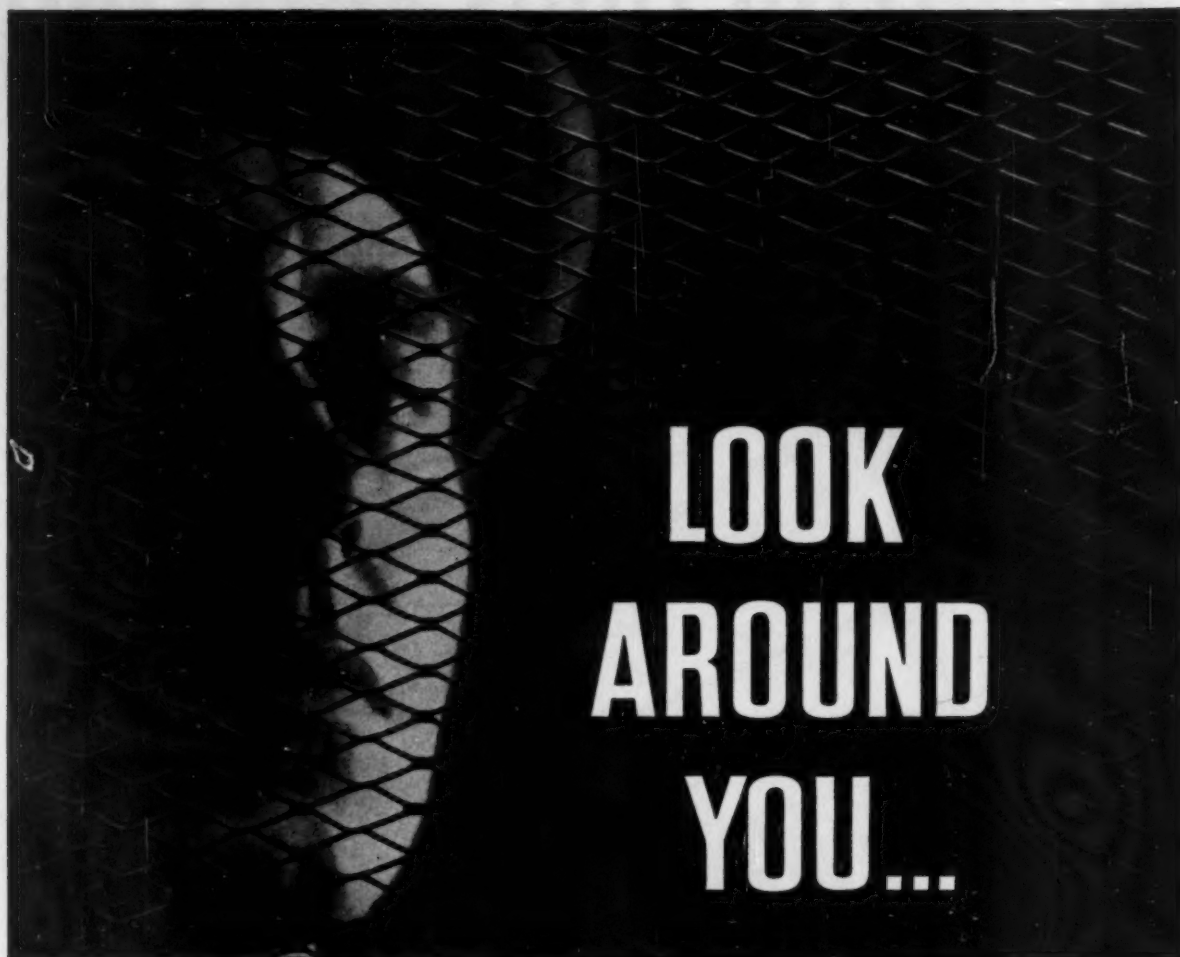
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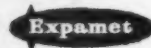
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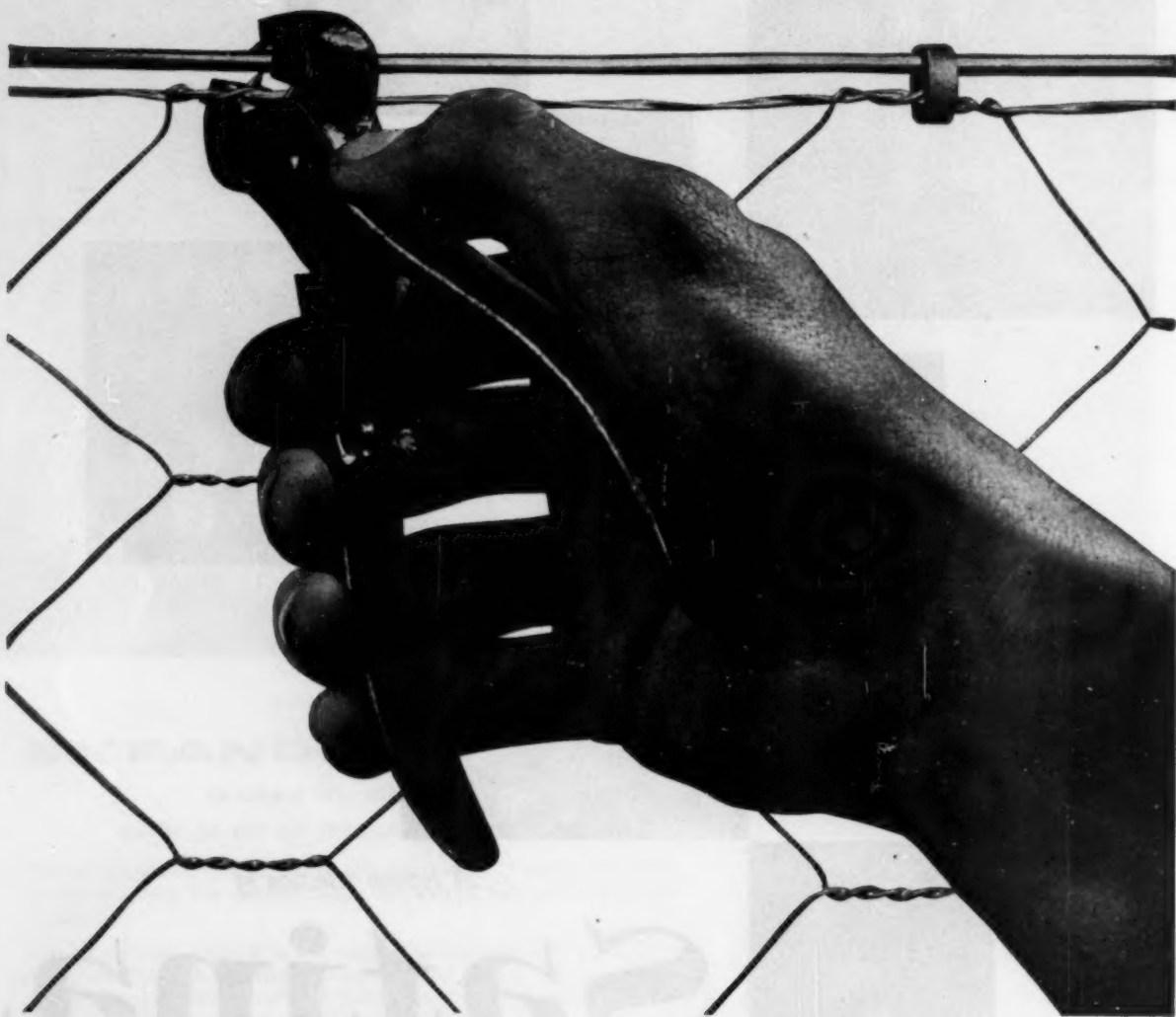
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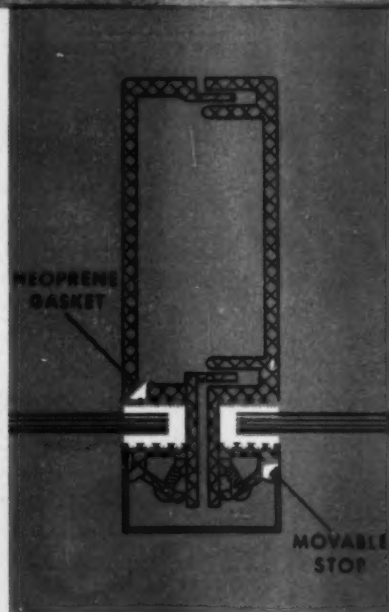
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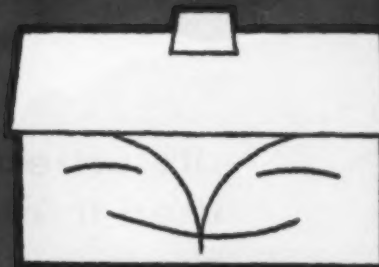
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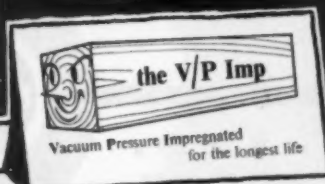
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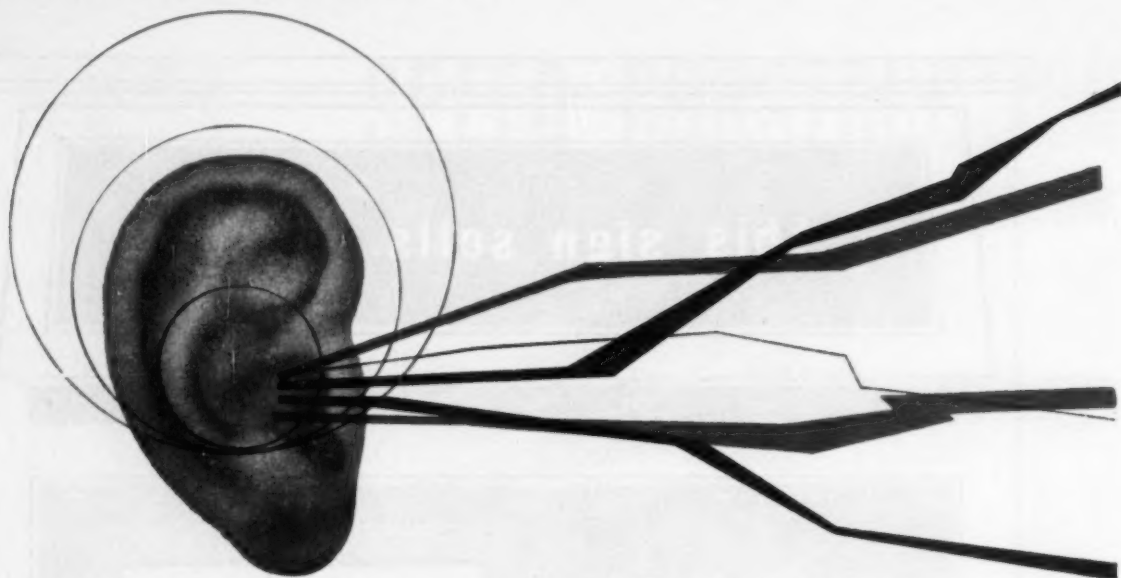
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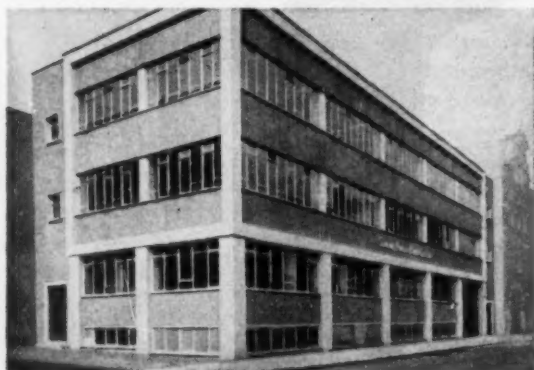
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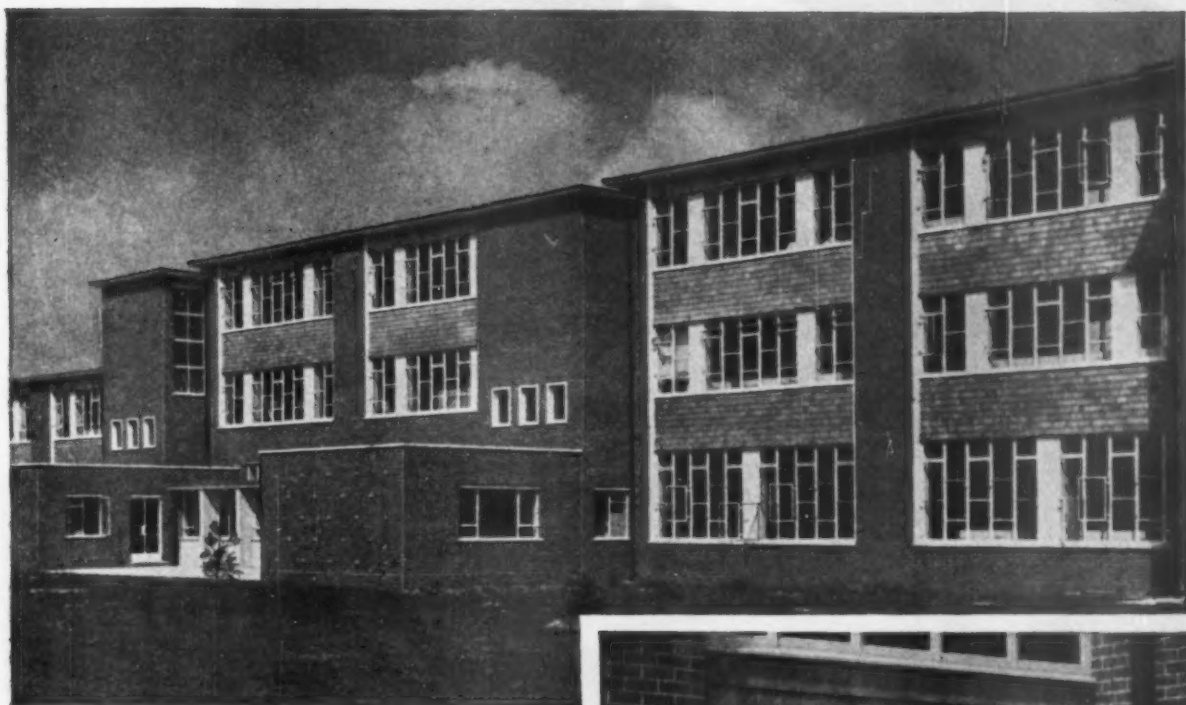
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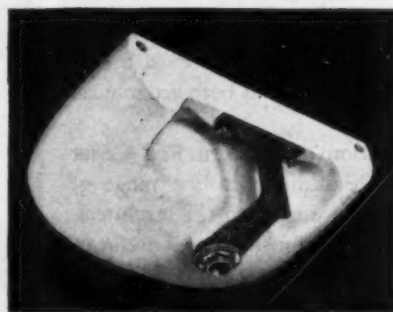
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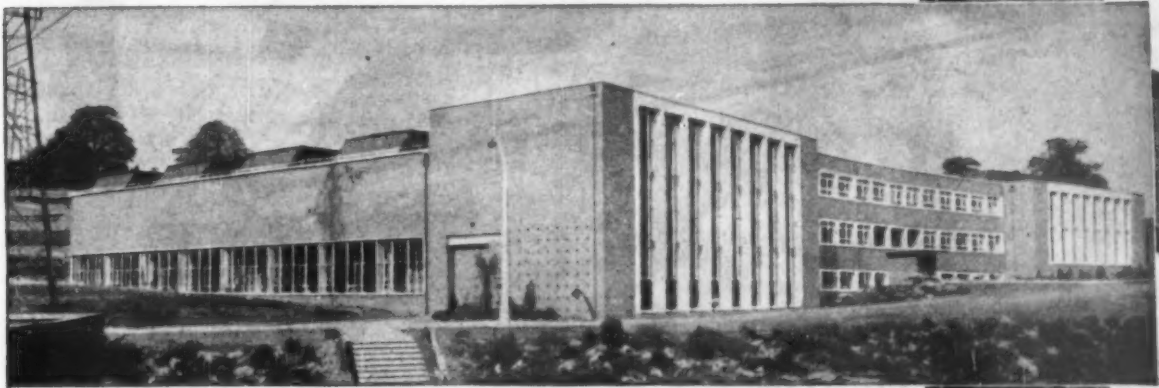
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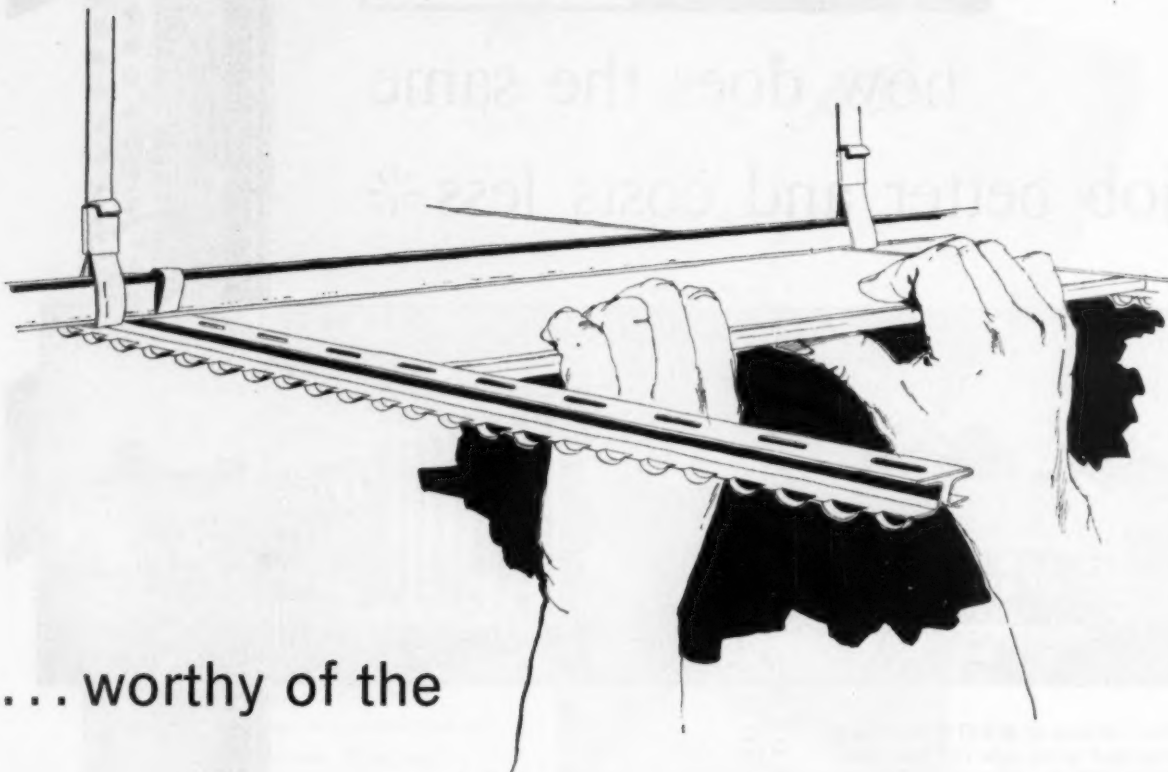
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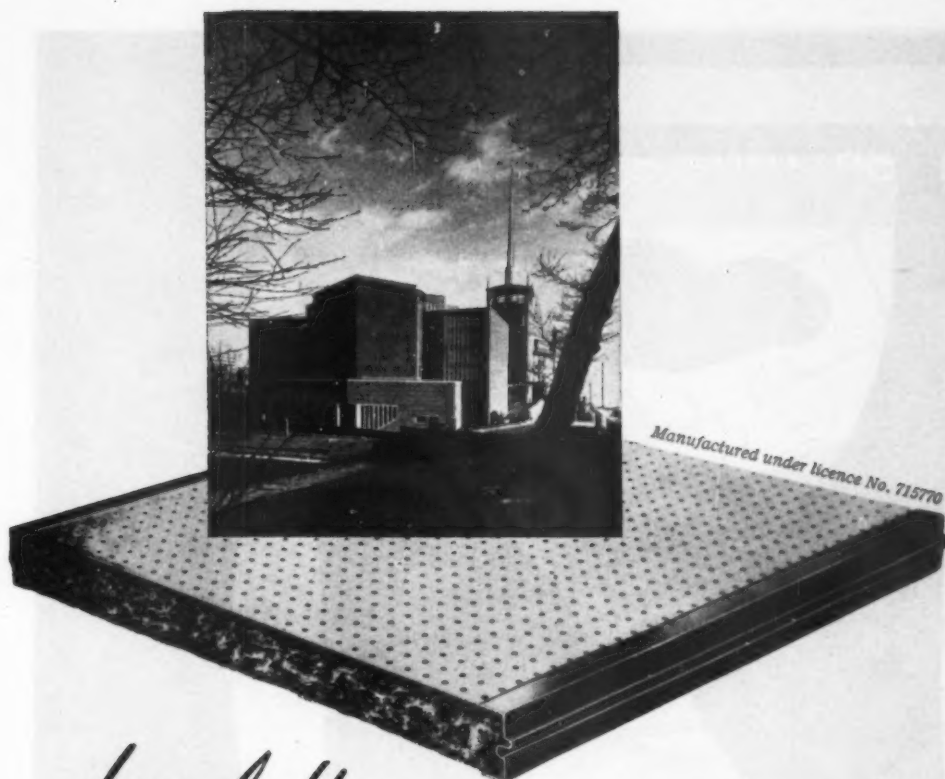
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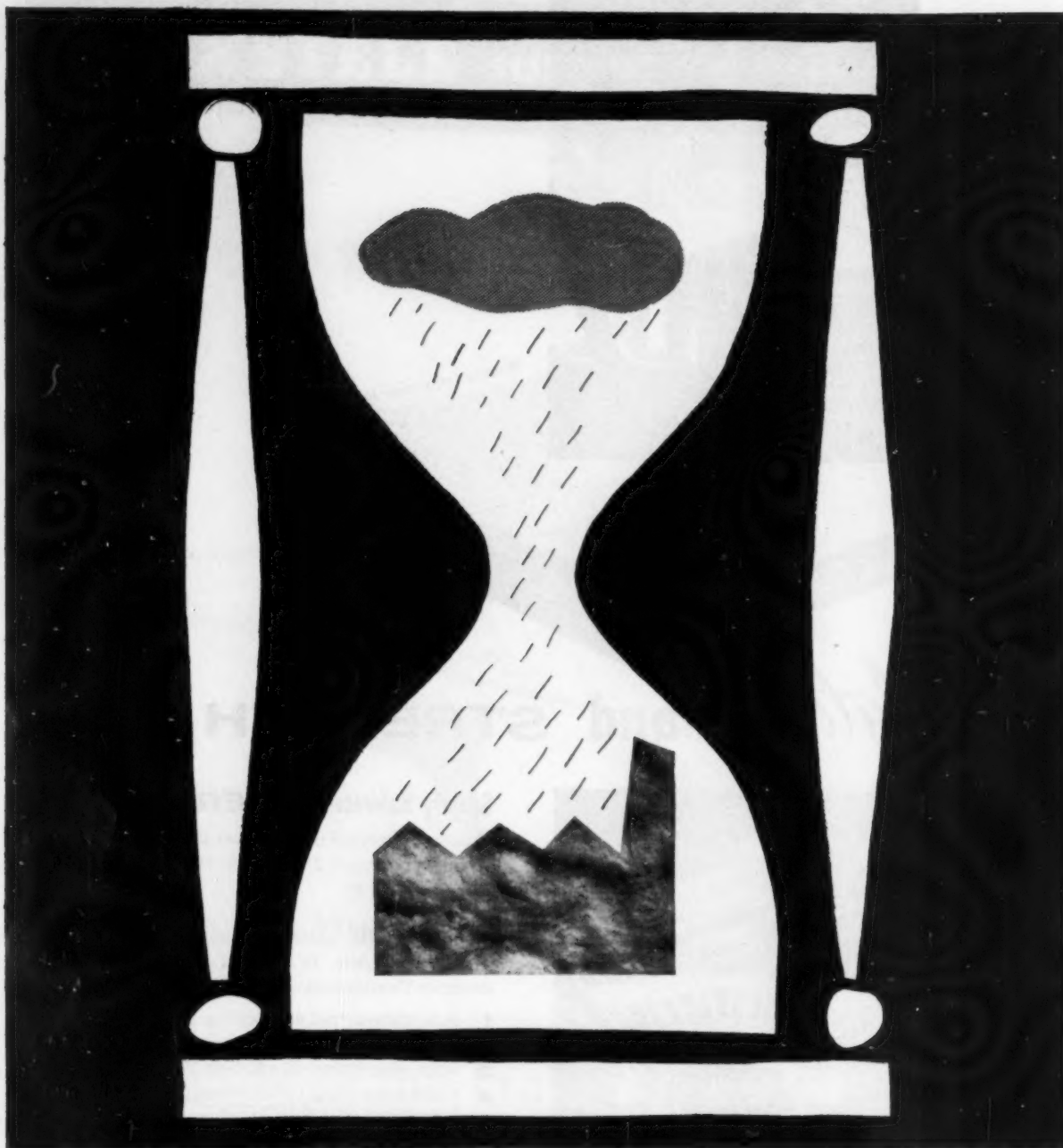
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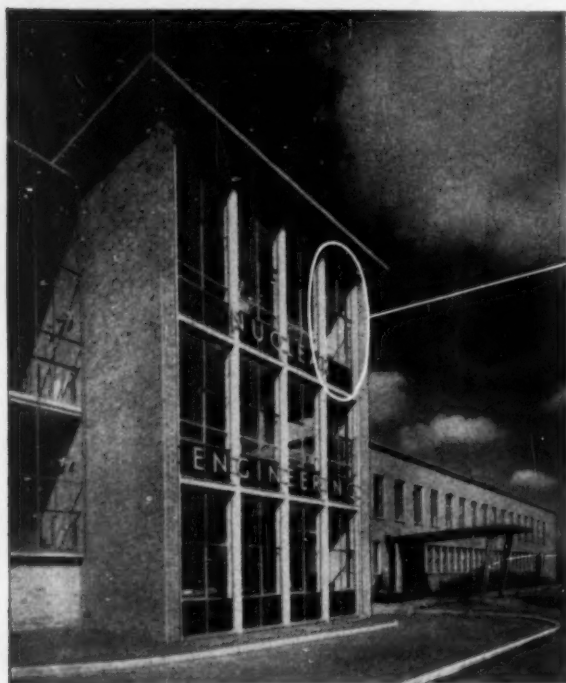


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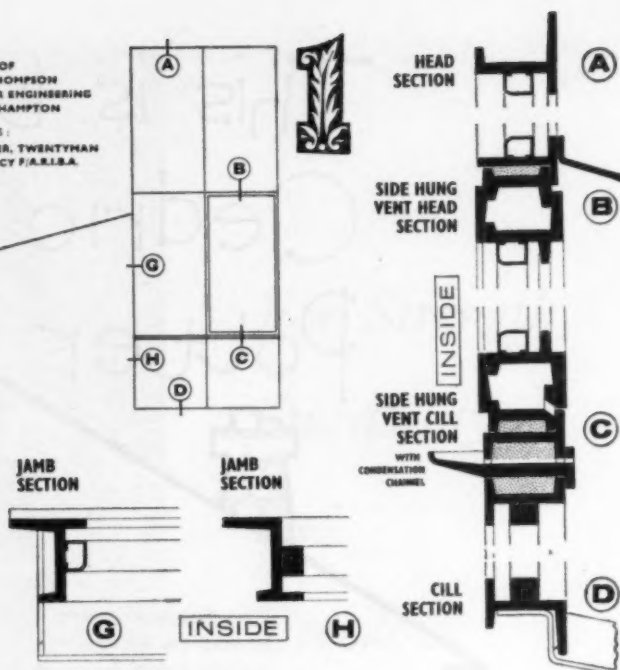
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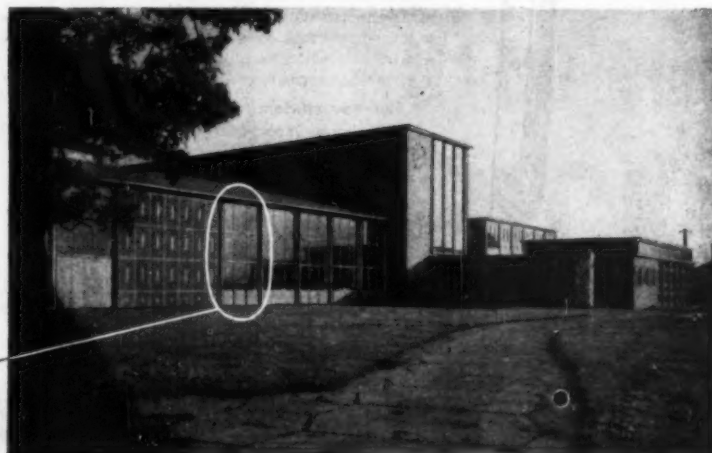
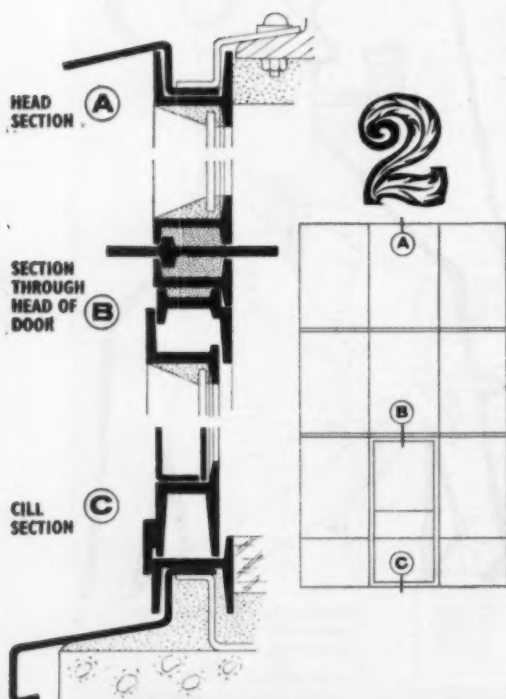
1

The Architect has achieved a bold elevational effect by setting Steel windows, between the verticals and horizontals of his concrete structure — the result has many of the advantages of curtain walling but avoids the usual flat effect.

2

The Architect has used a dark massing effect of brickwork to set-off the glass areas of the Assembly Hall of this school. These Steel windows are coupled horizontally and incorporate outward opening doors in case of emergency.

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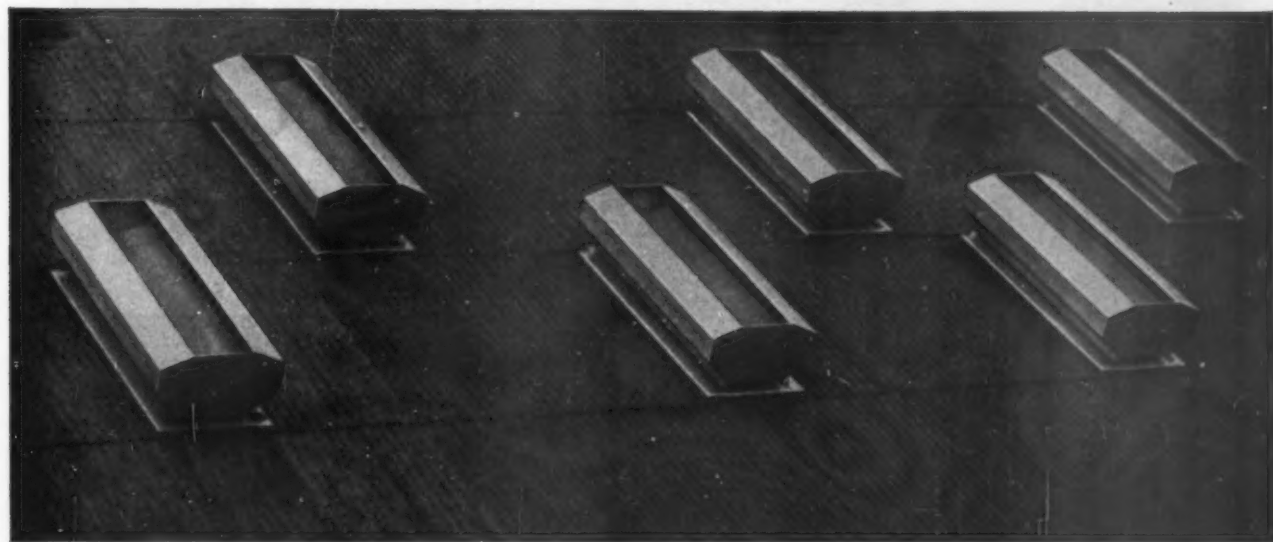
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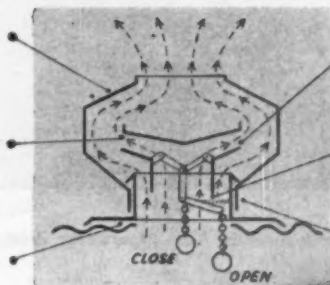
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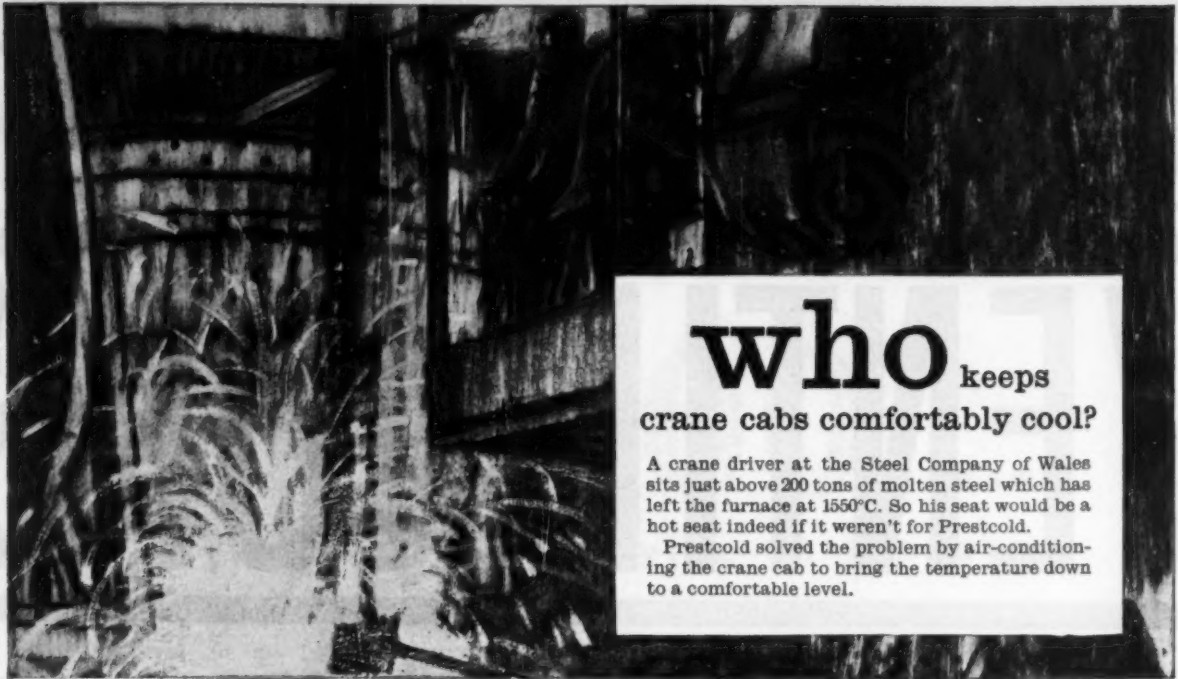
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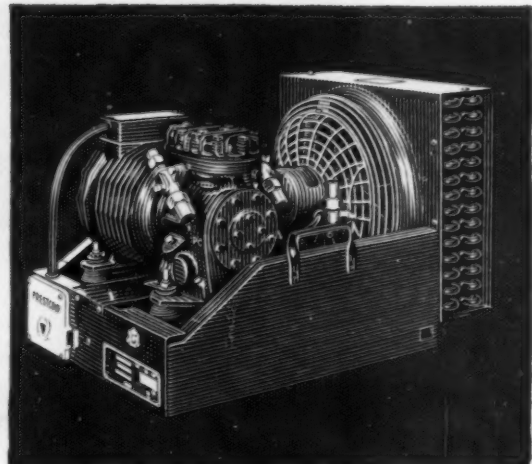
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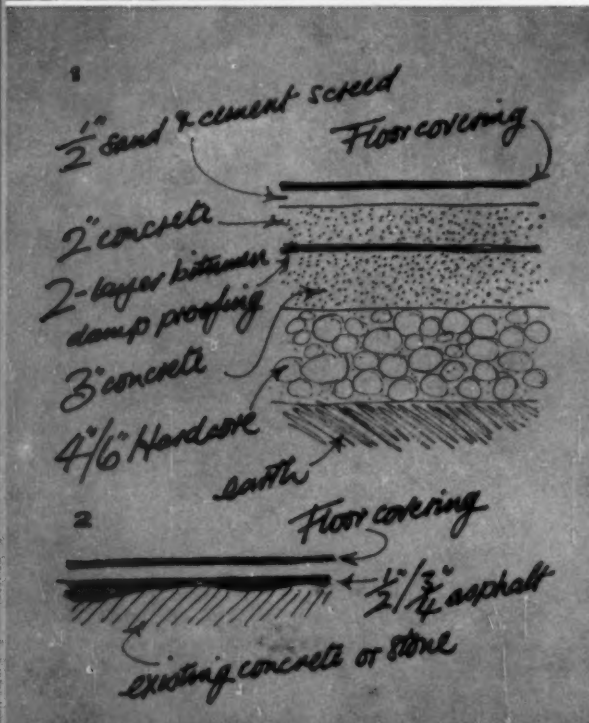




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# NAIRN ANSWERS YOUR QUESTIONS

DAMP-PROOF COURSES · SEALERS · THE SUB-FLOOR



**Q** What thickness of linoleum do you recommend for different installations?

**A** Much depends on the amount of traffic to be expected. Nairn linoleum ranges in thickness from 6.7 mm to 1.4 mm. The 6.7 mm gauge linoleum ( $\frac{1}{4}$ " ) is best used in public buildings, theatres, cinemas, hotels and hospitals. In offices, schools and department stores, we recommend 4.5 mm linoleum ( $\frac{3}{16}$ " ) which is also suitable for hotels and hospitals. The 3.2 mm linoleum ( $\frac{1}{8}$ " ) is more suited to restaurants, cafés, shops and offices; for smaller offices, however, the 2.5 mm ( $\frac{1}{8}$ " ) is sufficient. (For greater detail, see the Nairn Design Book, mentioned at the foot of the facing page.)

*Left: Store at South End, Croydon. 6.7 mm contractor-cut tiles in heavy traffic areas; 3.2 mm sheet linoleum in stockrooms. One of a series of International Stores being laid with 6.7, 4.5 and 3.2 mm Nairn linoleum.*

*Courtesy: International Tea Co Ltd (Senior architect: W. J. Lee LRIBA, ARCS) Flooring contractors: Lewis Bros (Kings Cross) Ltd*

**Q** Does floor-warming affect linoleum? Is there any special technique for laying linoleum where floor-warming is installed?

**A** A screed surface temperature of up to 80°F, which is usually right for a floor-warming system, does not affect linoleum. As long as the floor is dry, the normal laying procedure is satisfactory. If you have a concrete floor, however, you should allow the normal drying time, run the heating system for a few days to dry out the floor, and then test it by hygrometer for moisture content. The heating should be turned off for one day before linoleum is laid, and should not be turned on again for two or three days after laying is completed, so as to allow the adhesive to mature.

*Left: 3.2 mm Nairn linoleum laid over electric underfloor heating system in London offices.*

*Courtesy: Atomic Power Constructions Ltd Flooring contractors: Lewis Bros (Kings Cross) Ltd*

**Q** What makes a good damp-proof course for linoleum?

**A** There are four answers to this question:

- Hot-applied mastic asphalt or pitch mastic flooring, laid  $\frac{1}{4}$ " thick (BS Code of Practice CP 203 [1951]).
- Hot-laid pitch or bitumen in the form of a sandwich membrane, laid at least  $\frac{1}{4}$ " thick.
- Cold-applied pitch or bitumen solutions are impervious to water but not always to water vapour. It is essential to use high quality materials and to lay them strictly in accordance with the makers' instructions. High spots on the concrete must be well covered.
- On the Continent and in America, a sandwich membrane of polythene at least five-thousandths of an inch thick is being used more and more. Many of these installations are reported successful; but it is too early yet to recommend this method unreservedly.

*Left: 1 Recommended construction of damp-proof membrane 2 treatment of old floor built without damp-proof membrane.*



# ON LINOLEUM

**Q** What do you think of sealers on linoleum?

**A** As the cost of maintaining floors rises, so more people are using sealing varnishes. These may not eliminate polishing, but they make the need for it less frequent. Usually, sealers based on synthetic resins do not yellow with age as much as those based on natural oils, such as tung oil. In traffic lanes the sealer tends to wear off, and it is difficult to replace the lacquer so that it blends in with the surrounding surface. It may be necessary for the whole surface to be cleaned off and re-sealed to get a good finish.

**Q** Does the sub-floor need a special finish before linoleum is laid on it?

**A** No, it does not. No special finish is necessary. If the surface is firm, level, clean and free from rising moisture, linoleum will suit it perfectly. New concrete floors must dry out and be tested for dampness before laying. This is most important where lightweight screeds and concretes are formed *in situ*; these often take a long time to dry out, and may present a deceptively dry appearance on the surface.

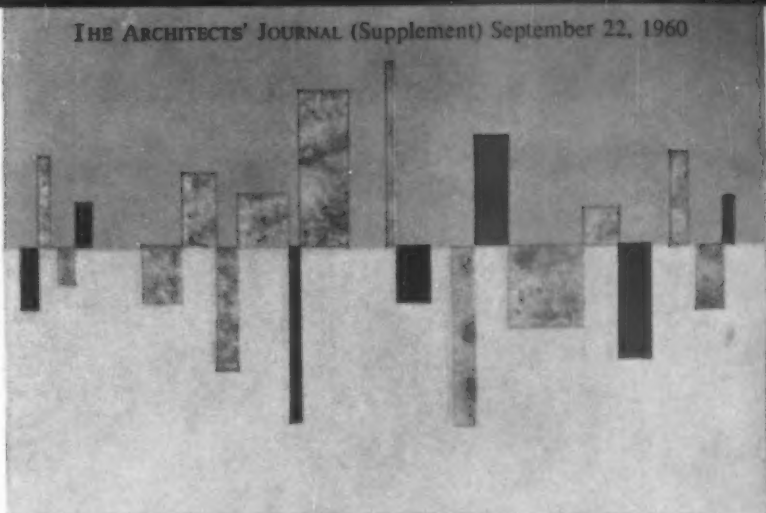


Taking hygrometer reading on a new concrete floor

## Next question?

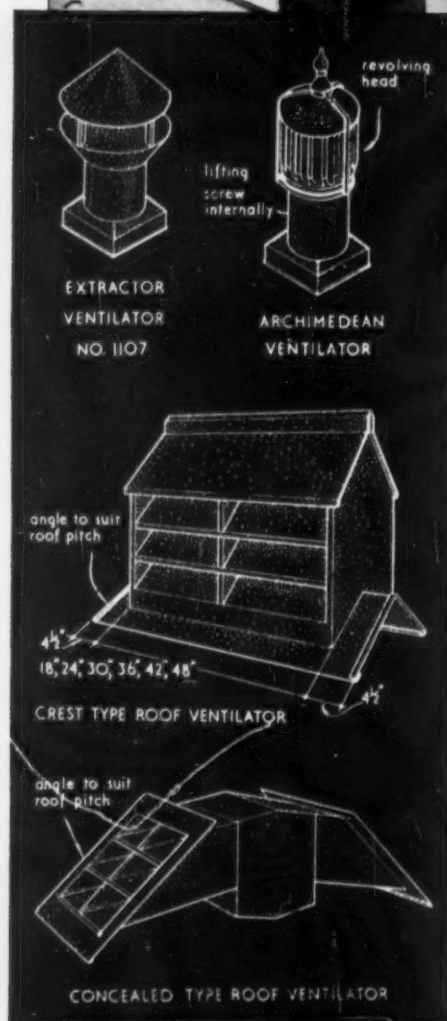
The queries which we have answered on this page are the ones which architects most frequently ask Nairn representatives. You, too, can quickly get skilled advice and information on anything about floorcovering services—not only linoleum—from your nearest Nairn technical representative.

Meanwhile, if you'd like to read how linoleum can be—and has been—successfully used by modern architects, get a copy of Nairn's new Design Book, *USING LINOLEUM CREATIVELY*. The designs shown above are two of the many examples in this Nairn booklet of the creative opportunities which linoleum offers. We'll send you a copy free if you'll drop us a card.



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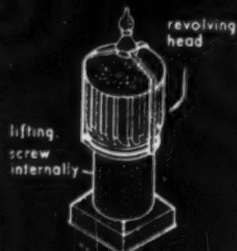




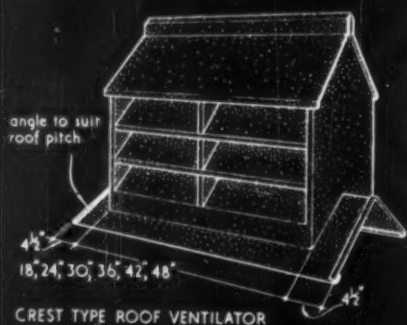
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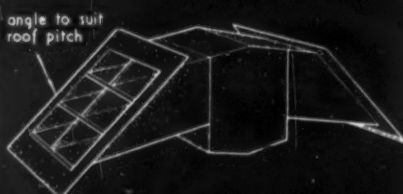
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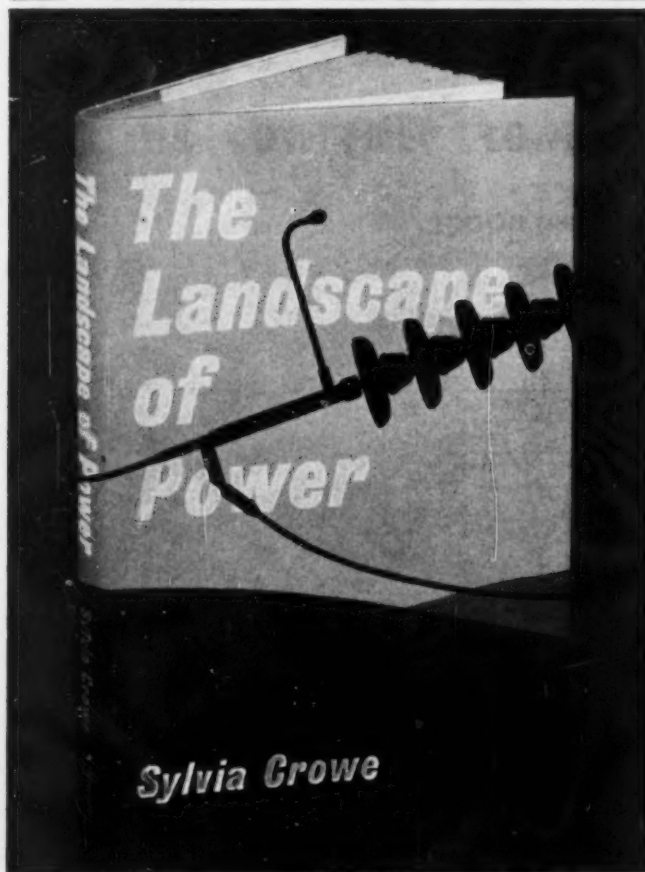
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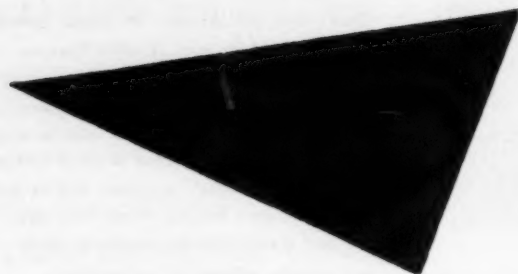
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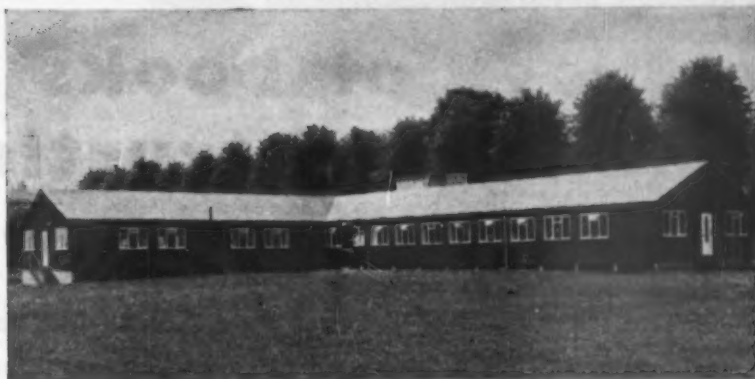
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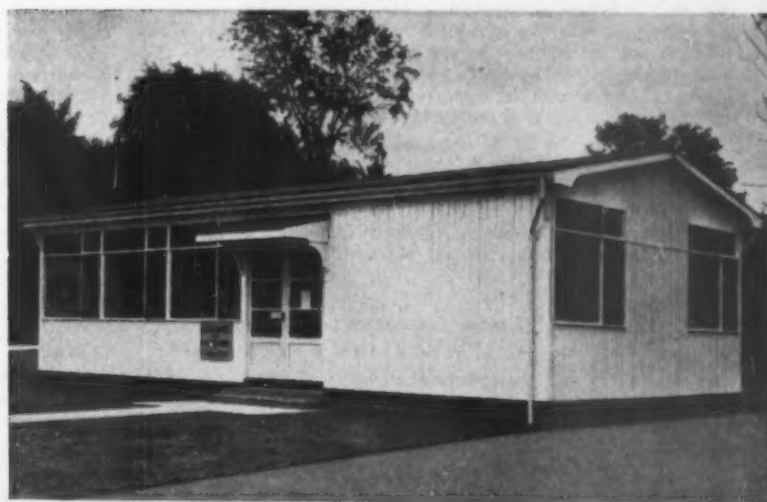
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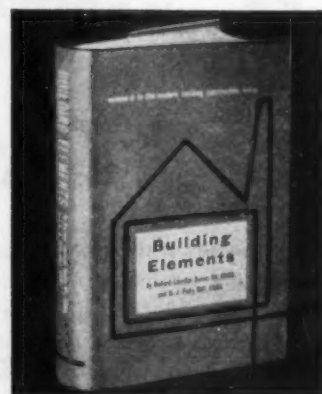


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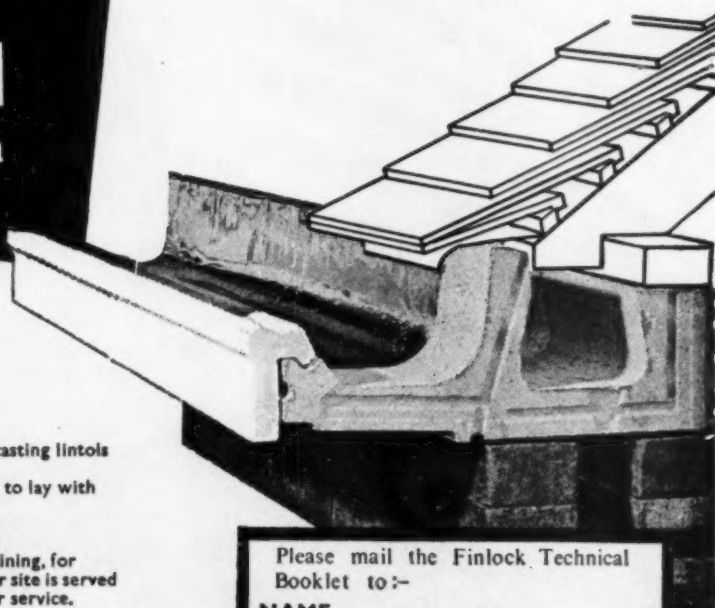
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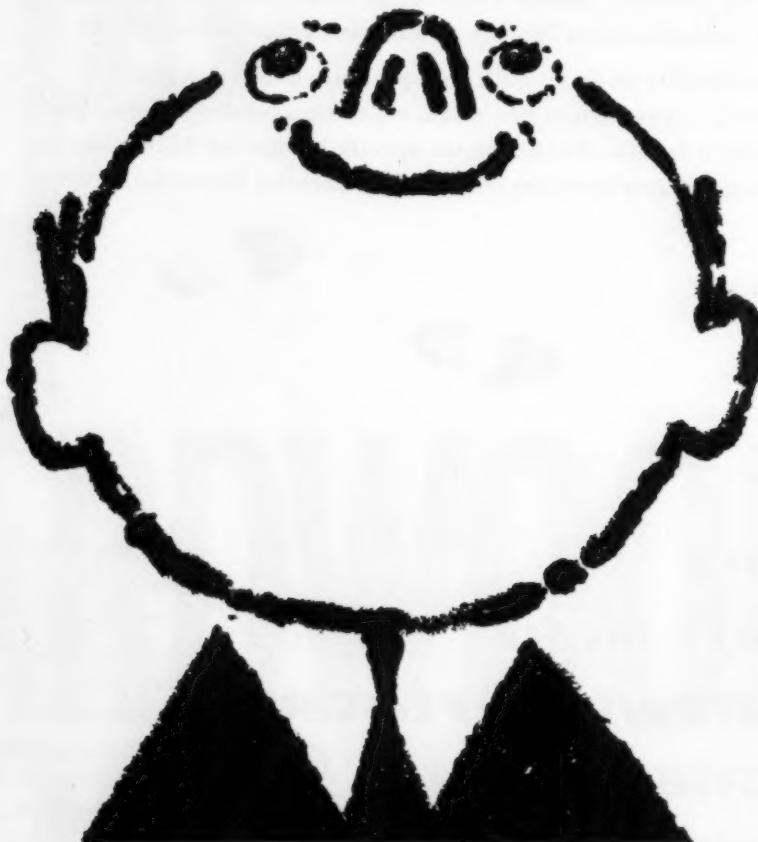
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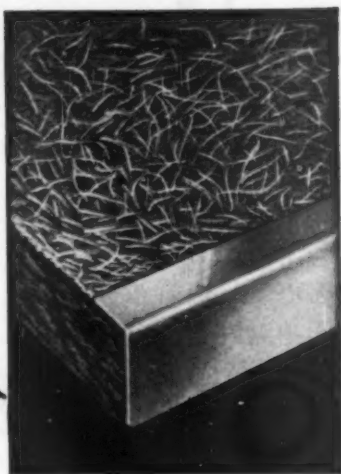
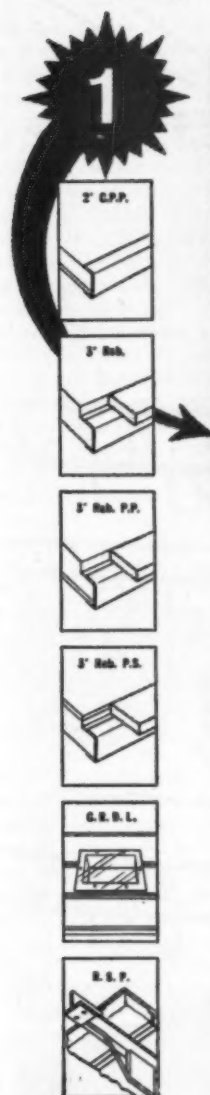
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NOT QUITE ARCHITECTURE

## Fold, Like the Arab

October in sight, the time, like everything else, is nearly ripe. Time to gird up for the daunting questions of the winter season: Will *Monitor* funk architecture again? Why don't the publishers of *Tell Laura I love her* sue road-safety do-gooders for misrepresentation? Will Newport sue Beaulieu for breach of copyright? and why hasn't *The Times Lit. Supp.* published the eyewitness account of Newport by Alan Price-Jones and Elizabeth Bowen?

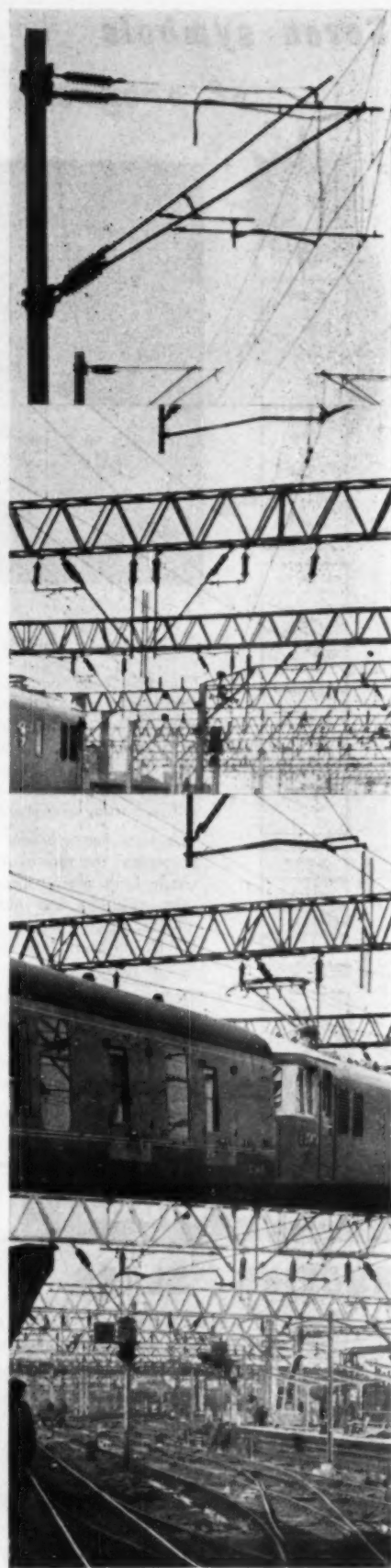
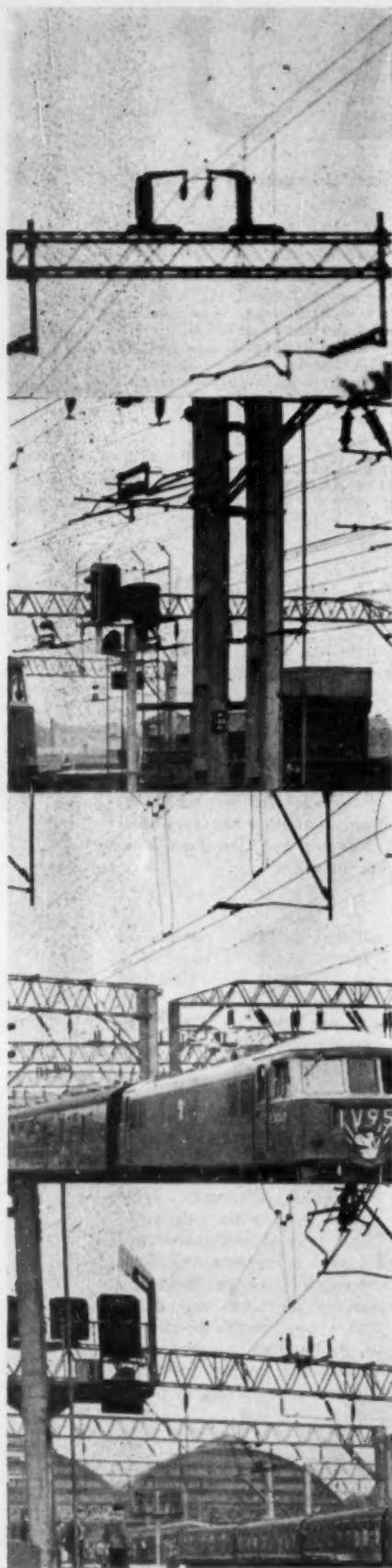
But before all that, there is a question of the century that, for once, I could have answered without shame. I could have said "Bucky" (I know the fella quite well, y'know), "my house weighs just under four ounces per square foot of usable floor area, that's what it weighs!"

Obviously, to support this proud boast, my house must have been something of a technological masterpiece. Was, too. A demountable, portable, stressed skin space-frame, but not carrying the purity of the structural concept to senseless extremes—for the sake of internal circulation, one member was loaded in bending and shear, not pure compression or tension. Had architectural pretensions too: an Anglo-Palladian plan, with a demountable portico on the cross axis. And all this, I repeat, at an all-up, delivered-to-site weight (including foundations) of just under a quarter-pound per square foot.

You don't have to sit there envying me, either. Its in production and it costs £24—that's just over 3s. 11d. per square foot of floor area. Immediate sound of scratching 4Hs, squeaking slide-rules and boiling grey matter, followed by, "But that's only

## *Danger above the Line*

The opening of the electrified railway line from Manchester to Crewe would seem to have been a fiasco of accidents and trains running late. Coventry city architect Arthur Ling, in a letter on page 418, suggests that a similar fiasco is likely in the railways' handling of that controversial feature, the overhead wire. The photographs here of the new line substantiate Mr. Ling's point that the overhead structures would seem to be too varied in type to have the simple unity such an obtrusive feature needs if it is not to disrupt the landscape. The whole operation of preparing the track for electrification was complex and arduous, involving strengthening the track, reconstructing bridges, widening tunnels and remodeling stations (which included the production of a new type of prefabricated station) but this does not excuse the railway engineers for failing to tidy up a very important detail.





120 square feet! That's minute!" To which I reply "Nonsense" (I know the subject quite well, y'know), "Nonsense, that's a very big tent."

Yes, tent. Queen of traditional structures, but as dymaxion as anything in orbit. Lying in it at night, while passing storms emptied themselves all over it, one could not but reflect that the performance of the ordinary old tent is quite fantastic. It was keeping wind and weather out as efficiently as any structure ten thousand times the weight and, with a little routine maintenance (one could not but reflect after slackening off the guys and wringing out the pyjamas), it would last longer between replacements than an ordinary house would go between paint-jobs costing more than the tent. Of course, its U-value isn't even nominal, but the thermal gain in creating a volume of still air in a draughty landscape, plus enough cover to prevent radiant heat loss, is phenomenal. Outside, the wind would of froze your nose some nights: inside we were kicking off blankets because it was too warm, man.

That's one lesson of the tent; the other has to do with services. Your modern camper (leaving aside boy scouts and other forms of genocide like Outward Bound courses) disposes of a remarkable lot of technical equipment, but whereas in the ordinary old-fashioned, post-nomadic, modern house the services form a prison cage of pipes, ducts and what-have-you that would stand up by itself if the house were removed, the camper's services really serve him and go, Ruth-like, wherever he goes. If you want to watch a ship sinking while you shave and keep an eye on the bacon frying, you just shift the polythene wash-bowl and the wind-proof Primus to the edge of the cliff, and wonder how you will ever acclimatise yourself again to having to wash in the bathroom, cook in the kitchen, and watch ships sinking on the telly.

What we want, clearly, is a miniaturised, mobile, cooking, refrigerating, sewage-disposing, VHF and three-channel-televieing, trunk dialling, dry-cleaning and martini-dispensing services robot with fitted ash-tray and book-rest, that will follow us around the house riding on a cushion of conditioned air like an interplanetary Hoover. The direction that research should take was indicated by the shrewd social critic and junior school entrant, Miss D. Banham, who inquired, "Why don't they make transistor atomic power stations, quite little, to have in the house?"

Why not, indeed! Just pure mental inertia in Harwell, Los Alamos, and all those places, where thinking clearly lags well behind the tent which the Arabs—as the poet noted—can fold up and quietly steal away. I'd like to see anybody, Arab or not, fold up the giant prehistoric atomic concrete-henges that are about to go up at places like Trawsfynydd or Sizewell, let alone steal them away. Wake up at the technological front there—we're waiting!

REYNER BANHAM

## The Editors

### PLANNING IN THE PUBLIC INTEREST

THE RIBA statement on comprehensive development, published on page 418, may be a little late in the day but it is very welcome, and public and private architects should ensure that both councillors and officers in local government become thoroughly familiar with the strength and logic of the argument contained in it. And no doubt the architects' powers of persuasion will be strengthened by awareness of the potential work available to the profession if the RIBA's recommendations are carried out by local authorities.

It has long been obvious that the statutorily required comprehensive plan for towns and cities is inadequate for re-developing them in any detail. To achieve satisfactory development a *three-dimensional* plan is essential. The RIBA proposes that for small developments these three-dimensional plans be drawn up by an architect appointed by the local authority and developers be asked to bid on the basis of his design only; for large development, developers either bid to build the winning design of an architectural competition, or the local authority's client, architect or consultant draws up a three-dimensional master plan which would again be bid for by developers who would use their own architects for detailed design.

Whether developers will co-operate under these civilised conditions depends on the resolution of local authorities and the degree of civic conscience they possess. England has been largely ruined physically by the callousness of private enterprise and the petty jealousies and gerrymandering of local politics. Perhaps public opinion can persuade councillors that the creation of a better urban environment is their greatest responsibility today.

### CAMBRIDGE RETHINK

Cambridge is obviously not going to be inferior to Oxford through lack of a planning controversy. The Minister of Housing and Local Government has decided to go back on his original decision to allow the Lion Yard area to be developed for car parking, shops and offices. This sudden reversal must be infuriating for the planners he has so long misled (see page 422), but it may show growing awareness among ministerial planners that any large scale commercial development in this part of Cambridge (as in any old town) will aggravate traffic problems and accelerate the redevelopment of the remainder of the old core of the town. A three-dimensional, phased plan for the development of Cambridge town, as well as of the university, should be a first priority of all the authorities concerned with protecting and enhancing this great city. Careful estimates of Cambridge's growth in population and traffic might show the desirability of another shopping centre to relieve the old: a centre which could be planned for the motor car without ripping the guts out of the old town.



## A FINER CITY, NORWICH

A friend tells me he was delighted to find the Civic Trust's Magdalen Street scheme in Norwich has led to a succession of similar schemes in the city. Some are merely isolated buildings whose owners have bothered to get architectural advice about repainting and cleaning-up of details. But the really important one—the brightening up of most buildings surrounding the Market Place—is a scheme suggested by the town planning committee, and carried out by various property owners and their architects in collaboration with the City Architect, David Percival. (Incidentally, David Percival's excellent scheme for Elm Hill preceded the Civic Trust exercise.) Most of the recent work done around the market was normal maintenance, with the important difference that the colours used in painting were related to a master plan for the whole area. Other improvements included the provision of a new fascia for a shoe shop and the simplification of a horribly ornate parapet on a Joe Lyons building.

I'm glad to hear the work was done with great enthusiasm and that there were very few stubborn odd men out. But it's a pity the city engineer's department felt unable to replace its hideous lamp-posts to coincide with

the clean-up. These monsters might not be quite so painfully eye-catching if someone would throw away the baskets of flowers that cling to them. But the boys at the town hall tell me that "the public like them."

## NINE-YEAR WONDER

Next year, if my calculations are correct, will be 1961—and journalists being what they are, there will doubtless be a lot of harking back ten years to the South Bank Exhibition. Before we are engulfed by the inevitable, sober stocktaking, let me pass on a comment from the current issue of *Ideal Home* magazine: "One of Ernest Race's Festival of Britain chairs is selling in large numbers every year. And it's a nice comment on the tape-measure studies of seating comfort that this popular chair, made nine years ago for exhibition use, was designed 'not to be too comfortable, so people wouldn't sit on it for too long at a time.'"

## LANARKSHIRE NONSENSE

Lanarkshire County Council won't employ any more private architects. Why? Because their fees are twice as high as the operating costs of the county architectural department. What interested me about this news in *The Times* was the RIBA's comment. It was impossible, they said, to compare the different rates of commission because private architects had higher overheads to carry. But how much higher? Surely after all the research they are supposed to have done, the RIBA should know the answer to that question. If, as I suspect, the overheads are not high enough to justify a cost difference of one hundred per cent, it follows that local authority salaries are disproportionately low. This is not the way to attract the kind of men who, since the war, have made local authorities the architectural pace-setters in Britain.

## ANOTHER EYRIE QUERY

The roosting place of that eagle in Grosvenor Square is amusingly in the news. The contractors, Pauling & Company (who was it who put the letter "A" before that name on the building board?) have filed a suit against the New York government. It has been filed in the Court of Claims in Washington for 1,216,860 dollars and is in respect—as they say—of liquidated damages which have

been withheld by the US government at the rate of £200 per day since December 15, 1959—the completion date. It is also in respect of additional costs incurred by the contractors, which must be substantial, since my calculation of a year's liquidated damages is not more than 300,000 dollars.

The latest news is that the US Government is filing a counter-claim. I believe the contract is basically American, with British amendments, so architects will doubtless find the whole thing good fun.

## AMERICAN BUILDING

A few years back Carl Condit wrote *The Rise of the Skyscraper*, a book about building developments in Chicago between 1875 and 1915. It was disappointing. However, Professor Condit—he is professor of general studies at North Western University—goes a long way to make up for the narrowness of his first book in his informative and readable *American Building Art, the Nineteenth Century*.

It is odd that while in Europe there have been a great many histories of structural forms and techniques, no history of them in the United States has been written before. Most of the set structures owe their origins to Europe—usually Britain—and Professor Condit goes out of his way to stress this; yet once they were taken up in the States they were often developed with greater courage and imagination. In the case of cast iron, freedom from control resulted in the skyscraper. Professor Condit makes it clear, to me at least, that the steel frame of the 90s evolved almost imperceptibly from the cast iron structures of the sixties. There was not—as has been thought—a real break. Indeed, improved fireproofing and structural comprehension were both perhaps more significant in the development of the multi-storey frame building than the Bessemer process.

An interesting section of Professor Condit's book is that dealing with the Colonial background. He suggests that one of the reasons for the retention of medieval techniques (which led to the

balloon frame) in New England, long after they had been superseded in England, was the association of what he calls "the prouder achievements of 17th century architecture" with the Anglican and Catholic faith.

\*

The publisher's blurb tells us "this is the first of two volumes which on completion will be the standard history of American building art." While not expecting all that, we can look forward to the second volume. The careless index will doubtless be improved.

#### BEWARE OF ARCHITECTS!

Lord Taylor, who is medical director of Harlow's Industrial Health Service, and a member of the town's Development Corporation, has written an article on hospital design in the *British Medical Journal* (September 10) containing a number of sensible comments and some dangerous half-truths. After mentioning the need for economy in design and for creating a friendly atmosphere for patients and staff, he warns doctors to beware of architects using "glass or curtain walls." He bans the venetian blind, fixed lights, flat roofs and "fancy materials," and advocates brick and stone, because what was good enough for Wren is good enough for you. This could be dismissed as good, if unfair, fun in a less eminent *Journal*. But what will Harlow architects make of the author's warning to doctors? "Remember," he says, "the architect and his professional colleagues are paid on a percentage basis. So the more the buildings cost the greater are their profits."

\*

The architects' fee basis is, of course, far from satisfactory, but if Lord Taylor has evidence of architects abusing their clients in this way, he should place it before the RIBA. Perhaps his greatest error is his misunderstanding of the function of the architect. He believes that before a hospital is built a master plan should be drawn up by unspecified experts. The master plan should then be submitted to the users (doctors, nurses and administrators) and only after their criticisms have been dealt with should the architect be called in. There



These buildings, by Harry W. Weedon and Partners, make up a service area on the M1. (See note below.)

is no suggestion of collaboration or exchange of views—just so many yards of drawings to prepare (room sizes would be specified). All very nice and cosy for the dullest, deadliest type of architect. Is that, perhaps, the only type of architect Lord Taylor has met?

#### CARDIFF AGAIN

In the same issue of the *British Medical Journal* there are some pretty sharp criticisms of the Cardiff Hospital competition results. The BMJ quotes criticisms made by the AJ, lists some unsatisfactory features of the winning scheme and some "curious details" of the brief, and asks whether a building as complicated in its requirements as a medical teaching centre is a fit subject for competition. No matter how carefully written is the brief—and to write it carefully may take years—it is almost certain that the winning design will have to be revised in detail, if not in general form, before it can be built.

The comment concludes: "Many

architects are asking whether the results are so brilliant that they have justified 40 architect-years' work before the scheme even goes to the Ministry. The result seems to have been an expensive building which embodies many faults from the standpoint of the users of the hospital. And flexibility has been sacrificed to monumental mass."

#### PULL-UP FOR SOCKS?

My illustrations show one of the service areas on the M1. It comprises a filling station with breakdown services and shop, and a restaurant and transport café. The completion of the latter was delayed by a shortage of bricks and it was not opened until September 12. The filling station has been in use since the road opened last November. The design of the restaurant was approved by the Ministry of Transport. A commonplace design, like many of the M1's bridges, it does not augur well for future motorways.

ASTRAGAL



# LETTERS

*Arthur Ling, F.R.I.B.A., M.T.P.I.*

*John Howland, A.R.I.B.A.*

*R. P. Stagg, Shap Granite Co. Ltd.*

## Manchester Sample

SIR: Electrification of the country's railways involves supporting thousands of miles of electricity cable over the track. If the gantries to do this are not well designed, ugliness will be widespread. Anyone who travels southwards from Manchester will see a sample of what the rest of the country can expect.

The most obvious defect is the wide variation in structural elements to meet the different conditions under which the electricity cable has to be supported. The effect is most disturbing. Surely it should be possible to devise a common structural element in all the gantries so that repetition of them gives a sense of order and provides the least distraction from the surrounding town and countryside.

Have those responsible been given sufficient time to study the design problems involved? Have they benefited from the experience of other countries, like Switzerland and Sweden? The British Transport Commission is moving with commendable speed in these vast electrification projects, but surely this should not be achieved at the expense of good design.

ARTHUR LING

Coventry.

## Can't Afford to Win

SIR: I have today returned a set of competition documents for what I consider to be a most interesting scheme. The reason I have done so is that, in the unlikely event of my winning, I should not be able to afford to carry the scheme through.

The competition calls for a lot of original thought, with the very laudable intention of producing designs for houses without too much regard for the restrictions imposed by somewhat outdated bye-laws.

I consider that to offer a fee, which at its maximum would be less than 2 per cent, or one-third of the Scale of Fees, is extremely short-sighted on the part of the sponsors and of the Royal Institute of British Architects, on whose scale the fees are based and with whose sanction the competition has been promoted.

JOHN HOWLAND

London

The RIBA points out that in fact 2 per cent. is the recognised scale for state aided development. We understand that the RIBA has been negotiating for some years with the appropriate bodies for a review of the scale of charges for such development and it is expected that a new scale will be in force before the result of this competition is declared.

## Slip Up On Paving

SIR: Many of the recommendations in Mr. Watson's article on granolithic paving published in your issue of August 11 are important and we agree with them, but we feel that strong exception can be taken to the suggestions related to the paragraph which says:

"It is for this reason that true granites are seldom used as aggregates for granolithic pavings. A markedly softer close textured grey stone which is known in the industry as 'whinstone' is the material commonly employed."

We have taken opinion from unbiased sources and find that they are largely in agreement with us that true granites have been and are being used in considerable quantities by firms engaged in the laying of granolithic floorings and pavings, these materials being supplied not only from our own quarries but from other granite quarries also.

Whinstone is not generally softer than granite, as may be seen from the figures in Road Note No. 24, issued by the DSIR.

In our opinion the use of granite rarely if ever causes trouble in concrete, but it is thought that the use of certain dolerites (often called whinstones) has been a source of difficulty, particularly in Scotland.

A simpler and less contentious approach to the problem might be to insist that all aggregates conform to BS 1201.

R. P. STAGG

Sheffield

*The author replies:* I think Mr. Stagg may well be right. In writing I only quoted from my own experience and am prepared to accept that true granites are used in considerable quantities by firms engaged in laying granolithic pavings.

My point is that a high resistance to abrasion can be undesirable. Road Note No. 24 gives the range for granite as 3 to 9 (aggregate abrasion value), and my view is that a very hard granite at the 3 end of the scale might be less suitable than one giving a figure of 5 or 6. This was what I really had in mind when speaking of "true granite."

I did not intend to recommend generally that whinstone should be used in preference to true granite.

I agree that aggregate should conform to the requirements of BS 1201 but this gives little help with regard to the type of rock. It even permits the use of limestone although I should have thought that the use of limestone would preclude the paving being supplied as "granolithic" in the usual trade sense.

# NEWS

## COMPETITION BY TENDER

### RIBA Circular

The following is the text of a circular sent last week by the RIBA to 30,000 local authorities, putting forward "proposals to provide a realistic alternative to the system of 'competition by tender' that will enable local authorities both to realise a good price for their land and to obtain a first-class design":

### COMPETITION BY TENDER

During recent years, and particularly in the last few months, the RIBA has been increasingly concerned about the methods adopted by local authorities to dispose of land for private development. A system has grown up which has been loosely described as "competition by tender," in which the local authority offers to sell or lease a valuable central site, and invites developers to submit a bid for the site together with an architectural design for the proposed development.

The local authority has two aims in view. One is to secure the satisfactory development of the site in the interest of the public whom it represents, so as to achieve a major civic improvement and the solution of such problems as traffic congestion, car parking, lack of open space and other public amenities. The other is to obtain the maximum return from the developers, partly because it is its duty to the ratepayers to obtain a good return, and partly because by doing so it obtains some compensation for the outlay it has to make on public services.

The difficulty which has arisen, and which is causing the RIBA so much concern, is that the two aims often come into conflict with each other. A local authority which receives a number of bids from developers, each accompanied by a scheme designed by the developer's architect, is strongly tempted to accept the highest bid, even if it is not for the best-designed scheme. If it does so, the council is in the short-run the financial gainer, but the community is the loser in the long run. If it is known that the site is likely to go to the highest bidder, the developer is himself tempted to skimp the provision of public amenities and to exploit the site to the utmost, even if by doing so he does not develop it in the most desirable way from the point of view of the public interest. The Planning Authority should, of course, reject such an application, but the local authority which is being tempted by a high bid to give its approval to over-exploitation of the site, may itself be the Planning Authority. There is also a strong temptation, to which some local authorities have succumbed, to play one developer and his architect off against another, even to the extent of picking the brains of each of the developers' architects (without, however, paying for their services) and allowing the ideas submitted on behalf of one developer to be made known to, and developed by



another. Local authorities must at the very least observe a proper code of professional practice in this matter. Many of these developments, moreover, are taking place in the smaller towns, and even in some large ones, whose authorities lack first-rate financial, architectural and technical advice.

Much of the difficulty arises because the planning authorities have not prepared a comprehensive development plan for central areas ripe for development. Private developers often propose major development schemes, profoundly affecting the future of a town, before the planning authority has given sufficient thought to the planning problems of the area. Too many authorities are content to wait, Micawber-like, for a developer to turn up, and are then prepared to give him almost *carte blanche* because the basic planning studies have not been done. Authorities which lack capital and highly qualified staff are being tempted by the offers of firms of estate agents and "town developers" armed with glossy brochures to "advise" them on central area developments. These firms are often acting, in effect, not only as private developers whose motive is financial, but also as town planning consultants and architects. What these towns require, but cannot get from this source, is disinterested professional advice, and the results are only too likely to reflect the lack of this advice.

In the opinion of the RIBA the present system is harmful because it fails to draw a proper distinction between the duty of the public authority, and the legitimate concerns of private developers. Local authorities should be impressed with the importance of drawing up in good time comprehensive development plans that are sufficiently firm to secure the basic planning principles that concern the public—kind and quantity of uses, circulation of vehicles and pedestrians, three-dimensional form and character, open spaces and other public amenities—and yet sufficiently flexible to meet the varying interests of the developers. Such a plan is the essential prerequisite to the consideration of individual projects, and it is the duty of the public authority, not of private profit-seeking concerns, both to prepare such a plan and to ensure that it does not present subsequent developers with conditions that are totally unacceptable. There will be ample scope within such a plan for varied treatment of individual sites, and local authorities which are inviting tenders from developers should make it clear, after consulting the planning authority, how much scope for variation there is.

More often than not, however, where local authorities wish to dispose of a site for development, no comprehensive development plan has been prepared. In these cases it is entirely wrong for the planning function to be delegated, in effect, to developers interested primarily in their own financial returns. The authority, in consultation with the planning authority, must by the most suitable means prepare a plan for the site, and for as much of the surrounding areas as is necessary to create a large enough planning unit to permit of comprehensive treatment.

The RIBA has therefore worked out some proposals to provide a realistic alternative to the system of "competition by tender" that will enable local authorities both to realise a good price for their land and to obtain a first-class design that incorporates essential public amenities and traffic or other improvements, and of which the authorities and the public can be proud. The aim of these proposals is to separate the financial from the architectural decision so that the local authority can be free to choose the best design without having to reject an attractive bid. There are two essential ingredients in the proposals. The first is that, before any financial negotiations take place, before any offers are invited or tenders received, the master plan for the area must be drawn up. The second is that so far as possible any development scheme ought to be conceived and carried out under the direction of one architect.

The RIBA, therefore, recommends to local authorities the following alternative courses of action, which may or may not include the organisation of an architectural competition under RIBA regulations:

(a) FOR SMALL DEVELOPMENTS

For small developments where a RIBA competition could not be expected to attract sufficient entries to justify the cost, the local authority should appoint one architect for the entire work. He would work in close collaboration with the planning authority in preparing his design. Developers would then be invited to put in competitive bids on the basis of his design, but would not be permitted to employ their own architects. While this might deter some developers, the RIBA is satisfied from consultations with developers and their architects that a sufficient number of developers would be prepared to tender on this basis.

(b) FOR LARGER DEVELOPMENTS

For larger developments either of the following alternatives is recommended:

(i) Where there is no architectural competition

Where, in large schemes, an architectural competition is for some reason not thought to be desirable, an architect—either the local authority's chief architect or a consultant in private practice—should be appointed to draw up a three-dimensional master scheme, sufficiently flexible to take account of the developer's requirements. It should normally be a condition of his appointment that the consultant would work with advisers expert in planning, finance and/or commerce, and in close collaboration with the planning authority. Competitive bids would then be obtained from developers, the work being executed by the winning developer's own architect. The consultant would be debarred from assisting any of the competing developers in any way.

(ii) Where there is an architectural competition

(a) The local authority would promote an architectural competition for the development of the site, under RIBA competition regulations. In accordance with these regulations the assessor, who would select the winning design, would be an architect or,

if there were more than one assessor, a majority would be architects. Competitive bids would be invited from developers for the execution of the winning design, the successful developer being required to appoint the winner of the architectural competition to execute the work on the basis of normal architect-client relationship. (b) Alternatively, the winning architect would be appointed the architect for buildings to be erected by the local authority, and consultant architect for the remainder of the development, the successful developers employing their own architects as executive architects for their own buildings.

In both cases, it would normally be a condition of his appointment that the assessor would work with advisers expert in planning, finance and/or commerce, and in close collaboration with the planning authority. He would be debarred by the RIBA Competition Regulations from assisting any of the competing developers in any way.

The RIBA invites all local authorities which are considering the redevelopment of any part of the land in their ownership by private developers to discuss this problem with them. The RIBA is convinced that the alternatives it now proposes can assist local authorities to secure good development, in which the right balance is struck between the financial and the other considerations involved.

## RIBA

### Commonwealth Conference

Representatives of Architectural Societies in the Commonwealth countries are meeting in London this week at the RIBA, to discuss plans for holding a Commonwealth Conference in 1962. Meetings will be in private as the discussions are exploratory and recommendations will have to be discussed with the Allied Societies throughout the Commonwealth before final decisions are reached.

One of the issues to be discussed is the possibility of any architect who is educated and registered in any Commonwealth country being free to practise in any other Commonwealth country. There is considerable movement of architects among these countries now, but various difficulties—educational, legislative, and political—still stand in the way of complete freedom of movement.

Another large issue arising results from the emergence of new, independent states from former colonial territories, and the best way in which architects in the more advanced countries of the Commonwealth can help the progress of these new states.

## CORRECTION

A report of the first sessions of the Town and Country Planning Summer School at St. Andrews in last week's AJ was headed TCPA: it should have been attributed to the TPI, of which a full report will be published next week.

# Oliver Cox

was intercepted by

us the other day



on his way from County Hall to Whitehall, during those few brief moments when he was no longer a local government officer, and had not yet put on the mantle of silence of the Civil Service. He talked at length about his new job in charge of development at the Ministry of Housing, which is clearly a key job in the profession's future. Inevitably, in discussing development with him, the parallel of the education field was cited time and again, but it must also be remembered that for several years, before he was concerned with the now-shelved New Town Project at Hook in Hampshire, Oliver Cox was in charge of the Development Group on Housing within the LCC.

## THE PROPER PLACE

He first made clear that in his view "the right and proper place for full-scale development in housing is the Ministry. It has now clearly established by the precedent of MOE, that this is a proper function of central government." The fact that such work has not previously been carried out by MOHLG, had made it necessary, or at least desirable, that the larger local authorities such as LCC carry out their own programmes of research and development. "This is good," he said, "but work gets duplicated in different authorities: and there is no mechanism other than MOHLG by which results can generally be disseminated." As an instance of how this is needed he said that the LCC were still receiving inquiries about detailed aspects of the work of their own development group, as a result of the paper given by Cleeve Barr about five years ago to the RIBA. "Incidentally," he said, "that was the only comprehensive statement ever made about the group's work." "A further point," he said, "is that it is only when central government undertakes experimental building that it can be truly free of local politics. If a local authority architect does some experimental housing, and in one or more respects it fails, then there is always the chance that he may be subjected to political attack."

Only with central government could the exercise be approached with a scientific detachment as to whether things which were frankly and openly experimental were successes or failures.

## THE TEAM AND ITS WORK

Oliver Cox hoped that it would be possible to create a team to carry out development which would be "a drawing together of widely differing skills, ranging from traffic engineers and town planners to sociologists and housing managers, with the architect taking a central, co-ordinating role. Little real progress of a fundamental nature can be made unless the problem of housing can be tackled in this broad way." This again would be a big step forward from his development work at LCC, where for organisational reasons the scope of the work had been much more limited, concentrating mainly upon the technical and economic aspects of housing. "A small amount of very valuable sociological studies has been carried out," he said, "notably those by Margaret Willis, on such subjects as living high, windows and old people, but this has really been a mere scratching of the surface."

Having created such a team, he foresaw that it would have much to learn from the classic pattern of development work as established by the MOE. But it must be in the context of the Ministry's function as a small organisation acting in an advisory capacity to local authorities. "Development," he said, "is now an OK word, and is being loosely used all over the place to describe architects' work which is anything

but development."

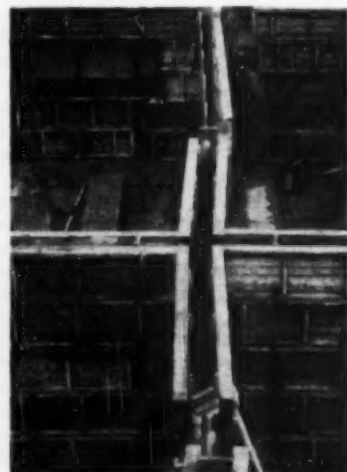
The main aims of a development group should be, he said, as follows:

1. To develop a clearer brief for architects for the design of building types.
2. To develop new ways of building, in technical and economic terms.
3. To carry out experimental building, to test out 1 and 2.
4. To disseminate the results to local authorities and their architects.

This Oliver Cox foresaw as a continuous process of broad advancement on all these four fronts. To attempt to carry out these aims in an orderly sequence one after the other covering the whole field of housing would be to court disaster. "It would mean you would probably never finish," he said, "and it would in any case result in the work being out of date before it was published." We then asked him to discuss these aims in detail.

## THE BRIEF

Although there was at present no co-ordinated brief for the architect, he said that "there already exists a considerable body of knowledge which requires co-ordination from the universities, and from people like BRS and the major housing authorities." Beyond these sources of information, he foresaw that with time it would be necessary for the sociologists to build up a detailed picture of the functional require-



LCC trial of a flexible system of shuttering

We illustrate  
the results  
of a few  
of Oliver Cox's  
many previous  
activities  
at LCC



LCC tower block in Wandsworth

ments. One important point, however, must be remembered in comparing housing with schools. "The MOE group are dealing with a highly vocal and well organised body of professionals," he said, "who are able to express their ideas, and, indeed, to make a direct impact upon building design." There is no such body of professionals in housing and thus the need for building experimental projects, and for sociologists to test their effect upon a long term basis. It would be essential for the group to look ahead. "For instance," he said, "one of the most urgent problems is the impact of the motor car on density and layout."

#### TECHNIQUES AND COSTS

Every attempt, in Oliver Cox's view, should be made to achieve the same sort of rationalisation in house construction as had now been reached in schools. Two factors, however, would probably result in methods which were different from the typical schools system. Firstly, cost: "The yardstick is greatly influenced by the two-storey house in loadbearing brickwork built by the local builder," he said. Secondly, weight: the required standards for sound insulation and fire resistance are higher in housing than for schools, and this, at least for the moment, seems to dictate much heavier forms of construction. In the short term he believes that the group should study the

development of heavy and dry construction, somewhat along the lines of what was currently being done in Europe. At the moment, however, such methods tended to be far too rigid, producing dull, repetitive planning. "We must try to produce systems which are heavy, dry, and flexible." "In the long term," he said, "the group must try to establish light methods of construction, whilst still meeting the functional requirements, because of the potential savings which can be achieved in cost and speed erection, particularly with tall building." On this it could only proceed in close collaboration with BRS and other interested bodies—how, for instance, you can have sound insulation without mass—and there would have to be much scientific study. He saw no reason why this long-term objective of light and dry construction should not be achieved.

#### EXPERIMENTAL PROJECTS

The programme of projects would naturally have to follow national priorities, and it seemed likely that slum clearance and the special needs of old people would be high on the list. An appropriate site could then be chosen in conjunction with a local authority sympathetic to the group's work. He saw no difficulty in finding suitable authorities, indeed he understood that MOHLG had already received offers of col-

laboration. At the same time the group might study in consultation with the industry, the development of new structural systems and of the elements of housing, such as windows, sanitary fittings, etc. "The climate for such consultations will, of course, be different from that at the LCC," he said, "with its potential for bulk orders, but the prestige of being associated with a MOHLG project should be an equally satisfactory basis."

The projects could, of course, be experimental from the point of view of planning, just as much as for the technique of building, and then be tested by sociologists to get people's reactions and to observe the changes in their patterns of behaviour. "This testing will only be effective if it is done on a long term basis of two or three years. Incidentally, I see no reason why, for control purposes, some of the projects can't contain features which are frankly experimental, so as to see the type of reaction that occurs."

#### DISSEMINATION

The ultimate success of the group's work would depend on having the results of its work generally applied by the twelve hundred or so local authorities doing housing. "This is a problem of communication," he said, "and I believe that at the moment there is far too much valuable knowledge, which ought to be generally applied in architectural design, which is at present locked up in a few key heads." Great emphasis would have to be placed upon getting the results properly written up and published in a suitable form. Oliver Cox visualised that MOHLG might produce a series similar to the MOE Bulletins, but perhaps slightly more flexible to allow publications from time to time on shorter subjects, down to about the size of a BRS Digest.

"Our ultimate aim," he said, "must be to create new and exciting patterns of living. In the end, it is communities that we are shaping, and a community is everything to do with living. We can only succeed in all this if we can gradually develop a fuller and richer understanding of people's needs." We wish Oliver Cox all success as he embarks upon this important venture.



Test of butyl extrusion for double glazing



Two-storey development at Alton Estate East



## CAMBRIDGE PLAN

### *Lion Yard*

The decision of the Minister of Housing to reject the Lion Yard development scheme at Cambridge, as reported last week, seems to have been one of those unpredictable right-about-face decisions for which there is no apparent explanation. Whatever its cause, the result has created some painful problems for Cambridge and raised some general issues of importance to all local planning authorities who have been working out coherent development plans for their areas.

The County of Cambridge Development Plan was submitted to the Minister in 1952 in the form of a 1-in./mile scale County Map, a 6-in./mile Town Map for Cambridge and a Written Statement, and the Plan became the subject of a prolonged public inquiry in 1952. No comprehensive Development Area map for Lion Yard was submitted at that time, but the general intention of the planning authority to develop this small rather derelict corner of the town as a shopping centre and car park was made quite clear in the report, and thoroughly discussed at the public inquiry.

In 1954 the County Development Plan was approved, and the Minister, in a letter accompanying his decision, encouraged the planning authority to submit as soon as possible proposals for the comprehensive development of the Lion Yard Area, which he agreed was suitable for such uses as a car park, shops and offices.

After this, work on the proposals went on continuously for four years, with full co-operation from the Ministry at all stages. The advice of Sir William Holford, who is retained as consultant by the County Council, was sought along with that of other experts, before a submission was made to the Minister. At first it had been proposed to make this a shopping street, but further study led to the plan being changed to create a pedestrian precinct. The City Council already owned about a third of the area and much of the rest was old property in poor condition.

Meanwhile it became clear that many development companies were interested and ready to submit schemes and tenders for carrying the development through under the eye of the Cambridge planning authorities. Such proposals had many financial advantages, for instance a development company could afford to put car parks underground, a thing the County authority could not raise the money to do itself.

Some seven schemes were considered and tenders submitted, and one, from Edger Investments Ltd., was selected, which had been designed by Stone, Toms & Partners. It was not considered entirely satisfactory, however, and the Company expressed readiness to alter it in any way the planning authority required.

A Comprehensive Development Area map of Lion Yard had by now been submitted

to the Minister, together with a Designation map, making parts of the area subject to compulsory purchase, and at the same time the City Council submitted a compulsory purchase order for the properties involved. The Edger Investments scheme was not submitted but it was used at the inquiry solely to illustrate the sort of development intended in the area. Nevertheless, the inquiry soon developed from an investigation into the principles of the development scheme into an examination of the Edger scheme in particular. The Minister had, in the end, only to decide on the C.D.A. proposals and not on the merits of the Edger scheme.

The Minister has now not only rejected the scheme as presented at the inquiry but has effectively reversed the approval given in 1954 to the type of development for Lion Yard. He now instructs the planning authority to aim at "decongestion" of the area, with the rather odd requirement that "if additional shopping space is proposed the Minister would wish to have some evidence that the total amount of shopping in the central area is not likely to be significantly increased as a result."

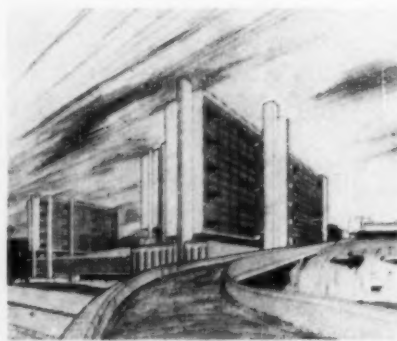
Few Development Companies would tender for shops where they did not expect a significant increase in shopping.

It may well be that it was wrong in the first place to designate Lion Yard for development as a shopping centre, even though the need for Cambridge to provide increased shopping facilities has never been in question.

The fact remains that six years' work, time and money has gone into the town plan in close collaboration with the Ministry, and that now much of this work must be done again. Is this ministerial responsibility or irresponsibility?

## HIGH HOTWELLS

### *Student Scheme for Council?*



A students' project for developing 12 acres off Hotwells Road, Bristol, for high

density housing (AJ frontis, March 3, 1960) was the subject of a special meeting organised by Bristol Corporation, Bristol Civic Society, representatives of the Royal West of England Academy School of Architecture, whose project it was, and attended by the City architect, A. H. Clarke.

Mr. Evelyn Freeth, principal of the R.W.A. School outlined the scheme, which would provide 40 dwellings to the acre in multi-storey flats, with high speed lifts, and with car parking, garaging and a number of shops provided at ground level.

One of the strongest supporters of the scheme was the City architect, who said it would introduce new life and vigour into the city. The economics of the scheme would need some further investigation, but he believed it would work. City treasurer T. R. Johnson suggested that "the next exercise for the students should be an exercise in costs." It would make a difference, he pointed out if the proposed flats were to be used for slum clearance, as they would then be eligible for subsidy: otherwise they would have to plan for a different kind of tenant.

Summing up the discussion, Councillor Geoffrey Palmer, chairman of the Housing Committee promised that they would come to a decision on the Hotwells scheme within the next six months, when a further meeting would be held to examine it in detail.

## TALL BLOCK FOR HENLEY

### *Won on Appeal*

High flats may be built at Henley-on-Thames, as a result of the Minister of Housing's decision on an appeal by Townmaker Ltd. against the refusal of Oxfordshire County Council to permit a 25-storey tower block of flats to be built as part of a development at Paradise Road, Henley.

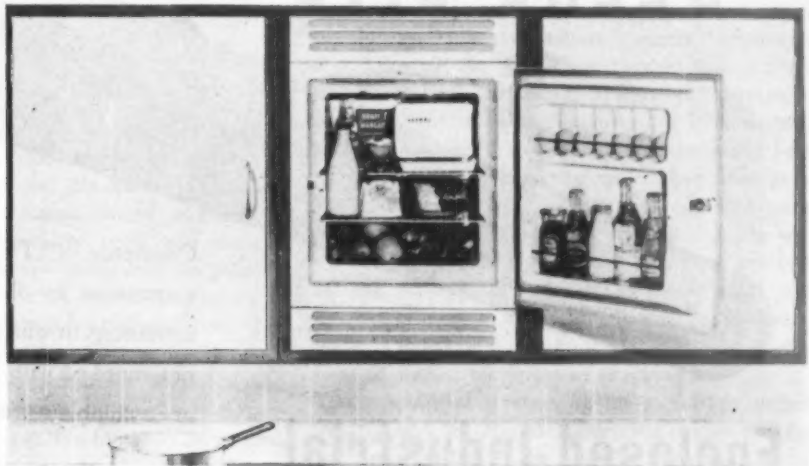
Oxfordshire rejected the scheme, despite the high standard of the design, because they thought a seven-storey block was high enough for Henley. The Minister has allowed the appeal, but considers that the tower block should be not more than 15 storeys high.

The letter which gives this decision says the Minister agreed with his inspector and considered that the architectural conceptions of the layout were of an admirably high standard. He would not himself regard a block of flats as objectionable merely because it broke the skyline, and he would not think that any kind of tall block on the site would necessarily dominate the town. He considered, however, that a block of 12 to 15 storeys rather than of 18 to 25 storeys would be reasonable in scale in relation to the long low terraces on the site. If the tower were elegantly designed, he thought it would add to the landscape.

## THE INDUSTRY



Elington stacking chair.



Morphy-Richards A.160 built-in refrigerator.

*This week Brian Grant describes a new stacking chair, a built-in refrigerator, and a plastic dressing suitable for swimming pools.*

**Stacking Chairs**

The photograph on the left shows a stacking chair which seems to be something of an improvement over the rather bizarre looks of many low priced stackers. It has been designed by Mr. Frank Height, DES. R.C.A., and is now in production, selling at a price of about 30s. in British Standard D and E sizes. The chair has a solid beech frame which is reinforced by a normal underframe and is fitted with steel and rubber silencers. It stacks to quite a considerable height as the forward progression of the chairs is countered by the fact that they tilt backwards so that their centre of gravity remains over the lowest chair. (Elington Industries Ltd., Totton, Southampton.)

**Built-in Refrigerators**

Morphy-Richards have since the spring been selling a built-in version of their A.160 refrigerator in America, and it is now being made available in this country at a price of £35 10s. including purchase tax. It has a capacity of 1.6 cu. ft. with a shelf area of 3.1 sq. ft., and has two ice trays for 24 cubes (1.1 lb.) of ice, or storage for up to 4 lb. of frozen foods. There are the usual storage shelves in the door. Standard finish is white or cream stove enamel, and the door interior and shell are blue polystyrene; the door can be hung either right or left. The cooling unit is a thermostatic absorption type suitable for ambient temperatures up to 90 deg. F., and the electrical version has a loading of 95 watts. Town and bottled gas versions are also available. (Morphy-Richards (Astral) Ltd., 50, Conduit Street, London, W.1.)

**Non-slip Dressing for Swimming Pools**

Co-Seal, a plastic dressing, which is widely used as a non-slip dressing for factory floors, is now being applied with some success to the surrounds and floors of concrete swimming pools as well as to changing rooms. The dressing is water-proof, chemical resistant and does not support bacteria; it can also be scrubbed clean. Several colours are available. (Stewart Wales, Somerville Ltd., Calderbank House, 99, Brownside Road, Cambuslang.)



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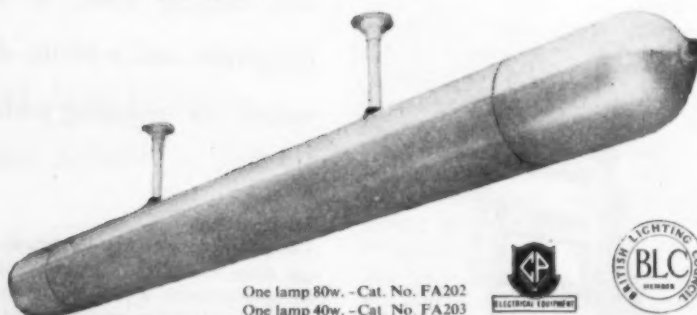
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## 17 CONSTRUCTION: GENERAL

## light cladding II: durability and maintenance

R. Michael Rostron resumes his articles\* on light cladding by considering the new situation which this constructural device has created with regard to durability and maintenance.

Until fairly recently durability was thought of in terms of hundreds of years and maintenance was concerned mostly with minor repairs and the occasional application of paint. The use of a limited number of materials of proven durability—especially brick and stone—resulted in long-term design considerations relating mainly to the encouragement of natural weathering. Today, even when using traditional materials, but more especially when new materials and techniques are used, the architect's approach to durability and maintenance has undergone a far-reaching change. Among the many reasons for this, four may be selected as having the greatest importance: different ideas on the economic life of buildings, a changed financial background, more-severe atmospheric conditions, and lack of long-term weathering data on new materials and forms of construction.

It is very infrequently that the useful life of a building can be determined with any accuracy. Changes in land values and technological and sociological changes result in many cases in a building ceasing to have any useful life in spite of the fact that it may remain structurally sound. Alternatively, scarcity of money may result in repair and renewal (which attract tax relief) rather than rebuilding, thus prolonging the useful life of a building beyond its expected life. The architect has little control over those factors since they rarely depend on durability of construction, but he has an obligation to acknowledge them during design. During the last hundred years buildings were erected for an indefinite life. The use of brick and stone, which both last indefinitely with little maintenance, encouraged this, perhaps unconscious, aspect of design, but the result is that in the great majority of these buildings materials have been used which have outlived the building's useful life.

It has been found through experience that the various parts of a building cannot be expected to last the same length of time. The structure has the longest life of all; services and equipment require comparatively

frequent overhaul and renewal and finishes and parts subject to wear need rather less frequent renewal, but heavy maintenance. There is, unfortunately, little experience on the actual life of cladding, although mediæval half-timbered construction has shown that it is possible for it to last as long as the structure. Although the durability of many modern materials and techniques is not known with any certainty, it is both impracticable and inadvisable (with few exceptions) to consider buildings as having a "temporary" or "limited" life. An analysis of many "temporary" and "limited life" buildings reveals that, constructionally at least, they differ little from "permanent" buildings. Under these circumstances it is suggested that the architect's approach should generally be towards flexibility in cladding rather than towards any limitations on its life. Such flexibility should include the renewal or replacement of external cladding which may be required by extension or change of use of the existing building, or by technological advances in the filtering properties of the wall. It also implies a maximum, though not indefinite life for the cladding coupled with a minimum of maintenance.

The influence of taxation on the actual life of buildings has been mentioned. Its implications are felt, however, even at the design stage. In a paper\* delivered to the British Architects' Conference at Oxford in July, 1957, Thomas Mitchell suggested that "the taxation system in this country in many ways encourages cheap capital cost in new building and a deliberate acceptance of relatively high maintenance cost . . . because maintenance costs are an allowable charge against profits for taxation, whereas capital costs (with some exceptions) are not. . . . The result is that the cheapest possible initial cost is pursued relentlessly in spite of the fact that the cost of servicing the capital invested by industry in building is sometimes small compared with other charges—labour, material and equipment."

Whilst it would be unwise to make any predictions about the fiscal policies of future governments, there are signs that the deliberate acceptance of high maintenance costs will not be tenable indefinitely. Maintenance has, proportionally, a far higher labour content than other building work and the rate of increase of labour charges has for some time been greater than corresponding materials costs. The obvious indication is that recurring maintenance charges are likely to increase to a much greater extent than capital costs for new work.

There is, in addition, the wider economic aspect that maintenance work is non-productive. Ministry of Works figures for 1958 showed that 27 per cent of the total labour force of the building industry, or about 320,000 personnel, are engaged on maintenance.

\* Previous articles in the series were as follows: Heat Transmission, February 25, 1960; Stability, March 3; Condensation, March 10; Fire Resistance, March 17; Sound Insulation, March 31; The Joint, April 28; Materials and Finishes, Metals, May 12; Materials and Finishes, Timber and Glass, May 19; Materials and Finishes, concluded, June 23; Erection, July 21.

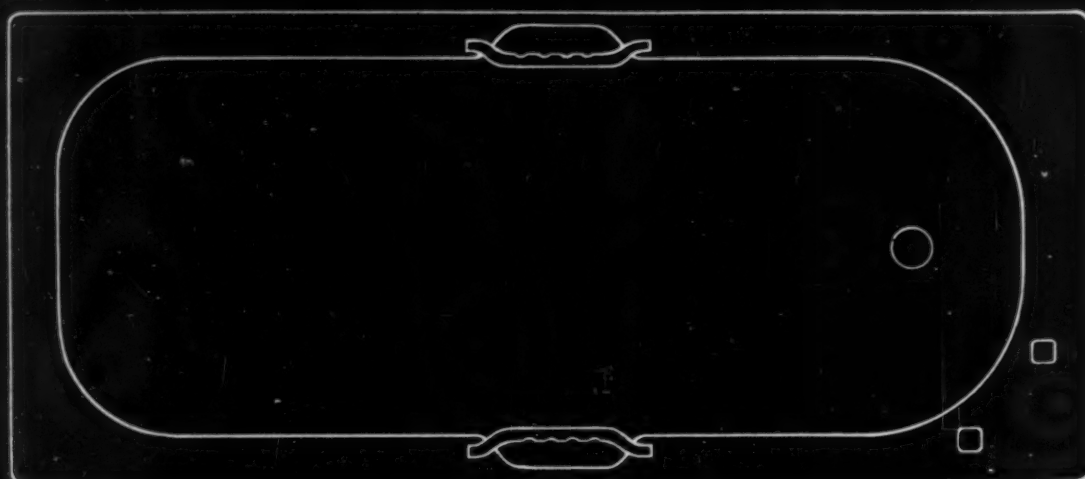
\* Finance, Design and Durability of Buildings. RIBA Journal, vol. 64, p. 349 (July 1957).

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## technical section

Although during the last few years these figures have decreased slightly\*, the value of repair and maintenance work carried out during 1958 amounted to the astonishing figure of £666 million. As Thomas Mitchell pointed out, a saving of only 5 per cent on this figure would free £33½ million for use on new work—almost twice the annual expenditure on new roads.

Although the durability of brick and stone are not, in most cases, severely affected by atmospheric pollution, their appearance in industrial areas and cities suffers badly. The increasing popularity of cleaning stonework and brickwork has revealed both a keener appreciation of the appearance of buildings on the part of building owners, and one of the few weaknesses of these traditional materials. However, despite the fact that such cleaning is both possible and effective and despite the possibility of a gradual decrease in atmospheric pollution due to both local and central government legislation, the cleaning of buildings is expensive. Washing limestone costs about 10s. per yd. super (sandstones may cost up to three times this figure) and, to be effective, cleaning is necessary at about five-year intervals. It is apparent that a substantial saving in maintenance could be effected if, in polluted atmospheres, materials are used which would either require less frequent cleaning, or would be easier to clean than brick or stone.

These considerations enable a few broad requirements to be set down:

1. Flexibility in wall design.
2. Cheaper buildings whilst still retaining equivalent or better performance standards.

In spite of their platitudinous nature, these are valuable principles which gain from repetition. They are not, however, of immediate consideration in terms of durability and maintenance.

3. The necessity to consider the financial implications of maintenance.
4. The necessity to give thought during design to cheaper and easier maintenance.

* Ministry of Works Figures for	1955.	1956.	1958
Total labour force	1,164,000.	1,186,000.	1,187,000
Proportion engaged on maintenance	334,000.	327,000	320,000
Percentage engaged on maintenance	28.7	27.5	27.0

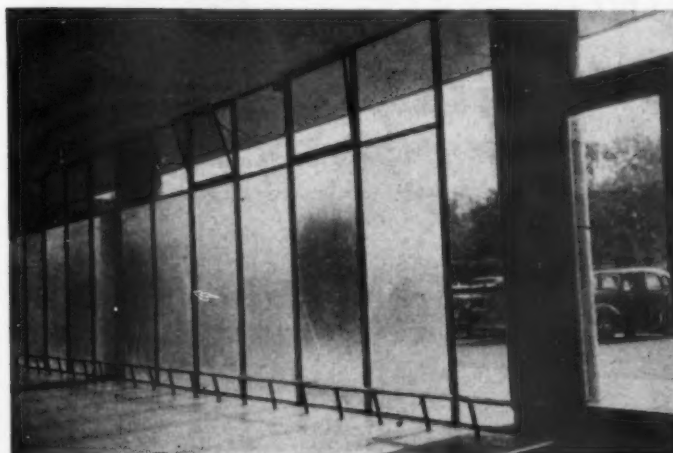


Fig. 1. Guard rail at foot of glazing: LCC's Tulse Hill School, London.

5. A need for materials and methods of construction which require less and easier maintenance and (arising out of this),

6. A reduced emphasis on natural weathering and a greater emphasis on natural and artificial cleaning. The financial implications of maintenance have not yet received sufficient attention during the early stages of design mainly due to the lack of scientifically collated data on maintenance costs. It is possible, however, to give some consideration to the probable effect on capital costs of recurring maintenance charges. Until detailed information is available, such considerations must be confined to general terms. W. J. Reiniers\* has compiled a table (Table 1) which equates annual maintenance cost in terms of capital expenditure. The meaning of this table is that to ensure an income for maintenance of £1 per annum a capital investment of, for example £12 for 20 years at 5½ per cent interest is required. It should be noticed that the figures do not vary very greatly with the period of the loan and Dr. J. C. Weston† has suggested that, to allow for inflation during the period of the loan "there is much to be said for ignoring the actual term of the loan and taking the figures for an infinitely long loan (nominally 999 years)."

Table 1 shows that, for a loan at the rate of 5½ per cent, the capital value of maintenance costs of £1 per annum is about £18. In other words, an additional capital expenditure of £18,000 would be justifiable if maintenance costs could be reduced by £1,000 per annum. On this basis it is likely that a saving of one man's time would justify an additional expenditure of £10,000.

It is possible, very approximately, to relate actual maintenance costs to building costs, but here again, accuracy is dependent on available information and is not likely at present to be very great. Hubert Bennett has stated‡ that in a typical public building of average size, annual maintenance costs are at present about 1 per cent of capital cost. One-third of this figure represents general repairs and two-thirds renovation and redecoration. Table 2 shows the effect of this

\* W. J. Reiniers. Maintenance Costs and Economic Design. *The Chartered Surveyor*, September 1955.

† Dr. J. C. Weston. *Architectural Economics*. RIBA Journal, vol. 63, p. 273 (May 1956).

‡ Discussion at the British Architects' Conference. RIBA Journal, vol. 64, p. 409 (August 1957).

Period	Rate of interest			
	4½%	5%	5½%	6%
15 years	£ 10.6	£ 10.4	£ 10.0	£ 9.6
20 years	13.0	12.6	12.0	11.5
40 years	16.4	17.2	16.0	15.0
60 years	20.6	18.9	17.4	16.2
999 years	22.2	20.0	16.2	16.7

Table 1. Equivalent capital cost of £1 maintenance per annum.

Capital cost	Annual Maintenance Cost	Equivalent Capital Cost	Total Effective Capital Cost
£10,000	£100	£1,830	£11,830
£25,000	£250	£4,550	£29,550
£50,000	£500	£9,100	£59,100
£100,000	£1,000	£18,200	£118,200
£250,000	£2,500	£45,500	£295,500

Table 2. Actual and effective capital cost.





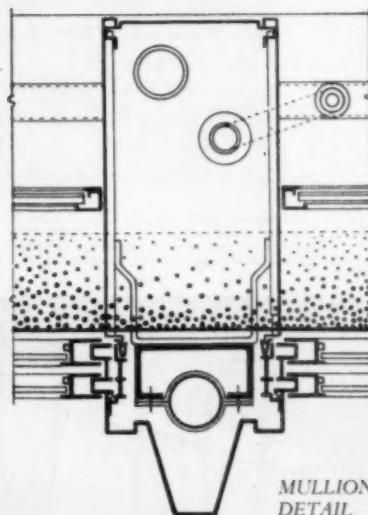
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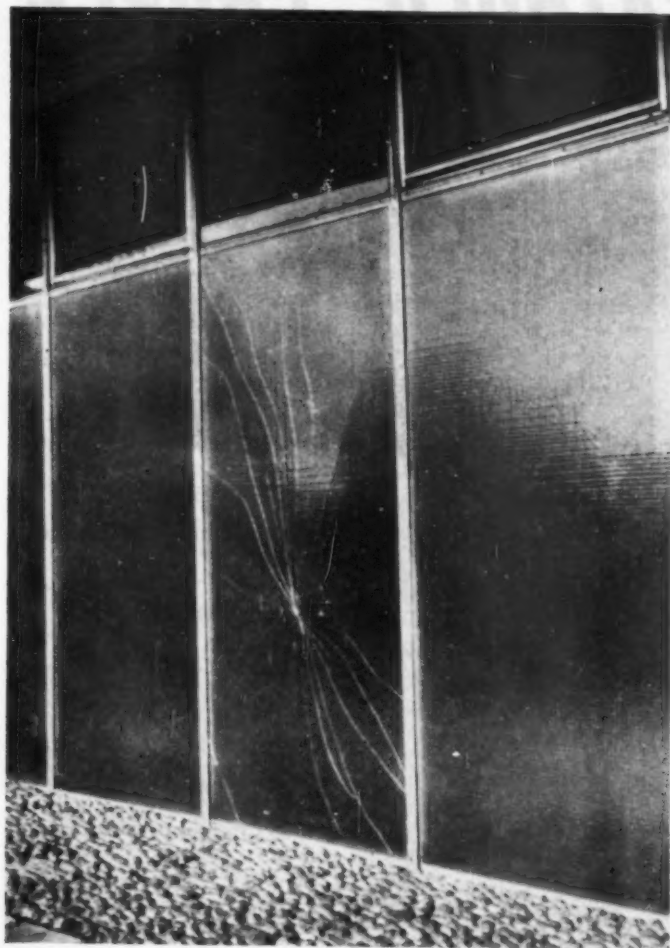


Fig. 2. Broken glass at Tulsa Hill School.

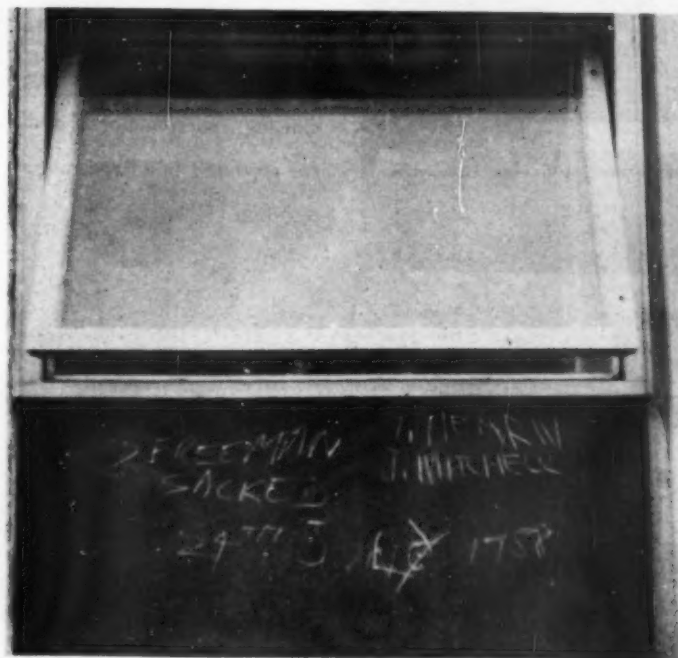


Fig. 3. Defacement at school, Chiswick.

figure on capital costs, assuming an interest rate of  $5\frac{1}{2}$  per cent. It will be seen that the effective capital cost is about 18 per cent higher than the actual capital cost if recurring maintenance charges are allowed for. It is part of the architect's task to exercise some control over this figure. The survey carried out by the author showed that ease of maintenance was considered to be the most important consideration when choosing a particular form of cladding and indicates that architects are aware of the need to reduce maintenance costs. Although this will eventually require data on weathering which is not always available, there are a number of factors which should be considered at the design stage. A full understanding of cladding technique and of the physical properties of materials will enable such properties to be exploited or minimised by thorough detailing, and where maintenance is unavoidable, this may be more easily and quickly carried out if more thought is given to accessibility.

These and other factors may be examined more satisfactorily if further consideration is divided into two aspects: firstly that of DURABILITY of materials and finishes from the points of view of physical constancy and appearance; and secondly that of MAINTENANCE: repair, renewal and cleaning.

#### Durability

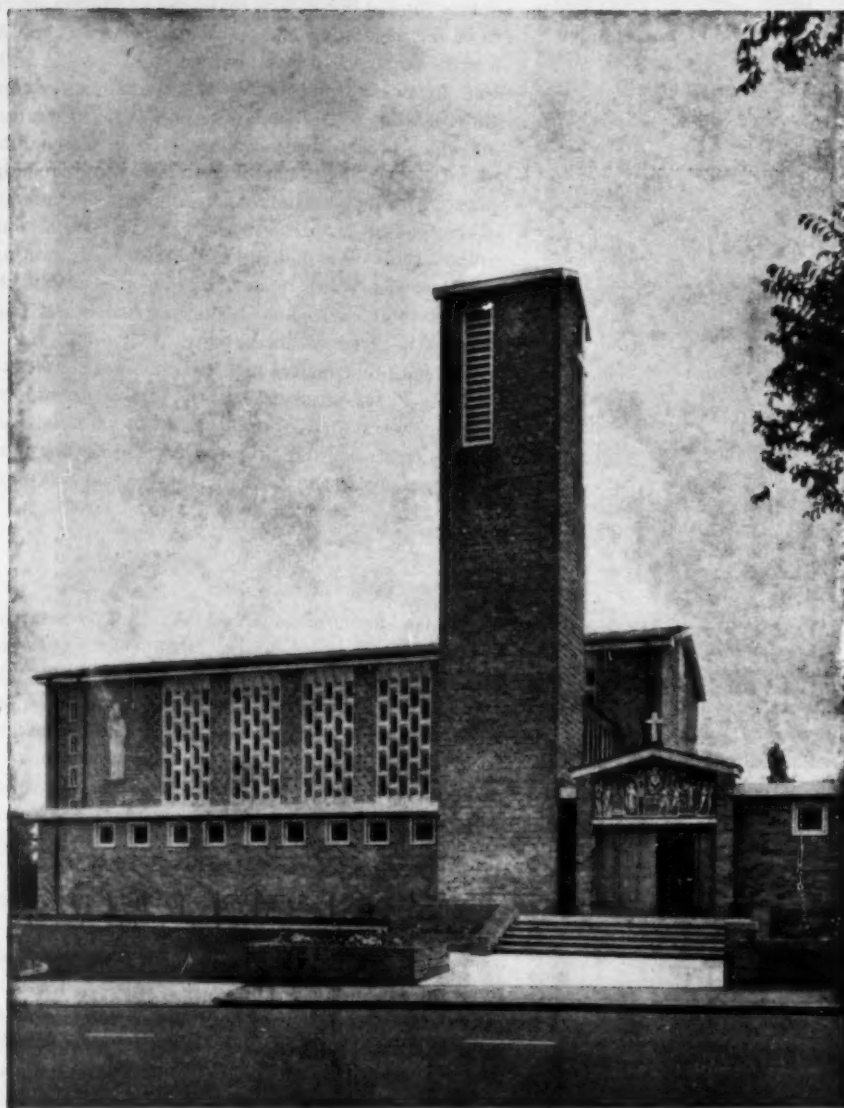
Particular attention has already been given to the durability of materials, finishes, fixing techniques and jointing in earlier articles. This tends to confirm the opinion that durability cannot be treated as an isolated and self-contained subject. It is inextricably woven with technique and its importance must be recognised at every stage during design. It would, however, be appropriate here to consider some aspects of durability about which mention has not yet been made.

As well as natural weathering, all materials are affected by human elements. Damage may be accidental or wilful and its effect may be permanent or temporary. Its occurrence will, of course, depend on the position of the material, the locality of the building and the kind of user, but it should also be remembered that damage is not only confined to such fragile materials as glass: rendering and metals may be wilfully scored and tiles and concrete accidentally damaged or defaced. Generally architects are well aware of the possibilities of such damage, and commonsense combined with natural cunning frequently suggest appropriate solutions. At the same time, the most stringent precautions may overlook the unexpected. On the ground floor of the LCC's Tulsa Hill School, a low level guard rail was fixed to prevent movable furniture from being pushed through the glazing (Figure 1). Breakages do occur, however, due to the wide overhang on some movable items (Figure 2). It was also stated that many "movable items" are the pupils themselves and a higher guard rail or transom would, perhaps, have fulfilled its purpose better.

Temporary defacement cannot, strictly speaking, be

# **The ROMAN CATHOLIC CHURCH**

OF ST. THOMAS OF CANTERBURY  
Rainham, Kent



**Architects:**

E. G. Dodds and  
K. C. White, A.A./R.I.B.A.

**Bricks:**

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R. Passmore & Co. Ltd.

**General Contractor:**

J. H. Durrant & Son.

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technical section

classed as damage, but, although the consequences are less severe, it is certainly undesirable. Dark matt surfaces at low level are an open invitation to chalk-equipped children. Figure 3 shows an instance at Staveley Road School, Chiswick (Architects: Stillman and Eastwick-Field). It is all the more unfortunate because the architects, realising the fragility of glass in this position, used a black terrazzo panel in its place. Breakage was consequently replaced by defacement, but of the two evils, the latter is certainly preferable! Unintelligent use of materials in juxtaposition may also reduce their effective life. Very full information on electrolytic corrosion is contained in the Aluminium Development Association Information Bulletin No. 21: "Aluminium in Contact with Other Materials" and deterioration caused by chemical action is considered very fully in the appendices to British Standard Code of Practice CP. 3—Chapter IX (1950)—"Durability." Among the more common causes of deterioration through chemical action are the juxtaposition of aluminium and lime mortar or damp concrete, oak or

cedar and metals (particularly zinc), rubber and copper or brass, and limestone and sandstone. In addition copper staining (Figure 4), though not deleterious, is unsightly.

Durability of appearance need not mean retention of original appearance. The obvious example is stone and clay products, the appearance of which (except in polluted atmospheres) is often improved with age. Other materials are less predictable; the appearance of some definitely deteriorates without maintenance. Others, such as copper, undergo striking changes. Few are static. Whatever the material, these changes must be considered during design. The Seagram Building was conceived as *black*, not bronze, in colour. Changes in colour or texture due to weathering may not, however, always be so acceptable. If maintenance is required for the sake of appearance, provision must be made for it; if periodic maintenance is not desirable, materials must be chosen accordingly, with the proviso that such limitation may be accompanied by other, even more severe restrictions. Only through such basic design decisions can buildings either retain their new appearance or weather gracefully without passing through drabness to decay.

#### Maintenance

Maintenance is necessary to prevent both physical and visual deterioration of buildings. It usually consists of:

1. The repair of defects caused by bad construction (which includes both choice of materials and detailing), accidental and wilful damage and misuse. This group may be termed "avoidable maintenance."
2. Maintenance of parts involving renewal of finishes and sealants. This concerns protective finishes to softwoods and some hardwoods, ferrous metals, stove enamelled products and painted concrete as well as the occasional renewal of mastic.
3. Periodic cleaning of materials to retain appearance: glass, non-ferrous metals, vitreous enamel and (less frequently) stone, fairfaced concrete and clay products.

Groups 2 and 3 can be classed as "unavoidable maintenance" provided materials have been correctly chosen and used.

Whether maintenance takes the form of repair or cleaning, its cost will be reflected in the accessibility of the parts requiring attention. If easy accessibility is available during erection as well so that panels and glazing can be easily fixed, it will also have some bearing on initial costs. Generally, maintenance of every type can be carried out using one of the following five methods:

1. The author's survey showed that maintenance by ladders is most usual on buildings up to three storeys high and suggests a reasonable height of 25-30 ft. It is possible with difficulty to use ladders up to 50 ft. but the special ladders required, the space necessary at their base and the difficulty of controlling ladders at this height are factors which discourage their use. For heights of not more than about 30 ft. ladders are an easy and economical method of maintenance if provision is made for the accommodation of both ends



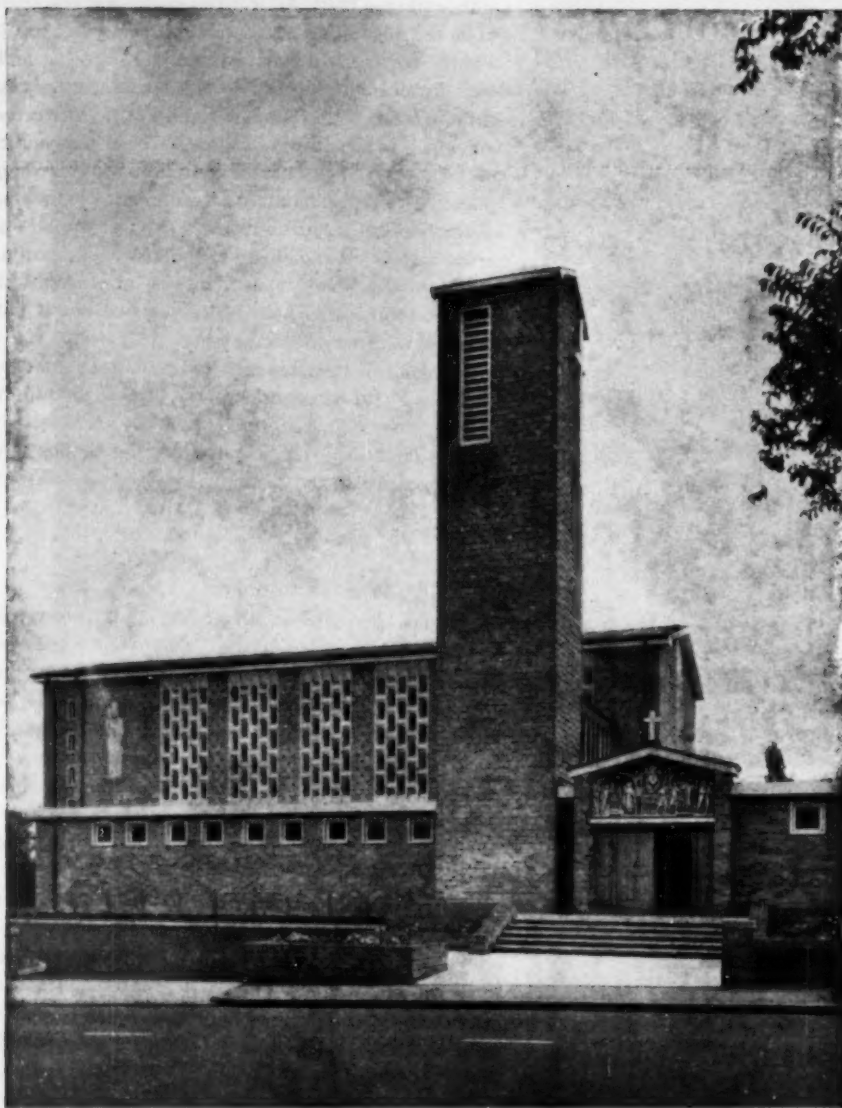
Fig. 4. Copper staining, Tulsa Hill School.



Fig. 5. Rail for ladders, Oldwood County School, Manchester (Manchester City Architect).

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Fig. 4. Copper staining, Tulse Hill School.

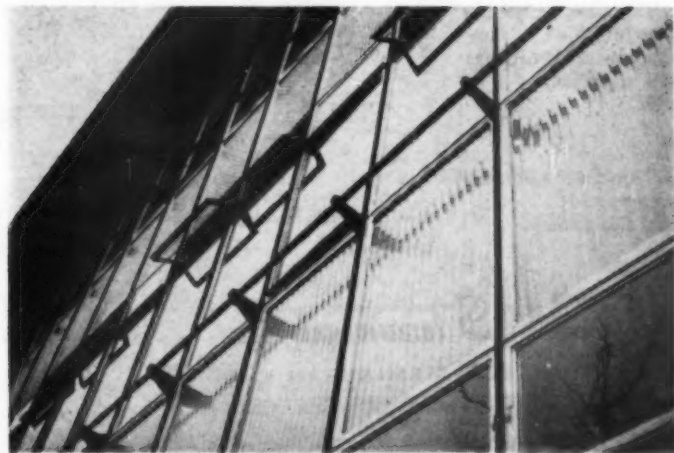


Fig. 5. Rail for ladders, Oldwood County School, Manchester (Manchester City Architect).



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of the ladder. The maximum safe inclination is about 75 deg. and this requires a firm seating for the bottom of the ladder at a distance from the wall equal to about a quarter of its height. Thus the foot of a 30-ft. ladder would need to be about 7 ft. 6 in. from the base of the wall. The top of the ladder requires a firm surface to rest against. This is easy enough to provide on panel walls, when the ladder can rest against the structure, but sheath walls require a firm rail (Fig. 5) if breakages are to be avoided.

2. Cleaning costs may be reduced if it is possible to clean from inside, but full advantage of this method can only be taken if severe design limitations are accepted. Opening windows must be either side hung with projecting hinges, **fully reversible** horizontally pivoted or vertically pivoted. An L.C.C. report\* has shown that, in housing, projecting hinges must provide a gap of at least  $3\frac{1}{2}$  in. Even this is rather narrow when a large number of windows have to be cleaned and a 4-in. gap may have to be considered in such cases. Horizontally pivoted windows which are not fully reversible and projected windows are impossible to clean properly from inside. The easiest window to

clean in this way appears to be the vertically pivoted type with the pivot placed eccentrically to avoid fouling curtains and blinds. Its width, however, must be limited. Cleaning of adjacent glazed areas, fanlights and spandrel panels is limited by the physique of the cleaner. For fixed glazed areas horizontally adjacent to opening windows, the L.C.C. report recommends a maximum pane width of 3 ft. 9 in. (reached from both sides) and 1 ft. 10 in. (reached from one side) (Fig. 6). For cleaning of vertically adjacent fanlights these figures should be slightly reduced, and increased for spandrel panels, depending on the width and height of the sill. In every case, single-sided accessibility should never exceed 2 ft. 3 in.

As well as severe limitations on window design, cleaning from inside may be inconvenient to the user. Furniture often has to be moved, or the cleaner is required to balance on sills or transoms, which is dangerous to both cleaner and window. These limitations must also be fully considered in relation to the type of building. Infrequent cleaning from inside in flats by the tenant can be advantageous and economical; frequent cleaning from inside by a full-time cleaner in fully glazed office buildings will probably be less economical than other methods.

3. Cleaning and maintenance from a projecting nib or balcony is an attractive alternative and offers other advantages. Fire regulations are more lenient, the cladding joints receive greater protection from the weather and, on the south particularly, protection from the sun is achieved. Cleaning byelaws are not severe, but they should be allowed for. L.C.C. byelaws, for instance, insist that the cleaner use a belt and rope at any height exceeding 6 ft. over a public highway, and safety eye bolts or studs should be fitted to accommodate them. Such accessories are, in fact, standard fittings on most American high buildings.

4. The travelling, suspended cradle is the most popular and, initially, the most expensive method of maintaining and cleaning high buildings, but it greatly simplifies these operations and ensures that the whole face of the building is accessible for repairs. The Survey shows that 58 per cent of buildings of four or more storeys and 73 per cent of five or more storeys use a cradle. Hand and power operated cradles of steel, aluminium, timber and polyester plastics are available. Gantry runways may be portable (Fig. 8) or permanent (Fig. 9) but portable runways involve greater running costs and delays, and the permanent types are to be preferred.

A further advantage of permanent runways is that provision can be made to track the cradle down vertical runways or mullions on the face of the building. A freely suspended cradle at the end of a 100-ft. cable is not easy to control and steadying in this way is essential on high buildings if maintenance is to be speedy. Guide tracks are used on every 6th mullion (28 ft. centres) of the Lever Building (Fig. 7) and the entire wall surfaces can be cleaned in 116 man hours. This is equivalent to about 15 sq. ft. of wall surface

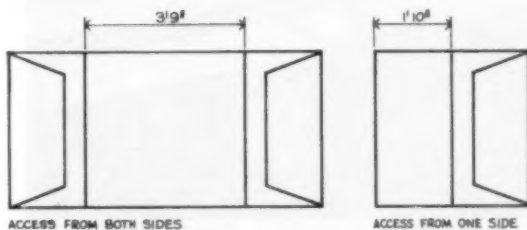


Fig. 6. Maximum pane widths for inside cleaning.

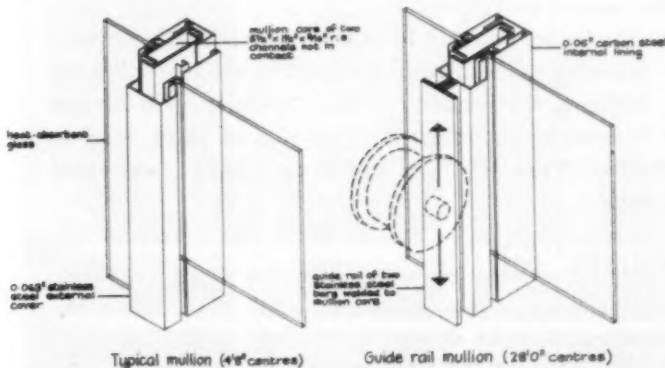


Fig. 7. Vertical cradle rails, Lever Building, New York (Skidmore, Owings & Merrill).

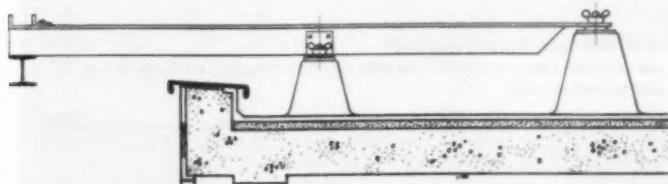
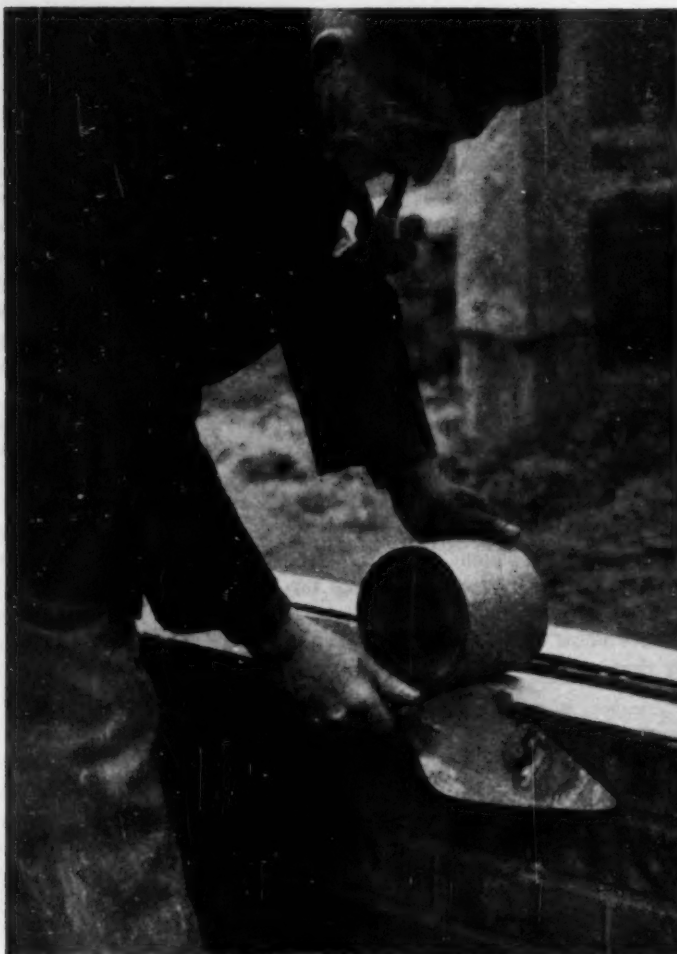


Fig. 8. Portable cradle gantry runway.

\* Tenants' opinions of windows in tall blocks. Architects' Journal, July 10, 1958, p. 64.



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technical section

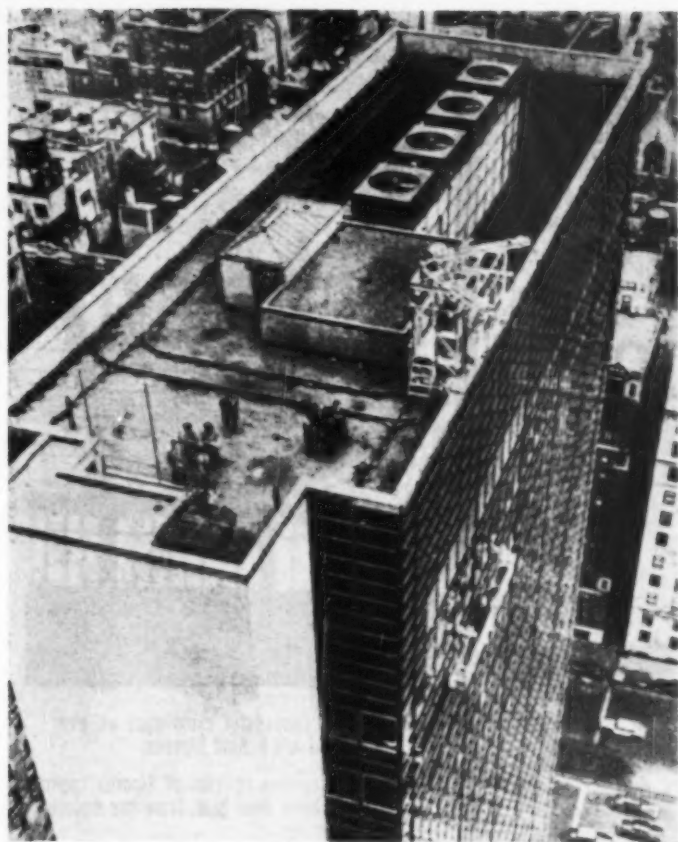


Fig. 9. Lever Building cradle and runway.



Fig. 10. Lever Building windows being cleaned from cradle.

per man minute. The cradle (Figs. 9 and 10) is power operated and its cost is calculated to be paid for in about seven years by the saving on the cost of the wall, the reduced heat loss in winter (both because of sealed windows) and the speedier cleaning of the building. When cradles are designed to run down vertical tracks, it is advisable to use rubber or other non-metallic tyres to the guide wheels to avoid noisy operation. It is also necessary to attach guide tracks directly to the structure to avoid squeezing mastic out of joints.

A point which is often overlooked when cradles are used is that storage place must be provided. On Lever Building the travelling gantry and cradle is permanently in position at roof level, but the scale of the building can withstand this. Not infrequently in this country, however, although gantry and cradle runways are provided, the cradle is not, and this entails hiring a cradle for maintenance. Whilst this may be justifiable for regular cleaning, the expense of hiring and installing a cradle to replace one pane of glass (there is usually no other way) can be out of all proportion to the work carried out. Although more expensive initially, it is obviously preferable to install a permanent runway and cradle with provision for storing and launching, as was done for example in David du R. Aberdeen's T.U.C. Memorial Building. Here the monorail runway passes through hatches at each end into a storage and launching bay.

5. Very infrequently a hydraulic platform lorry is used for maintenance. Its effective height is about the same as ladders, but it is rather more flexible and movable and can accommodate more than one operative. It does, of course, require a firm roadway.

#### Washing

The use of materials which do not weather naturally and which rely for their appearance on brightness of colour, clarity of texture and finish or the retention of uniform, plane surface appearances requires regular washing. Whether such washing will be carried out naturally by rain, automatically by sparge pipe, or manually will depend on the type and surface texture of the material, its detailing, and the local atmosphere. It is revealing that 57 per cent of the buildings examined in the Survey are never manually washed. With few exceptions their appearance has not suffered. It has been frequently observed that no material is self-cleaning and that rain-washing merely transfers dirt from one part of the facade to another. That this is so is obvious from the appearance of many buildings, but it may be interesting to question whether it is an unavoidable result of rain-washing. If rain can transfer dirt from one part of the facade to another, it can, in theory, carry it off the facade completely. Dirt is, in fact, only retained under projections, such as sills and drips which, in "protecting" the area beneath them, deprive it of rain-washing. At the same time, dirt in solution is thrown off the edge of sills. The result is a dirty band under projections and staining at each side.

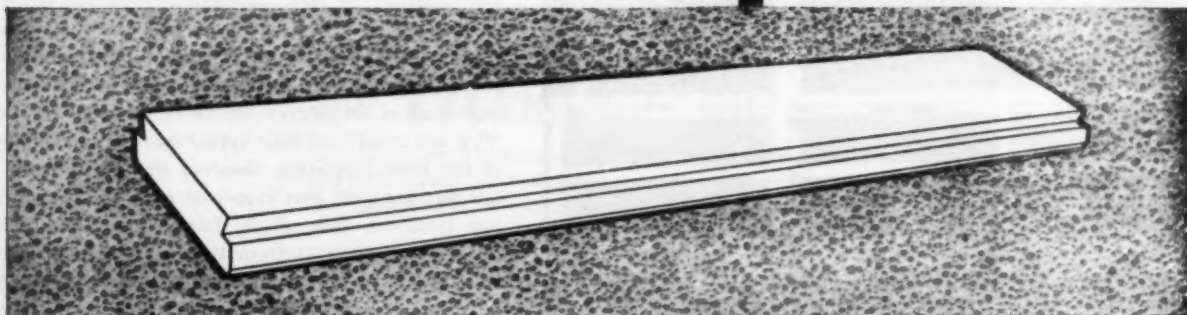
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## technical section

Before proceeding further it would, perhaps, be profitable to examine the function of the traditional sill and drip. The primary object of the sill was to throw water clear of the wall surface, and the drip was an additional means to this end. It is obvious that protection would only be given to the area immediately under the sill, since wind would drive rain falling from the edge of the sill against the wall before it had fallen very far. Even so, the traditional sill performed its purpose. It protected the vulnerable joint between sill and wall. Water entering porous materials at this point would be difficult to control. Water entering rendered and stuccoed walls here would be disastrous.

Whilst it is not suggested that the junction between

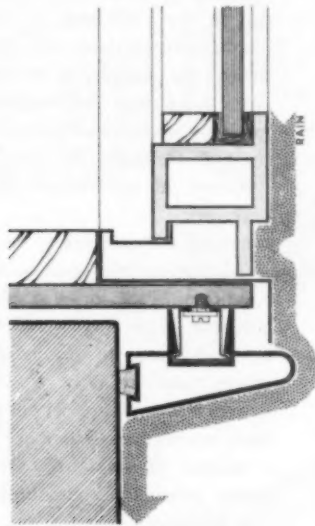


Fig. 11. Suggested detail to encourage uniform rain-washing (based on a detail by A. M. Gear).

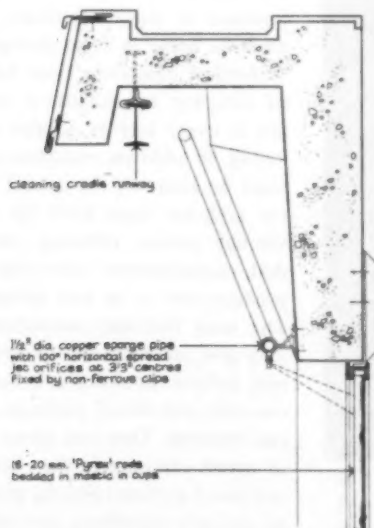


Fig. 12. Permanent cradle monorail and sparge pipe, T.U.C. Memorial Building (D. du R. Aberdeen).

sill and panel in cladded walls is yet perfect, it would be wise to consider whether the function of the sill is the same. Modern cladding materials are mostly impervious, so absorption of water is impossible. There are no renderings to protect; and (as has been shown) it is possible to control slight water penetration at joints by means of a drained cavity.

In these circumstances, it is suggested that the modern sill may be modified to ensure a *uniform* flow of water down the wall surface. In particular, the drip may be replaced by a weathered bead to encourage rain to wash the area immediately under a projection. Such a bead could, if properly designed, protect the joint whilst encouraging uniform washing. Fig. 11 illustrates a suggested detail at this point. A similar detail has been used by A.M. Gear on an administrative office wall at Stocksbridge with successful results.

The principle of this detail, which is applicable at all projections is that *rain is encouraged to flow uniformly down the wall surface*. Projections and sills are useful visual elements and need not be omitted provided some encouragement is given to the rain at these points to ensure a uniform flow. The most potent encouragement is the omission of the drip. There is then little excuse for rain depositing dirt anywhere on the wall except at its base.

The few instances where this principle has been applied have shown encouraging results. Whilst pristine freshness is only retained in extremely clean atmospheres, dirty atmospheres produce a *uniform* and gradual darkening which is difficult to detect and which consequently means much less frequent cleaning. It may be the modern equivalent in terms of new materials of traditional weathering.

Texture and surface pattern may be useful in concealing surface dirt and ensuring uniform rain-washing provided it is not pronounced enough to encourage the retention of dirt or streaking by the "protection" of lower surfaces. Such panels may, however, be difficult to clean manually when this is necessary.

The usefulness of the spray or sparge pipe at the top of a building has been previously mentioned. It may be used for cooling the wall in hot weather, for preventing the spread of fire and for testing the wall on completion. Its most useful purpose, however, is for automatic washing. Regular washing by means of a sparge pipe (Fig. 12) will remove acidic deposits in polluted atmospheres and substantially prolong the life and appearance of the wall.

During rain or cleaning by sparge pipe large quantities of water will run down the wall surface. On a typical five storey façade, for example, something like 36 gallons of water per hour will reach the base of each foot run of wall. It is advisable that this water be collected, directed away from the building, and provision made for drainage. Drainage channels and gullies (Fig. 13) are sometimes provided and are more effective than paving and gullies. On high buildings particularly, channels should be regarded as essential.



### technical section

The cost of window cleaning is governed by both the area of the wall and the risk and difficulty of access. It may amount to a large sum: window cleaning of an average sized office building can be £250 per annum and larger buildings obviously cost much more. It costs, for example, £1,000 a year to clean the Royal Festival Hall's windows and glazed areas and a further £1,000 for cleaning the aluminium frames. The frequency of cleaning will depend on cost, atmosphere and building type and the author's survey showed that every four months is the most usual period. This is undoubtedly because nearly half the buildings in survey were schools, where window cleaning takes place every term. For other buildings every month is the most frequent period.



Fig. 13. Drain channels at base of large wall areas.

### Servicing and replacement

It has often been suggested that a parallel may be drawn between the maintenance of motor vehicles and buildings. It is accepted that all manner of household appliances and industrial machinery requires regular inspection and servicing, but it is equally assumed that buildings need no attention and can be left to look after themselves. The fruits of this policy are painfully apparent. If buildings were cleaned and serviced with as much diligence as cars, deterioration would be a less frequent occurrence. "A stitch in time. . ."

The parallel between cars and buildings was carried further by Thomas Mitchell at the 1957 British Architects' Conference. Regular schedule-servicing of building components and equipment could be carried out in the same way as for motor vehicles. Maintenance instructions and charts could be issued to owners on completion of the building. These would cover frequency and methods of cleaning and painting; they would draw particular attention to vulnerable parts and suggest the time at which inspection and overhaul of mechanical equipment and services is necessary.

Carrying the parallel to its logical conclusion, there is no reason why unit replacement and factory reconditioning of building elements may not become possible. This may be particularly applicable to cladding units in, say, grid panel walls, where the whole panel could be removed, reconditioned or renewed and replaced without disturbing the structure. Such operations, if they are to be economical, require a degree of standardisation not yet attained. The future possibilities are, however, immense.

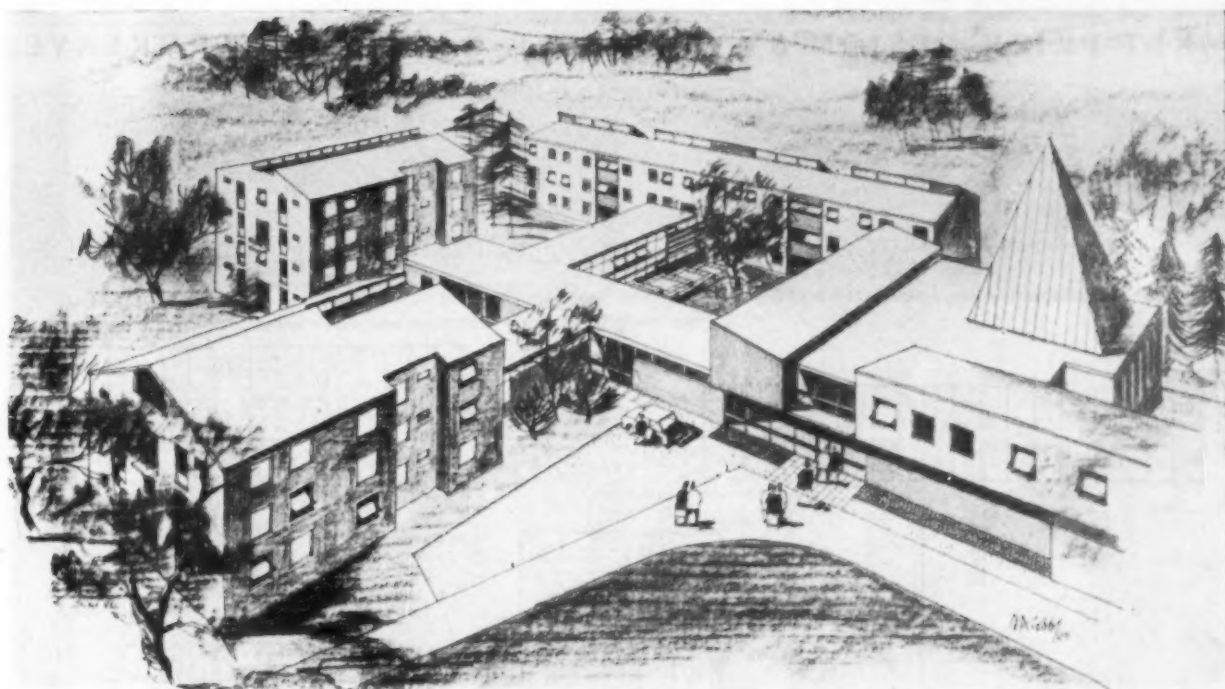
The possible renewal of proprietary systems or panels in 15 or 20 years' time raises the pertinent question of availability. To what extent will present day designs be available in the future? And, if only a few panels require replacement, what will be the cost of having them specially made? There are no satisfactory answers to these questions, but their implications must be borne in mind during design.

A further obligation rests with manufacturers: that of ensuring by exhaustive tests that their products are in every way as durable as possible before marketing. In addition, complete and accurate instructions must be given on the correct use of the product, and the architect must fulfil his obligation by ensuring, through correct detailing, direction and supervision that manufacturers' intentions are followed and the product used to its best advantage.

The most thorough accelerated weathering tests can only give an indication of how a material or product may behave. Provided it is recognised that these tests can only give initial guidance, they are both necessary and valuable. They can never, however, take the place of actual exposure to the elements. It is vital that the individual architect and the profession as a whole build up through experience and observation a knowledge of new materials and techniques as thorough and as useful as that gained through tradition.

## Competition Result Hall of Residence Garscube Glasgow

The winning design, by Grenfell Baines and Hargreaves, is shown below. Second were J. H. Napper and Partners with J. T. Rhind and T. A. Collerton; and the third premiated design was by Shaw Stewart, Baikie and Perry. The Assessor was Professor Robert H. Matthew, C.B.E., M.A., A.R.S.A., F.R.I.B.A., and he was advised on costs by the Quantity Surveyor, J. P. Fyfe, F.R.I.C.S. In the text which follows, extracts from the Assessor's report are printed in italics.



**SUMMARY OF CONDITIONS:** A hall of residence for 150 students, a Warden and eight academic staff; to be built within a budget limit of £225,000, including landscaping and siteworks but excluding sewers and main approach road.

The three-acre site lies on top of a hill, fringed on the south by a thick bank of trees and with views to the north over pleasantly landscaped, undulating country. Only a restricted area is free from subsidence danger. The climate tends to be wet and windy. The conditions warn competitors to allow, if need be, for abnormal foundations and double glazing.

In addition to study-bedrooms and dons' accommodation, the schedule of accommodation calls for 16 servants' bed-sitters (12 of which must be interchangeable as students' rooms) and 4 guest-rooms. Besides a central dining-hall and kitchen, the main recreational rooms include a library, senior and junior common-rooms, music and games-rooms. Office accommodation is required for Warden, Bursar, and Porter, together with a Warden's house (enjoying full privacy) and flats for Bursar and Porter.

External works include a workshop, 6 garages, carport for 6 cars, 50 motor-bikes and 25 bicycles.

In most cases areas of the buildings as measured by the quantity surveyor differ from [i.e. exceed], in some cases substantially, those given by competitors. . . . Only one competitor (No. 5) has submitted a design which, in the view of the quantity surveyor, could be built for this sum [the £225,000 budget], and this scheme provides 144 study-bedrooms against 150 required.

So the assessor is up against it right at the start. The competitor who eventually won admitted in his own estimate that he was nearly £1,200 over the top: the quantity surveyor put him £2,700 higher still. The surveyor thought the second-placed scheme would be nearly £2,000 cheaper than the winner's, and the competitors themselves

rated it at £223,125.

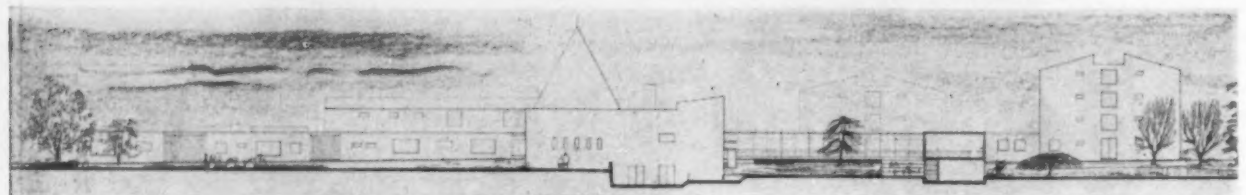
Being wise after the event, we may ask if this state of affairs need have arisen. Competitors would have been spared some effort and, we imagine, some mortification if the assessor had simply stated the maximum area of building he himself expected the budget to provide at an acceptable standard of quality. This should not have been too difficult: the University Grants Committee apparently offer some guidance on these lines, and the assessor knew by how much his area requirements exceeded what the U.G.C. suggest. Competitors would still have been free to provide the scheduled accommodation within a smaller area, and it would have left the assessor and his quantity

surveyor with only one judgment to make: was the area excessive in view of the expenditure per square foot which the planning and construction of the scheme demanded?

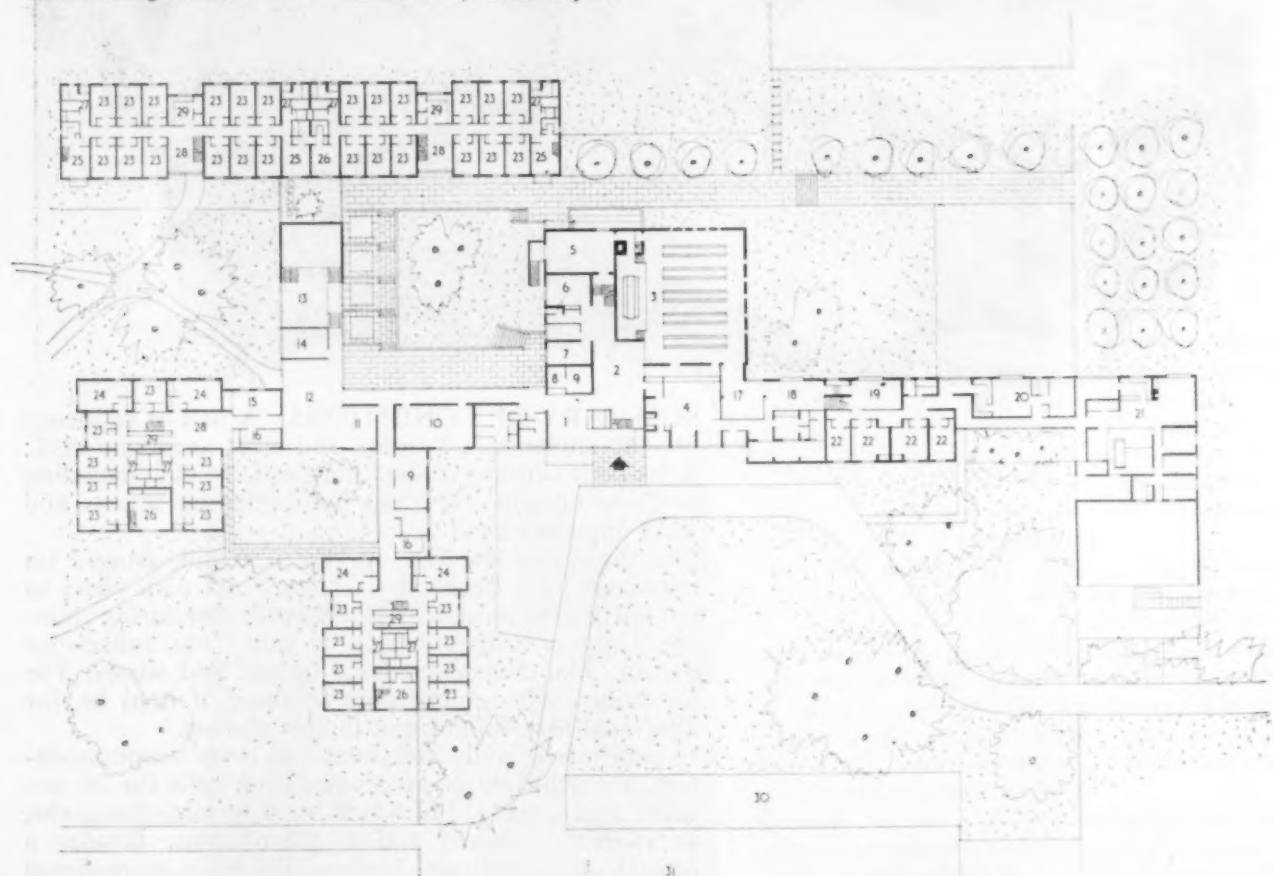
In the event, the winner provided the scheduled areas within 419 sq. ft. per student, the second managed on only 390 sq. ft., the third on 428½ sq. ft., and the last of the also-rans took as much as 486½ sq. ft. Since area influences total cost more than any other factor, the case for restricting the range of variation in a competition is surely overwhelming.

The discrepancies between the surveyor's measurements of area and the competitors' are certainly disturbing. There is, however,

## FIRST PRIZE DESIGN BY GRENFELL BAINES & HARGREAVES



Section looking south-west. ' . . . modest in scale, workable in plan.'



### Ground floor

- |                                     |                                     |                            |
|-------------------------------------|-------------------------------------|----------------------------|
| 1. Entrance hall                    | 12. Junior common room              | 23. Bedsitting room        |
| 2. Ante-room                        | 13. Library                         | 24. Double bedsitting room |
| 3. Dining hall                      | 14. Magazines                       | 25. Academic bedroom       |
| 4. Kitchen                          | 15. Studio                          | 26. Academic living room   |
| 5. Senior common room               | 16. Laundry                         | 27. Bathrooms and w.c.s    |
| 6. Warden                           | 17. Staff room                      | 28. Meeting space          |
| 7. Bursar                           | 18. Domestic staff dining           | 29. Pantry and utility     |
| 8. Shop                             | 19. Domestic staff sitting          | 30. Car port and garages   |
| 9. Store                            | 20. Bursar's flat                   | 31. Car parking            |
| 10. Music, listening and television | 21. Warden's flat                   |                            |
| 11. Committee room                  | 22. Resident staff bedsitting rooms |                            |

Ground floor plan (first floor of north block) [Scale: 1/4" = 1' 0"]



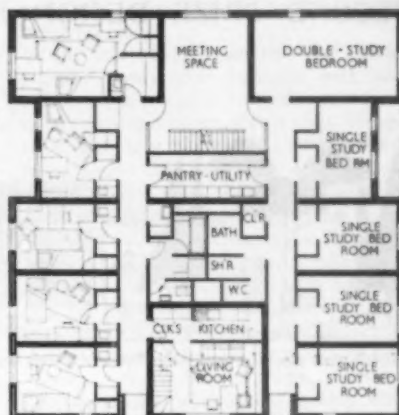
some evidence that they are due to uncertainty about interpreting the phrase "measured within external walls." Is an open ground floor area under pilotis measured or left out? Is the area of a double-height room to be counted twice, as a staircase would be? Is an unroofed area to be included if it is surrounded by a wall, and so on? It is high time that such doubts were resolved by an accepted code of practice.

*The main factors I have had in mind have been: suitability for purpose; relationship to . . . site; architectural character; economy. . .*

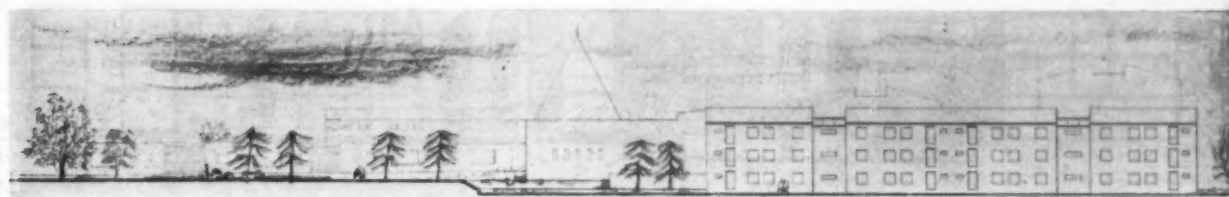
No one need think that the premiated schemes gained their places on grounds of

cost alone. The assessor thought—and we would agree—that none of the others came near them on grounds of suitability of purpose. This he defines as including *convenience of internal planning and, especially, the creation of an environment likely to be congenial to students and staff.*

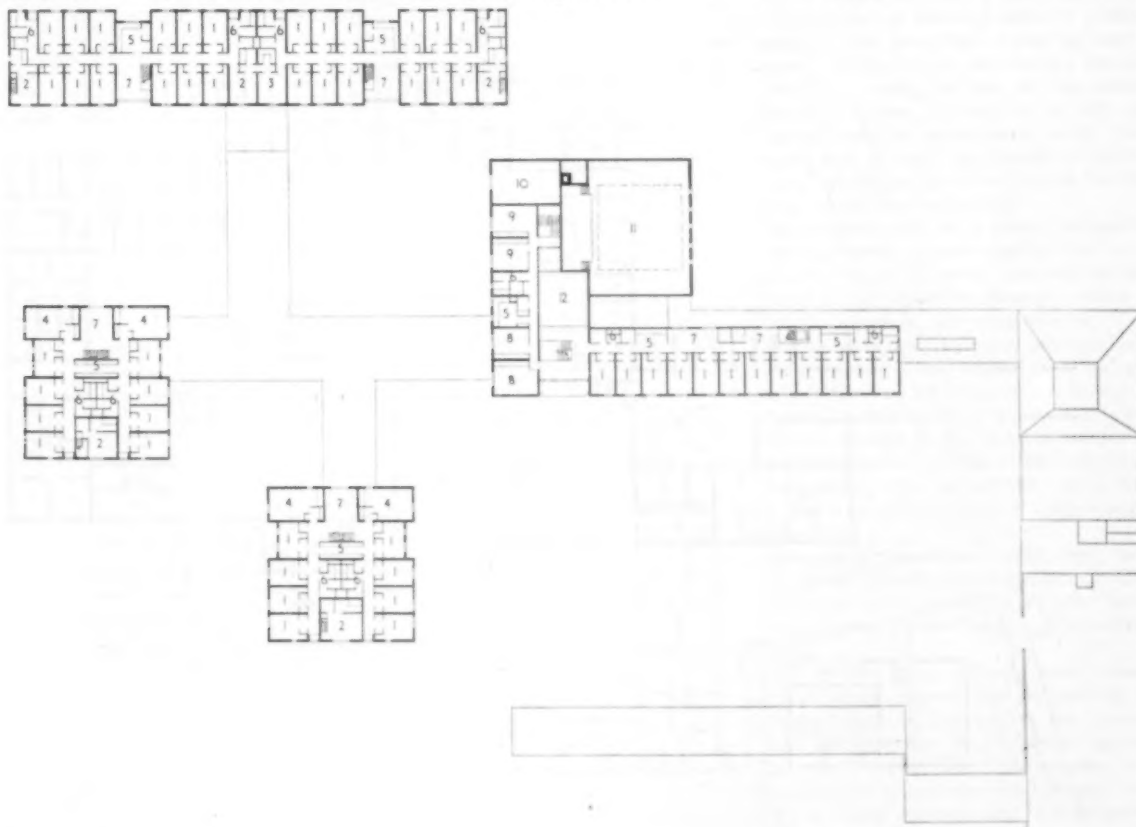
The report (which devotes only about 120 words to each premiated scheme and fewer to the others) is far from explicit on what convenience and congeniality amount to, but one gathers from an examination of the schemes that importance was attached to protection against the Glasgow winter. In the winner's design and in the third all parts of the building could be reached either by enclosed routes or under cover. The second.



Furniture and fittings in residential accommodation [Scale:  $\frac{1}{4}$ " = 1' 0"]



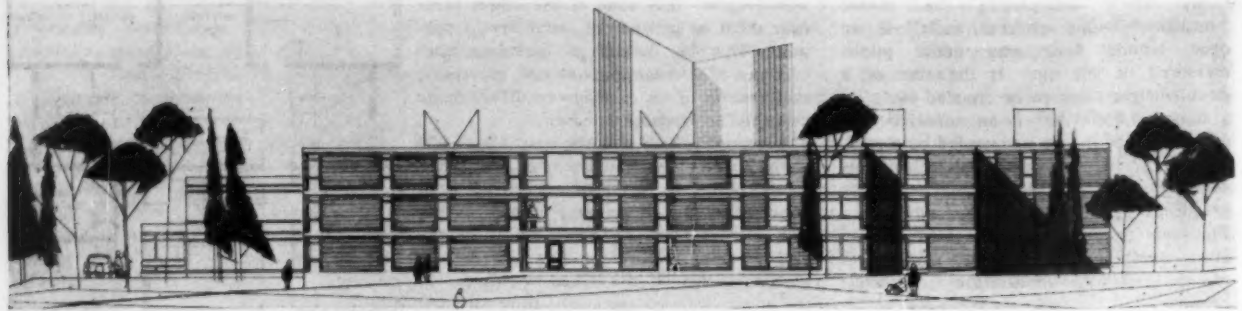
North-east elevation. . . . faintly ecclesiastical exterior shape of the dining hall . . .



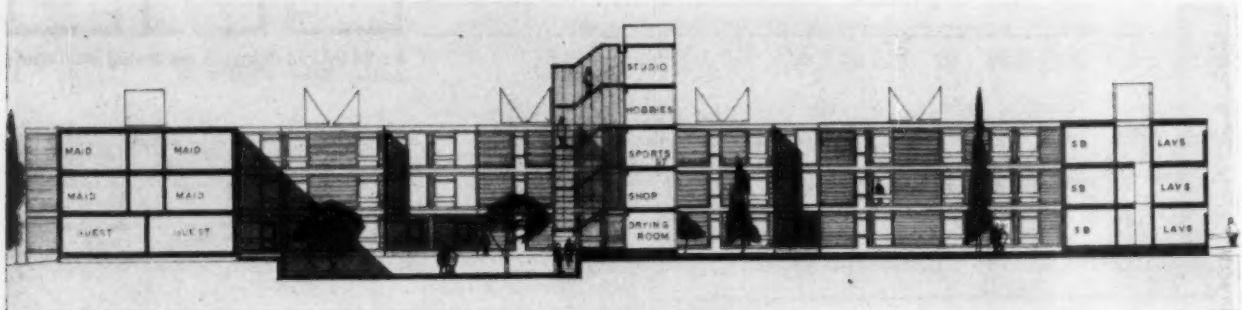
- First and second floor level
1. Study bedrooms
  2. Academic bedrooms
  3. Academic living room
  4. Double study bedroom
  5. Pantry and utility
  6. Bathrooms and w.c.s
  7. Meeting space
  8. Guest or sickroom
  9. Guest room
  10. Upper part senior common room
  11. Upper part dining hall
  12. Upper part ante-hall

First floor plan (second floor of north block) [Scale:  $\frac{1}{4}$ " = 1' 0"]

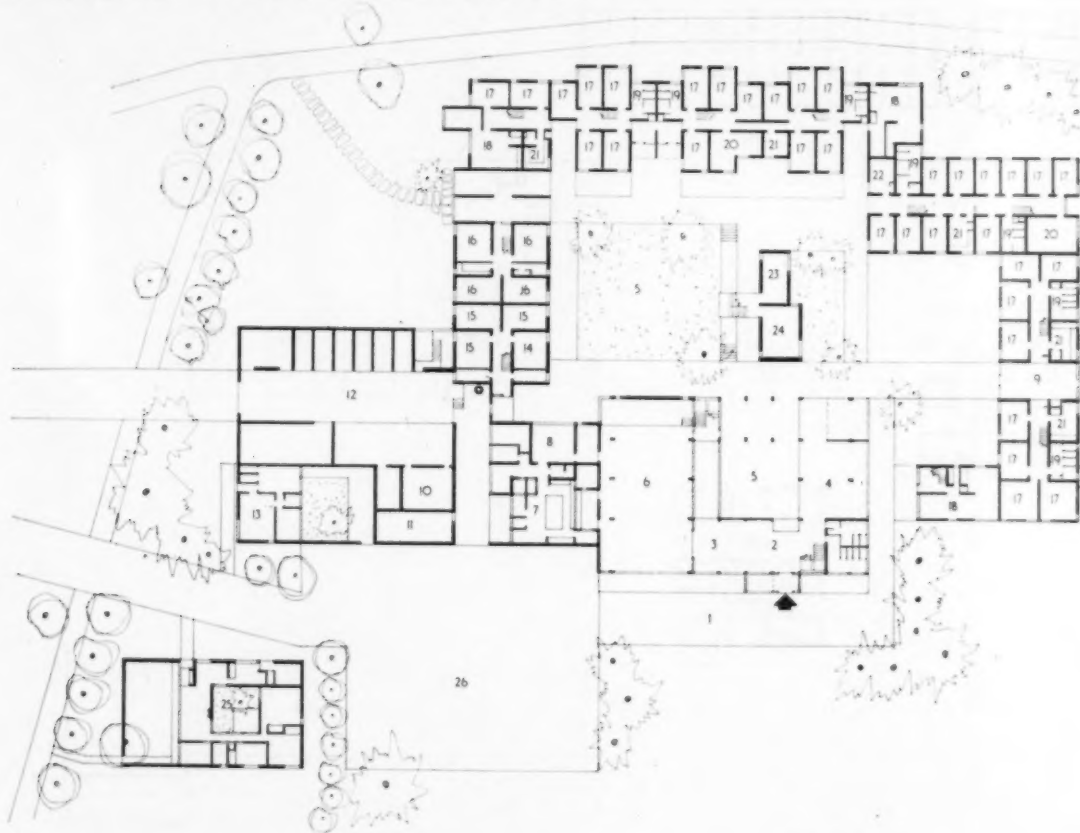
SECOND PRIZE DESIGN BY J. H. NAPPER & PARTNERS WITH J. T. RHIND



North-west elevation. 'An extremely interesting courtyard plan . . .'



Section looking south-west. ' . . . slightly bizarre tower dividing the courts.'



Ground floor plan (Scale: 1/8" = 1' 0")

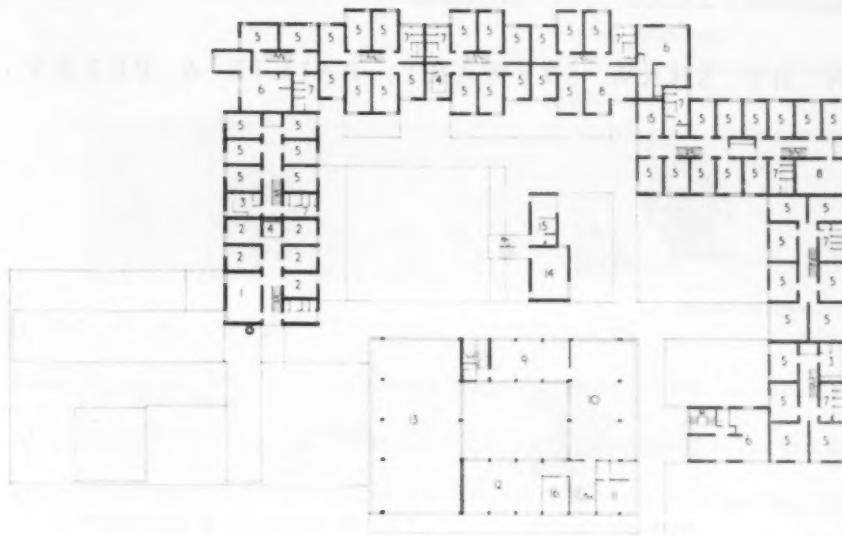
Ground floor

1. Entrance Concourse
2. Magazines
3. Ante-room
4. Junior common room
5. Court
6. Dining hall
7. Kitchen
8. Staff dining
9. Sitting and eating area
10. Sub-station
11. Furniture store
12. Lock-up garages, workshops, car and motor cycle parking

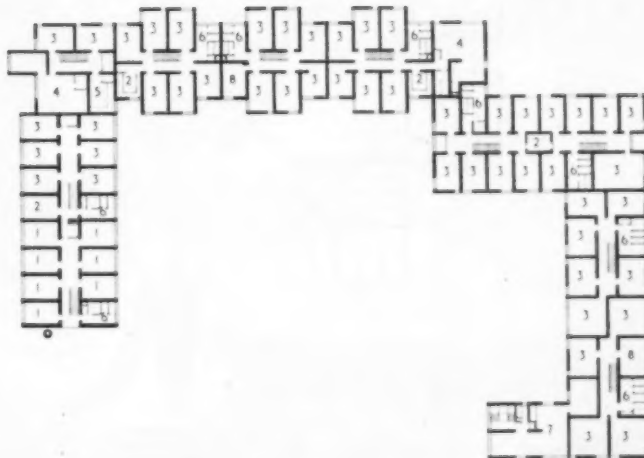
13. Bursar's flat
14. Assistant bursar
15. Resident staff
16. Guest rooms
17. Single bedsitting rooms
18. Academic set
19. Lavatories and bathrooms
20. Double bedsitting room
21. Galley
22. Laundry
23. Drying room
24. Heavy luggage store
25. Warden's house
26. Car parking



## AND T. A. COLLERTON

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

- First floor
1. Sitting room
  2. Maid
  3. Laundry
  4. Galley
  5. Single bedsitting room
  6. Academic set
  7. Lavatories and bathrooms
  8. Double bedsitting room
  9. Senior common room
  10. Library
  11. Warden's office
  12. Television room
  13. Upper part of dining room
  14. Light luggage
  15. Shop
  16. Bursar's office

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

- Second floor
1. Maid
  2. Galley
  3. Study bedroom
  4. Academic set
  5. Laundry
  6. Lavatories and bathroom
  7. Bursar's flat
  8. Stores

while less thorough-going in this respect, had only short routes across a well-protected court.

In the internal arrangements the winner provided every study-bedroom with easy access to bathrooms and utility rooms; in the third design there were always steps to negotiate—nuisances for chaps carrying cocoa from pantry to bed-sitter; while in the second design some rooms were as much as two floors away from the nearest pantry. This inconvenience appears to have outweighed the second's great merit in the matter of congeniality. More than any other scheme it succeeded, not only in giving each group of rooms its own identity (as did the winner's), but also in providing more variety in the individual shape, proportion and fenestration of rooms—a quality which the conditions looked for.

Of the second the assessor remarks, *In winter time tight courtyard planning may cause considerable overshadowing, but the internal quadrangles would provide a sympathetic environment for an academic community.*

Unfortunately, this sympathetic environment (Messrs. Napper & company say they see the hall "as a group of students living together; their individuality expressed in their private rooms but focusing always on the communal nucleus around which the whole scheme revolves"), this well-focused compactness, is obtained only by pushing many of the communal rooms up into a tower, which is both inconvenient and expensive in circulation and, as the assessor remarks, *bizarre*. Furthermore, a point the assessor fails to mention—the senior common-room is most inconveniently placed, for a pre-dinner ante-room, up on the first floor above the dining-hall.

The winner avoids these defects by treating the communal accommodation not as a nucleus but as an artery carrying the life blood of the community through a series of loosely dispersed residential blocks.

The third adopts the same principle in a most interesting and original way, but gets into difficulties by imposing on himself a formal discipline that is too rigid to allow him to squeeze in the required number of study-bedrooms. *I commend this experiment in planning*, says the assessor; *as a detail I find the proliferation of roof triangles disturbing.*

By contrast, the winner avoids most forms of pretentiousness, although *The architectural character is marred by the faintly ecclesiastical exterior shape of the dining-hall.*

The winner also succeeds more convincingly than anyone else in relating his rather scattered building to the contours and the landscape. This evidently appealed to the assessor, but one wonders if a community of this kind is not better served by a more compact and inward-looking arrangement like that of the second. Certainly one would expect the latter to be less expensive in running costs—less area of landscaping to maintain, less internal area to heat and to keep clean. Maintenance costs are an aspect of the designs which the assessor does not mention in his report, but surely they deserve close consideration.



*I place Baines and Hargreaves first by a narrow margin, giving second place to Napper, Rhind and Collerton.*

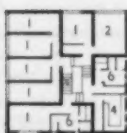
Certainly a very narrow margin, and a very difficult choice to have to make.  
(Note. In the actual report, schemes are, of

course, referred to by a serial number. We have used the competitors' names here to avoid confusion.)

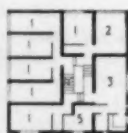
## THIRD PRIZE DESIGN BY SHAW STEWART, BAIKIE & PERRY



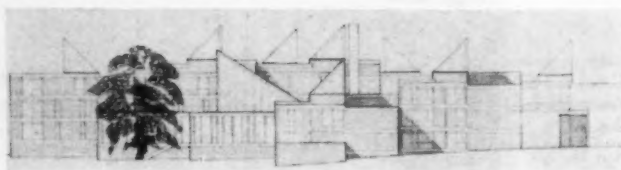
South-east elevation. *'I commend this experiment in planning . . .'*



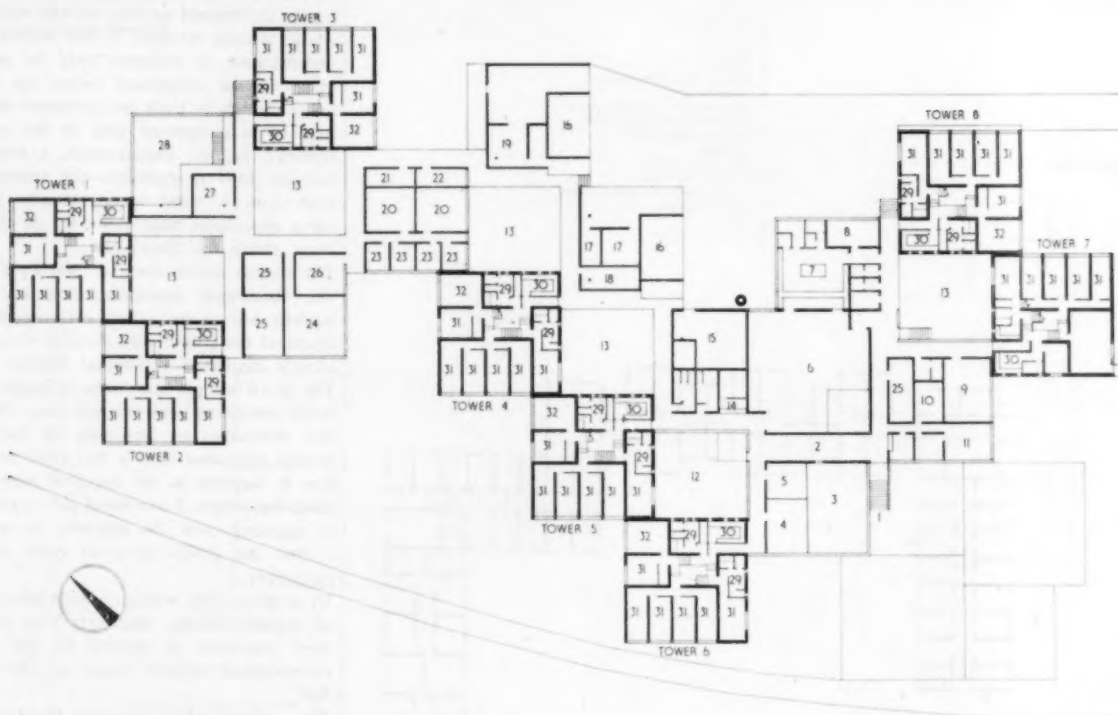
Tower first floor



Second floor



South-west elevation. *' . . . I find the proliferation of roof triangles disturbing.'*



Ground floor plan (Scale: 1/4" = 1' 0")

### Ground floor

1. Main entrance
2. Ante-room
3. Junior common room
4. Committee room
5. Paper and magazine room
6. Dining hall
7. Kitchen
8. Staff dining room
9. Senior common room
10. Bursar's office
11. Warden's office
12. Pool
13. Grass or gravel courts
14. Shop
15. Boiler room
16. Garages
17. Workshops
18. Drying room
19. Sub-station
20. Games room

### 21. Music practice

22. Photo room
23. Launderettes
24. Music and television room
25. Stores
26. Hobbies workroom
27. Studio
28. Library
29. Lavatories and bathroom
30. Pantry
31. Single bedsitting room
32. Double bedsitting room

### Towers: 1, 2, 3, 4, 5, 6

1. Single study bedroom
2. Double study bedroom
3. Set
4. Pantry
5. Store
6. Lavatories and bathrooms

# STUDENTS' HOSTELS

at LOUGHBOROUGH TEACHERS'  
TRAINING COLLEGE  
designed by T. A. COLLINS, Leicestershire  
County Architect  
staff E. D. SMITH, assistant County  
Architect  
R. R. SIGGERS, architect in charge  
quantity surveyor GLEEDS, Nottingham

STB No. (98)

UDC No. 728.54

These hostels at the Teachers' Training College, Loughborough, are of particular interest because the scheme follows closely the recommendations in building bulletin No. 15 issued by the Ministry of Education. A "village green" type of layout was chosen and the terrace houses of domestic appearance and scale are a distinct improvement on existing buildings.

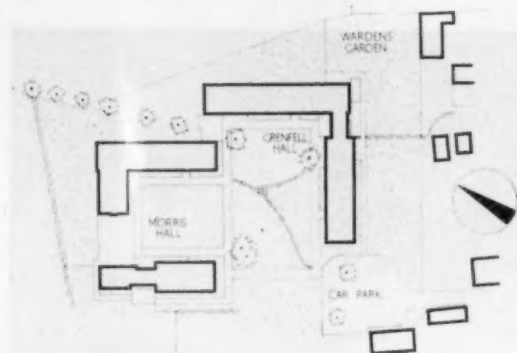
*General view from the car park. On the left, sculpture "The King" by J. Willots.*



## building illustrated



Gable wall, block A (ground floor plan on page 442). Mahogany boarding, white-painted timber balustrade on balcony.



Site plan (Scale: 1500: 1)

**APPRAISAL:** The buildings illustrated are an extension of the hostel accommodation for a teachers' training college and the scheme, though completed in September 1958, is particularly interesting because it follows closely the recommendations in building bulletin No. 15 issued by the Ministry of Education.

The site is about one mile from the centre of the town, and approximately a quarter-mile from the training college on the opposite side of the main road.

Dining is in an existing building which also serves the older hostel accommodation. The latter is sited between the new extension and the road and consists of three-storey blocks with a central corridor.

The layout of the new buildings is very successful. The 70 individual study-bedrooms are organised into two halls of 35; each hall has a warden's house and a common-room near its centre. The two houses, differing slightly in form, are linked to enclose one continuous, pleasantly modulated space, open in the south-west corner towards the existing

dining-room. The scale, both of the layout and of the enclosing buildings, has something of a village green feeling, more appropriate on this site than a high urban character and certainly an improvement on the barrack-like quality of the older buildings.

By the entrance to the "green" there is a piece of sculpture, the siting of which appears to be an afterthought and unrelated to the enclosed space.

External detailing is pleasantly simple, but perhaps a little prosaic. Entrances, staircases, bathrooms and utility rooms are picked out by timber cladding on the first floor and rendering on the ground floor, the entrance to the common-rooms by decorated tiles, the wardens' houses by a darker brick—pleasant enough in principle, but not carried out consistently enough to be really satisfying. For example, the darker brick is used on part of the houses only, and the total effect, including some textured brickwork and coloured glass panels, is of too many materials used in an arbitrary way. There is a similar lack of consistency in the two different balcony details which occur on adjoining faces of the same building. Generally, materials and detailing are weathering well, but the timber cladding proves yet again that there is at present no satisfactory clear finish.

The study-bedrooms are grouped ten to a staircase, with bathrooms, w.c. and storage on both floors, and a general-purpose room with gas ring, sink, point for an iron, etc., on the first floor. This grouping seems likely to promote contact between students from different years and different departments, and is said to encourage good behaviour.

In permitting a simple domestic type of construction as recommended in bulletin No. 15, the primary aim of low cost has certainly been achieved—56s. 7d. per sq. ft. net, including central heating.



*Warden's house in Morris Hall.*

However, in following the detailed suggestion in the bulletin for wooden stairs and floors this scheme has revealed a defect, namely the very low standard of sound insulation vertically between rooms, accentuated in this case by ceilings of  $\frac{1}{2}$ -in. plasterboard and skim, and upper floors of 1-in. hardwood in study bedrooms. The low standard of insulation was the chief criticism; it may well be the reason why students in the older buildings say they prefer them, though in the case of students actually in the new buildings the other advantages, such as a washbasin in each room, apparently outweigh this defect.

The study-bedrooms are 130 sq. ft. in area, compared with 145 sq. ft. suggested in bulletin No. 15, the saving being used to pay for the common-rooms. Nobody criticised the smallness of the rooms, and two students are reputed to have thought them too large. (It is interesting to compare the recent LCC work on furniture for study-bedrooms, which with jig-saw ingenuity was fitted into a room approximately 13 ft. 3 in. by 9 ft. 3 in., that is, 122.5 sq. ft., or with a recessed door 117.5 sq. ft.) The dimensions of the rooms in the Loughborough scheme are 12 ft. 4½ in. by 10 ft. 6 in., and each room has a standard built-in storage fitment combined with a washbasin. (Unfortunately the workmanship and detailing, particularly of the basin surround, are of poor quality.) Within this framework there are considerable variations in the placing of the door, window and fitment, and in their relationship to each other. In comparing the resulting rooms some appear decidedly pleasanter, better lit, easier to furnish and even more spacious than others.

There was no criticism of the provision of w.c.s and bath-rooms, but a preference was expressed for a shower in place of one bathroom in each unit.

The common-room measures 21 ft. 4½ in. by 16 ft. 4½ in. about 350 sq. ft., or 10 sq. ft. per student. This compares with a recommendation in bulletin No. 15 of 600 sq. ft. for 45-50 students; i.e. 12-13 sq. ft. per student, assuming that the hostel is not isolated from the main buildings. The common-rooms at Loughborough were criticised as being too small to accommodate the whole hall comfortably.

#### CLIENT'S REQUIREMENTS

Hostel accommodation for 70 male students, with suitable common-room provision. Each student to have a separate study-bedroom. Two houses for wardens to be included.

#### PLANNING AIMS

1. To design on the basis of 200 sq. ft. of floor space per student, in accordance with the Ministry of Education bulletin No. 15, of February 1957.
2. To limit the net cost to £3 per sq. ft., including central heating.

To achieve these aims the hostels are designed as two-storey terrace houses of normal domestic construction, so that the cost should be no more than that of ordinary houses.

#### SUMMARY

Ground floor area: 8,428 sq. ft.

Total floor area: 16,856 sq. ft. (including two wardens' houses).

Type of contract: RIBA (Local Authority where quantities form part).

Tender date: July 29, 1957.

Work began: September 1957.

Work finished: September 1958.

Final contract price of foundations, superstructure, installations and finishes: £47,702 os. 3d.

Final contract price for external works, including drainage, and ancillary buildings: £6,082 14s. 3d.

Total: £53,784 14s. 6d.

## building illustrated



Entrance to a staircase unit. Mahogany boarding to first floor and self-coloured rendering to ground floor.

## Preliminaries and insurances

## Contingencies

Nil.

## Work below ground floor level

Surface strip 9 in. deep; excavate to reduce levels; excavate trenches; 5-in. bed of hardcore; 4-in. bed of concrete.

Load-bearing 4½-in., 9-in. and 11-in. hollow walls on concrete foundations; blue brick damp courses; service ducts.

## STRUCTURAL ELEMENTS

## Frame or load-bearing element

See below.

## External walls

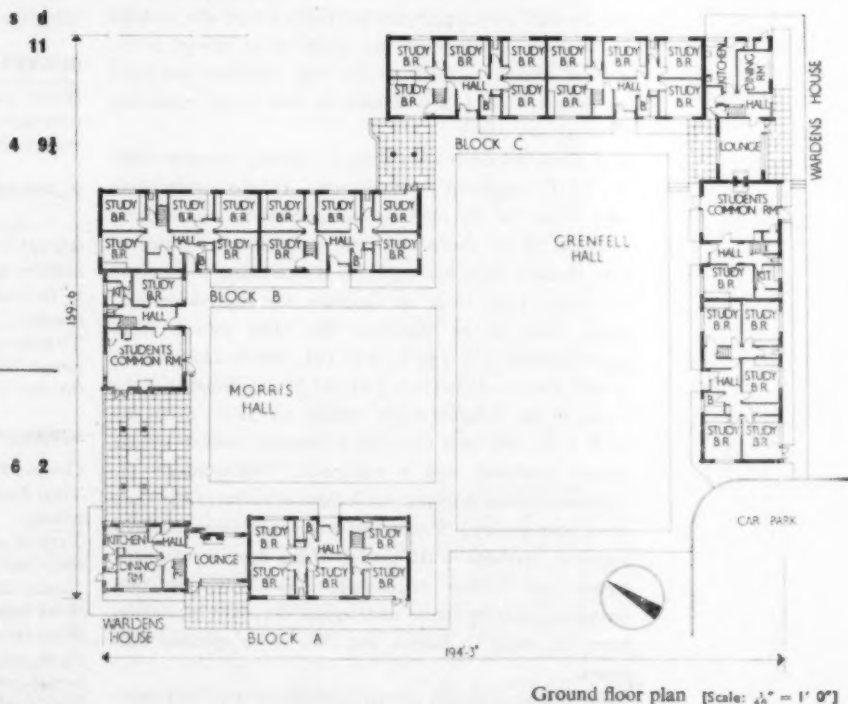
Part 11-in. hollow walls with facing bricks to outer skin; part 9-in. walls with mahogany vertical cladding on bearers; part coloured rendering; part hollow glass unit cladding.

Artificial stone lintels and bituminous felt cavity trays.

$$\text{Ratio: } \frac{\text{solid wall}}{\text{floor area}} = \frac{0.712}{1}$$

## Windows and external doors

Softwood window frames and casements with hardwood sills; softwood window beads and



Ground floor plan [Scale: ¼" = 1' 0"]



Common-room entrance, Morris Hall. The decorated tiles were designed and made by Loughborough College of Art.



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

cloaking fillets; galvanised fixing cramps.  
Softwood doors and frames; galvanised fixing cramps and dowels.

$$\text{Ratio: } \frac{\text{windows and doors}}{\text{floor area}} = \frac{0.241}{1}$$

#### Upper floors

Softwood joists and herringbone strutting, mainly supported on brick walls.  
Light steel joists.  
Hardwood strip flooring in study-bedrooms.

#### Staircases

Softwood treads, risers, landings, strings, balusters and handrails.  
No. of staircases: 10. Width: 3 ft. Total rise: 8 ft. 8 in.

#### Roof construction

Pitched roofs formed with softwood plates, rafters, ridges, purlins, ceiling joists, beams, fascias and barge boards; asbestos cement eaves and verge soffits; mineral wool insulating quilt over ceiling joists; lead flashings; brick gables with facing bricks.

#### Glazing

26-oz. and 32-oz. clear sheet glass; cross reeded obscure;  $\frac{1}{4}$ -in. Georgian wired cast glass;  $\frac{1}{4}$ -in. polished plate.



## building illustrated



Part of block C and warden's house  
in Grenfell Hall.

Total of structural elements: 12s 3½d

Total of partitions and fittings: 7s. 9d.

## PARTITIONS AND FITTINGS

## Internal partitions

Type of partition	Area of each type
3-in. breeze block	184 sq. yds.
Load-bearing 4½-in. brick	1,445 sq. yds.
9-in. brick	186 sq. yds.

## Internal doors

Flush doors, skeleton framed, plywood faced and hardwood lipped; softwood linings and frames; elm fixing slips; galvanised dowels to frames; softwood architraves.

No. of single doors: 168.

## Ironmongery

External: b.m.a.

Internal: anodised aluminium.

## Fittings

Type of unit	No. of each type
Wardrobe units	70
Serving hatches	2
Clothes airers	8
Larder shelves	2
Sink drainers	8
Sundry shelving and bearers, balcony balustrades and finishes.	

## FINISHES

## Floor finishes

Type of finish	Area in sq. ft.	Price per sq. yd.
2-in. granolithic	144	15s. 6d.
½-in. quarry tiles on 1½-in. screed	344	27s. 6d.
1-in. hardwood blocks on 1-in. screed	1,260	41s. 9d.
Thermoplastic tiles on 1½-in. screed	5,670	22s. 9d.
1-in. softwood (partly in roof space as box store)	3,798	13s. 8d.
1-in. guarea strip to part of 1st floor	4,115	41s. 10d.
Softwood and 1 hardwood skirtings.		

## Wall finishes

Hardwall plaster: glazed tile splashbacks.

## Ceiling finishes

½-in. plasterboard and skim coat plaster.  
Fibrous plaster cornices to two common-rooms.

## Roof finishes

Handmade roofing tiles on sawn battens.  
Area: 12,513 sq. ft.



Metal and timber balcony balustrades on adjoining faces of the south corner of Grenfell Hall.

### Decorations

Oil-bound water paint to walls and ceilings generally, with small areas of three coats oil colour, or lined and papered.  
Wood and metalwork finished with three coats oil colour.

Total of finishes: 9s 10½d

### SERVICES

#### External plumbing

4-in. diam. half round cast iron eaves gutters.  
2½-in. diam. cast iron rainwater pipes.

#### Cold water installation

Copper services and wastes. Coated cast iron waste, soil and ventilating pipes. Pipe casings and lagging.

#### Sanitary fittings

Type of fitting	No. of each type
Sinks	10
Lavatory basins	72
Low level w.c. suites	18
Baths (66-in. with side panels)	16
Splashbacks	140

#### Heating and hot water installation

Low-pressure accelerated hot-water heating by means of radiators served by mechanically stoked cast iron sectional boilers using small

2 2 coke. Heating thermostatically controlled, incorporating a time switch.  
Domestic hot water supplied through individual calorifiers served from heating system.  
Internal temperature: 65 deg. F.  
Air change: 2 per hour  
U value of walls: 0.3.  
U value of roof: 0.25.

#### Gas installation

8 points. Wrought-iron tubing. Gas rings.

#### Electrical installation

Type of point	No. of each type
Lighting	303
13 amp. outlets	63
Clocks	10
Circulating pumps (heating)	8
Thermostats and motorised valves	12

#### Other elements

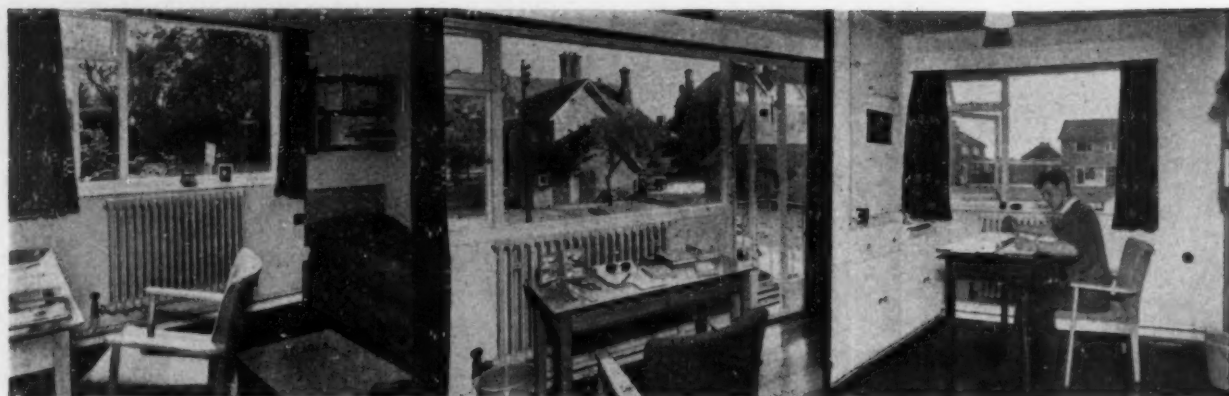
Alterations to existing building to form boiler house and external main ducts.

Total of services: 20s 10½d

#### 10 4 Drainage

BS tested for foul drains. "Seconds" for storm drains. Brick manholes with concrete base and top and cast iron covers.

## building illustrated



Three study-bedrooms in Grenfell Hall, showing different layouts of rooms which are all the same shape and size.

#### Shillings per sq. ft. of floor area:

£47,702 os. 3d. (net cost excluding external works)	
16,856 sq. ft. (measured inside external walls)	= 56 7

#### COST COMMENT

It is quite an achievement to produce hostels such as these at a cost of 56s. 7d. per sq. ft. It has been possible because the construction is simple and because the very nature of the building has meant that a lot of detailing can be repetitive. The analysis shows that certain items have a low initial cost, perhaps without much regard for wear and tear. Windows and external doors, for instance, are in softwood at an average unit cost of 7s. 5d. per sq. ft.; internal doors with their frames and architraves at £6 3s. 4d. each; softwood staircases at £33 each.

Arranging the buildings in simple terraces has meant that their plan-shapes are long and narrow, throwing a cost emphasis on the relatively expensive external walling, eaves treatment and rainwater disposal.

The greater proportion of money has been spent on heating

and lighting. Some of this outlay must be attributable to the plan-shape, which calls for abnormally long runs and for circulating pipes in the case of the heating installation. The £8,700 spent on the heating element represents an outlay of £124 per student out of a total outlay of £681 per student. It may well be that the Ministry's target figure is too ambitious to pay detailed attention to the probable cost in use of the building, and to have built below the allowance of 60s. per sq. ft. might appear a false economy. Perhaps this is being wise after the event, but an additional 2s. 6d. per sq. ft. (or £2,107) would have gone at least some way towards improving sound insulation.

#### CONTRACTORS

General contractors: F. Garner & Sons. Heating: Young, Austen & Young Ltd. Electrical: C. N. Rogers Ltd. Thermoplastic tiles: Semtex Ltd. Wood block floors: Hollis Bros. Roof tiling: Ferguson & Co. Reconditioned stone: G. A. Sanderson (Concrete) Ltd. Ironmongery: Laidlaw & Thomson Ltd. Balustrades: Architectural Metalworks. Asphalt: Weston & Bolton. Gas service: East Midlands Gas Board.

The common-room in Grenfell Hall.





ROOF: LIBRARY IN WESTCLIFF, SOUTHEND-ON-SEA

*P. F. Burridge, Architect to the County Borough of Southend-on-Sea*

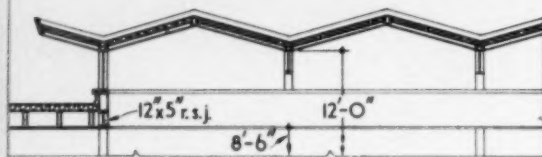
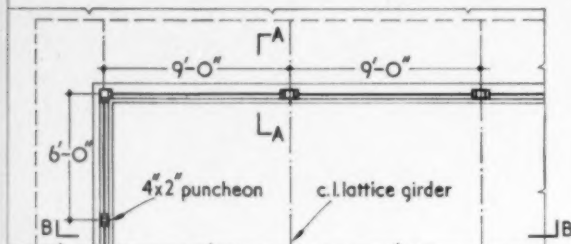
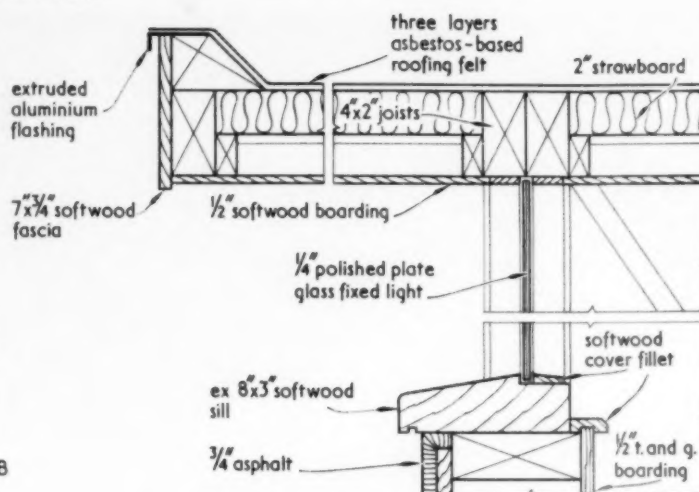
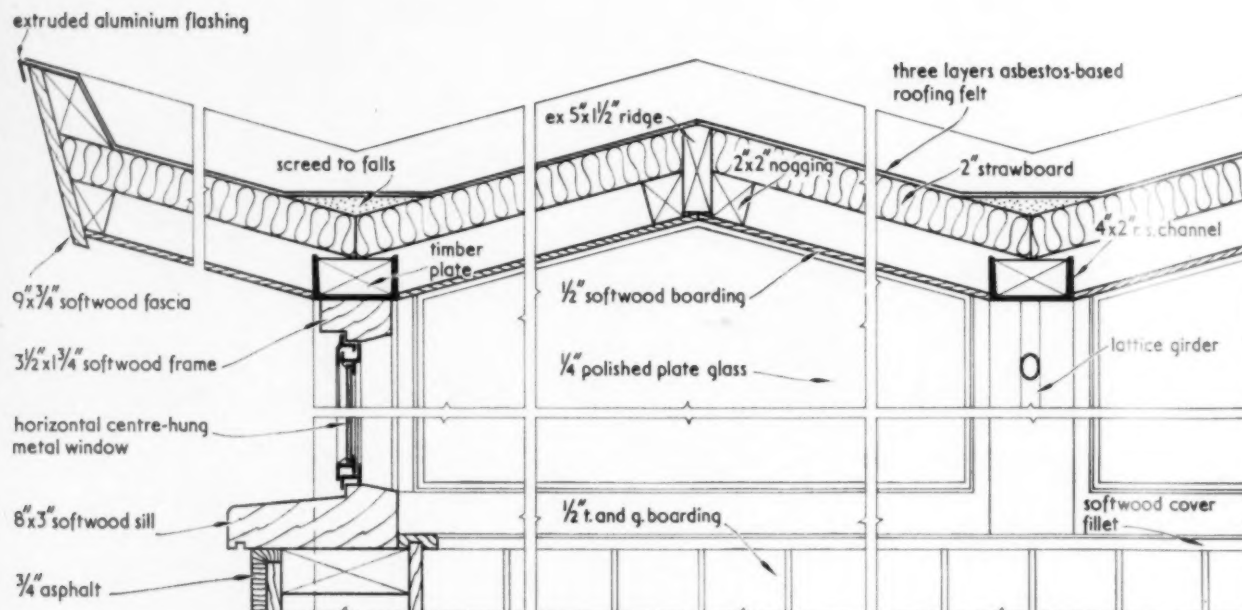
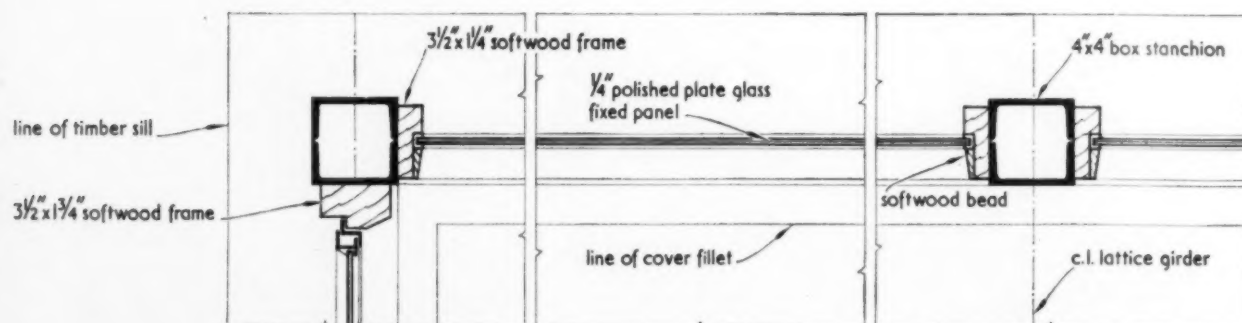


*This detail shows how easily the concrete "folded slab" profile can be reproduced in timber and steel. The roof pitch is obtained by short lengths of 4 in. by 2 in. which bear, at their lower ends, on the top boom of the lattice girders.*

## working detail

ROOF: LIBRARY IN WESTCLIFF, SOUTHEND-ON-SEA

P. F. Burridge, Architect to the County Borough of Southend-on-Sea

SECTION. scale  $\frac{1}{8}'' = 1'-0''$ PLAN. scale  $\frac{1}{8}'' = 1'-0''$ SECTION A-A. scale  $\frac{1}{8}$  full sizeSECTION B-B. scale  $\frac{1}{8}$  full sizePLAN OF CLERESTORY. scale  $\frac{1}{8}$  full size

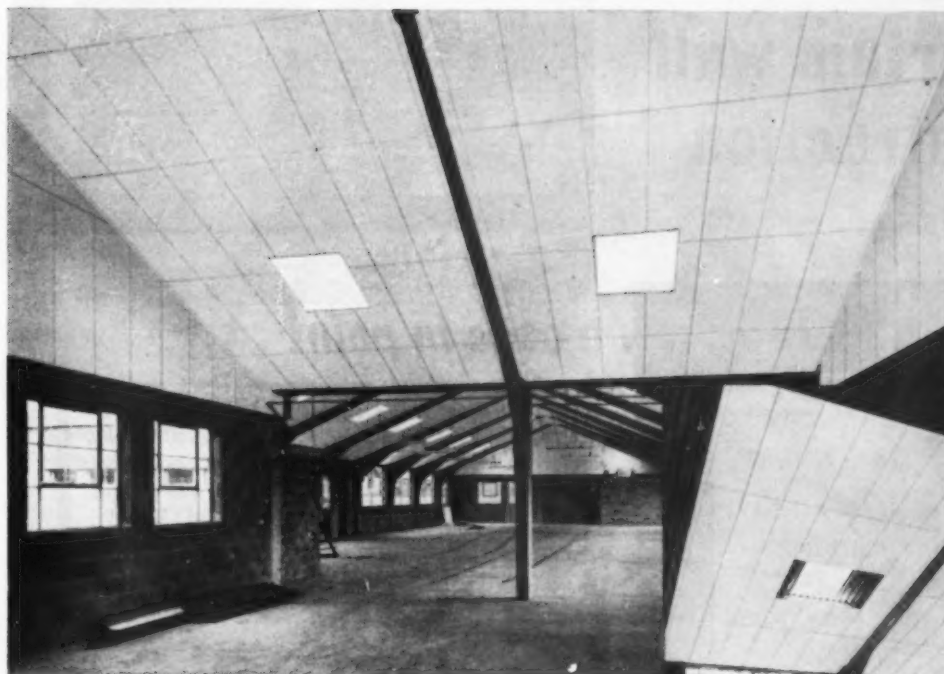
Efficient insulation with

# MARLEYcel

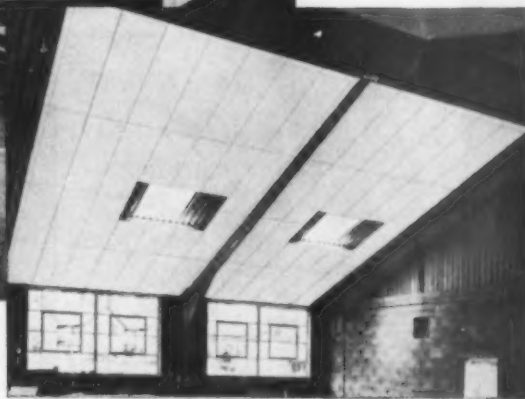


- U value=0.18 with  $\frac{3}{4}$ " Marleycel self-extinguishing grade
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- Greater light reflection improves working conditions
- Quick removal of individual panels with Grecon facilitates inspection of ceilings and roofs
- Speedier erection reduces loss of production time

Marleycel is quickly fixed using the new **GRECON** Fixing System



The standard system comprises 9' lengths of T-section galvanised steel, spring steel clips, steel hangers and sleeves. This method of fixing ensures the quick removal of individual panels.



Photography by courtesy of E. W. Tyler & Co. Ltd, Tonbridge. Marleycel installed using the Grecon Fixing System for R. Hewett Ltd, Boyn Valley Trading Estate, Maidenhead. The partially insulated roof in the smaller photograph illustrates the improved appearance and light reflection.

Marley Technical Staff will always advise on installation procedures including the Grecon Fixing System, and on the appropriate Marleycel thickness.

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Consulting Engineers: Bylander, Waddell & Partners  
Contractors: Tersons Limited.

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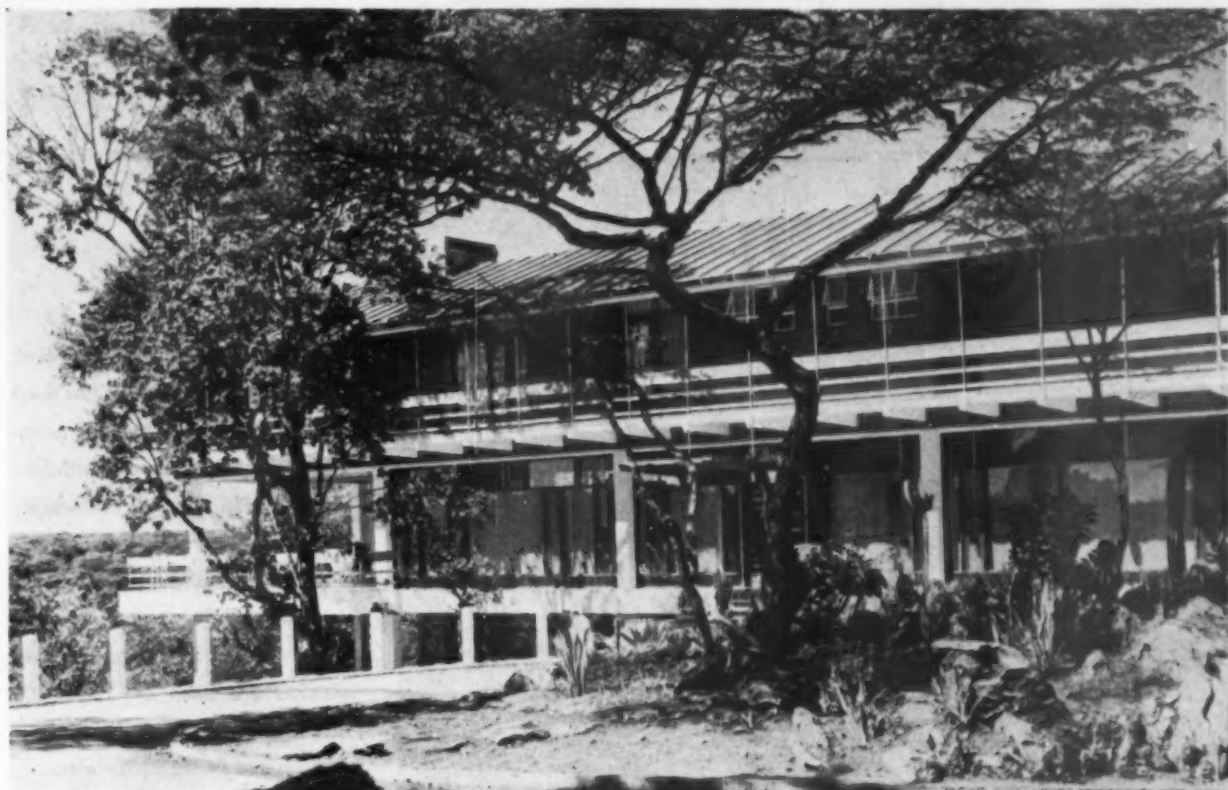
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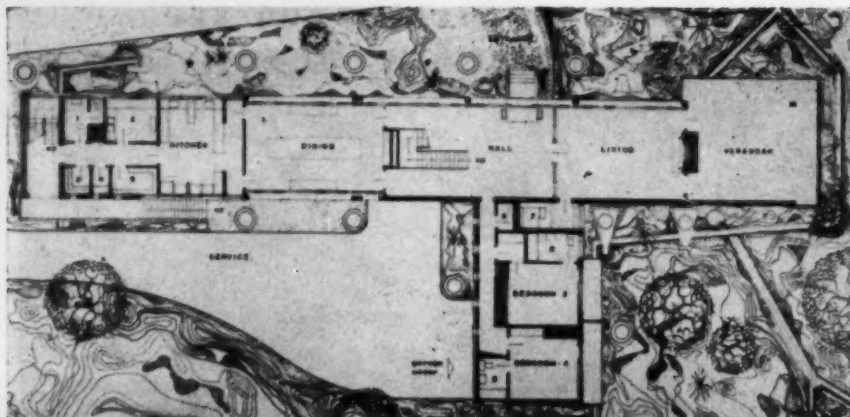
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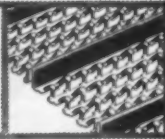


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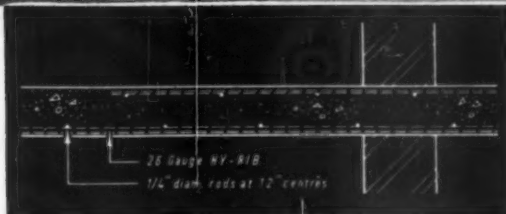
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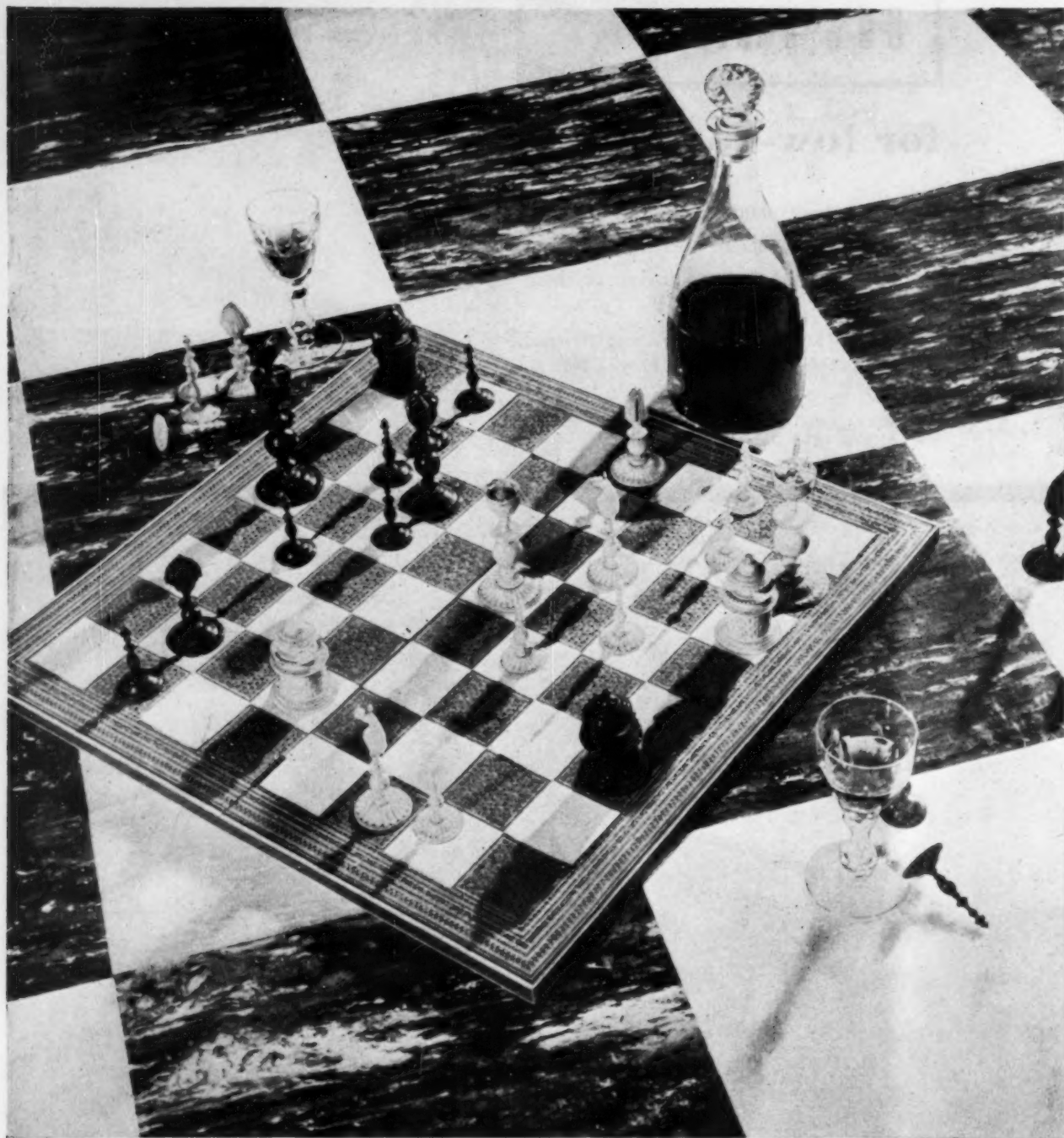
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Architect :

John Houghton, Esq., A.R.I.B.A., Hull

Contractors :

Messrs. George Houlton & Sons, Ltd., Hull

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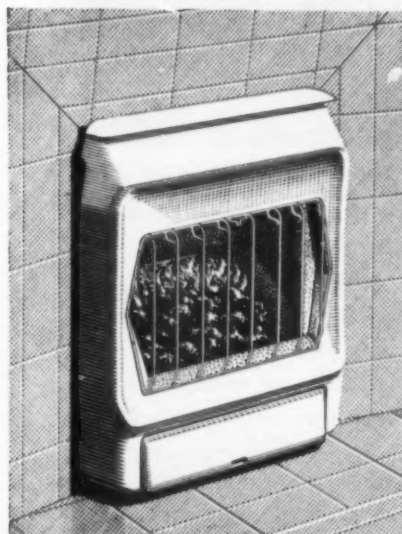
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Write for the REDFYRE HANDBOOK—a handy folder containing full specification sheets of all Redfyre products. The Redfyre mailing service will keep your handbook up to date automatically.



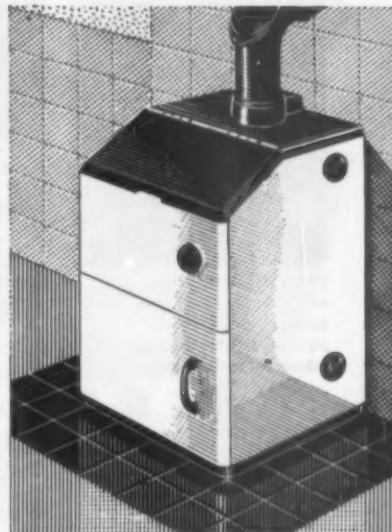
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G1050  $\frac{1}{2}$ " Washbasin mixer fitting with  $1\frac{1}{4}$ " pop-up waste. Inlets screwed  $\frac{1}{2}$ " B.S. pipe, male, with centres 8" to 10". A truly serviceable and attractive adjunct to any modern bathroom.



D1611 Shower fitting with  $\frac{1}{2}$ " hot and cold taps. Inlets screwed  $\frac{1}{2}$ " B.S. pipe, male. Adds the final refinement to the bath.



D1032 Bath fitting with  $\frac{1}{2}$ " taps. Inlets screwed 1" B.S. pipe, male. Bold contemporary design adds a luxury touch at reasonable cost.



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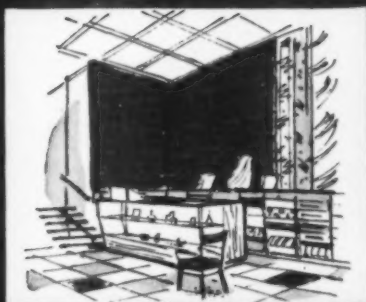
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## The quiet revolution

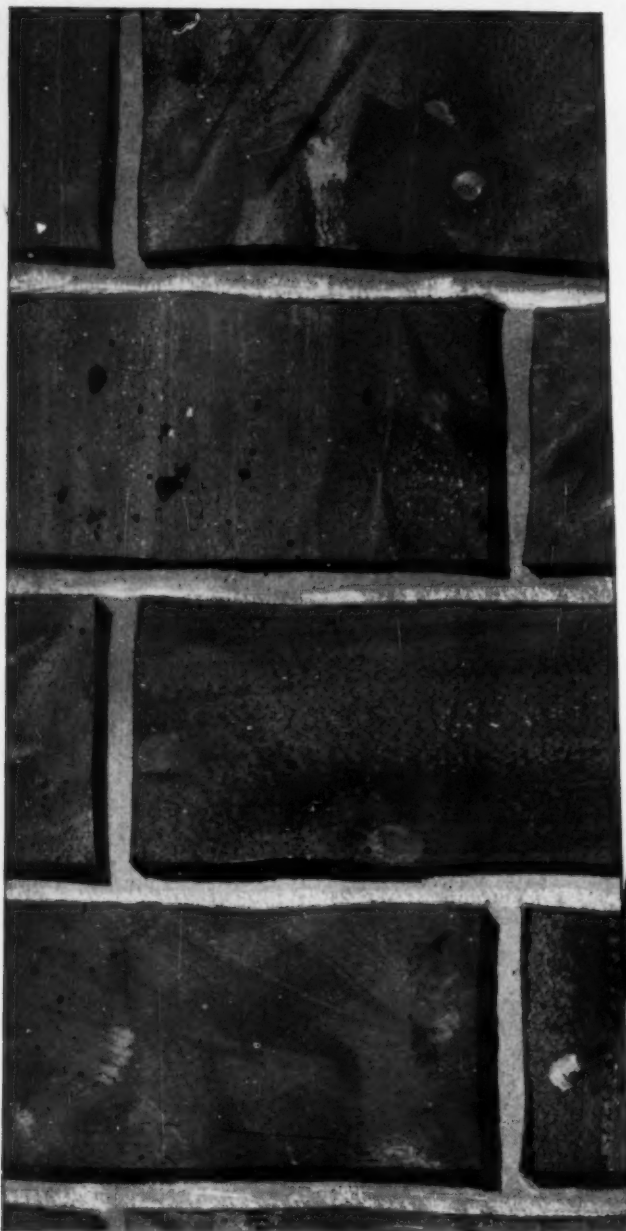
Whilst modern interior design has been making its unparalleled strides of recent years, a minor revolution has been taking place quietly in the background. This is the swing to vinyl as a wall covering. Now, with the introduction of Muralionide, this movement has gained rapidly in momentum. Muralionide is the first range of P.V.C. coated fabrics in the country to include patterns on large modular scales designed specifically for use as a wallcovering. It is most durable. Kicks, scratches and general wear and tear make little impression on its tough P.V.C. surface. Fabric-backed, Muralionide is chip-proof, peel-proof and washable. And the colours, fused in under high temperature, are resistant to fading. Yet practical as it is, Muralionide, with its matt finish and thick embossed texture, has the look and feel of luxury.

# MURALIONIDE

vinyl wallcovering

For further information please write to:  
JAS. WILLIAMSON & SON LTD - LANCASTER





**Walcrete makes better mortar**

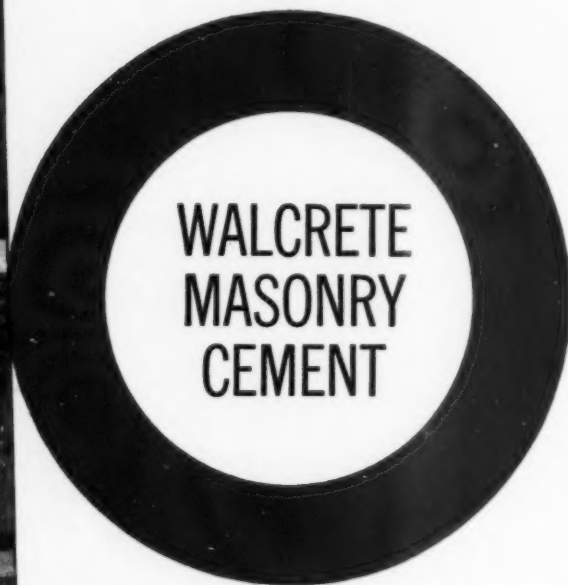
**Walcrete needs no additives**

**Walcrete produces a good bond**

**Walcrete spreads like butter**

**Walcrete has adequate strength  
for all mortar requirements**

Walcrete is made under rigid laboratory  
control to Blue Circle standards.  
The materials used in its composition are  
accurately proportioned and intimately  
mixed-in during manufacture.



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## COSTS LESS FOR BETTER MORTAR



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cills, surrounds, copings & cladd-  
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COUNTER TOPPING by  
**GOOD YEAR**

*starts a counter revolution*



Flexible vinyl — curves easily to sharp radii

#### EASY TO LAY

Evergleam cuts with ordinary scissors . . . rolls in one piece over splash back, counter top and edge . . . gives seamless square-edge facings . . . fixes permanently with contact or impact adhesive.

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Evergleam is decorative . . . comes in an array of 23 sealed-in colours, patterns and textures. Evergleam is resilient . . . absorbs blows, turns strident clatter to soft murmur in restaurant, canteen, coffee-bar or store.

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OF COLOURS  
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TEXTURES.

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To: Goodyear Tyre & Rubber Co. (GB) Ltd., Wolverhampton.

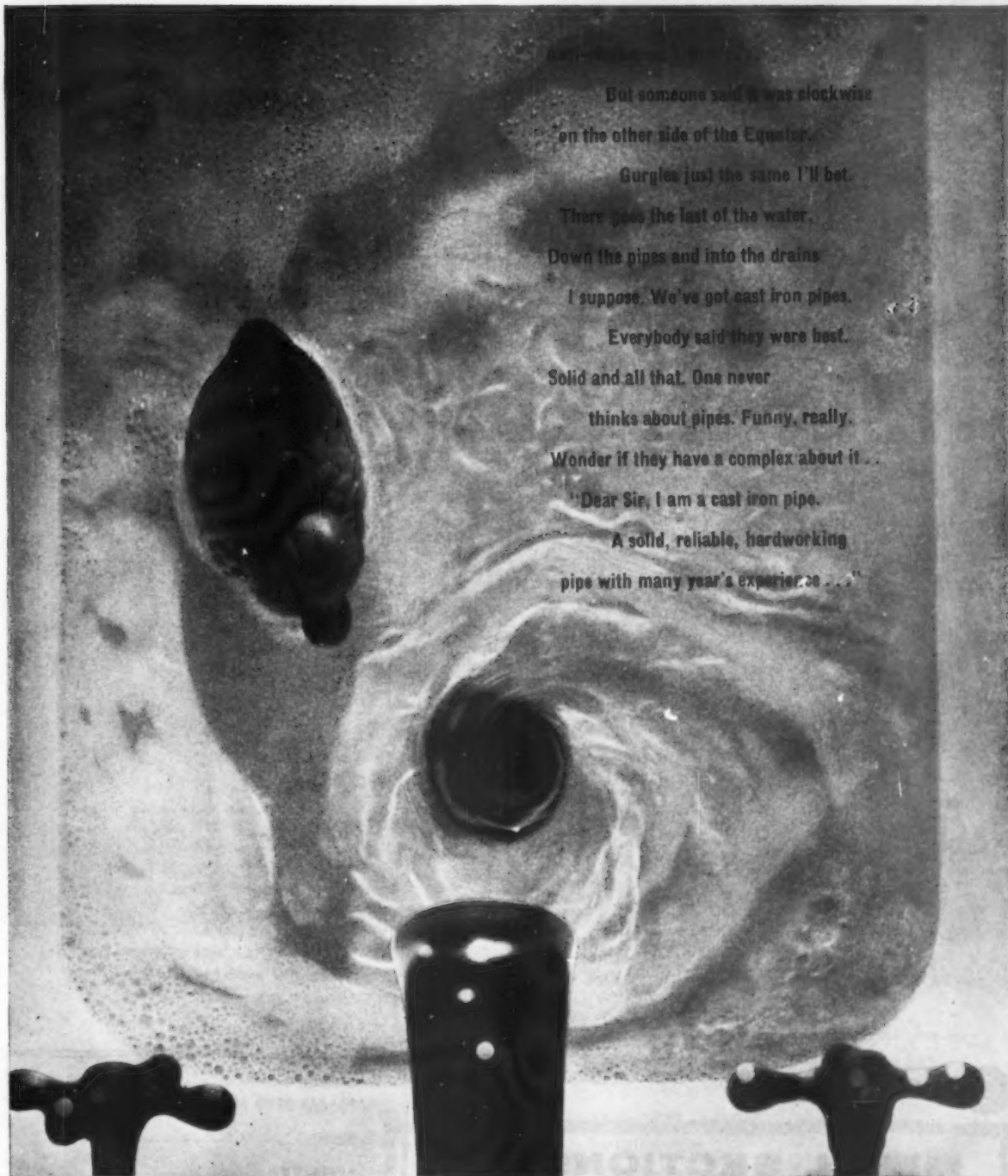
Please send booklet AJ3 describing  
Evergleam Vinyl Counter Topping

Name

Company

Address

## WHICH WAY DOES A WHIRLPOOL WHIRL?



But someone said it was clockwise  
on the other side of the Equator.

Gurgles just the same I'll bet.

There goes the last of the water.

Down the pipes and into the drains

I suppose. We've got cast iron pipes.

Everybody said they were best.

Solid and all that. One never

thinks about pipes. Funny, really.

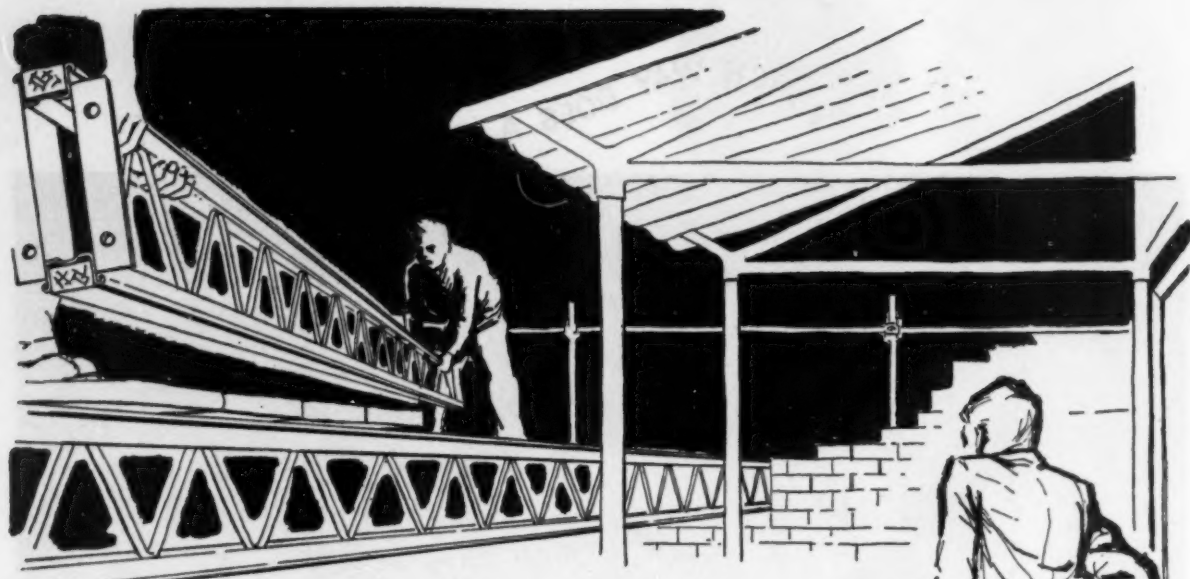
Wonder if they have a complex about it.

"Dear Sir, I am a cast iron pipe.

A solid, reliable, hardworking  
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We wouldn't be surprised if Charles could. Our Nailable open web joists are easily handled into position despite their superior strength. Metsec joists are tailor made for each individual contract. Architects and Builders constantly specify their use because of their high strength/weight ratio, great adaptability and economy. All Metsec joists are protected by chemical pretreatment and high temperature stoving. Write for the Book of the Metsec Joists.



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PLEASE SEND 'JOISTS' CATALOGUE (CAJ)

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POSITION .....

COMPANY ADDRESS .....

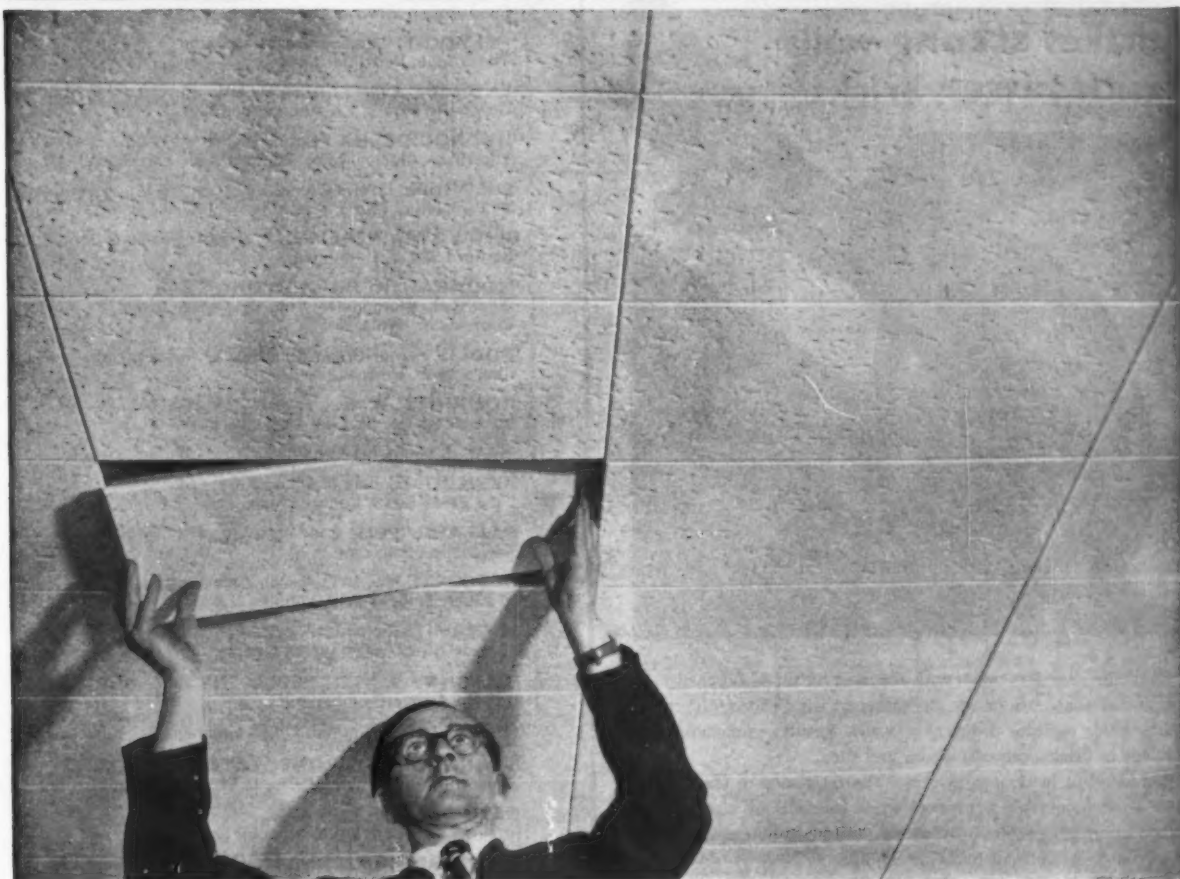
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CORK COMPANY LTD.

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Just introduced by Armstrong—a metal suspension system for 24" x 12" Travertone acoustic tiles that allows each separate tile to be removed immediately, easily and without tools or skilled labour. Access panels—and the extra cost they entail—are unnecessary as this new advance in acoustic ceiling suspension gives complete access to all services. The decorative appearance of Travertone tiles is not affected, and the cost is only fractionally more than present metal suspension systems. Please write for full details.

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strength with economy

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**BRICKWORK REINFORCEMENT**

— makes strong walls  
with fewer bricks



'Bondenn' Reinforcement ends the need for thick, expensive brick walls. 4½" brickwork strengthened with 'Bondenn' in many cases replaces ordinary 9" walls. Result — substantial savings in bricks, cement, labour and time.

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Telephone: Norwich 25251. Telegrams: Boulpaul, Norwich  
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Telegrams: Boulpaul, Wesdo, London  
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B.20

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'COLORSHIELD' No. 5 C. R. Averill Ltd.,  
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'ANCOSIL' James Beard Ltd.,  
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'SILBEKONE' James A. Beck & Sons Ltd.,  
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'AQUASEAL' No. 66 Berry Wiggins & Co. Ltd.,  
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'PELMOIST' Cadulac Chemicals Ltd.,  
The Bridge, Radcliffe, Lancs.

'ENPRUFE' Enfield Chemicals Ltd.,  
Clayton-le-Moors, Nr. Accrington, Lancs.

'HYDROCID' SX Floorlife & Chemicals Ltd.,  
The Hives, Mosley Road, Trafford Park, Manchester, 17.

'FULPRUFE' D. H. Fulton,  
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**GEM WATER REPELLENT** Joseph Gilman & Sons, Ltd.,  
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'MOONRAKER' BRICKSTONE SEAL  
John Hall (Warminster) Ltd., Weymouth Street,  
Warminster, Wilts.

'PUDLO' Kerner-Greenwood Ltd., St. Anne's Street,  
King's Lynn, Norfolk.

'ROMANITE' W. R. Liverpool Borax Co. Ltd.,  
Maxwell House, St. Paul's Square, Liverpool, 3.

'MAC' J. Manger & Sons Ltd., Crown Works, Stafford.

'RESILCO' Thomas Moscrop & Co. Ltd.,  
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'PALLASIL' Pallas Chemicals Ltd., 37 Lovaine Place,  
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'SETCRETE No. 19' Quickset Water Sealers Ltd.,  
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'WYKAMIT' Richardson & Starling Ltd.,  
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**MASONRY WATER REPELLENT** Smith & Walton Ltd.,  
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'IMPERVION' Solignum Ltd., Dagenham Dock, Essex.

'STANDARD' SILICONE WATER REPELLENT  
Standard Paint & Varnish Co., 15 Redcross Way, London, S.E.1.

'DAMPOL' Stephenson & Co.,  
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'SZERELMEY' SILICONE LIQUID 103 Szerelmey Ltd.,  
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'ENDAMP' Torbay Paint Co. Ltd., New Road,  
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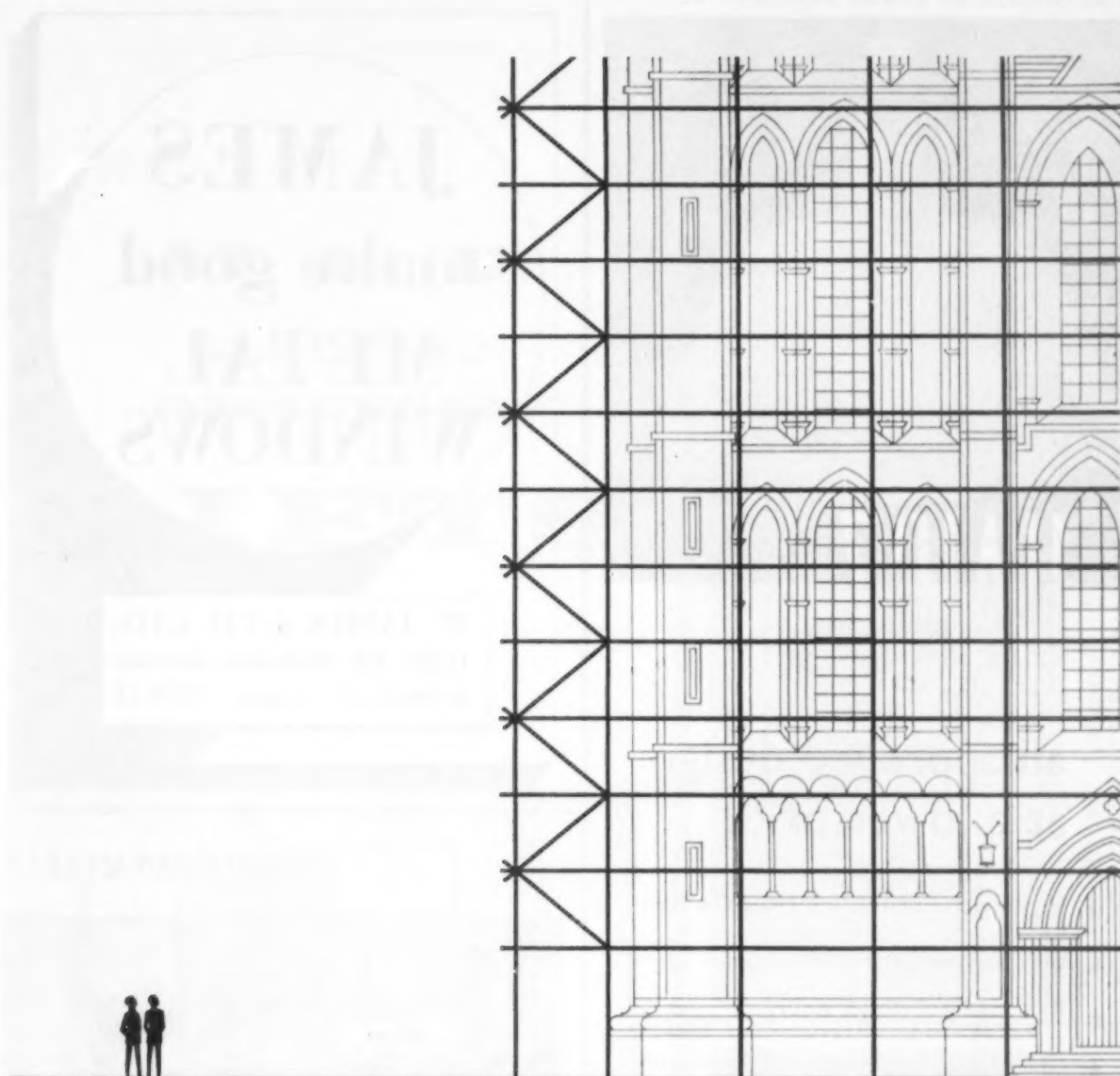
'TRETOL' SILICONE WATER REPELLENT  
Tretol Ltd., The Hyde, London, N.W.9.

'KELPIE' SILICONE WATER REPELLENT  
John C. Walker & Co. Ltd., 71/77 Tobago Street, Glasgow, S.E.

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**Imperial Chemical Industries Ltd**  
London, S.W.1



## Face Lift

It's wonderful to see that magnificent old stonework coming out under the grime.

Yes, isn't it? And when they've finished cleaning they're going to treat the walls with I.C.I. Silicones to help keep the grime out and make them water-repellent.

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Yes — you simply brush or spray on a silicone solution, let it dry, and the job's done.

But won't silicones stain the stone?

No — that's one great advantage: silicones are colourless, and they give all-weather protection without changing the natural appearance of the stonework.

My house could do with silicones, then — but I don't much like the natural appearance of its stonework!

That's easy — paint it! If you're using emulsion paint, put silicones on first. If you use cement-based paint, use silicones as a top-coat.

What good will that do?

Silicones will improve the paint's resistance to rain, dirt and weathering.

I must try these silicones some time.

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N.S. 86

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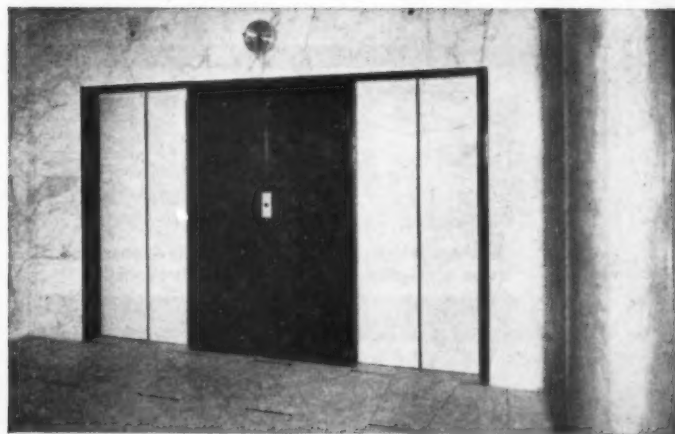
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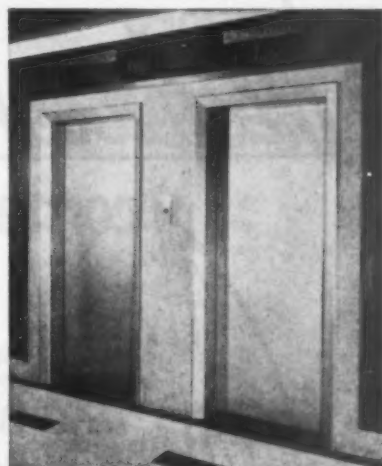


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conversions  
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buildings

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whether it be brick or plasterboard Blakey Galvanized Metal Angle Bead will reinforce and protect all external angles against accidental damage. Simply and quickly fixed, it will not shrink, corrode or chip. And the cost... a well-known firm of Plasterers has claimed a saving of 5d. a foot, compared with concrete angles, which showed them a saving of £5 per house.

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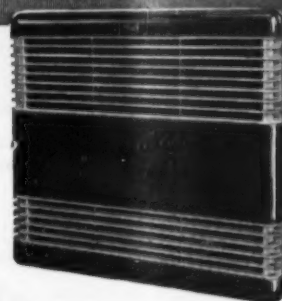


In the home—controlled  
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Steel grille bars in 'matt gold' enamel: plastic sections in walnut or black. Available in 1kW. or 2kW. loadings, with or without Automatic Heat Control.

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Write for details. Test reports on request.

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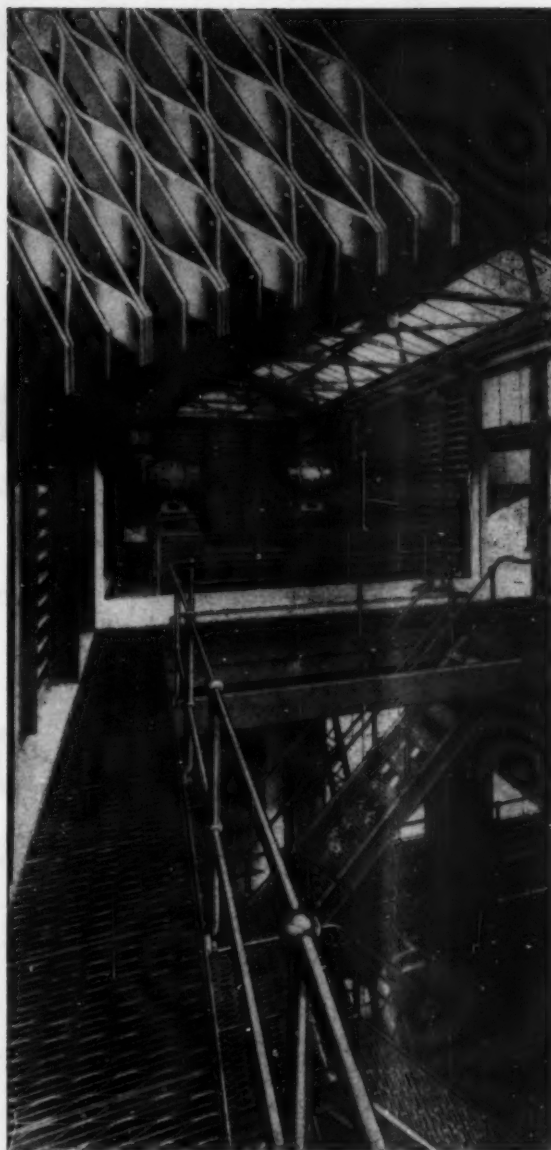
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### Type 'HL' Burner

For booklets giving full details of these burners, also Riley Oil Fired Combustion Chambers and Air Heaters, write to:-

## RILEY (IC) PRODUCTS LIMITED

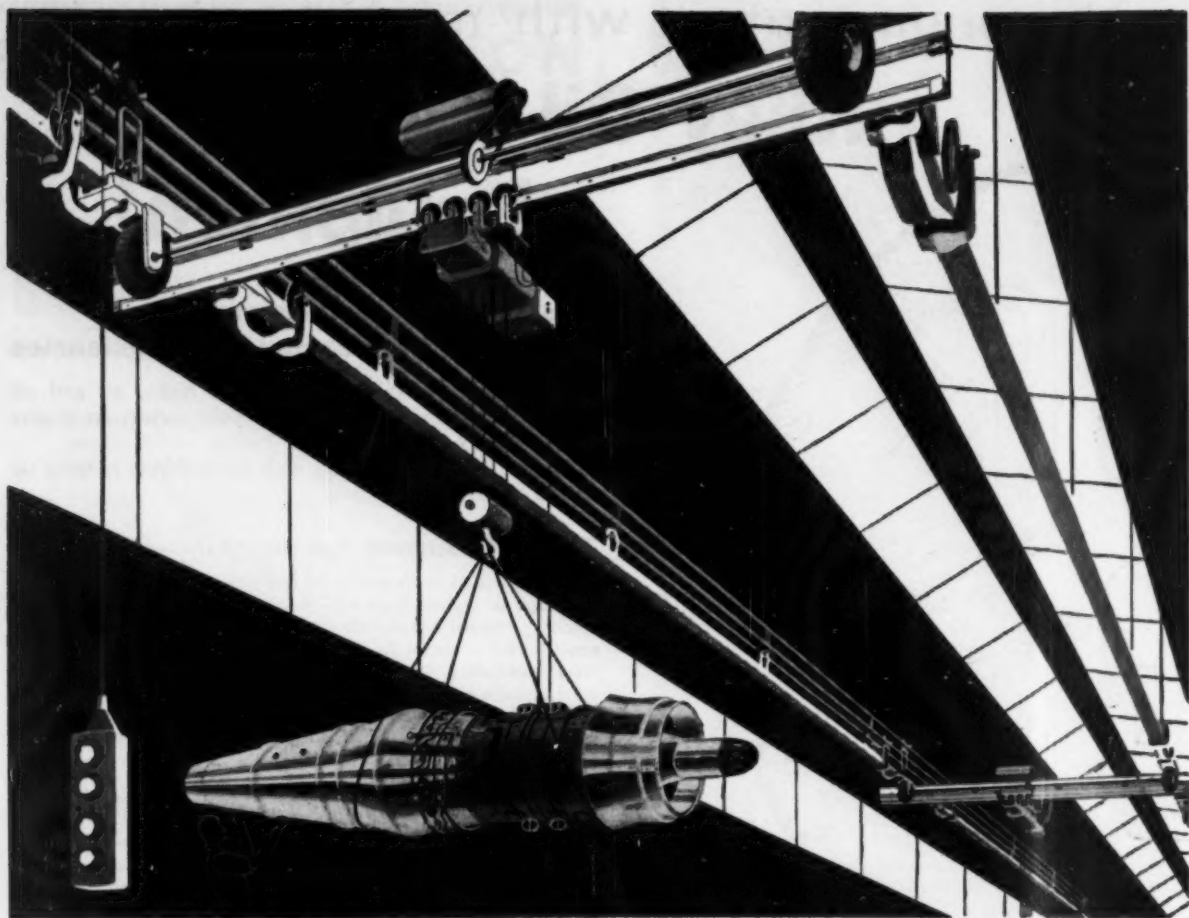
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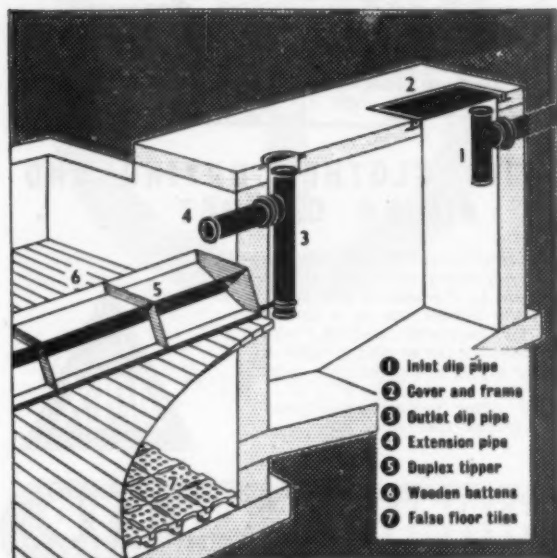
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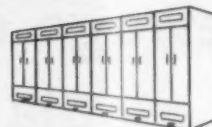
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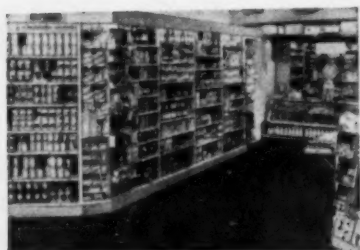
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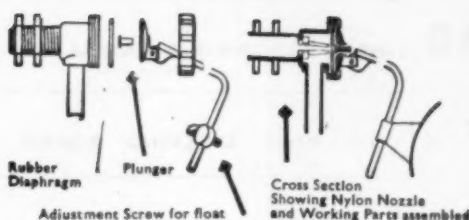
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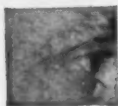
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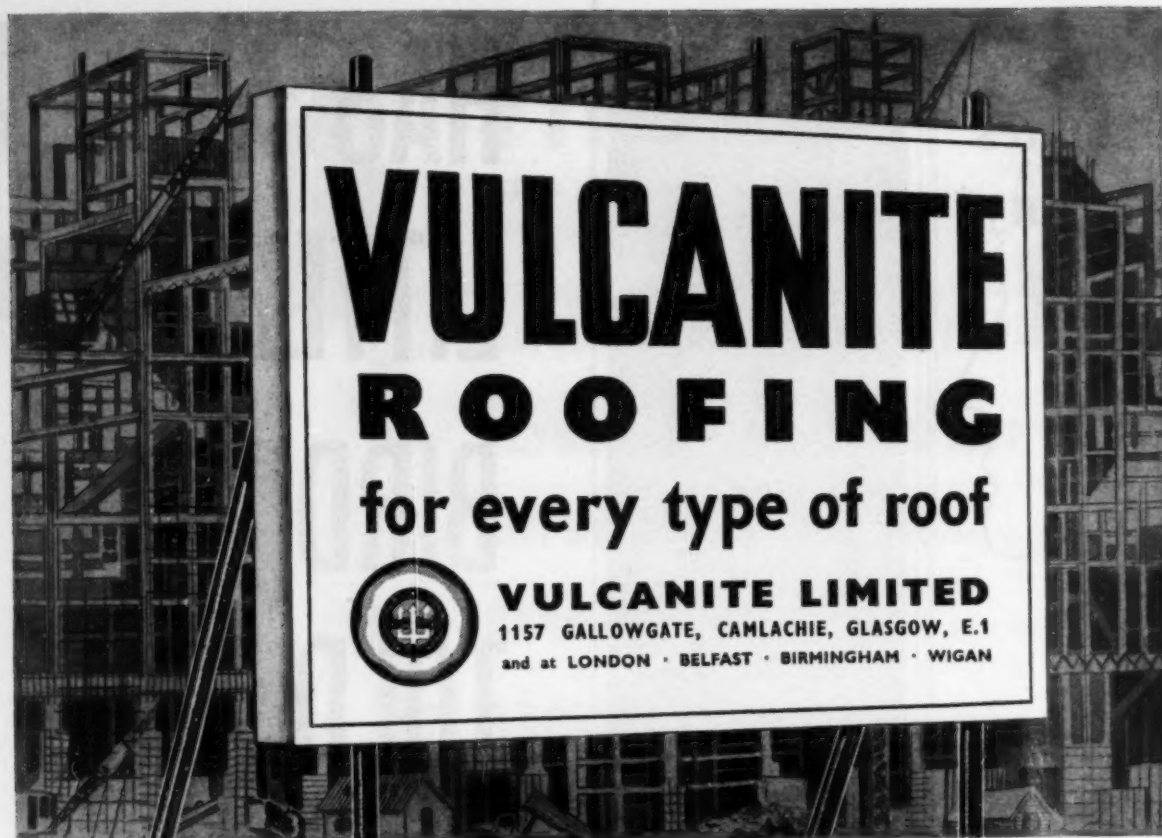
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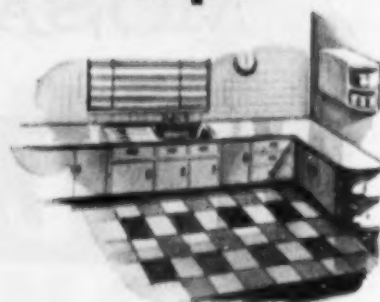
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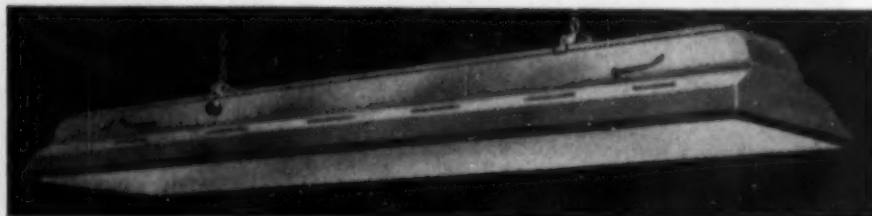
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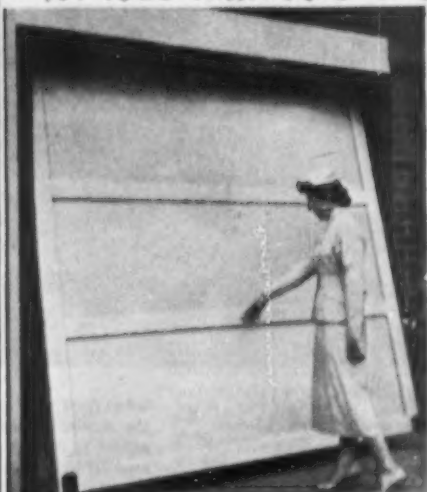
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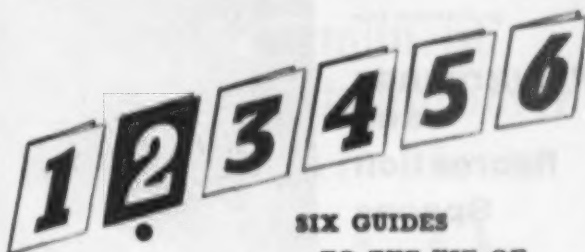


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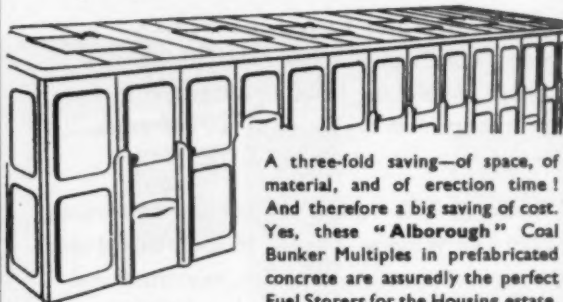
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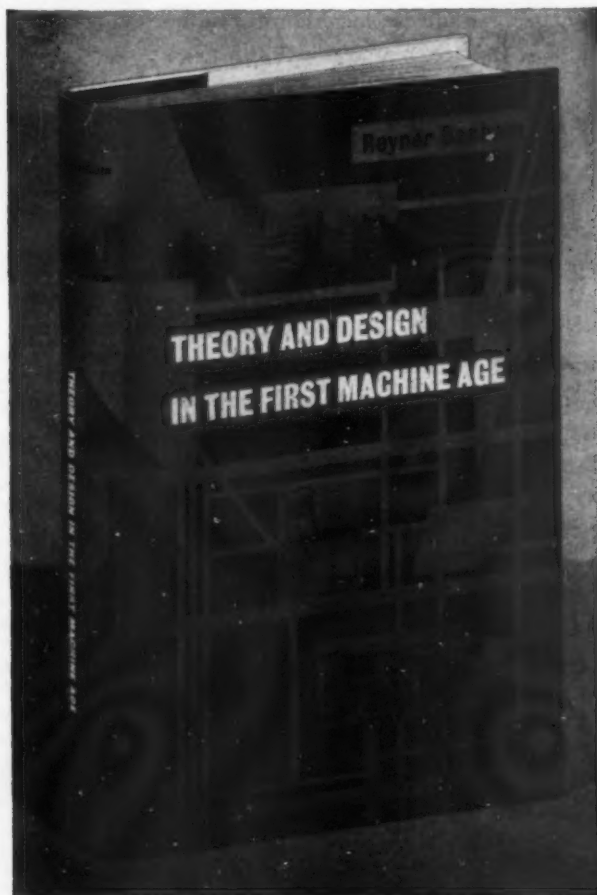
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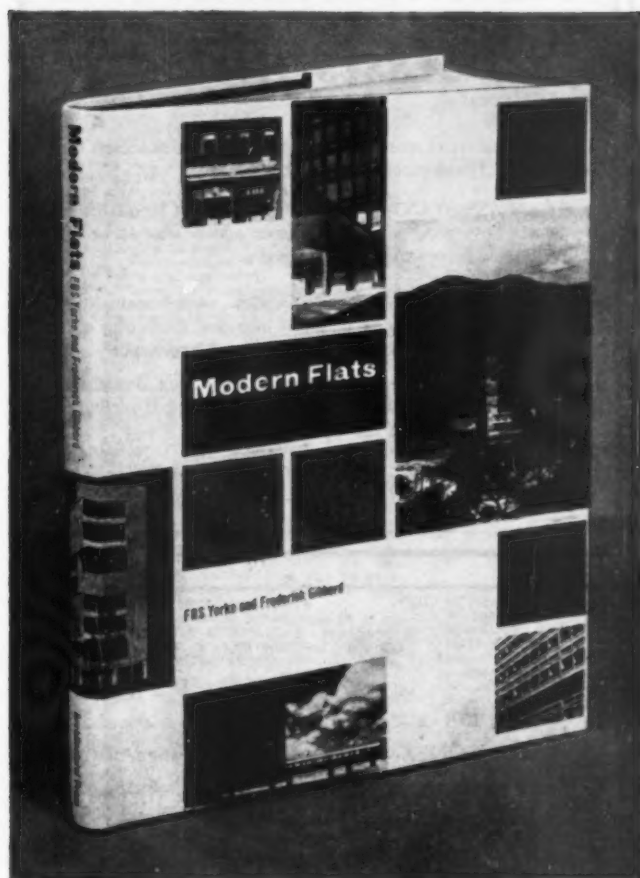
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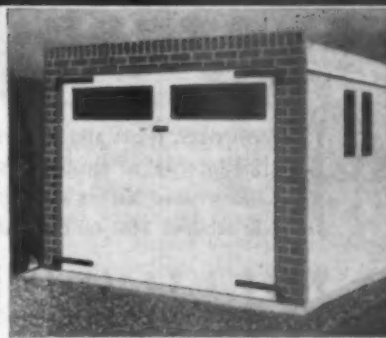
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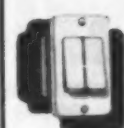


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Advertisements should be addressed to the Advertisement Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post Friday morning for inclusion in the following Thursday's paper.

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. 2d. for each additional week) and prepayment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

## Public and Official Announcements

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

## CITY BOROUGH OF SOUTH SHIELDS

CHIEF ASSISTANT ARCHITECT  
Applications are invited for the position of CHIEF ASSISTANT ARCHITECT to work under the general direction of the Borough Engineer.

Applicants should be well qualified in Architectural design, control of contracts and supervision of professional staff. Remuneration will be in accordance with Scale "C" (£1,385-£1,620) and housing accommodation will be made available to the successful applicant.

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields and should be returned to him not later than 10 a.m. on Tuesday, 4th October, 1960.

R. S. YOUNG  
Town Clerk.

Town Hall, South Shields. 3065

GLASGOW CORPORATION  
ASSISTANT ARCHITECTS  
TOWN PLANNERS  
QUANTITY SURVEYORS

The Architectural and Planning Department of the Corporation of the City of Glasgow has vacancies for a number of qualified Assistants in the above professions.

The Department has in hand a large, varied and interesting programme of works including comprehensive redevelopment, multi-storey flats, schools and civic buildings. The work will provide scope for personal initiative in the preparation of designs and details of schemes upon which construction work will follow.

The salary scale for these Assistants is up to £1,385 with placing according to experience. Form of application may be obtained from the Principal Administrative Officer, 20 Trongate, Glasgow, C.1.

A. G. JURY,  
City Architect and Planning Officer. 3148

MINISTRY OF WORKS  
HOME COUNTIES REGION  
require in  
READING

for work of widely varying and interesting nature

LEADING ARCHITECTURAL ASSISTANTS.  
Applicants must have achieved inter-R.I.B.A. standard, have good design ability and knowledge of modern building construction, and be capable of exercising leadership and supervision coupled with high quality individual work. Salary range £930-£1,085 p.a. Starting salary will normally be £930 p.a. but may be higher for applicants with exceptional experience and qualifications.

ARCHITECTURAL ASSISTANTS  
of inter-R.I.B.A. standard with keen, modern outlook.

Salary range £560 (age 21) to £930 p.a. Starting pay according to age and/or qualifications.

GENERAL: Salary ranges slightly less for women but parity achieved 1961. 5-day week, 34 weeks' leave per annum. Good prospects of promotion and permanency. Non-contributory pension scheme.

APPLICATIONS: Stating age, training and experience to R. P. Mills, A.R.I.B.A., Secretary, Reading, Ministry of Works, Whiteknights, Reading. 3061

BOROUGH OF BEXLEY  
ASSISTANT ARCHITECT

Applications are invited for the appointment at a salary within Grade A.P.T. III (£880-£1,065 per annum) plus London weighting.

Candidates should have suitable qualifications and have had experience in school and housing projects.

Form of application and conditions of appointment are obtainable from Borough Engineer, West Lodge, Broadway, Bexleyheath, to whom completed applications must be returned by Monday, 3rd October, 1960. The Council may be prepared to assist in the provision of housing accommodation.

Canvassing will disqualify.

ARTHUR GOLDFINCH  
Town Clerk. 3216

## CITY OF NOTTINGHAM

ESTATES DEPARTMENT  
APPOINTMENT OF ARCHITECTS

Applications are invited from suitably qualified architects for posts in the Chief Architect's Section of the Estates Department at salaries as follows—

(a) A.P.T. Grade 4 (£1,065-£1,220).

(b) Special Grade (£785-£1,070).

There is a large and interesting programme of comprehensive estate development and redevelopment schemes, including multi-storey dwellings, shopping centres, and all ancillary buildings.

The architects appointed will work in small self-contained teams under the general direction of a Group Leader and will be responsible for the design, construction and management of projects.

The appointments will be subject to the National Joint Council's Scheme of Conditions of Service.

Applications stating age, qualifications, experience, present appointment and salary, and naming two referees, should be sent to the Estates Surveyor & Valuer, The Guildhall, Nottingham, by Tuesday, 4th October, 1960.

T. J. OWEN,  
Town Clerk. 3238

The Guildhall, Nottingham.

RADNORSHIRE COUNTY COUNCIL  
ARCHITECTURAL ASSISTANTS

Applications are invited for the following permanent appointments on the established staff of the County Architect's Department:—

TWO ARCHITECTURAL ASSISTANTS—Salary Grade A.P.T. II (£765-£880 p.a.).

The Council have a varied and interesting building programme on hand including new schools, police houses and old people's homes.

The appointments will be subject to the National Scheme of Conditions of Service; to the Local Government Superannuation Acts and to termination by one month's notice in writing by either party.

Applications, stating age, qualifications and experience, with the name and addresses of two persons to whom reference may be made, must be received by the undersigned not later than the 30th September, 1960.

D. C. S. LANE,

Clerk of the Council.

County Hall, Llandrindod Wells, Radnorshire. 3221

## HUNTINGDONSHIRE

## COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(a) ARCHITECTURAL ASSISTANTS

Special Grade (£785-£1,070).

(b) ARCHITECTURAL ASSISTANT

Grade APT II (£765-£880).

The persons appointed will become members of small architectural teams engaged in projects of varying size. It is desired that the persons appointed shall be keenly interested in architecture with an up-to-date approach to both planning and design.

Application forms and further particulars may be obtained from The County Architect, County Buildings, Huntingdon; completed forms should be returned to the undersigned as soon as possible.

A. C. AYLWARD,

Clerk of the County Council.

County Buildings, Huntingdon. 3246

## CITY AND COUNTY OF KINGSTON UPON HULL

CITY ARCHITECT'S DEPARTMENT  
INTERESTING AND VARIED SCHOOL  
BUILDING PROGRAMME

Applications are invited for the posts of SENIOR ASSISTANT ARCHITECTS, A.P.T. Grade IV (£1,065-£1,220). The applicants are required to have had considerable experience in educational building and in the control of projects from sketch plan stage to completion. Extensive scope is offered as there is an interesting and varied programme of work in the department.

Housing accommodation may be provided for the successful married applicants if they are not already resident in the city. The point of entry to the scale will be determined by experience.

Application forms may be obtained from Andrew Rankine, O.B.E., A.R.I.B.A., City Architect, Guildhall, Kingston upon Hull, and should be returned completed on or before 28th September, 1960. 3225

## CITY OF PORTSMOUTH

## CITY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of ASSISTANT ARCHITECTS, A.P.T. Grade IV (£1,065-£1,220), commencing salary according to experience. Present work of Department includes 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 provision of housing accommodation at an economic rent will be considered.

Applications, giving full details of experience and the names and addresses of two referees, must reach the City Architect, 1 Western Parade, Portsmouth, by 7th October, 1960.

Canvassing will disqualify.

J. R. HASLEGRAVE,

Town Clerk.

The Guildhall, Portsmouth. 3363

BOROUGH OF SCARBOROUGH  
BOROUGH ENGINEER AND SURVEYOR'S  
DEPARTMENT

Applications are invited for the post of ASSISTANT ARCHITECT at a salary on Grade A.P.T. IV (£1,065-£1,220).

Applicants should be associates of the R.I.B.A.

The appointment is subject to the provisions of the Local Government Superannuation Acts 1937-1953, and to the passing of a medical examination, and will be terminable by one month's notice on either side. Housing accommodation will be made available for successful applicant, if married, and the Council will pay one-half of the removal expenses incurred.

Applications, in envelopes endorsed Assistant Architect, stating age, present and previous appointments, training, qualifications and experience, together with the names of two referees, to be delivered to the undersigned not later than Monday, 3rd October, 1960.

V. FORSHAW,

Borough Engineer and Surveyor. 3200

## COUNTY BOROUGH OF ROTHERHAM

ARCHITECTS  
Applications are invited for the following appointments:—

(a) ARCHITECTURAL ASSISTANTS, A.P.T. I (£610-£765) to Special Grade (£785-£1,070).

(b) SENIOR ASSISTANT ARCHITECT, A.P.T. IV (£1,065-£1,220).

The department has a varied and interesting programme of architectural work and candidates for (a) are required to have passed Parts I and II of the R.I.B.A. final examination and (b) to be Associate Member of the R.I.B.A. with good general experience in design and construction. The commencing salary in the grades will be according to capabilities and experience.

Housing accommodation will be available if necessary for the higher grade appointment.

Applications to be endorsed "Architects," stating age, qualifications and details of experience, together with names of two referees, should be received by me not later than Thursday, 29th September, 1960.

Canvassing will disqualify.

JOHN S. WALL,  
Town Clerk.

Municipal Offices, Rotherham, September, 1960. 3231

## NORTH RIDING COUNTY COUNCIL

## COUNTY ARCHITECT'S DEPARTMENT

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

A.P.T. II and SPECIAL (£765-£1,070). Intermediate R.I.B.A. standard, point of entry will depend upon experience, with promotion to Special Grade on passing Final R.I.B.A. examination.

SPECIAL—A.P.T. IV (£785-£1,220). Final R.I.B.A. essential and point of entry will depend upon experience.

The National Scheme of Conditions of Service and the Local Government Superannuation Acts apply, and medical examination required. No forms of application issued. Applications should state age, qualifications and experience, together with particulars of past and present appointments and names of three referees, to be delivered to the undersigned not later than 3rd October, 1960.

Canvassing, directly or indirectly, will be deemed a disqualification and candidates should state whether they are related to any member of, or senior officer under, the Council.

The appointments relate to the amalgamated architectural department dealing with both Education and General Works.

ROBERT A. WOTHERSPOON,

Clerk of the County Council. 3176

## QUANTITY SURVEYING ASSISTANTS

GRADE III required by AIR MINISTRY in the PROVINCES. Duties include abstracting and billing, site measurement and preparation of estimates. Candidates must hold O.N.C. (Building or Builders Quantities) or equiv. and have good experience under Quantity Surveyor or Building Contractor. Knowledge W.D. Schedule an advantage. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 days' paid leave a year initially. Overseas tours for which special allowances granted.

Salary ranges from £770 (at age 26) to £925. Commencing salary dependent upon age, qualifications, and exp. Applicants, who must be natural born British subjects, should write stating age, qualifications, and previous appointments, including type of work done, to: Manager (PE.2), Ministry of Labour, Professional and Executive Register, 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. 3094

H.M. Treasury (University Grants Committee) require unestablished ARCHITECTS to work as members of small team engaged on design of university hall of residence. Applicants must be registered Architects, previous office experience desirable, but not essential. Salary range: £830-£1,300 (London) p.a. Minimum is linked to age 25 with addition of one increment for each year above that up to age 34. Forms from Ministry of Labour, Technical and Scientific Register (K), 25, King Street, London, S.W.1, quoting J 309/OA. 3187

**LONDON COUNTY COUNCIL  
ARCHITECTS' 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 £1,250 according to experience and qualifications. Forms and particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council (EK/AJ/1790/9c), County Hall, S.E.1. 2180

**BOROUGH OF RAWTENSTALL  
APPOINTMENT OF ARCHITECTURAL  
ASSISTANT**

Applications are invited for the above appointment at a salary to be within the Special Scale (£785-£1,870). The starting salary will be fixed according to experience.

The appointment will be subject to the provisions of the Local Government Superannuation Acts and the National Scheme of Conditions of Service. Housing accommodation will be provided if required.

Applications, including the names of two referees, should reach the undersigned not later than the 30th September, 1960.

Canvassing will disqualify. Any relationship to members or senior officers of the Council must be disclosed.

**COLIN CAMPBELL,**  
Town Clerk.

Town Hall,  
Rawtenstall,  
Rossendale, Lancs. 3396

**WIDNES CORPORATION**

**BOROUGH ARCHITECTS' DEPARTMENT**  
Applications are invited for the appointment of SENIOR ARCHITECT, Grade A.P.T. V (£1,220-£1,375). The duties of the post will include work in connection with a varied Housing, Education and general programme, including a College of Further Education, Secondary Grammar and Modern Schools, Municipal Offices and Civic Centre.

Five-day week, housing accommodation to rent or lodging allowance in lieu for married applicants; removal expenses in full; superannuation scheme. Candidates must be associate members of the R.I.B.A. and suitably experienced.

Applications, quoting two referees, by 5th October, 1960, to Borough Architect, Brendan House, Widnes.

**FRANK HOWARTH,**  
Town Clerk.

Town Hall,  
Widnes. 3314  
13th September, 1960.

**SHEFFIELD REGIONAL HOSPITAL BOARD  
HOSPITAL EXPANSION PROGRAMME**

Applications are invited for the following appointments on the Board's Headquarters staff:-

**ASSISTANT REGIONAL ARCHITECT.** Salary scale £1,825-£2,175 (new entrants to Health Service commence at minimum). Applicants must be Registered Architects and Corporate Members of R.I.B.A. Duties include control of one or more of Board's design teams responsible for major projects, i.e. value £250,000 to £4,000,000. Special aptitude with design with administrative and organising ability and experience desirable.

**ASSISTANT ARCHITECTS**-applicants must be Registered Architects having passed requisite examinations.

**ASSISTANT QUANTITY SURVEYOR**-applicants must hold Corporate Membership of Royal Institution of Chartered Surveyors.

Salary for Assistant Grades within scale £906-£1,310 according to age and experience.

**QUANTITY SURVEYOR'S ASSISTANT.** Applicants must have passed Intermediate Examination of Royal Institution of Chartered Surveyors or examination giving exemption therefrom. Salary within scale £625-£900 according to age and experience.

Application forms obtainable from the Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, 10. (Closing date for receipt of applications 30th September, 1960.) 3342

**COUNTY BOROUGH OF SOUTHAMPTON  
BOROUGH ENGINEER AND SURVEYOR'S  
DEPARTMENT**

Applications are invited for the following appointments:-

(a) **ASSISTANT ARCHITECT,** Grade A.P.T. III/IV (£880-£1,220), for duties in connection with housing estate development. Applicants must have passed Parts I and II of the R.I.B.A. Final examination. Commencing salary according to experience and qualifications.

(b) **ASSISTANT ENGINEER,** Grade A.P.T. III/IV (£880-£1,220). Applicants must be graduates of the Institution of Civil Engineers or hold the Testamur of the Institution of Municipal Engineers or an engineering degree, with experience in the design and construction of sewage disposal works. Commencing salary according to qualifications and experience.

(c) **ENGINEERING ASSISTANT,** Grade A.P.T. II (£765-£880). Must have completed professional training, passed the Intermediate examination of a recognised engineering institution and have had subsequent experience in a Municipal Engineer's office.

The appointments are subject to the N.J.C. conditions of service, with housing accommodation available in approved cases, and approved removal expenses reimbursable up to a maximum of £50.

Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, returnable by not later than Monday, 3rd October, 1960. 3277  
September, 1960.

**HAMPSHIRE COUNTY COUNCIL**

**PLANNING ASSISTANT, Special Grade (£785-£1,070) or A.P.T. II (£765-£880)** according to qualifications and experience, required for South-East Area Planning Office at Fareham. Candidates should have had all round planning experience especially in Development Control in the Planning Department of a Local Authority. Preference will be given to those who are Corporate Members of the Town Planning Institute or hold another appropriate professional qualification. Separation allowance and assistance with removal expenses in approved cases. Applications, stating age, education, qualifications and experience, together with a copy of one testimonial and the names of two referees, should reach the Clerk of the County Council, The Castle, Winchester, by 5th October. 3359

**HAMPSHIRE COUNTY COUNCIL**

**PLANNING ASSISTANT** required for pensionable post in the South-West Area Planning Office centred at Lyndhurst. Candidates should preferably have passed the Intermediate examination of the Town Planning Institute or other related professional body, or be studying therefor, and have had development control experience in the Planning Department of a Local Authority. A.P.T. I/II (£610-£880) according to experience and qualifications. In approved cases the County Council assist with removal and other expenses. Applications stating age, education, qualifications and experience, together with a copy of one testimonial and the names of two referees should reach the Clerk of the County Council, The Castle, Winchester, by 3rd October. 3358

**URBAN DISTRICT OF STANLEY**

**ENGINEER AND SURVEYOR'S DEPARTMENT**  
Applications are invited for the appointment of SENIOR ARCHITECTURAL ASSISTANT, Grade III (£880-£1,065) or Special Grade (£785-£1,070). Commencing salary according to experience.

Candidates must have had good architectural experience. Housing (at rental) available.

Appointment terminable by one month's notice on either side and subject to the provisions of the Local Government Superannuation Act, 1953; passing of a medical examination, and the National Scheme of Conditions of Service of the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services.

Applications, stating age, qualifications and experience, with names and addresses of two referees, to be received by the undersigned not later than Monday, the 17th October, 1960.

**J. J. SHIPSTON,**  
Clerk of the Council.

Council Offices,  
Stanley,  
Co. Durham. 3352  
15th September, 1960.

**BOROUGH OF LLANELLY**

Applications are invited for the appointment of a QUALIFIED ARCHITECTURAL ASSISTANT, salary scale within the Special Grade £785-£1,070. The candidate will be required for general architectural duties on an existing programme of work.

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

Forms of application may be obtained from the Borough Architect, R. J. Birchall Esq., R.I.B.A., No. 5, Goring Road, Llanelly, Carmar. Applications to be returned to the undersigned not later than the first post, Friday, 7th October, 1960.

**SELWYN SAMUEL,**  
Town Clerk.

Town Hall,  
Llanelly,  
Carmar. 3361  
September, 1960

**KENT COUNTY COUNCIL** require a CHIEF LANDS SURVEYOR, having an R.I.C.S. or equivalent qualification, to take charge of the Survey Section under the County Architect. The volume of work being considerable, the post requires a man of initiative and drive.

Duties include all land surveying, levelling, reporting on sites and properties, attendance at public enquiries, and obtaining Town Planning and similar approvals. Salary within the Combined J.N.C. Grades C-D (£1,385 to £1,755).

Application forms and further details obtainable from the County Architect, Springfield, Maidstone. (Closing date 7th October, 1960.) 3348

**BOROUGH OF WATFORD**

Applications are invited for the following appointments:-

(a) **ASSISTANT ARCHITECT.** Salary within Grade A.P.T. IV (£1,065-£1,220 per annum).

(b) **ARCHITECTURAL ASSISTANTS.** Salaries within Grades A.P.T. II/III (£765-£1,065 per annum).

(c) **ARCHITECTURAL ASSISTANT.** Salary within Grades A.P.T. I/II (£610-£880 per annum). The Assistant appointed to post (a) will be a Section Leader and will carry a considerable amount of responsibility.

Commencing salaries will be commensurate with experience and ability and housing accommodation will be provided if required.

Applications to be sent to the undersigned not later than 6th October, 1960.

**F. C. SAGE,**  
Borough Engineer, Surveyor and Architect.

Town Hall,  
Watford. 3361  
Herts.

**MONMOUTHSHIRE COUNTY COUNCIL  
COUNTY ARCHITECTS' DEPARTMENT  
APPOINTMENT OF ARCHITECTURAL  
STAFF**

Applications are invited for the appointments of ARCHITECTS on the following grades and salaries:-

(i) Salary in accordance with Scale B (Maximum £1,485 per annum).

(ii) Salary in accordance with Scale A (Maximum £1,430 per annum).

(iii) Salary in accordance with grade A.P.T. V (£1,220 to £1,375 per annum).

(iv) Salary in accordance with grade A.P.T. IV (£1,065 to £1,220 per annum).

Successful candidates will be placed on the respective grades according to merit.

The posts will be subject to the provision of the Local Government Superannuation Act.

Forms of Application and particulars of the posts and Conditions of Service may be obtained from S. Leyshon, A.R.I.B.A., County Architect, Queen's Hill, Newport, to whom the application, together with the names of at least two referees must be returned not later than Tuesday, 18th October, 1960.

**VERNON LAWRENCE,**  
Clerk of the Council.

County Hall,  
Newport. 3318  
Mon.

**CITY OF BIRMINGHAM PUBLIC WORKS  
DEPARTMENT**

**MECHANICAL AND ELECTRICAL SECTION**

Applications are invited for the following posts in the Design Office.

(a) **SENIOR ENGINEERS** (Heating and Ventilating). Grade A.P.T. IV (£1,065-£1,220 per annum).

(b) **ASSISTANT ENGINEER** (Heating and Ventilating). Special Grade (£785-£1,070 per annum).

Applicants must be Associate Members of the Institution of Heating and Ventilating Engineers, or hold the Higher National Certificate in Mechanical or Electrical Engineering (with five years' experience).

Duties undertaken in this office include the design of mechanical, electrical and heating services and installations in Civic Buildings, municipal offices, multi-storey flats and other dwellings, car parking garages, fire and police stations, schools, baths, salvage destructor plants, pumping stations, etc.

Applicants must have had experience in the design, specification and supervision of contracts associated with the above work.

The appointments are permanent, superannuable, subject to a medical examination and terminable by one month's notice on either side.

Applications endorsed with the heading of the post applied for, stating qualifications, age and experience, together with the names of two persons to whom reference may be made, should reach the undersigned not later than 1st October, 1960. Canvassing disqualifies.

**HERBERT J. MANZONI,**  
City Engineer and Surveyor.

Civic Centre,  
Birmingham, 1.  
5th September, 1960. 3273

**CITY OF CARLISLE**

**ARCHITECTS**

Vacancies exist in the Architectural Section of the City Surveyor's Office which offer excellent opportunity for interesting work on Educational and other Municipal projects of some magnitude.

Salary according to qualifications and experience. Senior men with A.R.I.B.A. and suitable experience would be eligible for A.P.T. IV (£1,065-£1,220).

Housing accommodation will be available for renting to successful applicants in approved circumstances.

Forms of application returnable not later than 3rd October may be obtained from the City Surveyor, 13, Fisher Street, Carlisle.

**H. D. A. ROBERTSON,**  
Town Clerk. 3346

**COUNTY BOROUGH OF WOLVERHAMPTON**

**CHIEF ASSISTANT PLANNING OFFICER**

Applications are invited for the above appointment, at a salary in accordance with J.N.C. Scale "A" (as modified by the Council) i.e. £1,300-£1,420 per annum.

Applicants should be Associate Members of the Town Planning Institute, preferably with an additional qualification and must have the requisite experience.

Further particulars may be obtained from Borough Engineer and Planning Officer, Town Hall, Wolverhampton, to whom applications should be submitted by 6th October, 1960. 3345

**BOROUGH OF ILFORD**

**BOROUGH ENGINEER'S DEPARTMENT**

**APPOINTMENT OF ARCHITECTURAL  
DRAUGHTSMAN**

**GRADE MISC. IV (Male or Female)**

Applications are invited for this appointment. Salary £590-£650, plus London Weighting. Commencing salary according to qualifications and experience. Maximum paid to suitable applicant.

Five-day week. Candidates should be competent draughtsmen and be capable of preparing working drawings under supervision. Appointment permanent, superannuable and subject to medical examination.

Form of application obtainable from Borough Engineer, Town Hall, Ilford, should be returned by Monday, 10th October. 3279



SURREY COUNTY COUNCIL  
COUNTY PLANNING DEPARTMENT

The Council have decided to set up a new Section at Headquarters to assist the Local Authorities in problems arising in town centres and other large-scale redevelopment. The Section will be divided into three teams each of which will work in a number of towns, and there is considerable scope for creative work and for gaining useful experience. Applications are invited for the following vacancies:—

## ARCHITECT/PLANNERS:

Three posts on J.N.C. Scale B (£1,265-£1,485).  
Two posts on A.P.T. III/IV (£980-£1,220 plus London Allowance).

## ASSISTANTS:

Three posts on A.P.T. I/II (£610-£880 plus London Allowance).

## TRAFFIC ENGINEER:

One post on A.P.T. V (£1,220-£1,375 plus London Allowance).

Applications are also invited for the following vacancies at Headquarters in other Sections of the Department:—

## TOWN MAP SECTION:

Two posts on A.P.T. II (£765-£880 plus London Allowance).

One post on A.P.T. I (£610-£765 plus London Allowance).

DEVELOPMENT CONTROL SECTION: (Particularly on requirements of other County Services)

One post on Special (Qualified) Grade (£785-£1,070 plus London Allowance).

One post on A.P.T. II (£765-£880 plus London Allowance).

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, by 10th October, 1960. 3360

CUMBERNAULD DEVELOPMENT  
CORPORATION

Vacancies exist within the Department of the Chief Architect and Planning Officer for:—

(1) LANDSCAPE ARCHITECT. Possession of A.L.A., or a diploma in landscape architecture, and the ability to take a project through to completion are essential. The successful applicant will work as a member of mixed teams of architects, planners, engineers and quantity surveyors on a variety of development projects. Salary scale £1,065/£1,220 with initial placing according to qualifications and experience.

(2) ASSISTANT PLANNING OFFICERS. A.R.I.B.A. and A.M.T.P.I. required. These posts offer excellent experience in a variety of interesting projects in the development of the New Town, including high density housing. Salary scale £880/£1,220 with initial placing according to qualifications and experience.

In both cases the salary scales are at present under review.

Assistance with housing will be given where appropriate. Application forms which can be obtained from the General Manager, Cumbernauld Development Corporation, Cumbernauld House, Cumbernauld, Glasgow, should be returned complete not later than Monday, 10th October, 1960. 3294

## BOROUGH OF MORLEY

HOUSING COMMITTEE  
APPOINTMENT OF TWO ARCHITECTURAL  
ASSISTANTS

Applications are invited for the positions of two Architectural Assistants in the Borough Engineer's Department, salary Grade A.P.T. II (£765-£880). Previous Local Government experience not essential, but applicants must hold the Intermediate Examination of the Royal Institute of British Architects.

The appointment is subject to the National Scheme of Service and Local Government Superannuation Act 1937, and to the successful candidate passing a medical examination.

Consideration will be given to the provision of housing accommodation if required. Applications, stating age, qualifications and experience, together with two recent testimonials, and endorsed "Architectural Assistants" to be delivered to the Borough Engineer, Town Hall, Morley, Yorks, not later than Monday, 3rd October 1960.

E. V. FINNIGAN, Town Clerk.

Town Hall, Morley. 3275

BRITISH RAILWAYS  
ASSISTANT ARCHITECTS

Assistant Architects required for the Architect's Office of British Railways, 33, Elmbank Crescent, Glasgow. Good designing ability and A.R.I.B.A. qualifications essential. Commencing salary between £1,100 and £1,200 per annum. Candidates should apply in writing to the Chief Civil Engineer, British Railways, St. Enoch Station, Glasgow, C.I. 3280

ADMINISTRATIVE COUNTY OF LEICESTER  
(a) SENIOR ASSISTANT ARCHITECT  
(£1,075-£1,220).

(b) ARCHITECTURAL ASSISTANT (£765-£880).

Candidates for (a) must be A.R.I.B.A., have had office experience and be capable of taking charge of small contracts, and for (b) must have passed Part I of the R.I.B.A. Examination and be capable of executing working drawings.

Lodging allowance and removal expenses may be paid to a married man. Apply to County Architect, 123 London Road, Leicester. 3340

THE WEST OF SCOTLAND  
AGRICULTURAL COLLEGE

Applications are invited for a post of DRAUGHTSMAN in the Farm Buildings Advisory Service. Candidates should have architectural, quantity surveying, or good general building trade training.

Salary scale £550 (age 21) rising to £875 with entry according to age up to 28.

Reply in writing within one week giving full details to the Secretary, 6 Blythswood Square, Glasgow, C.2. 3256

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

Applications are invited for the undermentioned appointments at Divisional Offices:—

(1) ARCHITECTURAL ASSISTANTS or BUILDING SURVEYORS—Grade A.P.T. II—£765-£880 per annum at the Huddersfield, Harrogate and Doncaster Divisions. Candidates should have a sound knowledge of building construction and maintenance, adaptation and minor capital works.

(2) ARCHITECTURAL ASSISTANT—Grade A.P.T. I—£610-£765 per annum at the Huddersfield Divisional Office.

(3) CLERKS OF WORKS—Grade A.P.T. I—£610-£765 per annum at the Huddersfield and Wakefield Divisional Offices. Candidates should have a sound knowledge of building construction and maintenance, be experienced in the supervision of building works and capable of preparing reports and approximate estimates of cost and the checking of builders' accounts.

Applications, stating age, qualifications, experience, present position and giving the names and addresses of two referees, to be delivered to the County Architect, Bishopgarth, Westfield Road, Wakefield, not later than the first post on Tuesday, 4th October, 1960. 3292

BOROUGH OF BEDFORD  
APPOINTMENT OF

(a) ASSISTANT ARCHITECT A.P.T. II £765-£880.

(b) ASSISTANT QUANTITY SURVEYOR, A.P.T. I £610-£765.

(a) Preference will be given to applicants who have passed the Intermediate Examination of the R.I.B.A., the point of entry within the grade being determined by experience and/or further qualifications.

(b) Preference will be given to applicants who have passed the Intermediate Examination of the R.I.C.S. or I.Q.S. or are preparing to take one of these examinations in the near future.

The Council has in hand a building programme including schools, multi-storey flats, shops and public offices.

The Council is prepared to assist in the provision of housing accommodation in post (a) and will refund removal expenses in the case of each post.

Forms of application and particulars of the appointment may be obtained from the undersigned by whom applications should be received not later than Thursday, 29th September, 1960.

F. W. DAWKES,

Borough Engineer and Surveyor.

Newham House, Horne Lane, Bedford. 3278

Scottish Special Housing Association Ltd.  
ARCHITECTS

The Association, a Government sponsored and financed body developing large scale housing schemes throughout Scotland with an interesting programme of mixed development including multi-storey blocks of flats on both virgin sites and urban renewal in Glasgow and elsewhere invite applications from qualified architects. The posts are superannuable under the Local Government Superannuation Acts and carry salaries up to £1,350 with placing for experience.

Headquarters would be Edinburgh where a house could be provided if required. Application forms with particulars from Harold E. Buteux, A.R.I.B.A., A.M.T.P.I., Chief Technical Officer, 19 Palmerston Place, Edinburgh, 11. 3270

URBAN DISTRICT COUNCIL OF CORBY  
JUNIOR ARCHITECTURAL ASSISTANT  
(Grade A.P.T. I or II).

Applications are invited for the above appointment in the Architectural Section of the Engineer and Surveyor's Department.

Applicants must have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised schools of architecture and the salary applicable to candidates of not less than one year's subsequent experience in an architectural office will be in accordance with A.P.T. Grade II (£765-£880 per annum), otherwise in accordance with Grade A.P.T. I (£610-£765 per annum).

The provisions of the Local Government Superannuation Acts, 1937/53, will apply to this appointment.

Housing accommodation will be made available to the successful candidate if married.

Forms of application may be obtained from the undersigned, to whom they should be returned not later than the first post on Monday, 10th October, 1960. Testimonials will be required only from applicants selected for interview.

G. R. BLACKALL, Clerk of the Council.

Council Offices, Corby, Northants. 14th September, 1960. 3330

LINDSEY (LINCOLNSHIRE) COUNTY  
COUNCIL

## ARCHITECT'S DEPARTMENT

SENIOR QUANTITY SURVEYORS, Grade A.P.T. IV, £1,065/£1,220, required for "taking off." Should be A.R.I.C.S.

ASSISTANT QUANTITY SURVEYOR, Grade A.P.T. II, £765/£880, required for "abstracting." Intermediate R.I.C.S.

Commencing salary within the grade dependent upon experience. Five-day week. N.J.C. Conditions of Service. Canvassing will disqualify. Candidates must disclose in writing whether to their knowledge they are related to any member or Senior Officer of the Council.

Applications, giving age, qualifications, experience, present post and salary, and the names of two persons to whom reference can be made, to be sent to the County Architect, County Offices, Lincoln, not later than 30th September, 1960. 3305

## BOROUGH OF WEMBLEY

APPOINTMENT OF ASSISTANT ARCHITECT (Special Classes £785-£1,070 plus London "Weighting" Allowance)

Applications are invited from suitably qualified persons. Commencing salary according to experience.

Forms of application, returnable by the 3rd October, 1960, are obtainable from the Borough Engineer and Surveyor, Town Hall, Wembley. Housing accommodation cannot be provided.

N. CUMPFY, Town Clerk.

Town Clerk's Office, Town Hall, Wembley. 21st September, 1960. 3297

## BOROUGH OF DAGENHAM

SENIOR ASSISTANT ARCHITECTS (2) GRADE A.P.T. V

## AMENDED ADVERTISEMENT

Applications are invited for the above permanent appointments. Salary £1,220-£1,375 plus £45 London weighting.

Applicants must be Associates R.I.B.A. with an appreciation of contemporary design, and suitably experienced.

The successful candidates will be directly responsible to the Chief Architect for the execution of the Council's building programme which includes many interesting projects, such as new schools, housing, redevelopment schemes, covered swimming bath, general municipal buildings, etc.

Housing accommodation will be provided if required, and casual users' car allowances will be paid.

Application forms, etc., from the Borough Engineer and Surveyor, to whom they must be returned by Monday, 3rd October, 1960.

KEITH LAUDER, Town Clerk.

Civic Centre, Dagenham. 3282

CHESHIRE COUNTY COUNCIL  
SMALLHOLDINGS DEPARTMENT

## APPOINTMENT OF

(a) CHIEF TECHNICAL ASSISTANT

(b) TECHNICAL ASSISTANT

Applications are invited for the above appointments from suitably qualified persons who have experience in the adaptation and modernization of Farm Buildings and Cottages.

The salary will be in accordance with scale A.P.T. III (£880 to £765) for post (a), and scale A.P.T. I (£610 to £765) for post (b).

Application forms and further details are obtainable from the undersigned. Completed forms are to be submitted by the 7th October, 1960.

J. H. LORD, County Land Agent.

County Hall Annexe, Chester. 3329

## CITY ARCHITECT'S OFFICE, MANCHESTER

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

(a) SENIOR ASSISTANT STRUCTURAL ENGINEER. Salary A.P.T. V (£1,220 to £1,375 per annum).

(b) SENIOR ASSISTANT STRUCTURAL ENGINEER. Salary A.P.T. V (£1,220 to £1,375 per annum).

Candidates for the above appointments must be A.M.I.Struct.E., and/or A.M.I.C.E., and have a minimum of five years' experience in reinforced concrete design since qualifying.

(c) ASSISTANT STRUCTURAL ENGINEER. Salary Special Grade £785 to £1,070 per annum.

Candidates must be A.M.I.Struct.E., and be experienced in reinforced concrete design.

(d) STRUCTURAL ENGINEERING ASSISTANT. Salary A.P.T. I/II £610 to £880 per annum.

Candidates must be Grad.I.Struct.E.

(e) SENIOR ASSISTANT QUANTITY SURVEYOR. Salary A.P.T. V £1,220 to £1,375 per annum.

Candidates must hold suitable qualifications and have considerable experience in the preparation of bills of quantities and specifications, interim valuations and settlement of final accounts for all classes of building work.

Five-day week. Housing accommodation may be provided for a limited period for successful candidates for appointments (a), (b), (c) and (e). Removal expenses allowed.

Forms of application from the City Architect, Town Hall, Manchester 2. Returnable by 3rd October, 1960. 3336



**MINISTRY OF WORKS, SUPPLIES DIVISION, LONDON.** require an ASSISTANT DESIGN OFFICER for a wide variety of work including high quality domestic and office furniture and equipment. Ability to produce integrated schemes and to prepare coloured perspective sketches for furniture and interiors is essential. Applicants must hold National Design Diploma, A.R.C.A., M.S.I.A., or equivalent. Previous experience an advantage but not essential. Salary range £1,115-£1,375 p.a. Successful applicant will be engaged for a period of from three to five years.

Applications, stating age and experience, to Controller of Supplies, Ministry of Works, Southbridge House, Southwark Bridge Road, London, S.E.1.

**BUCKINGHAMSHIRE COUNTY COUNCIL APPOINTMENT OF DEPUTY COUNTY PLANNING OFFICER**

Applications are invited for the appointment of DEPUTY COUNTY PLANNING OFFICER at a salary of £2,225 per annum, rising by three annual increments of £90 to £2,495 per annum. Applicants must have had considerable experience of development plans, development control and office organisation and be associate members of the Town Planning Institute. A further qualification, and experience in architecture, surveying or civil engineering, would be an advantage. The appointment is superannuable and subject to medical examination.

The present County Planning Officer also holds the appointment of County Architect, but the post of Deputy County Planning Officer will be entirely separate from the post of Deputy County Architect.

Further particulars and forms of application may be obtained from the undersigned, to whom applications must be delivered by 21st October, 1960.

**R. E. MILLARD,**  
Clerk of the Bucks County Council.  
County Hall, Aylesbury. 3334

**COUNTY BOROUGH OF SOUTHAMPTON BOROUGH ARCHITECTS' DEPARTMENT**

Applications are invited for the following permanent posts:—

(a) SENIOR QUANTITY SURVEYORS A.P.T. III/IV (£980-£1,220).

(b) ESTIMATING ASSISTANT Miscellaneous Grade VI (£715-£775).

Applicants for post (b) should be experienced in estimating for small jobbing works and knowledge of "working up" and/or site measuring will be advantageous.

Housing accommodation available in approved cases, and approved removal expenses reimbursed up to a maximum of £50.

Applicants should possess appropriate qualifications. Commencing salary within grade according to experience and qualifications.

Application forms from the Borough Architect, Civic Centre, Southampton, returnable by 30th September, 1960. 3339

**MOUNTAIN ASH URBAN DISTRICT COUNCIL**

**APPOINTMENT OF ASSISTANT ARCHITECT**

The above Council invite applications for the above appointment from suitably qualified persons at a salary to be in accordance with A.P.T. Grade II (£765 x £25 x £30 (2)-£890) or the Special Grade for Architectural Assistants (£785 x £40 (3) x £45 x £40 (3)-£1,070) per annum, according to qualifications and experience.

The appointment will be superannuable, subject to one month's notice on either side, and the successful applicant will be required to pass a medical examination.

Applications, stating age, qualifications and experience, accompanied by copies of two recent testimonials, must reach the undersigned not later than noon on the 6th October, 1960.

Housing accommodation will be provided if required.

**R. GWYNNE RICHARDS,**  
Clerk of the Council.  
Town Hall, Mountain Ash.  
26th September, 1960. 3338

**KESTIVEN COUNTY COUNCIL COUNTY ARCHITECTS' DEPARTMENT ASSISTANT ARCHITECTS—Special Grade (£785-£1,070)**

Full particulars of the above appointments may be obtained from the County Architect, County Offices, St. David's, Lincs.

Applications from suitably qualified persons, with the names and addresses of two referees, should reach the undersigned not later than the 17th October, 1960.

**J. E. BLOW,**  
Clerk of the County Council.  
County Offices, St. David's, Lincs. 3338

**AIR MINISTRY require JUNIOR WORKERS UP in Quantities Division in London.** Must be fully experienced and competent to Work Up entire Bills of Quantities. Candidates must hold O.N.C. or C. & G. (Quantities) or equiv. technical qualifications. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 days' paid leave a year initially.

Salary ranges from £820 (at age 26) to £975. Applicants, who must be natural-born British subjects, should write stating age, quals. and exp. to the Manager (PE1234), Ministry of Labour, Professional and Executive Register, Atlantic House, Farringdon Street, London, E.C.4. No original testimonials should be sent. 3085

### Tenders Invited

3s. per inch; each additional line 3s.

**CITY OF BIRMINGHAM: PARKS COMMITTEE VARIOUS SITES—MESSROOMS**

Tenders are invited for the erection of mess-rooms at Various Parks and Recreation Grounds. The Form of Tender and a copy of the Specification and drawings may be obtained upon application to the General Manager, Parks Department, Civic Centre, Broad Street Birmingham, 1, on payment of a deposit of £2 2s. 6d. which will be returned upon receipt of a bona fide tender.

Applications must be received not later than Friday, 7th October, 1960.

A copy of the Corporation's General Conditions (which include the Corporation's usual fair wages and Conditions of Labour Clause) may be inspected at the Parks Department, Room 435, Civic Centre, during usual office hours.

Tenders, enclosed in the envelope provided for the purpose, must be sealed and delivered to the Town Clerk's Office, Room B33, Council House, Birmingham, 1, not later than 12 noon on Friday, 28th October, 1960, when they will be opened. Tenders received after that time will be rejected.

The Committee do not bind themselves to accept the lowest or any tender received.

**T. H. PARKINSON,**  
Town Clerk.  
Council House, Birmingham, 1. 3367

**Architectural Appointments Vacant**

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

**RONALD WARD AND PARTNERS** invite applications from ARCHITECTS, Senior and Junior Long-term prospects. Scope for initiative and responsibility in interesting commercial, industrial and civic projects in British Isles, West Africa and Australia. Salaries commensurate with ability. Non-contributory Pension and Life Insurance schemes. Five-day week. Pleasant offices. Apply 29, Chesham Place, Belgrave Square, London, S.W.1. Tel.: BELGRAVIA 3361. 2950

**WATKINS, GRAY & PARTNERS**, 57, Catherine Place, S.W.1, require SENIOR and JUNIOR ASSISTANTS for work on large hospital projects. Excellent opportunities for those seeking first hand experience in this most interesting and rapidly developing field. Luncheon Vouchers and pension scheme in operation. Write giving full particulars. 1584

**BASIL SPENCE & PARTNERS** require qualified and experienced ARCHITECTS to fill positions of responsibility on a major building programme. Write to 48, Queen Anne Street, W.1, stating experience and salary required. 9824

**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

**ARCHITECTURAL ASSISTANTS** required in a busy Bloomsbury office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications, experience, etc., to Box 910, c/o 7, Coptic Street, W.C.1. 8815

**ARCHITECTURAL ASSISTANT**, about Intermediate standard, required for general practice in North Devon Office. Pension scheme. Box 9744.

**£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 9360.

**ASSISTANTS** required urgently in busy West End practice, offering excellent opportunities for gaining all-round experience. Write, stating experience, to Box 2657, or telephone MAYfair 3112.

**LEICESTER—SENIOR ARCHITECTS** and ASSISTANTS required for general practice. Appropriate salary paid. Five-day week. Apply by telephone or in writing for an interview to Herbert, Son & Sawday, 18, Friar Lane, Leicester. Tel. 56476. 2413

**WEST END OFFICE** requires ASSISTANT ARCHITECTS of final and Intermediate standards for interesting industrial projects in Home Counties. Good salaries offered to men with initiative and ability. Bonus Scheme, five-day week, holiday arrangements honoured. Box 2039.

**ARCHITECTURAL ASSISTANT** required, able to work on an initiative, varied practice, small office, opportunity for advancement. Write or phone: Nicholson & Rushton, 2, New Square, Lincoln's Inn, W.C.2. Holborn 2095. 2345

**CROYDON.** Varied and interesting experience offered in progressive and growing practice to SENIOR and JUNIOR ASSISTANTS. Holiday arrangements respected. Five-day week. Please write or telephone: L. A. Macintosh & Haines, A.I.R.B.A., 33/35, High Street, Croydon. CRO 5780/9992. 2362

**£850-£1,400** ARCHITECTURAL ASSISTANTS with imagination and designing ability required to assist with large and important new developments in the central London Area. Telephone or write—Trehear & Norman, Preston & Partners, 83, Kingsway W.C.2. HOLborn 4071. 2185

**DONALD ROWSWELL** urgently requires capable ASSISTANTS of various grades for Croydon office. Salary by agreement. Holiday arrangements honoured. Apply with full details to 5a, Friends Road, Croydon, or telephone CROydon 4080. 1045

**ARCHITECTS AND ASSISTANTS REQUIRED** for work on interesting industrial Project affording first class design and technical experience. Apply in writing to: Sir William Halcrow & Partners, (R.A. Architects' Section), 47, Park Lane, London, W.1. 1752



## PAVE THE WAY FOR HARDER WEAR

For factory and other floors exposed to heavy traffic, impact and corrosion, Accrington 'Nori' Paving Bricks may be specified with the utmost confidence. Made from the same material as the famous Accrington Engineering Bricks. Samples on request.

THE ACCRINGTON BRICK & TILE CO. LTD., ACCRINGTON  
Telephone: Accrington 2684

## ACCRINGTON 'NORI' PAVING BRICKS

**SENIOR ASSISTANTS** required immediately. Salary by arrangement. Theo. H. Birks, 23, Portland Place, London, W.1. LAN 7236. 146

**MONROE 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 £200-£1,000 p.a. Non-contributory Pension Scheme. Five-day week. Apply in writing to 32, Clarendon Road, Watford. 8609

**SENIOR ASSISTANT** required by Haaker & Hall, L./F.R.I.B.A., in their office in Warwickshire. Good salary, with scope for initiative and responsibility. Write Longdon House, High Street, Knowle, or telephone Knowle (Birmingham) 3502. 2143

**INTERMEDIATE to Final ASSISTANTS** required immediately. Salary according to ability and experience. Theo. H. Birks, 23, Portland Place, London, W.1. LAN. 7236. 9739

**SIR GILES SCOTT, SON & PARTNER** require ARCHITECTURAL ASSISTANT, qualified or unqualified, with practical experience. Interesting and varied practice. Salary up to £1,500 plus luncheon vouchers. Write 9, Gray's Inn Square, W.C.1, or telephone CHANCERY 8367/8. 2469

**ARCHITECTURAL ASSISTANT**, qualified or unqualified, with practical experience, required for busy, interesting and varied practice. Salary up to £1,000. Box 2347. 2143

**ARCHITECTURAL ASSISTANT** required, with at least two years' office experience. Apply in writing to Thomas Mitchell & Partners, 20, Bedford Square, London, W.C.1. 7242

**VACANCIES** in leading Bristol Office for all grades of qualified ARCHITECTS and ARCHITECTURAL ASSISTANTS. Modern approach to design essential and considerable freedom of expression allowed. Salaries from £500 to £1,500 according to ability and experience. Outstandingly good working conditions; five-day week. Annual bonus; contributory pension scheme. Existing holiday commitments honoured. Apply giving particulars of age and experience to W. H. Watkins, Gray and Partners, 8, Colston Avenue, Bristol 1. 3550

**SIR JOHN BURNET, TAIT & PARTNERS** have vacancies for ARCHITECTURAL ASSISTANTS of all grades. Salaries ranging from £1,000 to £1,500 per annum. Luncheon vouchers. Pension and Medical schemes (non-contributory). Telephone LANGHAM 3826 (for appointment). 2113

**A** progressive and expanding building and civil engineering organisation requires the services of an ARCHITECTURAL ASSISTANT in their Housing Division. Applicants should be experienced in the design and execution of working drawings in connection with Housing and Flat Development Schemes. Permanent and progressive position. Pension and Luncheon Voucher Schemes. Salary according to ability and experience. Write or phone Percy Hilton Ltd., Elton House, 54-58 Uxbridge Road, Ealing, W.5. Tel. EALING 7777. 2058

**ARCHITECTURAL ASSISTANTS** of all categories required for busy City office engaged in industrial and commercial work. Good working conditions, 5-day week, luncheon vouchers. Salary by arrangement. Please contact Eric Firmin & Partners, Thavies Inn House, Holborn Circus, E.C.1. Tel.: City 8011. 2692

**BRYAN & NORMAN WESTWOOD & PARTNERS** require ASSISTANT ARCHITECTS. Please apply to 21, Suffolk Street, S.W.1. TRAFALGAR 4411. 9914

**CITY OFFICE** requires ASSISTANTS for industrial and commercial work. 5-day week, luncheon vouchers. Salary £1,200 p.a. 2691

**C. H. ELSOM & PARTNERS** require Senior and Junior staff. The posts offer long term prospects and the opportunity of experience in all facets of Architectural work in a large office. 19 Lower Grosvenor Place, London, S.W.1. Tel. VIC 4304. 2688

**SIR GILES SCOTT, SON & PARTNER** require a SENIOR ASSISTANT with good general experience in practical supervision of work and also in administration. Varied work including schools, hostels, churches, office buildings, municipal buildings, etc. Five-day week, luncheon vouchers, and salary in accordance with experience. Please apply in writing to 9, Gray's Inn Square, London, W.C.1. 2710

**ASSISTANT ARCHITECTS** required to join an imaginative and busy Staff Architect's Department of a large Multiple Organisation with Head Office in Leeds. Numerous interesting projects throughout the country. Flair for shop design and detailing an advantage. Fully qualified or experienced Intermediate R.I.B.A. standard. Salary by arrangement. Apply Box 2753. 2143

**ARCHITECTURAL ASSISTANTS** required for interesting work on new Colleges. One Senior and one Junior. Good salaries according to ability. H. V. Ashley & Winton Newman, (Holborn 2804.) 2828

**ARCHITECTURAL ASSISTANTS** required. Starting salary £800-£900 per annum. Glasgow Office. Five-day week. Schools, Housing, Re-development, etc. State experience. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. Tel. No. Douglas 8388. 2945

**ASSISTANT ARCHITECTS** required to work on Schools, Industrial and Domestic Buildings. Salaries £500 to £1,000 per annum. Foster Faconer & Partners, F./A.R.I.B.A., Imperial House, Stroud, Glos. 2851

**TOP-LINE** appointment offered with excellent opportunities for suitable qualified ARCHITECT who should have had considerable experience in personal control of large scale contracts. Appointment to be filled immediately. Five-day week. Profit sharing scheme. Pension scheme. Three weeks holiday after qualifying period. High salary paid to suitable applicant. Accommodation available. Apply John H. D. Madin, 53/55, Hagley Road, Birmingham, 16. 2962

**EXCELLENT** opportunity for SENIOR and INTERMEDIATE ASSISTANTS in a permanent and progressive appointment in Architect's private practice in Edgbaston, Birmingham. Salaries up to £1,500 including profit sharing scheme, five-day week, pension scheme. Working in small groups on interesting large and small projects embodying the latest techniques in design. Box 2963. 3154

**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 5657. 3014

**TRIPE & WAKEHAM** require ARCHITECTURAL ASSISTANTS with three to five years' office experience to work on interesting projects in their London Office. Salary by arrangement. Telephone WRLbeck 7744, or write 16, Fitzhardinge Street, W.1, for an appointment. 3020

**NORMAN & DAWBARN** require ASSISTANTS with three or more years' office experience for work on a large and interesting project in London. Conditions of employment are good, and these positions will carry salaries of £1,000 or more according to experience and ability. Write or telephone to: 7, Portland Place, London, W.1, or LAN 8011. 2934

**DIAMOND, REDFERN & PARTNERS** require SENIOR and JUNIOR ASSISTANTS to fill positions in their expanding office. Applicants should want to produce good modern work, which at present includes churches, industrial and commercial projects, flats, interiors and housing development. Brief details to 92 George Street, W.1, or HUNTER 6469. 3043

**REQUIRED—A.R.I.B.A.**—Not less than 5 years' Office experience, and general ASSISTANTS of a higher standard. Good opportunity in expanding Office, interesting variety of work. Evening interviews if required. Write or 'phone George E. Clay & Partners, A./A.R.I.B.A., 198 Parrock Street, Gravesend. Gravesend 1401/2. 3242

**RESEARCH** and development work in relation to the design of buildings and building elements for factory production. Architectural staff of differing grades required for this and a variety of other interesting projects. Will those interested please apply to: A. M. Gear & Associates, 12 Manchester Square, London, W.1. Telephone: Hunter 0331. 3240

**GOOD** salaries, congenial office conditions and interesting work offered to ASSISTANTS both final and intermediate standard in the office of Mr. J. Brian Cooper, F.R.I.B.A., 30 St. George Street, Hanover Square, London, W.1. Telephone Grosvenor 6544. If you are interested please write, telephone or call to see me. 3236

**GOOD** salaries, congenial office conditions and interesting work offered to ASSISTANTS both final and intermediate standard in the office of Mr. J. Brian Cooper, F.R.I.B.A., 30 Highfield Road, Edgbaston, Birmingham, 15. Telephone No. Edgbaston 5151. If you are interested please write, telephone or call to see me. 3237

**TWO** or more competent intermediate standard ASSISTANTS required in busy Architects Dept. of property development company. Varied commercial and residential work with responsibility given to capable staff where possible. Salary £750 to £1,000. 5-day week. Ring or write to M. R. Day, A.R.I.B.A., Industrial & Investment Services Limited, 129/139 Finsbury Pavement, E.C.2. Tel.: Moorgate 0767. 3229

**ASSISTANT ARCHITECT** wanted for design and construction of important overseas university buildings (East Africa). Two-year contract. Good salary, accommodation, prospects. Particulars to Hening & Chitty, 30, Percy Street, London, W.1. 3203

**VACANCIES** exist in large provincial practice with offices in Peterborough and Spalding for the following:

- (1) ARCHITECTURAL ASSISTANT, qualified, with few years' office experience. Salary up to £1,100, or suitable applicant.
- (2) ARCHITECTURAL ASSISTANT, qualified, having recently left college, office experience not essential, salary up to £900.
- (3) JUNIOR ASSISTANTS, Intermediate/Final standard with 2/3 years' office experience. Salary up to £800.

The work is of a varied and interesting nature, pension scheme in operation, every third Saturday morning free. Assistance will be given with accommodation in appropriate cases. Apply in writing with full details to:—Riddle & Wilkinson, F./A.R.I.B.A., Long Causeway Chambers, Peterborough. 3154

**DENYS LASDUN & PARTNERS** require qualified and experienced ARCHITECTS to fill positions of responsibility. Varied, interesting work. Write, stating experience and salary required, to 3, Albany Terrace, N.W.1. 3211

**MORRISON & PARTNERS**, Derby, require top grade ASSISTANT ARCHITECTS to take charge of large contracts in an extensive and increasing programme including Schools, W.D. and Industrial projects. Applicants must have first class design ability and experience of site administration. Salary according to qualifications and experience. Superannuation scheme, five-day week. Apply in writing to St. Alkmund House, 103, Belper Road, Derby, or telephone Derby 49287 for an appointment. 3223

**FELIX WALTER, F.R.I.B.A.**, requires ASSISTANTS of post-Intermediate standard to fill responsible positions in expanding practice. Applicants must be competent draughtsmen with sound knowledge of construction and detailing, and keen interest in good design. Salary range £700-£850 according to ability and experience. Phone HOLBORN 6535, or write: 4, Raynmond Buildings, Gray's Inn, London, W.C.1. 3210

**A** VACANT drawingboard is required to be filled by Intermediate/Final ASSISTANT. Apply Shepherd, Fowler & Marshall, L./A.R.I.B.A., 15, St. James' Row, Sheffield 1. 2854/5. 3192

**ARCHITECT'S ASSISTANT**, experienced but not necessarily qualified, required in small progressive office specialising in industrial and commercial architecture. Responsibility and initiative encouraged. Varied work with opportunity for advancement. Salary around £1,000 per annum. Write giving full particulars to A. F. Hare, 24, Baker Street, London, W.1, marking envelope personal. 3194

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	PAGE	CODE
A.B.C.D. (Raynes Park), Ltd.....	128	0002
Accrington Brick Tile Co., Ltd., The .....	134	0003
Allied Ironfounders (Rainwater), Ltd. ....	105	1061
Armstrong Cork Co., Ltd.....	9	1064
Armstrong Cork Co., Ltd.....	107	1123
Austins of East Ham, Ltd.....	125	0777
Autotype Co., Ltd., The.....	110	0043

Bech Neale & Co., Ltd.....	32	1140
Beresford, James & Sons, Ltd....	125	0059
Bigwood, Joshua, & Son, Ltd.....	39	0065
Bilston Foundries, Ltd.....	85	0067
Blakely Cabinet & Metal Works Co., Ltd. ....	112	—
Booth, John, & Sons (Bolton) Ltd.	53	0079
Boulton & Paul, Ltd.....	108	1065
Bow Slate & Enamel Co., Ltd. 103,	138	0083
Bradford, F., & Co., Ltd.....	50	0084
Brady, G., & Co., Ltd.....	38	0085
Brand, R. A., & Co., Ltd.....	127	0086
Brightside Heating & Engineering Co., Ltd., The.....	3	0089
British Monorail, Ltd.....	116	0097
British Plaster Board (Mfg.), Ltd.	82	0102
Broughton Moor Green Slate Quar- ries, Ltd.....	138	0115
Brown, Donald (Brownall), Ltd....	141	0116
Burgess Products Co., Ltd.....	45	0121
Burn Bros. (London), Ltd.....	117	0122

Cafferata, Ltd. ....	48	0126
Cement Marketing Co., Ltd., The	102	0136
Coal Utilisation Council, The.....	10	0147
Cole, E. K., Ltd.....	112	0823
Colt, W. H. (London), Ltd.....	51	0149
Colvilles, Ltd.....	79	0962
Comex-Terna, Ltd.....	130	0156
Costain Concrete Co., Ltd.....	90	1100
Courtney Pope (Elect.), Ltd.....	33	1040
Crane, Ltd.....	18	0166
Crittall Manuf. Co., Ltd., The.....	13	0169
Crompton Parkinson, Ltd.....	84	0172
Cullum, Horace W., & Co., Ltd....	24	1131

Delta Metal Co., Ltd., The.....	35	1063
Dexion, Ltd. ....	41	0179
Downing, G. H., & Co., Ltd.....	34	0187
Du Pont Co. (United Kingdom), Ltd. ....	46	0818

Ellard Sliding Door Gears, Ltd....	126	0201
Ellis School of Architecture, The...	136	0202
English Electric Co., Ltd., The...	14	0206
Evode, Ltd. ....	23	0877
Expanded Metal Co., Ltd., The...	42	0211

FEB (Great Britain), Ltd.....	31	0216
Falk, Stadelmann & Co., Ltd.....	17	0214
Fibre-glass, Ltd.....	56	0219
Finlock Gutters, Ltd.....	78	0222
Fisher Foils, Ltd.....	59	0225
Fural, Ltd. ....	51	1117

G.K.N. Reinforcement, Ltd.....	142	0244
General Electric Co., Ltd., The...	36	0924
Gent & Co., Ltd.....	15	0251
Gimson & Co. (Leicester), Ltd....	138	0649
Gliksten Doors, Ltd.....	121	0255
Goodyear Tyre & Rubber Co. (G.B.), Ltd.....	104	1116
Grecon Systems, Ltd.....	16	0260
Greenwood's & Airvac Ventilating Co., Ltd. ....	11	0263
Guest, Keen & Nettlefolds (Mid- lands), Ltd.....	44	0265
Gyproc Products, Ltd.....	54	0266
Gypsum Mines, Ltd.....	72, 128	1062

Hallwood & Ackroyd, Ltd.....	43	0268
Halcro Panels, Ltd.....	55	1068
Hammond & Champness, Ltd.....	111	0275
Harvey, G. A., & Co. (London), Ltd. ....	70	0284
Henderson, P. C., Ltd.....	71	0289
Hickson's Timber Impregnation Co. (G.B.), Ltd.....	47	0988
Hills, F., & Sons, Ltd.....	28	0296
Hills (W. B.), Ltd.....	19	0297
Hollis Bros., Ltd.....	116	0300
Hope, Henry, & Sons, Ltd.....	86	0309
Horsley, Smith & Co.....	20	0311
Humaseco, Ltd. ....	96	0941
Hume, Atkins & Co., Ltd.....	110	0840

Ibstock Brick & Tile Co., Ltd.....	87	0323
Imperial Aluminium Co., Ltd.....	30	0919
Imperial Chemicals Industries (Sili- cones) .....	108, 109	0321

Jablo Plastics Industries, Ltd....	117	0328
James, W., & Co., Ltd.....	110	0330
Johns, Edward, & Co., Ltd.....	100	0332

Kelseal, Ltd.....	122	0864
King, George W., Ltd.....	2	0342
King, J. A., & Co., Ltd.....	61	0343
Kings Langley Engineering, Ltd.	119	0120
Kirkstone Green Slate Quarries, Ltd. ....	138	0739

Lamb, Hingley, & Co., Ltd.....	118	1118
Latham, James, Ltd.....	120	0896
Leigh, W. & J., Ltd.....	77	0350
Lion Foundry Co., Ltd.....	93	0362
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Luminated Ceilings, Ltd.....	57	0369

McCarthy, M., & Sons, Ltd.....	138	0374
Marley Concrete, Ltd.....	130	0388
Marley Tile Co., Ltd.....	49	0392
Mellows & Co., Ltd.....	97	0406
Merchant Trading Co., Ltd.....	121	0408
Marryat & Scott, Ltd.....	119	1119
Metal Sections, Ltd.....	106	0403
Midland Woodworking Co., Ltd., The .....	31	0412
Moorwoods, Ltd.....	120	0826
Morleys Electrical Service (Hollo- way), Ltd. ....	141	1092
Multiglass, Ltd.....	113	0426

Nairn, Michael, & Co., Ltd.....	68, 69	0427
National Enamels, Ltd.....	126	0968
National Federation of Clay Indus- tries, The.....	58	0430
Newton Chambers & Co., Ltd....	98, 99	0437
Nuralite Co., Ltd., The.....	4	1113

Phillips Electrical, Ltd. ....	65	1126
Pilkington Bros., Ltd. (Glass Clad- ding) .....	67	0472
Plyglass, Ltd.....	40	0479
Pochins (Manchester), Ltd.....	141	1044
Polybond, Ltd. ....	78, 129	0481
Pressed Steel Co., Ltd., The.....	64	0827
Prestwich, William, & Sons, Ltd...	126	0860

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Quickset Water Sealers, Ltd.....	125	0795

Radiation Group Sales, Ltd.....	7	0496
Remploy, Ltd. ....	118, 126	0504
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Templewood Hawksley, Ltd.....	63	0625
Thermalite Ytong, Ltd.....	92	0630
Thermacoust, Ltd.....	83, 127	0629
Thompson, John, Benson Win- dows, Ltd.....	60	0631
Thorn, J., & Sons, Ltd.....	75	0632
Thorpe, F. W., Ltd.....	124	0634
Timber Development Assoc., Ltd. 80,	81	0635
Timber Fireproofing Co., Ltd., The	114	0636
Tretol, Ltd.....	5	0638
Truscon, Ltd. ....	138	1038
Truscon, Ltd. ....	95	0645
Twyfords, Ltd. ....	52	0732

Ulster Chipboard, Ltd.....	25	1136
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	PAGE	CODE		PAGE	CODE		PAGE	CODE
A.B.C.D. (Raynes Park), Ltd.....	128	0002	G.K.N. Reinforcement, Ltd.....	142	0244	Nairn, Michael, & Co., Ltd.....	68, 69	0427
Acerington Brick Tile Co., Ltd., The .....	134	0003	General Electric Co., Ltd., The...	36	0924	National Enamels, Ltd.....	126	0968
Allied Ironfounders (Rainwater), Ltd.....	105	1061	Gent & Co., Ltd.....	15	0251	National Federation of Clay Indus- tries, The.....	58	0430
Armstrong Cork Co., Ltd.....	9	1064	Gimson & Co. (Leicester), Ltd....	138	0649	Newton Chambers & Co., Ltd....	98, 99	0437
Armstrong Cork Co., Ltd.....	107	1123	Gliksten Doors, Ltd.....	121	0255	Nuralite Co., Ltd., The.....	4	1113
Austins of East Ham, Ltd.....	125	0777	Goodyear Tyre & Rubber Co. (G.B.), Ltd.....	104	1116			
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			Greenwood's & Airvac Ventilating Co., Ltd.....	11	0263	Pilkington Bros., Ltd. (Glass Clad- ding) .....	67	0472
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Bilston Foundries, Ltd.....	85	0067				Pressed Steel Co., Ltd., The.....	64	0827
Blakely Cabinet & Metal Works Co., Ltd.....	112	—				Prestwich, William, & Sons, Ltd....	126	0860
Booth, John, & Sons (Bolton) Ltd.	53	0079	Hailwood & Ackroyd, Ltd.....	43	0268			
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Brown, Donald (Brownall), Ltd....	141	0116	Horsley, Smith & Co.....	20	0311	Runnymede Rubber Co., Ltd.....	73	0523
Burgess Products Co., Ltd.....	45	0121	Humasco, Ltd.....	96	0941			
Burn Bros. (London), Ltd.....	117	0122	Hume, Atkins & Co., Ltd.....	110	0840			
Cafferata, Ltd.....	48	0126	Ibstock Brick & Tile Co., Ltd.....	87	0323	Sankey, J. H., & Son, Ltd.....	62	0535
Cement Marketing Co., Ltd., The	102	0136	Imperial Aluminium Co., Ltd.....	30	0919	Shell Chemical Co., Ltd.....	12	0964
Coal Utilisation Council, The.....	10	0147	Imperial Chemicals Industries (Sili- cones) .....	108, 109	0321	Shepley Booth & Associates, Ltd.	94	1039
Cole, E. K., Ltd.....	112	0823				Shot Blasting & Metal.....	138	1133
Colt, W. H. (London), Ltd.....	51	0149	Jablo Plastics Industries, Ltd....	117	0328	Silent Balcock Co., Ltd., The.....	138	0916
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Costain Concrete Co., Ltd.....	90	1100				Steelway, Ltd.....	114	0592
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Crompton Parkinson, Ltd.....	84	0172	Kings Langley Engineering, Ltd.	119	0120	Templewood Hawksley Ltd.....	63	0625
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						Thermacoust, Ltd.....	83, 127	0629
						Thompson, John, Reuben Win- dows, Ltd.....	60	0631
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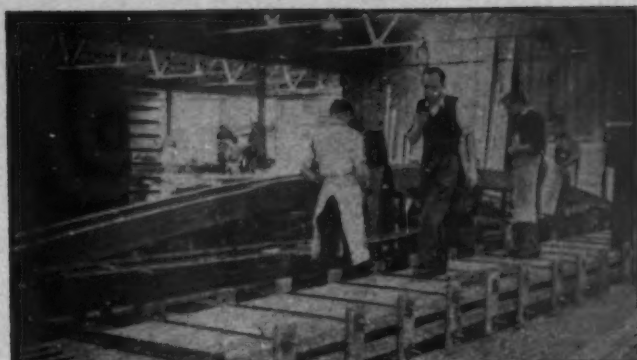
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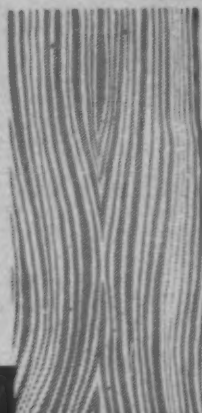
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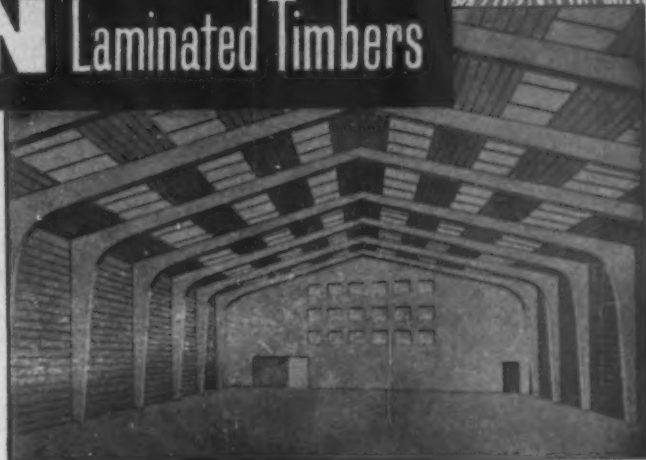
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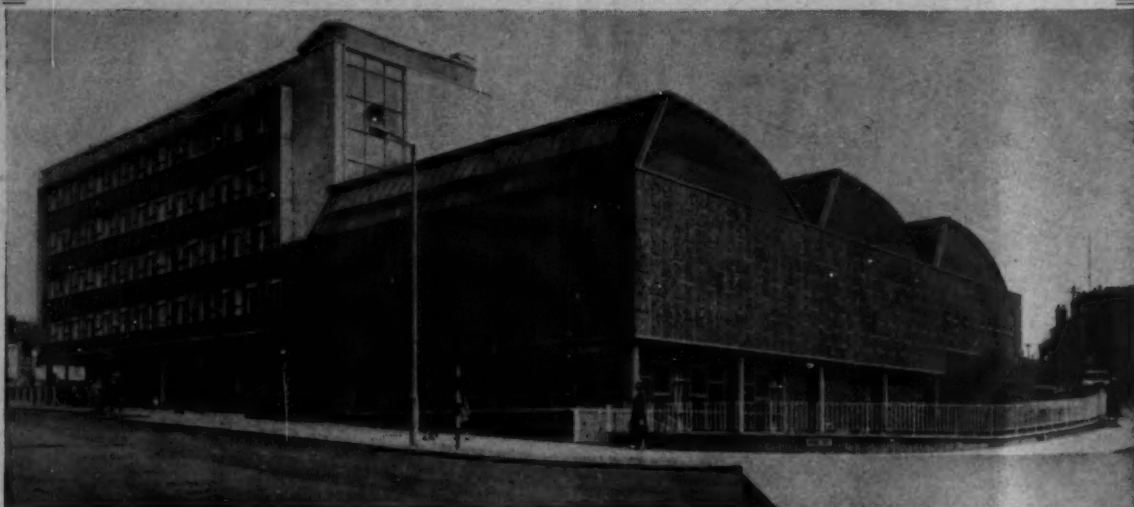
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*The Wolverhampton Market Scheme was designed under the direction of the Borough Engineer, H. Schofield, B.Sc (Eng.), A.M.I.C.E., M.I. Mun. E., A.M.T.P.I. and the Architects responsible were:*

*Deputy Borough Architect:*

*A. G. E. CHAPMAN, A.R.I.B.A., A.M.T.P.I.*

*Chief Assistant Architect:*

*N. C. DOWELL, A.R.I.B.A.*

*Architect In Charge:*

*J. A. RICHARDS, Dip. Arch., A.R.I.B.A.*

*Reinforced Concrete Designers:*

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