The Architects' JOURNAL for May 14, 1959

THE ARCHITECTS' JOURNAL

standard contents

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

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

ILA	Institute of Landscape Architects. 1, Park Crescent, Portland Place, W.1.	Museum 3473
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1.	Welbeck 9966
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee). Fire Research Station, Boreham Wood, Herts.	Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2.	Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Hyde Park 7070
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
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 Asphalte Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal house, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1.	Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1.	Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1	Whitehall 5322/9245
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1.	Whitehall 3935
RS	Royal Society Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

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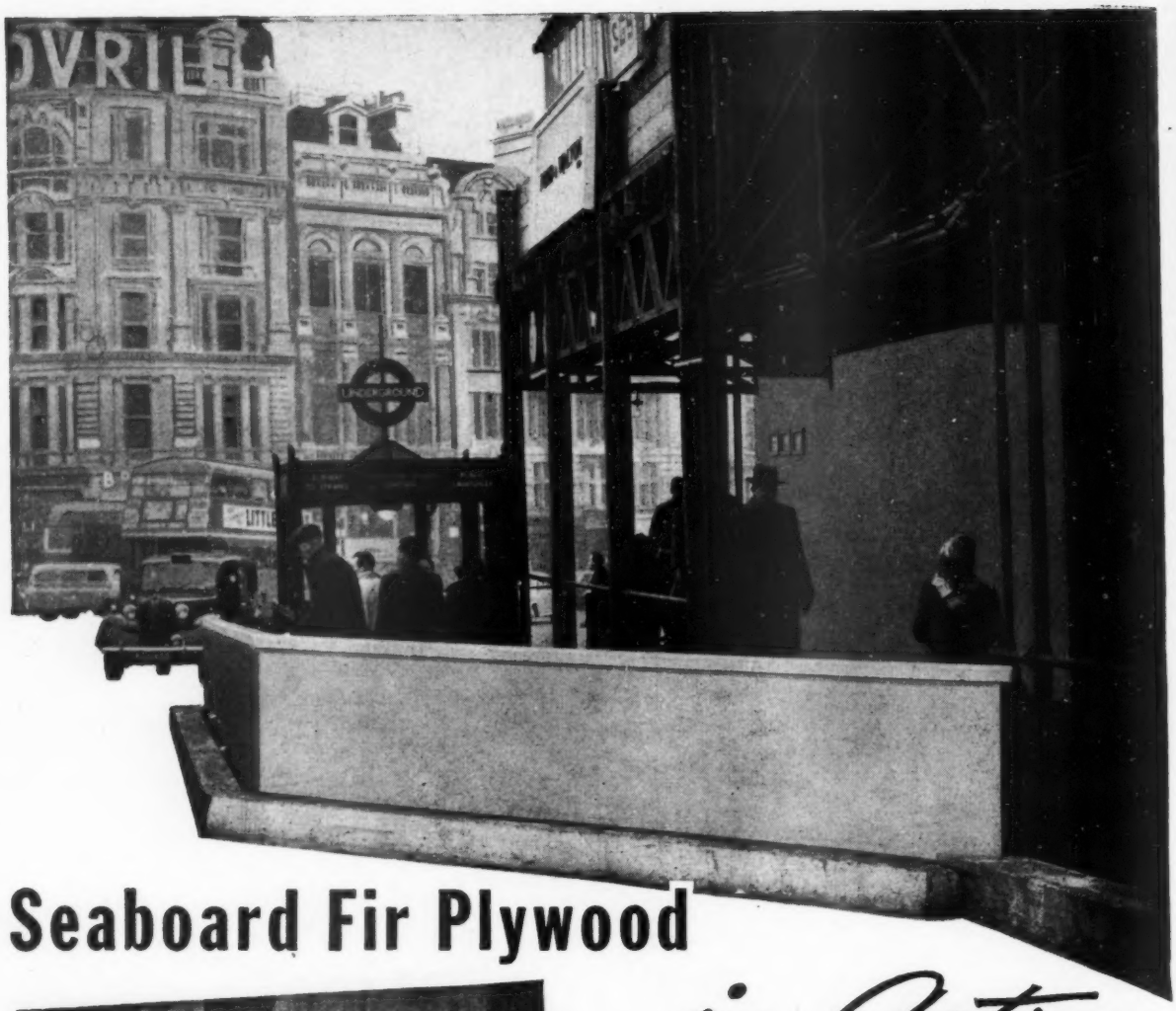

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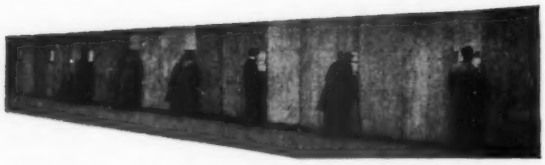

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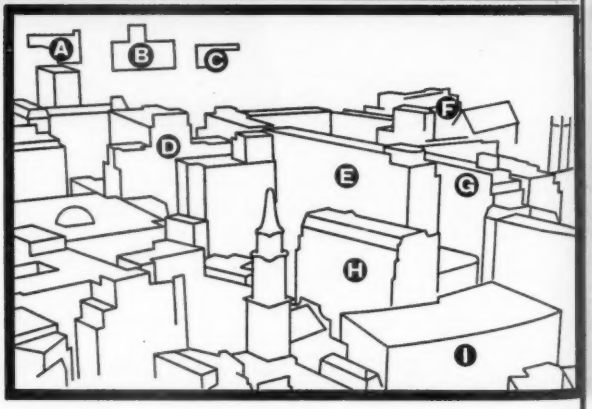

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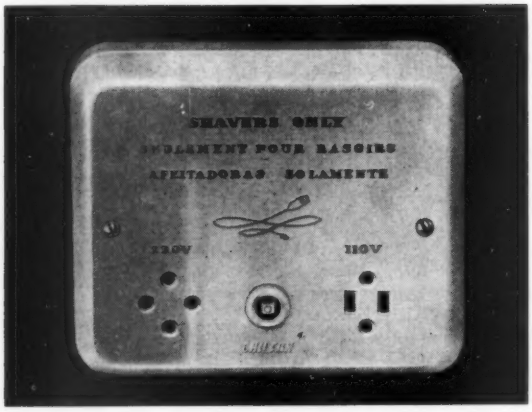

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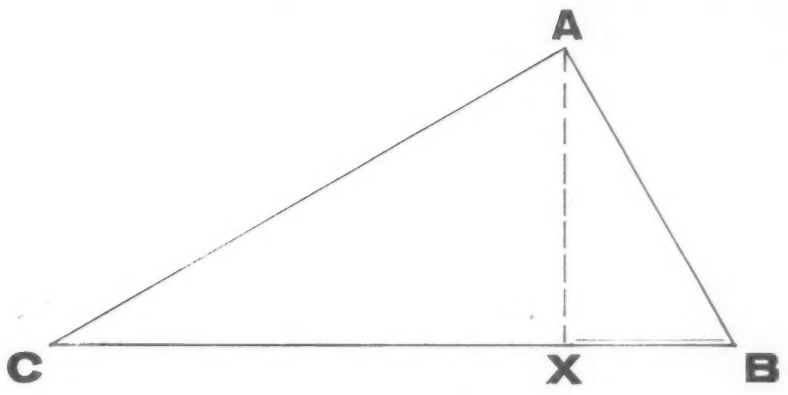

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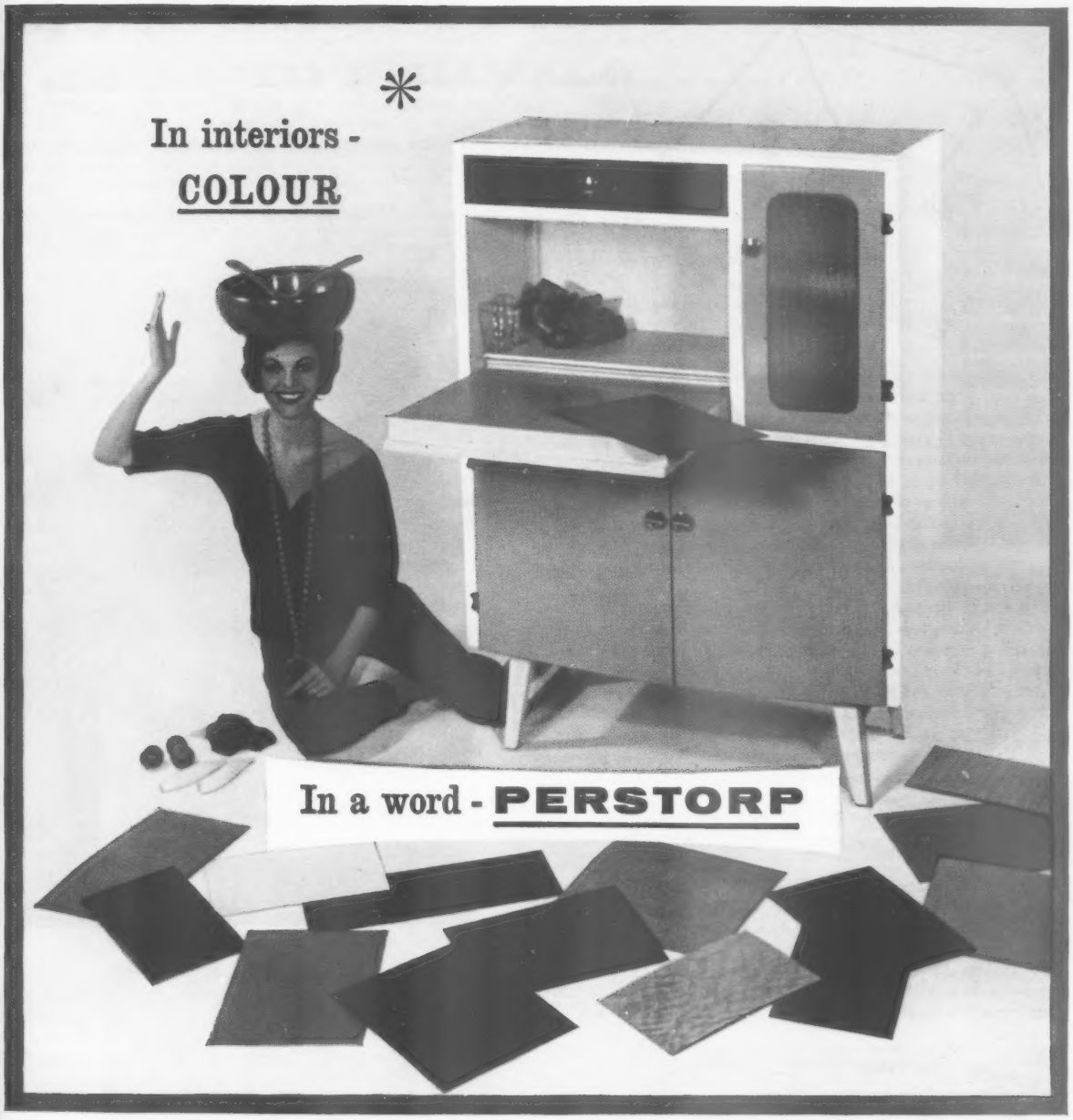

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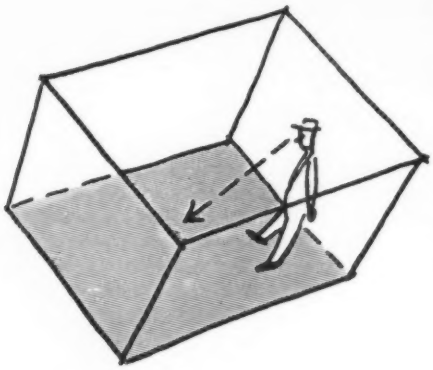


USING LINOLEUM ADVENTUROUSLY

This is the first in a series of articles produced by MICHAEL NAIRN & CO. LTD. *for the information and interest of architects. We asked the designer, James Gardner, for his views on the use of colour and design in linoleum flooring, and we give below his comments and sketches.*

MOST OF OUR LIFE is spent in a box, and so the treatment of the bottom of the box, the floor, deserves some consideration. This is not a new conception when we think of the technical knowledge and effort that must have been involved in producing the Roman tessellated pavements, Persian carpets and the parquetry of the French renaissance.

We should, I think, be somewhat ashamed that we have applied the colours and patterns of modern flooring materials to so little effect, floor surface design usually being treated as a rather unrewarding exercise.

Linoleum, while satisfying the requirement for an easily-cleaned dust-free resilient material, also has an uninterrupted smooth surface. And very often we have miles of it.

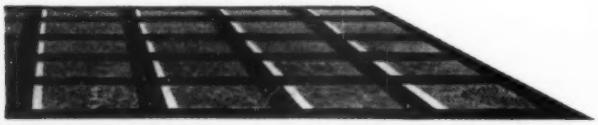
How not to be negative, but to relieve this monotony by actively exploiting colour, tone and pattern to give interest to the large floorscapes now common in public buildings, office blocks and schools, is the problem. How to set about it?

The unobtrusive and practical tile counterchange, using such quiet and 'safe' colours as Dove Grey and Buff (which is called White in the catalogue) is generally dull and boring and often leads to uncomfortable diagonal perspectives as one sees the tile repeat running off at 45 degrees.

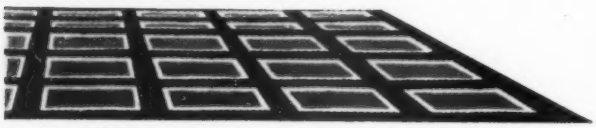
The alternative of applying some novel abstract design, which is usually devised on the drawing board as one would execute a design for a decorated tea tray, results in a floor which relates to nothing that will be standing on it—walls, people or furniture.

It is obvious that the floor must first be visualized as it will be seen from eye level in relation to walls and ceiling. A decision must then be made on the effect required, the character we wish to give the place.

A *Non-commital and negative*



B *Dignity and efficiency*



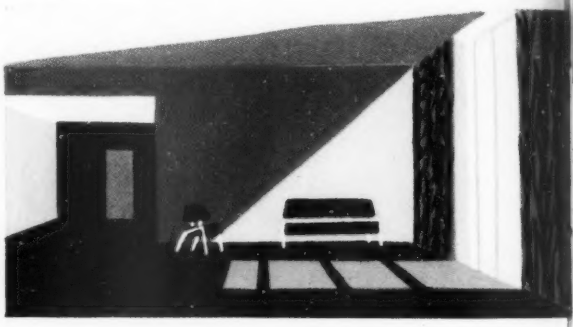
C *Brave, bold and rich*

With a simple tile or strip layout we can, by selection of colours and tones, get an effect of cool uncompromising efficiency, or warmth and richness. Or we can dramatize the area with unexpected and bold tonal changes.

Though not often conscious of the fact, people all the time react emotionally to the colour and space shapes around them, and so whether the architect considers the matter seriously or not, he will be producing an atmosphere—even maybe a negative one.

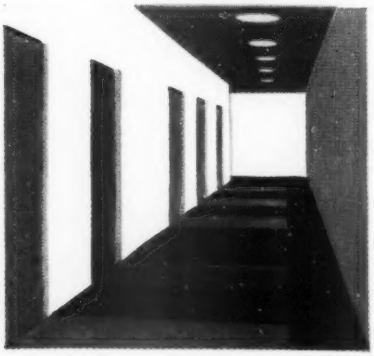
We must consider whether people are to feel welcome, select a spot to sit and rest for a moment, or whether they are here for a long time—perhaps eight hours a day for the rest of their lives. Are they to be impressed during a short consultation, or are they just passing through?

To visualize floor treatments in general terms is not very fruitful, as every floorspace sets a special problem. It is in designing to such limitations that ideas develop, and these sketches are intended to suggest an approach to the problem.



D

For example, in Northern climates sunlight is associated with pleasant mood, and a rather dull foyer with a north or obstructed window, which leaves the interior like a cold aquarium, can be given a friendly atmosphere by a floor design which simulates a patch of sunlight. The wall colour should, of course, be decorated to develop this effect.



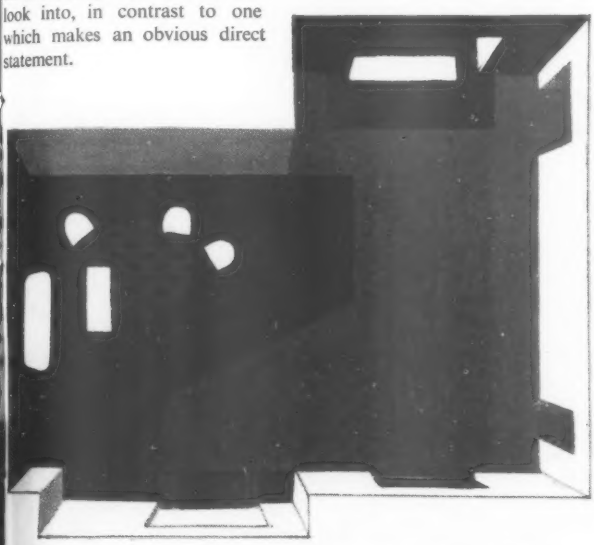
E *Pattern expresses purpose*

In administrative buildings, those long rectangular pipes with office doors down one side can be given an effect of logical progression by identifying the doors with a similar repeat pattern on the floor.

A large area, which it would be desirable but impracticable to relieve with carpets, can be broken up into zones of different character such as a walk-way across, a quiet zone, a lively zone, by different treatments on the one floorspace.

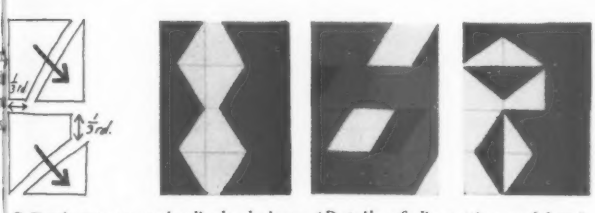
While I do not believe it possible to direct circulation in a large area by floor pattern, it is nevertheless sensible to relate the floor treatment to the activity which takes place in different zones, and to define steps and other hazards so that they are quickly recognized, particularly at night or in areas where there will be a low level of luminosity.

For a rest area we can lay out a subtle, non-repeating interchange of four or five colours of approximately the same tonal value, and so achieve an interesting floor that one can look into, in contrast to one which makes an obvious direct statement.

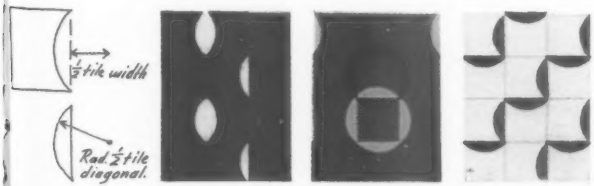


F *Lanes and areas of different interest (Plan view of Entrance Hall)*

The special treatment of linoleum floors is often written off as requiring tailor-made inlay to some elaborate key drawings, but by use of standard tiles and triangular half tiles, in conjunction with unbroken areas, so many permutations of colour, pattern and tone are made possible that cut designs need only be introduced when very special effects are required.



G *Simple cuts to make lively designs. (Details of die-cutting and hand-cutting techniques will appear in the second article of this series.)*



Nevertheless, there are such exciting possibilities in this direction that it would surely be worth the architect's while to appoint reputed artists to experiment with designs, just as he would appoint outside specialists to execute sculpture or a mural decoration. A floor can, after all, be a medium for the expression of ideas. It can give character to a utilitarian interior where decorative embellishment of other surfaces would be ruled out by cost.

Details of linoleum used in each illustration listed

A *Plain linoleum, cut. White and Dove Grey.*

B *Standard tiles. Charcoal, Black, with Arctic White, cut to strips one-sixth width of tile.*

C *Cardinal Red Marbled, and Oxford Blue and Yellow Plain, cut to strips.*

D *Plain—Brown R, Yellow and Black.*

E *Marbled—Black, Cardinal Red, Peacock Blue.*

F *Black and Brown R. Plain, and Peacock and Cardinal Red Marbled.*

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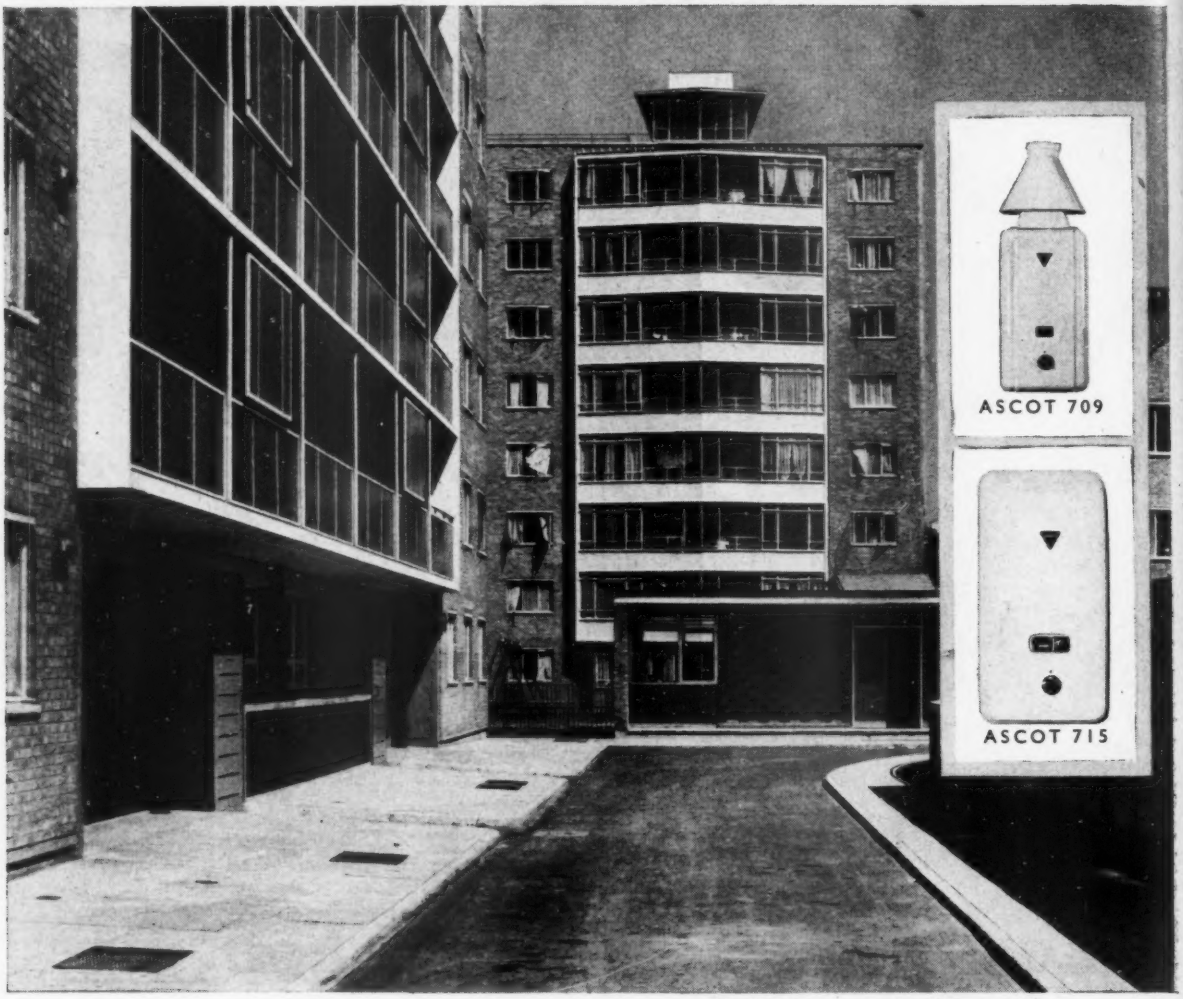
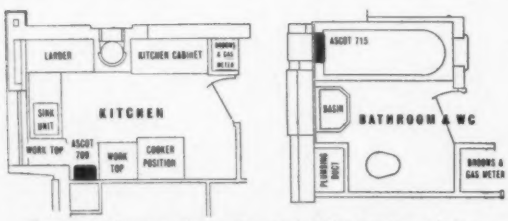


Caroline Estate extension, Hammersmith

ASCOT IN NEW HOUSING (9)

Ascot instantaneous Gas Water heaters have been extensively used for providing hot water in dwellings comprising the London County Council's new Caroline Estate extension at Hammersmith, photographed above. In the eight-storey block, Joanna House, Ascot multipoints have been installed in the 30 three-room and two two-room flats. In the ten-storey block, Henrietta House, Ascot 715 'balanced flue' multipoints are provided in 20 three-room and 18 two-room flats. For technical reasons, an alternative water heating system was necessary in two two-room flats on the ground floor of this block.

In all other maisonettes and flats on the Estate, back boilers have been provided for hot water, except in six maisonettes. Here, Ascot 715 multipoints are installed to obviate difficulties which would have otherwise resulted from having flues for solid fuel fires situated near the ten-storey block.



Two typical installations of Ascot Multipoints in a kitchen and a bathroom in flats on the Estate.

RESPONSIBLE AUTHORITY

London County Council
Architects: Edward Armstrong & Frederick MacManus, F.R.I.B.A., Chartered Architects,
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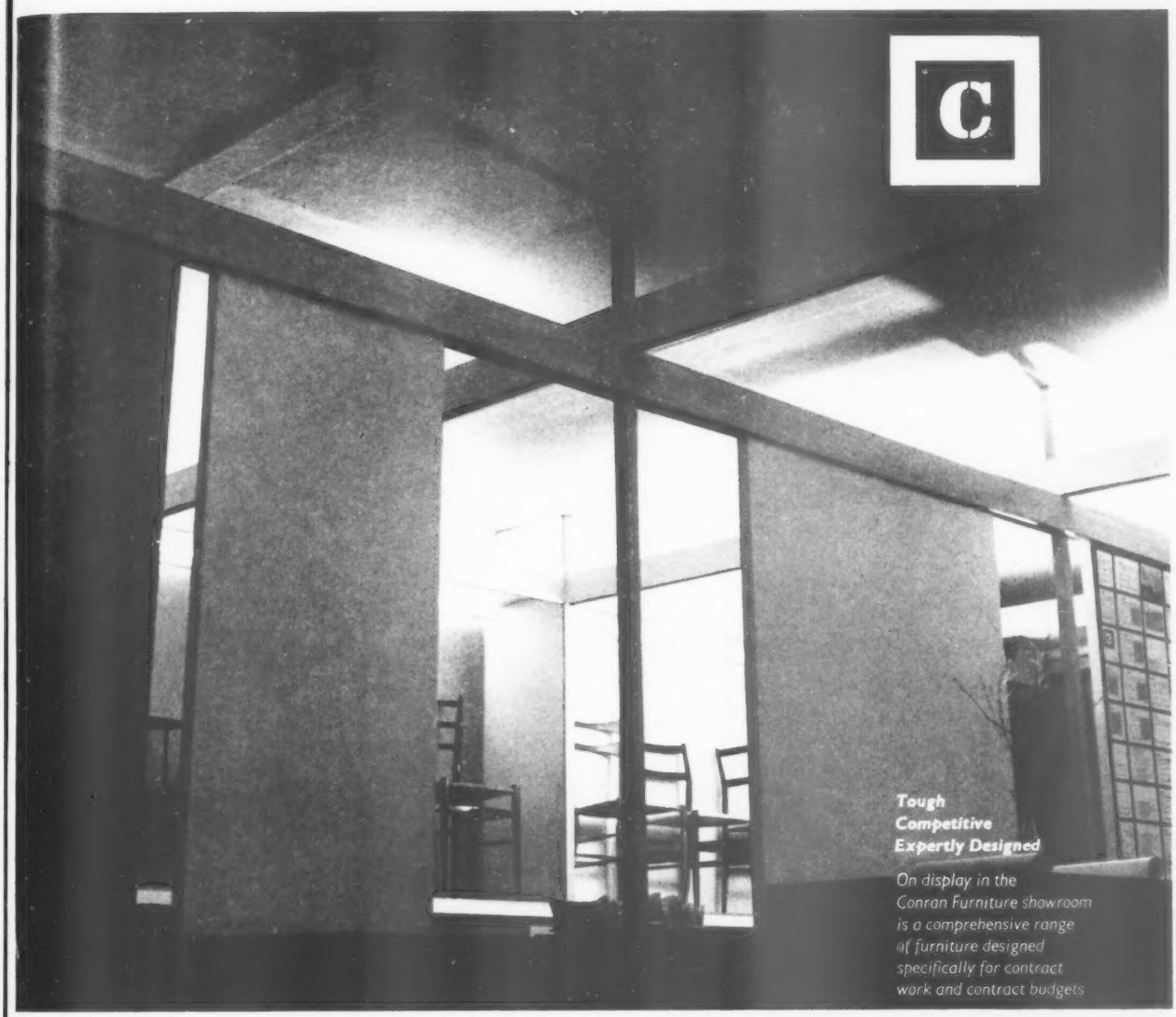

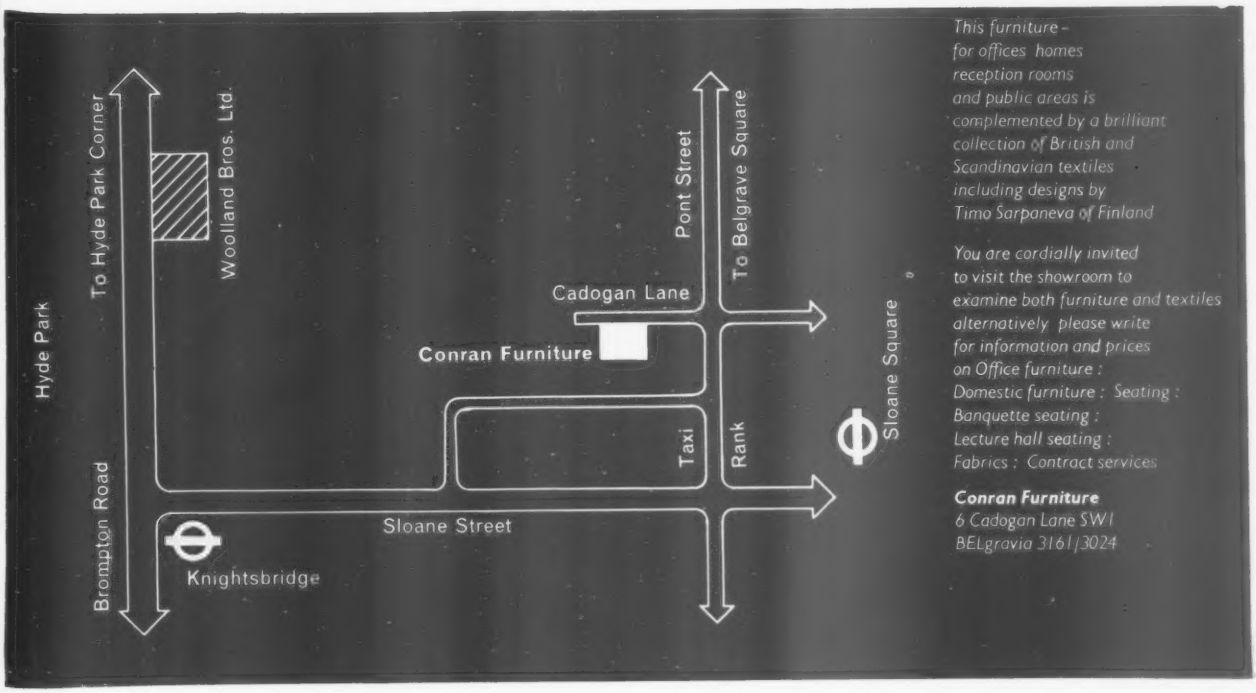

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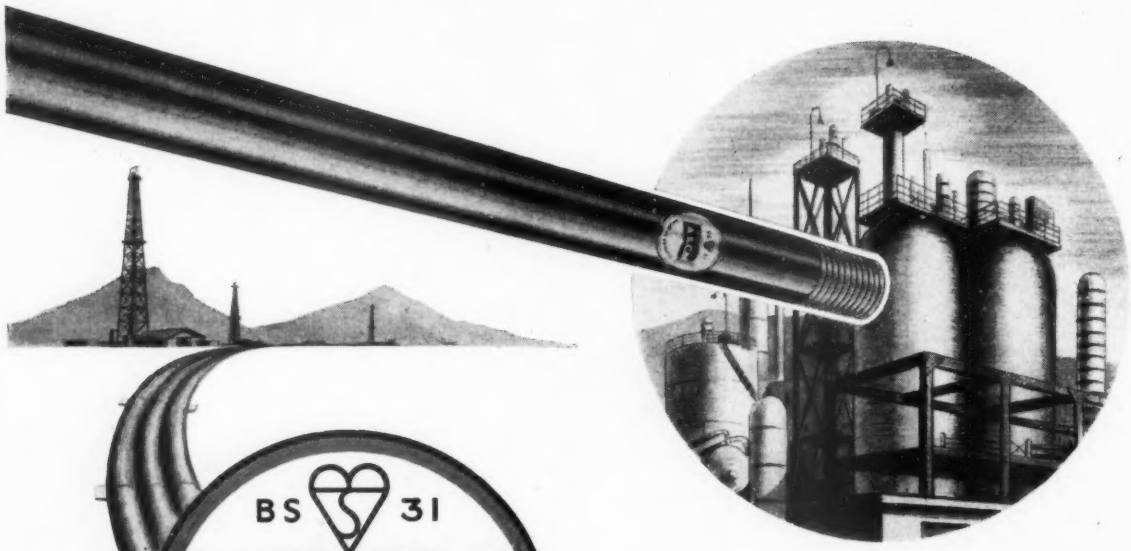

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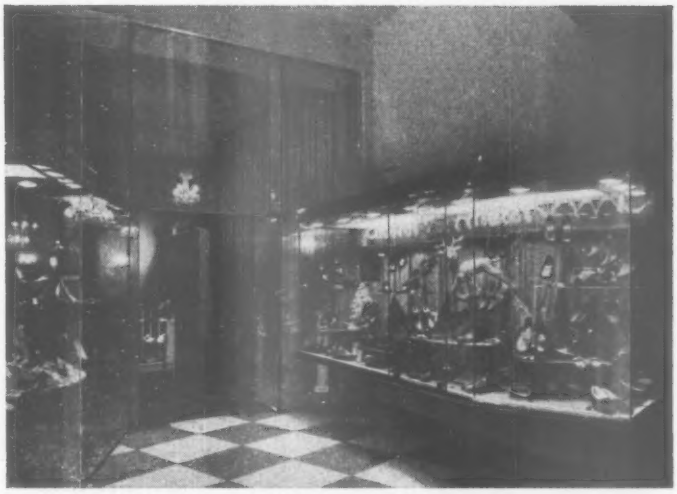

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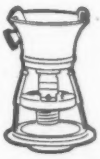

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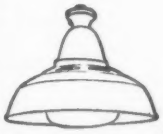
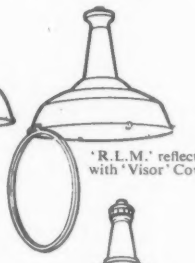
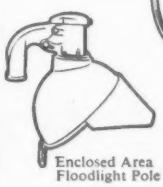


Glassteel diffuser



'R.L.M.' reflector with 'Visor' Cover

Stock Bin unit



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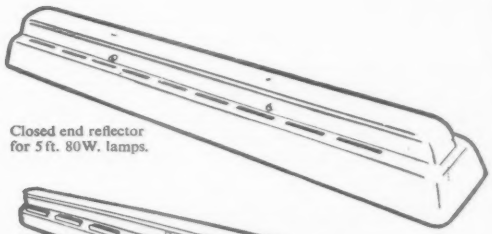
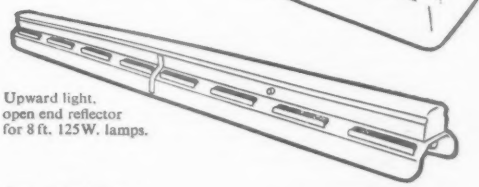


Closed end reflector for 5 ft. 80W. lamps.



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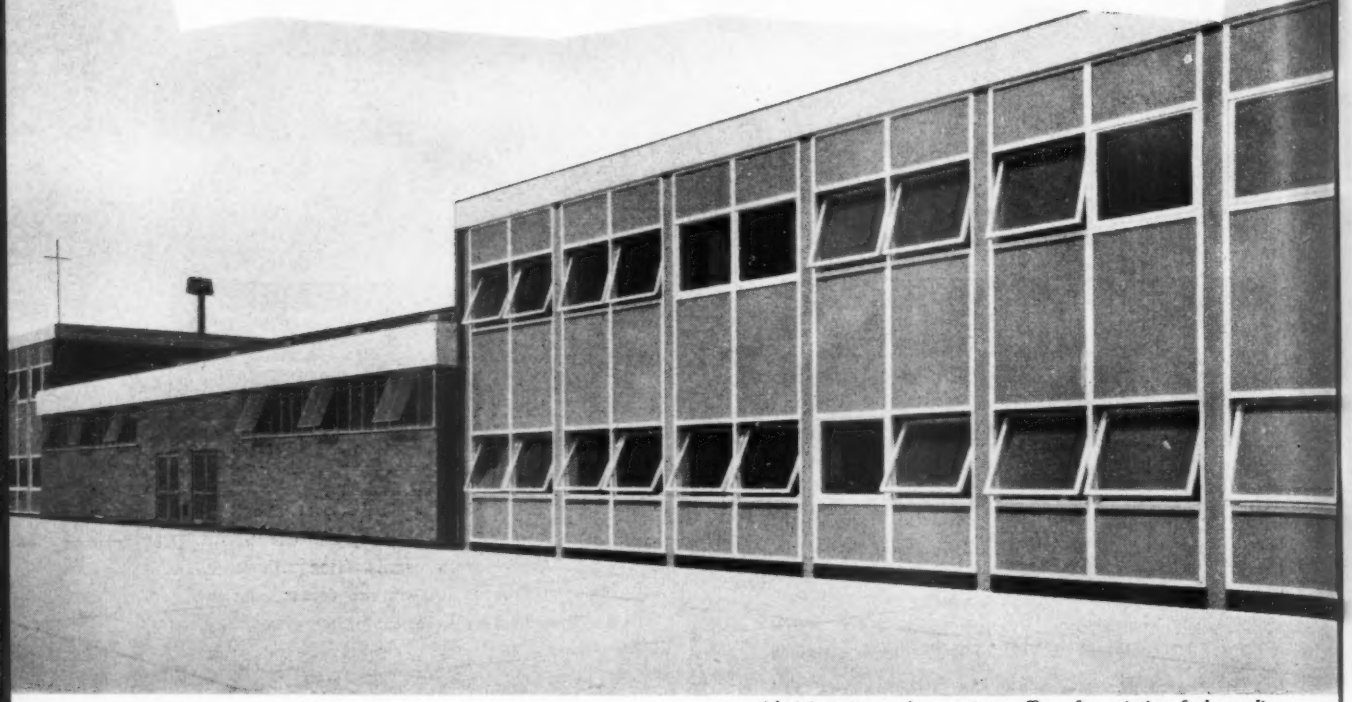
THE ARCHITECTS' JOURNAL
(Supplement) May 14, 1959

TOMO double-glazing at London Airport



Administrative and operations offices for aviation fuel supplies at London Airport, half of which are occupied by Shell-Mex & B.P. Ltd. and the other by Esso Petroleum Co. Ltd. Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.

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One last point, TOMO double-glazed WINDOWS are suitable for inward or outward opening and can be top-hung, bottom-hung, side-hung or pivot-hung. Any further information you may require will be gladly supplied.

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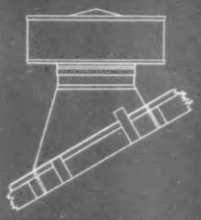

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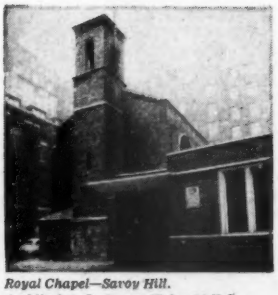

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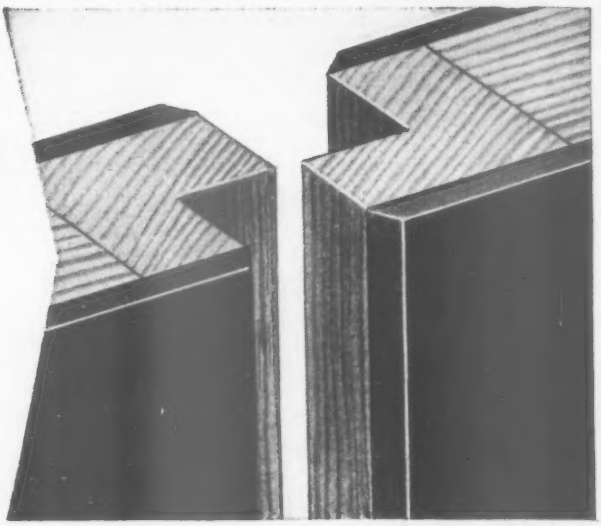

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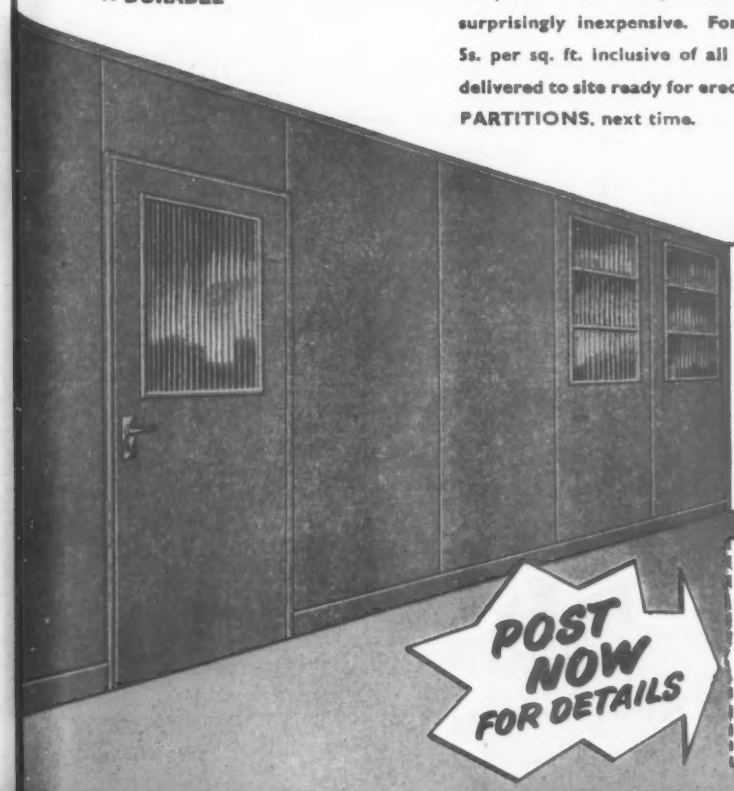

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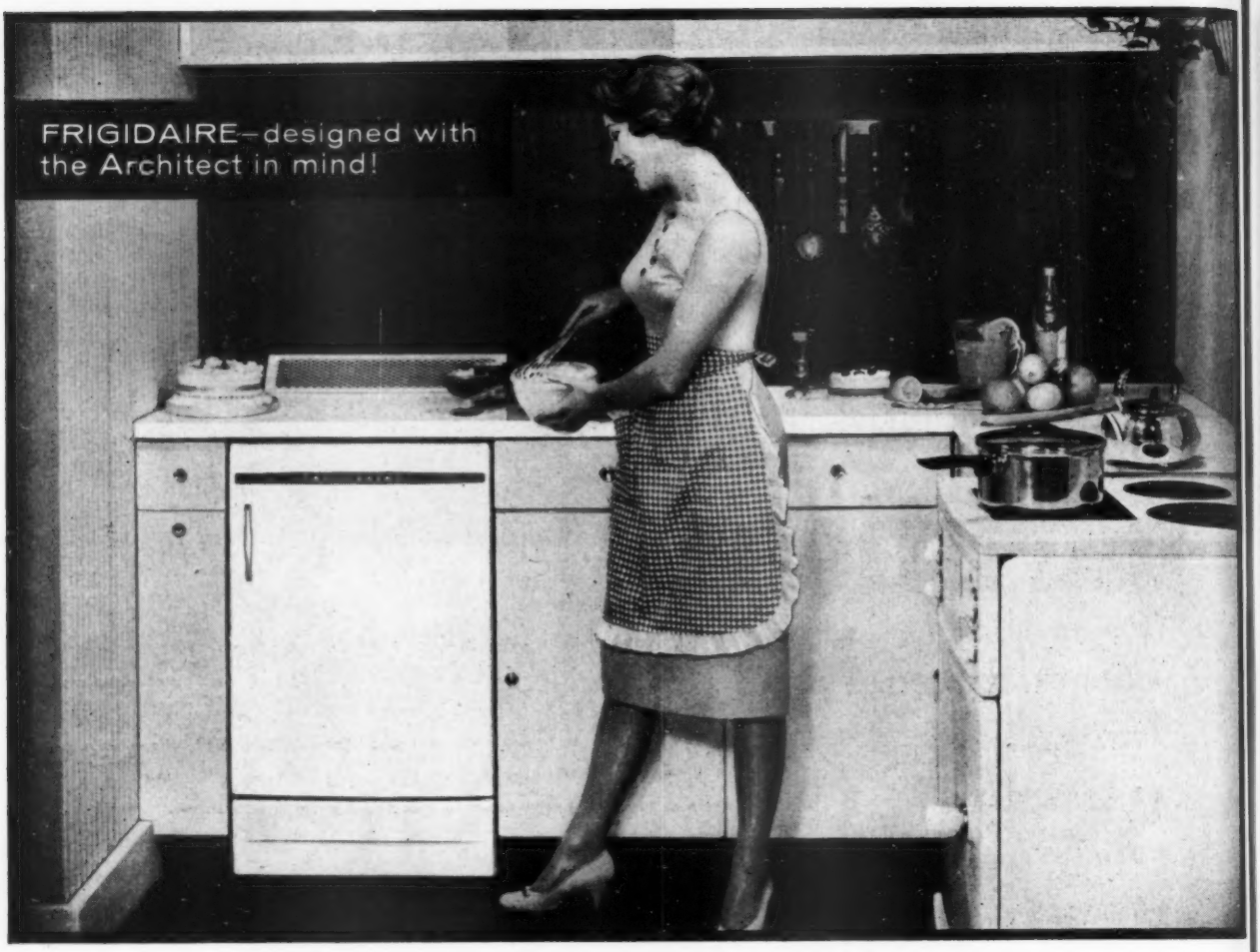

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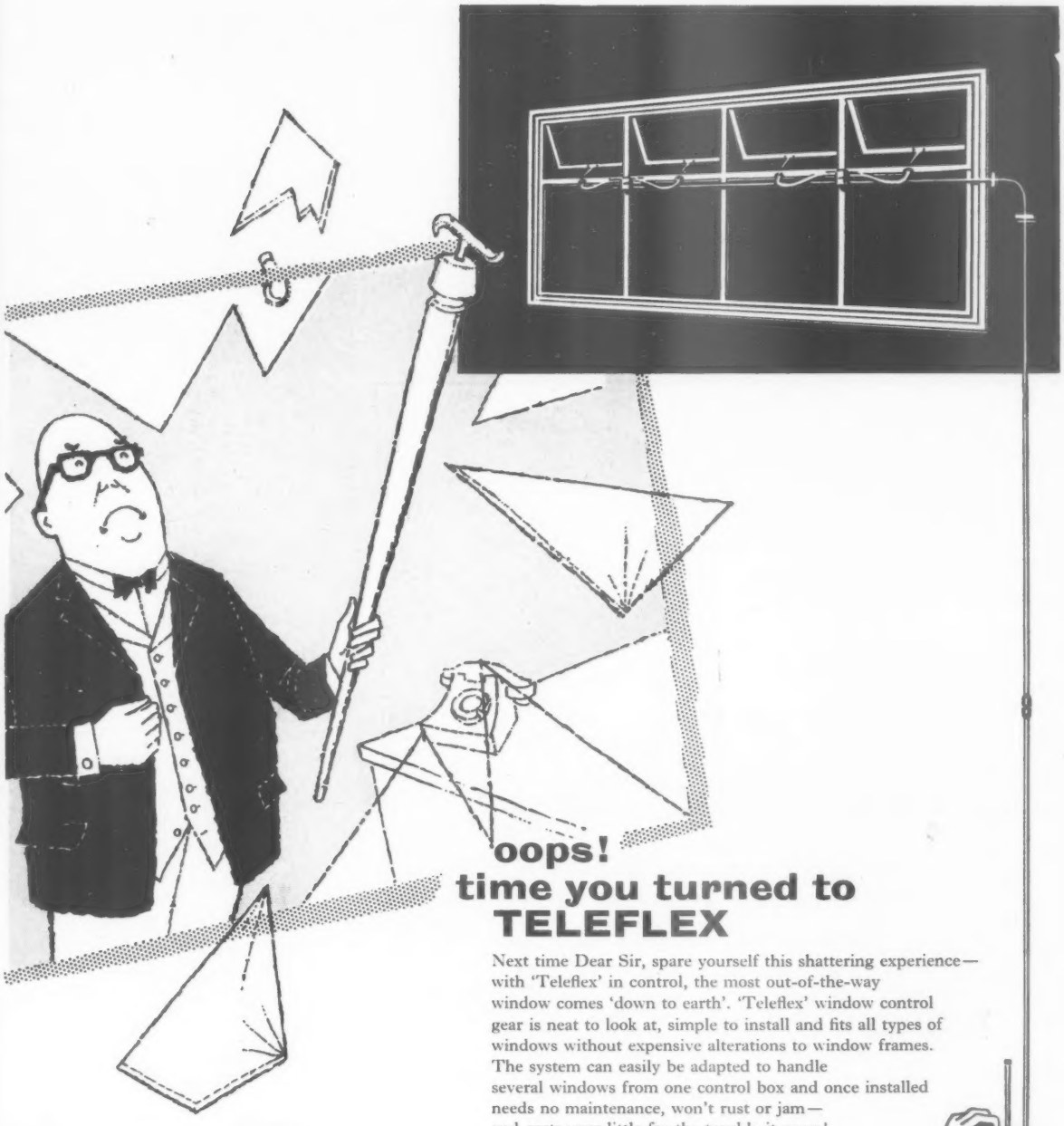

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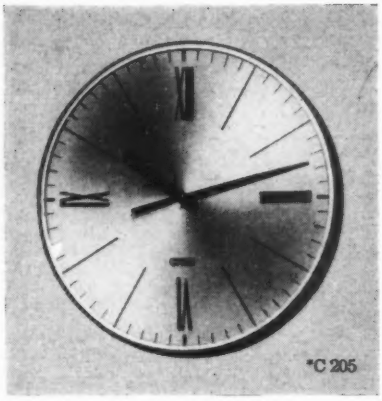
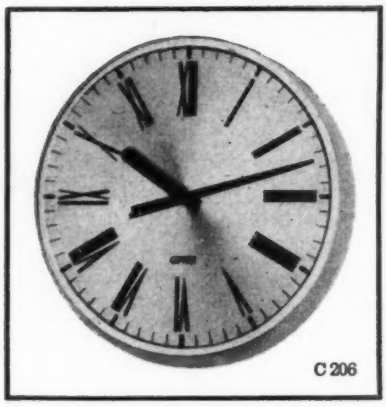
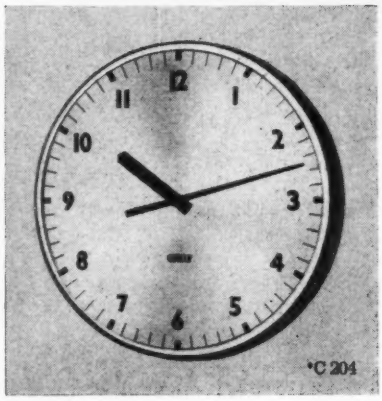
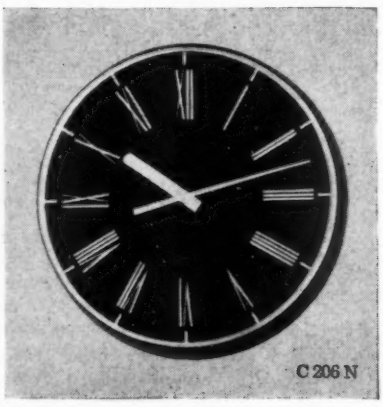
* *These Clocks have been accepted by the Council of Industrial Design for inclusion in Design Index.*









The model numbers given refer to Mains operated clocks but the same designs are available for operation on our Controlled Electric "Master" Clock System.

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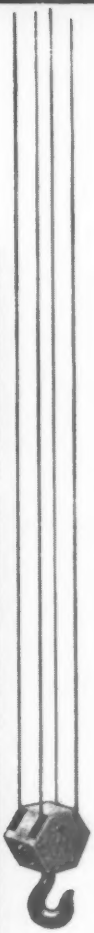

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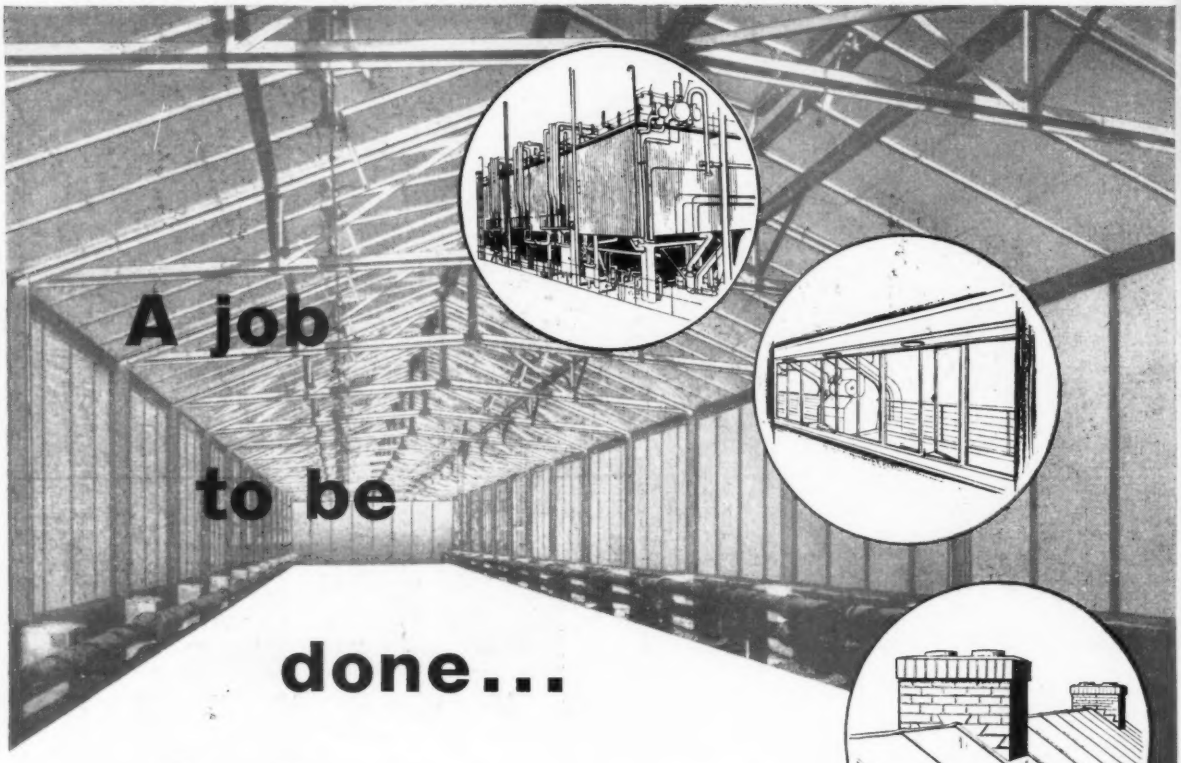

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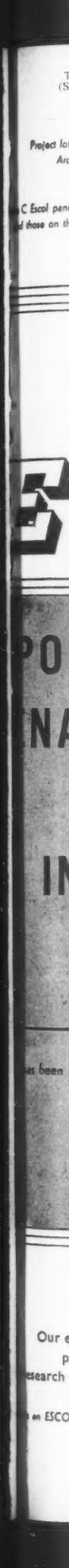
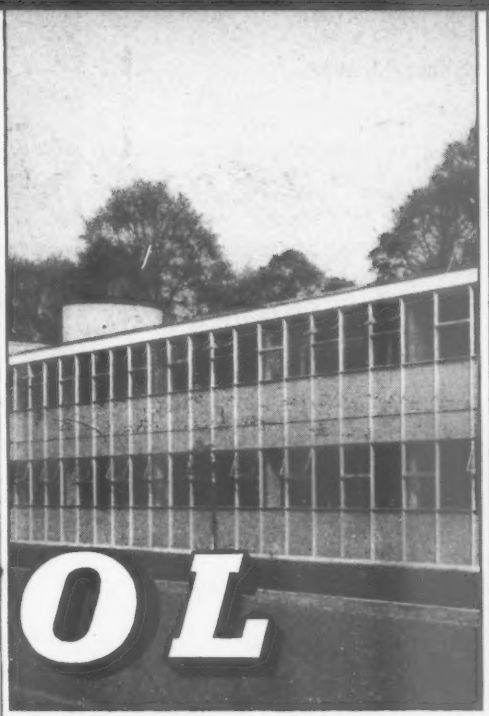
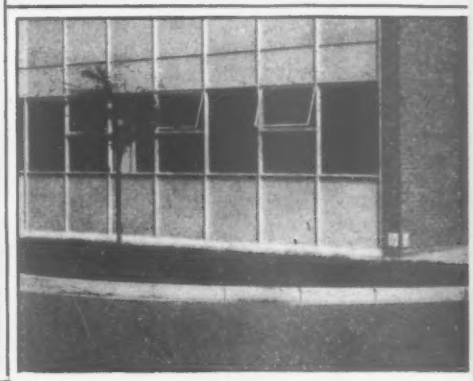


THE ARCHITECTS' JOURNAL
(Supplement) May 14, 1959

Project for : National Physical Laboratory, Teddington.
Architect : A. S. Reid, A.R.I.B.A., of the Chief Architect's Division, Ministry of Works
Contractor : W. E. Chivers & Son.
C Escol panels shown are in pale grey (B.S.I. 7-078) d those on the north elevation in brown (B.S.I. 3-039) and yellow (B.S.I. 4-055)





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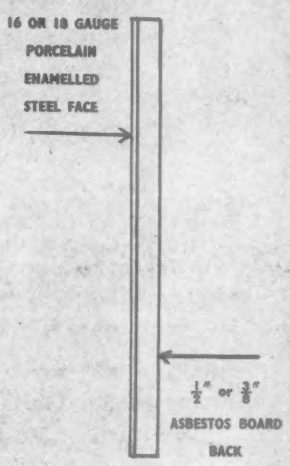

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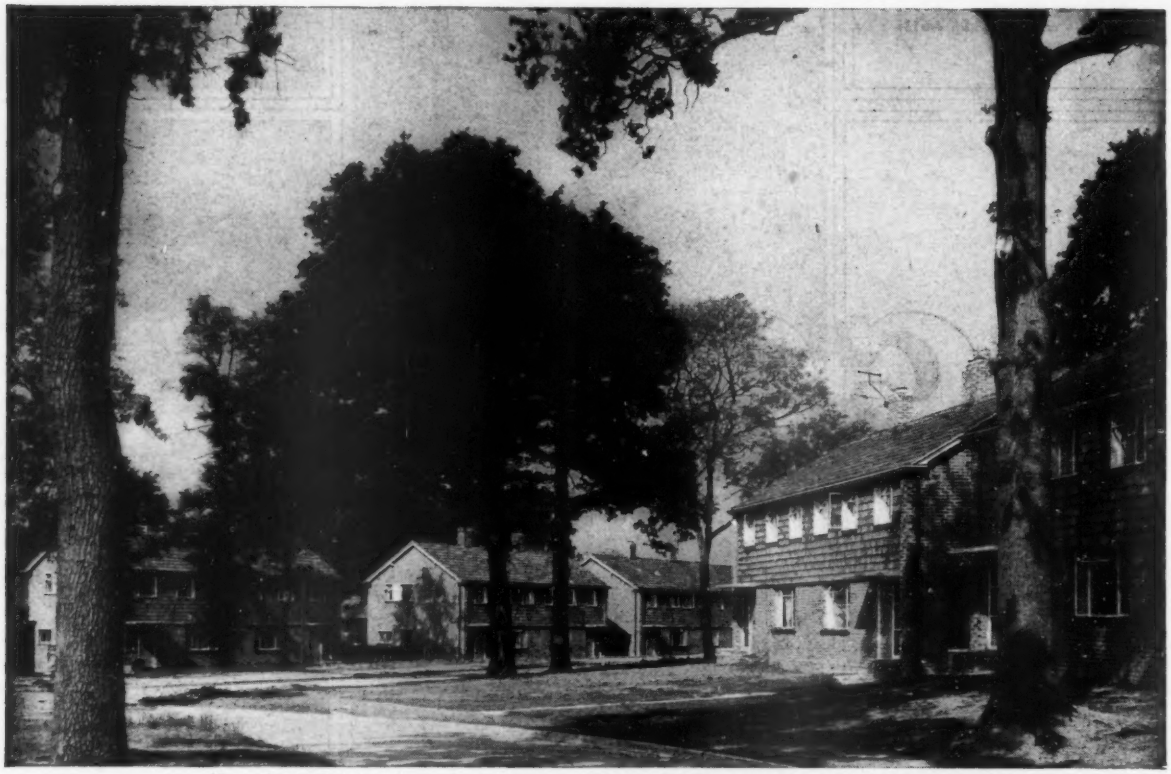

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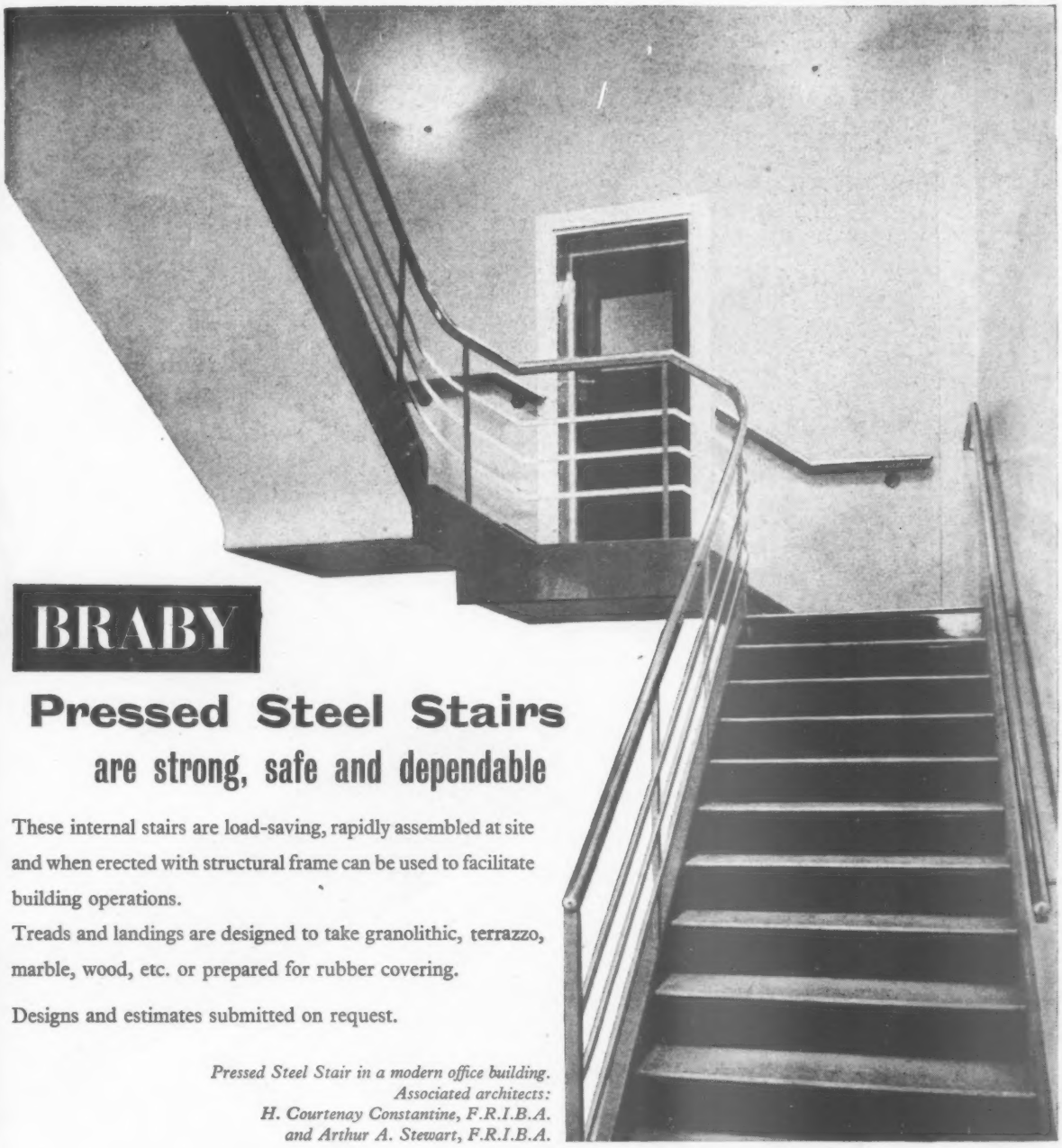

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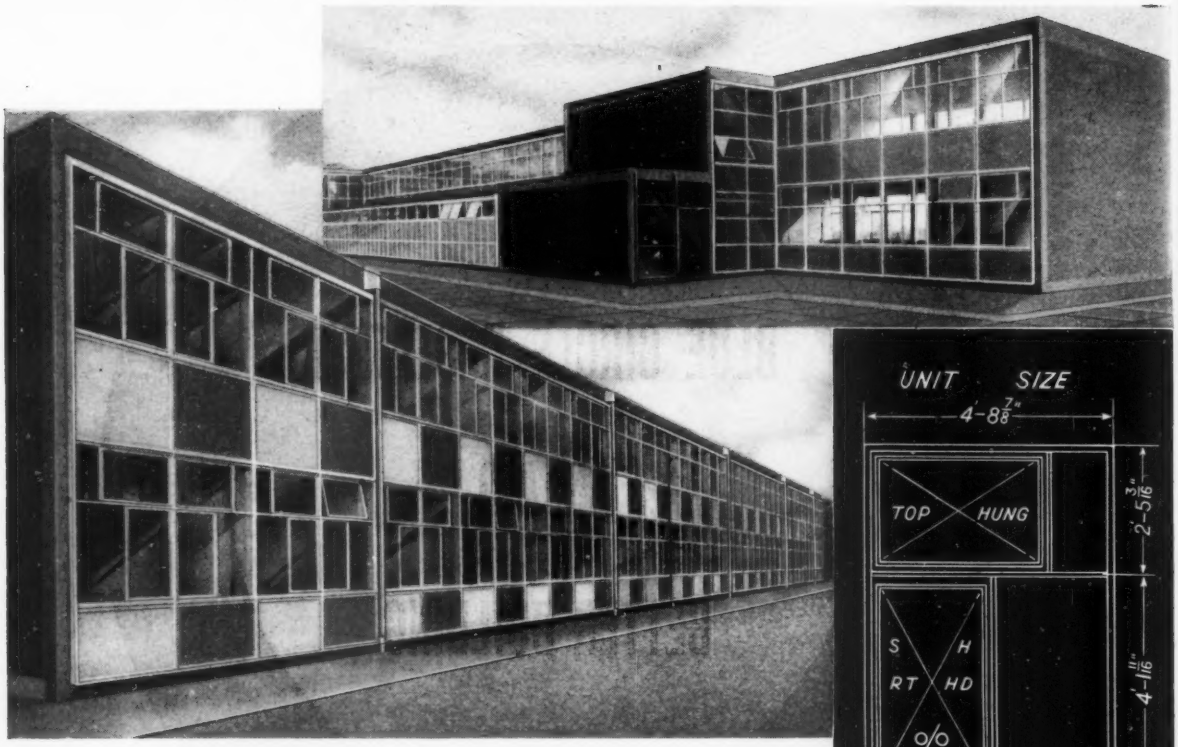

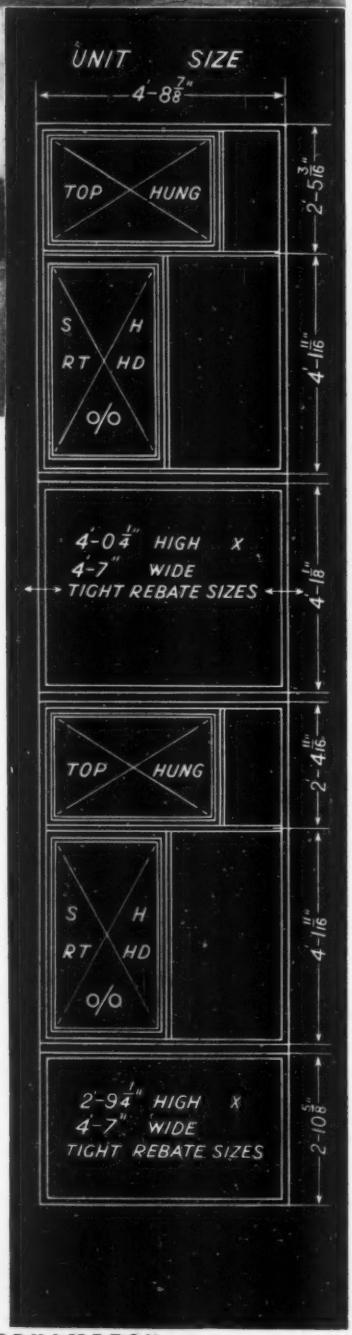

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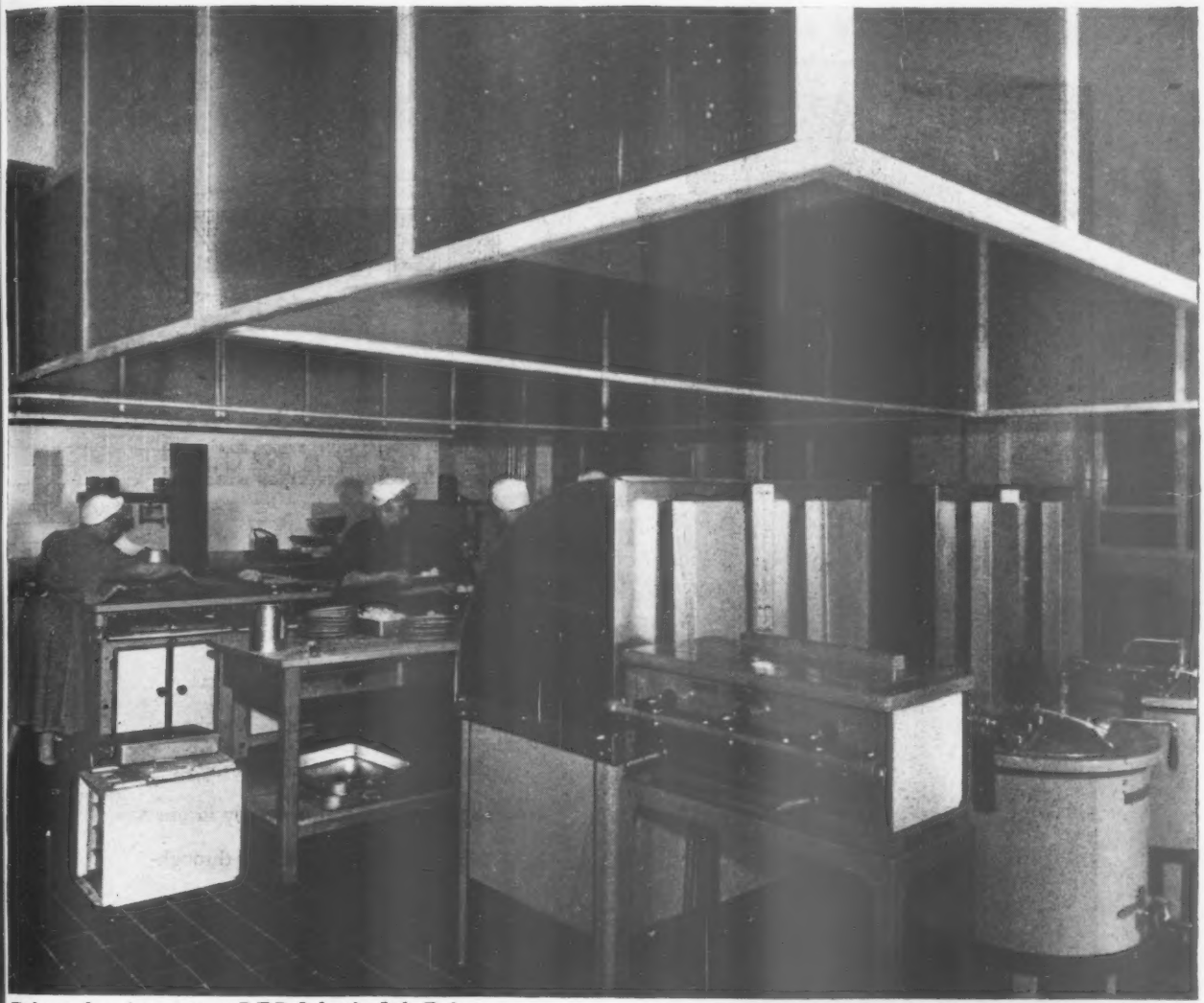

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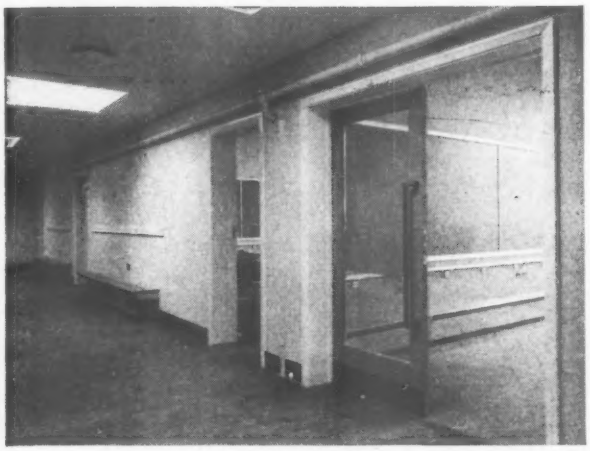

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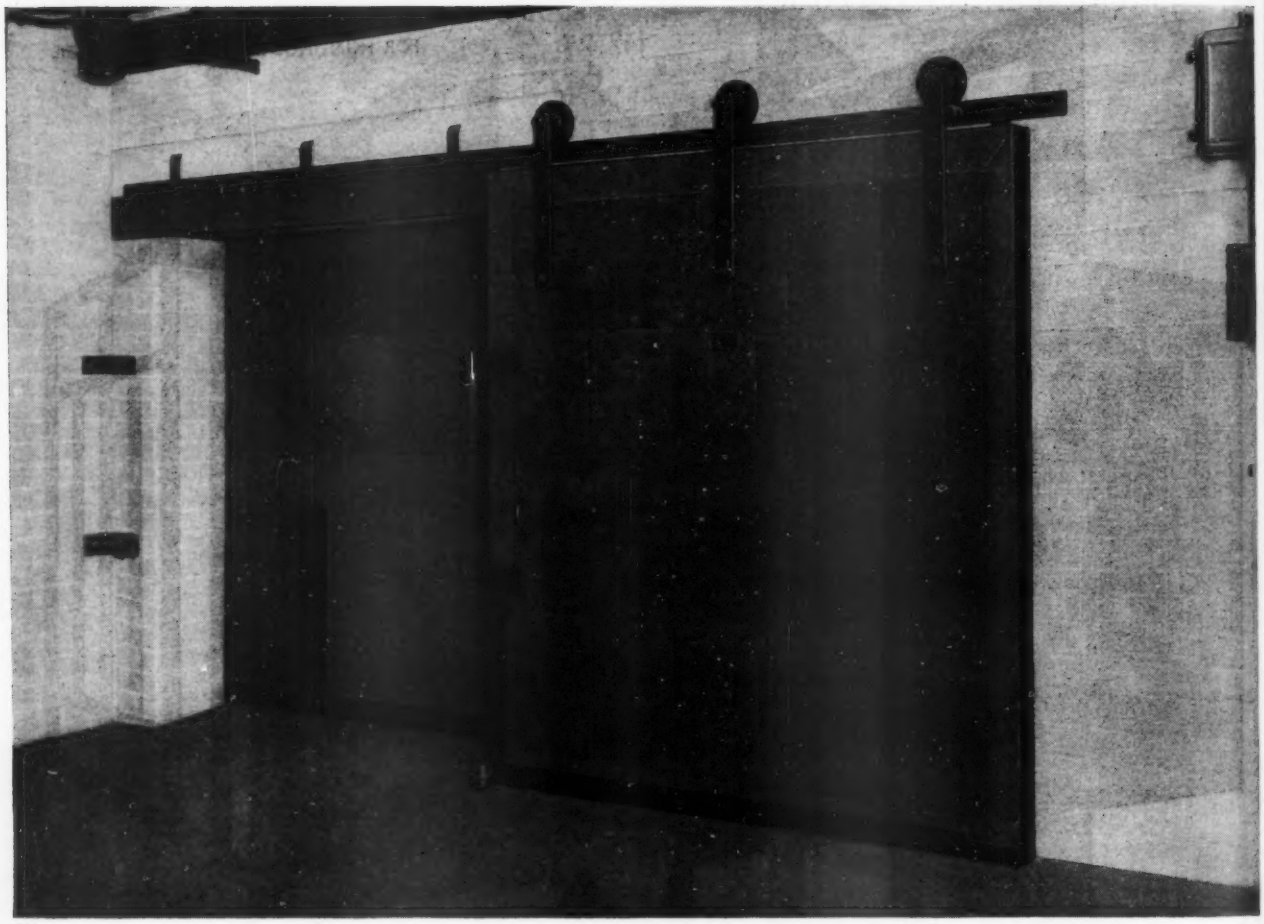

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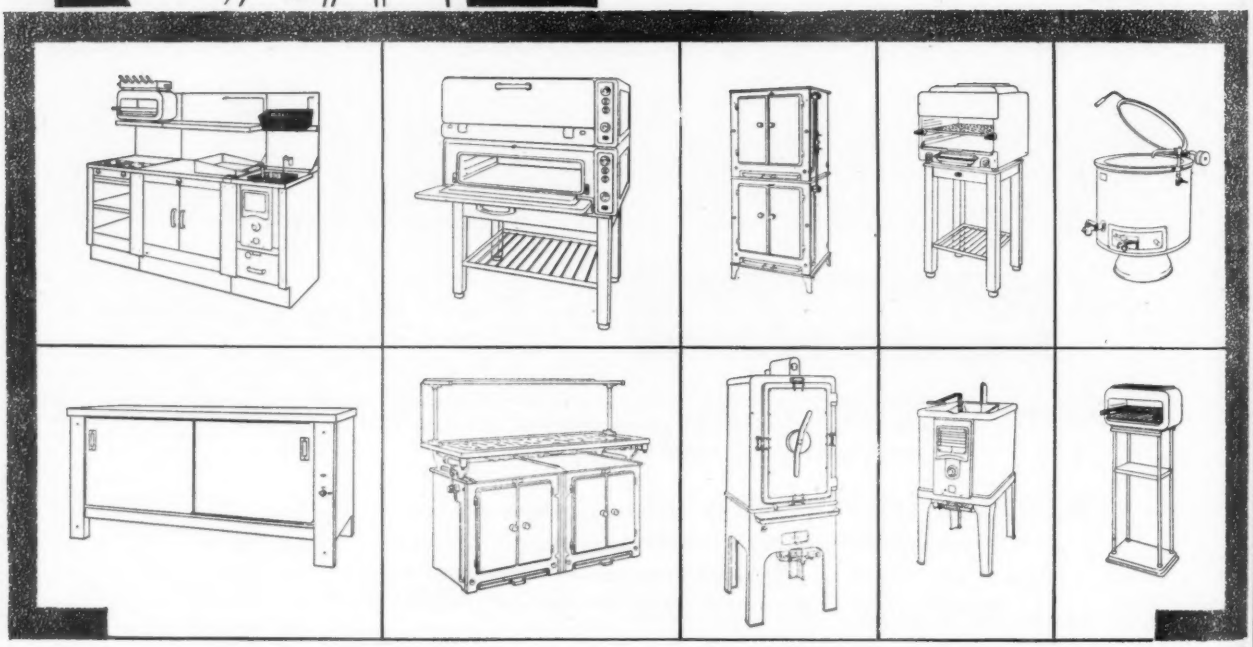

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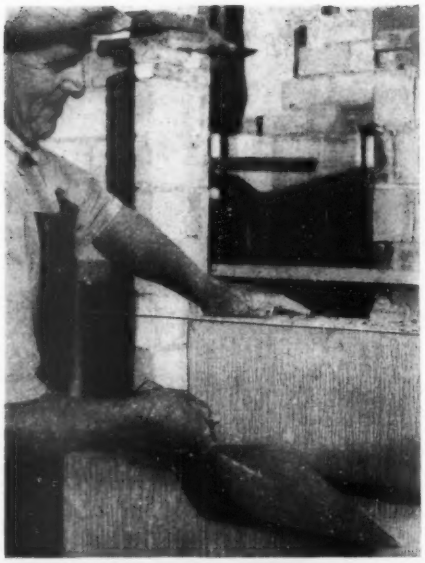

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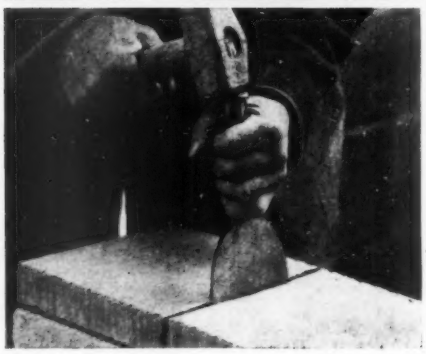

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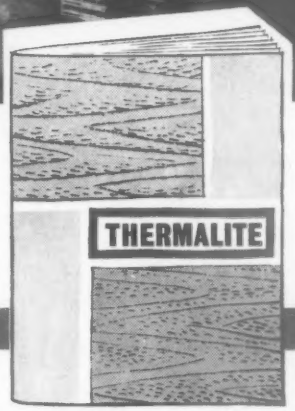

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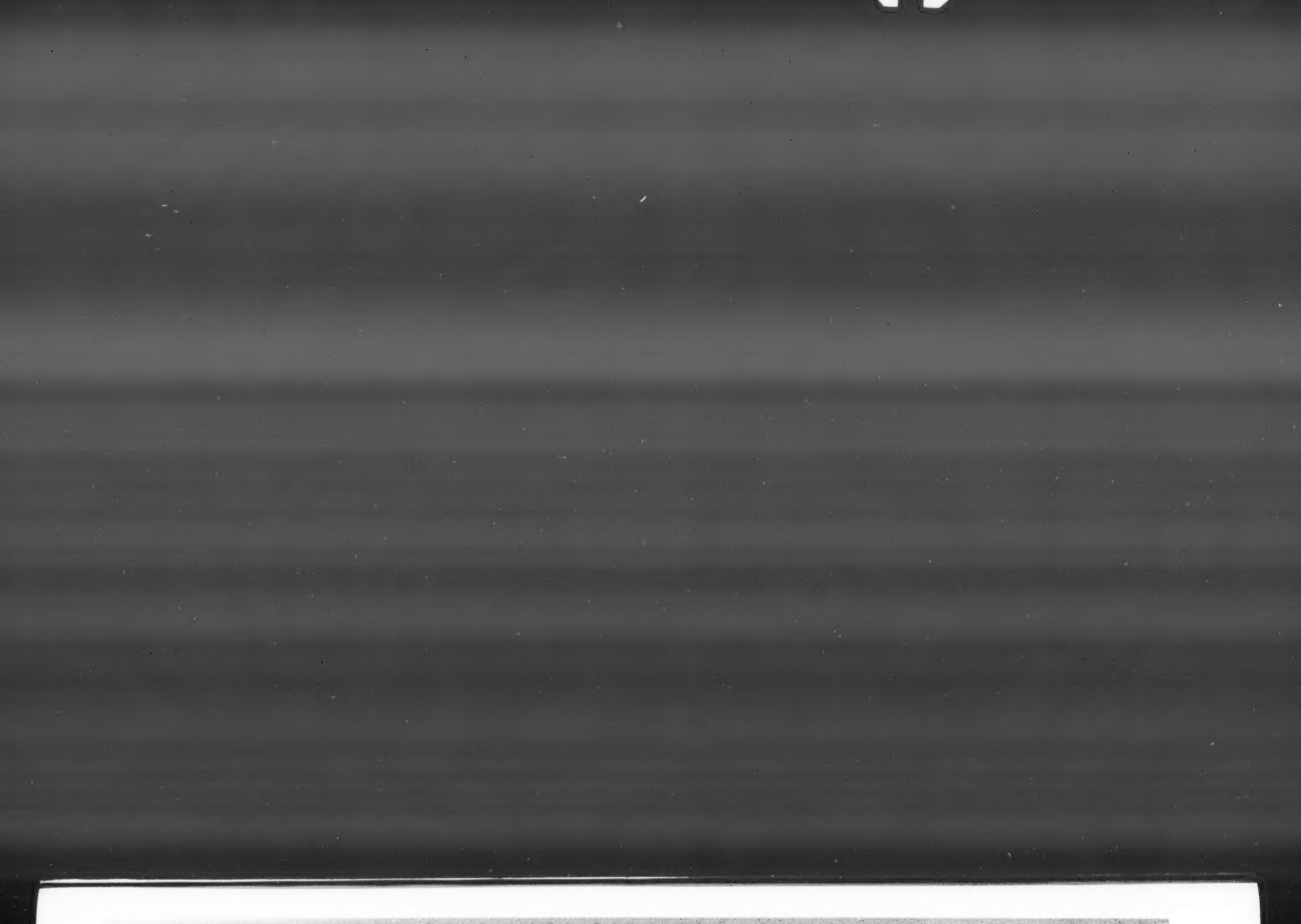

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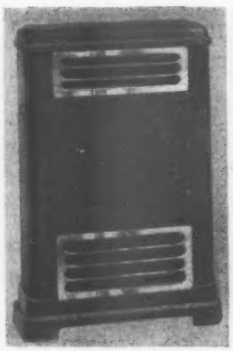

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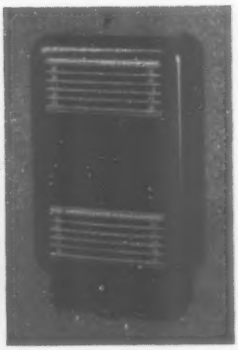

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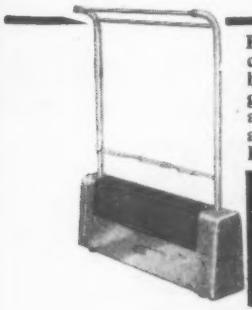

Harper No. 325 Gas Heated Towel Rail. Easily installed, compact and economical. A single luminous burner keeps bathroom towels warm and dry. A governor controls gas consumption (4½ cu. ft. per hour). Finished in ivory and green. Provision is made for screwing to the floor although it is stable enough to stand unsupported. Retail Price £7 3 7 (inc. P.T.).

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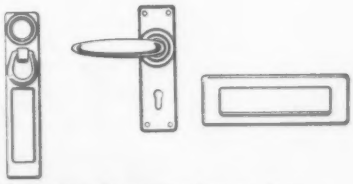
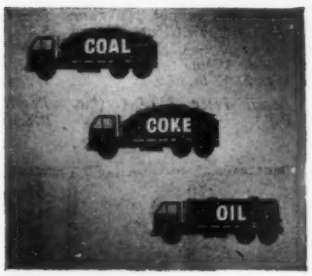


Harper's make a comprehensive range of door furniture in cast iron and finished in bronze lustre vitreous enamel to withstand exposure to severe weather conditions. May we send you details of the full range?

Hargreaves *in action!*



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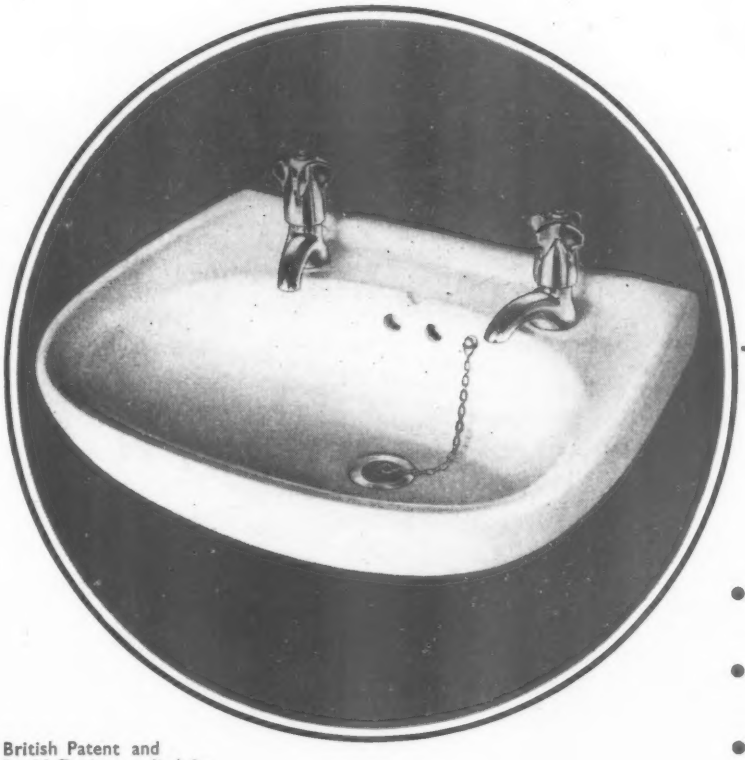
TWYFORDS "SOLA"

Lavatory

in

"CERAMANT"

Vitreous China



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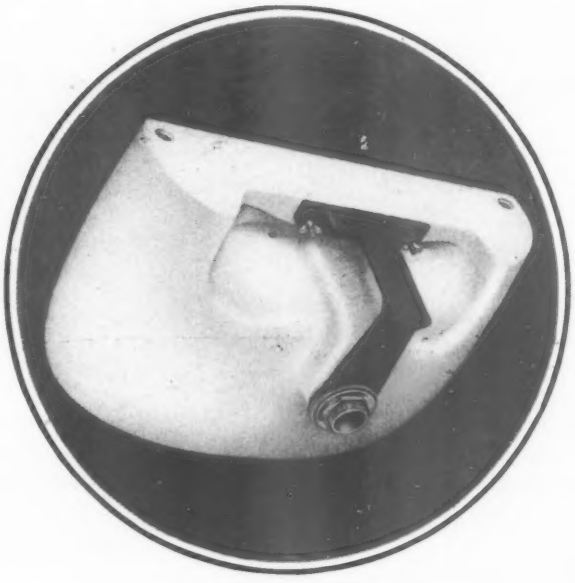

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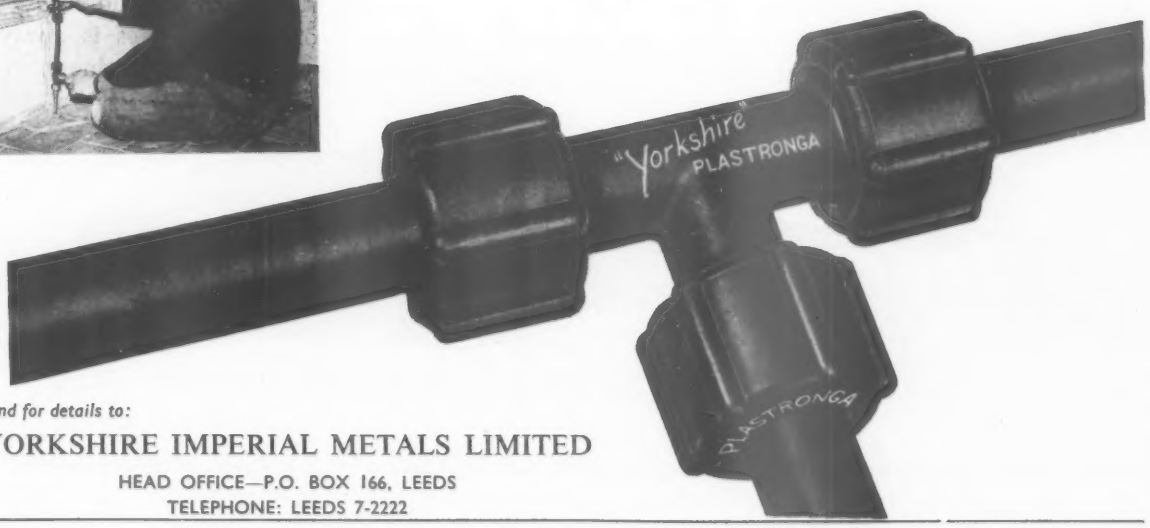

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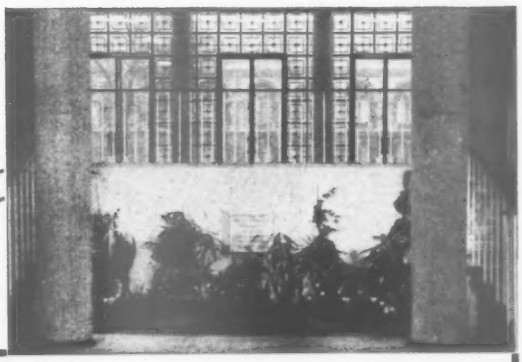
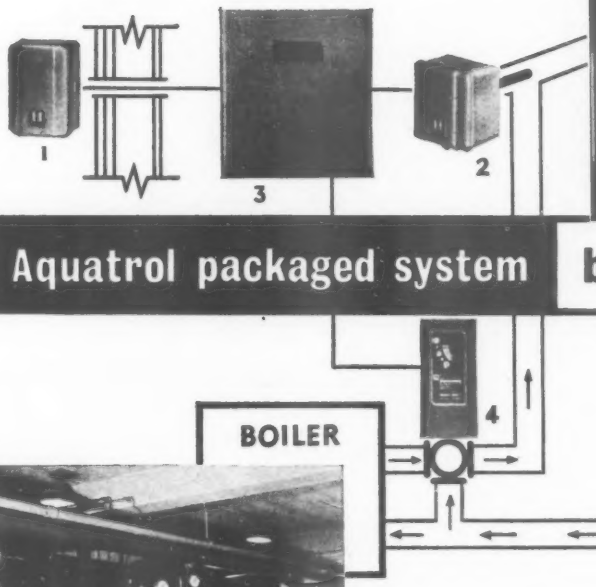
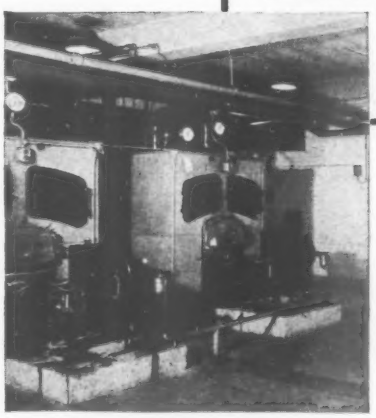




Aquatrol packaged system brings automatic control

to modest central heating plant



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	Sound Absorption Coefficients at frequencies (c.p.s.)					
	125	250	500	1000	2000	4000
Gyptone Acoustic Tiles to 2" x 1" battens at 12" centres	0.15	0.35	0.75	0.80	0.85	0.85
Gyptone Acoustic Tiles stuck to concrete.	0.10	0.20	0.50	0.85	0.85	0.85

Gyptone Acoustic Tiles are incombustible and possess Class 1 surfaces (B.S.476 : 1955, "Fire Tests on Building Materials and Structures"). Being porous, they provide good thermal insulation, one layer of tiles providing additional thermal resistance equivalent to 14 in. of ballast concrete or 11 in. of brick. For full information write for leaflet P.378.

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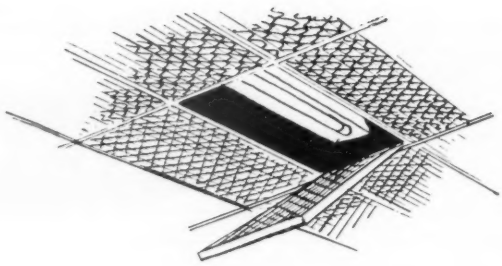

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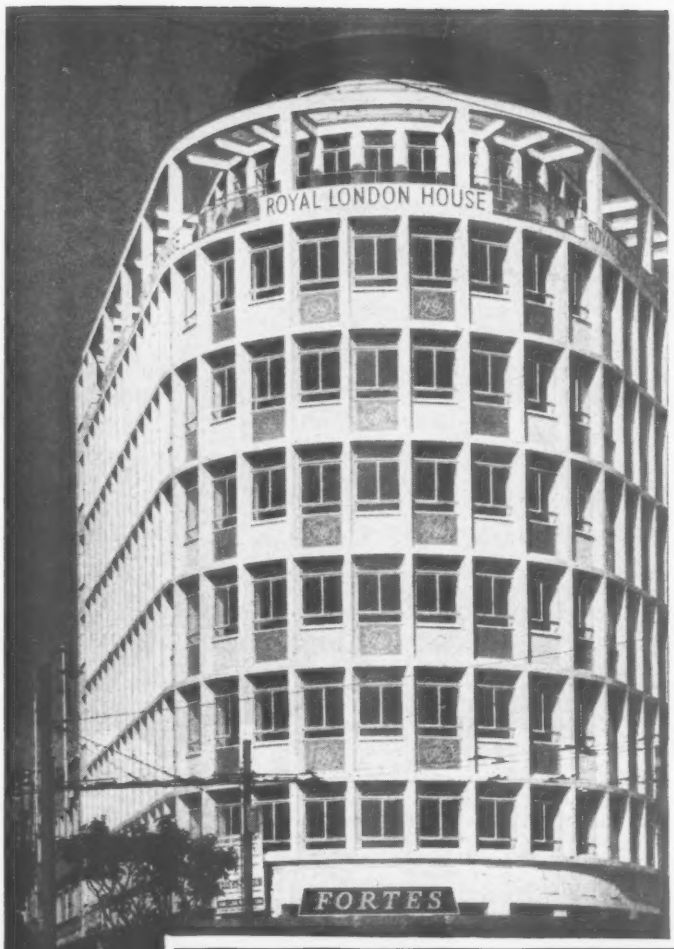

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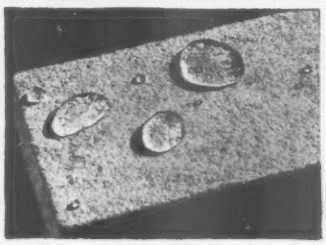
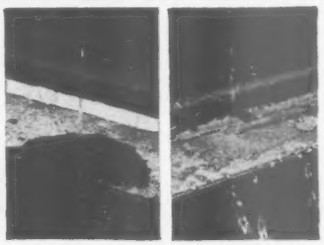
- ★ Prevent staining and streaking.
- ★ Do not block the pores of building materials, thus do not inhibit "breathing".
- ★ Improve the thermal insulation of buildings by preventing the absorption of moisture by the walls.
- ★ Prevent spalling or scaling due to frost action on concrete road surfaces and bridges.

The concrete facings of the Royal London House, Bournemouth, are treated with "P.W.A. Solution" based on DRI-SIL 29, supplied by Farrow & Ball Ltd, Verwood, Dorset.



Water will not penetrate silicone treated masonry but moisture from the inside, in the form of water vapour, can still pass through the pores.



Water bounces right off the silicone treated window sill on the right. The untreated sill on the left is thoroughly soaked as soon as water hits the masonry surface.

PROOF OF THE EFFECTIVENESS OF THESE TREATMENTS IS SHOWN IN THIS TABLE		% Water absorption after 24 hours' immersion	
		Initial Test	*Retested after 3 years' natural weathering*
Sandstone	untreated	7·0	6·2
	DRI-SIL treated	0·1	0·2
Cement Block	untreated	6·0	5·9
	DRI-SIL treated	0·4	0·7
Common Brick	untreated	20·0	20·1
	DRI-SIL treated	0·1	0·3

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Joseph Freeman & Sons & Co Ltd, London SW18
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John Hall & Sons (Bristol & London) Ltd, Bristol
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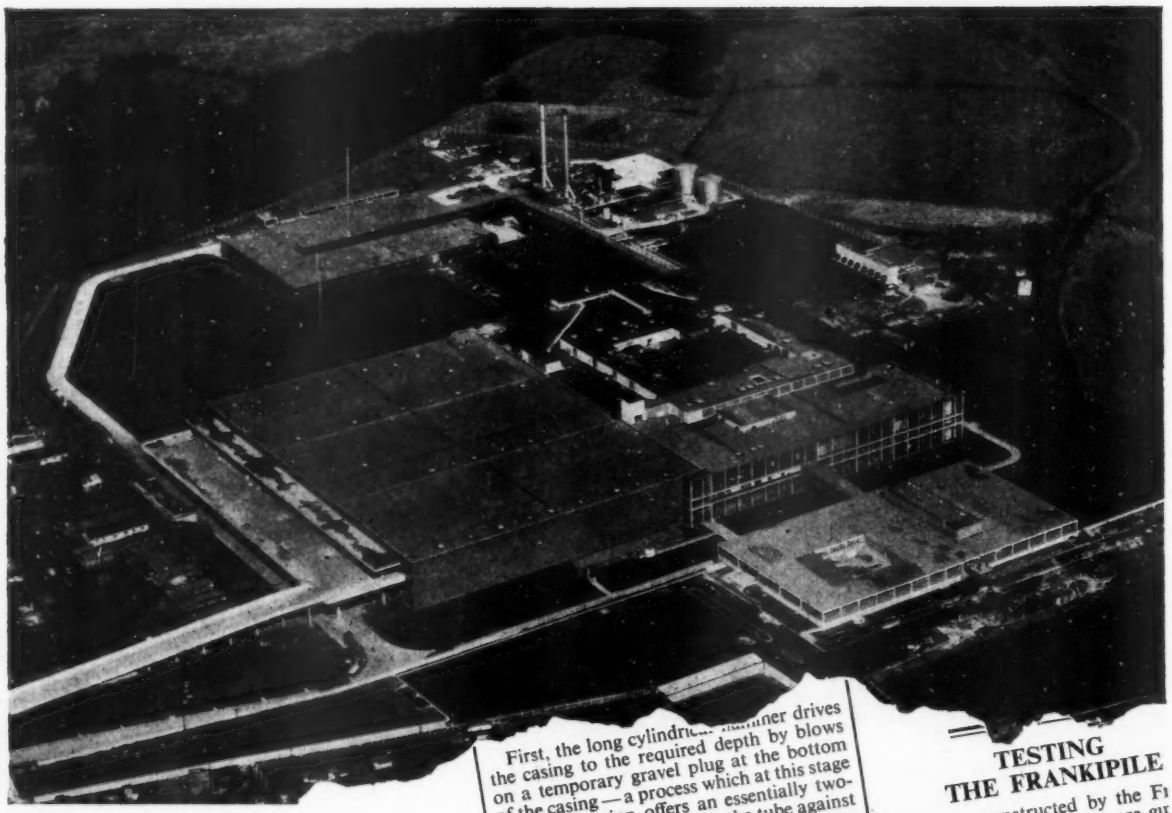

Photograph by courtesy of
H. J. Heinz Company Ltd.

ARCHITECTS:
J. Douglass Mathews
& Partners.

MAIN CONTRACTORS:
A. Monk & Co. Ltd.

CONSTRUCTING THE PILE SHAFT

he shaft of the pile is built up by placing
cessive charges of the semi-dry concrete
ix into the tube and ramming each charge
e tube is gradually withdrawn by means
cables attached to the lugs at its
his dual action forces the concrete
ls and outwards, consolidating it
se shaft which compresses the
subsoil as it is forced from the
he tube.
is thus greater in diameter than
f the tube, providing adequate
e steel reinforcement and at
ensuring the maximum skin
en its rough corrugated sur-
ubsoil which has already been
by the driving process and is
ressed again by the greater girth
itself.
the formation of the pile shaft a
on the hammer cable serves (in the
way as when the tube was driven) to
aintain the head of concrete necessary to
prevent the entry of water or any other
foreign matter. Should water accidentally
the heavy hammer jams in the
e has to be re-driven.
al assurance that a
ement ratio is always
ct this ratio is lower
em of in-situ piling.

FINISHING THE PILE

Concreting of the shaft can be stopped at any distance below ground level, always provided the shaft has attained the adequate length for stability. Except in

First, the long cylindri... hammer drives the casing to the required depth by blows on a temporary gravel plug at the bottom of the casing — a process which at this stage of the operation offers an essentially two-fold advantage. (a) It seals the tube against water on the way down; and (b) the long hammer drop ensures blows of greater intensity (although they cause less vibration) than would be practicable if the hammer were applied to the head of the casing. Obstructions in the subsoil are thus more readily overcome.

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TESTING THE FRANKIPILE

All piles constructed by the Fr
Compressed Pile Co. Ltd., are gu
to carry the working load specif
guarantee given by the company is s
by Lloyd's.

Piles are normally tested to a l
per cent greater than the designate
load, and one of several metho
employed to test them.

These methods are the dead l
which the weight is provided b
increments of kentledge bearing
the pile cap, and two types of
the first of these types the wei
test load of kentledge is gra
ferred on to the pile by means
in the second, the jack operat
kentledge but against the u
from adjacent piles.

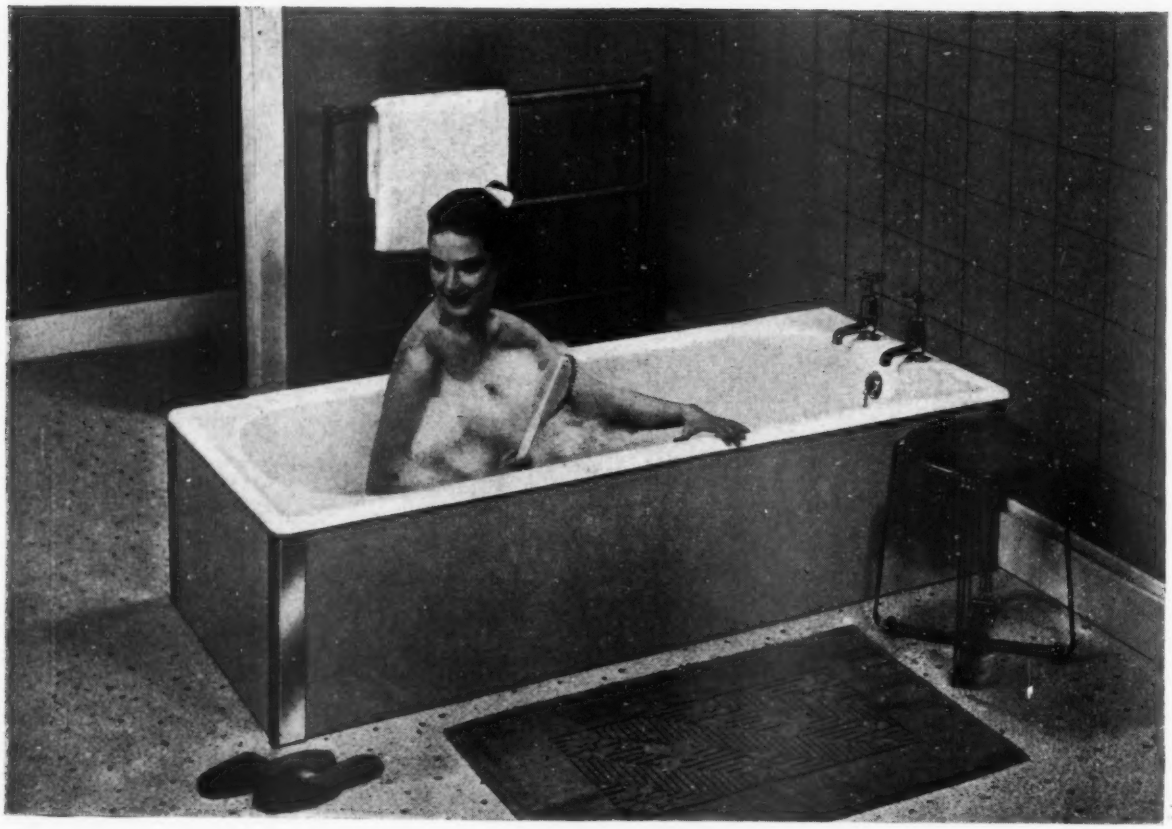
These methods can be relie
equally accurate results, the
them generally depending on
and the type of kentledge a

Whichever method is use
taken at agreed stages duri
incremental loading until
ing the full test load. The
allowed to remain on the
mined period, which is n

After the recording c
which may have occurred
the load is gradually re
ings being taken at each
way as when the load o
increased.

When the pile is comp
final reading is taken. Th
this and the reading un
is recorded as the perm

Piles are normally t
also be tested in grou



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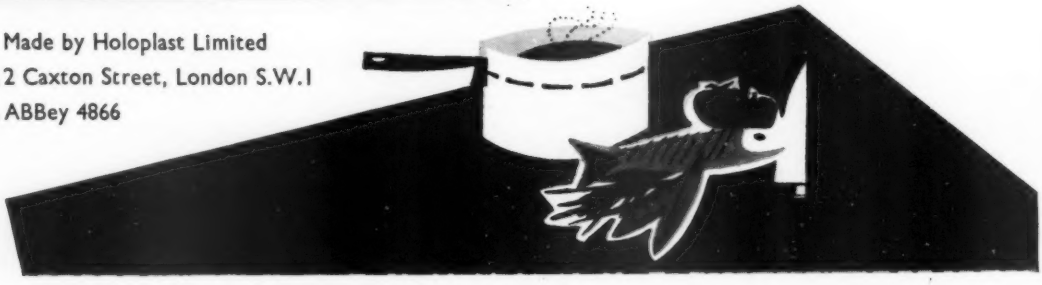

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AJ

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NOT QUITE ARCHITECTURE

THE 4-H MUSE

Lost Weekend

AJ, slippers, pipe of peace,
Reading, strange sensation.
Not a word of Arne or Mies,
Or even education.

*

Traditional Lyric

Selfish client would not pay,
Most ungrateful sentiment.
Now I know the meaning of
Differential settlement.

*

Chacun a son eventually

Ours is a Bau-house, ours is,
All run by electricity.
Ours is a Bau-house, ours is,
With tubular efficiency.
We only breath conditioned airs,
We ignore philistinic stares,
We're much too busy stacking chairs?
For ours is a Bau-, ours is a Bau-, ours is a Bau-,
House ours is.

*

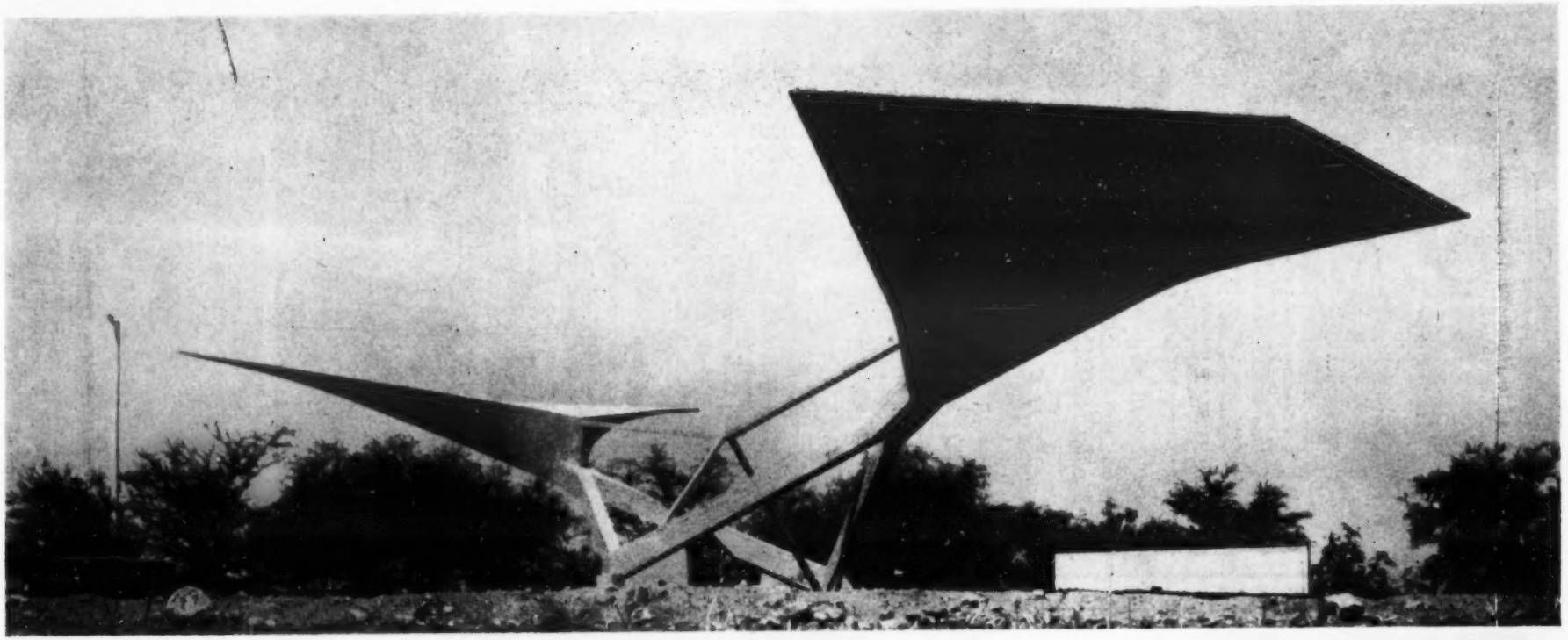
Lifeboat Institution

Critics do not sneer at me,
For I'm in the vernacular,
Nor even shed a tear for me,
As I'm in the vernacular;
Not a blemish, not a stain,
I'm content with penny plain,
Come Hell, High Water, Wind and Rain,
I'll stay in the vernacular.

*

Old Lament

The other day upon the site,
I saw a wall that wasn't right,
It wasn't right again today,
Tomorrow I shall stay away.



Fertile obsession

During his visit to this country on the invitation of the British Council and the Joint Committee on Structural Concrete, Felix Candela addressed an audience of over 1,200 at Friends' House on May 5. The occasion marked a welcome break with the established tradition of public pronouncements by international figures; with disarming and humorous modesty Candela acknowledged his early influences, made no great claims for the type of construction which he has so systematically explored—the anticlastic shell—and presented his considerable achievement (examples of which are shown above) merely as a kind of game played with gentle obsession. Left, Candela with Frank Newby (a senior partner of the late Felix Samuely) in *The Bride of Denmark* last week; top, sculptural structure at Tequisquitengo; above left, chapel with hyperbolic paraboloid roof at Mexico City; above centre, restaurant with eight intersecting paraboloids at Xochimilco; above right, church of La Virgin Milagrosa at Mexico City. For further comments and pictures, see pages 721 and 722.

Education again

First Year Student, fresh like jade,
Fully loaded with State Aid,
Should have listened to his mother,
In one year and out the other.

*

Song of the Lesser Building Inspector

Your horizontal D.P.C.
Is laid most optimistically,
—Sing Ho! for the life of an L.G.O.!
Your plumber has, I make a guess,
Never heard of B.S.S.
—Sing Ho! for the life of an L.G.O.!
I fear I must trouble you,
To change your S.G.W.
—Sing Ho! for the life of an L.G.O.!
I seem to sense a nasty smell,
Just above your G.F.L.
—Sing Ho! for the life of an L.G.O.!
And without bothering to tell,
You've altered our approved B.L.
—Sing Ho! for the life of an L.G.O.!
And now, Good Day, I must away,
All the rest seems quite O.K.
—Sing Ho! for the life of an L.G.O.!

*

City Square

Pencil line of S.Q. gossamer,
Drawing neo-Georgian house.
Hands which work like elder Angels',
Mental outlook of a louse.

*

Too easy

The client was ecstatic,
And his payment automatic,
When his better half caught sight,
Of that charming leaded light.

*

Sadness

Though murals, marble, mezzanines,
Were cool (beside an eyesore)
The interpenetrated space
Had contravened a byelaw.

*

Very Junior Assistant

To emulate you I will try,
Lasdun, Drake and Drew and Fry.
E'en though chances may be few,
Fry and Lasdun, Drake and Drew.
I will labour, for your sake,
Drew and Lasdun, Fry and Drake.
Till my sad heart beats its last one,
Fry and Drew and Drake and Lasdun.

*

Declaration

le Corb,
The central orb;
Mies van,
Few greater than;
Lloyd Wright,
Un peu not quite;
And Breuer,
Nearly theuere.

ALAN PLATER

influences, made no great claims for the type of construction which he has so systematically explored—the anticlastic shell—and presented his considerable achievement (examples La Virgin Milagrosa at Mexico City. For further comments and pictures, see pages 721 and 722.

The Editors

AA: EXPERIMENT OR EXPIRE

JUDGING solely by what AA President Clarke Hall has written to members (see page 725), the present AA Council has behaved with an irresponsibility which must shake everyone's confidence in the leadership of this once progressive institution. For four years the AA Council has formally been considering integrated training with other members of the building industry, and during the last two years it has twice been discussing such a venture with the LCC. For the last year the AA and the LCC have been discussing specifically " a partially residential college having a university standard of entry and training with courses for architecture, engineering, quantity surveying, engineering services and building."

Yet after two years' thought on the matter, giving no reasons or explanation, the AA Council resolved not to continue negotiations " if this involved association with the LCC."

A more insulting rebuff to the LCC, and incidentally to the AA president Dennis Clarke Hall (who has given much time and effort to the negotiations), would be hard to imagine, and is justifiable only if accompanied by an explanation of what demands by a great authority (widely admired for its beneficial influence) were unacceptable.

An early and major fault which the AA Council has made is in not telling its members in general terms the ideas it was pursuing (this need not necessarily have involved it in any breach of confidence) and by this normal democratic procedure testing the soundness of its policies and gaining an estimate of the support it would receive from members: a support constitutionally essential anyway if any radical changes were to be made.

A second fault was in equating the opinions of the advisory council with the views of the membership (incidentally some members of the advisory council are surprised to learn that their meeting expressed other than cautious approval of the venture) because the advisory council consists of the older type of privately practising architect who has little knowledge of, or sympathy with, public service and local government, while the many younger AA members know their potentialities.

It could be, of course, that the LCC's demands on the AA were so outrageous as to be unacceptable, though with the Ministry of Education acting as intermediary that seems unlikely. Or it could be that the AA has found an alternative way of achieving a similar end (because the AA has not abandoned the ideal of integrated training). But this also is unlikely or it would not be proposing a meeting of members " to discuss other ways and means " of achieving it.

No one can pretend that the LCC is the perfect partner for such an educational venture (one might ask: is the AA?) but it is only through local government that this integrated school is possible, and as a local authority the LCC is second to none. Its faults of cumbersomeness and red-tape are the

faults which modern society has got to learn to cure. They are evils to meet and expel, not to run away from. And that is what the AA appears to be doing.

The LCC has the material resources and the enterprise to make a success of integrated training—the training which has been wanted so long now by forward-thinking members of the building industry. It also has, in its own architectural and planning departments, the practical training ground which Peter Scher recommends in his article on page 730. The architectural school which can match the LCC, which can rise to the educational opportunities presented to produce a more efficient and effective building industry, will gain not only prestige but a nation's gratitude. It is sadly ironical that the AA, which has pioneered so much in the past, has now, apparently, lost its nerve. It remains to be seen how long the AA members will continue to accept the leadership of such a shilly-shallying secretive Council—or can it be that the membership itself is afraid of the implications inherent in joint training?

WASH AND BRUSH UP

ASTRAGAL, who is an old friend of Norwich, went back expecting not to be able to recognize Magdalen Street after its redecoration by Misha Black and local architects, under the Civic Trust. In fact it was its old curving bustling self, though a great deal better-looking: in other words, the experiment had succeeded, and had not simply been a chi-chi face-lift using fashionable lettering and colours. All good existing material had been kept, the selection being catholic enough to include—at the urgent prompting, I believe, of an *Architectural Review* visitor who saw the plans early on—the familiar black and gold fascia of the Home and Colonial.

*

One quite unexpected result was the good effect of the twenty or thirty per cent. of non-conformers, whether in lettering or fascia size or paintwork, who prevented any feeling of uniformity which would have been senseless in a chaotic individualistic shopping street like this. Best things: the decorated pubs and the way the overall colour scheme accentuates the shape of the street. Worst things: the application of a bright polychrome to buildings, like Gurney's Court or the doorcase of No. 44, which didn't need any jazzing up: here the local red-brown and buff would have let the architecture speak for itself.

LAMB CHOP

A new experiment was tried out last week at the AA School, in which an architect would describe one of his recent buildings and the students would then be free to ask questions about it and criticize as freely as they liked. Erno Goldfinger was the first lamb to come to the slaughter with a block of offices in Birmingham (illustrated in the *Architectural Review* last September). Unfortunately he had only an hour to spare and spent the first forty minutes describing office procedure from receiving client's instructions through to tender stage and settlement of final accounts. This was no doubt a salutary experience for the younger generation, although the description was necessarily elementary. It evoked only three questions:

*

"How do you get such good concrete finishes?" Answer: "I am surprised you find them good."

*

"Do you use pre-cast concrete as permanent shuttering?" Answer: "No."

*

"Are all your drawings prepared before you go to tender?" Answer: "I think it is a good thing if you can."

*

Then ten minutes of coloured slides of the building. Pause for questions and criticism. No questions, no criticism.

A BID MUCH

There's a curious new form of architectural competition that needs looking into by the Competitions' Committee of the RIBA. It appears that the Lions Yard development for Cambridge was the winning scheme (by Stone, Toms and Partners for a development company) in an unofficial competition for developers and their architects. Something similar has been happening at the Elephant and Castle, where the LCC invited bids for the site (*i.e.*, offers of ground rent) and designs.

*

In this sort of competition there are no rules, no assessors, no public announcement, and no publication of the entries. Are the winners chosen because of good bids or good designs? It is true that a good local authority might be glad to hush up the fact that it was taking a good design rather than a good rent. But there *is* a more cynical way of looking at the whole business.

OFF PARADE

The Anti-Uglies, who have already demonstrated against Vincent Harris's neo-Renaissance scheme for Kensington's public library (under construction) and its civic centre (to follow) got a good audience when they held a meeting to discuss these schemes at Kensington Town Hall last week. It was a good discussion, kicked off by

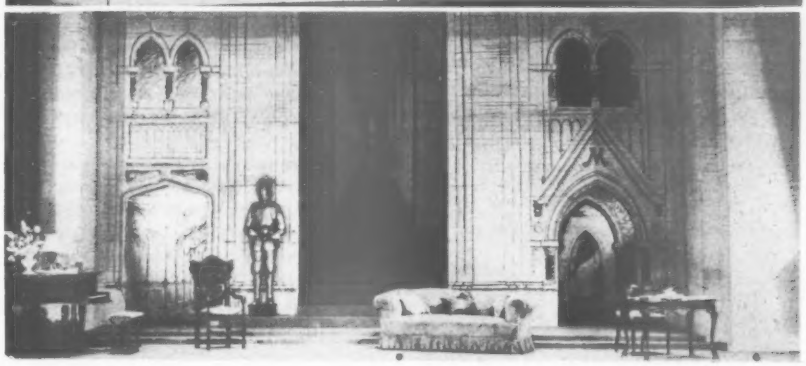
J. M. Richards, Ian Nairn and Christopher Gotch, who is architect-secretary to the New Hampstead Society which was set up, successfully, to fight off an impending neo-Georgian civic centre. This was a stimulating meeting, even though no-one turned up to speak for the borough council, but I hope the Anti-Uglies will leave discussion meetings to other bodies who need them. The value of this enterprising organization is in its demonstrations and processions, which have aroused public interest more than any speeches could possibly do.

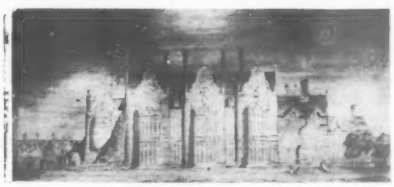
ENHANCING HANTS

Although the Caltex Oil Company, which has the backing of the Board of Trade, has withdrawn its application for permission to build an oil refinery on the east shore of Southampton Water, it is said that the company may be looking for another way of achieving its ends and that it may prefer to raise the principle as an objector at the Green Belt enquiry. Everything must be done to keep the refinery away from one of the last surviving areas of rural landscape in southern England. You can all help to safeguard this area by supporting the plan for a Solent water park which Sir Hugh Casson and Geoffrey Robson suggested in the *Observer* and the *Review*. If you haven't already subscribed to the Society for the Protection of the Solent Area (14, Cumberland Place, Southampton) then do so now.

NOT TO MENTION THE "OVERALL PLANS"?

The British Trade Fair to be held in Lisbon this summer is designed to put Britain at the top (above the Germans) in Portugal's foreign trade. How will it be designed? Who will design it? The Federation of British Industries didn't think of answering these questions in its handouts at last week's Press conference. A questioner managed to find out that "the general scheme and the grand design are in the hands of John Lansdell" who is also responsible for co-ordinating the designs of individual stands. But we still don't know what the "general scheme" and the "grand design" are, and I was glad that Sir Norman Kipping, Director-General of the FBI, had the grace to admit that more information should have been available at the conference. It is quite clear that the FBI don't rank design very high.



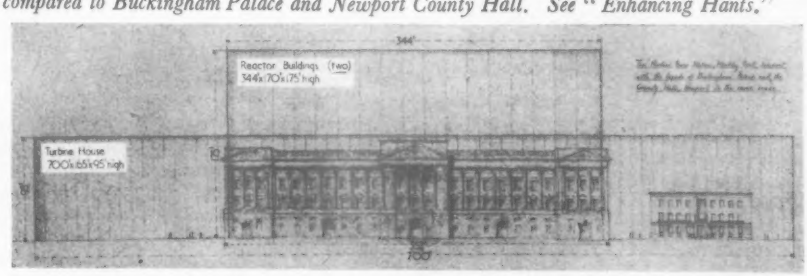


These are three of Sir Hugh Casson's designs for John Osborne's much criticized musical The World of Paul Slickey *at the Palace Theatre. The keyhole drop symbolizes Slickey's profession as a gossip-column journalist. The Victorian Gothic interior of the Mortlake ancestral home is the scene of much adultery, political and religious derision and sex change. Architect members of the audience may be more interested, though, in whether the Victorian Jacobean exterior, left, could accommodate such a vast interior as the one above.*

VICTOR VANQUISHED

At the moment the ICA's gallery is hung with neatly-made abstract works of the sort that go with the Bauhaus tradition all over the world. There's nothing new on view at this exhibition of the Basic Design courses at Leeds College of Art and King's College, Newcastle, so I turned to the catalogue for illumination—but didn't get it. Only one of the contributors, Richard Hamilton, could be bothered to explain what was to be learned from any particular exercise. An air of woolliness pervades the catalogue and a lot of it slopped over into a discussion the ICA held last week—a discussion in which there was a lot of "what's-so-new-about-it" hostility both from floor and platform. I don't know if Victor Pasmore, described as the impressario of the show, defended it because anything that can be said against Charles Eames as a speaker can be said about Mr. Pasmore, only more so. It's a pity he didn't make better sense because, as æsthetic adviser to Peterlee new town, he may well have some effect on architecture as well as art.

Lord Mottistone's drawing (from the Daily Telegraph) *illustrates the bulk of the new atomic power station at Hamstead, Isle of Wight—another danger to the Solent Area compared to Buckingham Palace and Newport County Hall. See "Enhancing Hants."*



OVER-RATED TVA ?

Another new book—smallish, although it costs more than seven dollars—deals with *The Building of TVA*.* The achievement it chronicles is, of course, tremendous, and is still the model and example for all other regional development schemes, with its comprehensive plan that transcended local and even national politics.

*

But did we perhaps over-rate a lot of TVA architecture? The illustrations in the book fall into two groups—engineers' structures which still live up to the claims made for them and architects' structures which mostly don't. There are examples in *le style Corbu* that have dated irretrievably—which may be the reason why the book describes them as still "modern" today. So much for all the timeless engineering æsthetics we used to hear about. I suppose only time can tell what is timeless.

*

VALUE FOR MONEY

Kenneth Campbell's appointment as the LCC's principal housing architect, which was announced last week, provokes some thoughts on the LCC's salary structure. Campbell's salary rises to a maximum of £2,650, for which he accepts responsibility for a programme running at about £10 million a year. His predecessor, Whitfield Lewis (to whom he had been deputy), has moved to Middlesex as county architect, where his salary is understood to rise to a maximum of £4,750. The Middlesex programme is about £3·5 million a year.

*

Admittedly a county architect has wider responsibilities than the LCC's housing architect. But the figures make it only too clear that the LCC does not believe in rewarding merit and responsibility: inevitably, the discrepancies between LCC and Middlesex salaries are repeated further down the scale. Is it any wonder that the LCC has a growing number of vacancies in its architect's department? If the LCC wants to retain the men who still give it a very high reputation, and to attract good men from elsewhere, it had better do something about the money.

ASTRAGAL

* Louisiana State University Press. $7·50.

STUDENT SECTION- BASA

Letters to the Editors :

Obscuring The Issue

SIR: I hesitate to add to an already lengthy correspondence on the BASA Supplement of March 19 but I feel that the protestations of some of your readers are obscuring the value of these articles.

If this section does seem over-articulate to some they would do well to remember their own student enthusiasm and to re-examine their personal contribution to architecture since that time.

This experiment is an opportunity for architects and students alike to exchange thought and opinion on matters of common interest and in looking forward to the next issue I hope that readers will think twice before making further pedantic criticism of the literary style of its authors.

GORDON JONES, A.R.I.B.A.

Grosall

The Cambridge Conference

SIR: The Cambridge conference, which promised to be a focus of considered socio-architectural thought, has passed away leaving only the usual conservative platitudes. There were times when the national inertia was overcome and student groups gathered to examine the evolving behaviour patterns of society.

Nevertheless these did not mirror the tone of the conference accurately. Despite the dynamic beginning given by Percy Johnson-Marshall and the pertinence of W. D. Pile's paper "The State as Client," this latest enthusiasm was successfully baulked by succeeding speakers, who impressed only as spokesmen of the Establishment, aquiescing in the *status quo*. Because of this complacency the framework of the discussion was small-minded and failed to encompass the broader aspects implicit in the theme of the conference.

Moreover, students rightly felt it presumptuous to speak on a theme which is necessarily outside their field of experience. All this tended to frustrate active student participation and many of the practising architects present seemed unsympathetic to the aims of the conference. The members of the building trades must be absolved for they played their part concisely, if a little unimaginatively, only to receive in turn some shameful cross-examination. However, it would be wrong to ignore the directive weakness of the chair—no doubt due to inexperience rather than ineptitude. In the final analysis a consciousness of the strong current of student ideas must give hope for "better luck next time."

If it has done nothing else this conference has shown, most forcibly, the need for a re-appraisal of our position as architects in present-day society. Perhaps for those of us for whom the cultural atmosphere of Cambridge was a refreshing stimulus the possibility of a co-ordinated student effort became no longer the dream of our provincialism but an attainable reality.

V. A. C. TRAUB
F. A. WALKER
I. M. WILL

Glasgow School of Architecture

SIR: Congratulations to BASA for organizing the Cambridge Conference so well and for approaching the subject of architectural education in such a workmanlike way.

The picture of the profession given at Cambridge by both clients and architects could hardly be called coherent and it is little wonder that students became angry and confused by this prospect of their future. The speculative builder and his architect serving one section of society and the Local Authority architect serving another both tend to have a rather narrow view of the needs of society as a whole and the value of this conference lay in showing these views, and others, in contrast with each other and in allowing a few fights to take place.

The qualities and background knowledge needed to work effectively in such varied organizations as the Civil Service, Local Government, Industry, the All-In Service, Finance Companies, and the small private practice tend to be very different. They are dictated by the chaotic, competitive system surrounding us today and are so conflicting in their requirements that it is difficult to cover them by architectural education. The only common denominator immediately apparent is technical competence and even this can be interpreted in a number of ways according to the section of society being served.

No common direction is provided by the State in the form of economic or planning policies and it is this that has helped to produce a system of teaching outside the context of society. Architecture is usually taught as being an end in itself because no other commonly acceptable end is obvious. As a result of this few sections of society are particularly pleased with their architects. Fortunately, organizations such as the Ministry of Education would contradict this statement but as a generalization it is only too true.

One way of helping to overcome this basic defect in our position would be to associate architectural education far more closely with all other forms of university and college education. The image of a profession largely ignorant and out of touch with other sections of society, given at the BASA Conference, must not be allowed to continue. It is our isolation that brings us into contempt and which is beginning to make us redundant.

One other major impression of the conference is that of the profession out of touch and in conflict with even the Building Industry. It is to be hoped that the second conference will be as successful as the first and will help to clarify this issue.

JOHN NOBLE, A.M.T.P.I.

Hemel Hempstead

The great architect engineer Felix Candela is now inviting this country under the sponsorship of the Joint Committee on Structural Concrete and the British Council. We have asked an engineer and an architect to comment on the first lecture he gave on thin shell structures at Friends House, London, last week.

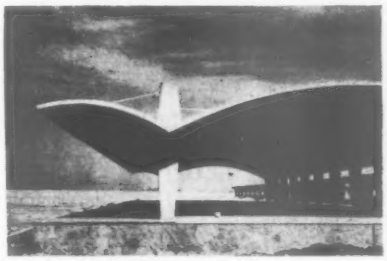
FELIX CANDELA

An engineer writes :

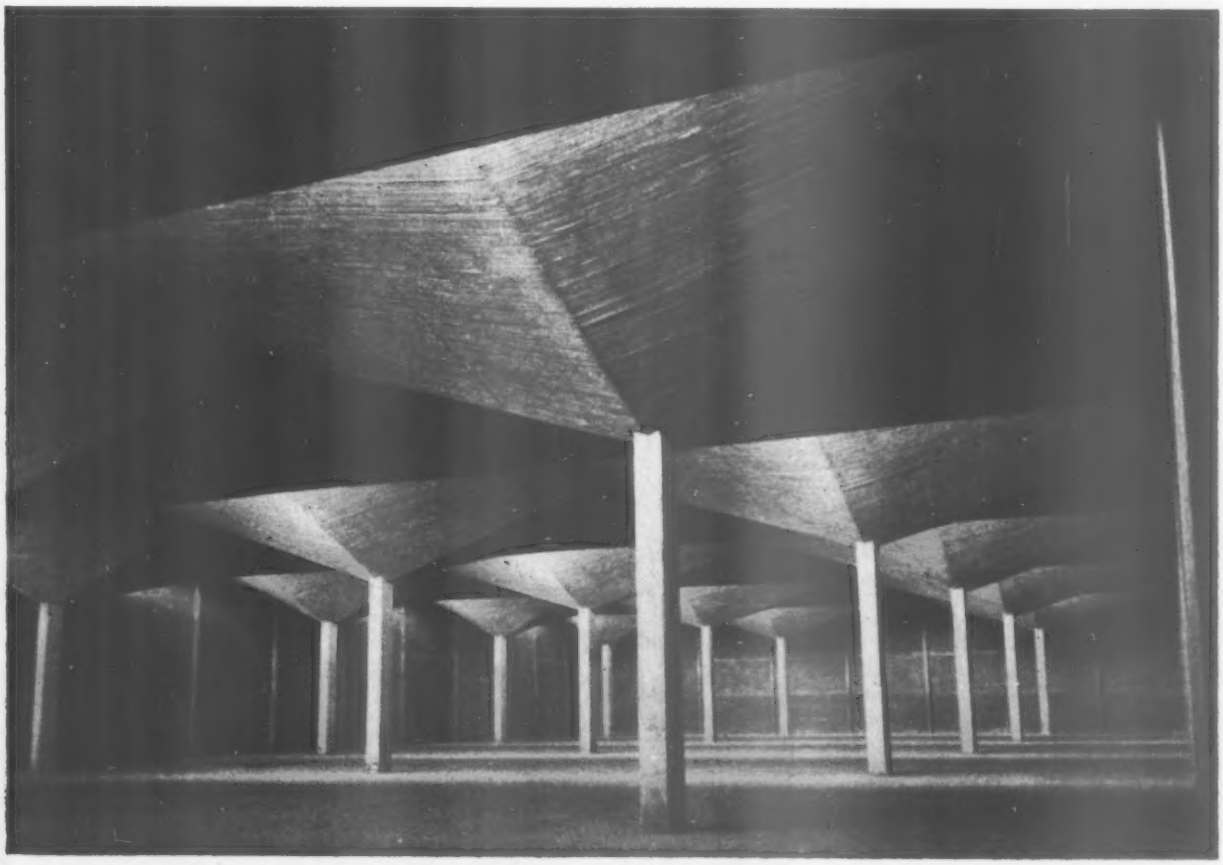
During the last few years hyperbolic paraboloids have become accepted structural forms mainly studied and elaborated by architectural students. A few roofs in timber and reinforced concrete have been built in England and no doubt after Felix Candela's visit many more will be attempted. For he is the pioneer of concrete shells of double curvature particularly hyperbolic paraboloids and saddle roofs. In Mexico alone he has conceived, calculated and built many hundreds of such roofs. They are all single storey buildings of in situ reinforced concrete. But why should all this development take place in Mexico? No doubt the building codes are lenient, the cost of labour very low and reinforced concrete the normal material for construction. The overriding reason is that this delightful yet serious individual Felix Candela works in Mexico. He has studied architecture yet has a searching interest in mathematics and structural analysis. He has always been excited by shell forms and in his own words "started in the beginning to copy existing structures." A tseiphon roof was his first structure and was followed by a conoid, a folded slab, a short and a long span barrel vault, and a dome before he built a hyperbolic paraboloid.

It is very significant that he experimented with other shells before aiming at hyperbolic paraboloids. When you discuss his structures with him today you realise that his early buildings taught him a great deal about the material and the inadequacy of recognised methods of structural analysis. That his early buildings do not appear quite like the ones he copied shows his immense inventive capacity. As an architect he builds the shapes he likes, as an engineer he checks what approximately might happen structurally and as a contractor he realises the need to build economically. He stands today with Nervi as one of the two most important creative architect-engineers. They have in common a real understanding of what they are doing—they are able to explain and feel the simplicity of structure. The students at the University in Mexico City are fortunate to have Candela as a teacher. His views on the method of teaching are to keep explanations simple and to build up structures from accepted visual forms such as suspension cables and arches.

Felix Candela has not abandoned calculation but has put it into its true position—he appreciates and uses electronic computers in analysis as a mechanical aid and as a time saver. He energetically explains how the deflections of shells cannot be calculated. If in a hyperbolic paraboloid he finds undue deflection in certain areas, the next time he builds another, which maybe is the following week, the concrete in that area is increased intuitively in thickness. In fact you might even say that Candela has become a true craftsman in in situ reinforced concrete. To him no other material for building could be considered. He adds



Above, Customs Sheds, Mexico City (in association with architect Carles Recamier), and below, Celestine's warehouse, Mexico City.



that multi-storey framed buildings are too difficult to understand. It is not the case. Felix Candela only designs and builds what he enjoys and today thin concrete shell structures are his field of delight. He comes as a breath of fresh air and one hopes we will see more of him in the future.

FRANK NEWBY

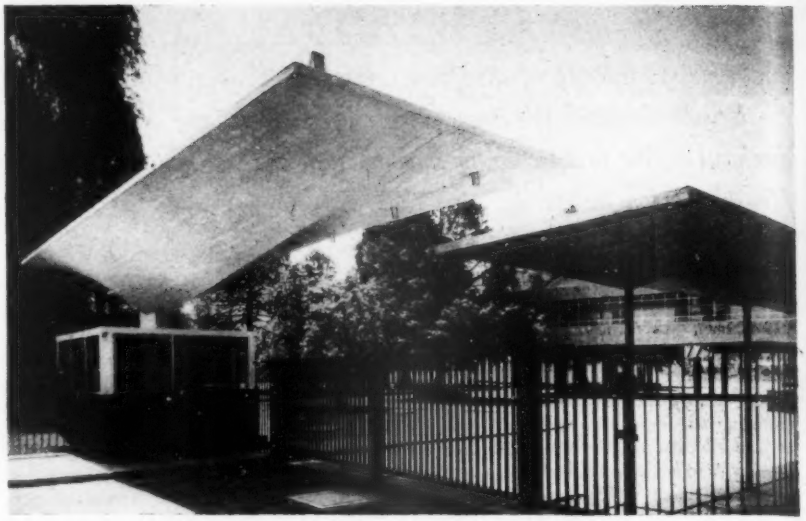
An architect writes:

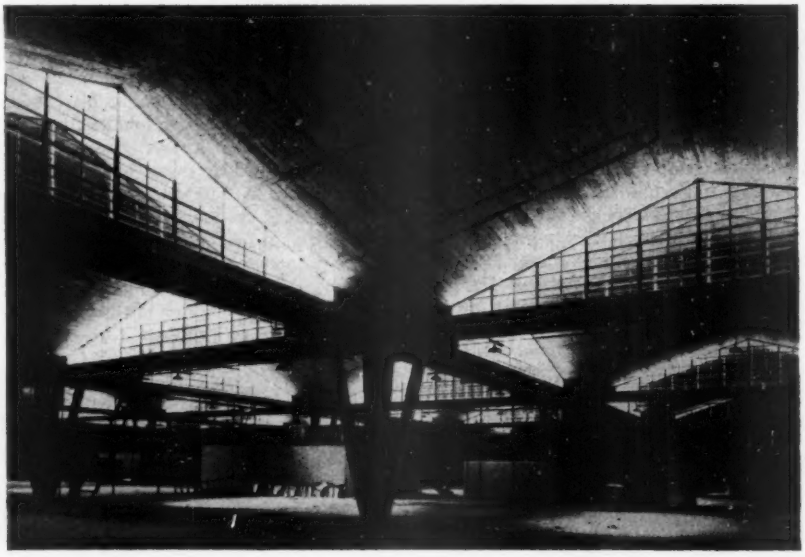
Surrounding most of the internationally famous architectural figures there is a self-invented aura of mystery. Excellence of performance in maturity appears to carry with it a compulsion to prove good pedigree: early influences are carefully selected, embarrassing early works suppressed, and the development of the master's ideas studiously rationalized into some retrospective system. A corollary of this unnecessary process is the development of a *persona* for facing large audiences, and platforms in this country have, in recent years, seen professional dignity, humorous condescension, and demi-godliness.

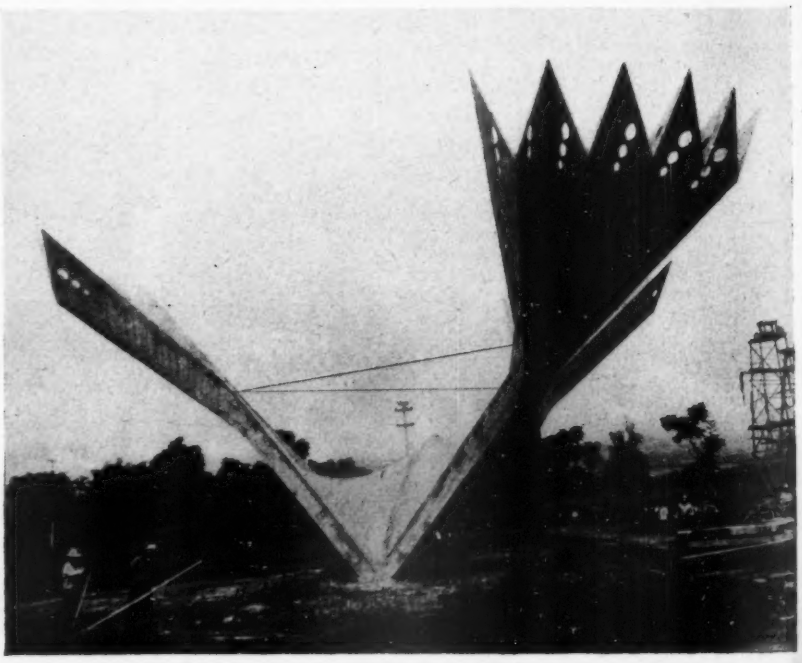
Felix Candela proved to be a welcome exception. At Friends' House on May 5, where he was speaking at the invitation of the British Council and the Joint Committee for Structural Concrete, he started by expressing a doubt whether he had any particular vocation to build at all ("I might as well have become a chemist"). His interest in shell structures started when he was a student—he was trained as an architect in Spain—but, he admitted, he had then found the French and German literature on the subject too difficult. When he described his first experiments—carried out many years later—with barrel shells and domes and later with anticlastic forms, he asserted with disarming honesty that he merely adapted things other people had done ("I copied that from a book I have"). With the same modesty, as the colour slides showed his structures getting progressively more complex, he continued to insist that they were all really very simple, and of necessity, because he could not calculate complicated ones.

However this may be—and he is said to be a brilliant mathematician — Candela's achievement is unique, and spoke for itself sufficiently to bring two long rounds of applause from the audience. Even if the anticlastic shell is a simple basic idea and not his own idea in the first place, nevertheless he has explored and exploited its possibilities as a *plastic* tool in a way which has a parallel only in Naum Gabo's work on similar forms in sculpture. This is, of course, leaving *structural* criteria aside; but here he makes no claims except that the form is versatile, and fairly cheap.

R. M.







The photographs on the right show, from top to bottom; entrance canopy to Ciba laboratories (in association with architect Alejandre Priele); Herdez factory, San Bartoli; structure in the Plaza de les Abanices, Mexico City.

RIBA

President to see Minister

Basil Spence, President of the RIBA, is to meet the Minister of Transport, Harold Watkinson, at the latter's request, to discuss the RIBA's concern about the motorway programme. This was announced at the RIBA press conference last week by Richard Sheppard who explained the stage reached by the RIBA in its attempts, so far unsuccessful, to secure representation on the four study groups set up by local authorities to study their urban road programmes.

The Minister of Transport has himself written to the local authorities in the Midlands and West Riding of Yorkshire on the need for them to draw on "the best possible professional advice," and to consult architects and planners at the earliest stage. Northumberland County Council and Manchester City Council have written to the RIBA emphasizing that the study groups were confined to an assessment of traffic needs for 20 years and preparing a phased traffic programme. Both councils say that this raises no architectural considerations. The RIBA Council is writing to them to point out that it is precisely at this stage of advance planning that the architect should be brought in—even if it is only a fact finding study.

It was reported to the Council that the Essex, Cambridge and Herts Allied Society have written to every MP in their area on this question, and have had sympathetic replies. The Minister has, in consequence, sent a letter to a number of MPs in which he carefully emphasizes the need for "the best professional advice," but delicately avoids using the word "architect," and says that he cannot insist on architectural representation on the study groups. In this letter the Minister also explains that the study groups are studying traffic needs, not planning urban motor roads, and adds that "the financial ceilings are such that local authorities will probably concentrate on improving existing roads rather than imaginative schemes for urban motorways."

Other news from the conference was:

Improvements are being made for the reception of visitors at the RIBA. A reception desk is to be installed in the hall, and a waiting room provided.

The Executive Committee has "thrown out" the Science Committee's proposal to initiate a technical information service to be known as *RIBA Notes*, because it felt that more work ought to be done on it. The matter will come before the Council soon. The committee set up to go into the recommendations of the Oxford Conference on education has completed its work, and wound itself up. Its final report comes before the Council next month. Mr. Sheppard vouchsafed the opinion that the report "skirted round the question of the two-tier profession."

Constitutional Committee's Report approved

The RIBA Council at its last meeting approved recommendations 5 to 9 by the Constitutional Committee. We publish these recommendations with the Committee's observations on each. The first four recommendations have already been approved and published.

Recommendation 5

That there should be no differentiation by classes of membership (as regards membership of Council).

This recommendation in our Interim Provisional Report met with overwhelming support at the Special General Meeting. Of the Allied Societies who reported on this subject, nine were definitely in favour and seven against. Others were undecided. Many members expressed the view, with which we agree, that the Council should review the whole position of the Fellowship Class.

The following arguments have been put forward against the recommendations and in favour of retaining a particular quota of seats for Fellows:

(*i*) As a class, Fellows constitute a group of members who, by the conditions of their election, are known to have had considerable experience and responsibility as principals.

(*ii*) Because Fellows constitute numerically the smaller class, there would be a danger that straight, open elections could result in the return of a Council composed entirely of "assistants," in the Associate class.

(*iii*) To abolish the quota of seats reserved for Fellows could lead to a diminution in the esteem in which the Fellowship, as a class, is held, and consequently to serious financial difficulties for the Institute in the future.

In favour of the recommendation the arguments are:

(*a*) That the election of members to the Council should be based primarily on merit.

(*b*) That an examination of the lists of directly elected members in recent years suggests that the majority of these were, in fact, elected as a result of their eminence judged from their published works as architects, and therefore that the argument in (*ii*) above is unreal.

(*c*) The lack of status amongst the Fellowship class, referred to in (*iii*) above, already exists. Many Associates who are eligible as Fellows fail to apply. Also in local government practice, there is no discrimination in the making of appointments as between Fellows and Associates. So far as the finances are concerned, it is not considered that the retention of a fixed proportion of seats on the Council for Fellows is likely to affect the ordinary Associate member's decision whether or not to remain an Associate or to become a Fellow.

We suggest that the Council should refer the question of the future status of the Fellowship class to the Oxford Conference Committee, which is at present concerned with the levels of qualification appropriate to the profession. As any such reconsideration of the position can, however, only have long-term effects on the profession, we consider that the constitution of the Council should be decided in relation to the present classes. If long-term changes are subsequently proposed, the position can be reconsidered at a later date.

Recommendation 6

That there should be no differentiation by categories of employment or occupation.

Expressions of opinion from all quarters have been almost unanimous in favour of this recommendation.

Recommendation 7

(a) Arrangements for the nomination and election of President to remain as at present.
(b) Arrangements for the nomination and election of two Past Presidents to remain as at present.
(c) Arrangements for the appointment by the Council of two Vice-Presidents from its elected members to remain as at present.
(d) Arrangements for the Council to appoint an additional Vice-President in special circumstances from outside the elected members of Council to remain as at present.
(e) The Chairman of the Allied Societies' Conference to be ex-officio a Vice-President, RIBA, as at present.
(f) The Honorary Secretary and the Honorary Treasurer to be appointed by the Council from the elected members of Council or from those who, having just completed a six-year term of office, would otherwise be debarred from service on the Council.
(g) There shall be no restriction as to the class of membership of Honorary Officers other than the President.

These provisions allow for the possible appointment of five honorary officers as members of Council additional to the 63 elected members referred to in recommendation 2. If recommendation 8(*d*) is also agreed, the total possible number of Council members will become 70, as against the present 72.

Opinion on these points has been generally

favourable, except that Allied Society opinion on 7(g) was divided similarly to that on recommendation 5.

Recommendation 8

(a) The representation of the Association of Building Technicians on the Council to be discontinued.

(b) The representation of the Architectural Association on the Council to be discontinued.

(c) The direct representation of the Salaried and Official Architects' Committee on the Council by two members, ex-officio, to be discontinued.

(d) The Chairman of the RIBA Registration Committee and of the Board of Architectural Education to continue to be ex-officio members of Council as at present; but neither appointment to be restricted necessarily to the class of Fellows.

(e) In principle, the appointment of further ad hoc *or ex-officio representatives to be discouraged, in the interests of maintaining the basically elective character of the Council.*

The reversal of our earlier recommendation to continue the representation of the AA on the Council follows the majority view of Allied Societies and the almost unanimous view of the Special General Meeting. The Council of the AA itself, while not wishing in any way to step down from its long and close association with the RIBA over the last century, stated that it would not wish to maintain its representation "for purely sentimental reasons," but only if the RIBA considered that through this medium the AA could make the best contribution.

Representatives of the ABT, at a meeting with the Honorary Officers, urged that the ABT representation on the Council should be maintained, in view of the Association's rôle on behalf of the salaried assistant, and also because of its associations with the TUC. The ABT also strongly resented the apparent discrimination made between itself and the AA.

We consider that the aims and interests which the RIBA has in common with both the AA and the ABT can best be pursued through the medium of joint committee work, joint discussions and such *ad hoc* activities as may be called for from time to time.

At the suggestion of several Allied Societies and in accord with the desire of the Special General Meeting, we have also reversed our earlier suggestion that the Chairman of the Board of Architectural Education must, necessarily, be a Fellow.

Recommendation 9

(a) All corporate members RIBA resident overseas to have the right to vote, in the national list, at Council elections.

(b) The Council to work towards a federal relationship with the Commonwealth Allied Societies, and to try to evolve some form of Federal Consultative Council or Councils. This problem to be referred to a new Commonwealth and Overseas Committee, the constitution of which should enable members from Overseas Territories, who may be visiting the United Kingdom, to take part in their discussions.

(c) Pending any future recommendations which such a new Committee might make, the existing provisions by which five overseas Societies (Australia, Canada, India, New Zealand and South Africa) appoint their Presidents as nominal members of the RIBA Council, with deputies acting in the United Kingdom, to be continued, but subject to the deputies being appointed from the elected members of Council.

A few members have questioned the effect of giving overseas members the vote, suggesting that they will know little of the domestic issues involved and few of the candidates, except the big names. While this may be true to some extent, and while many overseas members may not avail themselves of the opportunity to vote, we consider that it is undemocratic for such a large proportion of members—some 20 per cent. of the membership—to have no vote in the election of the Council.

The most effective means of maintaining liaison with members overseas, and of initiating activities to promote their common interests, is, we feel, to establish some form of loose federal consultative council, and we recommend accordingly.

Annual General Meeting

This year's annual general meeting of the RIBA was a small (and rather flat) beer affair after the intoxicating stimulant of last year's crowded, and indignant, meeting of revolt. The counter-attractions of the first-nights of Felix Candela and Paul Slickey may have had something to do with the fact that fewer than 100 members turned up (about ½ of 1 per cent of the membership), but the real reason was that nobody expected fireworks. There were neither resolutions nor lobbying to draw the crowd, and Basil Spence was able to take the meeting fairly briskly, page by page, through the report.

The first stop was the Allied Societies' Conference, Mr. Grenfell Baines taking the opportunity to urge that members of Allied Societies, instead of spending time and money coming to meetings at Portland Place, could do more work in the field.

Two-tier profession

The Board of Architectural Education's report produced a firm warning from the floor by Guy Oddie that the idea of a two-tier profession would not be accepted without considerable opposition from a large part of the profession. Many people, he said, were sympathetic to the idea that one man alone could not perform all the tasks required of an architect, and that architecture must be the product of a team rather than an individual. But they were seriously alarmed at the proposal of a two-tier profession where one tier was above the other, and the chap down below did all the donkey work while the chap on top was just a prima donna with a 6B pencil.

Public relations

The new format and paper sizes of RIBA publications were the subject of some questions, Guy Oddie taking the opportunity to wrap a bouquet (congratulations to the Public Relations Committee on making their publications look as if somebody designed them) round a brick (a warning not to equate good architecture with the employment of an architect, as there were sheep and goats in the profession). Cedric Bond asked for a press officer to be appointed to organize a press campaign against the design of buildings by non-architects, and was informed by Lionel Brett that the appointment of a press officer was being investigated by the Public Relations Committee. It was, he said, a question of finding the right man, as the wrong man could do more harm than good.

Architects as chief officers

Arthur Ling brought up the appointment of architects as chief and planning officers. It was, he said, a measure of the failure of the RIBA that there were still 38 county borough councils without chief architects, and he hoped that in the coming year this would be one of the main issues before the Council. When the question of urban motorways arose they had found that architects were not in the key positions of planning or even architecture in the county boroughs: it was not possible to press for the architect to be the planning officer if there was no chief architect. Only when every urban authority of any size had a chief architect could they press for the architect to be responsible for civic design. There was statutory recognition for the town clerk, the engineer and the medical officer of health, the education officer had almost got recognition, and the time had come to get statutory recognition for architects as chief officers of local authorities. The record of achievement of members of the RIBA since the war in public authorities was such that there was a very solid claim to demand of the government statutory recognition of architects in local authorities. Mr. Spence said in reply that the Council agreed absolutely with Mr. Ling, and would discuss the matter at an early date.

The building costs

On the accounts and report of the Finance and House Committee G. F. Whitby questioned the accuracy of successive estimates of the deficits on the building fund.

Mr. Jefferiss Mathews explained that the original estimated cost of the building work at 66 and 68, Portland Place was £229,000. The final account had not yet been settled as the architect was contesting certain claims by the contractors amounting to £4,000. At the time of the previous AGM the shortfall on the building fund had been estimated at £100,000. The mortgage was £70,000, and savings were achieved which reduced the shortfall to £91,000, so that £21,000 had to be found (allowing for the disputed claim) from current account. In the current accounts, therefore, the building had been finally paid for, apart from the 20-year mortgage for £70,000.

"Squeezing" students

Mr. Whitby then challenged the Council's policy of making a profit on examination

fees, and accused the Council of squeezing £11,000 a year out of young students by increasing the fees. He disputed Mr. Jefferiss Mathew's statement, at last year's AGM, that these fees were a "premium" on membership of the RIBA. They were, he said, a premium on admission to the statutory register. By its practical monopoly of ARCUK the RIBA prevented anyone from getting on to the register without taking the RIBA examinations. The RIBA was deliberately refusing to allow ARCUK to hold examinations of its own as required by Parliament, and was making money out of the Institute's monopoly. If Parliament or the Privy Council were ever to hear of it, something would happen.

Mr. Jefferiss Mathews said, in reply, that the profit was not as large as it appeared because the calculation did not include any charges for the RIBA's organization of the examinations, or its administration or the cost of premises. The principle of making a profit was Council policy, and it was, he insisted, a premium that students were asked to pay for the privilege of sitting the examinations, with the goal in front of them of becoming members of the RIBA. Mr. Everard Haynes, Secretary to the Board of Education, explaining the legal position, said that ARCUK was not required to hold examinations of its own unless this was necessary "in the opinion of the Board"—and the Board had decided against holding a special examination for registration.

D. H. McMorran, supporting Mr. Whitby, said that when the Board decided many years ago against ARCUK holding independent examinations they might not have visualized that the day might come when the RIBA would have to use these fees to improve its financial position. Basil Spence intervened to say that if the Oxford Conference recommendations were held no more examinations would be held in the RIBA building, but John Smith suggested that this was all the more reason for reducing the fees now. Arthur Ling, while arguing that in its crisis the RIBA had to look at all its sources of income, said that as the situation was now slightly more favourable he would press for a reduction in examination fees. Cleeve Barr added that many members of Council were sympathetic to the view that the level of fees should be studied in the next session.

Mr. McMorran asserted that external examinations, for which Mr. Haynes had said students had to pay 20 guineas, involved the RIBA in no cost at all apart from correspondence. Mr. Spence, protesting that the discussion was getting out of hand, said that he had been delighted to pay his fees, and he thought that any students should be delighted to become members of the Institute without quarrelling about paying for it. Mr. Haynes had the last word by saying that nobody had to join the RIBA.

At the end of the meeting Mr. Spence asked the members to show their appreciation both of Mr. C. D. Spragg, the Secretary, who was attending for the last time, and of Mr. Gordon Ricketts, his successor. Mr. Spragg and Mr. Ricketts thanked the members briefly for their very warm applause.

AA

Negotiations for College Broken Off

The following letter has been sent to all members of the Architectural Association by the President, Denis Clarke Hall.

In the session 1955/56 the AA Council considered extending the AA courses to include Building Management. This did not materialize as the Ministry of Education were at that time considering the whole question of integrated training in a much broader field.

Later the AA was approached by the Ministry of Education with the view to establishing a College of Building. The negotiations broke down as the proposed College was not of a type and standard with which the AA felt it could be associated.

In June, 1958, the Ministry of Education again approached the AA with the view to reopening negotiations and put forward proposals that to some extent met the AA objections to the original suggestions. As a result the Council appointed a small negotiating body consisting of Mr. Bryan Westwood, as Past President, Mr. Michael Pattrick, as Principal of the AA School, Mr. H. J. W. Alexander, as Secretary of the Association, and myself.

Briefly, the discussions were for the formation of a partially residential College having a university standard of entry and training with courses for Architecture, Engineering, Quantity Surveying, Engineering Services and Building. To be on a central site, built and financed by the London County Council and run by a governing body consisting of representatives of the LCC and the Associations concerned with the various schools. It was also suggested that the AA might rent its own private accommodation in the new building.

These negotiations with the Ministry of Education and the LCC went on continuously for nine months, during which time many points essential for retaining the entity of the AA were discussed in detail and the Council continued to give support to the idea and to the work being done by the negotiating body.

In March of this year a confidential interim report of the position to date was prepared and a Special Council Meeting was held on March 23, followed by a Special Joint Meeting of the Advisory Council and the Council and a further Special Council Meeting on April 10. At the last meeting the following resolutions were passed:

1. That the Council approved in principle an integrated training for the profession.
2. That the AA should not continue negotiations for a College of Architecture and Building if this involved assocation with the LCC (eight votes to five, with five absentees).

Before the AA could formally enter such a project it would be necessary for a minimum of two-thirds majority to be obtained in a postal ballot of members, and it was apparent from the views of the Advisory Council and the Council that an adequate majority was extremely unlikely. As the Ministry of Education states that there are no alternative methods of financing such a College, except through the LCC, it was clear that any further negotiations would be a waste of time. Consequently the Ministry of Education and the LCC were informed of the Council's decision and the negotiations for the AA participation in a College of Architecture and Building, covering integrated courses of all members of the building team, finally were brought to an end.

In spite of this the AA Council still hopes to make integrated training a part of its policy and an informal meeting will be held at the AA on May 25, at 6.30 p.m., to discuss other ways and means to achieve this end.

DENIS CLARKE HALL

COMPETITIONS

A competition is to be held for a new design for the Roman Catholic Cathedral at Liverpool. The architectural assessors are to be Basil Spence and David Stokes, with the Archbishop of Liverpool, Dr. J. C. Heenan. At a Press conference Dr. Heenan said that the previous plans—first by Lutyens, then cut down by Adrian Gilbert Scott—had become uneconomic. The new design is to cost about £1 million. Mr. Spence said that there would be absolute freedom in designing the new building.

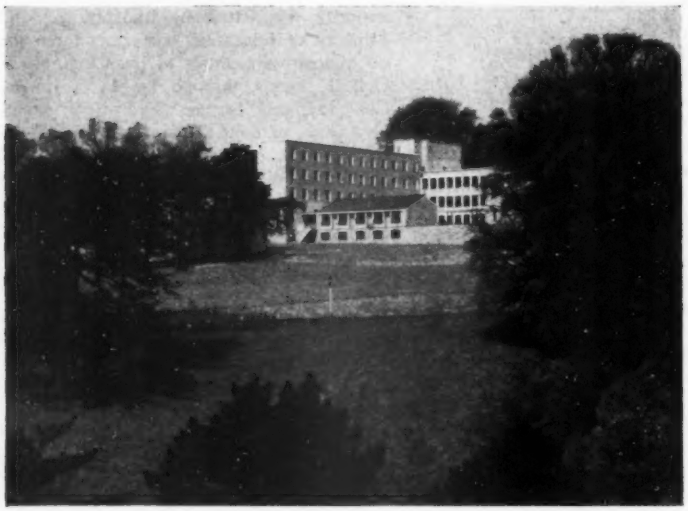
M. N. Clinton, of Salisbury, S. Rhodesia, has won a competition for a chapel for the University College of Rhodesia and Nyasaland, from 75 competitors. Designs by Myles, Faulds and Partners, Blantyre, and by Williams, Lawson and Dickinson, Ndola, were premiated.

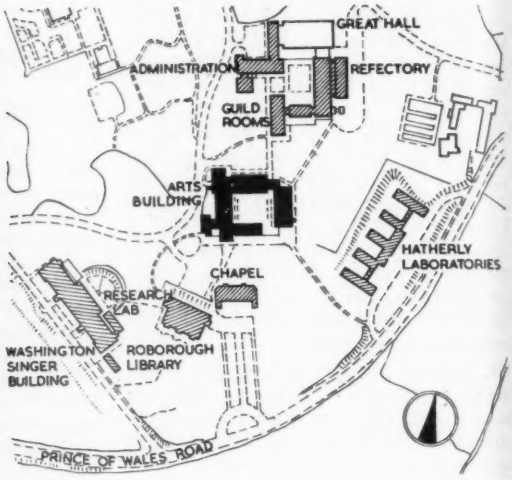
The 1959 competition for manufacturers' trade and technical literature, sponsored jointly by the RIBA and the Building Centre, is announced. It is open to literature, other than space and prestige advertising, that is directed to the architect, and is divided into two classes. All entries must be received by midday October 15, 1959, at the Building Centre, 26, Store Street, London, W.C.1, from which the conditions of the competition can be obtained.

There are two British prizewinners in the Third International Furniture Competition held at Cantu, Italy. Nigel Walters and Sheila Walters, London, were placed equal first in the section for dining room furniture (£400), and John Willis, Newcastle-upon-Tyne, has received 300,000 lire as second prize in the section for study furniture.

Lyons, Israel and Ellis have won a competition, limited to ten architects, for a new Civic Centre at Finchley.

FACULTY OF ARTS AND SOCIAL SCIENCES

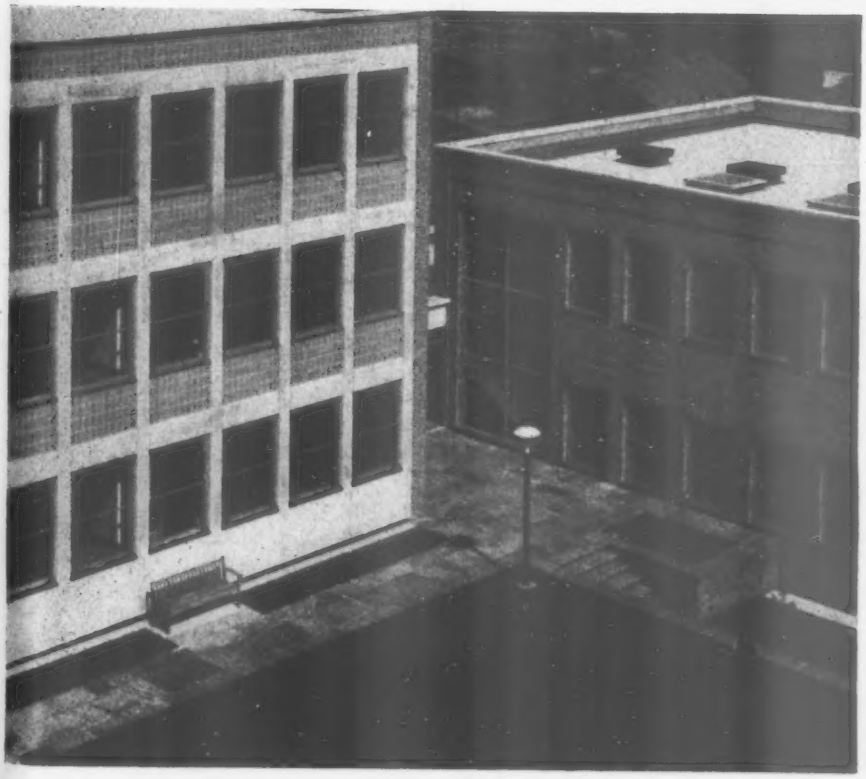




Site plan

Designed by William Holford and Partners the new Faculty of Arts and Social Sciences at Exeter University (shown above from the south-east) which was officially opened last week represents the first instalment of the accommodation to be provided, overlooking the city, for the rapidly expanding university. The biggest block, consisting of seventy private rooms for the teaching staff (below) is situated over the entrance hall. This block runs north and south with the principal rooms facing west. The materials used for the exterior are Sussex hand-made bricks and the windows to the south are framed with Portland stone (opposite page, top). The building generally is arranged around a central courtyard and occupying the north side is a block containing twenty small lecture rooms seating from 12 to 50 students and which are shared among the arts departments. The science departments, requiring specialised accommodation are arranged separately in the block which forms the east side of the quadrangle. The quadrangle itself is level with the ground floor of the staff block and has a lower central space correspond-

AT EXETER UNIVERSITY

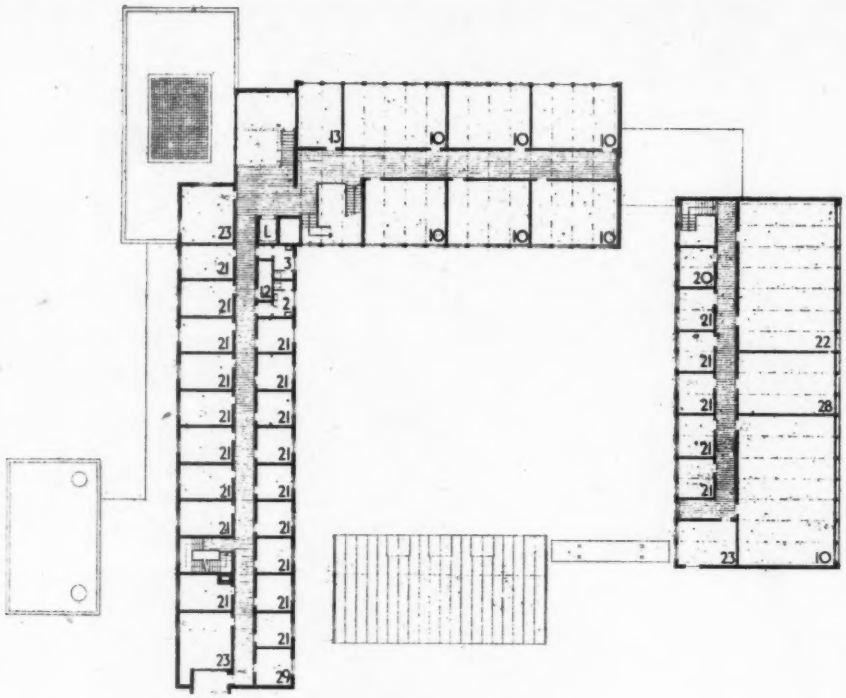


ing with the junior common room which opens onto it from the south side. The pitched roof of the single storey building adds interest to the view from the rooms in the taller blocks. There is access to the quadrangle at three points; these being at the north-east, south-east and south-west corners. The access from the north-east is a glazed link between the arts and science blocks (see left). The design of the building is based on a 10-ft. 6-in. bay for the staff block and a 12-ft. bay subdivided into two 6-ft. units elsewhere. Except for the lecture theatre, situated at the north end of the staff block and the senior common room, the building is constructed with a reinforced concrete frame. On the east side of the science wing and on both sides of the lecture room wing,

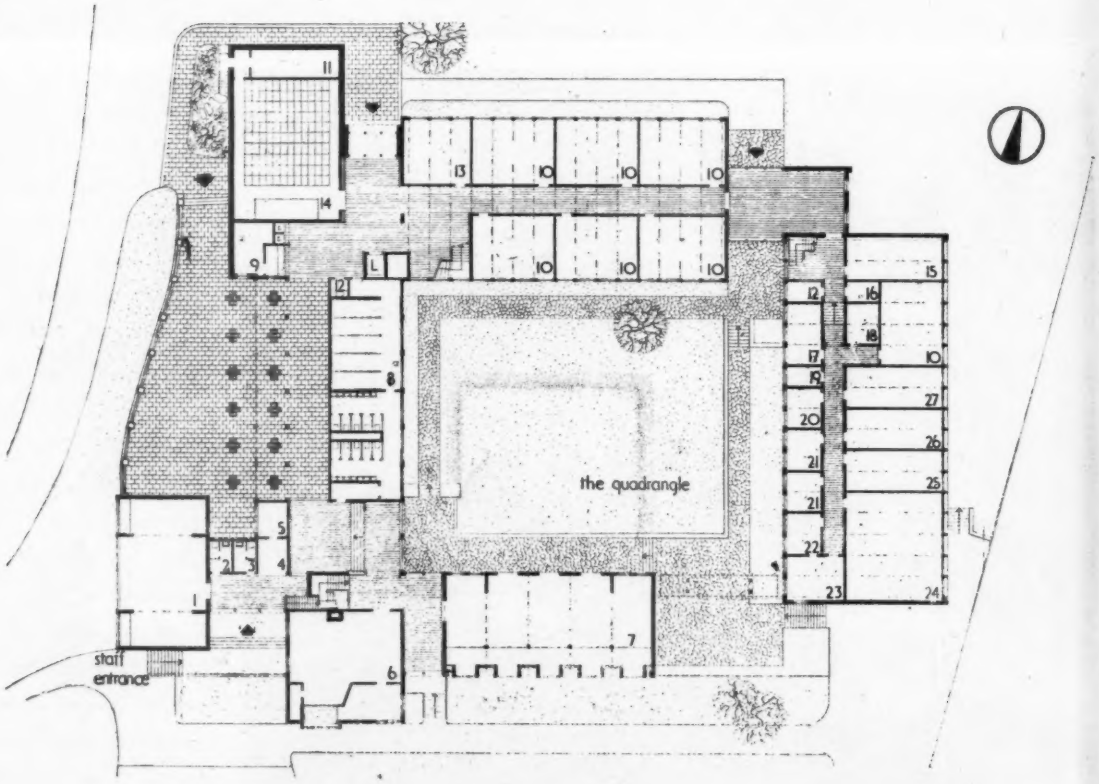
FACULTY OF ARTS AND SOCIAL SCIENCES AT

KEY

1. Senior common room
2. Men's lavatories
3. Women's lavatories
4. Cloaks
5. Pantry
6. Quiet room
7. Junior common room
8. Women's cloaks
9. Porter
10. Lecture room
11. Projection room
12. Cleaner
13. Seminar
14. Lecture theatre
15. Museum
16. Store
17. Workshop
18. X-ray
19. Dark room
20. Post-graduate
21. Staff
22. Laboratory
23. Head
24. General lab
25. Petrology
26. Palaeontology
27. Library and seminar
28. Map room
29. Typist

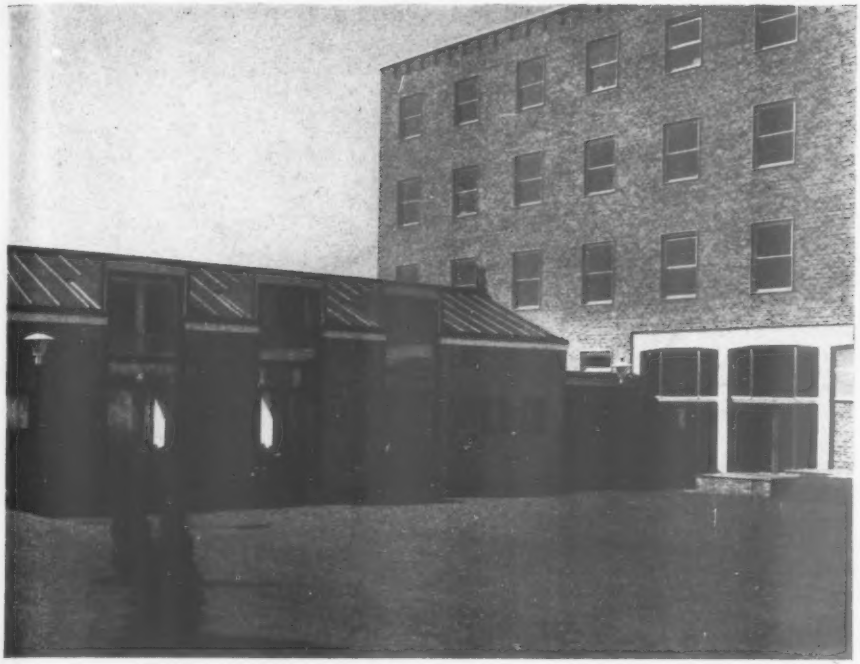


First floor plan



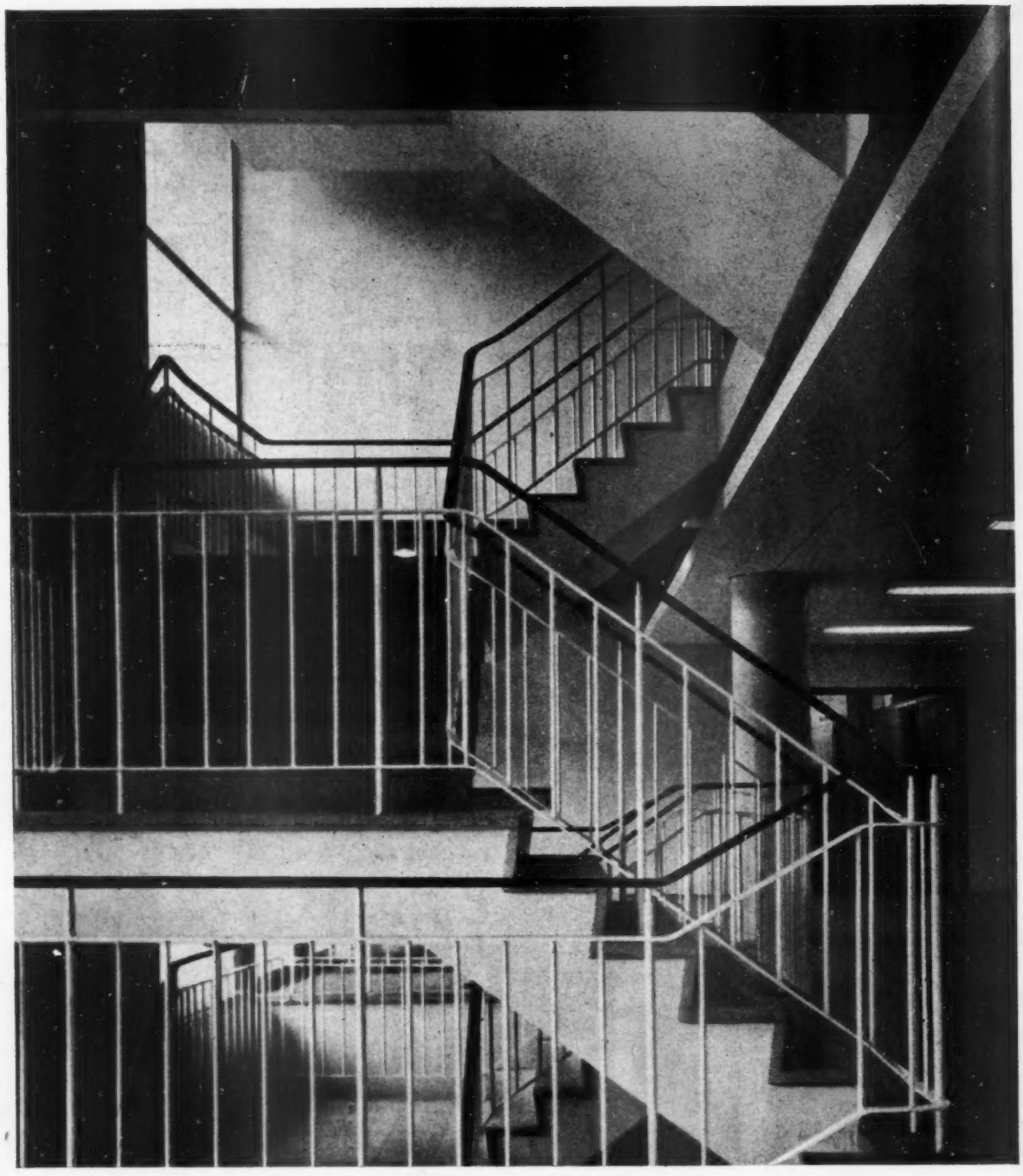
Ground floor plan [Scale: $\frac{1}{16}$" = 1' 0"]

AT EXETER UNIVERSITY: continued



the concrete frame is faced with Portland stone and the panels below the windows filled with tiles; grey on the outside of the building and blue on the quadrangle side. Below is the lecture

theatre. Left is the south-west corner of the quadrangle where a fairly wide passage separates the junior common room (interior below) from the main building. General contractors, John Garret & Son Ltd.



Architects: C. H. Elsom & Partners Contractors: Tersons Ltd.

Over 2,500 ft. run of black Marleyrail has been used at Eastbourne Terrace.

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THE TEACHING OFFICE

by Peter Scher

In considering architectural education and the work of the architect I have been led to enquire into the training of men in other professions. I wanted to discover whether they have similar or analogous problems and solutions—accepted or proposed—and whether these could throw any light on our profession's educational problems or suggest lines of experiment or enquiry.

I asked a young doctor, who qualified at the same time as I became an architect, to describe the system of training in the medical profession. I then put some questions to him which I thought relevant to training in both our professions. The results of this discussion follow here, but I must point out at the outset that neither of us are "experts" in medicine, architecture or education—just young contemporaries in our chosen professions. The discussion I have reported in two sections; first, medical education, tabulated with a parallel description of the full-time architecture course for comparison, and second, a series of questions put by myself with answers from the doctor. Finally I have drawn some conclusions from the comparison and added a suggestion for the establishment of "teaching offices" to form part of the architect's training.

Questions and answers

Q. Is it necessary for you to specialise before taking GCE at "O" level?

Doctor: Yes. The necessary basic knowledge of physics, chemistry and biology has to be extended after that up to 1st MB standard in order to enter a medical school and I do not think there is sufficient time then to start these subjects from scratch.

Q. Is it possible to enter a medical school without 1st MB (or GCE at "A" level)?

Doctor: No, this is a condition of entry. In exceptional circumstances a student may be allowed to retake a part of the exam after entering the school. Competition for places is very keen.

Q. Is there any way of qualifying as a doctor—for example by part-time training—other than the one described?

Doctor: No. It is necessary to take the medical school course and obtain either a degree or conjoint diplomas.

Q. Are there any other exams in the course apart from First, Second and final MB (or their equivalents)?

Doctor: None officially. There may be as between student and tutor but these have no academic significance.

Q. Can a student who fails his final exam take it again and repeatedly until he passes?

Doctor: Yes.

Q. What proportion of qualified doctors become general practitioners and what proportion go into hospital work?

Doctor: Very roughly 80 per cent. and 20 per cent. respectively.

Q. Is it true to say that the GP is a kind of specialist and that all other doctors in hospitals and research are specialists too? If so, does medical training take into account the fact that every student will eventually become a specialist in only one branch of medicine?

Doctor: The good GP has very special talents which have to be developed. All other doctors do specialised work. Our training does not take this into account. We train doctors who after qualifying then do further training to become specialists (including GPs). We do not train specialists in the first place, as for example in Soviet Russia. There it is decided that so-many hundred paediatricians, say, will be required. They then set out to train from school onwards, not doctors, but paediatricians and this has obvious advantages. In Britain there is no such direct route (or short cut) and many of us think that doctors in training are burdened with too much that they will not need in their later careers. For example, the post-graduate year as a houseman may be totally inappropriate for the future GP but it is nevertheless obligatory. In most medical schools there is no proper teaching of the specialised requirements needed by a GP.

Q. How much does training vary from one medical school to another?

Doctor: Two main factors affect discussion of training for our profession. They are the degree of practical work done by the student in training, and the structure of the National Health Service. With regard to the first, some teachers consider that students should be introduced to the bedside at the outset of their training—not after eighteen months academic work. Schools vary in this respect, therefore, and some do introduce clinical work before 2nd MB. Again since such a large proportion of doctors become GPs, hospital training is obviously inappropriate by itself and some courses include a period attached to an actual general practice. However, this has not yet been universally introduced.

The introduction of the National Health Service ten years ago completely altered the whole structure of our profession and even now the Service is still in its childhood and still exploring and experimenting to find its most appropriate shape. Training should be designed to fulfil the needs of the Service.

Medical and architectural education compared

Medical	*Architectural*
1. GCE at "O" level; science subjects not obligatory in theory, but they are in practice. Entry to a medical school requires student to have passed 1st MB (an exam set by the University) or its equivalent—*GCE at "A" level* in appropriate subjects.	1. GCE at "O" level, in English, Elementary Mathematics and almost any three other subjects is the only obligatory minimum required by the RIBA. Individual schools of architecture have a variety of requirements according to the degree or diploma awarded; some also have unusual, individual entrance exams.*
2. All medical schools are attached to universities and are part of a hospital (called a Teaching Hospital).	2. Minority of schools are attached to universities. There is no equivalent to a teaching hospital.
3. Universities award a Degree—for example, MB. The Conjoint Examination Board of the RCP and the RCS awards Diplomas—LRCP and MRCS.	3. Universities and schools award a variety of degrees and diplomas. The RIBA holds its own exams and awards ARIBA.
4. *The Course* Pre-Clinical Study: 1½ years—purely academic study in three main subjects, Anatomy, Physiology and Pharmacology. *Exam at end only—e.g.* 2nd MB. Clinical Study: 3 years—mainly practical professional work (80 per cent.). Students are attached to each department of the Teaching Hospital in sequence. Remainder of work (20 per cent.) formal teaching, lectures, study, etc. *Exam at end only—e.g.* Final MB or Conjoint Diplomas—permits provisional registration as a doctor End of formal full-time training.	4. *The Course (Full Time)* Intermediate course: 3 years—purely academic study of nearly all the traditional branches of architecture begun. *Exams at end of each year*—= Intermediate RIBA. Final course: 2 years—purely academic study of all the traditional branches of architecture completed. *No practical work is obligatory during courses.* *Exams at end of each year*—recognised degree or diploma (= Final RIBA). End of formal full-time training.
5. After graduation, one year must be spent doing resident "House" jobs in recognised hospitals—two jobs lasting six months each. When completed satisfactorily permits full registration as a doctor.	5. After graduation, one year of "Practical Experience." This can be any job in any architect's office (or maybe several). *Exam at end* in Professional Practice permits full registration as architect.
TRAINING COMPLETED	

* Since this artical was written the RIBA has introduced the requirement of two passes at "A" level with effect from September 1, 1961. The earliest time that all new ARIBA's will have fulfilled this requirement will therefore be 1967-8. It will of course be many years later that these architects and their successors form the majority of the profession. Until then this comparison stands.

Conclusions

The most outstanding difference between the two systems of education is, of course, the clinical training of the medical student. Two-thirds of the four-and-a-half year course is spent attached to the actual working departments of a hospital—and to qualify the young doctor must spend a further year doing "house" jobs in a recognized hospital. This is done after a

thorough and concentrated grounding in basic medical knowledge. Some teachers even appear to want more clinical training. In all the five years of an architect's training there is no obligatory practical work whatsoever.* The consequences of this need not be elaborated here, but in my opinion this produces very low professional, technical and æsthetic standards indeed.

Other advantages of medical education that are clear from this comparison are the higher level of entry which I have discussed before, and considerably fewer exams—only two after entering medical school, though they are admittedly long ones. Many architectural students take exams annually for six years. Apart from such frequent exams being unnecessary from the academic point of view, they break up the course and impose a strain on students. They are also extremely wasteful of the time and effort of students and staff alike. Finally, note that while the structure of the medical profession and its educational system is designed to fulfill the needs of the community through a National Health Service, our profession and its educational system is not designed to fulfil any clear function whatsoever by its controlling bodies.

To return, however, to practical training. Apart from the greater quantity of this done by medical students, consider its *quality*. The clinical study is a carefully designed course in which the student is introduced to every department of the hospital (and therefore to most branches of medicine). The essentials for a thorough practical training are all made available to him. The hospital is busy fairly constantly and he is entrusted, under supervision, with every kind of professional work. His academic lecturers and tutors are also his practical supervisors and he can observe them at work, comparing practice with theory, while they can teach him " on the job " as well as in the lecture room. He has responsibility, yet not so much as to eliminate study and he is still attached to his school.

In our profession *any* architect's office can serve as the practical school for a graduate. The office may not have much work, or its work may be predominantly of one specialized kind. The graduate may do nothing but supervised draughting; he cannot expect to get personal instruction from his principal, and anyway few principals are competent to give it. The office may have low standards of efficiency, of technical competence or of professional conduct. This is nobody's concern, however, and all that is required is that the time should be served, the form signed (a formality), and the exam. (purely theoretical) passed.

The teaching office

The question arises—is there any way of giving architectural students a training approximating in scope and quality to the clinical study of medical students in a teaching hospital? In my article on architectural education generally (AJ, September 12, 1957) I tentatively suggested that the larger local authority architect's offices might provide " live " projects for training students at schools of architecture. Now I suggest it would be better still if they could become " Teaching Offices," analogous to Teaching Hospitals. It is certain that Schools of Architecture at present have no facilities for providing practical training. Private practices where most graduates get their year's " practical experience " rarely have suitable conditions. The larger local authority offices do have very advantageous facilities and conditions. Here are some of the important ones :

1. The LA is a client initiating large building programmes often planned over a number of years, which means a fairly constant and predictable volume of work in hand.
2. The LA architect's office can be intimately related to its client in a way rare among private firms. The architects can participate in the planning and drawing-up of building programmes, as they should always do in theory, but seldom do in practice.
3. The LA also employs other technicians —town planners, engineers, quantity surveyors, etc.—so that complete design teams can be organized and work together.
4. The size and scope of the LA's building programmes makes possible social and technical experiments of supreme importance to the development of architecture, which the private architect can only watch with envy—*e.g.*, Hertfordshire Schools, LCC Housing.
5. The LA has departments concerned with every aspect of an architect's work—town planning, building regulations, all branches of engineering connected with building services, surveying, valuing, maintenance, landscaping (parks), staff clerks of works, etc. In conjunction with the architects, organized into various specialized design groups, this is a unique set-up for training students.

All this applies only to the largest local authorities, which are few. As teaching offices dealing with other types of buildings not built by LAs, I would include the architect's departments of Regional Hospital Boards and Ministries such as the MOW and MOE. To be satisfactory teaching offices these would all have to reorganize and expand, even perhaps to the extent of becoming uneconomic. But teaching hospitals run specialized departments uneconmically because they are necessary for training students. The teaching office as it takes over some of the functions that our obsolete schools of architecture cannot fulfil will have to do the same. This expense is more properly thought of as the cost of education, not inefficiency. Many of these offices undertake invaluable advanced research into many branches of building and design so that they are in a sense post-graduate schools *already*. This is yet another reason for linking them officially with education and recognizing their academic status. I am convinced that the educational advantages of the Teaching Office would be tremendous and ultimately of the greatest benefit to the community.

As a basis for discussion then I propose this : the student architect begins his training with two years' concentrated study of building and design at a school of architecture. He does only a minimum of time-wasting presentation drawing work and takes only one exam, at the end, Inter. Then he spends three years attached in sequence to the various departments of, say, the LCC, the MOW, and a Regional Hospital Board with a large building programme. The student will be working on actual projects, at all levels in the office and at all stages of the work. He continues throughout to do a certain amount of academic study. At the end he takes his final written examinations, after which he returns to his school for a year full-time to produce a Design Thesis.

This is only a simple analogy with medical training and may not be the best answer. There are only a few really large offices of the kind needed, and even so, both the authorities and the schools of architecture will naturally resist the idea of the Teaching Office for obvious reasons. However, I think it could be the background for a better architectural training than any even our best schools can provide on their own.

* As from November, 1962, the RIBA will require *two* years practical experience before granting Associateship—of which one year may be pre-graduate. The implication—and, incredibly, it is not *stated* at all—the implication is that the RIBA want recognised Schools to set aside terms or even a whole session for students to work in offices. Otherwise the pre-graduate year will be uselessly fragmented and involve big sacrifices of vacations by students now threatened with a seven year course. Have the schools any plans, or will students be permitted to work in any offices for a series of very short periods in order to fulfill the requirements?

DIARY

50th Anniversary Exhibition of Urban Development and Civic Design. The Liverpool University Dept. of Civic Design. 3.30 p.m.
MAY 15

Excellence in English Architecture. Lecture by Sir Albert Richardson at London University, Senate House, W.C.1. 5.30 p.m.
MAY 20

Mechanical Services and Architecture. Yerbury Foundation: lecture by Jorgan Varming at the TUC Building, Great Russell Street, W.C.1. 6.30 p.m. MAY 20

Landscape Work in Wales. Talk by R. Colwyn Foulkes at the ILA, 1, Park Crescent, Portland Place, W.1. 6.15 p.m.
MAY 21

TPI Annual Spring Meeting. At Southport.
MAY 21/22

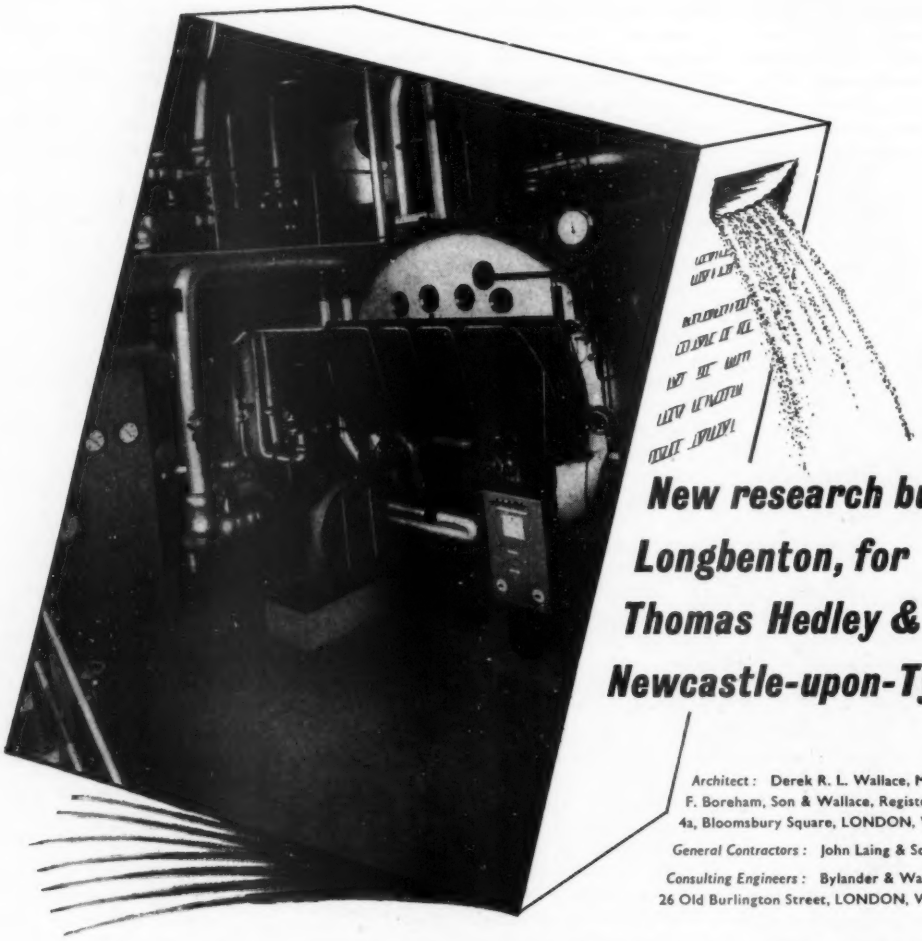
The Living Town: A Symposium on Urban Renewal. At the RIBA, 66, Portland Place, W.1. 10 a.m. MAY 22

Presentation of Royal Gold Medal to Professor Mies van der Rohe. At the RIBA. 66, Portland Place, W.1. 6 p.m.
MAY 26

Communities and Neighbourhoods. Evening discussion at the RIBA, 66, Portland Place, W.1. 6 p.m. MAY 27

Public and Private Transport. Evening discussion at the RIBA. 6 p.m. MAY 28

The Big City. Evening discussion at the RIBA, 66, Portland Place, W.1.
MAY 29



New research building Longbenton, for Thomas Hedley & Co. Ltd. Newcastle-upon-Tyne

Architect: Derek R. L. Wallace, M.B.E., D.F.C., M.Inst.R.A., F. Boreham, Son & Wallace, Registered Architects, 4a, Bloomsbury Square, LONDON, W.C.1.

General Contractors: John Laing & Son Ltd.

Consulting Engineers: Bylander & Waddell, 26 Old Burlington Street, LONDON, W.1.

'PUDLO' Brand cement waterproofer was specified in the retaining walls and floor of the Boiler Room in the new Research Building at Longbenton, for Messrs. Thomas Hedley & Co., Limited, of Newcastle-upon-Tyne, the famous makers of the well-known products Tide, Daz, Fairy Soap, Gleem, etc. The composition of waterproofed cement was as follows:– Vibrated Reinforced Concrete composed of 1 cwt. cement to 2½ cubic feet of fine aggregate and 5 cubic feet of coarse aggregate, maximum nominal size ¾". 'PUDLO' Brand waterproofer was included at the rate of 5 lbs. to 1 cwt. of cement.

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PLASTER BONDER
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technical section

THE INDUSTRY

Brian Grant describes a transporter for window-cleaning cradles, a booklet on gas heating, a louvred window and a range of sanitary fittings.

Wall and window cleaning

The illustration on the right shows a transporter unit which has been developed by G. W. King for the suspension of maintenance cradles in tall buildings. The suspension arms can be swung round when the cradle is not in use so that nothing can be seen from below. The transporter carries the cradle across the face of the building, and at each end the top bogey is able to travel at right angles to the main tracks on to latching floor rails to serve the two adjacent sides. Water is supplied to the cradle through a reeling drum holding 160 ft. of hose with a water connection at roof level. There are also rubber covered guide rollers on the cradle to steady it against wind movement. The photograph shows the installation at Leeds Technical College. (*Geo. W. King Ltd., Stevenage, Herts.*)

Gas for heating and hot water

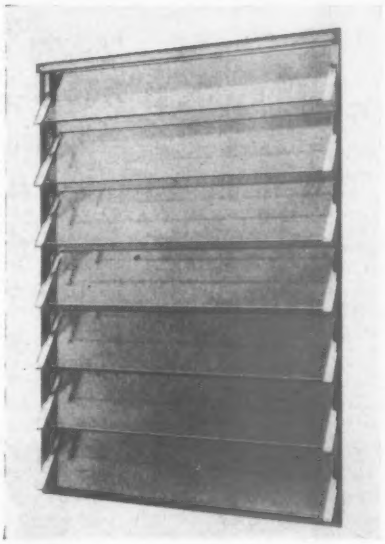
Stimulated perhaps by the efforts of the oil companies to sell central heating to the householder, the South Eastern Gas Board has just issued a booklet on the economics of gas heating, whether by conventional radiators or by warm air. The Board has a tariff based on a quarterly standing charge of 39s. plus 16d. per therm. As with all other installations, costs are very variable, but from the figures given it would seem that full heating, hot water and cooking for a 3-bedroom house costs anything from £40 to £55 a year. While I have no doubt that the total outgoings would be less with solid fuel, every householder has his own idea of the value to be set on the complete freedom from stoking, ash removal and other routines, and the fact that no storage tanks are necessary, as with oil. While the booklet will not tell architects anything which they should not already know, it is worth reading, if only so that one will be primed with answers to the sort of questions which clients may ask. (*South Eastern Gas Board, Katharine St., Croydon, Surrey.*)

Louvred window

The Fenestra louvred window, recently added to the Crittall range, was originally developed for the export market, but would provide a useful method for ventilating kitchens or larders. The window consists of two jamb units formed of galvanized steel, to which are attached the hinged blade carriers. Spacing is arranged so that 6 in. wide glass louvre blades have a ½-in. lap, and standard heights vary from 17½ in. to 78 in. —three to 14 blades. The width of ¼ in. glass blades should not exceed 36 in., but coupling mullions are available if extra widths are needed. The position of the louvres is controlled by a locking handle at the side, and they will stay open in any position, including 5 degrees beyond the horizontal, in which angle it is claimed that the air flow is greatly increased. The window can be used with standard metal windows if head and cill weathering members are added. (*The Crittall Manufacturing Co. Ltd., Braintree, Essex.*)

Sanitary fittings

The Lilleshall company has recently introduced a new range of vitreous glazed fireclay fittings known as Sculptura. The washbasin is shown in the picture below right: it costs 54s. 9d., and a pedestal is another 57s. The range also includes a bidet at 77s. 3d., a low-level cistern at 51s. 3d., and w.c.'s at 57s. 3d. The latter are made in two heights, 12 and 14 in. and can have tops which are level or which slope from front to back, as recommended by the medical profession. The whole range is produced in 17 colours as well as white, the prices being one third more. It is interesting to note that the w.c.'s and bidets can be produced with the outside in colour and the inside white. It seems that while quite a number of people like matching sanitary ware, some dislike coloured interiors, presumably on the grounds that it may be more difficult to see when they become dirty. (*The Lilleshall Co. Ltd., Oakengates, Shropshire.*)



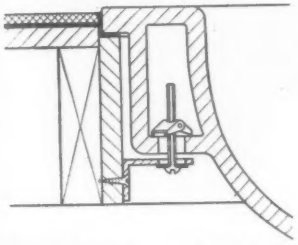
Right, top to bottom: the cradle transporter by G. W. King Ltd. in use at Leeds Technical College; the Fenestra louvred window; the Sculptura washbasin.

technical section

New products at the Building Centre reviewed by Brian Grant

The Building Centre is holding a small exhibition (open until May 16) of products which have become available during the last four or five months. While a number of them have already been described in these notes, there are several new items, and it seems a good idea to stage shows of this kind from time to time. But manufacturers *must* provide reasonably descriptive leaflets and also (although I know how much they detest it) some indication of prices.

Quite a number of new sanitary and other fittings were shown, notably a well-designed Glowite lavatory basin by Alfred Goslett (127, *Charing Cross Road, W.C.2*), which is described as "extra white." It also seems that more manufacturers are producing basins especially for building into counter tops and Shanks (81, *New Bond Street, W.1*) were showing a new Cavendish model which is easy to fix (see section) with angle



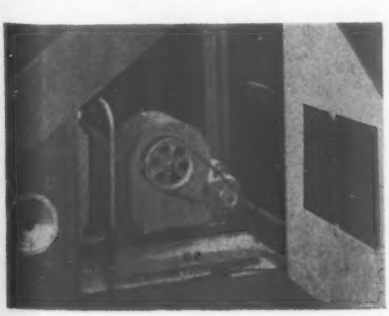
Section showing fixing of the Cavendish lavatory basin.

brackets and toggle bolts. Marley showed glass reinforced plastic sinks which are made in various colours and are quite low in price, costing £11 and £14, with single or double draining boards.

Another industry development is the Dood liner by Plastic Liners Ltd. (*Design Works, Three Colt Street, E.14*), for use with water tanks which are either leaking or due for replacement. The method is to remove as much rust as possible and repair structurally weak spots, after which the tank is coated with a latex base compound which acts as a rust inhibitor. The liner is of thin non-toxic plastic sheet which has to be pierced only at pipe fittings. Work so far carried out has been in large flat or office blocks and in industry. With the plastic liners the job should not take more than 24 hours with no cutting away and making good, so that the cost could well be less than a quarter that of a new installation. The system is suitable for any type of tank and it may be added that the LCC are already customers and that the Metropolitan Water Board raises no objections.

After dealing with the problem of corroded tanks it is obviously better to prevent the corrosion from occurring at all, and this can often be done by cathodic protection at quite small cost. The Mapel magnesium anode (Metal and Pipeline Endurance Ltd.) can be applied to cold water tanks, where the anode is hung in a terylene bag from a batten across the top (see illustration) or to hot water cylinders where the hand hole cover is removed and drilled to take the anode stem. Price of the anodes is 30s. and they should have a life of two to four years, depending on the water supply. The terylene bag is merely to contain the white magnesium salts which would normally fall to the bottom of the tank. (75, *Victoria Street, S.W.1*)

Above left, fixing foamed plastic insulation by Armstrong Cork. Above right, a Mapel magnesium anode suspended in a water tank to prevent corrosion. Below left, the Lornair, "Stairpak" warm-air system. Below right, the Yale Windsor lock.



There were three new heating devices, the Halcyon and Potterton, already dealt with in these notes, and the Lornair "Stairpak," a fan-driven warm-air system which has been designed for installation in the space below the first few treads of the staircase. Dusting and diffusers take the warm air to the required outlets, and the makers suggest that this is a better place for the unit than in the roof space, as any heat losses will at least remain within the house. The unit consists of a thermostatically controlled fan and a heat exchanger for use with an ordinary hot water boiler. Seven different sizes are produced, with heat outputs from 15,000 to 75,000 B.Th.U. per hour, and prices are £94 or £98. Similar units are made with electric heaters in 6, 8 and 10 kW. sizes. (*Lorne, Stewart (Heating) Ltd., Ardshiel House, Empire Way, Wembley, Middx.*)

Several comparatively new windows were shown, notably the rather expensive plastic covered steel type seen for the first time at the Ideal Home Exhibition by Ideal Casements (Reading) Ltd. (*Shepherds House Lane, London Road, Reading.*) This has the great advantage that no maintenance should be necessary, and it is also possible to have the plastic covering in various different colours. There was also the Ellis all-plastic sliding window, again available in colours, and costing about 25 per cent. more than the normal galvanized steel window. (*Leon Ellis Manufacturing Co. Ltd., 57, Clapton Common, E.5.*) Templewood Hawksley were showing a simple sliding "lift-out" aluminium-framed window in natural finish, though this could presumably be colour anodized if necessary. Price is £12 for a window 6 ft. by 4 ft. Since both plastics and aluminium are fairly flexible it seems likely that reasonable care will be necessary during installation, as if the frames are slightly twisted in setting, the sliding action will be likely to stick. (2, *Buckingham Avenue, Slough, Bucks.*)

An interesting type of flexible foamed plastic insulation was shown by Armstrong Cork. It is produced for pipes from ¾-in. to 3½-in. diameter, and can be fitted by sleeving on, or by slitting it lengthwise for pipe lines already erected. The covering can then be snapped round the pipe and the cut seam sealed with Armaflex adhesive. On heating lines the material will withstand temperatures up to 200 deg. F, and will not support combustion. Standard lengths are 6 ft. and thickness ¾-in. and ½-in. No finish is necessary for internal use, though chlorinated rubber paint can be applied if required. (*Armstrong Cork Co. Ltd., Armaflex Department, Kingsbury, N.W.9.*)

The illustration on the left shows Yale's Windsor button mortice lock and latch set. The diecast door plates are made in a variety of chromium or brass finishes and the push button is combined with the pull handle. The sets are adjustable for doors from 1¼ to 2-in. thick. (*Yale and Towne Manufacturing Co., Willenhall, Staffs.*)

SECURITY

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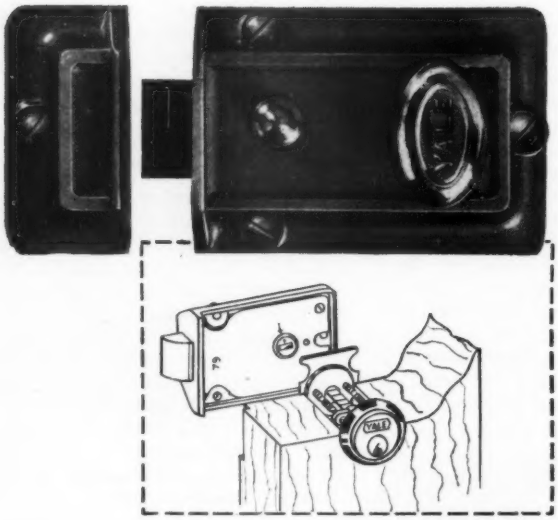
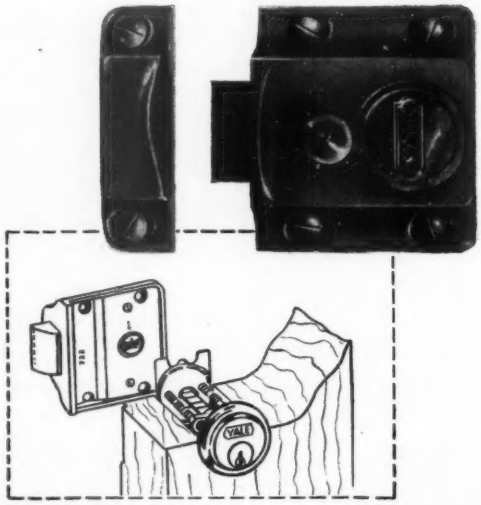
Here are two moderately priced locks to give maximum security to glass panelled doors. They are but two of the comprehensive range of Yale locks, including cylinder, lever, mortice and rim, designed to suit all security needs . . . and all pockets.

YALE NO. 79 DEADLATCH



NO. 723 DEADLATCH

for narrow stile doors



With both these deadlatches, the bolt can be deadlocked against end pressure, and the knob locked against turning, by a reverse turn of the key from the outside. This means that, even if the glass panel is broken, entry cannot be effected by turning the knob. For further security, they are fitted with Yale's special anti-pick mushroom drivers.
The No. 723 Deadlatch is specially designed for narrow stile doors, but operates in exactly the same way as the No. 79 Deadlatch. Please order through your usual Merchant or Ironmonger.

SPECIFICATION

Case and Staple Zinc Alloy Pressure Castings Enamelled Nickel Bronze Finish. 79—3⅜ x 2 9/16 x 1 in. 723—2¼ x 2⅜ x 1 1/16 in.

Striking Plate With reverse bevel bolt for doors opening outwards.

Bolt Brass, polished. Reversible.

Cylinder Brass, turned finish. Five pin tumblers.

Knobs Brass, polished.

Keys Two, List No. 8, Nickel Silver. Changes practically unlimited.

Backset 79—2⅜ in. 723—1 9/16 in.

For Doors From 1 in. to 2¼ in. either right or left hand.

Packed One in a box, complete with screws.

Master Keyed If desired.

Literature Explanatory leaflets and detailed specification will gladly be sent on request.

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technical section

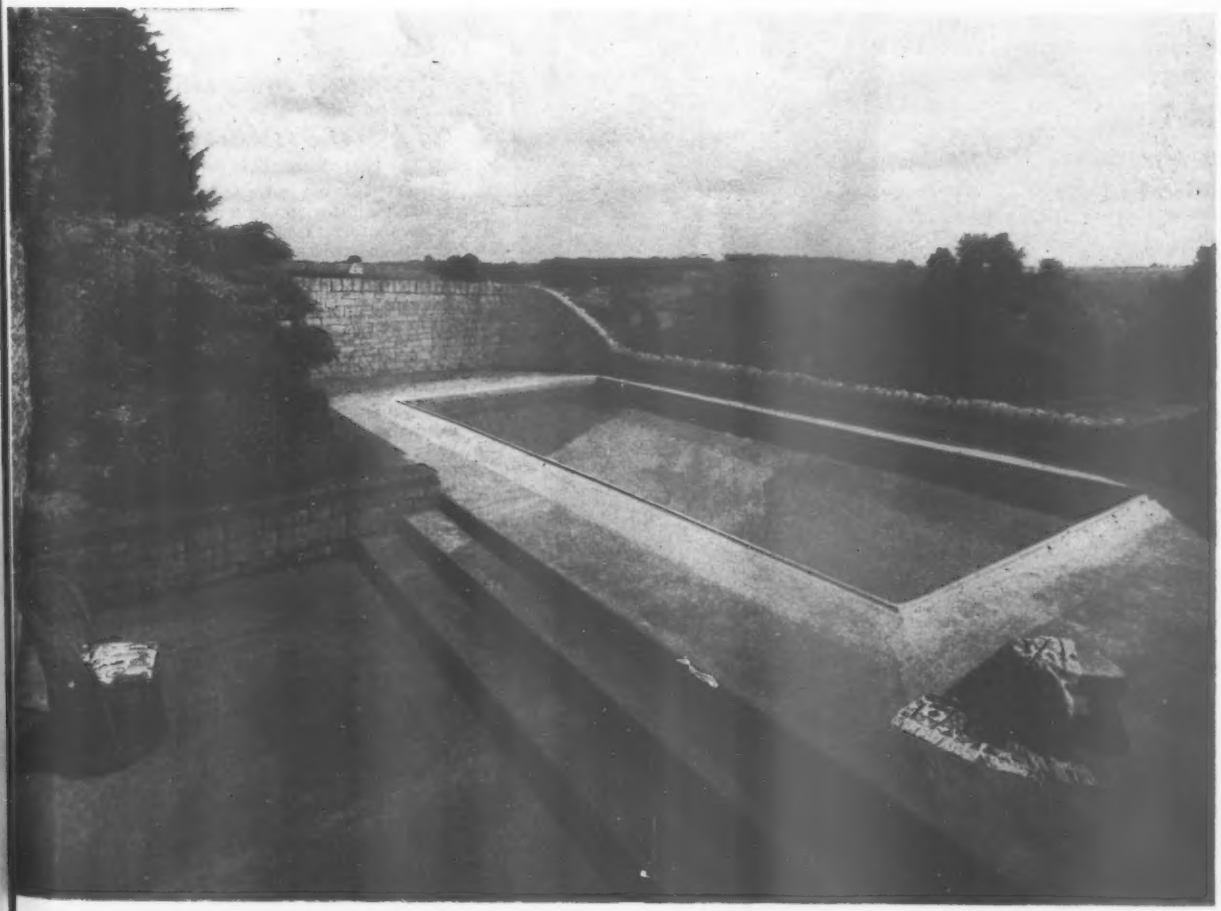
25 WATER SUPPLY AND SANITATION

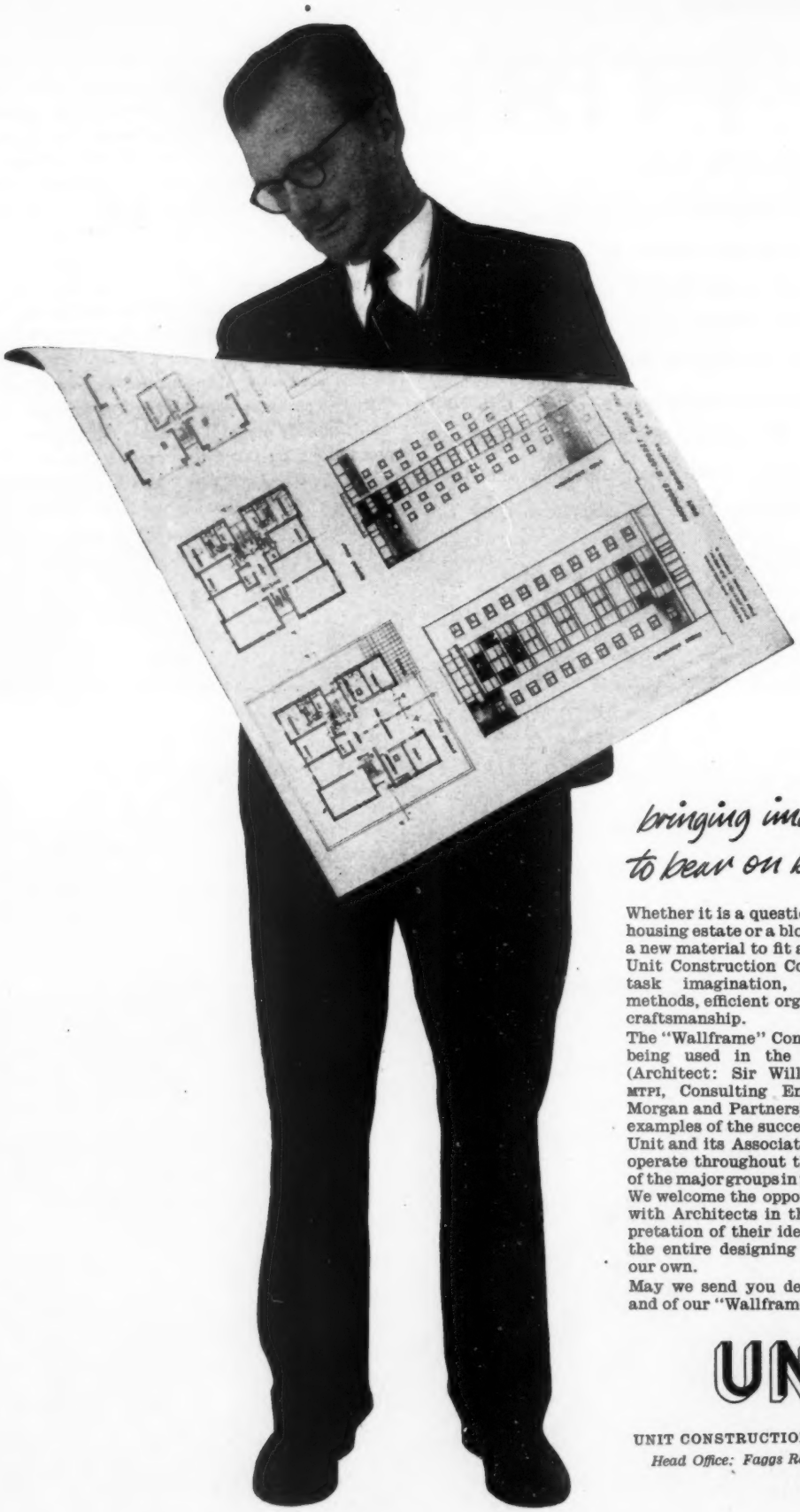
small swimming baths

Private swimming baths are becoming more frequent in this country and, if the American precedent is anything to go by, are destined to become still more so. Realizing that they pose a more exacting technical problem than might appear, we have asked Peter Falconer, an architect who has had more experience in designing them than most, to set down the main requirements and how they can be met.

Of all the small jobs which may come the architect's way, the private swimming bath is one of the most deceptive. For though its apparent basic requirements are simple, the ramifications which arise from its use are not; and it is important that the architect should be fully alive to them. We are concerned with small *swimming* baths, that is with baths in which people are going to swim and not merely to dip and in which, in all likelihood, they are going to swim not occasionally but (in hot weather) often. It is the fact that baths or pools, once they exist, tend to get used more often and by greater numbers of people than their owners originally expected, which creates the problem. For once a bath is used more than once or twice a day by more than two or three people, it will form algae at a rate which quickly makes it unusable unless quite elaborate precautions are taken to prevent it. These precautions are in fact the hard core of the small swimming bath problem: they influence its form, make necessary ancillary buildings and equipment and impose on the owners a régime which they must keep to quite strictly

Fig. 1. Swimming bath at Minchinhampton designed by the author of this article.





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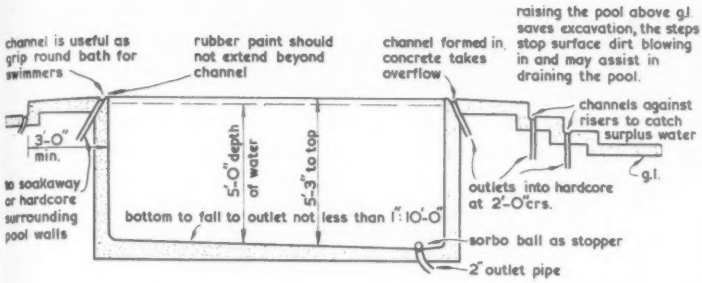


Fig. 2. Diagrammatic section through a typical concrete or brick pool.

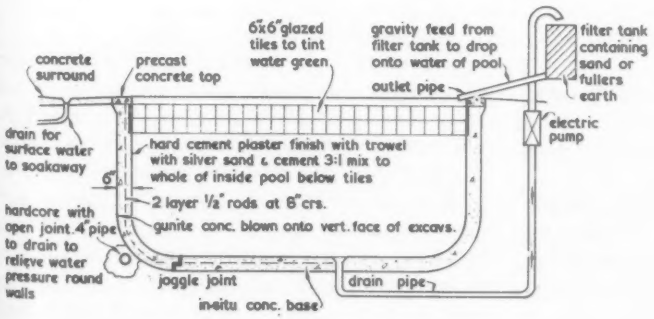
Siting

The site should be well clear of trees or shrubs which shed leaves or could shield the pool from the sun. A southern slope will assist in raising the temperature of the water while a slope may help in keeping down the cost of construction and will probably assist in disposing of the water when the pool has to be emptied. The pool should not be so close to neighbours' boundaries that the noise of people bathing might create a nuisance. A lavatory should be available close to the pool.

Surrounds to pools

Where there are young children it is essential that it should be possible to lock up the pool and that the surrounding walls or fences should be unclimbable. Solid walls or fences have the added advantage that they prevent leaves, paper, grass clippings, etc., being blown into the pool and shield the neighbours from some of the noise. Within the walls, surrounding surfaces are probably best finished with granolithic and even where the pool is completely surrounded by walls it is an advantage to keep the pool several steps above the general level of the surround so that leaves do not blow into it. Visitors will almost inevitably wish to use the pool, making it essential to have one or two changing rooms, however small, inside the pool surround and it is important that a w.c. should be available at the pool if contamination of the water is to be avoided. The surround should be large enough to give a sunbathing area clear of splashes from the pool.

Fig. 3. Diagrammatic section through a sprayed gunnite pool fitted with an electric pump for drainage and sand filtration.



Pool sizes

Twenty-five feet is about the minimum reasonable length, 30 ft. or more being probably ideal; while a width of 12 ft. allows swimmers to have races. It is questionable whether a shallow end is desirable in a pool of under 30 ft. as it tends to spoil swimming for adults, while the steep slope is dangerous for children who are probably safer wearing buoyance devices in 5 ft. of water. A bath 25 ft. × 12 ft. × 5 ft. 3 in. takes about 10,000 galls. of water.

Construction

Details are given in Fig. 3 of a sprayed gunnite concrete construction popular in the USA. This or a reinforced concrete tank is probably the cheapest and best method of construction but old cast iron sectional tanks, steel tanks, or precast concrete sections have been used successfully. Concrete is best left smooth from the shuttering or rendered and finished with a rubber paint. Iron or steel sectional tanks can be rendered on the inside by using expanded metal or mesh as a base. Whatever construction is employed it should be possible to empty the pool completely before cleaning down and carrying out overhauls. The bottom of the pool should be graded at least 1 in. in 10 ft. to the outlet hole which is best placed in a corner about 9 in. away from the sides. It is essential that every possible precaution should be taken to prevent the formation of algae, as once this starts, warm water will go green very rapidly. Painting the walls and floor of a pool with a green rubber paint each year gives a cheap and satisfactory finish and ensures that once a year no algae are present. Because of the difficulty of clearing the outlet pipes of algae and the possible formation of a solid bung of leaves in any outlet pipe during the winter months when the pool is left full, it will be found that a sorbo ball is a satisfactory and trouble-free way of closing the outlet pipe. The ball prevents the outlet pipe becoming blocked (as often happens with a valve) and when the pool is to be emptied the ball can easily be released by applying a twisting motion with a garden hoe, when it floats to the surface. If it has to be replaced when the pool is still fairly full it can be done with a broom handle with a spike on the end.

The outlet pipe should be of 2 in. diameter or more which gives an emptying time of about three hours for a 10,000 gallon pool. The disposal of water presents some problems as most authorities will not allow the water to be run into the sewer and unless there is a ditch or surface water drain available or the water may be run out over an area of ground below the pool, there is no alternative to pumping out with a small

technical section

electric pump. In this case the water may be used for watering the garden, etc., but care must be taken to see that the chemical dilution is not so strong as to have a bad effect upon plants. A small drain or soak-away should be provided near the changing rooms so that bathing costumes will not be wrung into the pool. A cross-sectional diagram of a bath which answers to this description is given in Fig. 2.

Water supply

For a pool of up to 10,000 gallons filling can be done satisfactorily with a garden hose, and there does not appear to be any need to lay on a permanent water supply to the average pool. Most authorities insist on putting in a water meter where the main is used and charge 2s. 6d. per 1,000 gallons but it may be possible to agree with the Water Board a fixed charge each time the bath is filled. Where there is an unlimited private supply of water available this should be only used for filling the pool and not left to run through the pool as this results in a very low temperature even during warm weather. A ½-in. hose takes about 27 hours to fill a 10,000 gallon pool where the water is at average pressure. Steps can be formed cheaply by placing galvanized pipes of 1 in. diameter across the corners of the pool as is done in manhole construction. Such steps can be painted with rubber paint when the pool is repainted each spring. If wooden steps or ladders are provided these should be made so that they can be taken out of the pool for cleaning and treated against algae. It is of the utmost importance that all leaves, vegetable matter, dead mice, etc., should be floated off the pool each day. A scum channel should be formed with a separate soakaway. This effectively prevents any water returning into the pool after being splashed out, can be easily cleaned and painted and in any case gives swimmers something to hold when in the pool. Side walks round the pool should be at least 3 ft. wide at the sides and 10 ft. at the ends. They must be sloped away from the pool so that any water coming out does not return into the pool, but the water flowing over the side walks must be trapped and disposed of so as to prevent it entering any sunbathing areas. In a small pool a total effective depth of 5 ft. will be found to be sufficient. The shallower the pool the warmer the water will be.

With a depth of 5 ft. a spring board should not be more than 2 ft. 6 in. above the water.

Sterilization and filtration

Swimming-bath water will deteriorate quickly from the following causes:

1. Dust and soot, leaves, animals, etc., which cause scum on the surface.
2. Everyone using the pool is a potential source of pollution from urine, sweat, mucus, etc.
3. Algae. This is a growth which flourishes in sunlight and if uncontrolled can spread through a bath very quickly. It has two forms, a free floating type which gives green colour to the water and the clinging type which grows on the floor and the walls of the bath.

Dust, soot, insects, leaves and scum must be regularly removed from the surface of the pool either by hand or floating weir where filtration is in use.

Bathers should be made to wash their feet before entering the water and if possible have baths before, as well as going to the lavatory. It is important that a lavatory should be near at hand. People with colds should not be allowed to use the pool.

Algae is easily killed by a chlorine solution but it is difficult to remove from the water once established. Regular treatment of the water by chlorination either by adding a regular dose of one of the sodium hypochlorite or concentrated chlorine solution sold for the purpose will keep the water clear. If filtration is in use this solution should be bled into the system. In a small private pool used by a limited number of people a daily application of "Voxsan" as set out by the makers will keep the water clear for long periods of sometimes up to six or eight weeks.

In America 90 per cent. of the filters in small private pools now have diatomaceous filters because this allows very small filters indeed to be used and although the water has to be forced through under pressure, this pressure is an advantage for cleaning out, when the direction of the water is reversed to clear the filter. The running costs for filter material are very low, probably not more than 2s. a week for a 10,000 gallon pool and the cost of a small diatomaceous filter complete with pump, valves, etc., should not exceed £70.

With sand filters the water is pumped from the bath into a filter tank which contains layers of fine sand and graded gravel. After passing through this, it makes its way back into the bath. All solids or impurities are left suspended on the sand. Sulphate or alumino-ferric is normally used to form a coagulant to the water before it enters the filter and this forms a film on the surface of the sand and stops the passage of particulate matter and some bacteria. Sand filters can be of the pressure type like the diatomaceous filter mentioned above or of a simple gravity type. After passing through the filter the water will be free of all small matter but will still contain bacteriological pollution which can only be eliminated by a sterilizing agent.

After being treated by chlorine, any water that is to be pumped over the garden should be left for 24 hours after the last treatment, but before emptying, the water should be tested for residual chlorine which should not show more than a trace of chlorine (0·1 p.p.m.).

Cleaning and maintenance

If the pool has been painted out in April the water will probably remain clear up to the middle of September with three refills. During the winter months the pool should be left full of water to avoid damage by frost and when the pool first freezes over the ice should be broken round the edges of the pool so as to take up the initial expansion of the ice. In April when the pool is emptied and cleaned down it should be left in dry weather for a week to ten days before the rubber paint is applied. A single coat of rubber paint

technical section

may be applied to a pool of 30 ft. × 12 ft. in about three hours by two persons, if brooms are used for applying it to the floor and large old distempering brushes to the walls. Besides this yearly attention the pool will have to be well washed down when refilling takes place with the chemical used for daily treatment. Where a pool of 10,000 gallons has no filtration plant and the water is being changed at intervals of about three weeks, the number of persons using the pool daily should be restricted to 20 persons in warm weather, while persons using the pool should be asked to have baths before using the pool, use the lavatory and wash their feet before entering the water. With these precautions the water will remain clear and attractive but once it is green with algae many people do not relish swimming in it.

Construction and costs

Excavation: In clay, sand or gravel this can be done with a tractor with hydraulic shovel in which case the cost will be under £20. In rock or stone it is cheaper to keep excavations to the minimum and keep the pool largely out of the ground. The type of pool construction depends to a degree on the type of soil. Clay is ideal for sprayed gunnite construction. If the water cannot be disposed of by gravity to a drain ditch or garden, a pump must be used and is often the cheapest method.

Carcase: Sprayed gunnite or r.c. concrete construction cost about £350 for a 10,000 gallon pool but much depends on soil and site conditions.

A secondhand cast-iron sectional tank can be erected and rendered out ready for use for about £100 but precast concrete units probably show no saving over *in-situ* construction.

A 9 in. brick pool with concrete floor would probably be satisfactory in clay ground if it had a concrete top sill containing the scum channel and was painted regularly with rubber paint to guard against leaks; it would cost about the same as concrete but could be built with unskilled labour without shuttering.

Filter: A filter, whether of diatomaceous earth or sand should not cost more than about £100.

Surround: A suitable form of cheap unclimbable solid fence is timber interwoven, but solid brick or stone walls make for warmer conditions round the pool. Granolithic on 4 in. concrete is the cheapest paving for the surround and in many ways the cleanest as it can be hosed down and there are no joints to harbour dirt or plants. Grass should be avoided but certain shrubs which do not shed leaves during the summer are suitable.

The cost of a small changing room, lavatory, sunbathing area and surround averages £350 but some existing outbuilding or wing of the house may be used for one side and make a big saving.

The local authority should be informed of the intention to make a pool and of the arrangements for obtaining and disposing of water. A Byelaw and Town Planning application should of course be made for changing rooms and lavatories.

INFORMATION CENTRE

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

10.177 design: building types
SAFETY IN THE HOME

Designing for Safety in the Home. Department of Health for Scotland. HMSO. 1s. 3d. A number of the points raised in this pamphlet concern the architect; here are the most important.

Provide a permanent fixing on the fireplace surround for a standard fireguard. Place cooker in a continuous range of fittings to give children few opportunities of climbing up to see what is cooking. Keep normal storage in easy reach. Place plug points in the kitchen well away from sink and install at least two of them to avoid trailing leads. An indicator bolt is safer than a locking device on a bathroom door. Enclose light fittings in bathrooms to discourage people from plugging hair driers, electric razors, etc., into them. If you *must* have winders on a stair, keep them to the lowest steps: never have a single step. If you must have outside stairs, keep them free of ice by embedded electric cable (this is not unduly costly to install or operate). Don't make balcony balustrades entirely solid as this makes small children want to climb up them.

10.178 design: building types
HOSPITAL SERVICES

Hospital Electrical Installations and Apparatus. By J. W. J. Leslie. *The Electrical Supervisor,* March, 1959.

Useful reading for the busy architect as it avoids detailed consideration of purely technical points

It might, in fact, have gone into more detail about some things—the use of fluorescent lighting, for instance, and the planning of such installations to counter some of the usual objections. There is no reference to the BRS work on Contrast Grading in the discussion on operating theatre lighting. The question of explosions due to static electrical discharge in operating theatres is discussed in some detail, but little reference is made to flooring recommendations on terrazzo. Some observations on the use of conductive plastic and rubber floors would have been helpful as these materials are being used ever more frequently.

But the useful stuff is there. For example: circuits feeding the X-ray apparatus should be separate from all other circuits as X-ray plant is particularly sensitive to voltage variation.

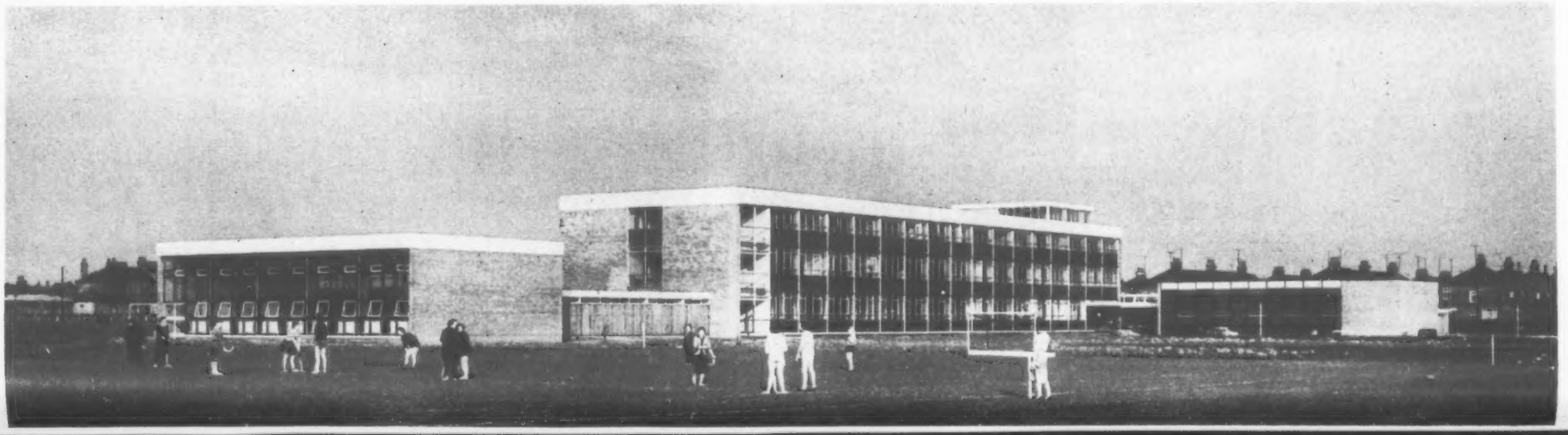
building illustrated

TECHNICAL COLLEGE

at CLEVELAND, REDCAR; designed by GOLLINS, MELVIN, WARD & PARTNERS; assistant architects A. J. HOFFMAN, P. A. WARRE CORNISH, ANTHONY BAYNES; quantity surveyors DAVIS, BELFIELD & EVEREST; consultants J. STINTON JONES & PARTNERS

Cleveland Technical College is one of the increasing number of technical schools now being built in Great Britain. The green light for their construction was given in 1956, when the Government issued a White Paper on Technical Education, and launched a five-year building programme which envisaged spending £70 million on technical schools. The Cleveland school represents an interesting intermediate stage in this programme. These schools present education authorities and architects with problems radically different from those encountered in primary and secondary schools: not least being the problem presented by the Further Education side of the programme. Accurate data concerning the requirements, space standards and numbers of pupils of technical colleges are hard to ascertain and the MOE is at present in the throes of rewriting the outdated Building Bulletin No. 5, on the basis of experience gained in building a new technical college in Preston.

View from the south-west. The gymnasium is on the left, the classroom block in the centre and the assembly hall on the right.



building illustrated

APPRAISAL: The site is roughly rectangular and faces south on to a main road on the southern edge of Redcar. The town itself is a small resort on the north-east coast of England, but a technical school there is admirably situated for drawing pupils from the fast growing industrial development on the south bank of the Tees. The principal entrance to the school is from the main road, but the secondary and service access requires some knowledge of the town, being approached through a devious layout of semi-detached houses on the east side of the site.

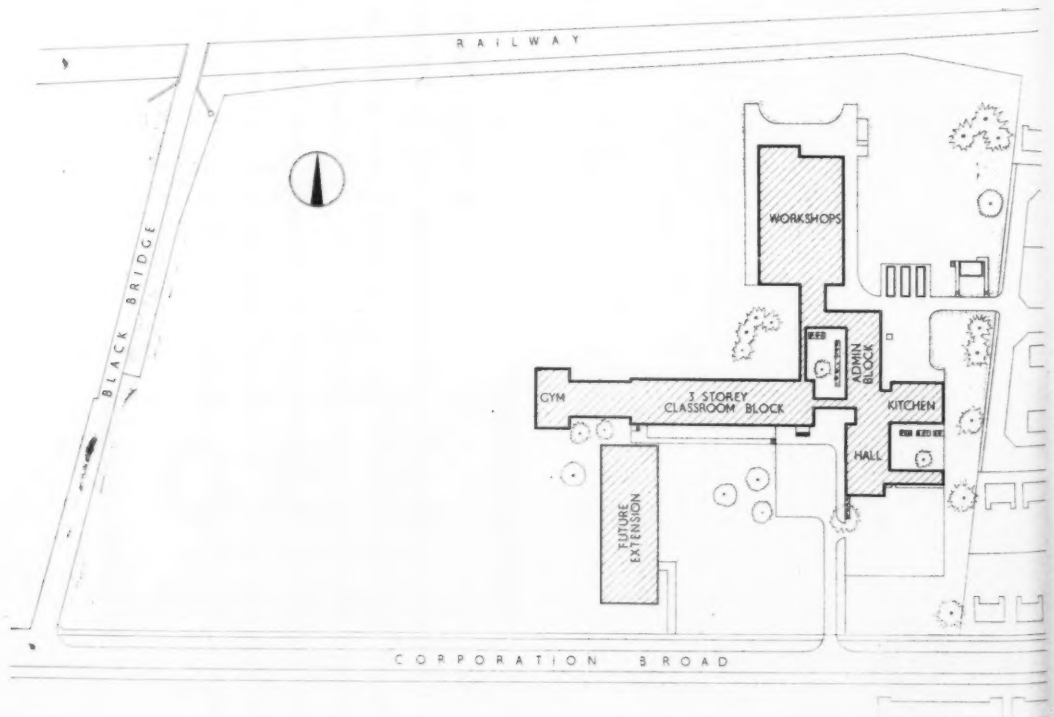
The entrance approach from the south.

The college was designed to be completed in three stages, two of which are now built. The second stage followed the first with barely a break—a very unsatisfactory situation for client and architect alike, since certain anomalies in the plan could have been avoided had this been clearly stipulated at the start. For instance, the enquiry desk and administration wing are some distance from the main entrance, and it is by no means obvious to a stranger in which direction he should walk to get help or information.

Two other features of the plan strike one immediately: firstly there are two large entrances to the school within fifty feet of each other. This is to provide completely separate entrances for night school students and for people using the assembly hall for extra-mural functions. Secondly the main teaching block faces north and south. This was a client's requirement for the architects originally planned a scheme with the conventional east-west orientation. It was reasoned that small technical rooms requiring little or no sun could be placed on the north side, and that the present block would offer a more satisfactory facade to the main road. The staff, however, occasionally complain of the excessive glare and heat in the south-facing classrooms.

The school presents a clean and well ordered elevation to every aspect of the site, in the style which has become typical of the work of the architects. Fussiness and whimsy is ruthlessly eliminated and the steel frame on the main classroom block supports a well proportioned aluminium curtain wall with blue infill panels. The curtain wall is contained between light, sand-coloured brick "bookend" walls, and a 2-ft. deep white fascia. This fascia is of white marble aggregate precast panels, the face of which has been ground to a semi-flat surface. It is very white, stands up to close inspection and should weather very well; all quite novel attributes to the general run of white fascias these days.

The aluminium curtain wall gives rise to the vexed question of its use in a salt-laden atmosphere. In spite of manufacturer's assurance that all will be well, the condition of the first phase compared with the second (one year later) gives rise to considerable doubts as to its efficacy. There would seem to be no question of its ultimate failure, but close inspection reveals extensive and unsightly pitting.

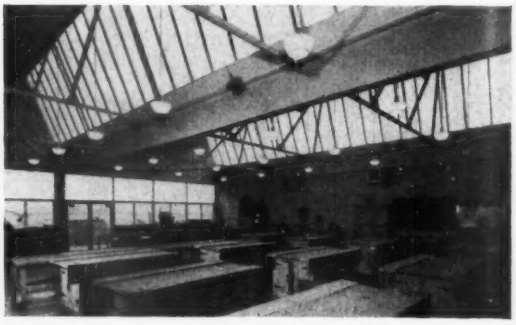


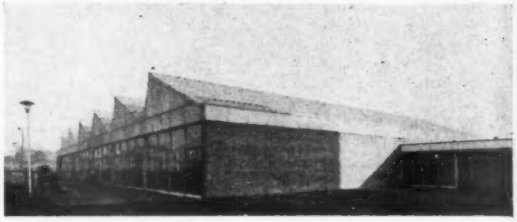
Site plan

From the main road the school entrance is clearly visible and the aesthetic problem of a corner entrance is only partially solved by pulling in the canopy to bring its centre of gravity more into the mass of the building, as is shown above. A carefully placed dash of colour (yellow and white and black) is given by the decorative tiles. The dining room (left) looks on to a courtyard, seen below, pleasantly textured with variegated paving, but still awaiting the greenery which will soften its contours and make it easier on the eye. The roof intersections are cleanly resolved and, coupled with the complex reflections in the large areas of glass, form most interesting geometric shapes and lines of interpenetration. Here, as in other parts of the school, flashing upstands are very small in an area where snow falls in large quantities.

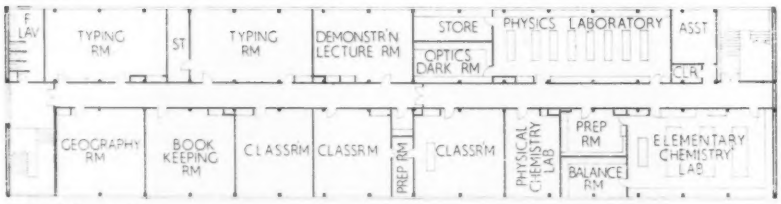
building illustrated

On the east side the main administration offices overlook the kitchen yard (above). The boiler house and workshops are also served from this area. The workshops themselves are very well lit, and the shape and finish of the rooms is most appropriate to their purpose (above right). This seems the place to point out that the building department evidently requires a large stock of bricks and other building materials, and these are piled up outside the building awaiting use. Unless a suitable storage place is provided the effect is to look as if alterations are permanently in progress outside this block. Externally the workshop block, with its traditional use of corrugated asbestos cement on a north-light roof, is unquestionably the dullest part of the job (bottom).

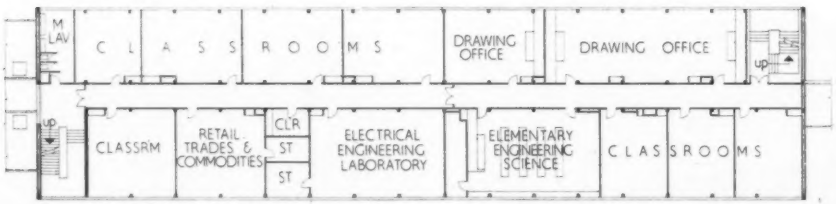




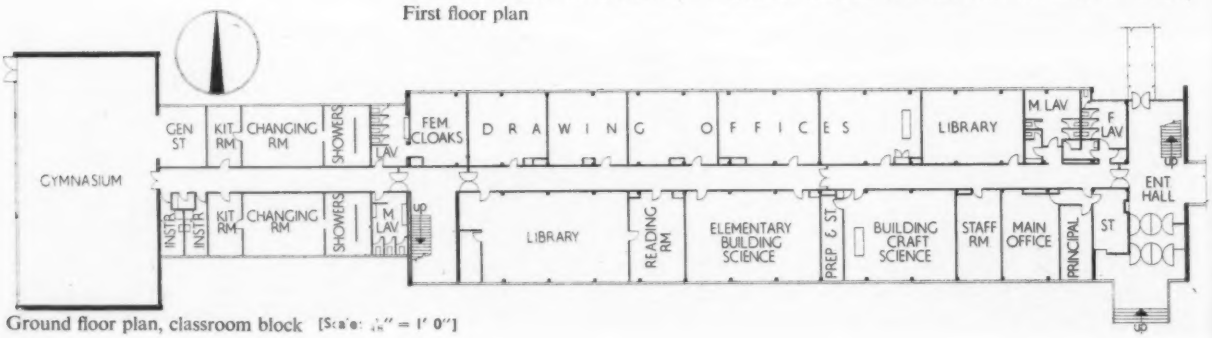
Roof plan



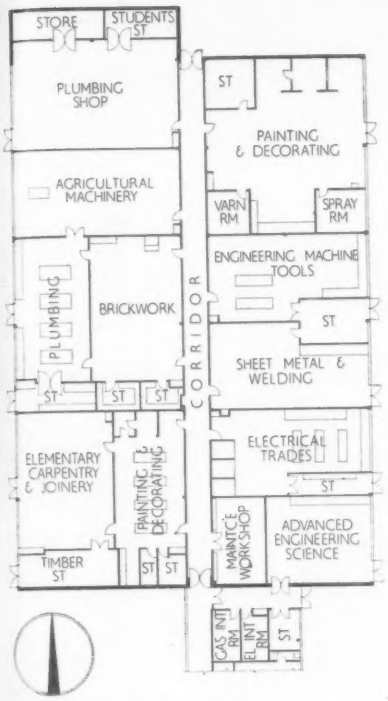
Second floor plan



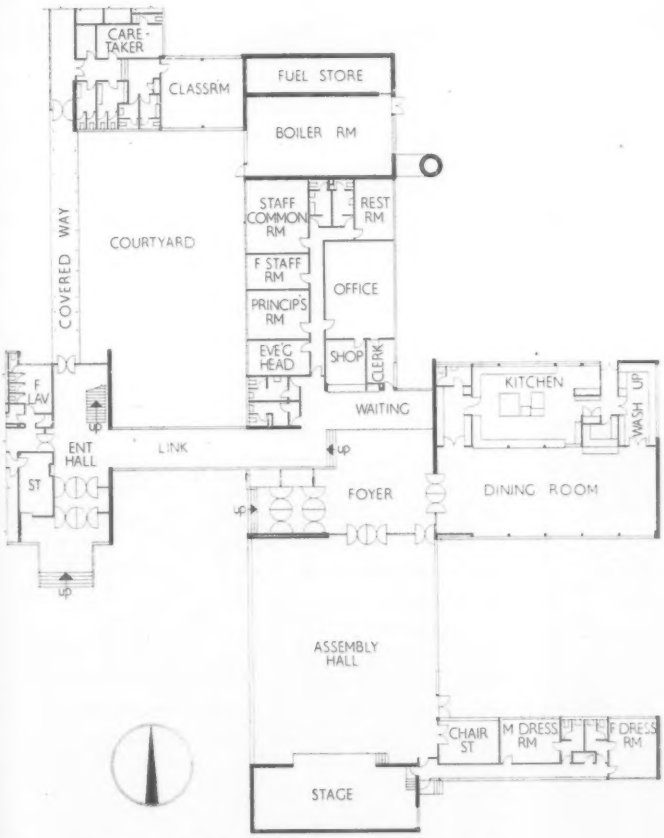
First floor plan



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



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



Groun floor plan, administrative block [Scale: $\frac{1}{16}$" = 1' 0"]

analysis

CLIENT'S REQUIREMENTS

A technical college with departments for engineering, building, science, catering and secretarial work and communal facilities consisting of entrance hall, dining room and kitchen, assembly hall, gymnasium and administrative offices. The college was to be built in three phases, the second following soon after the first, but the third not being provided for some time.

PLANNING AIMS

The first stage was to provide some teaching and workshop accommodation for all departments except that of catering and women's work, with some communal spaces. The second stage was to extend these teaching, workshop and communal spaces. The third stage was to provide for the extra department of catering and secretarial work and a youth employment office.

The nature of the first two stages called for their being considered as one architectural whole. This was seen to be most readily possible with a horizontal development, because the second stage required the simultaneous extension of several different departments.

All the teaching accommodation, other than the workshops and the department of catering and secretarial work, together with most of the administrative offices, has been placed in a three-storey building running north and south on the site, thus ensuring either east or west aspect to all teaching rooms. The assembly hall, the dining room and the gymnasium, together with their ancillaries, are placed centrally on the plan immediately adjoining the main college entrance hall and form a link between the three-storey and the single-storey workshop blocks. The workshop block, for which factory-type, north-light construction was proposed, lies in the north and least attractive part of the site, next to the railway lines, where it is directly approached from the service road. Each department in both teaching and workshop blocks has been planned to permit its extension to adjoin the present first instalment.

The college was placed at the east side of the site, allowing advantage to be taken of the views to the south and west. Access roads could also be reduced in length.

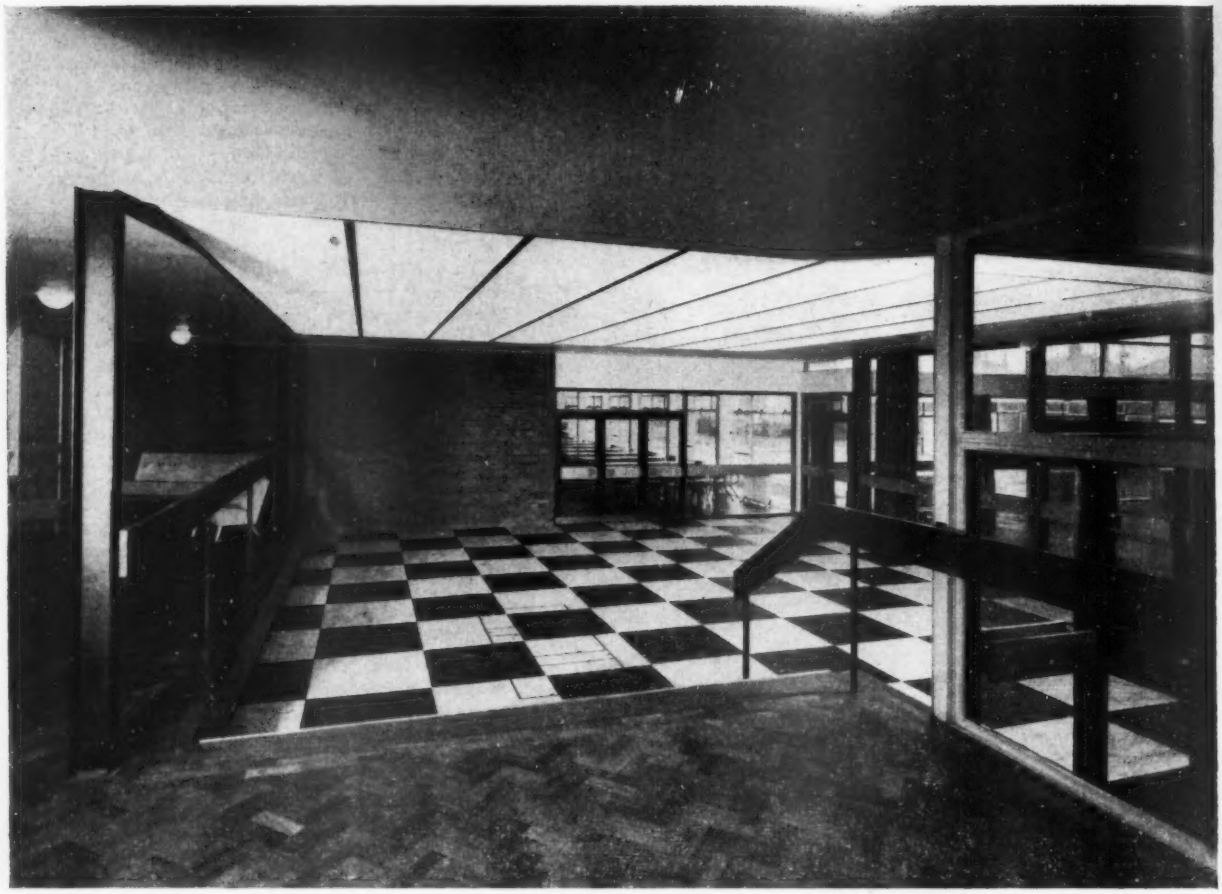
SUMMARY

Ground floor area: 51,994 sq. ft.
Total floor area: 74,062 sq. ft.
Type of contract: RIBA for Local Authorities.
Tender date: Stage 1, February 1955; Stage 2, October 1956.
Work began: Stage 1, May 1955; Stage 2, January 1957.
Work finished: Stage 1, June 1957; Stage 2, September 1958.
Tender price of foundations, superstructure, installations and finishes: £272,107 16s. 5d.
Tender price of external works, drains and ancillary buildings: £20,052 12s. 0d.
Total: £292,160 8s. 5d.

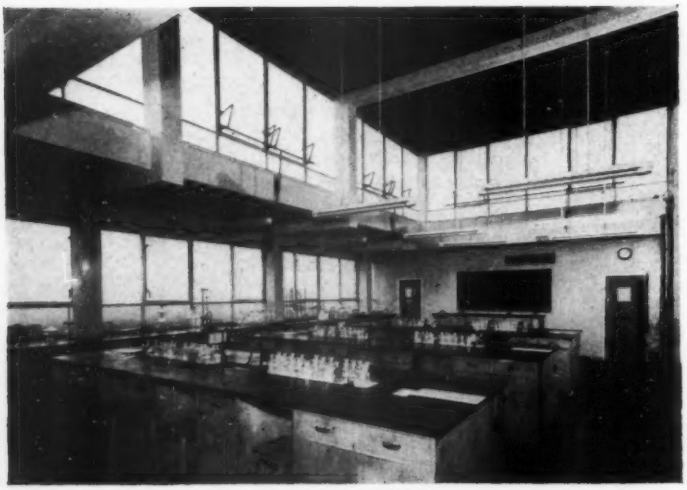
	s	d
Preliminaries and insurances	6	4
Contingencies	1	7½
Work below ground level	5	4

Mass concrete bases for stanchions. Strip foundations and brickwork generally. 18-in. × 18-in. and 18-in. × 24-in. concrete ground beams under single-storey curtain walling.
6-in. r.c. ground floor slab.

building illustrated



Internally the entrance to the dining room and assembly hall (above) is very satisfactory. A wide link corridor overlooks this spacious area with its black and white linoleum floor and corrugated translucent plastic ceiling panels. This latter material transmits a white, flat light which is used most effectively in conunction with the geometric patterns of natural sunlight through adjacent glass areas. Here as elsewhere, fairfaced brickwork is effectively used as a finishing material. It has a practical disadvantage, however, in that it cannot be cleaned easily or cheaply, and there really is no substitute for a good deep skirting of some kind. Floor cleaning materials have already disfigured the bottom course of these walls beyond all hope of renovation.



The most interesting teaching space in the school is the chemistry laboratory, which is situated on the second floor of the classroom block immediately over the entrance bay. The centre of the room is raised as a prominent clerestory, as shown left, with its own cross ventilation, marred only by some unsightly window gear. The clerestory ensures a very high level of illumination for experimental work, though the room sometimes gets very hot in summer. Much careful thought went into the layout and detailed design of the laboratory furniture, though it will take some years before accepted design standards can be arrived at in this relatively new field. At the moment every science master has his own views on how it should be done, and the variety and diametrically opposed nature of many of their preferences are most confusing. Two further points: externally the clerestory is neatly incorporated with the tank room (as can be seen on page 741); internally the integration of forced air heating grills into the internal elevations are most difficult to achieve in the rush of the job.

One of the least pleasing features of the internal design is the clerestorys in the corridor walls. They provide a valuable source of light to the circulation spaces and give cross ventilation to the classrooms, but they are insensitively detailed and sometimes appear most inconsequentially in the classroom walls.

Perhaps the most controversial piece of design from an architectural standpoint is the main stair in the three-storey block (below). In contrast to the robust reinforced concrete secondary stair at the gymnasium end of the building (above), the construction is of 2-in. mahogany treads on exposed steel bearers. One of the flanking walls is in fairfaced brickwork, so that an almost ascetic atmosphere is obtained. The combination of brick, glass; plaster, steel and hardwood produces a very resonant space and its use by a class of hefty teenagers in hobnailed boots sounds like an imminent thunderstorm. Felt pads between steel and wood and some acoustical correction on the ceiling would help a lot, but it is difficult to obtain a quiet staircase without more absorbents and a more solid construction. There are no protective nosings on the treads.

analysis

STRUCTURAL ELEMENTS

	s	d
Frame or load-bearing element Steel frame to gymnasium, assembly hall, foyer, workshops and classroom block. Load-bearing brick elsewhere.	7	5½
External walls Aluminium curtain walling. Steel windows to gymnasium, assembly hall and administration wing. 1⅛-in. cellular laminated plastic panels as spandril to curtain wall. 15½-in. faced brickwork to gable walls (4½-in. facings, 8-in. cavity, 3-in. hollow clay inner skin), except east wall of 3-storey block, which has 6½-in. cavity and 4½-in. inner brick skin. Corrugated asbestos to workshop north-light gables. Ratio: solid wall / floor area = 0·36 / 1	9	4½
Windows Steel, hot dipped galvanised. Ratio: windows / floor area = 0·256 / 1		2¼
External doors Main entrance, foyer and workshops, fully glazed in 2-in. West African mahogany frame. Elsewhere, hot dipped galvanised steel frames. No of single 10, double, 19 pairs. Ratio: doors / floor area = 0·0225 / 1		1
Upper floors 8-in. precast r.c. hollow beam units spanning 12 ft. 10 in. between r.s.j's encased in concrete. Area: 22,068 sq. ft. Superload: 60 lb per sq. ft.	2	10¼
Staircases One r.c. staircase. One steel carriage with 2-in. × 12-in. selected West African mahogany open treads without nosings. Steelwork painted. Width: both 5 ft. 6 in. Total rise: 22 ft.		5½
Roof construction	2	6½

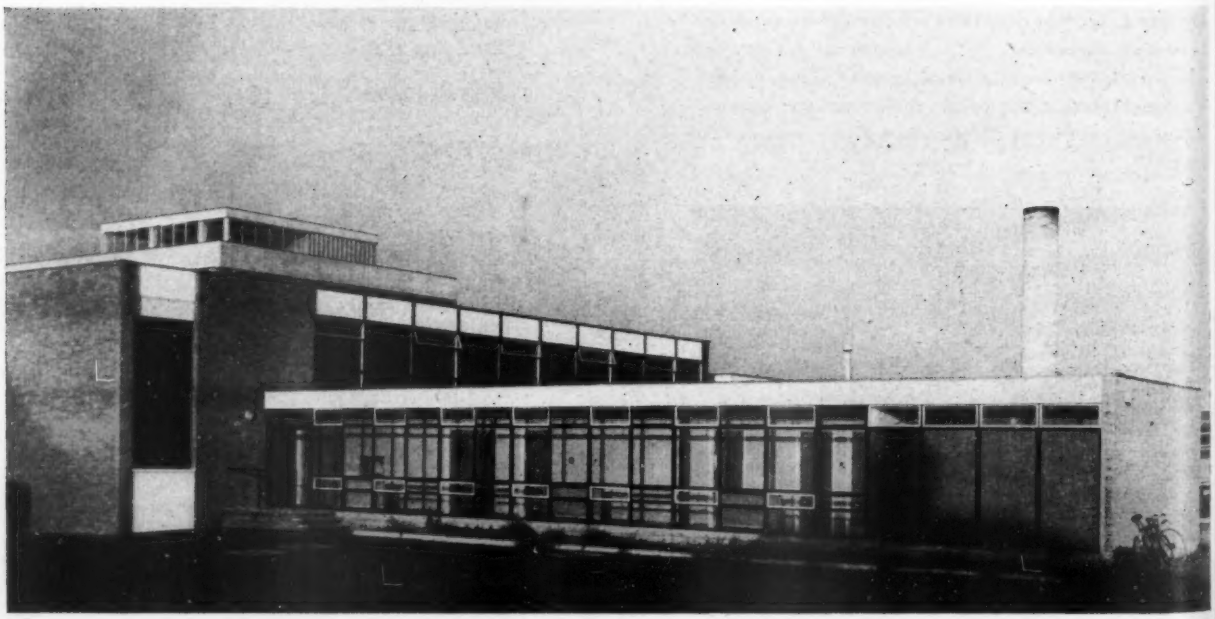
Type of roof	*Area of each type*
8-in. precast concrete with woodwool slabs	1,458 sq. ft.
Timber roof decking covered with woodwool slabs	17,352 sq. ft.
S.w. joists with woodwool slabs (1½-in. × 7-in. joists over 12-ft. 10-in. span)	15,674 sq. ft.
Steel trusses to workshop	19,170 sq. ft.

Rooflights 50 ⅜-in. roughcast glass domelights. Lantern lights and north lights to workshops. Total area: 5,156 sq. ft.		8½
Glazing Polished Georgian wired glass to gymnasium, doors and screens. Elsewhere, polished plate and sheet.	1	2¼

Total of structural elements: 24s 10½d

building illustrated

The two largest spaces in the school, the gymnasium (left) and the assembly hall (above) are both simply detailed and very well proportioned. Both make use of black painted steel window walls. The dressing rooms to the hall are strung out in a long wing from one side of the stage, shown below. This wing contributes valuably to the massing of the school and its splashes of acid yellow and vermillion on the infill panels give life to an otherwise placid exterior. A rather questionable detail is the floor to ceiling clear glazing in the access corridor to the stage. This corridor is in full view of the main road, so that curtains must be provided for privacy, should this be required for plays.



analysis

PARTITIONS AND FITTINGS

	s	d
Internal Partitions	1	9¼

Type of partitions	*Area of each type*	*Cost per sq. ft.*
4½-in. brick	17,730 sq. ft.	3s. 1¼d.
3-in. hollow clay	30,546 sq. ft.	1s. 9½d.
2-in. solid core plywood faced sliding folding partition in drawing office and plumbing workshop	504 sq. ft.	20s. 0d
¼-in. plywood infill to softwood frames above borrowed lights	432 sq. ft.	2s 0d
Metal-faced plywood to lavatories	981 sq. ft.	11s 3¼d
Expanded metal cubicles in workshops	136 sq. ft.	5s 5½d

Screens 4
Hardwood screens with Georgian wired glass to top of stairs, foyer, assembly hall and dining room

Internal doors 7
Classroom and Admin. block, 1⅜-in. hardwood faced flush, wax polished.
Elsewhere, 1⅜-in. hardboard faced flush, painted.
No. of single doors: 189
No. of double doors: 31 pairs.

Ironmongery 6¼
Anodized aluminium with lever furniture.

Fittings 4 2¼
Stage curtain track, blackout blinds, roller shutters, shelving, chart boards, draining boards, classroom benches and cupboards, laboratory benches and cupboards, shop front, blackboards, workshop benches and cupboards, kitchen fittings and servery.

Total of partitions and fittings: 7s 4¾d

FINISHINGS

Floor finishes 4 4

Type of finish	*Area in sq. ft.*	*Cost per sq. yd.*
Concrete	99	6s 10d
Grano	13,059	10s 4d
Cement and sand	205	8s 1d
Concrete flag	1,080	13s 8d
Quarry tile	7,659	34s 2d
Cork tile	603	36s 1d
Hardwood block	36,171	31s 10d
Hardwood strip	10,720	47s 8d
Asphalt	414	16s 4d

Wall finishes 1 6

Type of finish	*Area in sq. ft.*	*Cost per sq. yd.*
Workshop, assembly hall, stage and staircases, faced brickwork	6,939	22s 4d
Lavatories, glazed cement		
Showers, drying room and kitchen, glazed tile	1,773	54s 5d
Elsewhere, gypsum plaster	69,318	11s 8d

	s	d
Ceiling finishes	1	9½

Workshop, assembly hall, gym, ½-in. suspended insulation board	23,256	30s 0d
Ground and first floor in classroom block, gypsum plaster	31,167	11s 0d
Elsewhere, ½-in fibreboard and skim	15,066	10s 2d

Roof finish 1 3¾

Asphalt cement tiles to workshop	14,010	24s 9d
Elsewhere, built-up bituminous felt	34,488	15s 5d

Decorations 1 2
Distemper on plaster and insulation board ceilings.
Eggshell paint on plastered walls.
Gloss paint on wood and metalwork.

Total of finishes: 10s 1¼d

SERVICES

External plumbing 5
Asbestos valley gutters to workshops.
Cast iron r.w.p.'s, unpainted in ducts.

Hot and cold water installation 2 9½
Heating is generally by cast iron hospital-type radiators, served by low pressure hot water mains from mild steel oil-fired boilers.
Domestic hot water from local instantaneous heaters.

Sanitary fittings 8¾

Type of fitting	*No. of each type*
Drinking fountains	8
Laboratory acid waste receivers	8
Sinks, in kitchen and for cleaners (laboratory sinks are under " Laboratory fittings ")	10
Lavatory basins	45
Washdown w.c. suites	35
Urinals	19
Showers for gym instructors	2

(plus 22 roses for run-through showers)

Heating and ventilation 8 0¾

Location	*Internal temperature*	*Air changes per hr.*
Teaching and staff rooms	62 deg. F.	2
Showers, changing room, m.i. rooms	65 deg. F.	3
Gym	55 deg. F.	1½
Assembly hall	57 deg. F.	1½

U of walls: 0·25 to 0·45 BTU/sq ft/hour/deg. F.
U of roof: 0·25-0·30 BTU.

Gas installation 7½
60 points, distributed in laboratories and workshops.
Also to gas-operated water heaters in lavatories.

analysis

	s	d
Electrical installation	5	0¾

Type of point	*No. of each type*
Tungsten lightpoints	780
Fluorescent light points	85
Road lighting columns	13
13-amp socket outlets	155
3-phase points	74
Single-phase points	7
Low voltage sockets	38

Lifts or other mechanical services — 2¼

1 hand-operated hoist of 1 cwt. capacity, serving three floors in 3-storey block, with electro-magnetic brake.

Total of services: 17s 10¼d

Drainage — 2 2

External works — 3 3

Roads, playgrounds and car park in tarmacadam. Paths, precast concrete. Paved areas, precast concrete and cobbles.
Bicycle shelters.

Total per sq. ft. of floor area:
£272,107 16s 5d (net cost excluding external works) / 74,062 sq. ft (floor area measured inside external walls) = 73 6

COST COMMENTS

This technical college, although much larger than any previously analysed in the JOURNAL (Slough, May 8, 1958; Oswestry, June 12, 1958; Bedford, January 29, 1959) reveals the same pattern of costs, if the main element groups are expressed as percentages: *i.e.*

Preliminaries and insurances	10 per cent
Foundations	7 per cent
Structural elements	34 per cent
Partitions and fittings	10 per cent
Finishes	13 per cent
Services	26 per cent

To assist in rapid assessment of varying forms of construction, finishes, etc., certain elements have also been expressed as unit costs, providing a useful guide for future reference and comparison. A further, similar, breakdown could usefully have been shown for parts of the workshop block, which has incorporated some economical factory construction techniques. These economies affected the overall cost for the elements affected, notably the external walls and roof, and considerably reduced the cost per square foot, enabling the architect to fit the building within the cost limits set by the MOE, which vary greatly for workshop, administration and teaching areas.

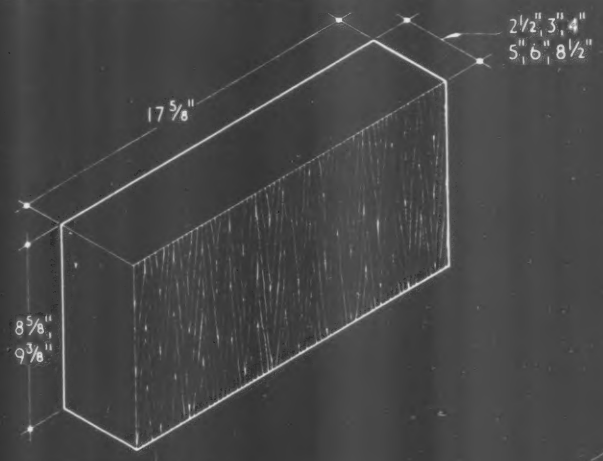
CONTRACTORS

General contractors: F. Shepherd & Son Ltd. *Sub-contractors (Stage I): Structural steelwork:* Banister, Walton & Co. Ltd. *Reinforced concrete floors, etc.:* Girlingstone Co. Ltd. *Metal windows, screens, curtain walling, etc.:* Holoplast Ltd. *Precast facing slabs:* Malacarp Terrazzo Co. Ltd. *Woodblock and strip flooring:* Hollis Bros. Ltd. *Precast concrete boiler stack:* True-Flue Ltd. *Built-up bituminous felt roofing:* D. Anderson & Son Ltd. *Mechanical services (installation):* Steels Engineering Installations Ltd. *Electrical installation:* Jowett & Throp Ltd. *North light roof patent glazing:* Henry Hope & Sons Ltd. *Sanitary fittings:* B. Finch & Co. Ltd. *Suspended ceilings:* Anderson Construction Ltd. *Timber door frames, fanlights, etc.:* F. Shepherd & Son Ltd. *Preformed w.c. partitions:* Venesta Ltd. *Impervious wall finish:* Cement Glaze Ltd. *Roller shutters:* Shutter Contractors Ltd. *Sliding partitions:* Esavian Ltd. *Dome lights:* T. W. Ide Ltd. *Foundation stones:* E. J. & A. T. Bradford Ltd. *Ironmongery:* W. N. Froy & Sons Ltd. *Tesselated tiles:* Harradine & Rouse & Co. Ltd. *Library fittings:* Roneo Ltd. *Printed wall tiles:* Carter & Sons (London) Ltd.

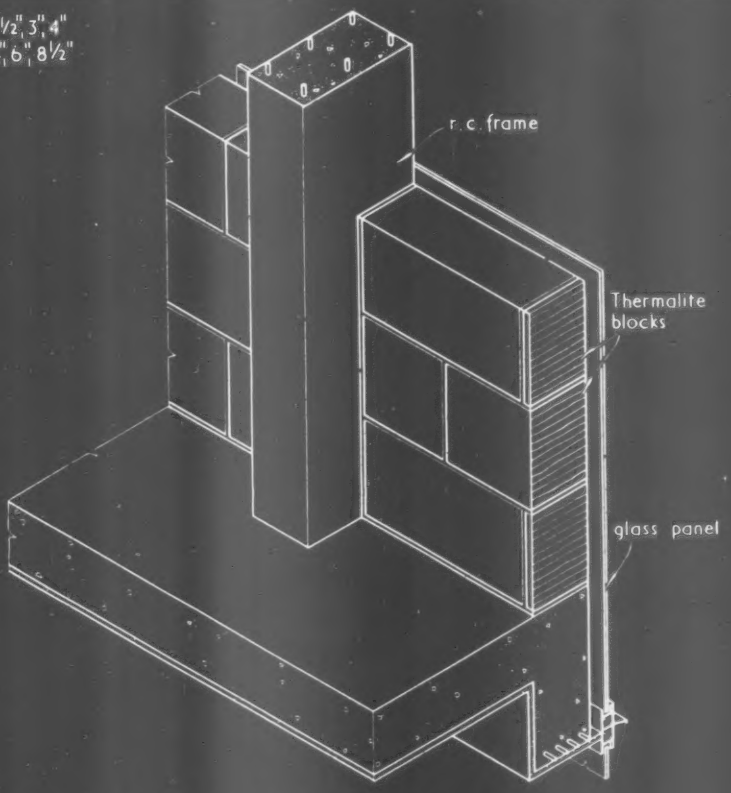
Sub-contractors (Stage II): Structural steelwork: Banister, Walton & Co. Ltd. *Reinforced concrete floors, etc.:* Concrete (Northern) Ltd. *Screens, curtain walling, etc.:* Holoplast Ltd. *Metal windows:* Middlesbrough Casements Ltd. *Precast facing slabs:* Malacarp Terrazzo Co. Ltd. *Woodblock and strip flooring:* Hollis Bros. Ltd. *Built-up bituminous felt roofing:* D. Anderson & Son Ltd. *Mechanical services installation:* Brightside Heating & Engineering Co. Ltd. *Electrical installation:* Humber Electrical Engineering Co. Ltd. *North light roof patent glazing:* Middlesbrough Casements Ltd. *Sanitary fittings:* W. N. Froy & Sons Ltd. *Suspended ceilings:* Sundeala Board Co. Ltd. *Timber door frames, fanlights, etc.:* F. Shepherd & Son Ltd. *Preformed w.c. partitions:* Venesta Ltd. *Impervious wall finish:* Cement Glaze Ltd. *Roller shutters:* Shutter Contractors Ltd. *Dome lights:* T. W. Ide Ltd. *Ironmongery:* Stedall & Co. Ltd. *Timber roof units:* H. Newsum, Sons & Co. Ltd. *Illuminated ceiling:* Lumenated Ceilings Ltd. *Hand lift:* George Johnson Ltd.

BUILDING BLOCKS | LIGHTWEIGHT | GENERAL DATA

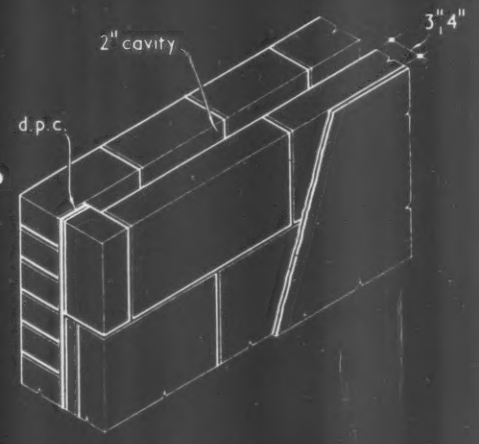
The Architects' Journal Library of Information Sheets 720 Editor: Cotterell Butler, A.R.I.B.A



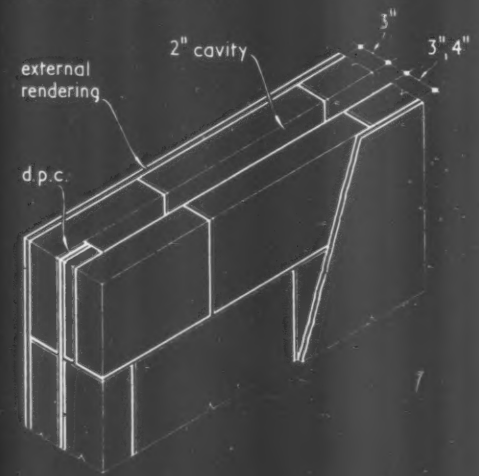
STANDARD BLOCK.



TYPICAL APPLICATION TO CURTAIN WALL.



with brick external skin



with block external skin

APPLICATIONS TO CAVITY WALLS.

type of wall		maximum permissible uniformly distributed loads in lb per foot run for storey heights in feet and inches							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
cavity	4½" brick, ext. 2" cavity 3" block	1880 2130	1700 1930	1560 1770	1470 1660	1380 1560	1290 1460	1200 1360	1140• 1290°
	4½" brick, ext. 2" cavity 4" block	2460 2670	2300 2470	2120 2270	1940 2080	1790 1920	1700 1820	1600 1720	1530• 1620°
	3" block, ext. 2" cavity 3" block	1430 1620	1320 1500	1200 1360	1130 1280	1050 1190	970 1100	900 1020	830• 940°
	3" block, ext. 2" cavity 4" block	1930 2080	1760 1890	1660 1770	1550 1660	1430 1540	1340 1430	1260 1360	1190• 1280°
	3" block	1000 1130	900 1020	800• 910°					
solid	4" block	1630 1750	1490 1600	1370 1470	1290 1380	1200 1290	1110 1190	1020 1100	950• 1030°
	6" block	3230 3600	3030 3380	2800 3130	2600 2910	2380 2660	2220 2470	2100 2350	2000• 2240°

•using 1 : 2 : 9 cement, lime, sand mortar

°using 1 : 6 plasticised cement, sand mortar (equivalent to 1 : 1 : 6 mortar)

TABLE OF DISTRIBUTED LOADS.

for non-loadbearing partitions reference should be made to L.C.C. London Building (Constructional) Byelaws Part V, Walls and Piers, Byelaw 5.10, Clause 4

THERMALITE LIGHTWEIGHT LOADBEARING BUILDING BLOCKS. Manufacturer: Thermalite Ytong Limited.

14.K3 ·THERMALITE· LIGHTWEIGHT LOADBEARING BUILDING BLOCKS

This Sheet describes Thermalite insulating lightweight blocks for loadbearing or non-loadbearing walls and partitions. The drawings on the face show the standard blocks available and typical applications: the table gives maximum load figures for various constructions. For the construction of non-loadbearing partitions reference should be made to L.C.C. London Building (Constructional) Byelaws Part V *Walls and Piers* Byelaw 5:10 Clause 4.

Material

The blocks are of aerated lightweight concrete, subjected during manufacture to high-pressure steam curing which renders them chemically inert and physically stable. The blocks can be easily cut, chased, sawn and worked, and cut nails and coarse wood screws can be driven directly into them, without plugging, for fixing joinery and fittings.

Sizes and Weights

The standard blocks are available to the sizes given on the face of the Sheet. A 3-in. block, 8⅝ in. high, weighs 14 lb., 4-in., 19 lb., and 6-in., 28 lb.

Characteristics

Dry density: 50 lb. cu. ft.

Compressive strength cube, as delivered: 750 to 800 lb. sq. in. conforming to B.S. 2028: 1953 for Type A and B blocks.

Modulus of rupture, as delivered: 160 lb. sq. in.

Drying shrinkage: 0·06 per cent. (tested to B.S. 2028: 1953).

Moisture movement: 0·05 per cent. (tested to B.S. 2028 : 1953).

Thermal insulation: The thermal conductivity (*k*) is 1·4 B.t.u./ft² h deg. F per in. thickness of the material. The U value for two 3-in. skins with normal finishes is 0·15 B.t.u./ft² h deg. F.

Sound insulation: A 10-in. cavity wall, allowing for a 2-in. cavity and plastered on both faces has a sound reduction factor of 49 decibels. A 4-in. partition, plastered both sides, has a sound reduction factor of 39 decibels.

Fire resistance: A 4-in. partition, plastered or unplastered, gives a 4-hour grading in accordance with B.S. 476.

Laying

The blocks should be kept dry before laying. They should be laid in accordance with B.S. Code of Practice C.P. 122 : 1952 *Walls and Partitions of Blocks and of Slabs* where appropriate to lightweight concrete. The mortar should not be rich, suitable compositions being 1 : 6 cement/sand with a suitable plasticiser added, or 1 : 2 : 9 cement/hydrated lime putty/sand: all proportions by volume. Under cold, wintry conditions 1:1:6 cement/hydrated lime putty/sand should be used.

Thermalite blocks should not be used below the damp-proof course. The wall cavity should be closed at eaves level with 3-in. blocks laid flat: brick or other dense material should not be used. Wire ties should be used in preference to twisted flat ties and for 3-in. blocks they should be spaced at 1 ft. 6 in. centres vertically and horizontally: where either or both skins of the wall exceed 3 in.this can be increased to 3 ft. 0 in. horizontally and 1 ft. 6 in. vertically. Two ties should be provided in each course of narrow piers between openings. Lintels should be precast wherever possible, but where casting in situ cannot be avoided two thicknesses of smooth felt d.p.c. should be placed under the lintel bearings. Seatings for lintels should not be composed of small offcuts, but should be restricted to fractions not less than half-block length. Where long lengths of Thermalite blocks are to be constructed, the continuity should be broken at approximately 20 ft. intervals by joints to take up any movement: these can be formed by unbonded blocks at that point or the completed skin can be cut through with a coarse carborundum wheel to a depth of 1½ in. Wall ties must be provided across the cavity closely adjacent to the joint in both cases. Partitions abutting a dense concrete or steel column should be tied in with a short length of plain hoop iron in every alternate course.

Joinery and other fittings can be securely fixed to the blocks with cut nails or No. 12 wood screws. Where removal of fixtures is desired screws in patent plugs can be used.

Finishes

The textured faces of the blocks give a key for plastering or rendering. Where they are to be painted direct this should be specified when ordering: they may be painted with any non-saponifying alkali-resisting paint, plastic emulsion paint being particularly suitable. Glazed wall tiling and terrazzo or faience slabs may also be fixed to the blocks with 1 : 3 cement/sand mortar in panels not exceeding 12 ft. 0 in. square or with fixing mastics. External hung tiles can be fixed to battens directly nailed to the Thermalite blocks or, alternatively, nailed direct to the blocks without the provision of battens by using alloy cut shank nails.

External rendering: The building should be allowed to dry out thoroughly before rendering is begun. One of the following alternative specifications may be adopted: all proportions are by volume.

(*a*) 1 : 6, ordinary Portland cement/plastering sand with approved plasticiser added.

(*b*) 1 : 4, Tunnel masonry cement/plastering sand.

(*c*) 1 : 2 : 9, ordinary Portland cement/hydrated lime putty/plastering sand.

Under cold, wintry conditions 1 : 1 : 6 cement/hydrated lime putty/plastering sand should be used.

Internal rendering: Internal rendering may be carried out to any of the specifications given for external rendering or either of the following:

(*d*) 1 : 2 to 3, Browning plaster (retarded hemihydrate class B)/plastering sand.

(*e*) Pre-mixed gypsum-bound lightweight aggregates.

Rendering to any of the specifications should be finished with a wood, not steel, float.

The appropriate finishing coat for all the above specifications except (*d*) is 1 : 3, hydrated lime putty/gypsum plaster, anhydrous class C or retarded hemihydrate class B. The finishing coat for (*d*) is 1 : 3, hydrated lime putty/gypsum plaster, retarded hemihydrate class B (or in accordance with the plaster manufacturer's instructions). All specifications can be finished with a pre-mixed gypsum-bound lightweight aggregate.

Compiled from information supplied by:

Thermalite Ytong Limited.
Address: Hams Hall, Lea Marston, Sutton Coldfield, Warwickshire.
Telephone: Coleshill 2081.

DOMESTIC SEWAGE TREATMENT: 2

This Sheet, together with Sheet 33.L2, deals with the design and construction of sewage treatment works for the individual house or group of houses. They are based on B.S. Code of Practice C.P.302.100: 1956. The two Sheets should be read in conjunction, the following notes referring to the drawings on the face of Sheet 33.L2.

Septic Tank

Capacity: The table on the face of Sheet 33.L2 gives dimensions for a two-compartment in-situ tank based on the number of persons served. Figures are given for six-monthly and twelve-monthly desludging, the former being recommended by the Code of Practice. The longer period should be avoided where possible as it requires a larger tank than necessary.

Construction: The drawings on the face of Sheet 33.L2 show a simple two-compartment tank built in brickwork and concrete on the site. The base is 6-in. concrete of 1 : 2 : 4, cement/sand/aggregate. Internal walls are 4½ in., external 9 in., built in clay engineering bricks, laid in 1 : 3 cement mortar, properly bonded and flushed up. If engineering bricks are not used, the walls should be finished internally in ¾-in. waterproof cement rendering. The cover consists of removable precast concrete planks, 2½ in. thick. Standard cast-iron tee pipes for inlet and outlet should be built in as the work proceeds. The ventilation of a septic tank is an essential part of its function and on the drawing the cover boards are shown slotted.

Alternatively, the tank may be constructed with precast concrete manhole sections to B.S.556 which are supplied in the following lengths: 12 in., 18 in., 24 in., 30 in., 36 in., 42 in., 48 in., and the following internal diameters: 36 in., 42 in., 48 in., 54 in., 60 in., 72 in. The base and cover should be as for the brick tank.

Sub-surface Irrigation

Many Local Authorities will accept this as an adequate means of secondary treatment, and it has the advantages of being out of sight and not requiring maintenance. Also, the process involves the complete dissemination of the effluent by percolation through the surrounding soil, eliminating the need for final disposal. In principle it acts the same way as a biological filter. However, it requires an area of land sufficiently large for the laying out of the pipes, and should not be used where the water table is higher than 6 ft. in winter.

Sub-surface irrigation consists of a system of open-jointed pipes, which may be spigot-and-socket salt-glazed pipes, but butt-jointed field drains are preferable, as they are cheaper and just as efficient. The pipes should be 4 in. in diameter and laid in trenches filled with a filter medium, such as hard burnt clinker, washed quartzite gravel or broken stone, 1-in. to 2-in. gauge.

Trenches, approximately 24 in. wide and 24 in. deep, should be excavated and the bottom filled with 6 in. of clinker or washed gravel, etc. The drains should be laid on this clinker bed to a slight fall, not more than 1 in 200. The open joints of the pipes should be covered on top with strips of tarred felt or portions of half-round channel pipes to prevent the entry of silt. Similar clinker should be carefully hand-packed around the pipes and the same material used for back-filling to ground level, or, if impracticable, to within 6 in. of ground level, covering with loam and turfing over.

The length of drain required will depend upon the porosity of the soil, i.e., its capacity to absorb the effluent. This is determined by the following test: choosing a fine day, with a prospect of a fine night, during a period when the weather is reasonably normal (no unusually wet or drought conditions), a hole 24 in. square by 12 in. deep should be dug in the area where it is intended to put the irrigation pipes. The hole should be filled with water in the afternoon and left until the following morning. Then water should be poured gently into the empty hole until it is 9 in. deep and the time taken for it to soak away observed. This time is divided by 9 to find the average time taken for the water to fall 1 in. The length of pipe may then be determined from the following table:

Average time for 1-in. fall (minutes)	2	3	4	5	10	15	30	60
Length of irrigation drain (feet)	33	45	53	60	80	98	135	180

The layout of sub-surface irrigation drains is largely a matter of choice and is influenced by the area of land available and its contours. As a general principle, pipes should be laid to follow the contours but the layouts on the face of Sheet 33.L2 serve as a guide.

The first 6 ft. of pipe from the septic tank to all branch drains should be salt-glazed pipe jointed in cement mortar. In diagrams 2 and 3 the whole of the main drain should be in cement-jointed salt-glazed pipe to a point just beyond the last branch. The length of jointed pipe is additional to that determined by the table above. The maximum length of drain in any one direction is 60 ft.

Some Local Authorities require a collecting pit at the end of the septic tank to which the various branches of the sub-surface irrigation drains are connected, the object being to collect the effluent from the tank and distribute it evenly to each branch: this is shown in diagram 1 on Sheet 33.L2. A further refinement is the use of an automatic dosing-syphon in the collecting pit. The pit should be approximately the width of the septic tank by 20 in. (minimum) by a depth of 9 in. below the invert of the pipe from the septic tank. It should be built with a 6-in. concrete base, 9-in. brick walls and removable precast concrete covers as for the septic tank.

Biological Filter

Although this method of secondary treatment is recommended by the Code of Practice, it should only be used where specifically directed by the Local Authority.

Capacity: The table on the face of Sheet 33.L2 lists dimensions for a biological filter according to the number of persons served.

33.L3 DOMESTIC SEWAGE TREATMENT: 2

Construction: The drawing shows a filter built in brickwork and concrete on the site. The base is 6 in. (minimum) concrete, 1 : 2 : 4 as for the septic tank, laid to fall to a centre channel, 3 in. wide by 1 in. deep at the high point and falling to the outlet pipe as shown. The centre channel is covered with half-round inverted salt-glazed channels, unjointed. Similar channels are laid upside down over the floor of the tank connecting with vertical cast-iron pipe ventilators, as shown. These ventilators are jointed together and covered on top with galvanised wire balloon grating. Certain manufacturers supply a special floor tile which supports the filter medium and provides an air space beneath it into which the effluent will percolate. The walls are in 9-in. brickwork, as for the septic tank. The distributing equipment comprises a half-round cast-iron channel, which spills the effluent over a perforated sheet of corrugated galvanised iron, laid to fall from the channel end. Some Local Authorities will allow only specially manufactured distributing equipment to be used which spreads the effluent in regulated doses and, though more expensive, is much more efficient and foolproof. The filter should be filled with either hard burnt clinker, washed quartzite gravel, hard broken stones or blast furnace slag free from dust and other impurities. Efficiency depends on careful grading, e.g., 4 in. to 6 in. at the bottom to a depth of about 6 in. and the remainder 2 in. nominal (maximum).

Unlike the septic tank, the filter tank should not be covered over, except with wire netting to keep out leaves.

Final Disposal of Effluent

After treatment in a biological filter it is necessary to dispose finally of the effluent. This may be done in one of three ways:

1. By discharge to a watercourse. The permission of the Local Authority or River Board is required and any conditions imposed by such Authorities must be complied with. The invert level of the outfall should be not lower than the highest water level of the stream. If necessary, a screen should be provided to prevent choking of the outfall by floating debris.
2. By sub-surface irrigation. This involves the same system of sub-surface drains described for secondary treatment and the length of drain required is as described previously.
3. By discharge to a soakaway pit. The pit should be not less than 4 ft. square by such depth as directed by the Local Authority. It should be lined with 4½-in. brickwork, laid in cement mortar but with perpends left open, 1 in. wide, below the level of the invert pipe. The bottom of the pit should be filled with 1 ft. 0 in. of sand to trap humus. At intervals the humus must be scraped off and any lost sand replaced. The pit should be covered with removable sections of stone or precast concrete. The effluent is piped from the biological filter in jointed salt-glazed pipes laid to a fall of 1 in 40 for 4-in. pipe, etc. A soakaway pit can only be used in a porous sub-soil such as gravel, sand, chalk or fissured rock.

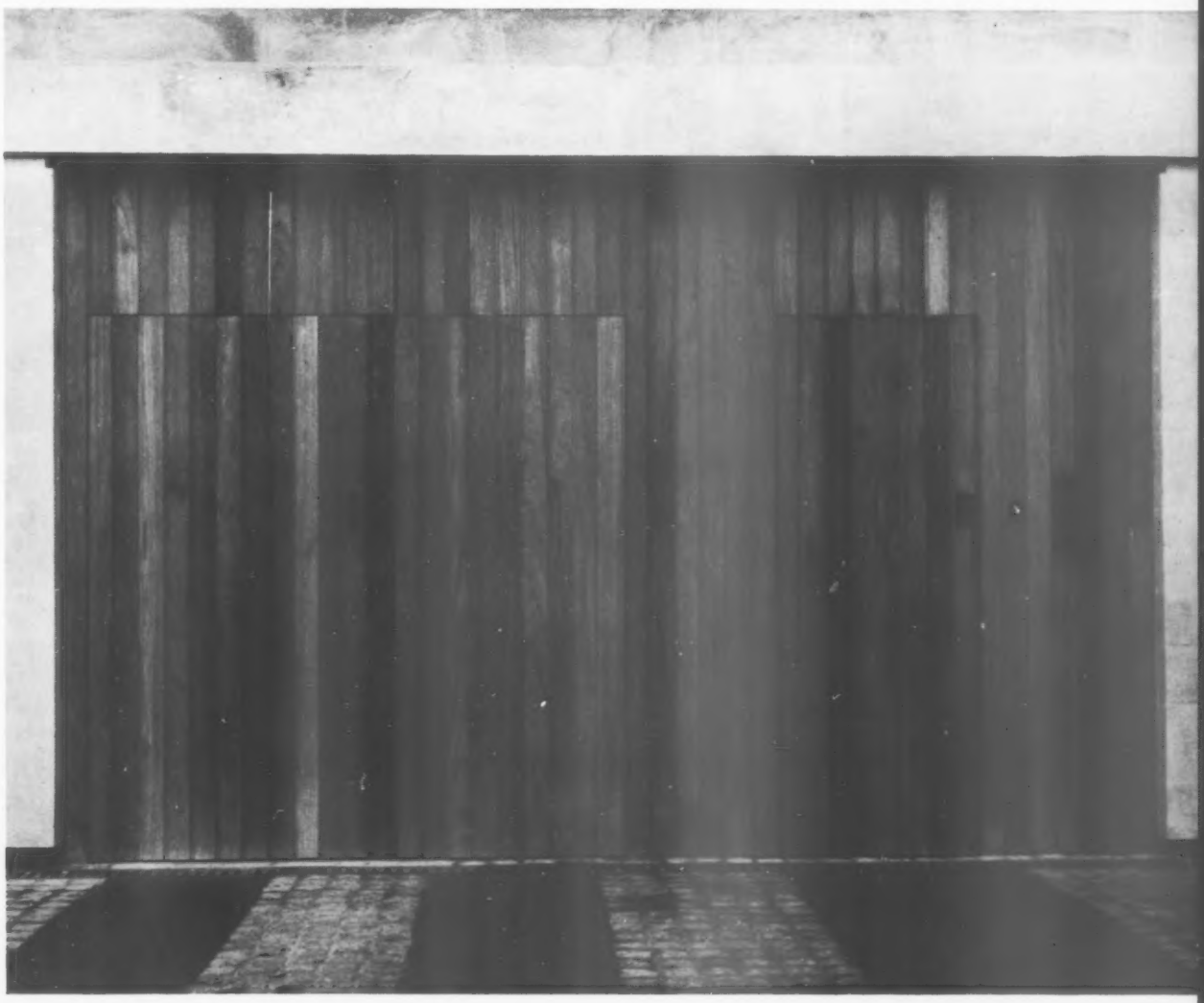
The choice of method will depend on the availability of a watercourse, local soil conditions, etc., but will usually rest with the Local Authority.

Compiled by G. C. A. Tanner, A.R.I.B.A.

working detail

GARAGE DOORS: COLLEGE IN OXFORD

Architects' Co-Partnership, architects

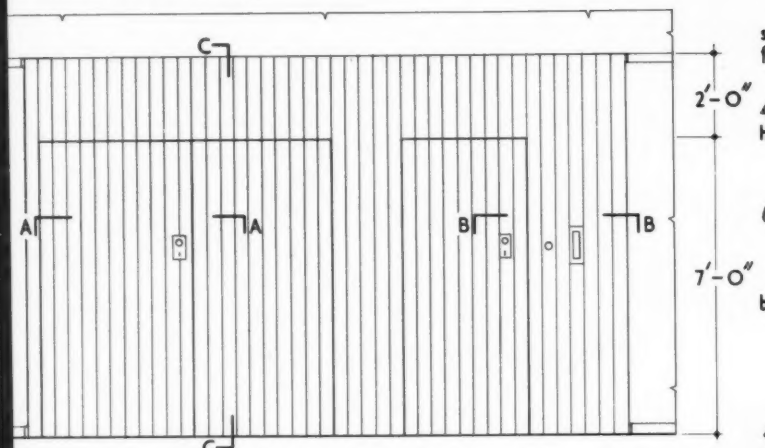


The cladding of both doors and screen is teak. In order to avoid visible hinges and, at the same time, to carry the exceptional weight of each leaf (160 *lb.*), *the garage doors open on pivots.*

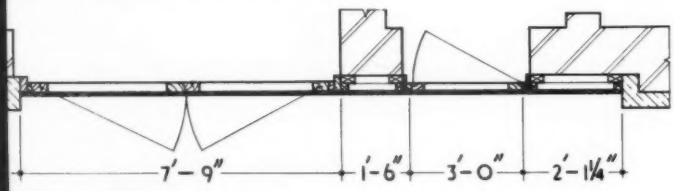
working detail

GARAGE DOORS: COLLEGE IN OXFORD

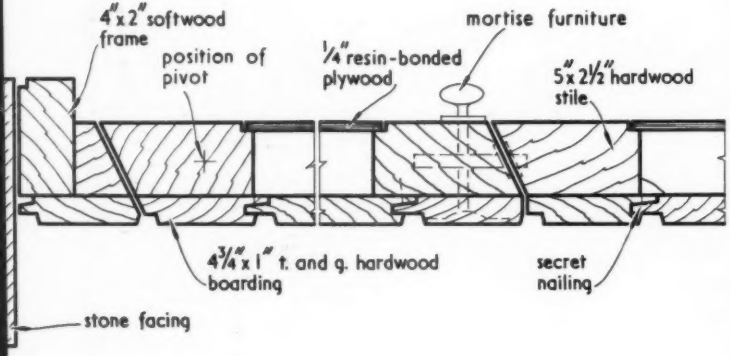
Architects' Co-Partnership, architects



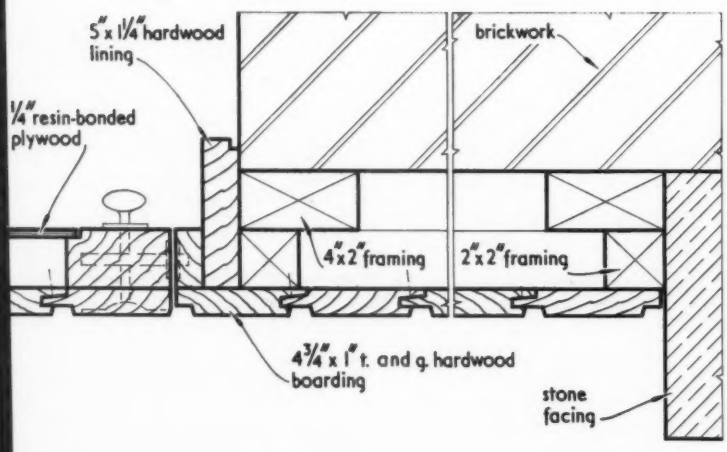
ELEVATION. scale 1/4" = 1'-0"



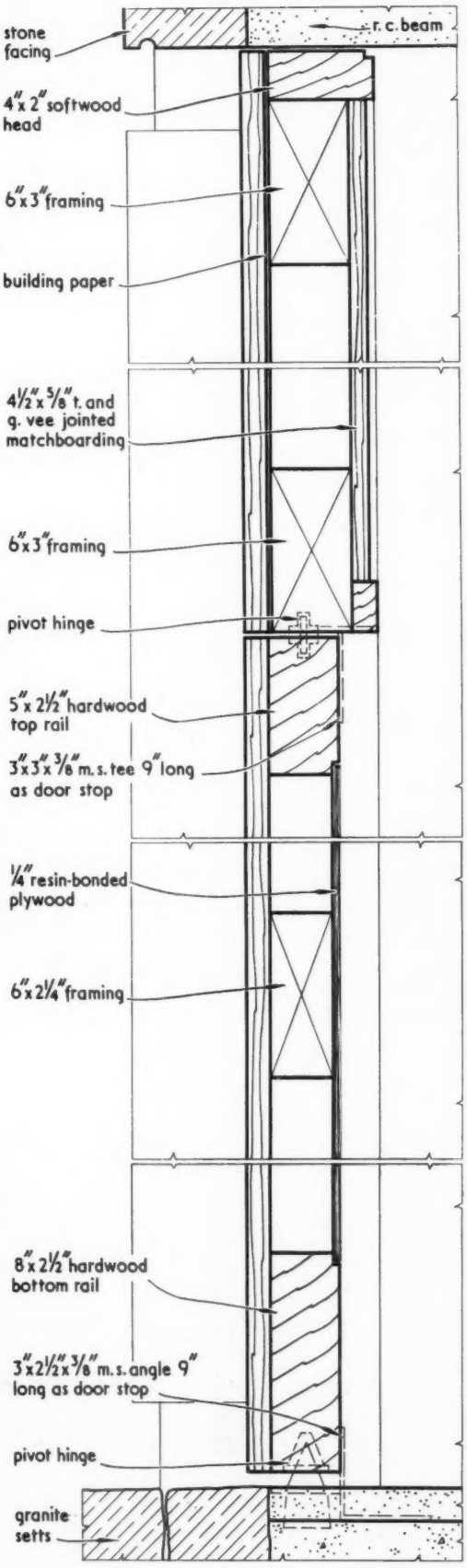
PLAN. scale 1/4" = 1'-0"



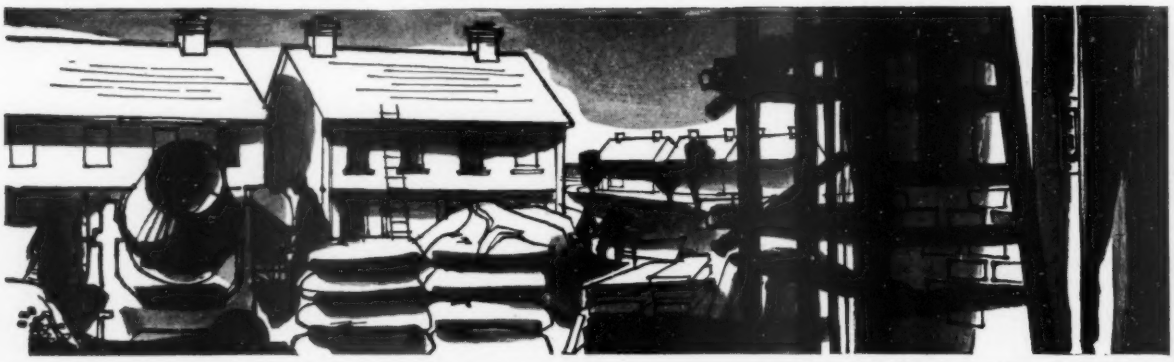
PLAN AT A – A. scale 3/16 full size



PLAN AT B – B. scale 3/16 full size



SECTION D – D. scale 3/16 full size



Redfyre Bacboilers provide low-cost water heating in new housing schemes at Aycliffe, Peterlee and Stevenage

A Redfyre Bacboiler supplies ample domestic hot water, and heats one or two radiators as well. (Or it will heat up to four radiators if hot water isn't needed.) Installation is simple and quick and maintenance costs low. Two new Ministry approved Redfyre grates with Bacboilers are now available — the new Hearth Redfyre with sunken grate and underfloor draught; and the Redfyre 60, a new low-cost controlled-burning fire with exceptionally clean modern lines. All Redfyre fires are fitted with 30% chrome, semi-steel bottom grates for longer life.

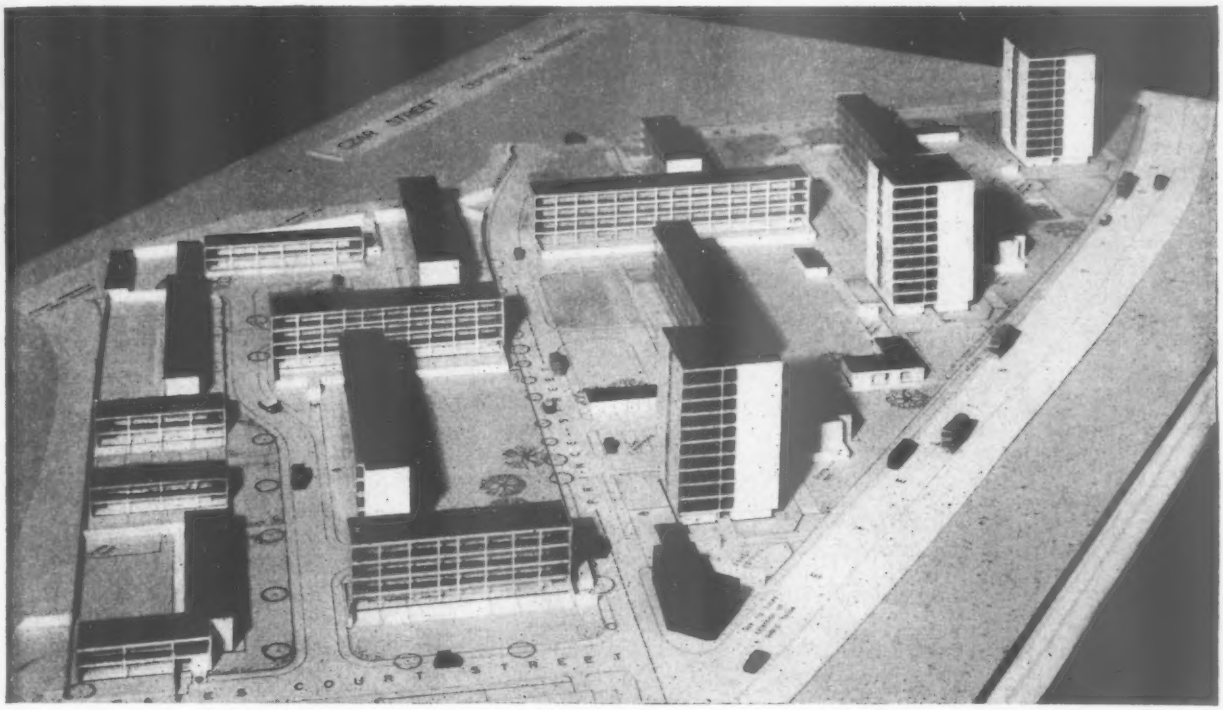
Bacboilers like this are being installed in new homes at Aycliffe.
Chief Architect: G. A. Goldstraw, O.B.E., B.A. (ARCH.), A.R.I.B.A.

REDFYRE

Full technical information from

NEWTON CHAMBERS & COMPANY LIMITED
REDFYRE PRODUCTS, THORNCLIFFE, SHEFFIELD

HOUSING IN CZAR STREET, LONDON, S.E.8



A new housing development scheme, partly in Greenwich and partly in Deptford, submitted by the Housing Committee of the LCC. It is designed to provide 360 dwellings, a surgery, children's care office, and space has been reserved for a future youth centre. Garages and parking space will also be provided. (Architect: Hubert Bennett, architect to the LCC.)

Announcements

PROFESSIONAL

M. E. Gooch, M.A., A.A.Dip., A.R.I.B.A., has joined Mrs. S. M. Gooch, A.R.I.B.A., in practice under the style of Michael and Sheila Gooch, at Gurney Court, Magdalen Street, Norwich (telephone 27506).

Spencer & Gore, architects, have now moved to new premises at 6a, Smith Street, London, S.W.3 (telephone Sloane 1594).

Oscar Faber and Partners, consulting engineers, have now opened an office at 31, College Gardens, Belfast (telephone Belfast 33088).

R. Stout, A.R.I.B.A., has now moved to 12, Eccleston Square, Westminster, S.W.1.

Peter H. F. Stiles, F.R.I.B.A., has relinquished his partnership in the firm of Ramsey, Murray, White and Ward; this has been by mutual consent and, in future, he will practice independently at 9, Devereux Court, Strand, London, W.C.2.

Hewitt Mitchell & Partners, A./A.R.I.B.A., have now moved their offices to 140, Streatham Hill, London, S.W.2 (telephone Tulse Hill 0077/8).

Dennis E. Pugh, A.R.I.B.A., is commencing practice in Enfield, but will continue his association with Architects' Co-Partnership until the end of 1959.

Cyril Blumfield, M.I.C.E., has taken into partnership Derek Lambert and Albert Witchlow. The practice will be carried on in the name of Cyril Blumfield and Partners, 82, Victoria Street, S.W.1 and 32, Corkran Road, Surbiton, Surrey.

S. E. Shepherd, F.R.I.C.S., L.R.I.B.A., has taken into partnership O. F. Nicholson, F.V.I., and A. T. Wickham Robinson, Dip.Arch. (Leeds), A.R.I.B.A.,; the firm will be known as Shepherd, Fowler & Marshall, Architects, Surveyors, Land Agents and Valuers, of 15, St. James' Row, Sheffield, 1 (telephone 28854/5/6).

H. Finlay, A.R.I.C.S., is now practising on his own account as a Chartered Quantity Surveyor at 12/15, Great Turnstile, Lincoln's Inn Fields, London W.C.1 (telephone Chancery 4888).

The Design Research Unit has opened an office at Limbard House, 3, Higham Place, Newcastle-upon-Tyne (telephone Newcastle-upon-Tyne 610051. John D. Cochrane, M.S.I.A., D.A.(Edinburgh), will be designer in charge.

TRADE

G. B. Fasteners Ltd. have decided to form a separate organisation to deal exclusively with F. T. Cooper Tiles. The new Company is registered as Marsland & Co. Ltd.

Radiation Group Sales Ltd. (Gas Division) have moved to 255, North Circular Road, Neasden, London, N.W.10 (telephone Willesden 1234).

Mortimer, Gall & Co. Ltd., electrical engineers and contractors, have appointed R. J. Prebble as Senior Engineer of the Company.

The Alton Battery Co. Ltd. have been taken over by Pritchett & Gold and E.P.S. Co. Ltd., Dagenite Works, Dagenham Dock, Essex.

The Ruberoid Co. Ltd. have appointed a new technical representative for the London Area, he is A. E. Parfit who has been with the Company since 1954.

Short and Mason Ltd. announce that W. K. Gregson has joined them as the Northern Area Representative and will operate from 32, Park Road, Sale, Cheshire.

Norman Hill has joined Medway Buildings & Supplies Ltd., Phoenix Wharf, Rochester, Kent, as an additional representative in the London area.

F. Hills & Sons Ltd. have appointed J. R. Bowie-MacDonald to represent them in Scotland.

Shires & Co. (London) Ltd., announce that G. G. W. Harrison has resigned from the company.

The De La Rue Co. Ltd. have created a subsidiary company, Formica International Ltd., in which American Cyanamid Company have a 40 per cent. interest. This company will be a Holding Company and will control the activities of the various subsidiary companies now manufacturing Formica Plastics in the UK, France, Australia, Germany and New Zealand.

Correction

We regret that in the JOURNAL of April 30 the name of the Treasurer to the Consortium of Local Authorities' Special Programme was incorrectly given: the Treasurer is in fact T. Watson, Derbyshire County Treasurer.

At Golden Lane, E.C.1.

'K' aluminium alloy extrusions in natural finish were used for the curtain wall and side windows of this housing block. Extreme adaptability, freedom from corrosion, and high strength/weight ratio combine to make 'K' extrusions ideal for this type of construction. There is a very wide range of sections, and extrusions can be provided to architects' own designs.

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Main Contractors: George Wimpey & Co., Limited
Curtain walling manufacturers: Quicktho (Engineering) Ltd.
Architects: Chamberlin, Powell & Bonn

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FOR CURTAIN WALLING

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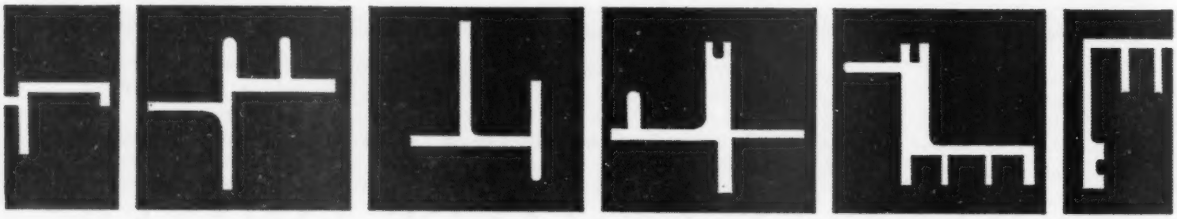

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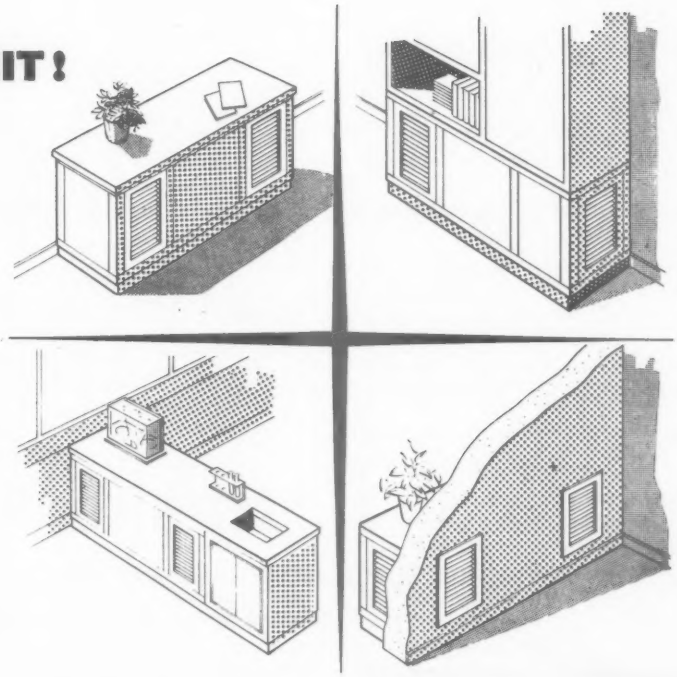

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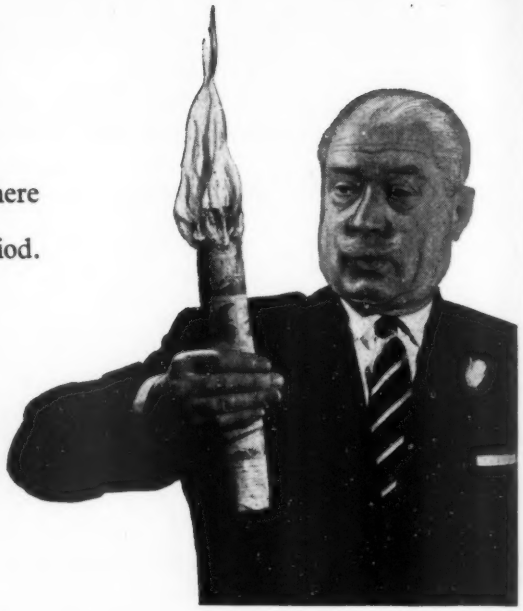
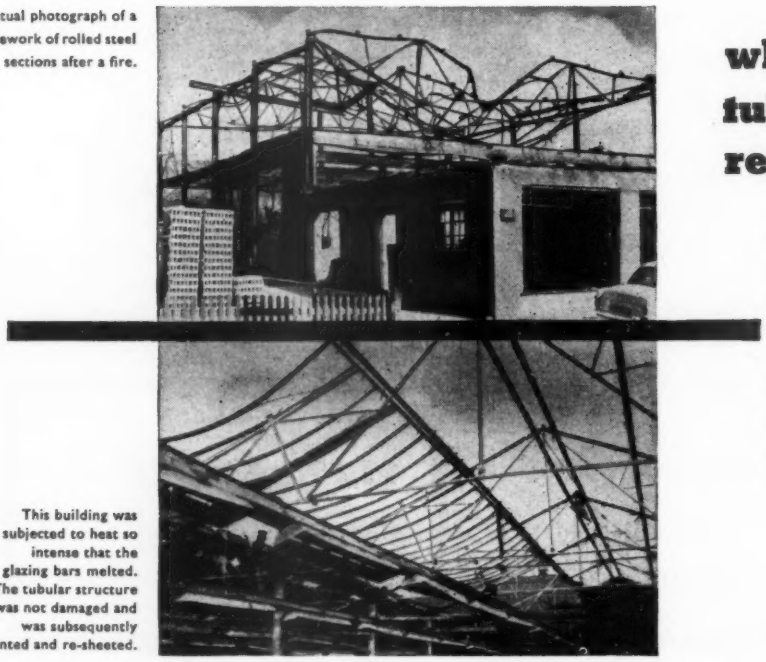
don't play with fire

Despite the precautions taken by industrial organisations, there were over 80,000 industrial fires within a twelve-month's period. Many resulted in prolonged interruption of production. As the photograph below indicates, when tubular construction is used—despite the damage to the contents of the building—the main structure remains sound.



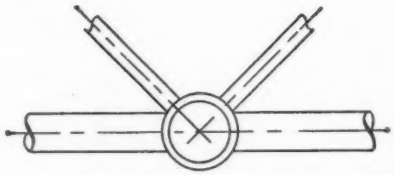
Actual photograph of a framework of rolled steel sections after a fire.



This building was subjected to heat so intense that the glazing bars melted. The tubular structure was not damaged and was subsequently painted and re-sheeted.

why tubular construction reduces fire damage

In tubular steel buildings the connections are *concentric*. The forces in the members are axial and additional stresses, due to eccentricity are avoided. This means that collapse conditions are delayed when the structure is subjected to fire. Yet another reason why it pays the architect to specify, and the industrial organisation to insist upon, tubular construction.



Typical detail of welded tubular construction with concentric loads in all members.

minimise the effects of fire damage .... specify tubular steel standard buildings

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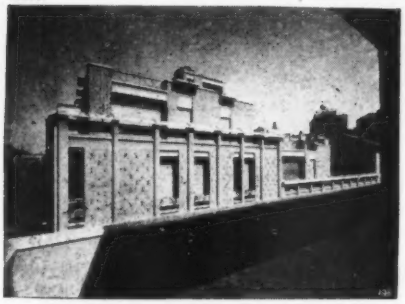
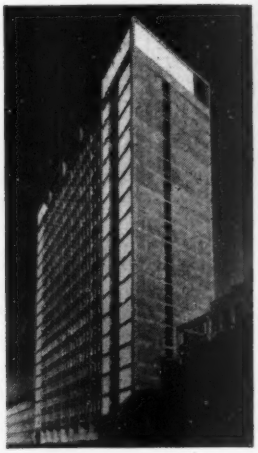
ar

APRIL

Neoliberty: a recent house in Milan by Figini and Pollini, discussed in Reyner Banham's article on the 1910 Revival in Italy, and the current retreat from Modern Architecture there.

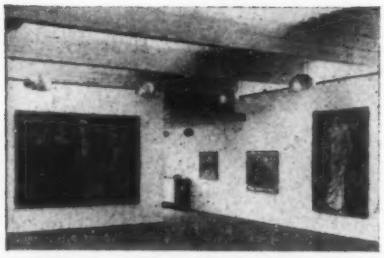


Without proscenium: the stage and amphitheatre of the Festival Theatre, Stratford, Ontario, designed by Rounthwaite and Fairfield, from Richard Leacroft's article on the open stage.

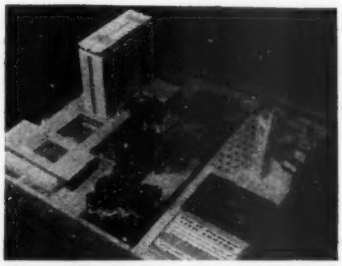


Eastbourne Terrace: right, one of the tall blocks from Cecil Elsom's street-long redevelopment scheme on bombed sites at the side of Paddington station.

MAY

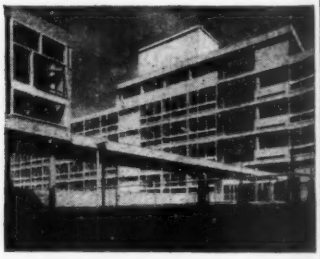


Art Galleries: a room in the Louisiana museum of modern art (Architects: Bo and Wohlert) outside Copenhagen, from a survey of recent trends in art gallery design in this issue.



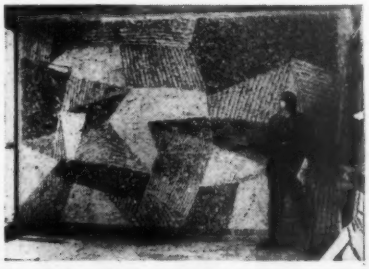
Plymouth Centre: Stage One of the new Civic centre for Plymouth (Architects: G. A. Jellicoe and Partners)—a multi-stage development whose townscape possibilities are explored in an article by Kenneth Browne.

Garrett Green Comprehensive School: Wandsworth one of a contrasting pair of new comprehensive schools in the 2,000 pupil class, designed by the Schools Division of the L.C.C. Architects' Department.



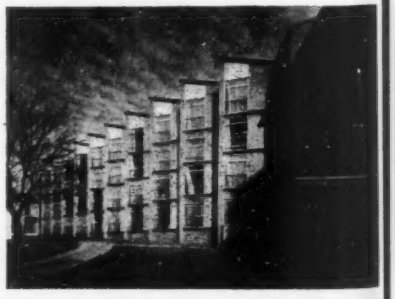
JUNE

Piccadilly after dark: illuminated and animated advertising, from Kenneth Browne's study "Advertising into Architecture," criticising recent proposals for the redevelopment of Piccadilly Circus.



Exposed Aggregate: Carl Nesjar in front of one of his sand-blasted murals, from John Stillman and John Eastwick-Field's survey of exposed concrete treatments.

Student Hostels: new buildings for Clare College, Cambridge, by David Roberts, described and illustrated in this issue, together with Sir Hugh Casson and Neville Conders' hostel in Holland Park.



The Architectural Review's new standard binding, with alternate years bound in black and white, and alternate volumes initialled A and R, makes easier the identification of individual volumes, and their proper replacement on the shelf. The binding is buckram, and the price of binding per volume is 25s. Copies to be bound should be addressed, with the appropriate index, direct to the Architectural Press warehouse, Abbey House, 8 Victoria Street, London, S.W.1.

The annual post free subscription rate payable in advance is £3.3.0 sterling; in U.S.A. and Canada $10.50; elsewhere abroad £3.10.0.

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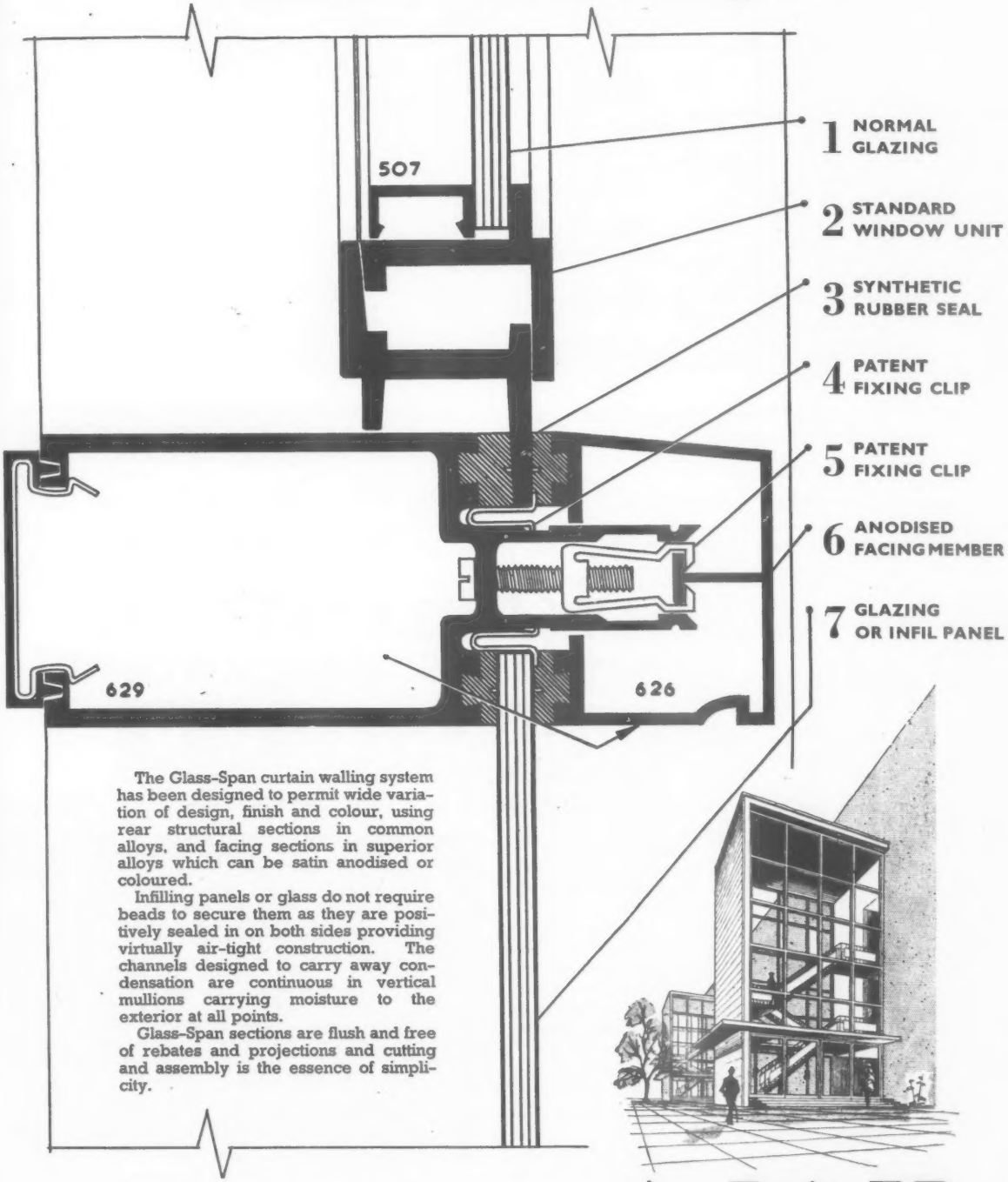
Glass-Span

aluminium curtain walling . . .



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

AIR-MAIL SERVICE available on request.

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

Public and Official Announcements

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

AIR MINISTRY WORKS Design Branch requires in LONDON and PROVINCES ARCHITECTURAL ASSISTANTS experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries in LONDON up to £1,055 p.a. for men and £1,008 p.a. for women. Somewhat lower in provinces. Starting pay dependent on age, qualifications and experience. Long term possibilities with promotion and pensionable prospects. Five-day week, three weeks three days' leave a year. Liability for overseas service (for men). Normally natural born British subjects. Write stating age, qualifications, employment details including type of work done to any Employment Exchange quoting Order No. Borough 250. 3337

GOVERNMENT OF NORTHERN IRELAND
QUANTITY SURVEYOR

Applications invited from CORPORATE MEMBERS OF THE ROYAL INSTITUTION OF CHARTERED SURVEYORS (QUANTITIES) for unestablished post in Chief Quantity Surveyor's Branch, Ministry of Finance. Candidates should have several years' experience, particularly in "taking off" for large building works, since obtaining their professional qualifications. Salary scale £1,210—£1,550. Prospects of establishment. Preference for ex-Servicemen.

Application forms obtainable from Director of Establishments, Room 271, Stormont, Belfast, to be completed and returned by 20th May, 1959. 3980

QUANTITY SURVEYING ASSISTANTS required by AIR MINISTRY in the PROVINCES. Duties include abstracting and billing, site measurement and preparation of estimates. Commencing salary according to age, qualifications and experience. Salary ranges from £680 at age 26 rising to £850. Candidates must hold O.N.C. (Building or Builders Quantities) or equivalent and have good experience under Quantity Surveyor or Building Contractor. Knowledge W.D. Schedule an advantage. Approved full time study will count towards period of experience. Promotion and pensionable prospects. Five-day week, three weeks leave a year. Appointments carry liability for service anywhere U.K. or overseas. Applicants normally should be natural born British subjects. Write, stating age, qualifications and previous appointments, including type of work done, to Manager, Professional and Executive Register, Ministry of Labour and National Service, Atlantic House, Farringdon Street, London, E.C.4, quoting reference PE 105/745. No original testimonials should be sent. Only applicants selected for interview will be advised. 3897

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Salaries in accordance with Special Grade, £750 × £40—£1,030 (pending review) and London Allowance (commencing point in Grade according to experience and qualifications).

Application forms and details from Borough Architect & Planning Officer, 70, West Ham Lane, Stratford, E.15, returnable by 26th May, 1959. 4084

CITY OF CANTERBURY

ARCHITECTURAL ASSISTANT—a vacancy exists in the General Works Section of the City Architect's Department; salary scale within the Grades £610—£1,030, according to qualifications and experience. Applications are required from assistants with varied experience, capable of good detailing and presentation and some experience in specification writing.

Applications, with the names of two referees, to the City Architect & Planning Officer, Mr. J. L. Berbiers, F.R.I.B.A., A.M.T.P.I., not later than Friday, 29th May, 1959. Canvassing will disqualify.

J. BOYLE,
Town Clerk.

Municipal Buildings,
Canterbury. 4286

THE URBAN DISTRICT COUNCIL OF FELLING
SURVEYOR'S DEPARTMENT
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the appointment of Assistant Architect in the Department of the Surveyor. The salary payable will be within Grade A.P.T. III of the National Salary Scales, *viz.*, £880 to £1,065, the commencing salary to be determined according to the qualifications and experience of the successful applicant.

Applicants must have passed the Final Examination of the Royal Institute of British Architects.

Forms of application, together with particulars and conditions of employment, can be obtained from the undersigned, to whom they must be returned not later than the 29th May, 1959.

Housing accommodation may be provided if necessary.

Canvassing will disqualify any applicant.

JOHN DONKIN,
Clerk of the Council.

Council Buildings,
Felling,
Co. Durham. 4239

CITY OF SHEFFIELD
CITY ENGINEER & SURVEYOR'S DEPARTMENT
ASSISTANT STRUCTURAL ENGINEER, GRADE APT. IV

Applications are invited from suitably qualified persons for the position of Assistant Structural Engineer, on the Staff of the City Engineer and Surveyor and Town Planning Officer (H. Foster, M.A., M.I.C.E., M.I.Mun.E.). The post is established in Grade APT. IV (£1,065—£1,220 p.a.) and the commencing salary will be in accordance with experience and qualifications.

Candidates will be required to work in the Building Surveyor's Section of the Department, and should be capable of dealing with all kinds of structural proposals under the various codes of practice.

Superannuable post. N.J.C. Conditions of service, medical examination.

Applications, stating age, education and training, qualifications, experience, present and past appointments (with dates and salaries) and quoting the names of two referees, should be submitted to the undersigned by the 28th May, 1959.

JOHN HEYS,
Town Clerk.

Town Hall,
Sheffield, 1. 4113

CITY OF LEICESTER
CITY ARCHITECT'S DEPARTMENT

Qualified Architects are required as follows:—

ASSISTANT ARCHITECT Education Section
Grade A.P.T. IV £1,065/£1,220.

ASSISTANT ARCHITECTS Education Section
Special Grade £750/£1,030 (subject to amendment)

ASSISTANT ARCHITECT Housing section
Special Grade £750/£1,030 (subject to amendment)

Education architects will work within a group system on interesting new schemes including C.L.A.S.P. projects.

The work of the housing architects includes the redevelopment of central areas.

Previous Local Government experience not essential. Housing accommodation, at an economic rent, will be provided, if necessary. National conditions of service apply.

Applications, stating post applied for, together with names of two referees, should reach the undersigned not later than Wednesday, 20th May, 1959.

J. H. LLOYD OWEN,
City Architect.

10 Loseby Lane,
Leicester. 4125

EAST SUSSEX COUNTY COUNCIL
APPOINTMENT OF AREA PLANNING OFFICER

Applications are invited for the appointment of Assistant County Planning Officer in charge of the Area Office at Bexhill, at a salary within the appropriate Special Grade of the National Joint Council scales, the commencing salary to be within the range £950 to £1,030 according to qualifications and experience. (This grade is at present under consideration by the National Joint Council.)

Applicants must be Corporate Members of the Town Planning Institute and preference will be given to those who hold a recognised qualification in architecture. Applicants should have had considerable experience in the administration of County Development Plans and the general work connected with the Control of Development in the Urban and Rural areas of a County.

The Council will be able to offer the successful applicant housing accommodation in Bexhill.

The appointment will be terminable by one month's notice on either side; it is superannuable, and subject to medical examination, if required.

Applications, stating age, qualifications and details of experience, together with the names of two referees, should be sent to the undersigned not later than 6th June, 1959.

Applicants must disclose in writing whether or not they are related to any member of the Council or officer of the Authority. Canvassing will disqualify.

L. S. JAY,
County Planning Officer.

County Hall,
Lewes, Sussex.
5th May, 1959. 4277

CITY OF NEW SARUM
CITY ENGINEER'S DEPARTMENT

Applications are invited for the following appointments on the established staff of the City Engineer:—

(i) ENGINEERING ASSISTANTS (Grades A.P.T. II, III or Special).

(ii) ARCHITECTURAL ASSISTANTS (Grades A.P.T. II, III or Special).

In each case the starting salaries will be dependent upon age, experience and qualifications.

The posts are pensionable and subject to National Joint Council conditions, medical examination and one month's notice on either side.

Housing accommodation will be made available if required.

Both appointments offer inter alia an interesting variety of design problems in connection with the Council's capital works programme.

Applications stating age, qualifications, present and previous appointments with salary, together with the names of two referees to The City Engineer, The Council House, Bourne Hill, Salisbury, by Wednesday, 20th May, 1959.

GEO. RICHARDSON,
Town Clerk. 4087

CITY OF SALFORD
CITY ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited for the appointment of two JUNIOR ARCHITECTURAL ASSISTANTS at salaries in Grades A.P.T. I—III (£610 per annum to £1,065 per annum), the point of entry to depend upon qualifications and experience.

Facilities for completion of professional training may be given to the successful candidates.

The work of the Department affords experience in a wide variety of Architectural projects carried out for all Committees of the Council.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, the Standing Orders of the City Council, the passing of a medical examination, and is determinable by one calendar month's notice.

Housing accommodation will be provided in approved cases.

Applications stating age, qualifications and details of experience together with the names of two referees, should be sent to the City Engineer & Surveyor, Town Hall, Salford, 3, Lancs, and to be received not later than Tuesday, 19th May, 1959.

R. RIBBLESDALE THORNTON,
Town Clerk. 4081

STEVENAGE DEVELOPMENT CORPORATION

Applications are invited for a post in the Chief Architect's Department, of ASSISTANT QUANTITY SURVEYOR, on New Towns Salary Grade A.P.T. II/III—£631/£811 p.a. Commencing salary will be fixed according to qualifications and experience.

Candidates should be suitably qualified and have experience in "working-up" Bills of Quantities, measurement of variations, etc.

The successful candidate will be engaged on work of an interesting nature relating to the building of a New Town, comprising Shopping Centres, Housing and Multi-storey Flats, Office Blocks and Industrial Buildings.

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

Applications, giving details of qualification, experience and the names of two referees, should be sent to Chief Administrative Officer, Aston House, nr. Stevenage, Herts, not later than Monday, 1st June, 1959. 4232

PONTYPRIDD URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of Architectural Assistant at a salary in accordance with the Special Grade (£750 × £40—£1,030 per annum), the incremental stage to be determined according to the experience of the applicant.

Candidates must be Associate Members of the Royal Institute of British Architects.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937; a satisfactory Medical Examination; and one month's notice on either side for termination. Housing accommodation (if required) will be provided.

Form of application and further particulars may be obtained from Mr. W. Cecil Evans, Architect and Surveyor, Municipal Buildings, Pontypridd.

Applications must be delivered to the undersigned not later than 9th June, 1959.

BERNARD M. MURPHY,
Clerk of the Council.

Municipal Buildings,
Pontypridd, Glam.
6th May, 1959. 4234

MANCHESTER CORPORATION
CITY ARCHITECT'S OFFICE
DEPUTY CHIEF STRUCTURAL ENGINEER

Vacancy for Deputy Chief Structural Engineer in the A.P.T. Scale IV, £1,065 to £1,220. Candidates must be A.M.I.Struct.E., or A.M.I.C.E., and have had at least five years' design experience since becoming an associate member. Should also have a sound knowledge of design in reinforced concrete, steelwork and structural timber work, together with an adequate knowledge of current bylaws and codes of practice. Housing accommodation may be provided for a limited period. Removal expenses. Application forms from City Architect, Town Hall, Manchester, 2, returnable by 29th May. 4288

COUNTY BOROUGH OF DEWSBURY
BOROUGH ARCHITECT AND BUILDINGS SURVEYOR'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) ASSISTANT QUANTITY SURVEYOR—Special Grade.
(*b*) TOWN PLANNING ASSISTANT—A.P.T. Grade I.
(*c*) ARCHITECTURAL ASSISTANT—A.P.T. Grade I.

The commencing salaries will be fixed within the scope of the grades stated according to qualifications and experience, i.e., Special Grade £750—£1,030 per annum at present but subject to review shortly, and A.P.T. Grade I £610—£765 p.a. Applicants for appointment (*a*) must have passed the Final examination of the R.I.C.S.

Housing accommodation may be made available if required.

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

Applications, stating age, education, qualifications, full particulars of training and experience, together with copies of two recent testimonials, should be sent to the undersigned not later than Monday, 1st June, 1959, in envelopes endorsed "Appointment of . . ."

A. NORMAN JAMES,
Town Clerk.

Town Hall,
Dewsbury.
6th May, 1959. 4241

SURREY COUNTY COUNCIL

Applications invited for following appointments:—

1 *Grade V* (£1,220—£1,375 p.a. plus £30 p.a. London Allowance).
ARCHITECTS. In addition to a minimum of 10 years' experience, after qualifying as Associate R.I.B.A., and general architectural ability, candidates must be capable of leading a small team dealing with medium and large scale contracts.
2 *Special Grade* (£750—£1,030 p.a. plus £30 p.a. London Allowance, subject to revision).
ARCHITECTS. Must be A.R.I.B.A. and experienced in design and detailing.
BUILDING SURVEYORS. Must be A.R.I.C.S. (Bldg. Sub. Div.). Capable drafting specifications in all trades, preparation Schedules of Dilapidations, detailed estimates for general maintenance works and surveys of properties.
3 *Grade II* (£765—£880 p.a. plus up to £30 p.a. London Allowance, according to age). Must be of good general training. Preference given those who have passed Intermediate R.I.B.A.

Full details, present salary, and three copies testimonials to County Architect, County Hall, Kingston, by 30th May, 1959.

The County Council have adopted a five-day week. 4255

CITY AND COUNTY OF THE CITY OF EXETER
CITY ARCHITECT'S DEPARTMENT

Vacancy on the established staff for SENIOR ASSISTANT ARCHITECT. Salary within Special Grade (£750 to £1,030). This grade is at present under review. The provision of Housing Accommodation will be considered. The successful applicant's removal expenses will be paid.

Applicants must have passed Parts I and II of the R.I.B.A. Final Examination or Special Final or equivalent, and the entry point on the grade will depend on experience.

Preference will be given to those with experience in the design and construction of Civic Buildings.

The appointment is subject to one month's notice on either side and to the provisions of the Local Government Superannuation Acts. The successful applicant will be required to pass a medical examination.

Applications, stating age, qualifications, previous and present appointments and salaries, full details of experience and earliest possible date when available, should be sent to the City Architect, Municipal Offices, Exeter, not later than the 30th May, 1959. 4228

ASHFORD URBAN DISTRICT COUNCIL
AMENDED ADVERTISEMENT
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Architectural Assistant required in Surveyor's Department. N.J.C. Conditions apply. Salary in accordance with Grade A.P.T. II (£765—£880).

Candidates should have passed R.I.B.A. Intermediate Examination.

Housing accommodation available if required.

Applications, stating age, training, qualifications and experience, and names of two referees, to The Surveyor, 1, Elwick Road, Ashford, Kent, by the 30th May, 1959.

Applications endorsed "Architectural Assistant."

G. H. REDFERN,
Clerk of the Council.

Council Offices,
Church Road,
Ashford, Kent.
8th May, 1959. 4256

COUNTY BOROUGH OF WEST BROMWICH

Applications are invited for the following appointments:—

ASSISTANT ARCHITECTS: Salary A.P.T. Grade II (£765—£880).
ARCHITECTURAL ASSISTANTS: Salary A.P.T. Grade I (£610–£765).

N.J.C. Conditions of Service.

Applications, naming two referees, to Borough Surveyor, Town Hall, West Bromwich, by 23rd May, 1959. 4250

CITY OF OXFORD
CITY ARCHITECT AND PLANNING OFFICER'S DEPARTMENT

Applications are invited for the following posts in the Department which has a very full programme of interesting work in hand including redevelopment schemes in the centre of the City, involving multi-strey Housing and Garage schemes; a new Shopping Centre and Office buildings, in addition to the normal programme of Schools, Housing and Health Buildings.

A high standard of design ability and a keen interest in contemporary architecture are essential. Assistants are encouraged to control their own contracts from Sketch Design stage onwards.

(1) One CHIEF ARCHITECTURAL ASSISTANT—Grade A.P.T. V (£1,220—£1,375). Must have had considerable knowledge of the running of large contracts and be competent to lead and inspire a team.

(2) Two SENIOR ARCHITECTURAL ASSISTANTS, A.P.T. IV (£1,065—£1,220). Should have a wide knowledge of modern methods of construction and contract procedure.

(3) Three ARCHITECTURAL ASSISTANTS—Special/A.P.T. IV, according to experience. A high standard of design and sound knowledge of construction are required.

Candidates for all posts should be A.R.I.B.A. and, for post (1), a town planning qualification would be an advantage.

Housing accommodation will be made available if required for all posts.

Further particulars and application forms can be obtained from E. G. Chandler, A.R.I.B.A., M.T.P.I., City Architect and Planning Officer, Town Hall, Oxford, and are to be returned completed by 6th June, 1959.

HARRY PLOWMAN,
Town Clerk.

Town Hall,
Oxford. 4281

NEWCASTLE REGIONAL HOSPITAL BOARD
REGIONAL ARCHITECT'S DEPARTMENT

During the next two years the Board plans to spend several millions on hospital developments and larger programmes are being planned to follow. The present building programme includes a wide variety of projects, ranging from houses to hospitals, and (since a large hospital resembles a small town) affords ample opportunity for gaining both general and hospital experience simultaneously.

The following posts in the Regional Architect's Department are at present open to applicants. The salary-scales quoted include interim increases pending completion of a current Health Service review of salaries.

(*i*) ASSISTANT ARCHITECTS (4). Salary £730 × £25 (2) × £30 (2) × £35 (5) × £40 (1)—£1,055. Applicants should be registered architects and have had experience of the planning and construction of public buildings. The commencing salary will be fixed within the Grade by reference to relevant experience and to age.

(*ii*) ARCHITECTURAL ASSISTANT. Salary £545 at age 21 × £20 (3) × £25 (4) × £30 (2) to £765. Applicants should have passed the Intermediate Examination of the R.I.B.A., or an examination recognised by the Institute as equivalent, and some practical experience is desirable.

The commencing salary within the grade will depend upon the applicant's age and practical experience, but will not exceed £605.

(*iii*) ARCHITECTURAL DRAUGHTSMAN. Salary £445 × £25 (5) × £30 (3)—£660. Applicants should have had previous experience in an architect's drawing office and be neat and quick draughtsmen.

Evening study facilities are available at King's College of Durham University in Newcastle.

Applications, stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects), should be forwarded to the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6, not later than 28th May, 1959. 4282

BOROUGH OF ERITH

Applications are invited for the following post:—

ARCHITECTURAL ASSISTANT, A.P.T. I, £610—£765 plus London weighting.

Applications, with copies of two recent testimonials, should be delivered to the Borough Engineer and Surveyor not later than 1st June, 1959.

J. A. CROMPTON,
Town Clerk.

Town Hall,
Erith, Kent. 4278

PADDINGTON BOROUGH COUNCIL

Require BUILDING SURVEYING ASSISTANT (A.P.T. I—£605 to £755 per annum). Candidates should have practical knowledge of building construction, experience in surveying and levelling, the repair, adaptation and conversion of civic and residential properties, and be capable of preparing plans, specifications and estimates of costs in respect of those works and their supervision. Candidates preferred at advanced stage of preparation for R.I.C.S. Intermediate or equivalent examination. Written applications stating age, qualifications, experience and names and addresses of three referees, should reach the undersigned (quoting A.412) by 25th May, 1959.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington Green, W.2. 4262

BOROUGH OF SWINDON
SENIOR PLANNING ASSISTANT (SURVEYING AND VALUATION)

Applications are invited for the above appointment in the Town Planning Section of the Borough Engineer, Surveyor and Planning Officer's Department, at a salary in accordance with the A.P.T. Special Scale (£750—£1,030).

Duties will include valuation reports in connection with Central Area redevelopment.

Candidates must have passed the R.I.C.S. Final or other appropriate examination, should have had suitable valuation experience, and should be capable of carrying out site surveys and making structural reports and valuations in connection with advances under the Housing Act.

Consideration may be given to an allocation of housing accommodation.

Applications, on forms obtainable from the Town Clerk, Civic Offices, Swindon, must be returned by 27th May, 1959. 4279

NATIONAL COAL BOARD
SOUTH WESTERN DIVISION

Applications are invited for the following appointments in the Divisional Chief Architect's Branch, Cambrian Buildings, Mount Stuart Square, Cardiff.

ARCHITECTURAL ASSISTANT, GRADE I. Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects and have not less than three years' subsequent experience, or have passed the Final Examination, and have had less than one year's subsequent experience.

Salary scale: (Male) £715 × £25—£850 per annum. (Female) £610 × £21—£720 per annum, plus Equal Pay Instalment.

Applicants of exceptional ability and experience may in special circumstances be given up to £150 above the scale maximum in the Grade.

Please quote Staff Vacancy No. 64/40.

ARCHITECTURAL ASSISTANT, Grade 2. Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects and have had less than three years' subsequent experience. Applications will also be considered from those who have had exceptional practical experience but not passed the Intermediate Examination.

Salary scale: (Male) £595 × £25—£710 per annum. (Female) £507 × £21—£602 per annum, plus Equal Pay Instalment.

Please quote Staff Vacancy No. 65/40.

Full particulars of age, qualifications, experience and positions held, together with details of present post and salary, should be sent to the Divisional Chief Staff Officer, National Coal Board, Cambrian Buildings, Mount Stuart Square, Cardiff, by 25th May, 1959. 4276

THE ARCHITECTURAL ASSOCIATION
SCHOOL OF ARCHITECTURE
SENIOR LECTURER IN BUILDING ENGINEERING SERVICES

Applications are invited for the post of Senior Lecturer in Services, starting September, 1959. Salary not less than £1,200 per annum for four days a week during term time. Research work and a limited amount of private consultation work encouraged. Further details of the appointment can be had on application to the Secretary of the Architectural Association, 36, Bedford Square, W.C.1. 4233

CITY OF WINCHESTER

Applications are invited for the post of ARCHITECTURAL ASSISTANT in the City Engineer's office (C. C. Steptoe, A.R.I.B.A., Chief Assistant Architect). It is essential that the applicant should be a neat and accurate draughtsman and have had previous experience in an architect's office. Salary, according to experience, will be within Grade I of the National Scales, and the appointment is subject to the Local Government Superannuation Act.

Applications, stating age and details of experience, together with the names and addresses of two referees, should be addressed to the City Engineer, Guildhall, Winchester, and should reach his office not later than Monday, 1st June, 1959.

Canvassing, either directly or indirectly, will disqualify.

R. H. McCALL,
Town Clerk.
4285

BOROUGH OF SOLIHULL
APPOINTMENT OF ARCHITECTS

Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECT, Grade A.P.T. IV: £1,065—£1,220 p.a.
(*b*) JUNIOR ARCHITECTURAL ASSISTANT, Grade A.P.T. II: £765—£880 p.a.
(*c*) JUNIOR ARCHITECTURAL ASSISTANT, Grade A.P.T. I: £610—£765 p.a.

Applicants for post (*a*) must be fully qualified, competent designers, and only persons with initiative and drive need apply.

Applicants for post (*b*) should have passed the Intermediate Examination of the Royal Institute of British Architects, whilst applicants for post (*c*) should be studying for that examination.

Where applicable housing accommodation will be made available as soon as possible and half removal expenses paid.

Applications, stating age, qualifications and experience, and giving the names of two referees, should be sent to the Borough Engineer & Surveyor, 90, Station Road, Solihull, not later than 22nd May, 1959.

W. MAURICE MELL,

The Council House,
Solihull. 4213

CORPORATION OF KIRKCALDY
BURGH ENGINEER'S DEPARTMENT

Applications are invited for the following posts:—

(1) ASSISTANT ARCHITECT/PLANNER: Applicants should be Associates of the R.I.B.A., qualified or experienced in Town Planning matters, able to prepare neighbourhood and site layouts, including central area redevelopment schemes.

(2) ASSISTANT ARCHITECT: Applicants should be Associates of the R.I.B.A., and experienced in all forms of housing and public buildings.

(Both posts on scale A.P. VIII — £1,005—£1,085. Housing Accommodation available).

Posts pensionable; medical examination. Canvassing direct or indirect disqualifies. Declare relationship to member of Council or chief official.

Applications giving full details of experience, qualifications and names of two referees to Burgh Engineer, Town House, Kirkcaldy, by 25th May, 1959. 4288

Applications are invited for the post of ARCHITECT (four vacancies) under the West Pakistan Government.

Salary: Rs. 2,000—75—2,375 per month (1 Rupee =1s. 6d.), plus £30 per month overseas pay.

Contract: 3/5 years. Free passages and medical attendance.

Age Limits: Between 30 and 45, relaxable in special cases.

Qualifications: A.R.I.B.A. or equivalent. Considerable experience of architectural work especially in design of buildings in Europe, U.S.A., Pakistan or other similar country. Good knowledge of English essential.

Application forms and further information from:—

The Recruitment Officer
Education Division
Pakistan High Commission
39, Lowndes Square, London, S.W.1.

There are no restrictions on nationality or domicile, but Pakistani applicants should write to the above address for the conditions applicable to their appointment. 4180

CITY OF ROCHESTER
CHIEF ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment in the City Surveyor's Department on A.P.T. IV (£1,065—£1,220).

Candidates should be Associates of the Royal Institute of British Architects, and administrative ability is essential in addition to a good general experience, particularly in the preparation of drawings and specifications for municipal housing and buildings, including shops and flats. The commencing salary will be according to qualifications and experience.

There is a varied programme of work, including the redevelopment of clearance areas and the development of a large area added to the City.

In an appropriate case the City Council will provide the successful candidate with suitable housing accommodation, and will be prepared to refund removal expenses after 12 months' service.

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

Applications, stating age, qualifications and experience, together with the names and addresses of three persons to whom reference may be made, should be delivered to the City Surveyor, 66, Maidstone Road, Rochester, not later than Monday, 8th June, 1959.

PHILIP H. BARTLETT,
Town Clerk.

Guildhall,
Rochester.
6th May, 1959. 4257

GLAMORGAN COUNTY COUNCIL

Require an ASSISTANT AREA PLANNING OFFICER at the Area Planning Office, Neath. Special Grade. Salary £750 to £1,030 per annum. Minimum qualification: Final examination of appropriate professional body. A motor car must be provided for which an allowance will be paid.

Applications stating age, training, qualifications, experience and present salary, with the name and address of two referees, should be sent to the County Surveyor and Planning Officer, County Hall, Cardiff. Closing date 20th May.

RICHARD JOHN,
Clerk of the County Council.
4268

COUNTY BOROUGH OF SUNDERLAND
CHIEF ASSISTANT ARCHITECTS
Grade A.P.T. IV (Maximum £1,220)

Applications are invited for the above posts. Particulars of the appointments may be obtained from the Borough Architect, Grange House, Stockton Road, Sunderland. Applications must be addressed to me and received at my office, Town Hall, not later than 12th June, 1959.

Canvassing will disqualify.

G. S. McINTIRE,
Town Clerk.
4266

COUNTY BOROUGH OF BOOTLE
BOROUGH SURVEYOR'S DEPARTMENT

Applications are invited for the appointment of Two ARCHITECTURAL ASSISTANTS on Grade A.P.T. IV, £1,025 to £1,175 per annum.

Preference will be given to those having experience in the design and planning of Schools.

Application forms, obtainable from the Borough Surveyor, Town Hall, Bootle, 20, Lancs., are returnable by Friday, 29th May, 1959.

(*By order*) HAROLD PARTINGTON,
Town Clerk.
4237

COUNTY BOROUGH OF EAST HAM
BOROUGH ENGINEER'S DEPARTMENT

Applications are invited for the following temporary appointments:—

SENIOR ASSISTANT ARCHITECT, Grade IV, £1,065—£1,220.

ARCHITECTURAL ASSISTANT, Grade II, £765—£880.

London weighting is paid in addition, and salaries in excess of the minima may be paid according to qualifications and experience. The appointments are for work on a new Technical College and are expected to be for a period of not less than three years.

Further details and application forms, returnable by 29th May, 1959, from the Town Clerk, Town Hall, East Ham, E.6. 4218

ARCHITECTS AND BUILDING SURVEYORS

The L.C.C. (Architect's Department) requires Architects and Building Surveyors interested in modernisation and conversion of older blocks of Council flats which are being undertaken in the General Division. Up to £1,090 according to qualifications and experience. Salaries at present under review. Holiday arrangements respected. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, AR/EK/48/59, County Hall, S.E.1. (1036.) 4219

ARCHITECTURAL ASSISTANT required by HAYES & HARLINGTON U.D.C. Salary within Grade A.P.T. II, *i.e.*, £765—£880 per annum, plus appropriate London "weighting." 21—25 years £20 per annum, 26 years and over £30 per annum. Candidates must have had a good general architectural experience and preference will be given to applicants who have passed the R.I.B.A. Intermediate examination. The Council is unable to assist with the provision of housing accommodation. Five-day week. Further particulars and conditions of service and form of application obtainable from the undersigned, which, when completed, must be returned by 1st June, 1959.

GEORGE HOOPER,
Clerk and Solicitor.

Town Hall,
Hayes, Middlesex. 4190

LEEDS REGIONAL HOSPITAL BOARD

Applications are invited for appointment of CLERK OF WORKS (temporary) at a salary of £13 10s. 0d. per week, to supervise building contracts in the Region.

Applications, giving full details of previous experience and date when available to commence duties, together with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by 23rd May, 1959. 4191

BRACKNELL DEVELOPMENT CORPORATION

Applications are invited for the post of QUANTITY SURVEYOR. Salary range £934—£1,146 (under review). Preference will be given to Corporate members of the R.I.C.S. Duties embrace Housing, Town Centre and Industrial buildings. Superannuation schemes; medical examination. Housing available. Apply by 25th May, 1959, giving age, education and qualifications, experience and appointments held (with dates and salaries) and names of two referees, to General Manager (Q.S.), Bracknell Development Corporation, Farley Hall, Bracknell, Berks. 4192

BOROUGH OF BEDFORD
SENIOR PLANNING ASSISTANT

Applications are invited for the post of Senior Planning Assistant in the Borough Engineer, Surveyor and Planning Officer's Department at a salary within A.P.T. Grade IV, £1,065 to £1,220 p.a.

Applicants should possess a Diploma in Town Planning or be a Corporate Member of the Town Planning Institute and preference will be given to those who are also either A.M.I.C.E., A.R.I.C.S., A.M.I.Mun.E., or A.R.I.B.A.

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

Housing accommodation will be provided if required.

Bedford is a rapidly expanding Borough and the Officer appointed would in the first instance be engaged in co-ordinating the draft revision of the Town Map including surveys and reports in support of new and improved roads, car parks, shops and offices, industry, schools, housing, and public open spaces.

The Council are actively engaged in redevelopment of a section of the Town Centre and the successful applicant will be engaged on the replanning of two further areas of redevelopment together with general planning duties. The appointment offers an opportunity for an assistant interested in practical and creative planning in a progressive Borough.

Applications on forms to be obtained from my office should reach the undersigned not later than 25th May, 1959.

F. W. DAWKES,
Borough Engineer, Surveyor & Planning Officer.

Newnham House,
Horne Lane,
Bedford. 4193

ASSISTANT ARCHITECTS, Borough Architect's & Housing Department, Fulham Borough Council. A.P.T. I. £575/£725 (un to Intermediate R.I.B.A. standard), and A.P.T. II, £725/£845 (R.I.B.A. Intermediate) plus London weighting £20/£30 p.a., commencing according to qualifications and experience. Application forms from Town Clerk, Town Hall, S.W.6. Closing date 25th May. 4195

THE SOUTH WALES ELECTRICITY BOARD
BUILDING SUPERVISOR

Applications are invited for the position of Building Supervisor in the Cardiff and East Central Area of the Board.

The salary for the position will be in accordance with Schedule "D" Grade 3 (£1,055/£1,155 p.a.), of the National Joint Board Agreement for the Electricity Supply Industry.

The successful applicant will be required to prepare drawings and specifications for minor building works; to control the Building Construction and Maintenance Units and supervise the execution, by Contract or Direct Labour, of the Building and Civil Engineering work in the Cardiff and East Central Area.

Preference will be given to candidates holding appropriate professional qualifications.

Applications, stating age, present position, present salary, qualifications and experience, should be addressed to C. L. Townsend, Assoc.I.E.E., Manager of Cardiff and East Central Area, 445/447, Cowbridge Road, Cardiff, so as to reach him not later than Saturday, 23rd May, 1959. 4194

METROPOLITAN POLICE, Receiver's Office, requires:—

(1) ARCHITECTURAL DRAUGHTSMEN/WOMEN. Scale £570 (age 21) —£900.

(2) TECHNICAL ASSISTANT. Scale £720 (age 26) —£900, in connection with Police Housing and Non-housing building programme.

Starting pay according to age. Applicants to have Ordinary National Certificate as a minimum qualification or to be of Intermediate R.I.B.A. standard. Five-day, 42-hour week; paid leave; canteen facilities.

Apply, giving qualifications, experience, age and nationality, to Room 578, Receiver's Office, New Scotland Yard, S.W.1. 4199

EDINBURGH CORPORATION
CITY ARCHITECT'S DEPARTMENT
DESIGN SECTION

ASSISTANT ARCHITECTS. £760 — £1,040. Placing according to qualifications and experience.

Applications, marked "Confidential," giving full details and the names of two referees, to the City Architect, City Chambers, Edinburgh, 1, not later than 30th May, 1959. 4176

STEVENAGE DEVELOPMENT CORPORATION
CHIEF ARCHITECT'S DEPARTMENT

Applications are invited for appointment to post as ASSISTANT ARCHITECTS on salary grades £631 rising to £811; £753 rising to £1,029, and £934 rising to £1,273—starting salary and grade according to experience and qualifications.

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

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

Applications, giving full details and names of two referees, to be sent to the Chief Administrative Officer, Aston House, nr. Stevenage, Herts, not later than Monday, 25th May, 1959. 4181

BOROUGH OF BROMLEY
CHIEF ASSISTANT ARCHITECT

Applications are invited for this appointment in the Borough Engineer's Department. Salary A.P.T. V plus London weighting (£1,250—£1,405) and lump sum car allowance of £140 per annum.

Application forms and further details, obtainable from the Borough Engineer, Municipal Buildings, Bromley, must be submitted to him by 25th May, 1959.

LIONEL KAYE,
Town Clerk.

Municipal Buildings,
Bromley, Kent. 4226

BOROUGH OF BROMLEY
ARCHITECTURAL ASSISTANT

Applications are invited for this appointment on salary scale A.P.T. II (£765—£880) plus London weighting.

Applications, stating age, qualifications, experience, present appointment and salary, and the names of two referees, should reach the Borough Engineer by 25th May, 1959.

LIONEL KAYE,
Town Clerk.

Municipal Buildings,
Bromley, Kent. 4227

BLACKPOOL

Vacancies for:—
GROUP ASSISTANT ARCHITECTS, A.P.T. V.
ASSISTANT ARCHITECTS, Special scale.
QUANTITY SURVEYING ASSISTANT, A.P.T. II.

Forms:—Arthur Hamilton, B.Sc., A.R.I.B.A., Borough Surveyor, P.O. Box 17, Municipal Buildings, Blackpool. Closing date 27th May. 4202

LANCASHIRE COUNTY COUNCIL

Applications are invited for the posts of SENIOR ARCHITECTS, Senior Officers Scale "A," £1,225—£1,390.

Applicants should possess a keen design sense, and a sound working knowledge of modern techniques in building construction.

Successful applicants will be required to work at all stages in the drawing office, and in site supervision of major building projects.

Application forms from the County Architect, P.O. Box 26, County Hall, Preston, quoting reference A/A.J. Previous applicants should not re-apply. 4203

GOVERNMENT OF NORTHERN IRELAND
(a) ASSISTANT ARCHITECT, CLASS II
(b) ARCHITECTURAL ASSISTANT

Applications invited for above posts in Chief Architect's Branch, Ministry of Finance. Posts (a) are pensionable and candidates must be Registered Architects by examination with at least two years' experience in an Architect's Office in preparing working drawings. Salary scale £805 (at age 25)—£1,095 (age 34 and over)—£1,260. Existing pension rights may, in certain circumstances, be transferred.

Candidates for unestablished posts (b) should have recognised architectural training and fair experience. Salary scale £585—£905; appointees who have passed R.I.B.A. Intermediate examination start at £730.

Preference for ex-Service men. Application forms for *both* posts obtainable from Director of Establishments, Room 271, Stormont, Belfast. 4201

SKIPTON URBAN DISTRICT COUNCIL
BUILDING AND QUANTITY SURVEYING ASSISTANT (or ARCHITECTURAL ASSISTANT)

Salary within Special Classes Scale (at present £750—£1,030) according to qualifications and experience. Established post for capital works (houses, shops, flats, municipal buildings).

Person appointed will assist senior architectural assistant; experience in architectural work an advantage.

House available. Five-day week in operation. Apply, stating age, qualifications, present salary, experience and names of two referees, to the Engineer and Surveyor, Town Hall, Skipton, by 25th May. 4206

THURROCK U.D.C. (Engineer and Surveyor's Department) require ARCHITECTURAL ASSISTANT under Architect to the Council. Salary—A.P.T. I/II: £610—£880 per annum. Good architectural experience necessary. Applicants must be capable of preparing working drawings in all categories and should have passed the Intermediate examination of the R.I.B.A. The Council have interesting projects in hand, including an Indoor Swimming Bath. Appointment pensionable. Applications, stating age, qualifications, and experience, and quoting three referees, to Clerk of the Council, Council Offices, Grays, Essex, by 26th May, 1959. Canvassing disqualifies. Relationship with members or Senior Officers of the Council must be disclosed. 4211

WOKING U.D.C.
ARCHITECTURAL ASSISTANT
A.P.T. II (£765—£880)

Applicants for this appointment in Engineer & Surveyor's Department must be Students R.I.B.A. with good general experience. Appointment offers competent assistant experienced in preparation working and detail drawings excellent opportunity engagement on variety of architectural projects.

Housing accommodation if required. Casual user car allowance. Application forms from:
H. P. TAME,
A.M.I.C.E., M.T.P.I., Reg. Arch.
Engineer & Surveyor.
Closing date 25th May, 1959. 4212

LONDON COUNTY COUNCIL
HAMMERSMITH COLLEGE OF ART AND BUILDING

Applications invited for post of SENIOR LECTURER IN BUILDING to be responsible for organisation, supervision and development of Diploma and Certificate courses in Building. Ability to teach Building Construction to H.N.C. standard, also appropriate professional qualification essential; subjects for the Institute of Builders' Examinations and teaching experience an advantage.

Burnham F.E. salary scale £1,417 10s. × £52 10s. —£1,627 10s. plus London Allowance £37 16s. or £50 8s. according to age. Application forms from Secretary at College, Lime Grove, W.12, to be returned by 5th June, 1959. (1016.) 4290

UNIVERSITY OF EDINBURGH
DEPARTMENT OF ARCHITECTURE

Applications are invited for the post of LECTURER in the Department of Architecture. Salary scale £900 × £50, to £1,100; Bar: £1,150 × £50 to £1,350 × £75 to £1,650 per annum, with placement according to qualifications and experience, and with superannuation benefit and family allowance where applicable. Candidates should have qualifications in building construction and structures and have experience of building work. The successful candidate will be expected to take up duty on 1st October, 1959.

Further particulars may be obtained from the Secretary to the University, University of Edinburgh, Old College, South Bridge, Edinburgh, with whom applications, giving the names of two referees, should be lodged not later than 30th May, 1959.

CHARLES H. STEWART,
Secretary to the University.
4169

ROYAL INFIRMARY OF EDINBURGH AND ASSOCIATED HOSPITALS.
ARCHITECTURAL ASSISTANT.

Applications are invited from candidates with experience and preferably holding the Intermediate Certificate of the R.I.B.A. Salary scale £525 to £730 per annum with starting salary not greater than £605 per annum.

Interested candidates should write, giving full details of age, qualifications and experience, to Personnel Officer, Royal Infirmary, Edinburgh, 3. 4273

COUNTY BOROUGH OF BOOTLE
BOROUGH SURVEYOR'S DEPARTMENT

Applications are invited for the appointment of One ARCHITECTURAL ASSISTANT on Grade II, £765 to £880 per annum.

Preference will be given to those having experience in the design and planning of houses.

Application forms, obtainable from the Borough Surveyor, Town Hall, Bootle, 20, Lancs., are returnable by Friday, 29th May, 1959.

(*By order*) HAROLD PARTINGTON,
Town Clerk.
4236

LONDON COUNTY COUNCIL
ARCHITECTURAL ASSISTANTS required up to £860 (at present under review). Full and interesting programme of houses, flats, schools and general buildings. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, AR/EK/43/59, County Hall, S.E.1. (923.) 4066

LONDON COUNTY COUNCIL
ARCHITECTS AND BUILDING SURVEYORS required for improvements, alterations and extensions. Jobs up to £2c,000. Selected candidates responsible for surveys, schemes, working drawings, specifications and supervising contracts. Up to £1,090 (at present under review) according to qualifications and experience. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, AR/EK/46/59, County Hall, S.E.1. (927.) 4088

OLDHAM EDUCATION COMMITTEE

Applications are invited for the post of ARCHITECTURAL ASSISTANT or ARCHITECTURAL DRAUGHTSMAN in the Schools Architect's Department.

The salary offered is according to qualifications and experience of the successful candidate (*i.e.* Special scale or A.P.T. I for architectural assistants or Miscellaneous Grade IV-VI for architectural draughtsmen).

This post offers excellent opportunities for responsible and interesting work in all spheres of educational building.

Consideration will be given to the provision of housing accommodation, if required.

Applications by letter, giving full details of age, qualifications and experience, together with the names of two referees, should be addressed to the Director of Education, Education Offices, Union Street West, Oldham. 4167

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 1s. extra

W. H. WATKINS, GRAY & PARTNERS require ASSISTANT for interesting Hospital work, pension scheme in operation. Write or phone, 57, Catherine Place, S.W.1. Victoria 7701. 3200

ASSISTANT of Intermediate/Final standard required in Croydon office. Varied and interesting work. Five-day week, holiday this year. Apply by letter to Hugh Macintosh & Partners, 33/35, High Street, Croydon. 3683

ARCHITECTURAL ASSISTANTS required about Intermediate standard. Opportunities for good all round experience. Please write stating age, experience and salary required. Box 3586.

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required for varied range of contemporary work. Write with full details of previous experience, age, nationality and salary required to: Michael Lyell, A.R.I.B.A., 16, Yeoman's Row, London, S.W.3. 3826

REQUIRED in Oxford office of W. H. Watkins, Gray & Partners, ASSISTANT to work on advanced Technical Laboratory. Apply in writing to 57, Catherine Place, S.W.1, or ring for appointment Vic 7761. 3955

MANCHESTER Architects with varied practice including school projects, hospital work and housing require Senior and Junior ASSISTANTS; salaries by agreement. Box 3956.

COMPETENT FEMALE ARCHITECTURAL ASSISTANT required for Norfolk Country Practice. Intermediate standard. Reply with details of age, experience and salary required to Box 4020.

CITY OF LONDON firm of Building Surveyors require SENIOR ARCHITECTURAL ASSISTANT for work on industrial and commercial projects. Scope for initiative and responsibility. Salary £800 to £1,100 according to experience. Box 4029.

F. W. WOOLWORTH & CO. LTD.—Architects' Department—Kensington District Office. Applications are invited for the following appointment:—

ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard, capable of carrying out surveys, preparing sketch schemes, working drawings and details.

The appointment is pensionable, five-day week. Canteen facilities. Application stating age, experience, qualifications and salary, to District Architect, F. W. Woolworth & Co. Ltd., 26/40, Kensington High Street, London, W.8. 3978

LLEWELLYN SMITH & WATERS require SENIOR and JUNIOR ASSISTANTS for a widely varied programme of work. Salary according to experience. Please write stating qualifications, experience and age to 103 Old Brompton Road, S.W.7. 4005

ARCHITECT'S ASSISTANT required about Intermediate standard, experienced in design, working drawings, details and specifications. House available if required. Full details to Ward & Woolnough, 8, South Brink, Wisbech, Cambs. 4009

ARCHITECTURAL ASSISTANTS of Intermediate standard wanted. Interesting work on Housing and Factory projects. Please apply to Ernest J. Thomas, Jolly & Grant, Chartered Architects & Surveyors, 26, Kent Road, Southsea, Hants. 4000

WEST END Architects urgently require a competent ARCHITECTURAL ASSISTANT of Final standard with a minimum of four years' experience, for interesting and varied work including Churches, Offices, Homes for the elderly, etc. Holiday this year and salary by arrangement. Telephone WELbeck 8863 for appointment. 3987

EXPERIENCED ASSISTANT required. Medium size office, varied work. Write or telephone Hasker & Hall, L./F.R.I.B.A., 13, Welbeck Street, W.1 (Welbeck 00b1). 4027

RONALD WARD & PARTNERS require ARCHITECTURAL ASSISTANTS with contemporary outlook, and willing to use own initiative. Congenial working conditions. Five-day week. Apply, 29, Chesham Place, Belgrave Square, S.W.1. Telephone Belgravia 3361. 3985

QUALIFIED ARCHITECTURAL ASSISTANT required for work in mixed rural practice, S.E. Cornwall. Scope for expansion. Would consider possibility of partnership. Pension scheme available. Apply with references and particulars to Henry S. Tucker, A.R.I.C.S., The Parade, Liskeard, Cornwall. 4056

BIRMINGHAM.—James A. Roberts, Chartered Architect, Chanelle House, 86, New Street, Birmingham, 2 (MIDland 4315/6), requires Junior and Intermediate standard ARCHITECTURAL ASSISTANTS. 4099

KEEN and energetic JUNIOR ASSISTANT of up to Intermediate standard required for busy private office. Write or phone W. P. P. Grant, 565, London Road, North Cheam, Surrey. Telephone No. DERwent 0512. Salary by arrangement. 4093

LONDON Office requires Architect's ASSISTANT of Final standard, with sound knowledge of design. Interesting and varied work in a busy office. Write stating age, experience, and salary required. Box 4086.

YOUNG ARCHITECTS of real ability still wanted to complete architecture/design group. Write, stating present salary and enclosing photograph/drawing of recent work, to: Tom Hancock of Lupton Morton Partners, 1, Church Lane, Wallingford, Berks. 4110

JUNIOR ASSISTANT, almost Intermediate standard, wanted in a Loughton, Essex, Architect's office. Salary £500 to £600 per annum according to experience. Box 4118.

J. M. AUSTIN-SMITH & PARTNERS, 29, Sackville Street, W.1, have vacancies for qualified and unqualified ARCHITECTURAL ASSISTANTS with office experience. Opportunities for designing and taking responsibility in running and supervising contracts. Salary according to age and experience, but in the range of £600 to £900. Please apply in own handwriting. 4122

VINCENT BURR AND PARTNERS urgently require another ARCHITECTURAL ASSISTANT of not less than Intermediate standard. Great scope for future promotion. Large and varied practice. Salary according to experience. Apply by letter only to 85, Gower Street, London, W.C.1. 4076

ARCHITECTS and SURVEYORS with general practice require ASSISTANTS (Intermediate, Qualified or equivalent standards) with initiative and ability to work with minimum supervision. Excellent opportunity for acquiring wide experience on small and large scientific, commercial and industrial buildings. Good salary. Holiday commitments considered. Luncheon vouchers. Pension scheme. Five-day week. Ley, Colbeck & Partners, F/F.R.I.B.A., F/F.R.I.C.S., 51, Bishopsgate, London, E.C.2. LONdon Wall 7282. 4077

ARCHITECTURAL ASSISTANTS, Intermediate standard, required for City Office. Widespread and varied practice. Apply Box 4071.

ARCHITECTURAL ASSISTANT required with Office experience for busy West End practice. 'Phone MUSeum 9693. 4072

ADAMS, HOLDEN & PEARSON require SENIOR ARCHITECTURAL ASSISTANTS and ASSISTANTS up to Intermediate standard. The work includes Hospitals, Commercial Buildings and Laboratories. Apply, giving age, qualifications, experience and salary required, to 38, Gordon Square, W.C.1. 4067

ARCHITECTS' CO-PARTNERSHIP require ARCHITECT with experience, preferably qualified, to run a job; also ASSISTANT for working drawings and detailed design. Please write, stating age, experience, salary desired, to 44, Charlotte St., W.1, or 'phone Langham 5791. 4160

QUALIFIED ASSISTANT ARCHITECTS required, minimum three years' office experience, preferably in London. Salary according to ability and experience. Theo H. Birks, 38, Portland Place, W.1. LAN. 7236. 4158

INTERMEDIATE STANDARD ASSISTANTS required, minimum two years' office experience. Salary according to ability. Theo H. Birks, 38, Portland Place, W.1. LAN. 7236. 4159

JUNIOR ASSISTANT required in London Architects' Office. Should be neat draughtsman with good knowledge of building construction. Write stating salary required. Box 4166.

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required for large scale programme of varied range of work. Salary by arrangement. Leslie C. Norton, 4, St. George Street, Hanover Square, W.1. GRO. 6496. 4137

SEVERAL Senior and Intermediate ARCHITECTURAL ASSISTANTS are required for commercial projects including Hotel, Theatre and extensive development schemes of offices and light industry, etc., in London Architect's office. Holiday arrangements will be recognized. Five-day week. Salary according to experience. Telephone City 8811. 4151

ASSISTANT required, Final standard. Salary approximately £1,000 per annum. Offices in Stroud, Dursley, and site office in Bristol. Write, giving details of qualifications and experience, to Ellery Anderson, Roiser & Falconer, Imperial House, Stroud, Gloucestershire. 4165

COMPETENT ARCHITECTURAL ASSISTANTS required immediately for large Brighton office with varied practice. Three years' experience since completion of training essential. Five-day week. Pension scheme. Holiday this year. Commencing salary up to £750 according to ability. Box 4263.

A QUALIFIED ARCHITECT is required immediately by the Architects' Department of a progressive Company, to establish a branch in the North of England. The applicant should be aged 26-30, preferably to have had experience of industrial buildings and be capable of producing evidence of his ability to assume responsibility. Reply, giving full particulars of training, experience and salary required to Box 4270.

RALPH TUBBS, 46, Queen Anne Street, W.1, requires qualified ASSISTANT ARCHITECT with both imagination and experience. Please apply by letter with brief particulars. 4258

SENIOR ARCHITECTURAL ASSISTANT with general experience required in busy small office in East Lancashire with varied practice. Applications stating age, experience, qualifications and salary to Box 4259.

QUALIFIED ASSISTANT ARCHITECT required for Bristol Office. Applicants should preferably have experience of hospital planning and ability to work on own initiative. Age about 30-45. Superannuation scheme available. Apply in writing giving full details of experience and salary required to W. H. Watkins, Gray and Partners, 1, Clare Street, Bristol, 1. 4260

ARCHITECTURAL ASSISTANTS. Intermediate and senior grade, required for office in West country. A varied practice with scope for initiative and someone capable of taking responsibility. Pleasant working conditions. Car allowance. Pension and sick pay schemes. Salary up to £800 according to experience and qualifications. Box 4261.

ARCHITECTS' well-established office, Charing Cross, requires qualified SENIOR ASSISTANTS and INTERMEDIATE ASSISTANTS. Varied type of work. Good salaries commensurate with experience. Five-day week. Write Box 4264.

RILEY & GLANFIELD require male ASSISTANT of Intermediate standard. Work: Church, industrial, housing and public house. Some general office experience is necessary. Tel. CHA 7328. 4265

THE TIMBER DEVELOPMENT ASSOCIATION has a vacancy on its Research and Development Staff for an ASSISTANT ARCHITECT. Applications to the Chief Architect, Timber Development Association, 21, College Hill, London, E.C.4. 4267

SLOUGH ESTATES LTD. require an ARCHITECTURAL ASSISTANT of not less than Intermediate standard for work, which is mainly industrial, on their three Trading Estates. Please send particulars of experience, age and salary required to The Architect, Slough Estates Ltd., Trading Estate, Slough, Bucks. 4269

W. S. ATKINS & PARTNERS, Consulting Engineers, require qualified ARCHITECTS and ASSISTANTS in their Architects Department to work on major industrial projects and nuclear power stations. Conditions of service include a five-day week and superannuation scheme. Applications should be addressed to the Personnel Manager, 158, Victoria Street, S.W.1. 4287

ARCHITECTURAL ASSISTANT, about Intermediate standard, required for general practice in Devon office. Pension scheme. Box 4271.

ASSISTANTS required by G. E. Grey, A.R.I.B.A., A.A.Dipl., to handle interesting projects. Salary range £600—£1,250, with excellent opportunities for advancement. Five-day week. Please apply to Penmaen House, Belper, Derby. Telephone Belper 861-2. 4272

THE following staff required:—SENIOR ASSISTANT, Final standard, preferably qualified and with some office experience; able to work on own initiative; to fill a vacancy at PETERBOROUGH. Salary up to £900 according to experience, or by arrangement. Assistance could be given towards accommodation if required. Pension scheme available. ASSISTANT, Intermediate standard, to fill a vacancy at SPALDING. Salary £400/500 according to experience. Apply in writing in first instance giving full details to: Ruddle & Wilkinson, F./L./A.R.I.B.A., Long Causeway Chambers, Peterborough. 4245

ASSISTANTS and DRAUGHTSMEN required, West End Practice, varied work. Apply in writing, giving full particulars, to G. A. Crockett, 10, Adelaide Street, London, W.C.2. 4157

ARCHITECTURAL ASSISTANT required immediately. Intermediate or near Final with sound experience for office in Holborn area. Box 4274.

SCHERRER & HICKS, 19, Cavendish Square, London, W.1, require immediately several ASSISTANTS of post Intermediate standard for work on industrial and commercial projects. Apply giving age, qualifications, experience and salary required. 4282

SCHERRER & HICKS require in their Manchester Office INTERMEDIATE ASSISTANT with some office experience, for work on new schools. Salary according to ability. Write giving details of training and experience to 27, King Street, Manchester 2. 4251

PITE SON & FAIRWEATHER have a number of vacancies for recently qualified ARCHITECTS and STUDENTS at Intermediate standard to work on a number of large and interesting projects. Applicants should write to 6, Queen Anne's Gate, Westminster, S.W.1, giving details of qualifications, experience and salary required. 4449

ONE SENIOR and TWO JUNIOR ARCHITECTURAL ASSISTANTS required immediately; the latter preferably with some office experience. Salary £1,000 p.a. Senior, £700 p.a. Junior. Please reply to Lyons, Israel & Ellis, 43 Portland Place, London, W.1. Tel. No. LANgham 2791. 4246

WANTED: Two ASSISTANT ARCHITECTS for West End office with 10 other Assistants. One Senior, one Junior, salary dependent on experience and ability. Experience in Interior Design and Decor an advantage. Apply with full particulars to Box 4247, stating salary required.

THREE ARCHITECTURAL ASSISTANTS required in London Office for office building work. Intermediate standard or higher. Good salary, depending on experience. Campbell Jones & Sons, 9, Dowgate Hill, E.C.4. 4248

ARCHITECTURAL ASSISTANTS required by Sir William Halcrow & Partners for architects' department. Intermediate and Final standard. Salary according to age and experience. Apply giving particulars of age, qualifications and experience to E. J. D. Mansfield, A.R.I.B.A., Sir William Halcrow & Partners, 47, Park Lane, London, W.1 4244

ASSISTANT ARCHITECT required in modern office to carry out new work of varied nature. Superannuation Scheme. Apply to J. Mansell Jenkinson & Son, 53, Wilkinson Street, Sheffield, 10. 4243

ARCHITECTURAL ASSISTANT required. Scope for use of own initiative. Varied experience in general practice. Good draughtsmanship essential. Apply, giving full details including salary required, to: H. Anthony Clark, F. C. Roberts & Partners, Chartered Architects, 41, Regent Street, Wrexham. 4242

ARCHITECTS' ASSISTANT required for private office, Carlisle and District. C. B. Martindale, F.R.I.B.A., Cathedral Chambers, Castle Street, Carlisle. 4240

QUALIFIED SENIOR ASSISTANT and ARCHITECTURAL ASSISTANT of Intermediate standard required for busy practice in Leicestershire. Apply in writing stating age, experience and salary required. Box 4238.

ARCHITECTURAL ASSISTANTS, Intermediate and Final standards, required in Architects' Dept. for work in connection with Flat, Maisonette, Shop and Housing developments throughout the country. Applicants must be competent draughtsmen with contemporary outlook. Good salary and prospects. Pension scheme in operation. Apply Architectural Dept., Davis Estates Ltd., 346/350, Kilburn High Road, N.W.6. 4235

ARCHITECTURAL ASSISTANT required for interesting general practice. Intermediate standard. Must be capable of working with minimum of supervision. Apply stating age, experience and salary required to Malcolm Peck, Roberts & Associates, A./A.R.I.B.A., 15, Friary Street, Guildford, Surrey. 4239

ARCHITECTURAL ASSISTANT required for busy West End office. Salary according to age and experience. Summer holiday with full pay will be granted. Apply in writing to Maurice Sanders, F.R.I.B.A., 24, Harley Street, W.1. 4229

ARCHITECTURAL ASSISTANT required by WATES LTD., experience in speculative housing work essential. Salary range £700 to £900 per annum. Permanent and progressive position. Five-day week, pension and bonus. Write, stating age, experience and present salary to: Personnel Manager, 1258/60, London Road, Norbury, S.W.16. 4230

ASSISTANT required for Senior position in small London practice (established two years), with staff of six. Special consideration will be given to applicants with good educational background who are anxious to improve their experience at Client and Contractor level. Work generally varied: Hotels, Flats, Houses, Alterations, Interior Design, Exhibition and Industrial. The position offers good opportunities for advancement. Applicants must have passed Intermediate and with minimum five years' office experience. Salary £850 p.a. or about, according to qualifications. Phone CHAncery 7209. M. R. Blampied & Partners, 63a Great Russell Street, W.C.1. 4291

SIR PERCY THOMAS AND SON of Cardiff and Swansea require experienced ASSISTANTS for both Offices. The programme of work is varied and includes Universities, Science Buildings, Offices, Industrial Buildings and Hospitals. Applicants should be qualified and fully experienced, with sound knowledge of contemporary architecture. Salary range for Assistant Architects is £1,000 to £1,500 p.a. and for Assistants, up to £1,000 p.a. A Pension Scheme is in operation for Assistant Architects after a period of qualifying service and satisfaction. Holidays are 3 weeks per annum and every third Saturday morning free. Applications, stating age, qualifications and experience should be made to The Secretary, 10, Cathedral Road, Cardiff. 4171

VACANCY for ARCHITECTURAL ASSISTANT, must be a good draughtsman of Final or Intermediate standard. Salary according to experience and ability. Applications in writing only to A. I. Cripps, A.R.I.B.A., 18, Caversham Road, Reading. 4179

SENIOR ASSISTANT, qualified or near, with good practical experience, required by small busy office. Good style and speedy draughtsmanship also experience of building and land surveys desirable. Work varied but includes large amount of estate development. Holiday arrangements respected. Details of age, experience and salary required to Field and Shaw, Chartered Architects, 40, Station Road, North Harrow. Tel.: Harrow 7592. 4184

SENIOR Qualified and Experienced ARCHITECTURAL ASSISTANTS required (two), busy office, interesting work, adequate remuneration. Apply giving details, age, experience and salary required to J. R. Boyd Barrett, A.R.I.B.A., F.R.I.A.I., 5, Camden Place, Cork. 4183

ASSISTANTS required, Intermediate to Final standard, for interesting Commercial and Industrial work. Salary commensurate with ability and enthusiasm. Good office conditions, lunch facilities. Apply in writing to Alan A. Briggs, F.R.I.B.A., 10, Fleet Street, London, E.C.4. 4182

OSCAR GARRY & PARTNERS require ASSISTANTS, minimum five years' office experience. Varied work—industrial, commercial and domestic buildings. Telephone: WELbeck 2507 for an appointment. 4177

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