THE ARCHITECTS' JOURNAL

standard contents

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

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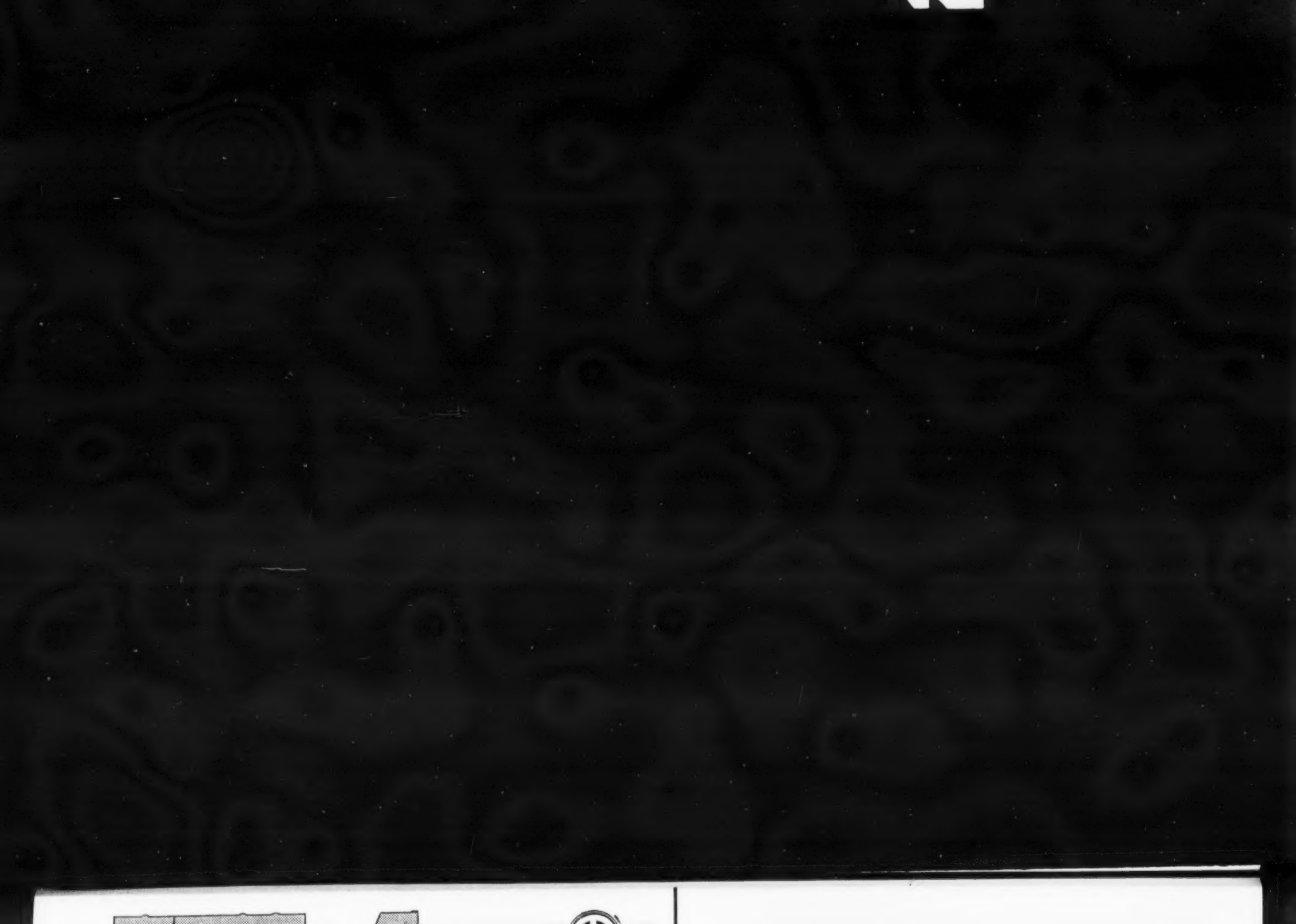
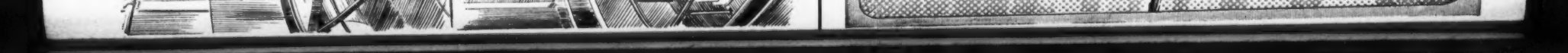
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 75, Eaton Place, S.W.1.	Sloane 3158/1601
IIBD	Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb.	Institute of Arbitrators, 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
IWA	Inland Waterways Association. 11, Gower Street, W.C.1.	Museum 9200
LIDC	Lead Industries Development Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MARS	MARS Group (English Branch of CIAM). Secretary: Gontran Goulden, Building Centre, 9, Conduit Street, W.1.	Mayfair 8641
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. Whitehall, S.W.1.	Whitehall 4300
MOLGP	Ministry of Local Government and Planning. 23, Saville Row, W.1.	Regent 8411
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	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. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 37, Onslow Gardens, S.W.7.	Kensington 8161
NCBMP	National Council of Building Material Producers, 10, Princes Street, S.W.1.	Abbey 5111
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. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 14, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
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.	Whitehall 9936
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Edinburgh 20396
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, 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
RSI	Royal Sanitary Institute. 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
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 14, Moorgate, London, E.C.2.	Central 4444
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984
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. 75, Cannon Street, E.C.4.	City 4771
TGC	The Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 69, Cannon Street, E.C.4.	City 4444
WDC	War Damage Commission. Devonshire House, Mayfair Place, Piccadilly, W.1.	Mayfair 8866
WEDA	Welfare Equipment Development Association. 74, Victoria Street, S.W.1.	Victoria 5783
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988





SINCE its inception a few years ago, 'BITUMETAL' has rapidly acquired the confidence of Architects and Engineers in many parts of the country.

At no time, however, can it be said that finality has been reached in the presentation of a product or service. Our Roofing Development Department is constantly carrying out research into conditions affecting application and purpose, and recently it was observed that an aluminium sheet of 18 gauge fabricated into such a substantial unit provided in many instances a greater load-bearing capacity than was strictly necessary.

We therefore introduced 20 gauge 'BITUMETAL' Roof Deck eminently suitable for many classes of buildings, and at the same time, economical in the use of aluminium. Deck units of 18 gauge are still being produced for high load-bearing capacities, but generally it will be found that 20 gauge units will meet your requirements and at a considerably reduced price.

Full technical data of this important change is available at any of the undernoted Area Offices.

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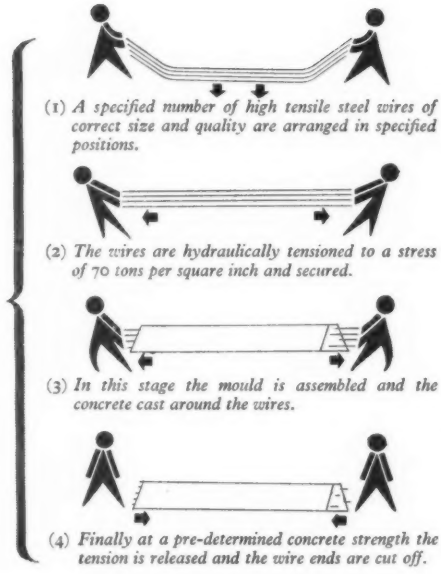
ROOF PLUS **CEILING** PLUS **INSULATION**

DOW-MAC FOR PRESTRESSED CONCRETE

PUTTING THE PRESTRESS IN PRESTRESSED CONCRETE



(1) *A specified number of high tensile steel wires of correct size and quality are arranged in specified positions.*

(2) *The wires are hydraulically tensioned to a stress of 70 tons per square inch and secured.*

(3) *In this stage the mould is assembled and the concrete cast around the wires.*

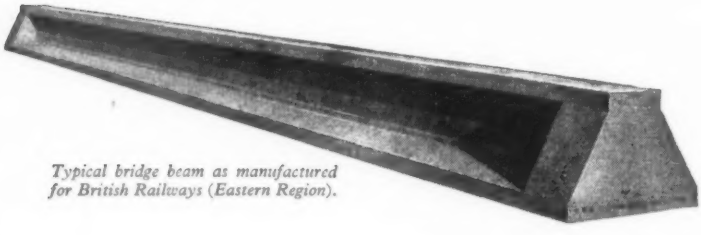
(4) *Finally at a pre-determined concrete strength the tension is released and the wire ends are cut off.*

This simplification of the Dow-Mac patented process illustrates the essential operations in prestressed concrete manufacture. The resulting product acts as a homogeneous material, truly elastic under designed loads and entirely free from cracks. The use of prestressed concrete reduces weight and deflection, permits greater beam spans and gives unlimited life. Steel, timber and labour are saved and overall costs reduced.

Specify Dow-Mac prestressed concrete where these qualities can be utilised.

APPLICATIONS

Prestressed concrete in pre-cast form is now used for railway sleepers, roof and floor beams, bridge beams, piles and walings, electric transmission poles and many other products. Dow-Mac who made their first railway sleeper nearly 10 years ago are now utilising their experience in these fields.



Typical bridge beam as manufactured for British Railways (Eastern Region).

DOWSETT GROUP — DOW-MAC

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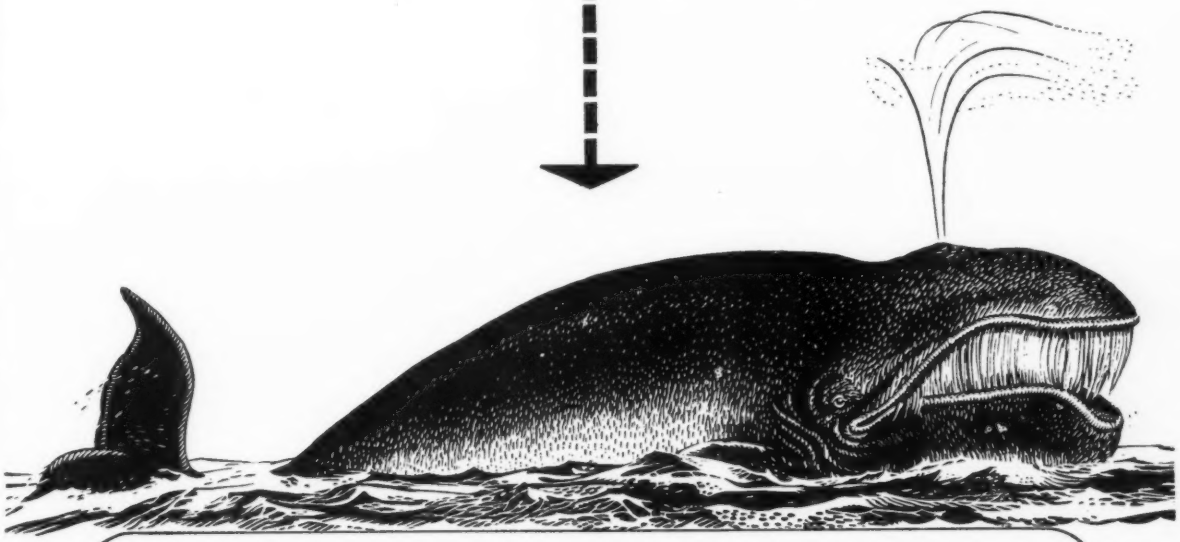
It's a matter of taste of course. From the culinary point of view both have their advocates. For us, in the more specialised field of refrigeration, the big and the small are equally welcome. For 70 years now, we have been producing refrigeration units for every conceivable purpose for trade and industry . . . for big projects such as ice rinks, marine storage, and meeting the more modest requirements of shops and businesses by way of store cabinets and show-cases. We also make it our special concern to ensure that each of our customers, big, medium and small, receives a first-class service in the maintenance of his equipment. Our experience, in other words, is as broad as it is long, and therefore, whether yours is a sardine or a whale of a problem, we will be only too glad to help you. Why not write to us to-day ?



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London: Palace Chambers, Bridge St., Westminster, S.W.1. Tel.: TRAfalgar 3517-8. Liverpool: Alexander Building, 19 James Street, 2. Tel.: CEN. 8383/4
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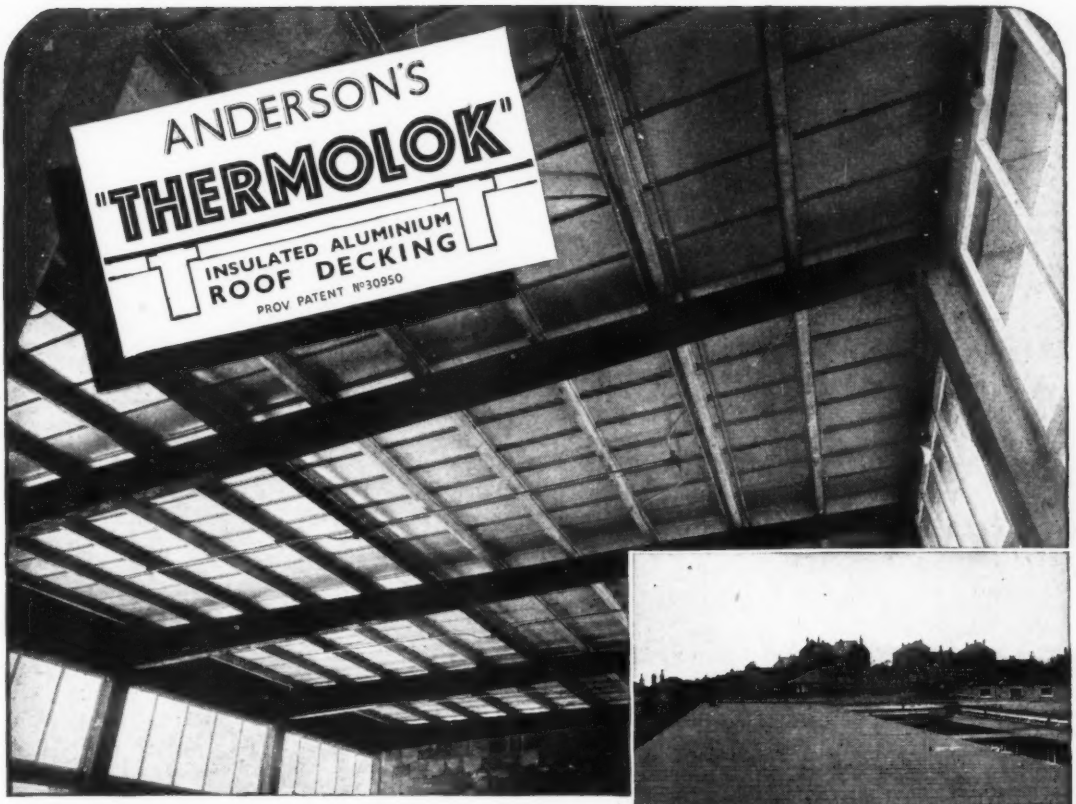

"THERMOLOK" is a modern aluminium decking of exceptional strength and rigidity, and is suitable for all types of roof structures.

The design is exclusive and embodies features which mark a big advance in roof construction.

The system is flexible and can be adapted to suit special requirements. "THERMOLOK" can be supplied in several gauges, and the bar sections increased to take spans greater than 10 feet.

A high insulation value can be obtained resulting in fuel economy and more comfortable interior conditions; condensation risk is reduced to a minimum.

The interior appearance of "THERMOLOK" with its pleasing design and light aluminium colour eliminates the necessity for a separate ceiling.

The light weight and strength of "THERMOLOK" enable economy in design of the sub-structure to be obtained to the maximum extent.

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Durable waterproofing is provided by Anderson's "DUROK" Roofing System, and a variety of finishes can be given, if desired, to secure a pleasing appearance and to harmonize with surroundings.

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SPEEDY ERECTION
LIGHT WEIGHT
THERMAL INSULATION
GOOD APPEARANCE

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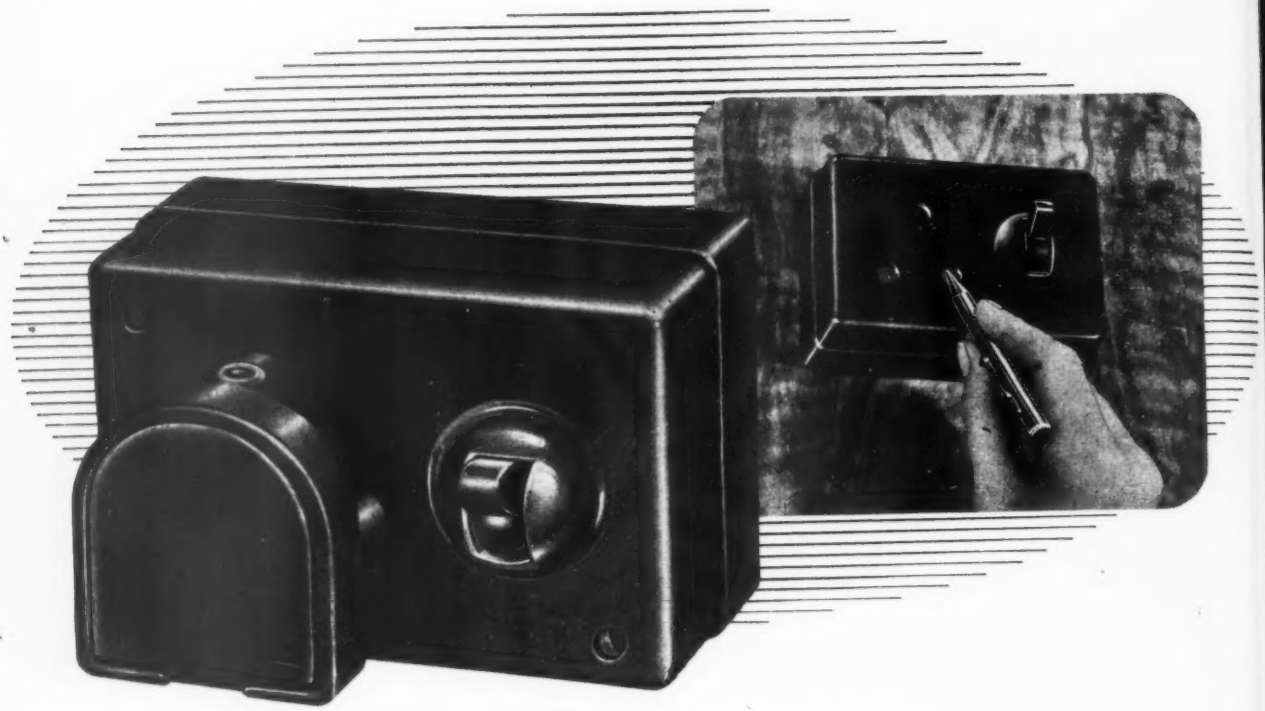


The TEMCO shutter makes others out of date because...

★ **the phase tubes cannot be exposed by pushing the shutter out of position with a pointed instrument.**

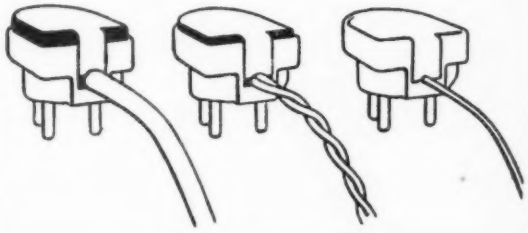
★ **the insertion of a pencil in the earth does not operate the shutter.**

★ **to operate the TEMCO shutter, the plug must be properly inserted.**

TEMCO switch sockets are available in surface and flush types, 5 amp., and 15 amp. brown and white. Suitable for use on A.C. or D.C.
They comply with B.S.S. 816 and B.S.S. 546.
Brief specification:—Porcelain base; quick make and break switch action; moulded dolly has no metal inserts; ringed contact tubes; recessed back with knock-outs.

ANOTHER EXCLUSIVE TEMCO FEATURE...
the variable cord grip.

TEMCO Plugs adjust themselves automatically to suit varying thicknesses of flex. There are no loose parts.



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H

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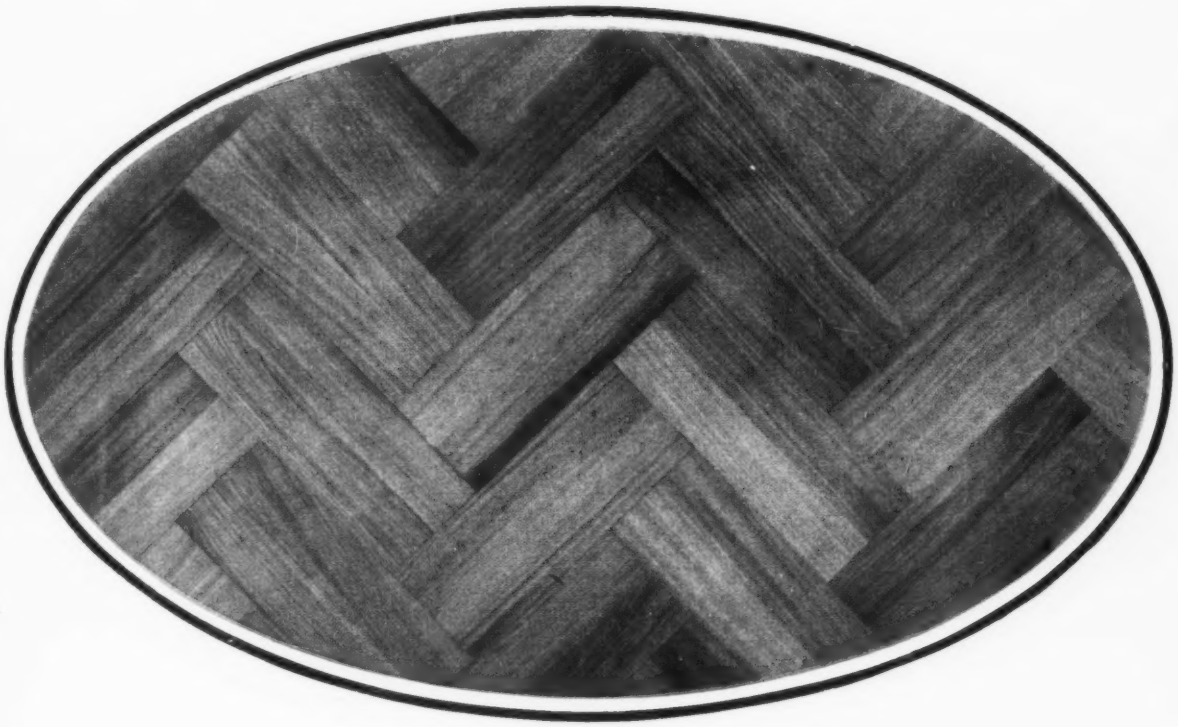
HARDWOOD FLOORS LAST A LIFETIME



Muhuhu (*Brachylaena Hutchinsii*)

HARDWOODS *for* character

Nature presents in hardwoods a complex variety of designs and tone values, blended into a unity such as is beyond the power of man to imitate. For character, individuality and dignity in flooring they are outstanding whilst they possess all the functional characteristics which a completely satisfactory floor demands.

The herringbone pattern illustrated is worked in Muhuhu, an East African timber whose wearing qualities are comparable to Canadian Maple. Muhuhu will withstand the most severe use. A close grain dense timber, slightly oily, pleasantly scented, pale straw in colour, it works well and is very stable.

Hardwoods are available in great variety and they are decontrolled.

In block form for factories, schools, business premises, public buildings, institutions, hospitals, houses and flats

THE HARDWOOD FLOORING MANUFACTURERS' ASSOCIATION

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the new lightweight STRUCTURAL material

In blocks of the following nominal sizes

18"x 9"x 3"—14lbs. 18"x 9"x 4"—19lbs. 18"x 9"x 6"—28lbs.

THERMALITE is a stable, weather resistant, lightweight, cellular material which is specially suited for use in the construction of load bearing external walls where a high degree of thermal insulation is desired at a cost comparable with traditional brick or concrete construction.

Because of their light weight and the ease with which they can be worked, THERMALITE blocks produce a considerable economy in bricklayer hours. The significance of this saving in skilled labour cannot be over emphasized at the present time.

THERMALITE

has the following physical properties

Density	50 lb./cu. ft.
Compressive strength (on 6" cubes cut from standard blocks as delivered)	750-800 lb./sq. in.
Moisture movement (after 4 days immersion according to B.S. conditions)	0.06%

For full details and technical data apply to

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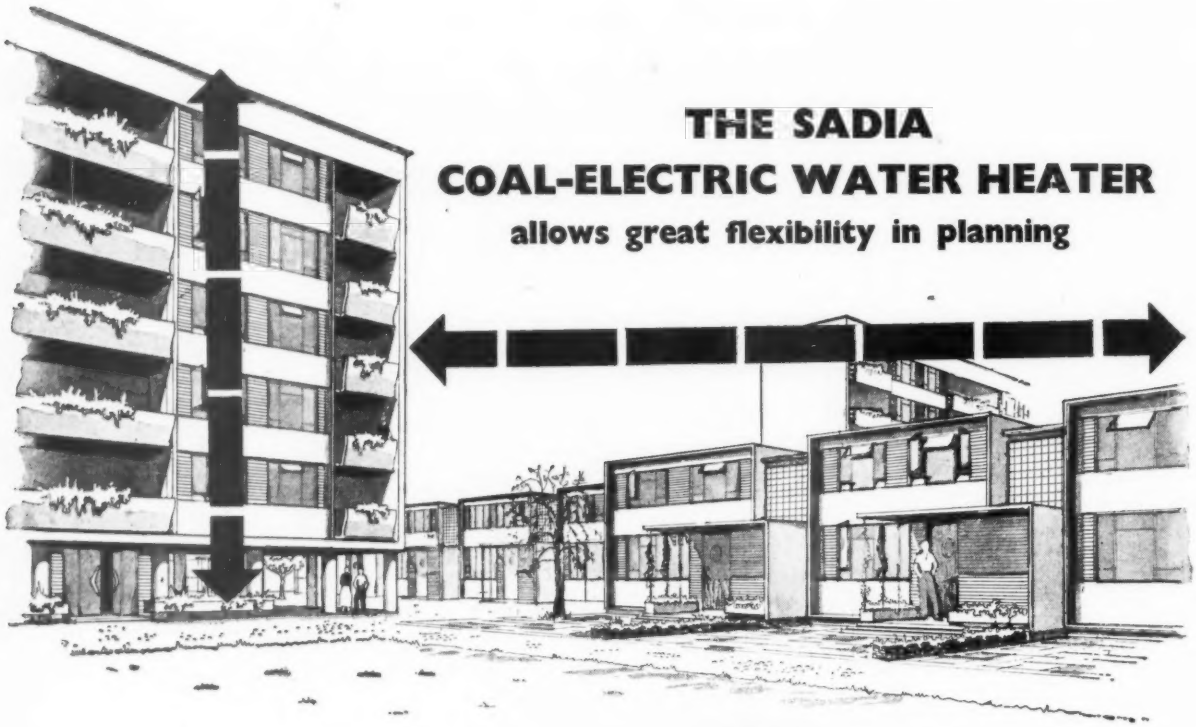
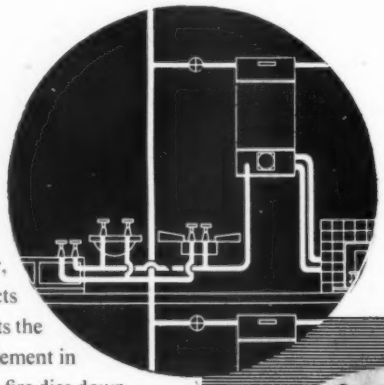
THERMALITE was developed in the laboratories of John Laing and Son Limited and is manufactured in Great Britain under British Patents — 648280 and 648299



THE SADIA COAL-ELECTRIC WATER HEATER

allows great flexibility in planning

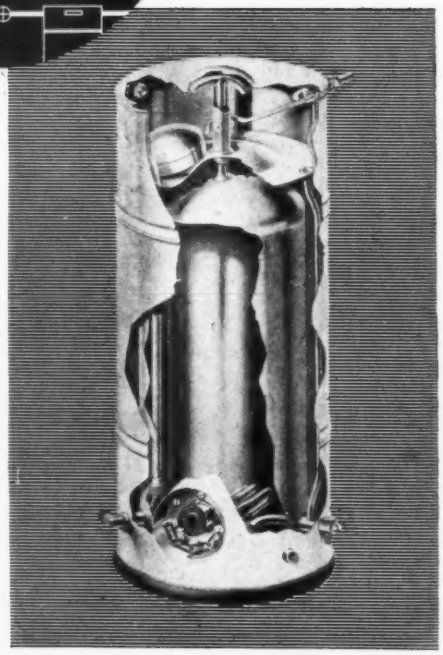


The Sadia coal-electric water heater is suitable for both houses and flats, and can be used either with a back-boiler or an independent boiler. It is a water heater planned to make the best use of available fuels. During winter, when fires are lighted, the Sadia coal-electric water heater acts as a storage tank, the back-boiler or the solid-fuel boiler heats the water, and the thermostatically controlled electric heating element in the Sadia coal-electric water heater takes over only when the fire dies down. In summer, no fires need be lighted, electricity takes over completely, and the house keeps cool.

The Sadia coal-electric water heater is the only factory-built unit of its type; made by water heating specialists it is the result of the accumulated experience of many years in this particular field. Efficiently insulated, it increases the effectiveness of the solid fuel boiler to which it is connected.

When installed in blocks of flats, the patented self-venting and self-filling calorifier makes for simplified plumbing. One common down-service pipe can supply all the Sadia water heaters.

Aidas Electric Ltd., the makers of the Sadia coal-electric water heater, are always very glad to give specialist advice on all aspects of water heating to architects when they are preparing plans.



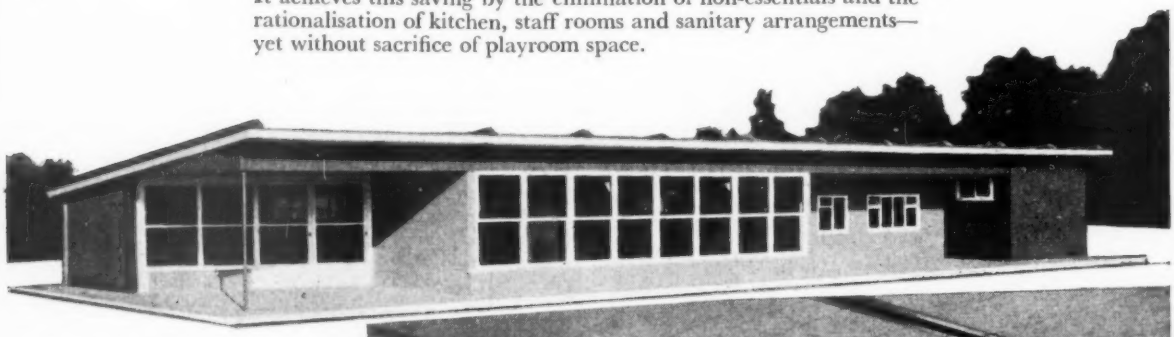
Aidas Electric Ltd., Sadia Works, Rowdell Road, Northolt, Middlesex.
Scottish Agents: W. Brown & Co. (Engineers) Ltd., 89 Douglas Street, Glasgow, C.2. Manufactured in South Africa by Sadia Water Heaters (Pty.) Ltd., 3-5 Newton Street, Village Main, Johanneshurg.

SADIA
HOT WATER BY ELECTRICITY

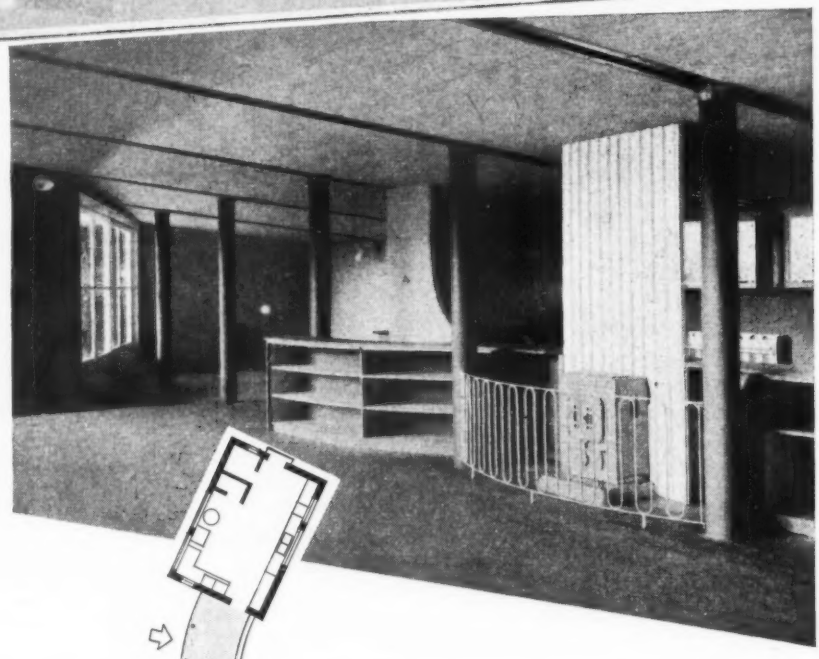
the ASCOS solution for the under fives

and the release of mothers for industry

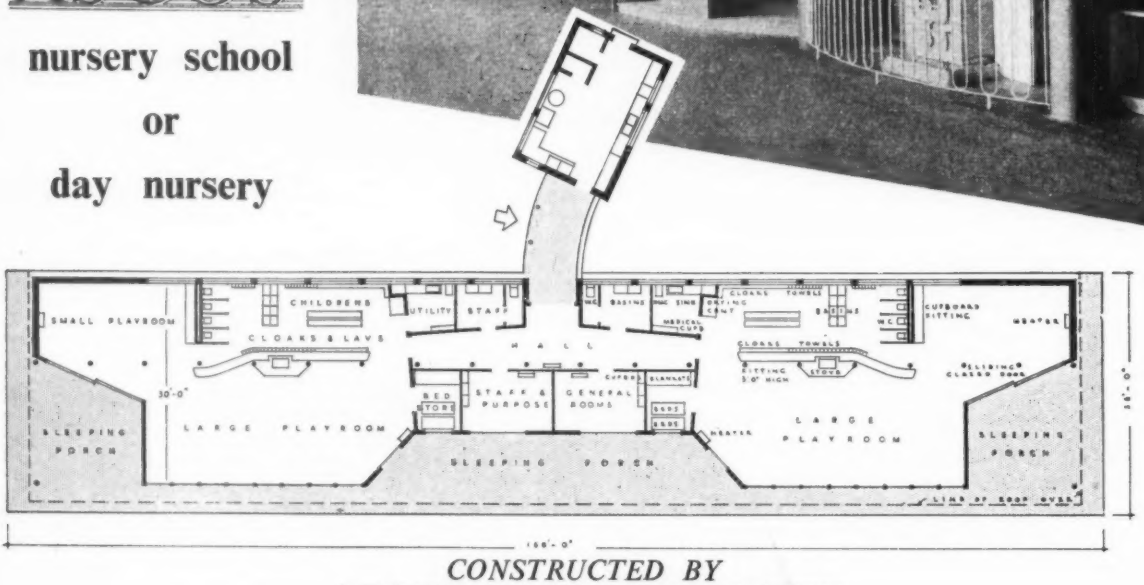
As labour is increasingly switched to rearmament, more and more women will be needed in the factories. The care of their young children thus becomes an important problem in our defence effort—a problem which can be overcome with the ASCOS nursery school at a cost of about £200 per place as against the normal £400. It achieves this saving by the elimination of non-essentials and the rationalisation of kitchen, staff rooms and sanitary arrangements—yet without sacrifice of playroom space.



Basically a self contained unit for 40 children, complete with kitchen. This unit may be doubled to take 80, as shown on the plan below, or trebled to take 120 children, with a communal kitchen. Erection period 3 to 4 months. For full details of construction, internal equipment, services and finish, please write for illustrated booklet.



the ASCOS nursery school or day nursery



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Architect: Mr. J. Stillman, A.R.I.B.A.

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—because made by

FRICTION SPECIALISTS

DIFFICULT STAIRS cannot always be remodelled; but they can be made proof against the danger of *slipping*. Proof against shabbiness, too, by these neat and extraordinarily durable stairtreads.

The name "Ferodo" is positive assurance of frictional efficiency; these treads cannot wear slippery, and they give a safe grip even if shoes are wet. The bright outline to the step is a further safety factor, especially in subdued lighting.

CHOICE OF PATTERNS

Ferodo Stairtreads are mounted in aluminium nosings, which are made in single and double channel types, of various widths and profiles. The friction strips are either of Ferodo bonded fabric — similar to brake-lining, in dark brown — or of a smoother yet non-slip asbestos composition, in white, red, or grey. There is also a plain steel-backed "industrial" type. All types are easily cleaned, and need no other maintenance. They resist wear for years without looking shabby, even under the heaviest traffic.

SIMPLE INSTALLATION

Ferodo Stairtreads are easily fitted to new or existing wood, stone, concrete, or iron stairs, and can be supplied accurately curved for stair-ends or winders.

The various models are described and illustrated in our Catalogue No. 732KK, gladly sent on request.

Awkward stairs made safe

Wherever traffic is heavy, and safety and good appearance are both important — in shops, offices, hotels, public buildings — Ferodo Stairtreads can be used with good effect. Seen here is the excellent treatment of unavoidably narrow and winding stairs leading to the busy first-floor lounge bar at the Scotch Stores public house, Cranbourn Street, London, W.C.2.

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STAIRTREADS

FERODO LIMITED, CHAPEL-EN-LE-FRITH

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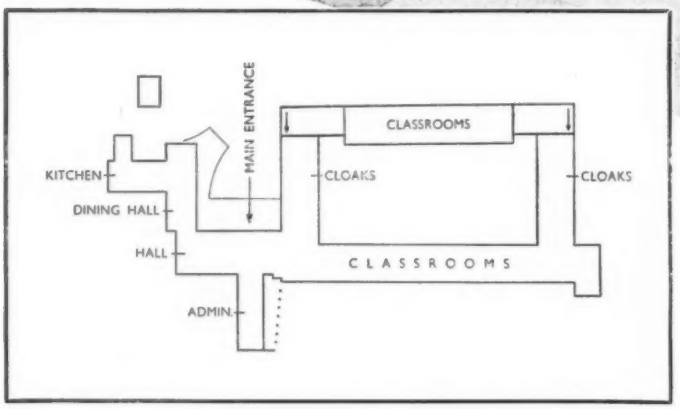

WEXHAM ROAD SCHOOL, SLOUGH
(For Bucks. County Council)
County Architect: *F. A. C. Maunder, R.S., Dip. Arch., F.R.I.B.A., A.M.T.P.I.*
Contractor: *A. Roberts & Co., Ltd., Victoria*

ORLIT
CONSTRUCTION

Though economy and speed of erection are essentials in school building, yet something more is needed. A school should be designed to give, in its use, pleasure, convenience and stimulation to pupil and teacher alike. The Orlit method of construction is economical and speedy; it also allows the architect full opportunity to exercise his skill in design.

PRE-CAST CONCRETE
PRE-STRESSED CONCRETE

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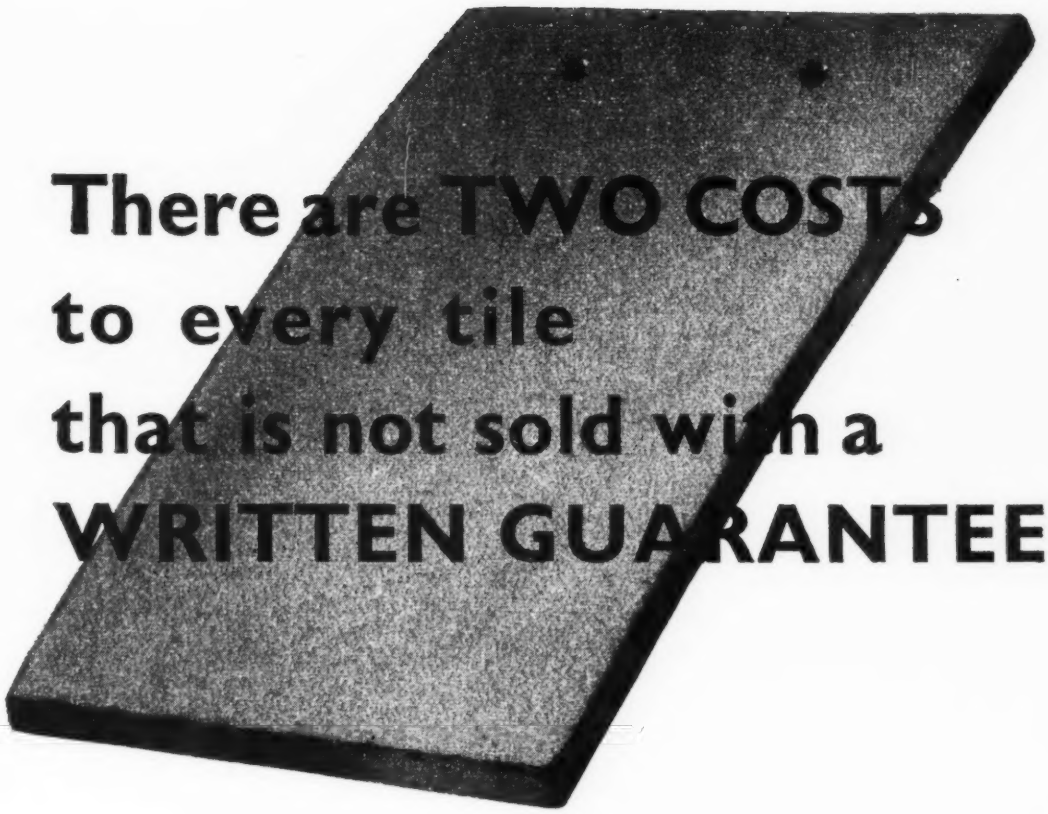
ORLIT (Lancashire) Ltd. 3, Brown St., Manchester, 2
Tel: Blackfriars 0718
THE SCOTTISH ORLIT CO. LTD. 79, George St., Edinburgh
Tel: Edinburgh 34814
ORLIT (N. Ireland) LTD. Benson St., Lisburn, Co. Antrim
Tel: Lisburn 3249
TARSLAG LTD. Economac House, Wolverhampton
Tel: Wolverhampton 23881
TARSLAG LTD. Tees Bridge, Stockton-on-Tees
Tel: Stockton-on-Tees 6355
BEACON PRE-CAST LTD. Marsh Green Rd., Exeter
Tel: Exeter 4185/6



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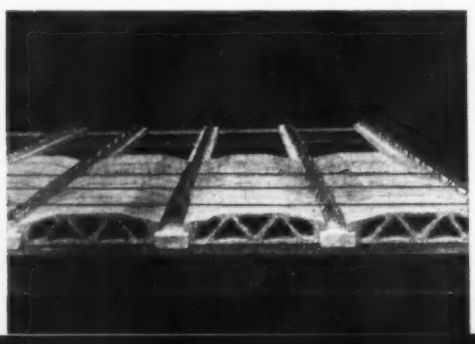

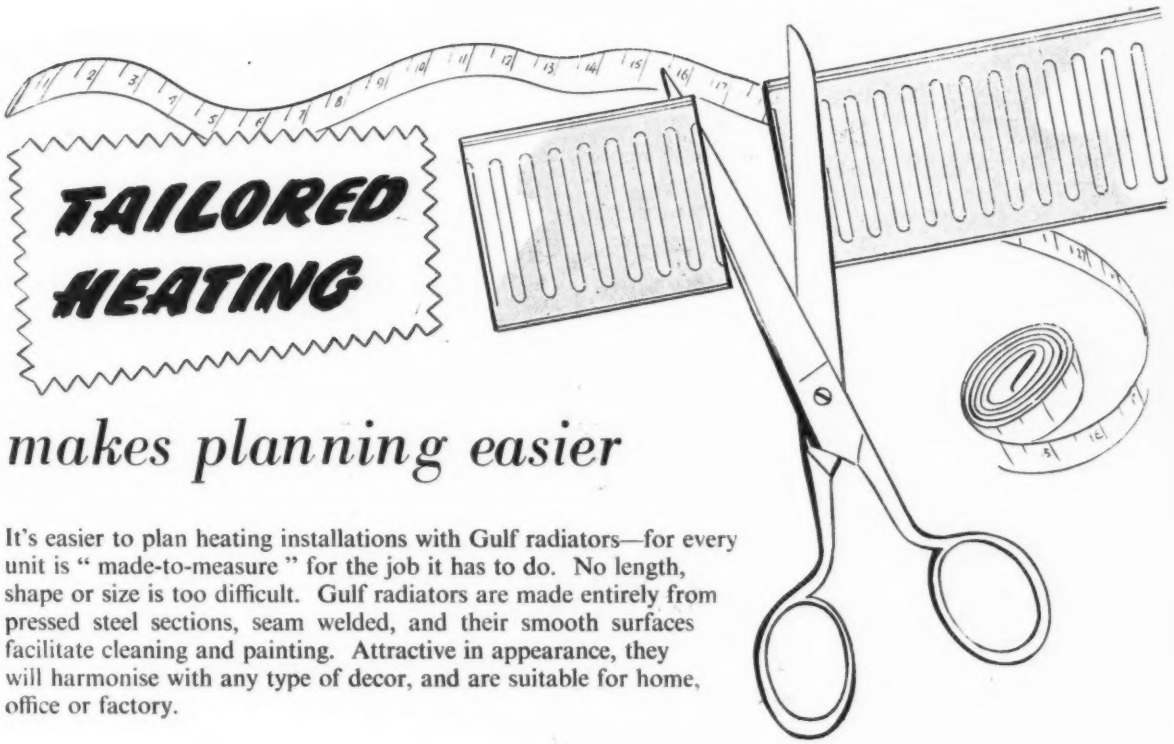

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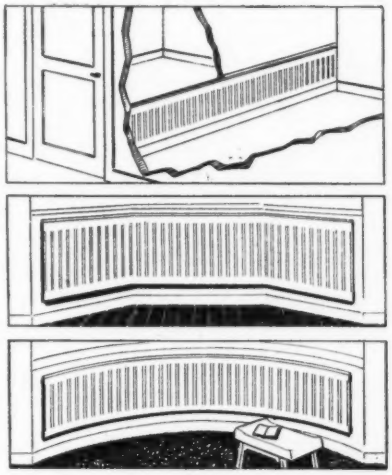

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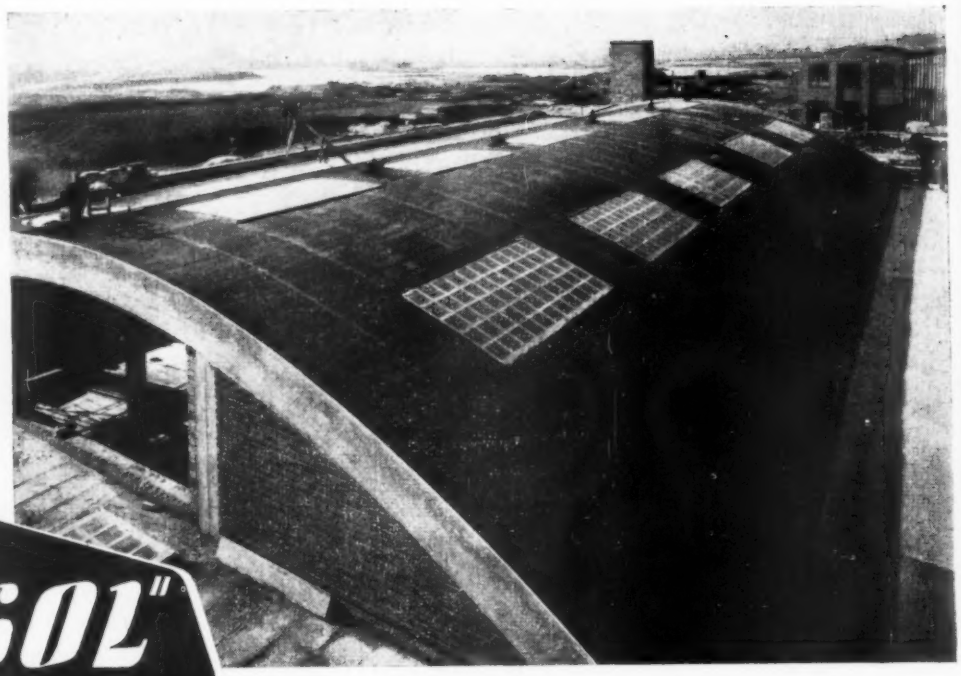

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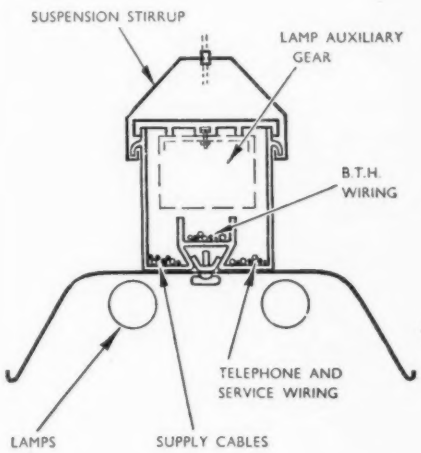

Transverse section of the trunking. Auxiliary gear secured to lid by T-slot. Suspension stirrups and reflectors attached to continuous formed section. Note separate ducts for lamp wiring and cables for mains supply and other services: all kinds of wiring up to small power gauge can easily be run through the trunking.

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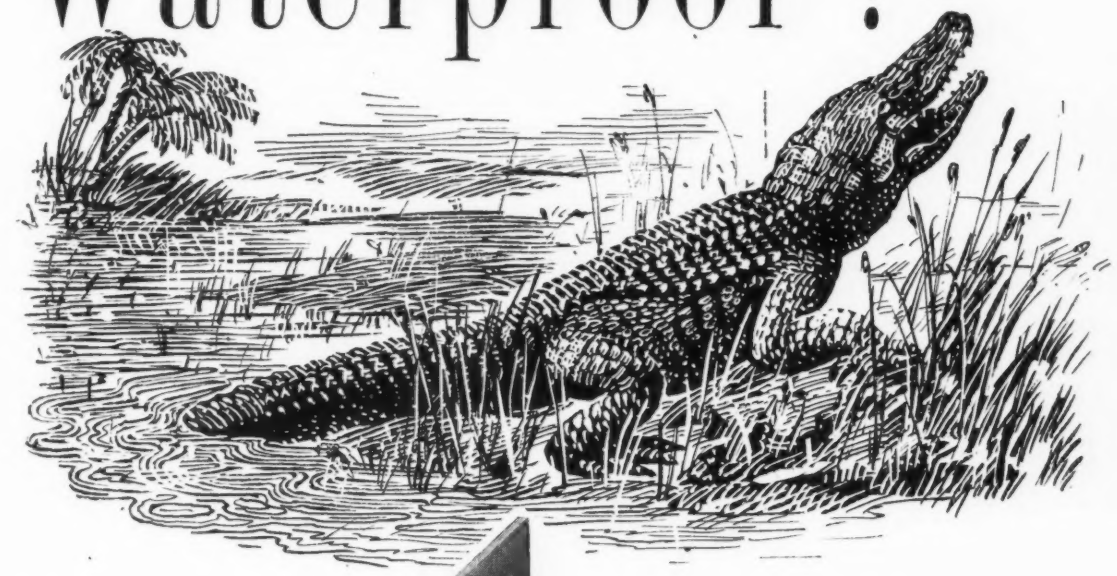

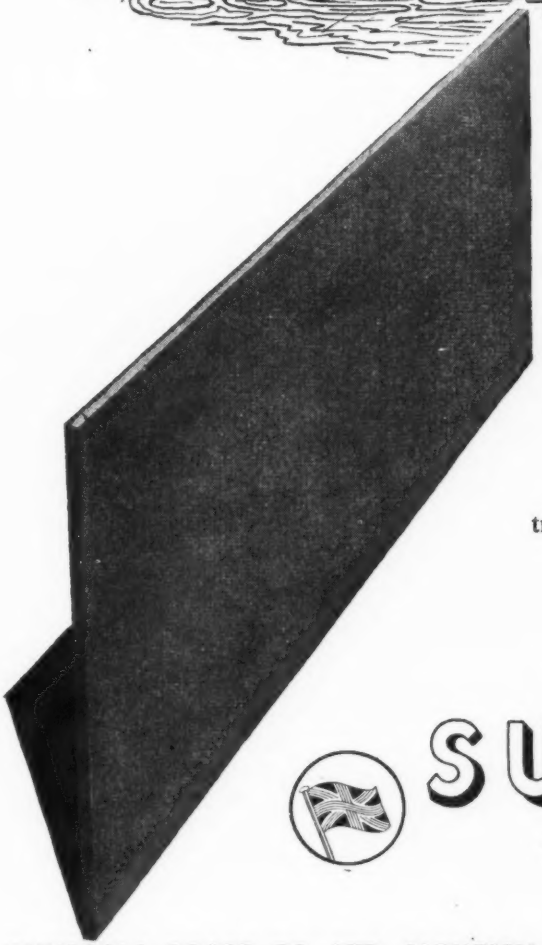

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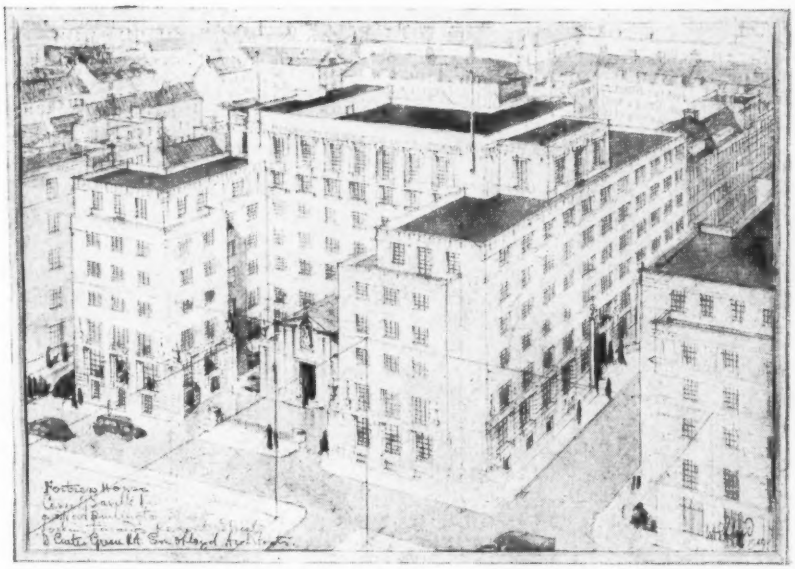

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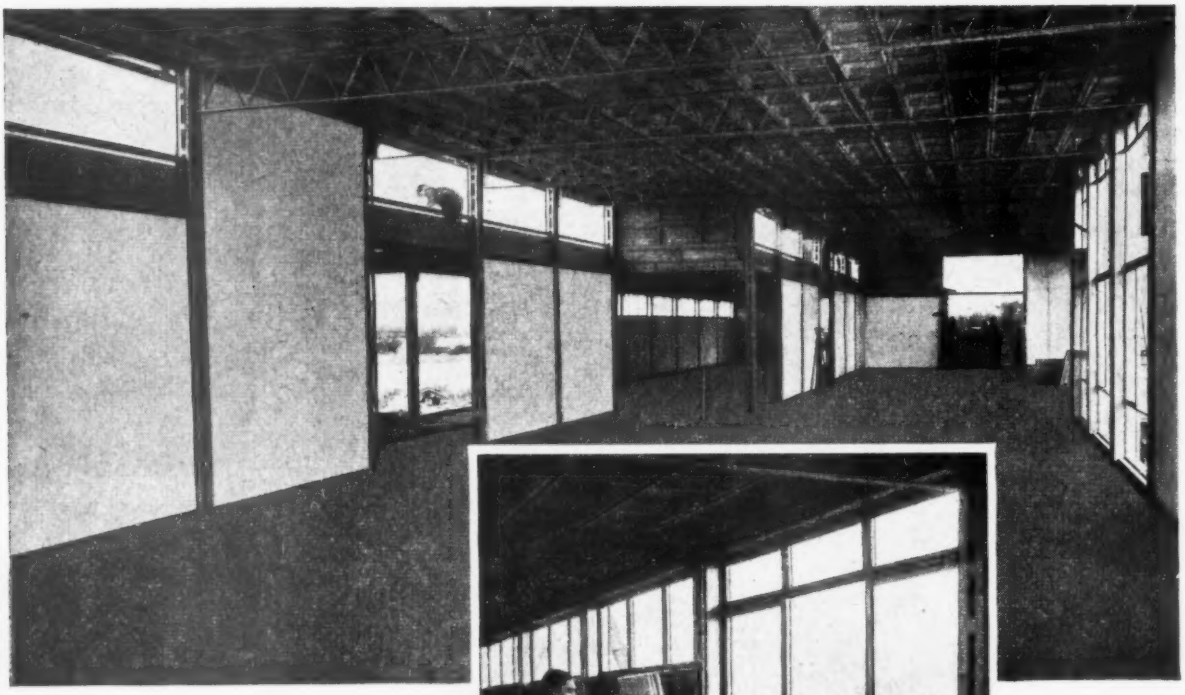

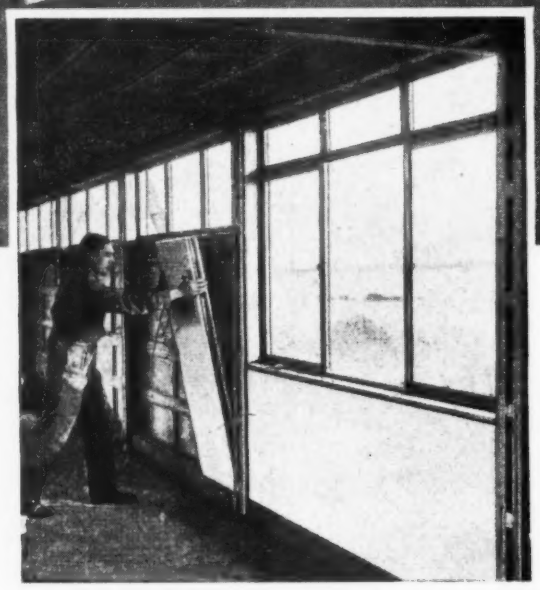

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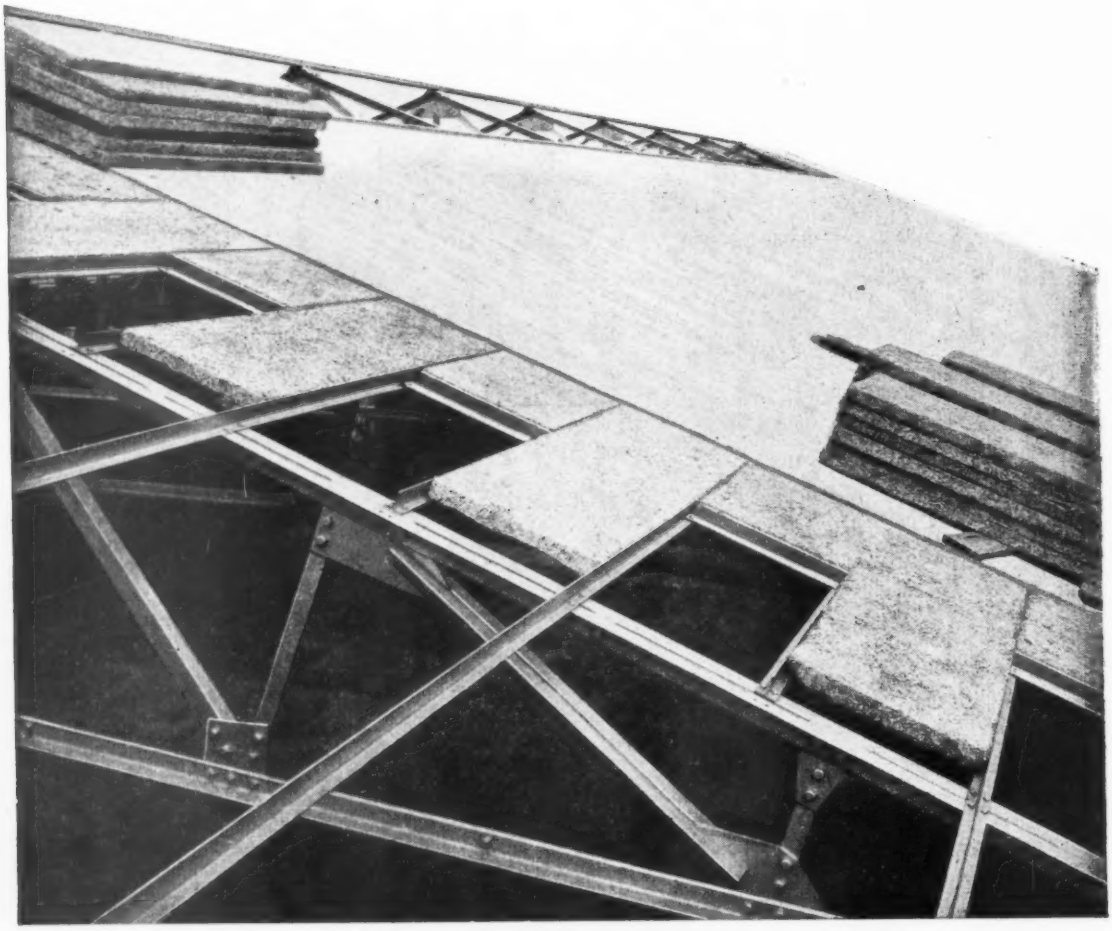

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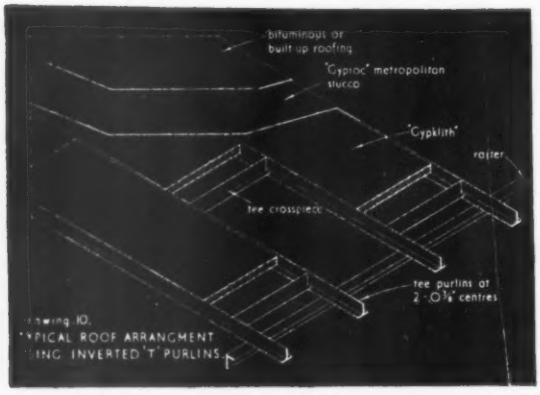

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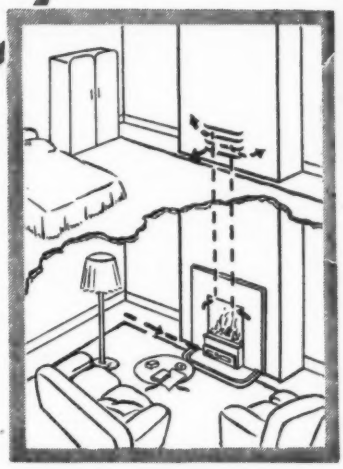

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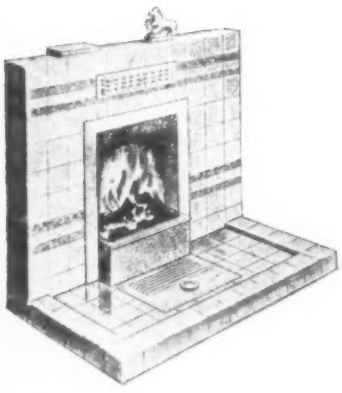

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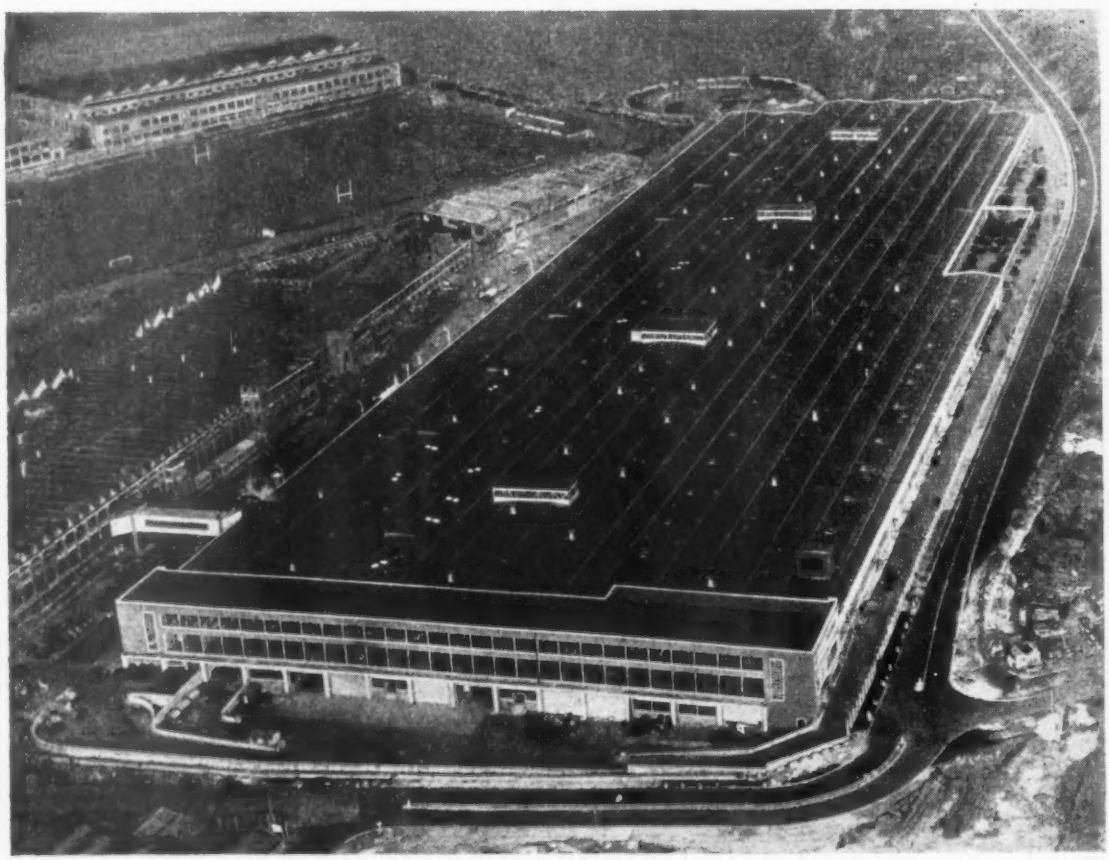

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THE ARCHITECTS' JOURNAL

No. 2925 22 MARCH 1951 VOL 113

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A LITTLE OF WHAT YOU FANCY

The Architectural Science Board's joint meeting last week with the Illuminating Engineering Society, at the RIBA, had all the factors present to make the evening a memorable one. There were the two well-known lecturers on lighting, William Allen and R. G. Hopkinson, who spoke to a full house on the practical and theoretical aspects, respectively, and with a good accompaniment of coloured slides and lighting effects. Nevertheless the evening was far too long, lasting nearly two and a half hours, a period which sorely tried even the most devoted disciples of architectural science.

*

One of the most important factors in an evening of this nature is the time given to general discussion after the principal lectures are over. It is then that the audience can, so to speak, chew the cud, as speakers bring up the conundrums lying most heavily on their brain's digestion. On this occasion, after a vote of thanks had been proposed, and so on, no time was left for questions at all.

*

A final point of criticism which might apply to all building research workers at the moment. Like Thoreau, their theme should be: simplify, simplify, simplify, when dealing with architects. It is our little conceit to think that we are a *learned* profession; is there any need, then, to reveal our real state? There are, of course, the intelligent few, who bandy new scientific words with expert volubility. But, from the slowly plodding body of the profession, slowly sinking into a morass of printed information, and esoteric terminology, of which one half out-dates the still unread information of the other half, only one bubbling cry emerges: what are we supposed to *do*?

*

Perhaps the answer is to have an architectural semi-science board, a kind of Shell, or Remove, where even the silliest questions can be asked, and answered, without provoking scorn. A junior, how-to-do-it, what-this-means-to-you club. At least one could guarantee a large attendance. And occasionally, of course, just as a treat, a joint meeting with the seniors could be held, when unfettered scientists could describe fully, as was done only recently, at the RIBA, such intriguing problems as plotting the graph of a footfall in an attempt to measure the slipperiness and wearing qualities of floor materials. An essential task, of course, but not directly the concern of the architect who merely wants to know, for instance, what kind of floor to lay for a nursery school.

V FOR VITRUVIUS?

The spectacle of someone being cross is (as we discovered in our nurseries) always entertaining, and for that reason I owe a debt of gratitude to the author of an article called " The State of Architectural Criticism " in the magazine *Nine*. His name is J. H. V. Davies, and he is very cross indeed: architectural criticism, he finds, is in a terrible state. Who is to blame? Pretty well everyone, from the Architectural Association Students' Club to Dr. Giedion. But the villain of the piece is — can you guess? — *The Architectural Review*.

*

Mr. Davies's attitude towards the *Review* seems to proceed from a set of beliefs which may be summed up (with apologies to Wm. Blake) in the couplet:

A bollard on the printed page
Sets all Heaven in a rage.

At any rate, it sets Mr. Davies in such a rage that he apparently doesn't notice that the *Review* contains quite a bit of architecture as well. (In the same way, John Summerson's aedicular theory of Gothic in *Heavenly Mansions* annoys him so much that he can't read the caption under the photograph of the south porch of Chartres and calls it the west front.) It appears that almost the only buildings he ever can see in the *Review* are Victorian ones—and he can't be sure that those are really architecture, because no " master-criticism " of Victorian building has yet appeared in print.

*

Having consigned the *Review* to the flames and cleared the field for so many other competitors, Mr. Davies will no doubt go on to give us the sort of architectural criticism that he thinks we should get. Or will he? For I see that he says that " the eye is a good

deal less sensitive than the ear (one can stand a good many ugly buildings before being overcome by that sense of physical malaise that is produced at once by discords or dance bands) ". Of course one can only speak for oneself in these matters; so perhaps Mr. Davies's critical faculty would be better employed on music after all.

A MACHINE FOR LISTENING IN

One night last week, after slight trouble with a taxi driver who thought " Royal Festival Hall " was my own name for Waterloo Station, I stumbled my way over the cobble stones (*Architectural Review's* influence?) to the entrance of the unfinished hall. Together with some three thousand other people I had been invited to help to provide suitable conditions for acoustic tests—an absorbing business. I didn't risk losing my way in the subterranean cloak-room but enquired immediately about the position of my seat and was given a very rough estimate of the number of staircases I would have to negotiate, together with good wishes for my pilgrimage. I stepped into the nearest lift, which turned out to be something quite different, stepped out again and climbed every stair and opened every door until I finally burst into tiers.

*

My indignation at being seated so far from Basil Cameron and the LSO (no, it's not on the cover) was soon forgotten when a performer, whose name I didn't catch, discharged two sorts of firearms and convinced me I was in the best place. (I confirmed this conviction later by sitting in the stalls where I found the clarity of the music was not as great as it was in the tiers.) Many listeners to the sharp cannonades, the brisk overtures and the Lush (Ernest) piano solos must have felt at first that the near-perfect conditions were almost too perfect. We are so used to poor listening conditions that a well-tuned hall takes some getting used to. But there really was an absence of " singing tone " the other evening. This was particularly noticeable in Mr. Lush's playing of a Chopin prelude which sounded hard and metallic from the tiers. No doubt when the final acoustical adjustments are made a little clarity will be sacrificed in favour of more resonance.

What about the appearance of the building? There is surely just a little too much elaboration of detail in some places and a curious skimping in others. And when you have overcome the fear that occupants of the " roller coaster " boxes (see picture on page 363) are about to toboggan into the orchestra you may feel that there is not enough colour—just a splash of red here and there—to contrast with the various shades of wood. You may also think that there are too many lines in the design which are not followed to their logical conclusions but are broken off abruptly. However, the hall is, as a colleague remarked, " a machine for listening in." And I'm not completely happy about some points in the design (though I've seldom been more happy about a contemporary building in this country), then I'm prepared to accept them on the grounds that they are giving me ideal listening conditions.

*

What did I really like about the concert hall? I was impressed by the appearance of the sounding board which is suspended above the orchestra, and by the spotlights which shine from it on to the players. But above all I liked a view of the foyer from one of the staircases. From here one gets the impression that the bulk of the auditorium is floating on a sea of glass. I had hoped that this effect would be more general, particularly when the building was lit at night. And I had hoped—But wait; as I left the hall and went out into a world in which modern science prevents lonely engine drivers from hearing a snatch of Beethoven as they rattle over Hungerford Bridge, ear in hand, I was confronted by notices commanding me to " Keep it Clean! "

*

So let me stop carping. What I've said is probably dirty enough to be greeted with delight by enemies of modern architecture, who would prefer to see a neo-classical concert hall on the South Bank. And that's not what I intended at all. If I seem too critical it is simply because the Festival Hall, which is without equal in England and perhaps, even, in the world, *must* be appraised and not merely welcomed with hysterical adulation. I am confident that when the building is completed, any criticisms which I could still offer would be very subordinate to the praise I will feel impelled to bestow on the architects, scientists and builders who have created such perfection in so short a period of time.

THE WORST OF TWO WORLDS

Anyone who knows St. Albans will have felt some concern about the future of the city's gas works. (These works, which lie to the south-west of the city, at the foot of the hill on which the cathedral stands—and not very far from the remains of the Roman city of Verulamium—are probably the ugliest to be seen south of the Trent.) No doubt you will remember the Gas Board's proposals for the works. As St. Albans is somewhere near the centre of a rapidly growing area, the Board wanted to rebuild and enlarge the works and to make it a main producing centre. The citizens of St. Albans didn't like the idea at all. They thought the existing works should be destroyed and new ones built beyond the horizon. The arguments developed and then, last August, the MOTCP and the Ministry of Fuel and Power held a joint inquiry. For days St. Albans hummed with the protests of the city council, the Hertfordshire Preservation Society and the St. Albans Citizens' Gas Works Petition Committee, with the Herts County Council standing by to see fair play.

*

If the Gas Board had had its way, St. Albans would have had a new 2,000,000 cubic feet capacity gas holder with what is discreetly called the necessary tower purifiers. If the Citizen Committee had had its way, the city would have had a new open space. The verdict now announced is a compromise. The gas works stays, and will have rather less than half the new equipment that the Gas Board wished to supply. In addition, the Gas Board is required to carry out some tree planting, to paint the gas holders such colours as the Herts county council may prescribe and to submit the final design for the new lay-out to the county council, the Fine Arts Commission and the two Ministries.

*

Perhaps all planning projects must end in a compromise. Perhaps it is inevitable that St. Albans should have some

State Housing in New Zealand

In common with many other countries, New Zealand suffers from an acute housing shortage and the Housing Division of the New Zealand MOW is carrying out an extensive programme of State house-building (described in an article on pages 374-376). Although most New Zealanders prefer to live in detached dwellings, this housing programme includes a number of multi-storey blocks of flats, of which 10 have already been completed. The block illustrated above, and on page 376, is in Dixon Street, Wellington. It contains 116 flats and is of reinforced concrete, earthquake-resistant, construction. Its appearance, although open to criticism, provides a striking contrast to that of the buildings in the foreground, which are typical of the New Zealand urban scene.

gas works and that the Gas Board should have the expense of erecting a supplemental plant elsewhere in due course (which will probably raise the local price of gas, and not only to St. Albans). Perhaps it is satisfactory that the former camouflage boys will have a jolly task on the new gas holder and that two Ministries and the Fine Arts Commission will spend many happy months in passing their files between each other for this detail or that to be amended. And perhaps we shall all be dead before anything is done at the existing gas works. But sometimes I feel heretical. Sometimes I feel that, for once, would it not be preferable to have a clear-cut decision and some action here and now? Would it not be better to make either the Gas Board or the citizens of St. Albans thoroughly miserable, instead of, as now, each having to make the worst of both worlds? Of course, the mood passes.

THE COVENTRY COMPETITION

Two weeks ago I had a grumble about the Coventry competition answers to questions which, in some cases, are ambiguously worded and give the impression that students could only have their names published as joint authors of a design if they were members of registered firms. Someone has pointed

Yes, the man who designed it is competing: he's a chartered and registered architect.

out to me that the promoters allowed students to enter provided they were associated with at least one registered architect. I wonder how many students were misled and discouraged by the ambiguity of these replies to questions.

ASTRAGAL

The Editors

ECONOMY AND RESEARCH

AT a meeting of the IHVE last week it was pointed out, in a discussion following Dr. J. C. Weston's report on the "occupied phase" of the house heating experiments at Abbots Langley, that the larger such experiments are the more conclusive are the results. This point has been made many times before but it cannot be too strongly emphasized at the present time, when the building industry is threatened with economy cuts made necessary by rearmament.

If the government must make cuts, where are these likely to take effect? (The housing programme, we are assured, will not be touched.) Is it not likely that a minority government will look for a way of economizing that will displease the fewest people? And is it not probable that research will appear to them to be the easiest thing to cut?

Perhaps we are being unjust in making this assumption. But it is often better to criticize a probable policy than to attack a policy that has been put into practice and is already leading to unhappy results. So let us repeat that the work of research should be extended rather than restricted. A few more thousands of pounds spent by the Building Research Station now may well lead to the saving of many more thousands later. Any cut in the BRS budget will be deplored by all members of the profession who have seen the benefit of the research carried out at the Station.

No. 2: Guest Editor

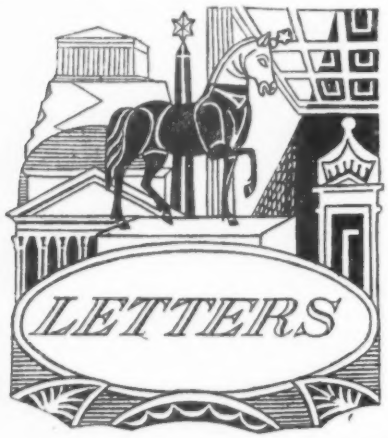
STATING THE OBVIOUS

A very great deal has been said and written, during the last few weeks, on the possibility of reducing the cost of housing. A good many architects have taken the design for an ordinary, three-bedroom house, of the size recommended by the Ministry (but not, usually, with the heat and sound insulation recommended) and have pared a little bit off all round, as regards performance, construction and size, in order to reduce costs. As a result, the cry has gone up, in Parliament and in the daily papers: "Three houses for the cost of two; a solution to the housing problem." (See, for example, the report of the NFBTE president's speech at Manchester on page 362).

Now this discovery that cutting performance and size will reduce costs, with all due respect to those who have made it, is neither very new nor very original. This method of solving the housing shortage has been staring us in the face for a long time. What is new, however, is the growing opinion that there is no alternative method of solving the problem. As stating the obvious would now appear to be a timely pursuit, there is another method of helping to reduce costs which might well be considered by the powers-that-be, namely, to increase coal production. The relative value of labour to materials in the cost of a normal house is approximately

one-third labour to two-thirds materials. Obviously, then, a greater potential saving lies in the latter than in the former. Therefore, if major reductions in costs are to be made in housebuilding, they will, perhaps, be found most readily in the reduction of the price of materials. With the exception of timber and stone, practically all the materials that are used to build a house are only produced by the use of coal. It is, therefore, obvious that there will be no large decrease in the price of materials until the production of coal is substantially increased, and its price to the consumer thus reduced.

While no one can deprecate the practice of keeping standards constantly under review (as do the MOE in their school-building programme), it would be fatal to accept blindly a policy of cutting those standards which it has taken so long for the country to achieve without first ensuring that no other course is open. After all, labour, which, as stated above, is responsible for one-third of the cost of a house, is still twenty-five per cent. lower in output than before the war. Can nothing be done to remedy that? In America, it is as well to remember output per man-hour is approximately fifty per cent. higher than in Britain. Any comment?



D. D. Yeoman, A.R.I.C.S.

J. L. Womersley and G. Hopkinson, A/A.R.I.B.A.

Reginald Kirby, A.R.I.B.A.

R. S. Shapley, F.R.I.B A.

Neil Martin-Kaye, F.R.I.B.A.

"The Builder" Competition

SIR,—It is your comment on the letters from Mr. Leslie and Messrs. Womersley & Hopkinson which is a "theoretical . . . exercise on paper" (JOURNAL, March 1), not the designs submitted to *The Builder* Low Cost Housing Competition.

As I am a quantity surveyor, I refrain from commenting on the ability of my profession to estimate accurately the cost of an 800-ft. super house. I think, however, your suggestion that a builder cannot make a firm lump sum estimate for such a house, because he has *only* ¼-in. and ½-in. drawings and outline specification and is not furnished with full-size details, must have caused some hollow laughter among builders.

Constructive criticism of the designs produced would be widely appreciated; merely to say that "most of the designs . . . were smaller, draughtier, noisier, and more difficult to furnish than the houses most local authorities are building" is simply to echo Aesop's fox—"the grapes are sour."

London. D. D. YEOMAN.

[We must repeat that we were not criticizing quantity surveyors when we suggested that an estimate, prepared on the basis of competition drawings and with no particular site in mind, is open to doubt. With a building costing approximately £1,000, the effect on the estimate of the cost of site works alone can be disastrous. If Mr. Yeoman was looking for constructive criticism we refer him to pages 284 and 285 of our issue of March 1, 1951.—ED.]

SIR,—We do not desire to burden you with our letters but, nevertheless, feel sure that you would not wish us to remain silent when an item which you publish concerning us contains a statement which may seriously mislead your readers. The matter to which we now refer is contained in the last paragraph of "Competitor's" letter in your issue of March 8.

Contrary to "Competitor's" assumption we have to state that the two schemes which we submitted in this competition were entered in our private capacities and that the whole of the work of designing, drawing, rendering and reporting was executed by the two of us in our spare time. Therefore, the question of salaries during execution of plans does not arise and all other expenses incurred were met by us.

Thus, disappointed though "Competitor" may be by the result of the competition, he should not add fuel to his grief by imagining that he has been beaten by a large bureaucratic organization possessing unlimited resources. Surprising though he may find it, it is possible even for official architects to retain a modicum of individual freedom of action and initiative.

J. L. WOMERSLEY and G. HOPKINSON.

Northampton.

More About Organs

SIR,—One very good reason for placing a pipe organ within a case is that the quality of tone is substantially improved thereby. This is particularly so in small churches and chapels.

If one, therefore, accepts this principle it is surely logical that the casework should contain a motif which will express the essential nature of the organ and what motif fulfils this purpose better than the metal open diapason pipe?—the pipe which is the foundation of all orthodox pipe organs. The fact that these pipes, when placed in the case, may either speak or remain mute can in no way affect appearance or expression of the organ as an instrument of music, provided they are, in fact, real pipes.

My quarrel with Mr. Casson (December 14) was that he chose to obscure the visible pipes because he felt that they were too large in relation to their immediate surroundings. The obvious solution in his case would have been to incorporate in the casework a range of smaller pipes and not an unglazed 18th century window. With regard to your feature photograph under the caption "Functional Expressions of Organ Pipes" (March 8): these are modern examples of un-encased organs which automatically express themselves in the same way that a motor car engine expresses itself when the bonnet is lifted off. Fortunately the bonnet can be replaced to perform the functions of containing the harsher mechanical noises, easing the labour of cleaning and presenting a tidy appearance as well as adding to the whole that little something called "design."

REGINALD KIRBY.

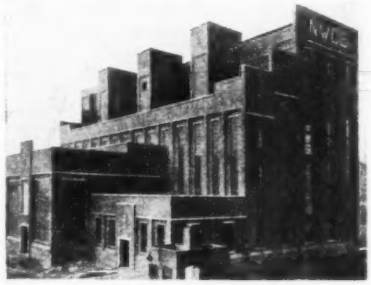
Essex.

Architecture for the Gas Board

SIR,—Veritas, in his letter (February 8) very rightly takes J. M. Richards to task.

Since nationalization of the gas industry, there has been very little, if any, improvement in the standard of design or change of procedure.

The responsibility for the design of retort houses, usually the most prominent feature of the smaller towns, is that of the firms tendering for the installation of the gas producing plant, who add the necessary architectural trimmings as required.



The Gas Board should be persuaded to conform with standard practice and relieve the contractors of the onus for the preparation of the drawings and documents required for the submission of competitive tenders, by the appointment of engineers working in close co-operation with architects.

The ancillary buildings are usually left to the mercy of the drawing office with sad results, though, in the past, several undertakings called in the services of architects

for buildings outside the confines of the works, such as showrooms, offices, etc.

I enclose a photograph of the recently completed works at Salford, which speaks for itself. The firm responsible appears to have standardized this design, as several very similar works have recently been completed in various parts of the country.

Leeds. R. S. SHAPLEY.

Code of Professional Practice

The following is a copy of a letter sent to Mr. Pembroke Wicks, Registrar, ARCUK, 68, Portland Place, W.1:—

SIR,—I have received the annual report of the Council for 1950. I notice with very serious concern the announcement of three amendments to the Code on pages 6 and 7 thereof. The nature and substance of these amendments I will comment on later.

I am not, as you know, a member of the Council but I presume I would be in order as a registered architect to invite the Council to consider the following proposition:—

"That should the Council, at any time, consider an addition or amendment to the Code of Professional Conduct necessary in the interests of the profession, it should cause notice of such proposed addition or amendment to be published in the *London Gazette*, the journals of the constituent bodies and the professional Press, so that any qualified person thus affected by the proposed addition or amendment may be afforded an opportunity of lodging an objection with the Clerk to the Council for consideration of the Council at a subsequent meeting. Should no objection be raised, or if raised, by vote of the Council be deemed invalid, then the Council shall proceed to promulgate formally such proposed addition or amendment."

Anticipating sir, your reply that the Council is composed of representatives of the various organizations of the general body of registered architects who must, therefore, be deemed accredited with representative authority, I would point out that in the case of the Registration Council, these representatives are by nomination of the various councils of such bodies and not directly elected by democratic ballot or vote of the general body of registered architects. Moreover, it does not always follow that the general body of members agrees with the policy or pronouncements of their respective councils or that their representatives necessarily interpret correctly the views of those they represent. On general matters of policy this is understandable and unavoidable, but on a matter such as the Code, which profoundly affects the individual personally, this is another matter.

Had the above suggested procedure been the order of the day, I, for one, would have protested very strongly against the now adopted addition to Principle III, Example 6, *viz.*, "nor may he solicit such publication for the purpose of increasing his practice."

Having been born and bred more or less in the lap of architectural journalism and publication through family connections, I am acutely conscious of the fact that an architect depends very largely, if not wholly, on the amount of publicity afforded to his work for the growth of his practice and his connection with the architectural professional Press.

Assuming therefore that an architect has been responsible for a unique architectural design in a remote portion of the country, an effort of which he may feel justifiably proud, as the addition to the Code now stands the position can very well be as follows:—

In drawing the attention of any editor of an architectural publication to such effort (and *en passant*, I would say that editors have to be informed since their organizations do not run to employing scouts) the following conversation could well take place. "Mr. Editor, I have done a job in the country which I think might interest you for publication. Unfortunately I cannot, under the Code ask you to look at it, but will you please ask me? Then I shall be covered and at liberty to supply photographs without incurring the risk of challenge under the Code of endeavouring to increase my practice."

This I submit, sir, to put it mildly, is pure Pharisaical nonsense and yet, at the same time, I regret that I am unable to concede that it is any more nonsensical or I should say less so than any other interpretation which this addition lends itself to.

In fact this addition is a gross interference with the liberty of the architect and an attempt to restrict his legitimate outlet in the architectural Press. It means also that an architect is to be debarred from writing descriptive notes on his work in his capacity as a journalist, for which he will receive legitimate payment, since to do so lays him open to a fantastic charge of endeavouring to increase his practice.

I must apologise for writing at such length but my main point is that the increasing additions and amendments to the Code without advance notice publicly, tends to constitute a grave menace. Indeed in these days, when the whole nature of professional practice under current ideology is undergoing complete re-orientation. It is becoming more and more difficult for the architect to ascertain what he can or cannot do, let alone whether he can practise or exist at all and no attempt is made apparently to determine whether the existing Code is completely in tune with present conditions of practice.

In asking you to be good enough to bring this matter to the notice of the Council, I am at the same time forwarding a copy of this letter to the Press in view of the very serious issues involved.

NIEL MARTIN-KAYE.

London.

[We are sure that the amendments to the ARCUK Code are not intended to debar an architect from describing his work in the *architectural* as distinct from any other form of Press. As for the writer's suggestion that architectural publications do not send their scouts in search of new buildings we must point out that the country is swarming with JOURNAL spies.—ED.]

The EDITORS reserve the right to shorten letters from readers. Whenever possible however, they are published in full.

LMBA

Overseas Builders and the Festival

The LMBA has appointed a Festival of Britain Committee to ensure that builders from overseas coming to Great Britain for the Festival of Britain will be able to see what the building industry here is doing.

The president, Dudley F. Cox, has sent a letter of invitation to the presidents of all building associations in the Dominions with which, through the NFBTE, the LMBA is in touch, asking them to let their members know that if they are visiting Great Britain this summer the LMBA will assist in every way possible in enabling them to see British building methods on the site. Not only will visits be arranged to building sites in London. Similar arrangements will be made throughout England, Wales and Scotland.

RIBA

News from Council Minutes

The following items appear in the minutes of the RIBA Council Meeting held on March 6:—

O. P. Milne has been appointed (in place of

This picture from the exhibition "Poland Rebuilds Her Capital", at RSW Galleries, London, shows the new East-West route, flanked by parks and a residential area.

A. W. Kenyon) as RIBA member of the London Regional Awards Committee, Ministry of Local Government and Planning.

By a unanimous resolution the following have been elected to the Fellowship:—H. Morton Cook, past-president of the Queensland Chapter, RAIA; Professor R. P. Cummings, past-president of the Queensland Chapter, RAIA; R. S. Demaine, past-president of the Royal Victorian Institute of Architects; C. W. T. Fulton, past-president of the Queensland Chapter, RAIA; T. B. F. Gargett, past-president of the Queensland Chapter, RAIA; W. P. R. Godfrey, past-president of the Royal Victorian Institute of Architects; E. J. A. Weller, past-president of the Queensland Chapter, RAIA; John Roxburgh Smith, president of the Royal Architectural Institute of Canada.

ARCUK

Presentation to Ex-Chairman

The constituent bodies of the Architects' Registration Council of the United Kingdom, 68, Portland Place, W.1, have presented a clock to Sydney Tatchell in recognition of his service as chairman from 1935 to 1951. The presentation was made last Friday at the Henry Jarvis Memorial Room at the RIBA headquarters.

APPRENTICES

Education in America

At the Building Teachers' Conference, which was held at the Willesden Technical College on March 10, Harvey G. Frost spoke of the training and education of craftsmen in America.

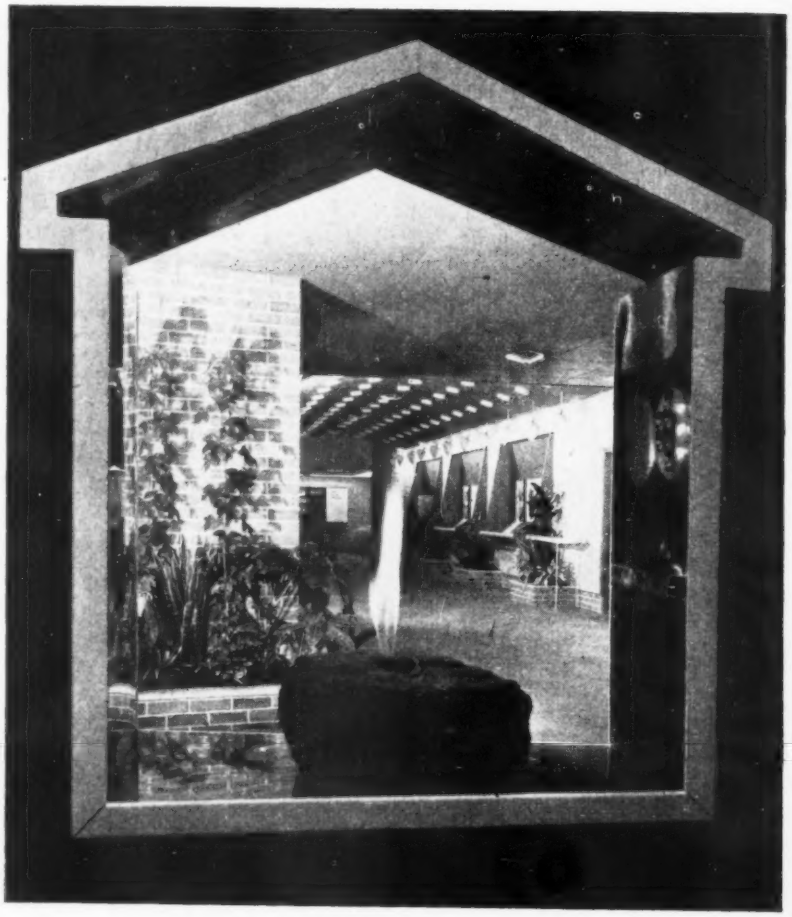
Mr. Frost, who has only recently returned from America, said that from what he had seen of the junior schools in America it appeared that only a casual interest was given to the work by the pupils. There appeared to be little class teaching but greater concentration on assignment. One thing which impressed him was the power of self-expression possessed by most youths at the age of 18 and onwards. At that age the boys did not possess as good a general education as the boys in this country but they appeared to be more alert to the opportunities presented to them, and to feel the urge to rise in the job they had selected.

Entry into the industry was effected much later than it was in this country. Boys stayed at school until they were 16 and, in many cases, 18 years of age. In fact many apprentices were married and had families while still learning their craft. There was thus a much greater inducement for them to become classified as skilled craftsmen and it was possible for a man to have his period of apprenticeship shortened by the Apprentice Committee if he made great progress. All apprentices had to attend school and it was necessary for them to complete all the work required before they were certified as craftsmen. Because of this there was a greater desire on the part of apprentices to get good grades in class work.

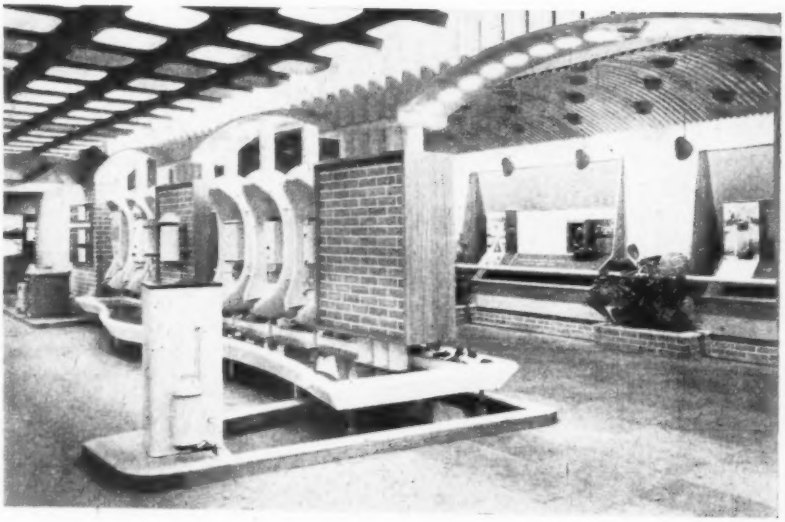
An employer had the power to employ apprentices at a certain ratio to the number of skilled craftsmen he employed. If he stood off craftsmen he could therefore stand off the proper ratio of apprentices. The apprentice was safeguarded by the fact that he was not apprenticed to the industry but to the apprenticeship committee.

With regard to training in England the Conference president, T. E. Scott, pointed out that since the innovation of day release from industry the technical colleges were finding that students in greater numbers were coming in. This body of students included a fair proportion who were not capable of absorbing instruction in the

EXHIBITION HALL FOR THE NORTH

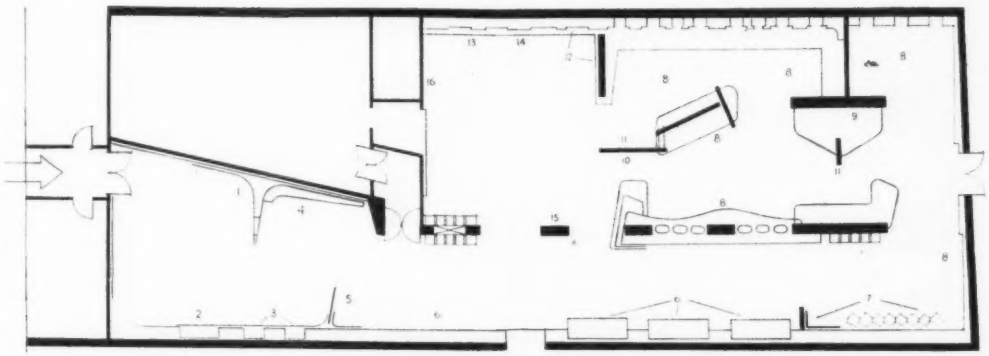


The photographs on this page and opposite show the exhibition hall at Watson House, Fulham, which was designed and produced by the Design Research Unit (Consultant, Misha Black); the architect was Brian Peake. The exhibition building was war-damaged and dilapidated and required considerable rebuilding and strengthening. There is also a cinema, which we hope to illustrate later, together with other sections of the scheme. The general contractors were Frank W. Clifford Ltd.



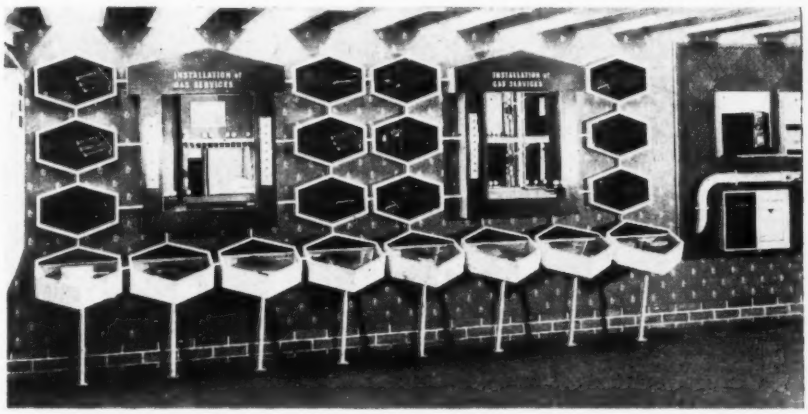
THAMES GAS BOARD, TOWN MEAD ROAD, S.W.6

Plan of exhibition



KEY

1. Aims of the gas industry
2. Fuel problem
3. Old and new standards of domestic heat service
4. Latent wealth of coal
5. Progress and expansion of the gas industry
6. Gas manufacture and distribution
7. Meters and installation pipes
8. Domestic gas and coke appliances
9. Kitchen planning
10. Industrial and commercial uses of gas and coke
11. Domestic and industrial gas controls
12. Ventilation and flues
13. Quality control of appliances and stores
14. Planned heat services
15. Training
16. Research and information



D

courses planned to lead to success in the craft examinations run by the City & Guilds of London Institute at the Intermediate and Final stage.

Mr. Scott felt it was desirable that there should be some form of training planned to lead to some examination within the reach of these students. It was desirable to retain the City & Guilds and its acknowledged standard of proficiency but it was also necessary to cater for those youths who could not reach the standard.

NFTBE

President Urges Economy

"The defence programme makes it more important than ever that all industries should economize in expenditure on the three M's —Men, Materials and Money," said Stephen Hudson, president of the NFBTE, at the annual dinner of the Manchester, Salford & District Association of Building Trades Employers at Manchester last week. "We in the building industry," he said, "are doing what we can to make the same expenditure go farther, and in the housing field the Government could help considerably by taking a broader view than at present of the results of the recent competition which show that three good houses can be built for the same expenditure as two. If these smaller houses are, as Mr. Dalton has admitted, good enough for those who wish to become owner-occupiers, room should be found for some of them on local authority estates. If there is one person who knows what is wanted it is the private builder, who studies his customers' requirements and uses his own initiative instead of relying entirely on designs produced in manuals compiled in Whitehall."

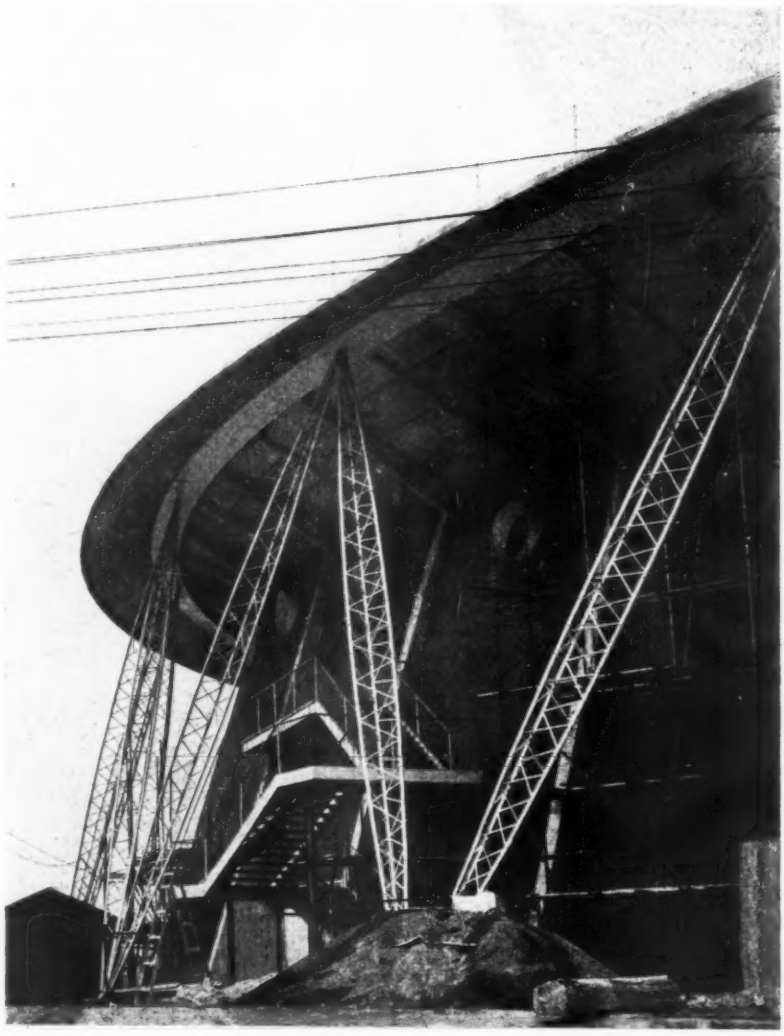
Apprentices "Recruitment Campaign Losing Momentum"

Mr. Hudson also spoke recently about the apprentice situation at the annual general meeting of the Nottingham and District Association of Building Trades Employers at Nottingham. "In recent years," he said, "the head of labour employed in the building industry has not decreased and I do not, therefore, take such a gloomy view as some of those who base their conclusions mainly, if not entirely, on such statistics as are available. But there are shortages in certain trades, such as bricklayers, masons and plasterers, which must be made good, and there are signs that the recruitment campaign which has been under way for several years is in danger of losing momentum.

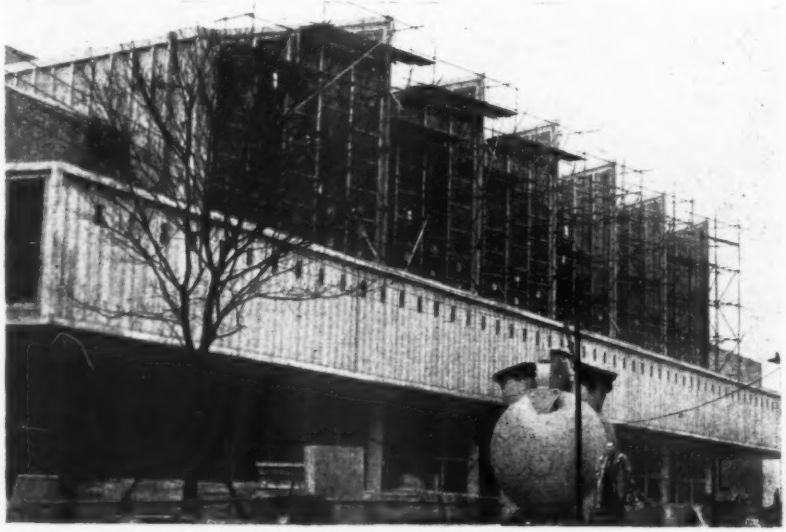
"I fully realize the difficulties. Not only are we uncertain as regards future contracts but much of our work is not suitable for training purposes. Apprentices cannot be trained satisfactorily on house building and repairs alone. This unfortunately leads some employers to take a short view at a time when we must look well ahead if the industry is to be assured of sufficient craftsmen in the years to come. Unless we recruit and train more apprentices we may be faced before long with a crippling shortage of those competent operatives whose skill and ability have contributed so much to the industry's progress and achievement in the past. We have done the job before and, despite difficulties, we can, I am sure, do it again and show that it is not necessary, as has been suggested in some quarters, for the Government or local authorities to interfere.

"I appeal, therefore, to all members of the Federation to back up the good work being done by so many of their colleagues and to put the recruitment and training of apprentices high up in their list of priorities."

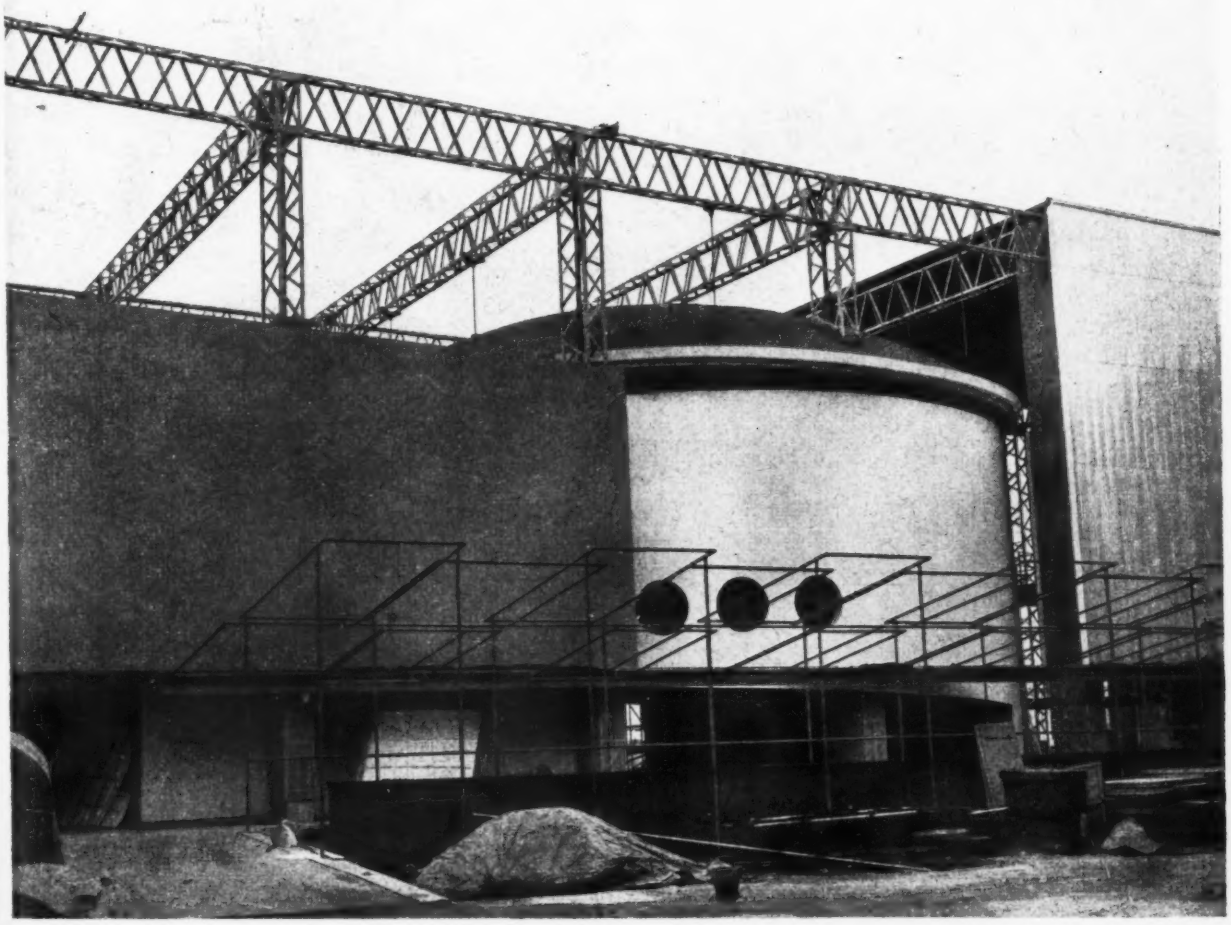
BUILDINGS ON THE SOUTH BANK



Above, the Dome of Discovery (designer, Ralph Tubbs). Below, the Industrial Pavilion (designers, Architects' Co-operative Group). Opposite, top, the entrance hall, near Waterloo Station (designer, Gordon Tait); bottom, part of the Sea and Ships building (designer, Basil Spence).

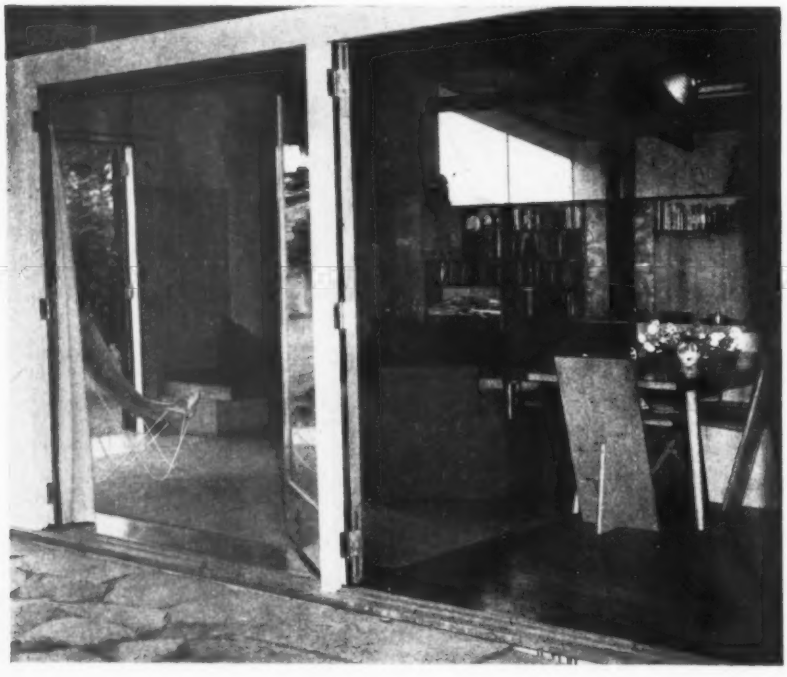


EXHIBITION SITE NEARING COMPLETION



HOUSE BUILT BY NEW ZEALAND STUDENTS

In New Zealand recently two attempts have been made by groups of architectural students to build experimental houses—one in Wellington and the other in Auckland. The importance of the Auckland experiment is that it promises to give useful information on how to build more, better, and cheaper houses. Some students of Auckland University have already put up one house in Takapuna, and are working on two others. Their starting-point was the settled conviction (gained from their architectural studies) that housing construction methods are fifty years out of date, and are extremely wasteful. It was their aim to erect a sufficiently strong roof and enclosing walls on a minimum number of supports. They used the simple rectangular form of the Maori meeting house, with its low pitched roof, and cantilevered out the roof over two rows of supports. The roof is of diagonal sarking (which gives structural strength as well as covering) with widely spaced rafters, and corrugated aluminium on the outside. The structure is supported on a much smaller number of studs and other supports, than is the case of the conventional New Zealand house. Heating is provided by a solid fuel "space-heater" stove, with metal flue. The photographs, above and below, show the clear, functional lines of the design, which are in marked contrast to the appearance of most New Zealand State housing, as can be seen in the illustrations to the article on pages 374-376.



MOW

Economy in the use of Cement

The MOW has now issued an Addendum to its economy memorandum, "Use of Cement in Engineering and Large Scale Building," published in April, 1949.

The addendum draws particular attention to the quality control of concrete, and explains how further economies can be made in the use of cement. It gives examples of cement saving in construction without any lowering of the minimum strength of the concrete. In addition, it gives guidance on the precautions necessary to obtain quality control of concrete; choice of materials, design of mix, batching, water content, works cubes, and general supervision.

Copies can be obtained free of charge from: MOW (Room 617), Lambeth Bridge House, S.E.1.

ROYAL FESTIVAL HALL

Report on Acoustic Test

John Eastwick-Field and John Stillman, whose article on the Festival Hall's acoustics appears on pages 363-367, report here on the acoustic tests held at the hall on Wednesday of last week:—

The purposes of the tests were to measure the reverberation time with the hall full, to judge the differences in definition, blending of the various instruments and "singing tone" in different parts of the hall, and to discover whether any echoes or external noises were audible.

The London Symphony Orchestra, conducted by Basil Cameron, played three groups of music of widely differing styles. From seats at the rear of the stalls no echoes could be detected and no external noises could be heard. The reverberation is still a little too low in spite of the measures taken since the first trial, and in a work for strings there was insufficient "singing tone." On the other hand, definition was remarkably good and the acoustic conditions were excellent for Benjamin Britten's "Young Persons' Guide to the Orchestra."

The measured reverberation time was 1·7 seconds, which was the selected figure, and the very good direct path may be responsible for the feeling that the reverberation time is insufficient.

DIARY

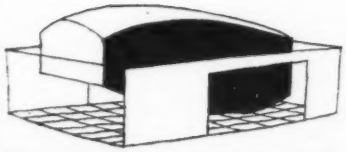
The Architecture of Transport. Exhibition at the RIBA, 66, Portland Place, W.1, showing projects in this country and a selection of material from abroad. Weekdays 10 a.m. to 7 p.m. Saturdays 10 a.m. to 5 p.m.
UNTIL MARCH 22

The Ideal Home Exhibition. At Olympia. (Sponsor, Daily Mail.) Daily 9.30 a.m. to 9.30 p.m. (Sundays and Good Friday excepted). UNTIL MARCH 31

Presentation of RIBA Royal Gold Medal. To E. Vincent Harris. At RIBA, 66, Portland Place, W.1, 6 p.m. APRIL 3

Open Forum: Architecture and the Architect from the Layman's Point of View. Mrs. Joan Robins. T. Payten Gunton. At Royal Society of Arts, John Adam Street, W.C.2. (Sponsor, IRA.) 6.30 p.m. APRIL 6

Sanitation in Multi-Storey Buildings. H. E. Gooding. At Caxton Hall, Westminster. (Sponsor, ISE.) 6.30 p.m. APRIL 10



ROYAL FESTIVAL HALL: 10

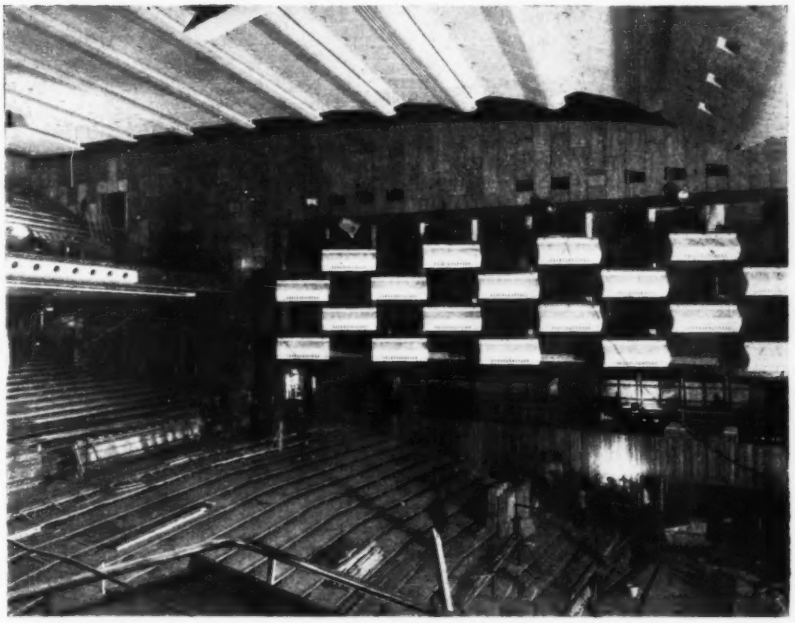
Acoustics: described by John Eastwick-Field and John Stillman.

The authors would like to acknowledge the help given by P. H. Parkin, of the Building Research Station, in the preparation of this article.

In the RIBA Journal issued in August, 1949, when the plans of the Festival Hall were first published, an account was given by William Allen of the advice which had been submitted to the architects by Hope Bagenal and the Building Research Station on sound insulation and acoustics. This advice strongly influenced the size, shape and construction of the Festival Hall and the nature of the internal finishes, particularly in the auditorium. Recently two further articles* have appeared in the ARCHITECTS' JOURNAL and these have discussed more fully the theory of reverberation and the practical application of special absorbents. These, together with the important earlier papers by Bagenal,† which summarized past experiences of concert hall acoustics, explain fairly clearly why the Festival Hall has its present shape and why certain materials have been used. Despite this, we think it worth while discussing again the theory, and also analysing the procedure and technique by which the decisions were made. Knowledge of sound insulation and acoustics is very slowly becoming more factual, and this building has offered a great stimulus to develop theory and laboratory techniques in measurement. The resources of the Building Research Station, who are conducting a programme of research in acoustics, have been fully available, and the job itself has afforded an opportunity of a full scale experiment.

The objects of the present investigations in acoustics are to make it possible eventually to create any particular acoustic condition with certainty. In the past, precise standards for measuring acoustic properties were not established, so that the acoustic consultant was mostly concerned to safeguard the design from certain known shortcomings which are now better understood. Accurate data, which would enable him to create with certainty the conditions for any particular quality of sound, were not available and are only now being systematically sought. The methods by which the principles for designing auditoria for good acoustics

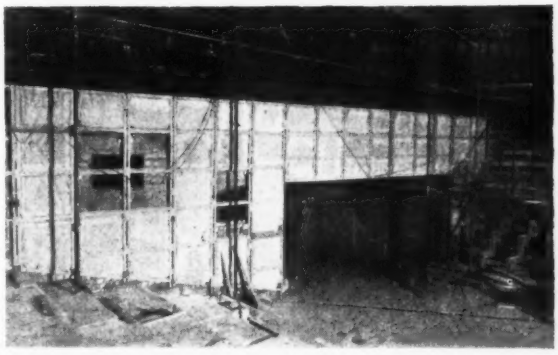
* January 4, 1951. Reverberation Times. H. Creighton.
* January 11, 1951. Recent Developments in Sound Absorbents. H. R. Humphreys.
† Concert Hall Acoustics. Part I and II. RIBA Journal, December, 1948, and January, 1949.

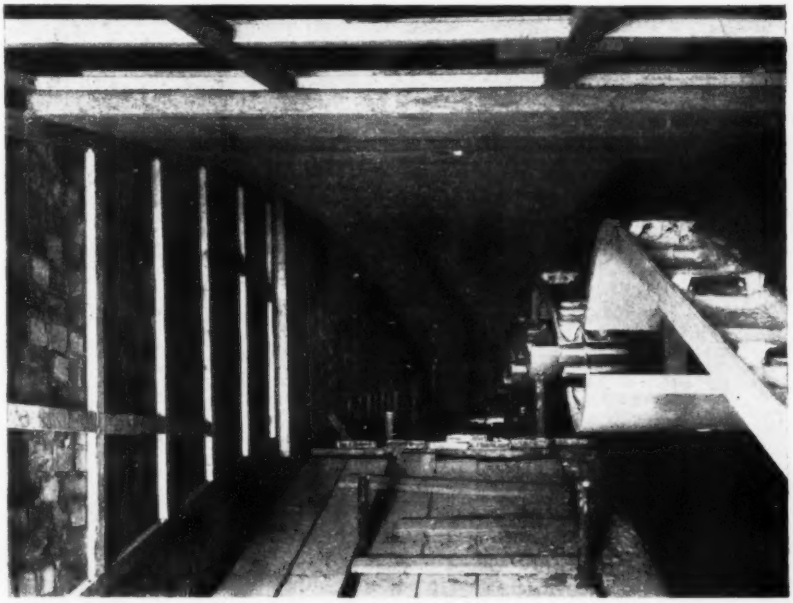


The auditorium; note the hard plaster ceiling and elm panelling on the side walls. The vertical wood strips below the boxes are part of the Copenhagen or Knucklebone absorbent.

Right, rockwool infilling between studs for fixing the vertical hardwood strips which together constitute the Copenhagen or Knucklebone absorbent.

Below, wood wool absorbent at the junction of the ceiling with the side walls. This was plastered over after the first acoustic trial.





developed were broadly as follows:

(*a*) By discovering halls which were judged to have good acoustic properties.

(*b*) By measuring the reverberation* time and finding the relationship of the volume and the amount of absorption to the reverberation time.

(*c*) By analysing the shape.

(*d*) By endeavouring to establish a means of procuring a similar reverberation time when similar conditions were required, *e.g.*, by the Sabine formula,† and by ensuring that faults resulting from bad shape were not repeated.

Reverberation time is still the only criterion which can be used, however approximately, in the design of new halls; and it remains the most important single objective measurement that can be made. It is quite evident that designing for good acoustics has depended very considerably on experience and judgment, and very little on objective measurement and mathematical calculation. The technique for measuring reverberation times has not been very precise and the knowledge of the behaviour of absorbents has been limited, with the result that the figures given for the coefficients of absorption have been both inaccurate and incomplete: inaccurate because the variations due to different methods of applying the materials concerned have not been recognized, and incomplete because frequencies other than an average of 500 cp.s have rarely been published. Furthermore, widely different figures have been quoted for certain important absorbents, by different authorities: there has, for instance, been little agreement on the figures for absorption by an audience.

An effort is now being made to review systematically and to improve upon the existing techniques for measuring reverberation times and absorption coefficients, and also to consider whether there are not other measurable factors in the design of a hall, besides those already known, which influence the quality and volume of sound. Certain modifications to the Sabine formula are already recognized in the published formulæ of Millington and Eyring, but it is possible that the consideration of more fundamental problems of the behaviour of sound, may result in information which would be of use to the designer. At present investigations at the Building Research Station are being undertaken which should eventually give the designer far more knowledge of the influence of his design on the *effect of path differences*, the *value of reflection* and the *behaviour of absorbents:* factors which are known to be important but about which there is not, at present, much factual knowledge.

Much of the preliminary work in the investigations outlined above was done with the Festival Hall in mind. The actual procedure for deciding upon the shape and character of the auditorium followed the usual practice, but not until more evidence of the characteristics of existing halls had been obtained and analysed: and not until a much clearer definition of the quality of sound which was desired had been formulated. This information, together with more knowledge of the way in which earlier forms of accidental absorption, such as was obtained by classical embellishments, could be achieved with new materials and new building techniques, formed the basis on which the usual calculations for reverberation time and reflected paths were made.

Architects will have to make similar calculations from time to time and we therefore set out, below, the steps by which the existing knowledge about acoustics can be put into practice by them. At the same time we comment on each, in so far as it affected the design of the Festival Hall.

* The reverberation time is the interval between the stopping of the source and the moment when the subsequent reverberation dies away to inaudibility.

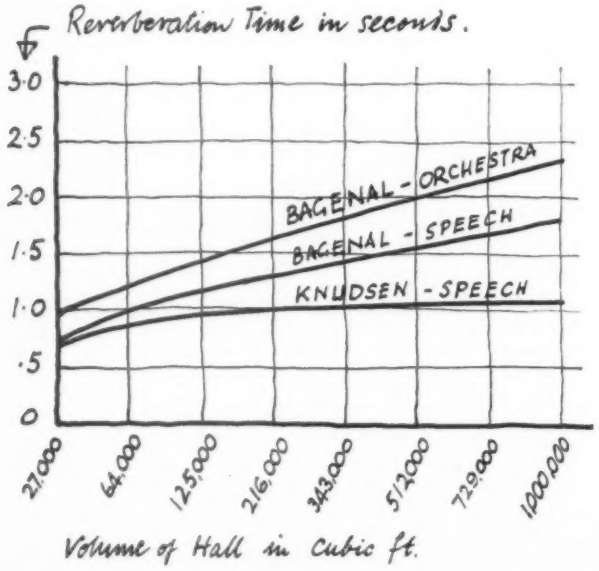
† Sabine formula: $T = \frac{.05V}{A}$ where

T is the reverberation time in seconds.
V is the volume in cu. ft.,
A is the product of the area of absorbent and the coefficient of absorption in sq. ft. units.

METHOD.

1.

Decide on the most suitable reverberation time at an average frequency of 500 cycles per second for the particular use of the hall and in relation to the volume of the hall.



This is done by reference to published graphs which have been computed from experience. The differences which are apparent in the graphs are largely due to the

APPLICATION TO FESTIVAL HALL.

The volume at the Royal Festival Hall is 720,000 cu. ft.

The R.T. originally chosen for the Festival Hall was 2·2 secs. This figure was based on the recommended English standard (Bagenal and Wood) for concert halls, but it has since been shown that it is almost impracticable to obtain this figure if the hall is to have a reasonable volume, and echoes are to be avoided. Furthermore, the American figure (Knudsen) of 1·7 secs. more nearly represents the measured conditions in halls which are accepted as being good. As has been mentioned already, the choice of R.T. is still the most significant factor in designing for particular acoustic requirements, and the difference between the two extremes, *long for music, and short for speech,* will very considerably alter the amount of absorption required. It is important therefore to make the right choice and to weigh carefully the requirements of any given hall, which may often be conflicting.

In multi-purpose halls, it is safer to assume a figure which would provide suitable conditions for speech.

The general axiom is that, in practice, one is unlikely to achieve too much absorption for speech or, conversely, too long a reverberation, without echoes, for music, particularly for choral work.

Left, recommended ideal reverberation times at average frequency of 500 cycles per second.

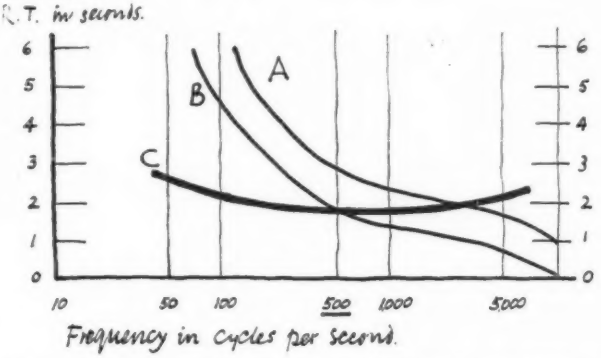
METHOD (continued)

fact that new techniques for measuring the R.T. show that the earlier calculated times were too high. In designing new halls the lower figures should be taken, provided accurate absorption coefficients are available, and the more recent formulæ for calculating the R.T. are used.

Since the reverberation time is, within limits, not critical, the Sabine formula will serve to give a reliable guide for general purposes, although the actual R.T. obtained might be somewhat lower than anticipated.

2.

When tonal quality is important for music the average R.T. calculated at 500 cycles per second is likely to give a much lower figure at higher frequencies, because of the absorption by the atmosphere and dust particles, and a much higher figure at lower frequencies. In order to give good listening conditions for music this must be corrected as shown in the graph. Materials having more suitable absorption characteristics at either end of the scale must be substituted for those already chosen for preliminary calculations.



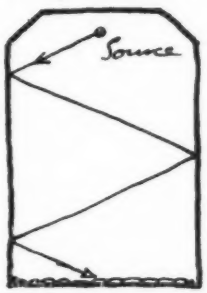
Recommended adjustments to selected reverberation time for lower and upper frequencies. (A) Characteristic shape of curve in halls without correction. (B) Characteristic shape after application of traditional types of absorbents. (C) Ideal shape of curve. Curve B can be brought nearer to curve C by the choice of materials having more suitable coefficients of absorption at the lower and higher frequencies.

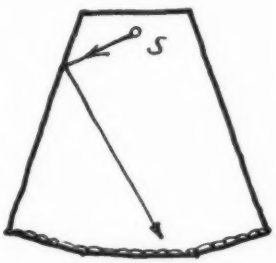
3.

Decide on the shape of the hall.

The volume will have been decided upon roughly in obtaining the R.T., and this will now have an influence on the height of the ceiling.

There is some disagreement on the degree to which the shape can be made to reinforce the sound. The controversy about the fan-shaped hall has been mainly concerned with concert halls where long reverberation and " singing tone " have been sought.





As shown in the diagrams, the reflected sound waves reach the audience more quickly in a fan-shaped hall, and unless they are then totally absorbed on the rear wall there is a danger that they may return to the front of the hall and cause echoes. There is no reason to believe that the fan-shaped hall is unsuitable for speech provided there is sufficient absorption in the rear wall and the latter is not made concave on plan.

In working out the sound paths graphically the path differences of *direct* sound and *first reflections* should not,

APPLICATION (continued)

The difficulty in modern concert halls, is to obtain enough low frequency absorption.

In the Festival Hall, " panel resonators " have been extensively used and the greater part of the side walls are lined with wood panels on studs with an air space behind. These absorb low frequencies by being set in motion by the sound wave and so taking energy from it. In order to avoid resonance at any particular frequency over a wide area, the individual panels are made to resonate at different frequencies by varying the depth of the space, and also varying the amount of bracing at the back. The efficiency of the panels is also increased by incorporating rock wool in the space.

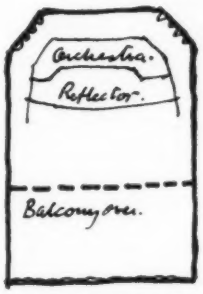
Adjustments are possible, if experience shows that they are required, by removing any number of the panels, taking out the rock wool and, if necessary, filling the space with solid material.

As a result of the first acoustic trial, when the opinion of the listeners was that there was too much absorption of base notes, much of the rock wool has been removed.

Other materials recently developed such as knucklebone (" Copenhagen absorbent ") absorb over a wide range of frequencies, and these have also been used where necessary.

A full account of these developments is given in the article by H. R. Humphreys referred to on page 363.

This is the shape of the Festival Hall auditorium:



Its parallel sides, straight rear wall, steeply ramped seating, slate reflector in front of the orchestra, diffusing side splays, wooden canopy above, and reflecting ceiling, are a faithful interpretation of modern theory for concert halls.

METHOD (continued)

ideally, be greater than 45 ft. The textbooks have hitherto suggested a figure of about 60 ft., but recent research in Germany and in this country has provided evidence that the lower figure is desirable, especially for speech.

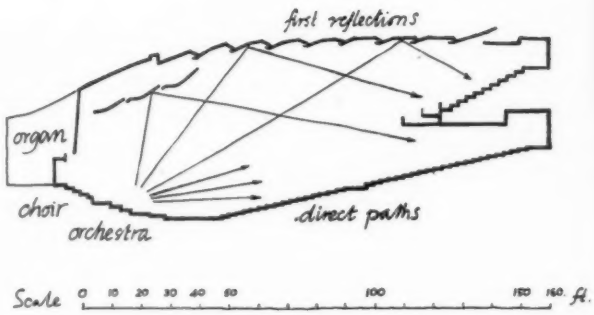
Great importance is now laid on the direct path, for all kinds of hall, and the result of this is to have made it even more important than hitherto to ensure that the sight lines are good. In other words, if the audience cannot see well, they are unlikely to hear well either.

All authorities recommend a hard surface behind and above the sound source to provide a powerful first reflection, which should be directed, if possible, to the back of the hall. Less importance is attached to side splays because they receive only a small part of the total direct sound. Reflectors can, however, be a source of danger if an appreciable amount of sound is reflected back to the front of the house from rear walls, balcony fronts, steppings etc., particularly in fan-shaped halls. The danger is that the returning sound strikes the reflectors and is concentrated on the front seats of the house. In order to overcome this difficulty it is often recommended that reflective surfaces near the sound source should be shaped in such a way as to diffuse the sound.

The ceiling itself is a most important reflector, and it should be of a hard material, except at the junction with the side walls.

It may also be valuable, especially when used in conjunction with a sloping rear wall, as a means of reinforcing sound in the rear seats.

APPLICATION (continued)

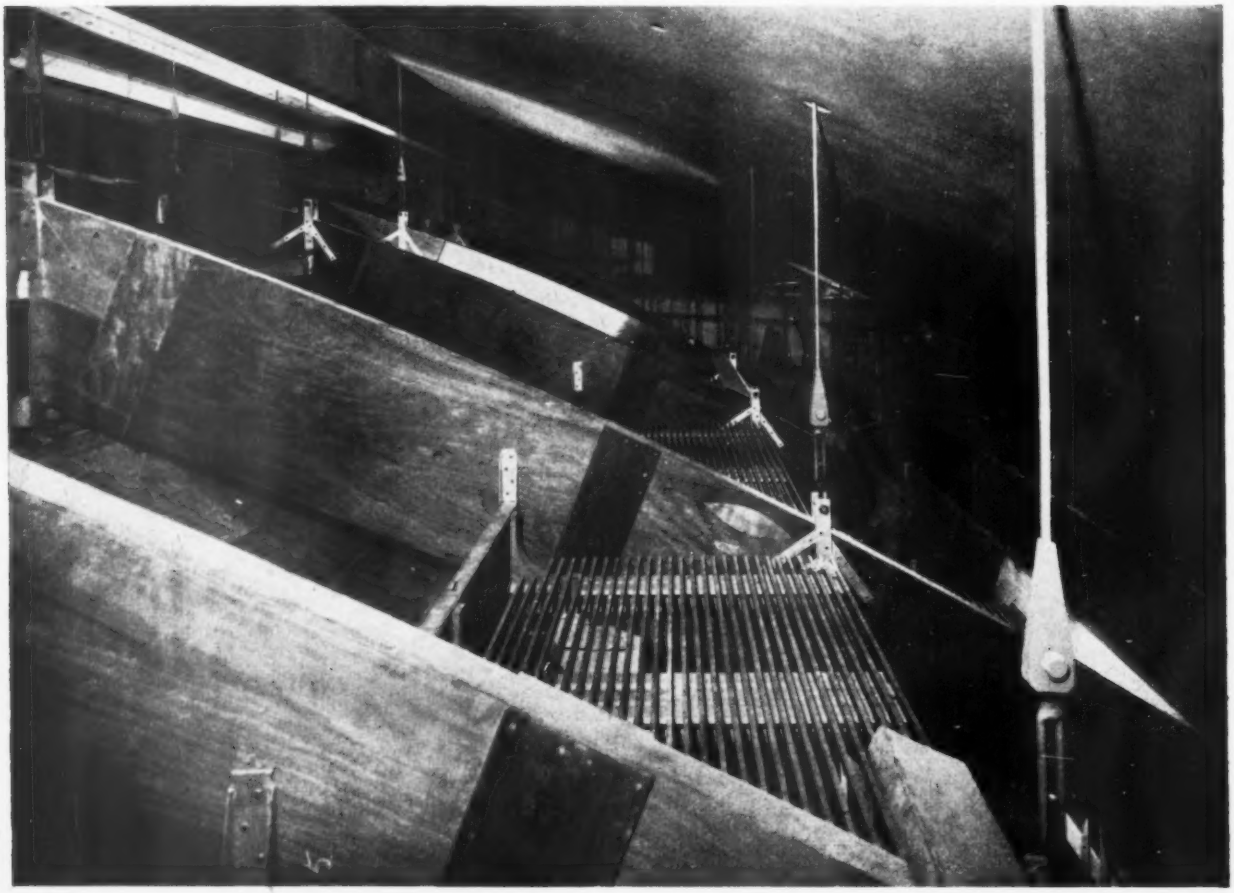


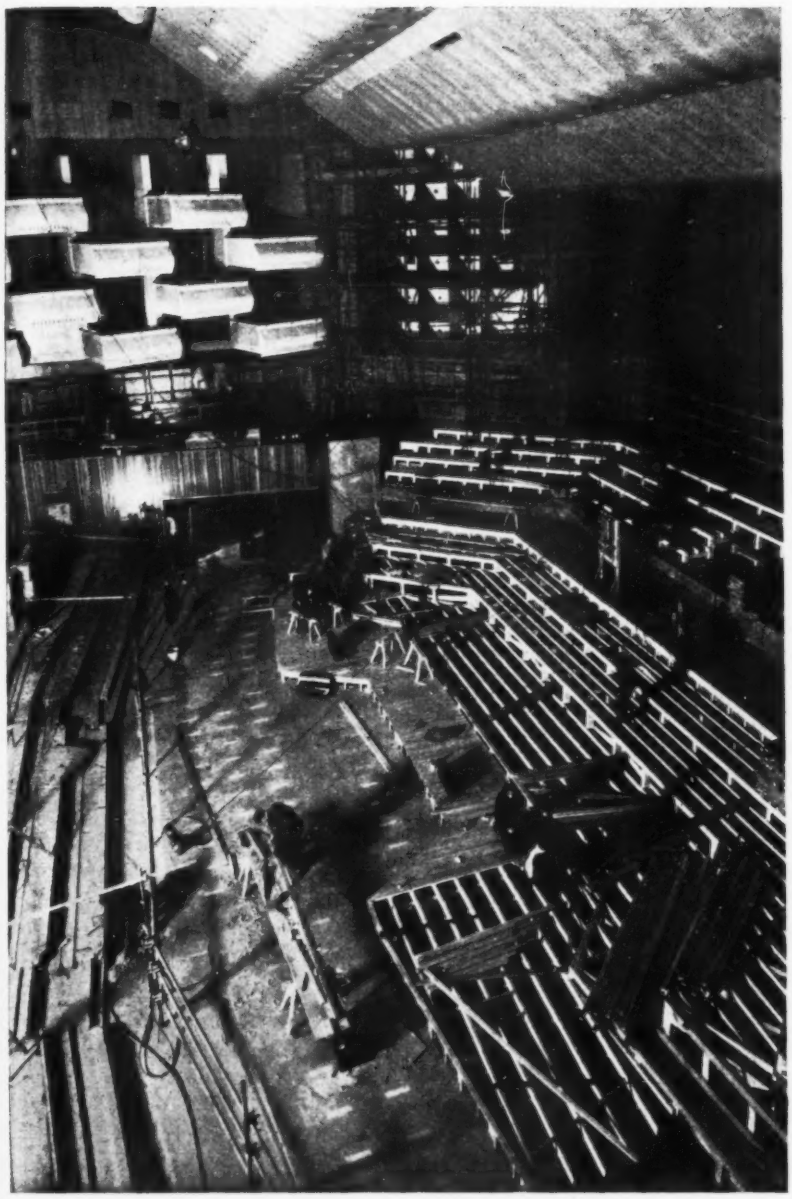
Diagrammatic indication of sound paths, showing how canopy and hard plaster ceiling reinforce sounds at back of Festival Hall.

4.

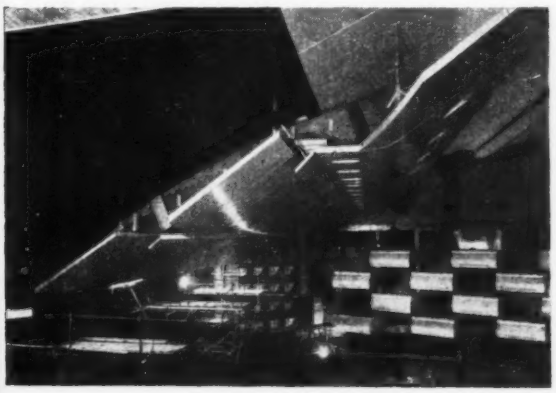
Make sure that listening conditions will not be upset by external noise, or by noise from mechanical ventilating plant. This is of great importance and is often overlooked.

The ways in which the auditorium has been isolated from the particularly loud external noises on the site have been fully described in our previous articles.





The orchestra platform under construction. The back steppings are for choir or audience. Note the steep ramp which is formed for the orchestra and also the wide space between the orchestra and the front rows of the stalls. The floor of this area is finished in polished slate with decorative Hadene marble insets, and its purpose is to act as a reflector.



Left, orchestra canopy: a side view showing openings for loudspeakers and lighting units. Opposite page, the top, showing arrangement of plywood box girders and transverse beams, circulation gangway and method of suspension to superstructure above. The purpose of the holes in the fibrous plaster ceiling over is described in the text. Both photographs by TDA.

Other points of interest in the Festival Hall auditorium are:—

1. The treatment of rear walls with rock wool absorption covered with leather upholstery.

2. The treatment of the side walls under the boxes with absorbent.

3. The incorporation of woodwool absorption in the ceiling at its junction with the walls. This has now been plastered after the first acoustic trial.

4. The use of Helmholtz resonators in the ceiling. It was feared that where the ceiling and floor are parallel, conditions which cause what is known as a "standing wave" might be set up, and that these would cause the ceiling to resonate at a particular frequency. This was in fact experienced at Copenhagen, and was eliminated by using 100 Helmholtz resonators.

These resonators consisted of small holes, 2½ in. in dia. in the ceiling, through which the sound passed into an air space of a specific size, adjusted to absorb at the particular frequency. In the Festival Hall a large number of small holes have been left in the ceiling, which will be converted into Helmholtz resonators, if it is found necessary during the "tuning" of the auditorium now being undertaken.

5. The inclusion of a large organ which has forced the reflecting canopy to be placed higher than would have been desired. The canopy is thought to be too high, giving path differences greater than 45 ft.

6. The canopy is constructed of curved, stressed-skin plywood panels in three separate tiers. They are independently suspended from the main supporting plywood box-beam framework above, in which is incorporated a circulation gangway for maintaining platform lights and loudspeakers. The panels are approximately 2 in. thick, and are formed of two outer skins of plywood with a laminated infilling in dense timber. The latter was included to make the panels denser to improve their sound reflecting qualities. The under surface of the plywood is veneered in sycamore and polished.

7. The ceiling is made of fibrous plaster to which is added, on the topside, a layer of weak vermiculite plaster to increase the thickness, which helps to avoid resonance.

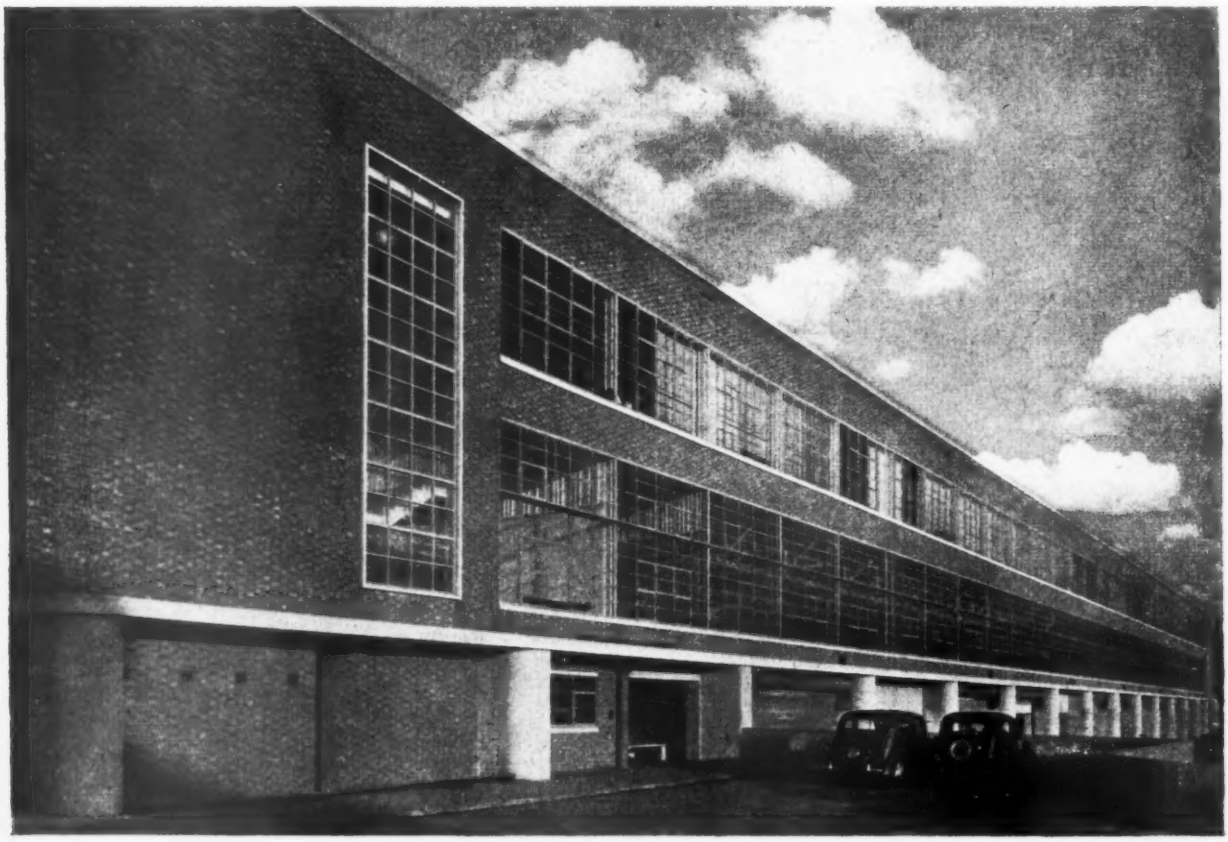
Most architects are familiar with the works of Bagenal and Wood, and with Post War Building Study No. 14 "Sound Insulation and Acoustics." One of the most useful of the later books is *Acoustic Designing in Architecture*, by Knudsen and Hains, published by Chapman and Hall, London, 1950. This is the only available publication which gives a reasonably full list of coefficients of absorption, and which describes some of the more recent developments referred to above. From time to time detailed papers will be published in an International Journal "Acoustica" to be published in Switzerland.

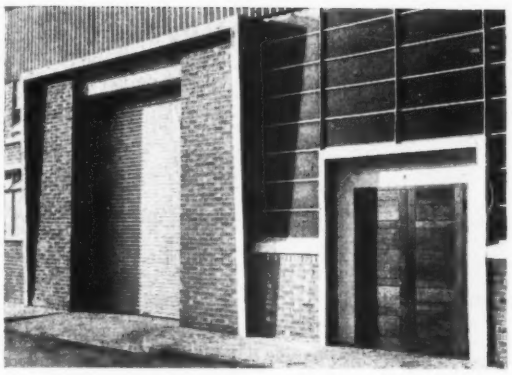
FACTORY EXTENSION

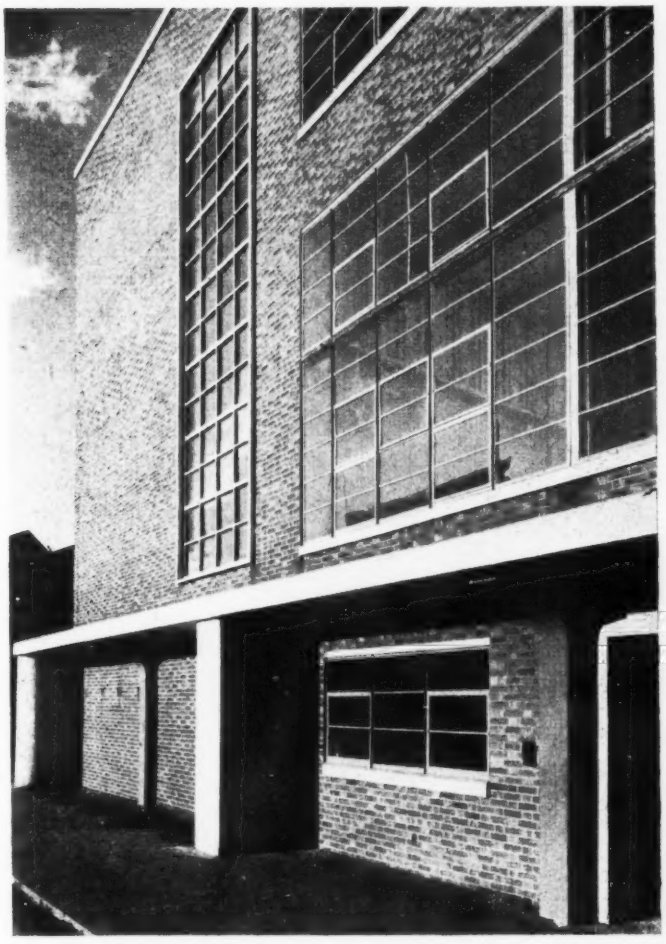
at LUTON, BEDFORDSHIRE
designed by HOWARD, SOUSTER and PARTNERS
architect in charge R. R. FAIRBAIRN

The new factory extension for Vauxhall Motors, Ltd., covers 19½ acres and is the first stage in a £10,000,000 programme of expansion and modernization planned for the next three years. The new building, nearly one-third of a mile long, increases the area of the Vauxhall factory by a third and has a production floor space of 552,000 sq. ft. In 1948 the clients obtained structural steelwork fabricated for a factory in America which was never built. The American building would have been square and consequently the steelwork had to be adapted for the factory at Luton.

The south facade, looking north-east.





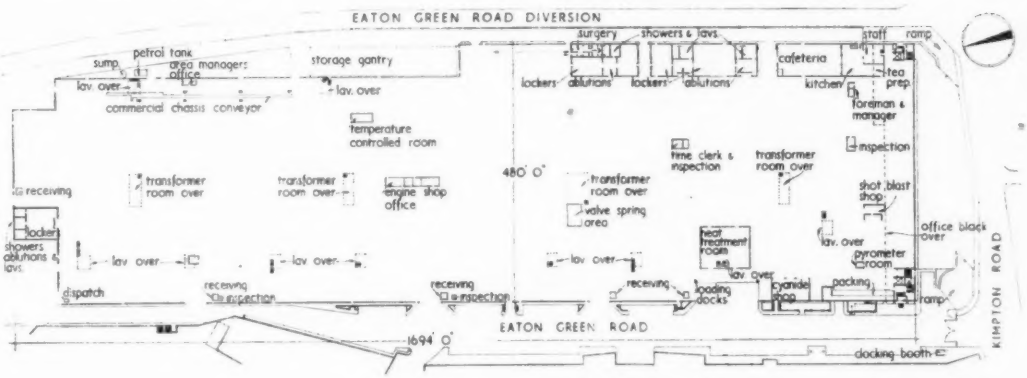


SITE.—The site in which the new building stands was formerly a grass-covered chalk hillside, flanking a sewage farm. To level the site, 500,000 cub. yds. of solid chalk had to be excavated.

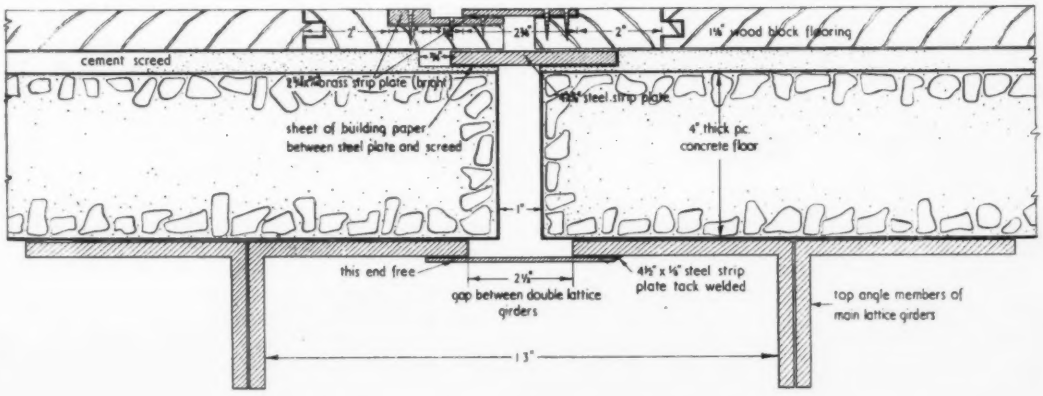
PLAN.—The basement area, 480 ft. by 150 ft., is used for storage and has access through numerous loading bays facing a wide forecourt on the south side. The general shape of the ground floor plan is based on a 60-ft. by 40-ft. bay and there are eight 60-ft. spans in the width of the factory and a maximum of forty-one 40-ft. bays in the length.

CONSTRUCTION.—The 4,300 tons of steel was imported in the form of fabricated girders and stanchions. A typical bay of steelwork consists of four supporting stanchions with a lattice girder spanning

Top, left, typical goods entrance and emergency exit doors. Above, south-west corner of new extension.



Ground floor plan
Scale : 1" = 320' 0"



Floor expansion joint
Scale : 3" = 1' 0"

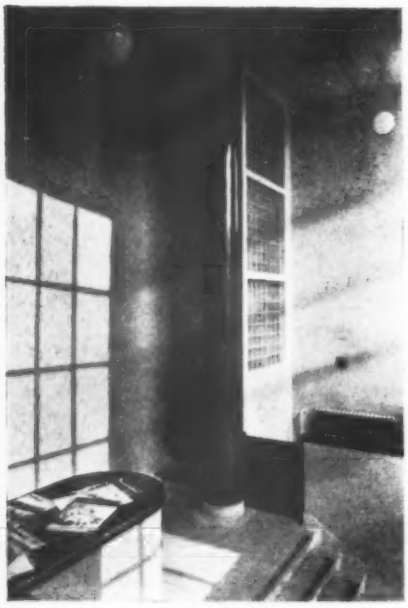
Left, the main canteen. Below, left, the east entrance. The column is painted terra-cotta.

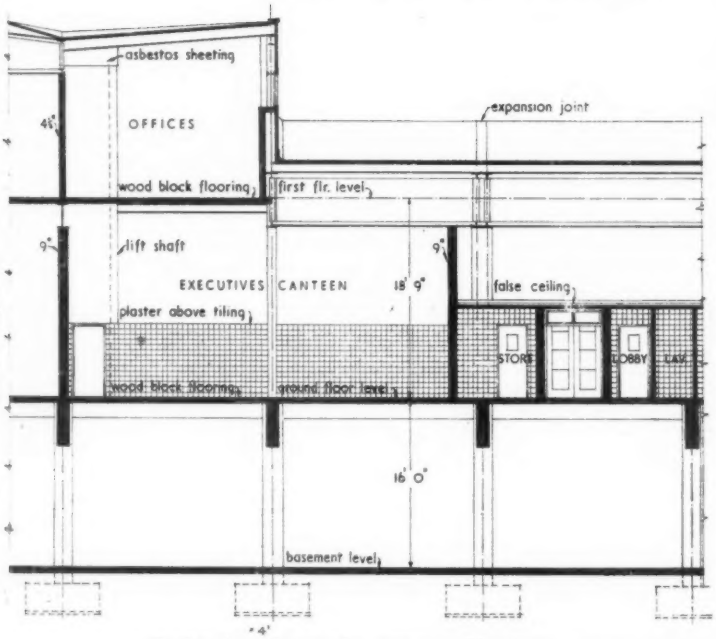
FACTORY EXTENSION

at LUTON, BEDFORDSHIRE

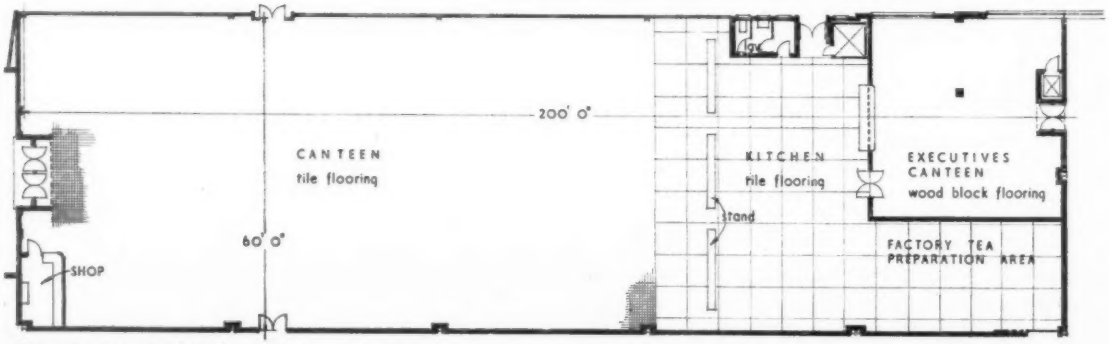
designed by HOWARD, SOUSTER and PARTNERS

between stanchions in the 40-ft. direction and thre roof trusses spanning the 60-ft. direction. The angle of slope of the trusses is approximately 10 deg. The basement is built of reinforced concrete.

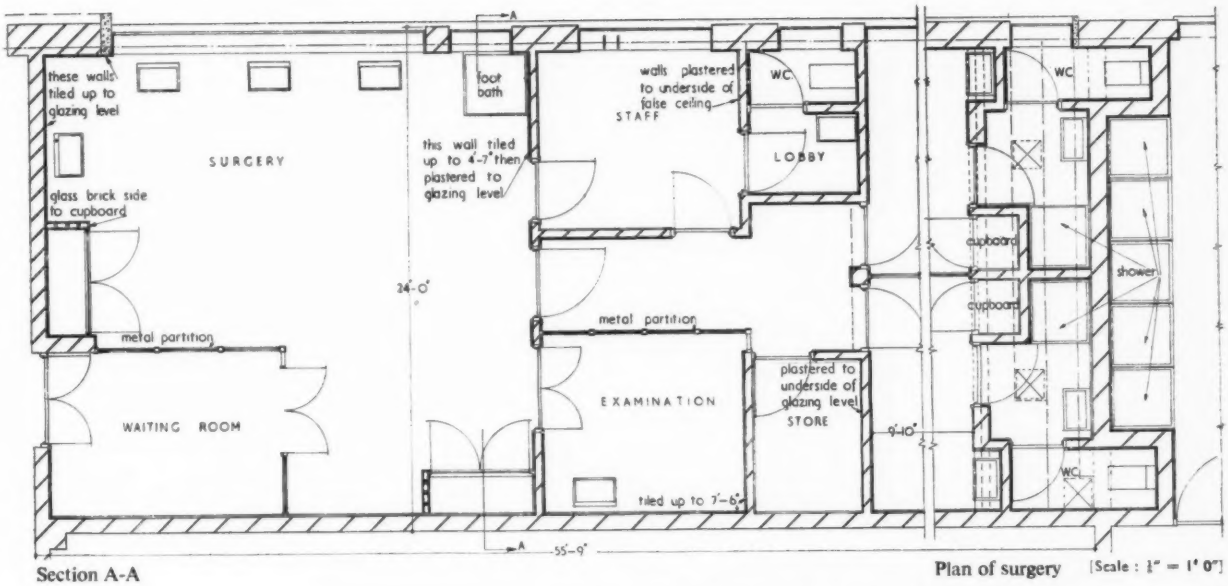




Section through executive canteen and lavatory [Scale : $\frac{1}{8}$" = 1' 0"]

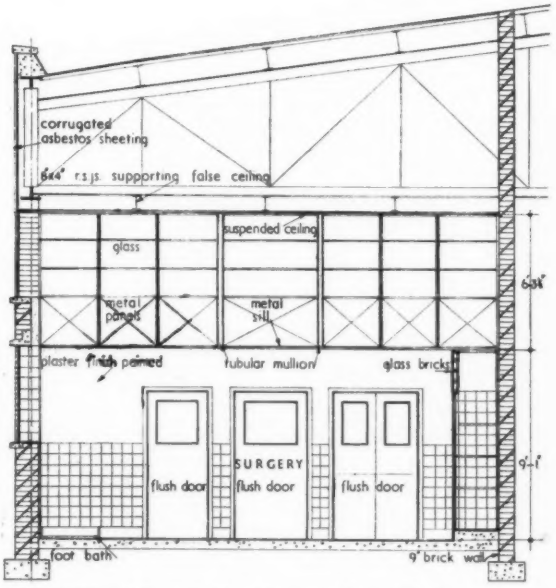


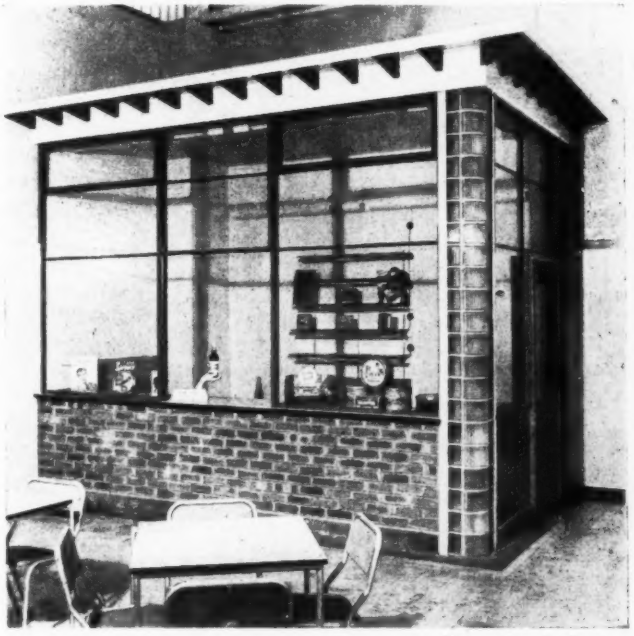
Plan of canteen and kitchen [Scale : $\frac{1}{16}$" = 1' 0"]



Section A-A

Plan of surgery [Scale : $\frac{1}{8}$" = 1' 0"]





Above, shop in the canteen. Below, the surgery.

SERVICES.—After considerable research steel deck roofing was chosen, as it is jointless and can easily be adapted to provide a layer of insulating board between the roof covering and the deck. The main external walls are of 9-in. brickwork with rustic facings; artificial stone cills; 6-in. concrete floors reinforced with wire wool fabric. The interior colour scheme includes terra-cotta for walls up to window level, opaline green from windows to roof trusses, above trusses and the ceiling is pale cream. Fire exits are painted bright red and have electrically operated roller shutters; these shutters automatically stop if they come down on to anything. The production area is lit by fluorescent tubes joined by extruded aluminium trunking in 20-ft. lengths. The cost, including boiler house is £2,300,000. The general contractors are George Wimpey & Co. Ltd. For sub-contractors, see page 380.

In the discussion on this and the following page we are dealing with one of the largest post-war industrial buildings in England. We have tried to bring out a few of the salient points which must be considered by every architect who is entrusted with the design of such a factory. Editors names: page 351.

FACTORY AT LUTON

Discussion between the Architect and the Editors

TWENTY-ONE : Does the east-west roof lighting prove more satisfactory than the more usual north lighting for factories ?

ARCHITECTS : In the case of this particular factory, it was Hobson's choice. The steelwork came fabricated from America and in the American design no provision whatsoever was made for natural roof lighting. In quite a few factories I saw over there they had *all* artificial lighting. Incidentally, this brought about a difficulty—we had to find a suitable glazing bar. Due to the shallow pitch of the roof we were likely to have trouble with rain, so we've used an aluminium glazing bar with double grooves. If you are unable to place the work-benches where they get the maximum benefit from the north light, this type of roof lighting is better. An additional advantage is that you can get trunking through the trusses.

TWENTY-FOUR : Did the fact that the steelwork had already been fabricated restrict your planning.

ARCHITECTS : Using steelwork from America tied us down to a 60-ft. by 40-ft. grid, but that's all.

TWENTY-FOUR : There are some original types of expansion joints designed for this building. In what way do they differ from other designs ?

ARCHITECTS : Not many buildings in this country use vertical expansion joints, so this is difficult to answer. Well, where this differs is that the building is divided into four units with 2-in. gaps running between each. It's almost four buildings.

NINETEEN: As the clients were hurrying to get machinery in before the factory was properly completed, what methods were used to speed up the construction ?

ARCHITECTS : The greatest difficulty was to get the finishings were completed before the client got into occupation ; and the two major problems were floor finishings and painting. We did speed up the monolithic grano. flooring by laying it while the concrete was wet, so we only needed to use ⅝ of an inch. This had one distinct disadvantage, though, and that is that you can't get down your site concrete before you put your flooring down. Every builder likes hard standing for his vehicles : we put down binding and worked off that. They laid a maximum of site concrete during the day, and the grano. people came in and worked overnight. (**NINETEEN :** That was accommodating !) There's a point architects might watch here—if the grano. manufacturer happens to be getting his cement from a different place from the general contractor the cement might set at different rates.

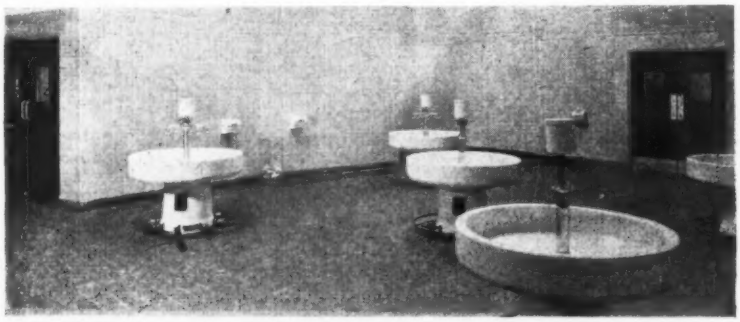
NINETEEN : What is the wear on the floor ?

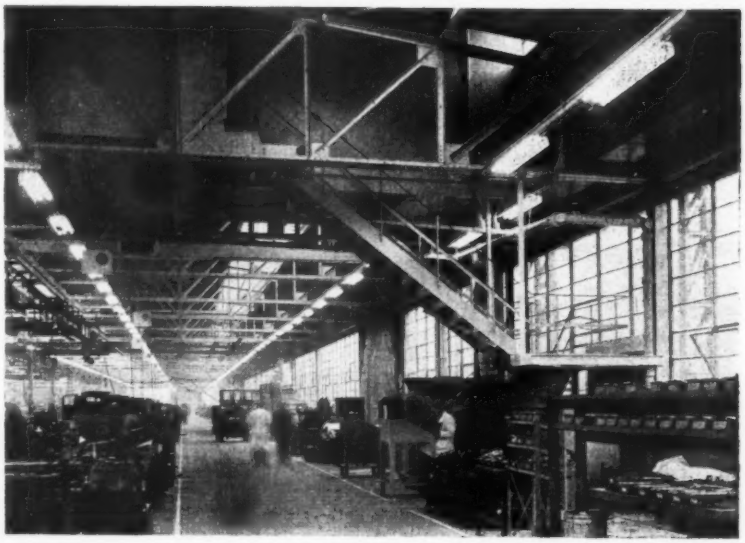
ARCHITECTS : It's very severe ; you've got the heavy running of trucks without rubber tyres. One thing to watch on this floor is that the joints are very carefully laid, because if there is a break in the surface you get very severe wear over that strip. We put in a special material to fill. Grano. can be replaced where there is very heavy wear, such as at doorways, but you have to take up the cement. Factory lay-out can change in a couple of years, so there is no point in reinforcing any one place. It's more satisfactory to make it flexible so that you can change the trucking corridors. Another point here : you must stop clients from getting on to the grano. before it has the eggshell glaze on the surface.

TWENTY-ONE : The photographs on the opposite page show, firstly, a storage and loading area for new materials with an overhead gantry, and secondly, the east facade where piles of metal are being dumped. Does it appear to you that sufficient open and closed storage areas are planned ? Is this dumping only likely to be stopped if it can be proved that it is dangerous, or slows up the work?

ARCHITECTS : Well, the photographs were taken early in the occupation of the building, and also this particular factory has its own workers' safety committee and if they considered that the dumping of material is dangerous, it would be removed very quickly. As a matter of fact, it isn't there now. In the case of this building, though, I think there is

Below, ablutions showing foot-operated circular washing troughs. Bottom, main assembly area showing stairs to overhead lavatory.





adequate external and internal storage space. What you saw was just a temporary measure.

FIFTEEN : The ceiling heating panels in the surgery appear to be causing staining. Has any means been found to combat this ?

ARCHITECTS : The staining was temporary, and once eradicated, won't re-occur. The balancing valve of the heating in the surgery was not adjusted properly, and the normal temperature was exceeded. It would be useful to advise clients to have the heat tested before the final painting of heated surfaces.

SEVENTEEN : With regard to the circular ablution basins with foot control for spray fountains—it appears that the men jump on the foot bar and damage the apparatus. Is there a way to stop this ?

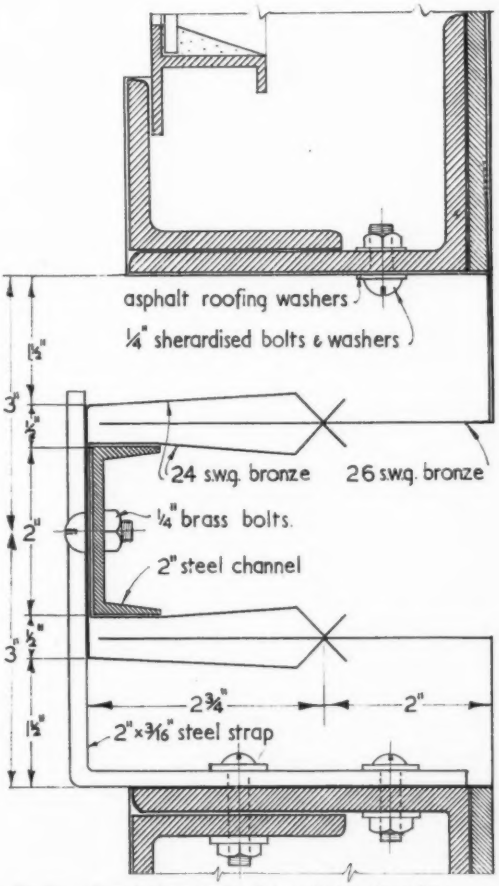
ARCHITECTS : We fitted an individual spray in preference to the fountain spray. This is toe-operated—not heel-operated. Candidly, I like those circular sprays, and they *will* withstand normal wear, but at first there was not sufficient water coming through and the men took it out on the machines. Now we've put independent sprays nearest the door, so that they'll be used most.

TWENTY-FOUR : We take it that the overhead lavatories in the main factory area are designed to keep the floor space clear. Has this idea been used much in this country ? Does it lead to any complications, such as poor water pressure ?

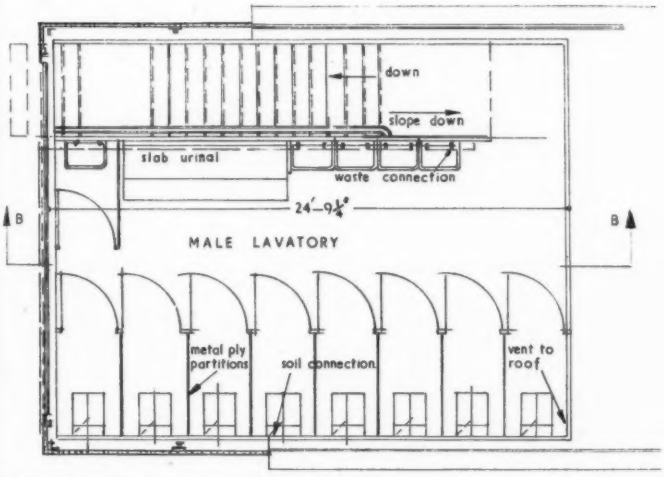
ARCHITECTS : Yes, they've been used in this country several times. We don't have any trouble with water pressure because we are off direct mains, and we use continuous trough cisterns for the w.c.s.

NINETEEN : Did you apply principles of colour for increased productivity ?

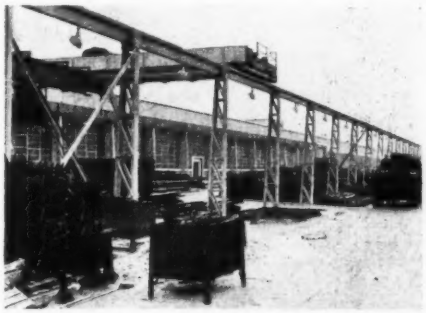
ARCHITECTS : Three-dimensional colour scheme they call it, when you use colour as we've done on this job. We used pastel grey for the machinery, as suggested by the British Colour Council, against which you can use any colour. Actually, all the colours are fairly bright; for instance, in the surgery and lavatories we've used a Wedgwood blue, and staircases to overhead lavatores are in chrome yellow so that they can be spotted quickly.

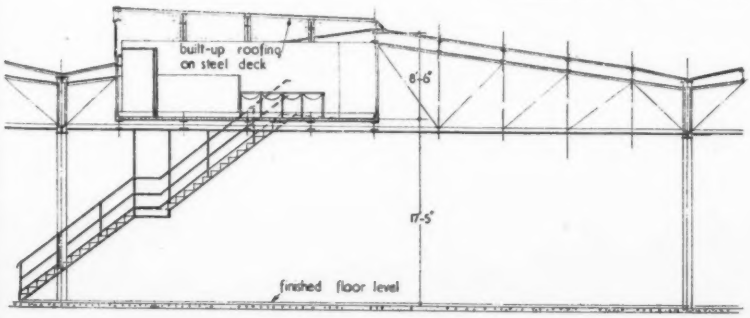


Section of vertical expansion joint [Scale: 6" = 1'0"]

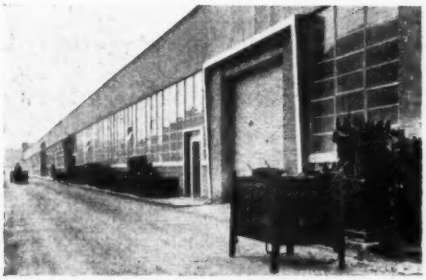


Plan of overhead lavatory [Scale: ⅛" = 1'0"]





Section B-B [Scale: ⅛" = 1'0"]



INFORMATION CENTRE · INFORMATION SHEETS
QUESTIONS AND ANSWERS · CURRENT TECHNIQUE
THE INDUSTRY · PRICES · TECHNICAL ARTICLES

TECHNICAL SECTION

The number of houses built each year in New Zealand is, relative to the population of that country, nearly double the number built in Gt. Britain. Of these, roughly one quarter are designed by the Housing Division of the New Zealand MOW; its work is described below.

STATE HOUSING IN NEW ZEALAND

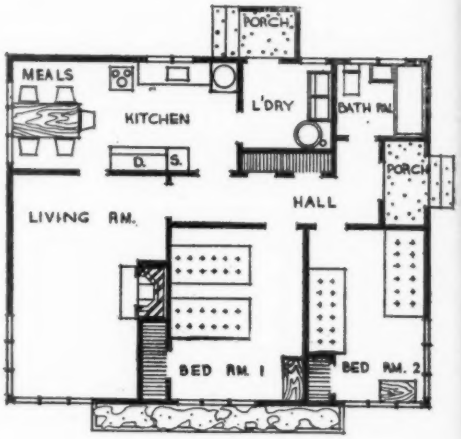
New Zealand, like this country, suffers from a shortage of housing accommodation. It has been estimated* that about 12,000 houses, including those built privately and by the State, will be required annually for some years to come, in order to overcome the present shortage, to cater for the estimated increase in population, and to replace those houses that are, or will become, obsolete and unfit for habitation. This anticipated rate of building will provide about 7 new houses per year per 1,000 of the population, compared with the figure of 4 for this country. (The population of New Zealand is about 1,730,000.)

The number of new dwellings (including State houses for rental) built in 1949 was higher than the average, being 16,136. Of these 4,111 were built by the State.

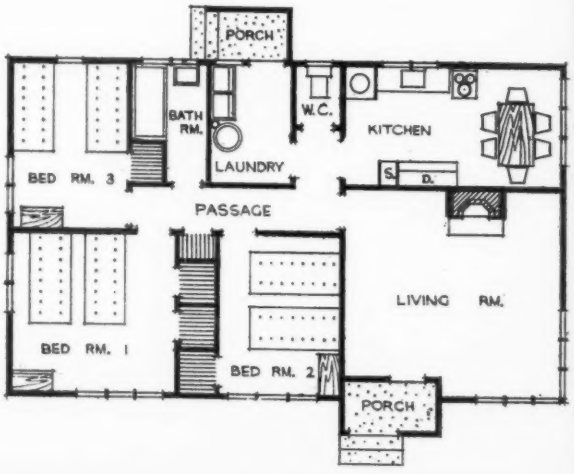
Housing in New Zealand is a public utility service, managed by the Government. Under the Ministry of Works Act, 1943, the Minister of Works is responsible for the erection of houses, and the reservation, acquisition or improvement of land for housing purposes. The Housing Division is one of four Divisions in the Ministry. Its chief, the Director of Housing Construction, is responsible for carrying out the Government's housing policy, and he controls these sections—administrative; architectural (including community planning and quantity surveying); land (covering land purchases, land planning and landscaping) and engineering.

Construction work can be carried out by private contractors, by direct labour, by the public works department, or by the local authorities. When construction has been completed, the control of the roads and other services is vested in the local authority, and the management of the properties (including maintenance) is vested in the State Advances Corporation. For a while, however, the Housing Division continues to watch over the maturing of the landscape

* *State Housing in New Zealand.* Cedric Firth, illustrations selected by Gordon F. Wilson (Ministry of Works, Wellington, New Zealand. 1949. Not priced.)



Right, a typical single-storey, two-bedroom house. [Scale : $\frac{1}{16}$" = 1'0"]



Right, a single-storey, three-bedroom house without hall.

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

Below, aerial view of Waddington Housing area, Wellington—a typical scheme.

WORKING DETAIL

OFFICE DESK : PUBLISHING HOUSE IN NEW YORK

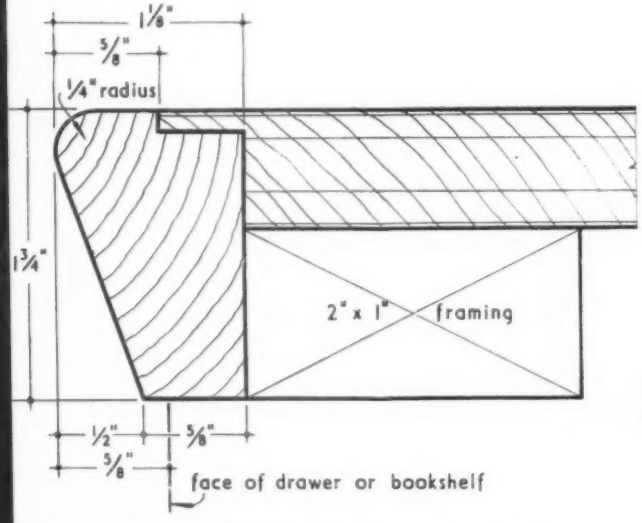
Caleb Hornbostel, architect

The shaped table, integral with the bookshelves, inclines the executive towards his visitor and is unencumbered by any but three small drawers at his left hand.

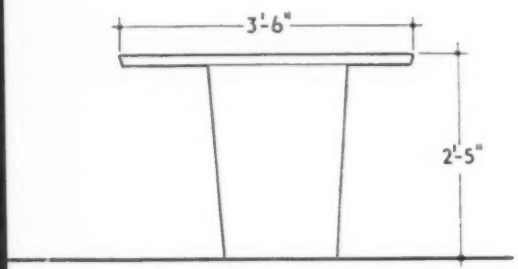
WORKING DETAIL **FURNITURE AND FITTINGS : 2**

OFFICE DESK : PUBLISHING HOUSE IN NEW YORK

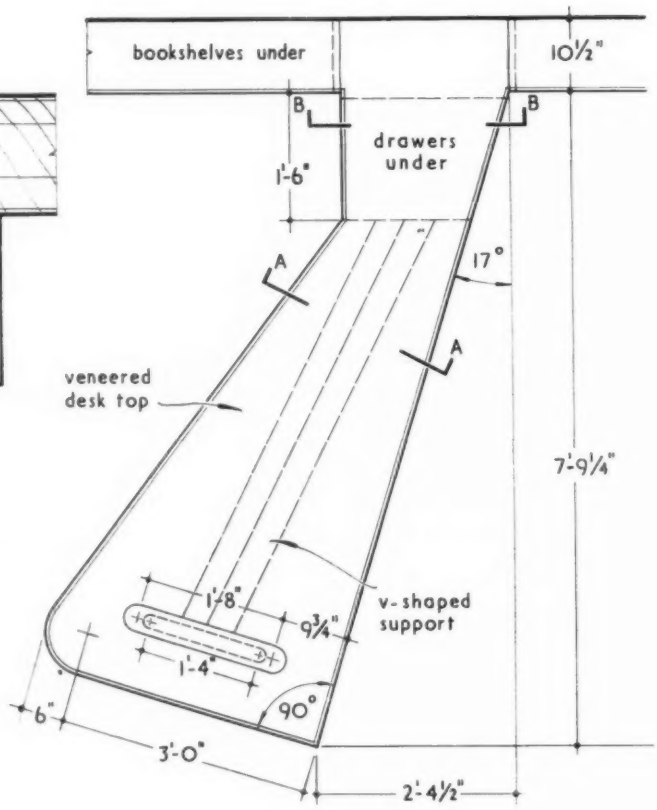
Caleb Hornbostel, architect



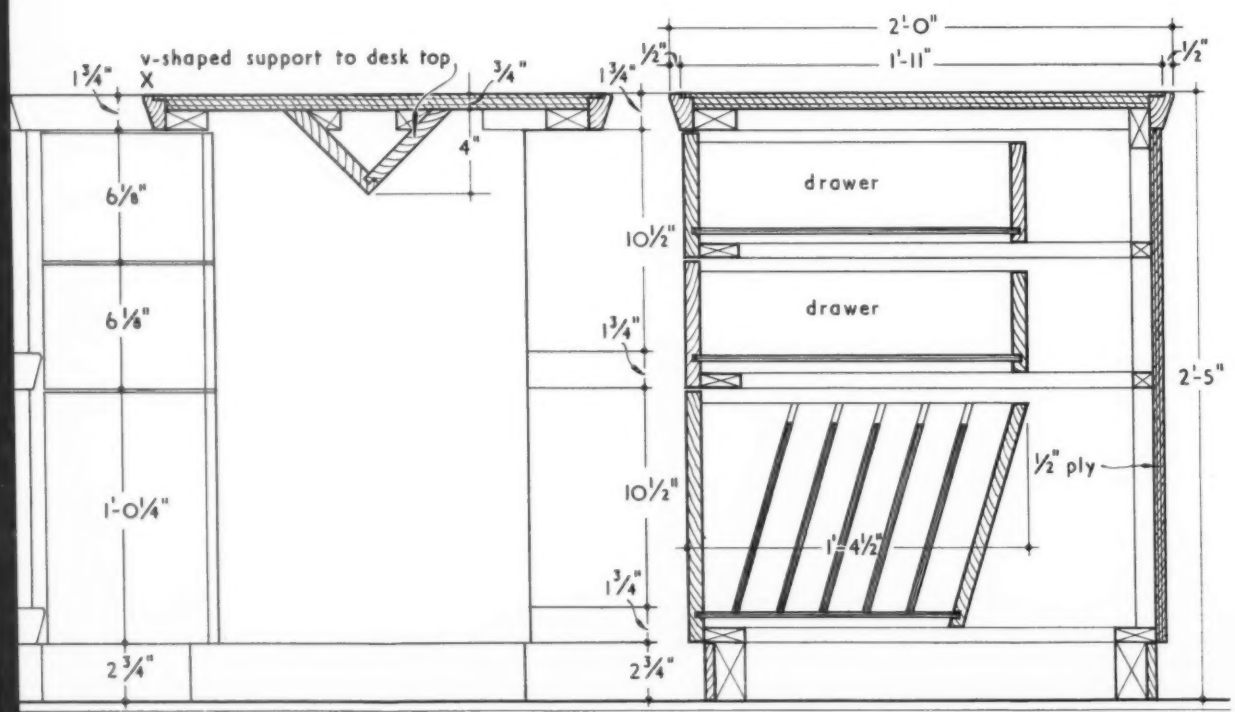
ECTION AT X SHOWING NOSING. scale full size



ND ELEVATION OF DESK UNIT. scale ½"= 1'-0"



PLAN OF DESK UNIT. scale ½"= 1'-0"



ECTION A-A THROUGH DESK TOP. scale 1½"= 1'-0" SECTION B-B THROUGH DRAWERS. scale 1½"= 1'-0"

WORKING DETAIL

OPENING LIGHTS IN GLASS BLOCK PANELS : MATERNITY HOSPITAL IN JERSEY

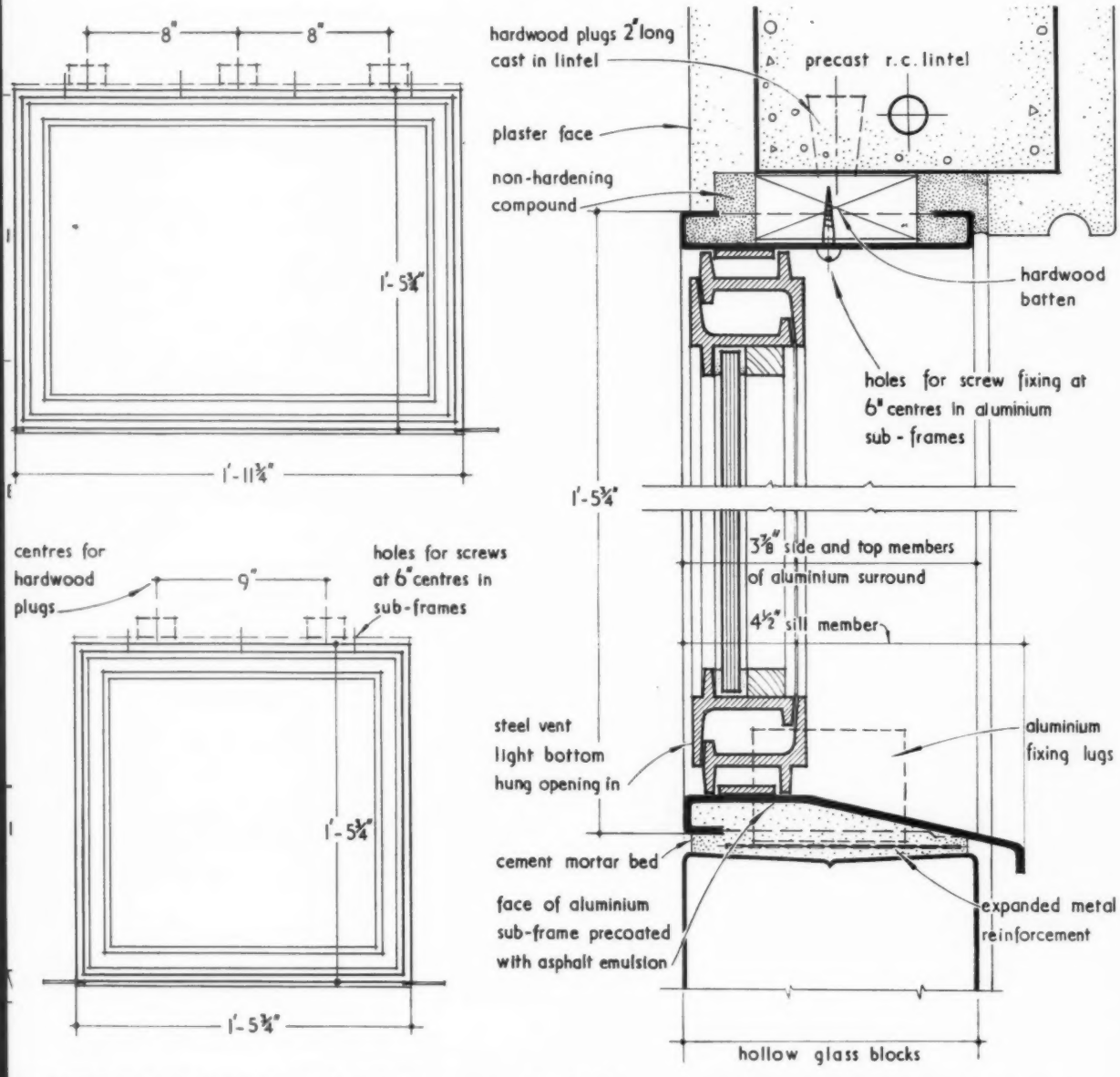
Grayson and Le Sueur, architects

The hopper type opening lights in the glass block panels are in aluminium sub-frames bedded directly on to the glass blocks at sill and jambs.

WORKING DETAIL **WINDOWS : 2**

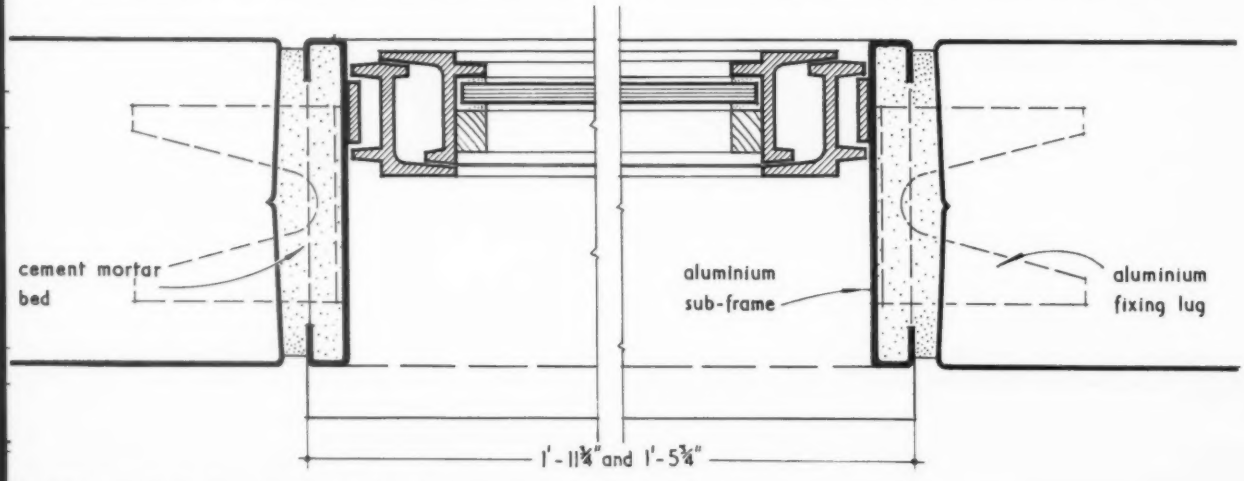
OPENING LIGHTS IN GLASS BLOCK PANELS : MATERNITY HOSPITAL IN JERSEY

Grayson and Le Sueur, architects



OUTSIDE ELEVATIONS OF VENT LIGHTS. scale 1½" = 1'-0"

VERTICAL SECTION. scale ½ full size



HORIZONTAL SECTION. scale ½ full size

IMPERIAL FORESTRY INSTITUTE, OXFORD. *Thomas Worthington & Sons, Architects*

HOPE'S WINDOWS

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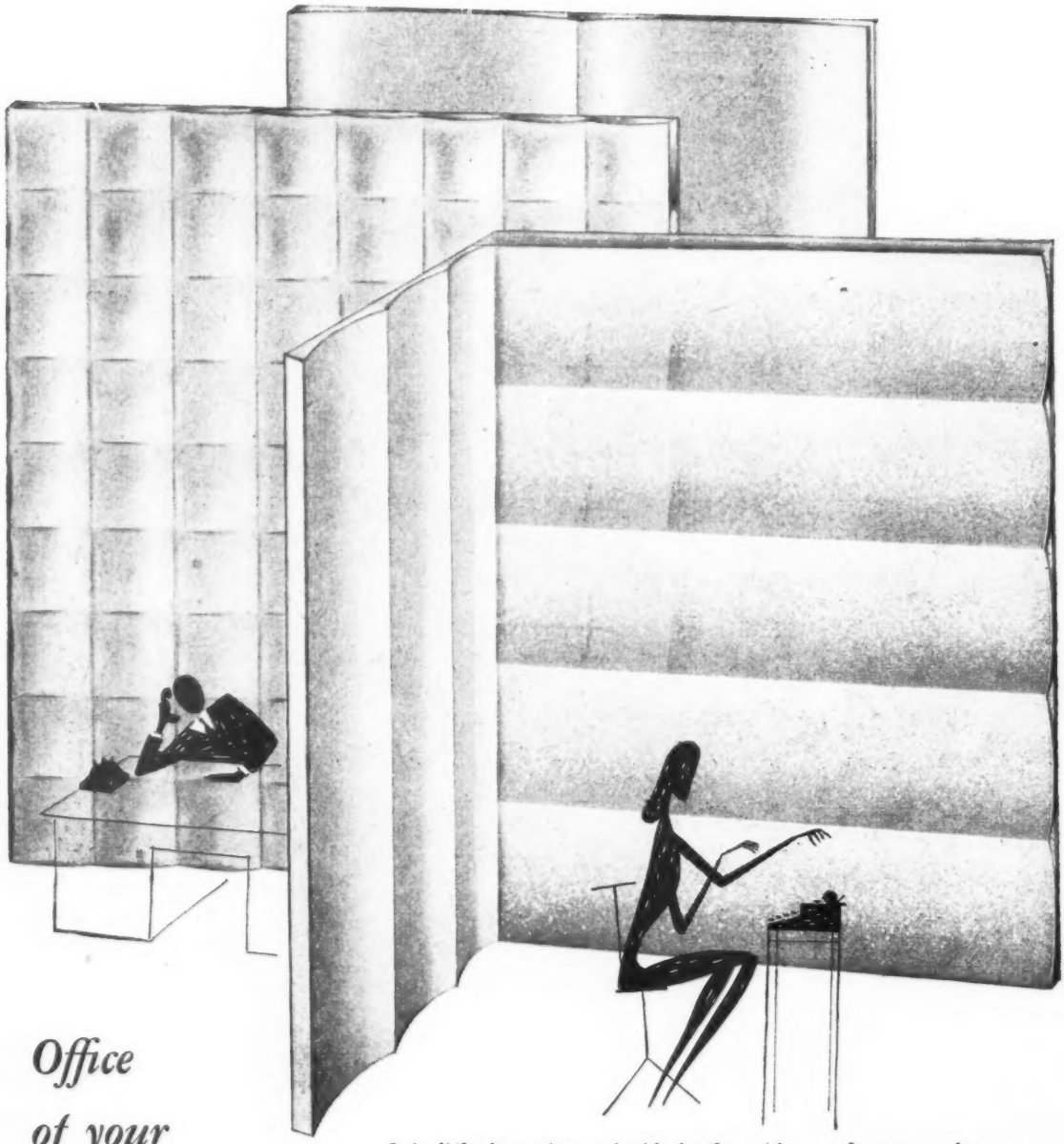

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schemes which it has planted and it advises tenants on their gardening activities.

Hence, the local authorities' role in housing does not appear to be very active. They control the local town planning schemes and their by-laws exercise some influence on the design and standards of services, but these by-laws are not binding on the Housing Division.

The number of unsatisfied applicants for State houses, which on March 31, 1948, was 52,186, emphasizes the size of the task confronting the Division.

INDIVIDUAL HOUSES

The Division aims at providing a variety of different types of accommodation. On an average, of each 100 individual houses built, 5 have one bedroom, 20, two bedrooms, 67, three bedrooms and, 8, four bedrooms.

Nearly all the houses have timber frames; about 25 per cent. are finished externally in brickwork, 40 per cent. with weatherboards, and 35 per cent. with asbestos cement. These proportions may be varied as labour conditions and the supply of materials change. Internal linings are of fibrous plaster, or similar sheet materials, finished with enamel paint in kitchens, bathrooms and w.c's, and wallpaper in other rooms. Ceilings are painted throughout. Windows are of the casement and top hung ("split rail") fanlight type. Chimneys are constructed of reinforced brickwork, reinforced concrete, or precast reinforced pumice concrete. Roofs are of tiles, corrugated asbestos sheets or bituminous felt.

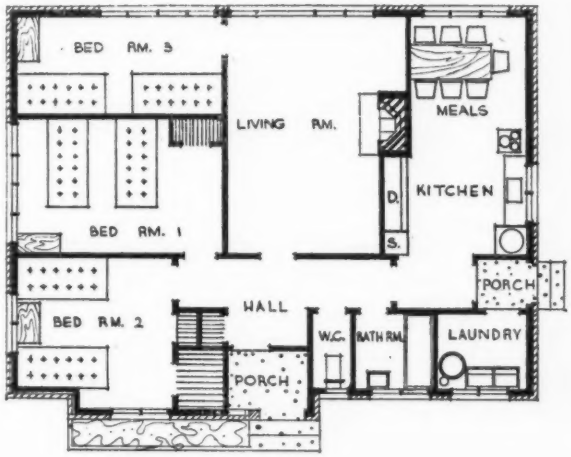
The density of State housing is about four houses per acre. About four-fifths of the houses are detached and the remainder semi-detached. Single-storey dwellings predominate.

MULTI-UNIT DWELLINGS

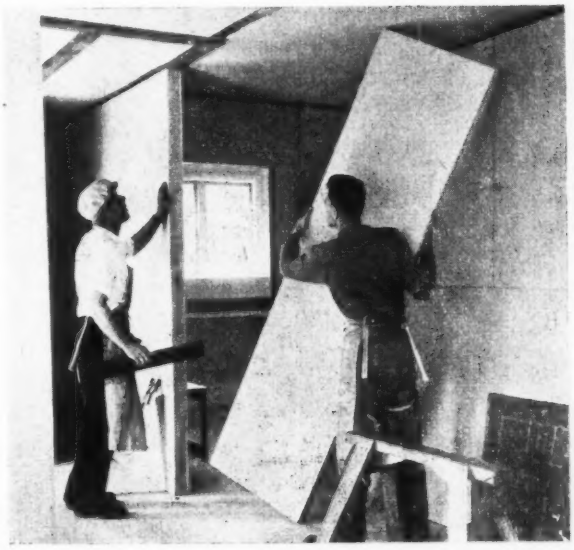
Although, in general, New Zealanders prefer detached houses, the Housing Division has built many groups of multi-unit dwellings. These vary in size from modest four-unit blocks to groups of buildings housing many families—the largest block, built in 1948, contains 117 dwellings. The erection of these multi-unit dwellings is normally confined to the larger towns.

So far, 10 large blocks, containing a total

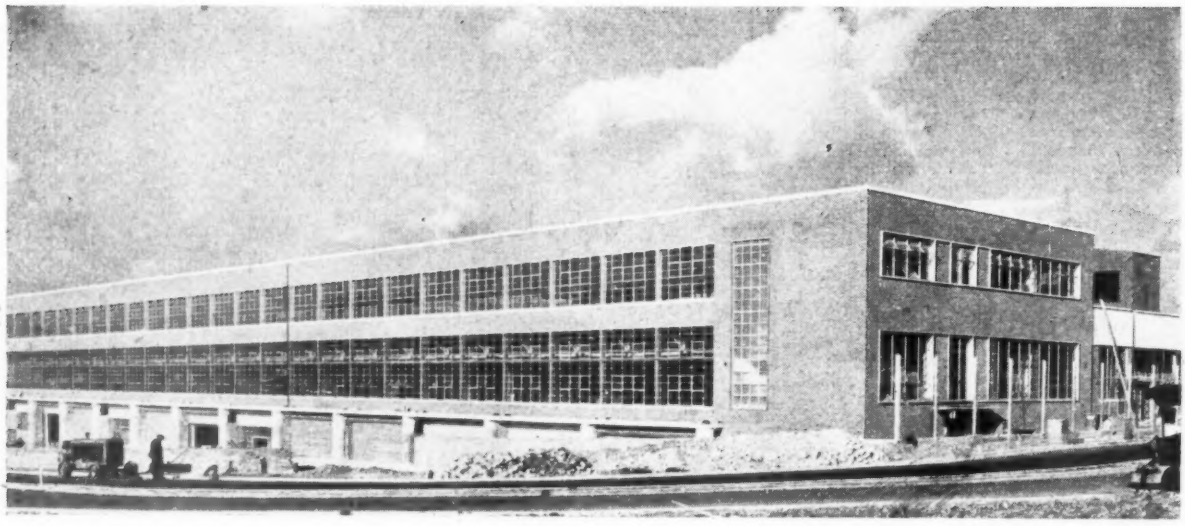
Right, a single-storey three-bedroom house, with the third bedroom opening off the living room. [Scale: ⅛" = 1'0"]



Right, the erection of prefabricated interior panels in State houses.



Below, a typical street in a State housing estate.



Architects : Howard, Souster & Partners

The Vauxhall Factory Extension

FACTS AND FIGURES ON THE NEW VAUXHALL FACTORY

Productive floor space	852,000 sq. ft.
Length	1,695 ft.
Width	480 ft.
Total volume of earth excavated (including factory, boiler house, roads, drainage tunnel)	750,000 cu. yds.
Structural steelwork	4,300 tons
Concrete	35,000 cu. yds.
Bricks	1,600,000
Drains	5½ miles
6 ft. water pipes	1 mile
Total length of air, water and gas piping ...	20 miles
Roof area	950,000 sq. ft.
Roof glass	240,000 sq. ft.
Storm water sewer	5 ft dia. x ¾ mile long
Area of new roads	21,000 sq. yds.
Capacity of producer gas plant	300,000 cu. ft. per hr.
Capacity of hot water boilers	150,000,000 B.T.U.'s per hr.
No. of lighting units	3,300 x 160 watt.
Output of sub-stations	9,000 K.V.A.

WIMPEY

Main Contractors

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of 376 dwellings, have been erected. There are five blocks, comprising 95 dwellings, under construction and a further 35 blocks, which will provide 574 dwellings, are being planned. The systems of construction used include reinforced concrete load-bearing walls — earthquake - resistant construction. The external walls are 6 in. to 8 in. thick, finished externally with coloured rendering. They have an inner skin, affixed to 3 in. × 2 in. timber framing, which is kept 1 in. clear of the concrete, thus providing additional insulation, and avoiding condensation.

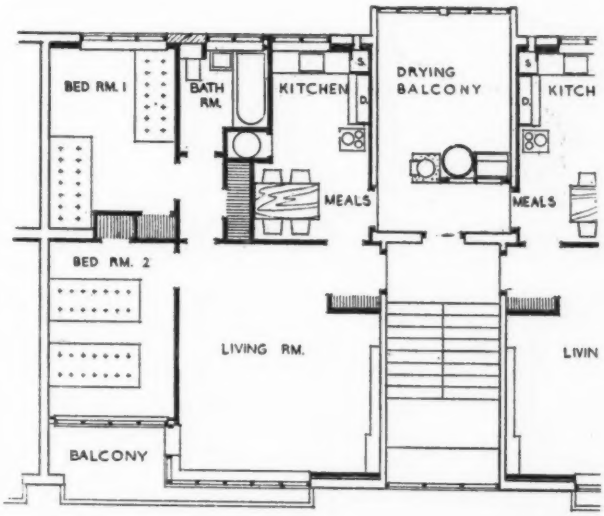
In the smaller multi-unit blocks, the sites are usually sub-divided so as to provide a relatively large individual garden for each tenant. With the large blocks, such subdivision is impracticable and the surroundings are laid out by a gardening staff. But wherever possible, part of this communal garden is set aside to be divided into allotments—one for each tenant.

GENERAL

Standards for open space reserves, and the siting of shops, schools and other community buildings, similar to accepted good practice in this country, are adhered to wherever possible.

A characteristic feature of the State housing estate of small detached dwellings is that each house looks different from its neighbours. This represents an aspect of Government policy. To achieve this effect economically, the Housing Division makes full use of standardized plans and standardized house parts. There is a small number of basic plans but further variations can be made by adding rooms to a basic plan, changing the position of the porch, using various walling and roofing materials, changing roof pitches, etc. About 100 different single- and two-unit house plans are, at present, in use.

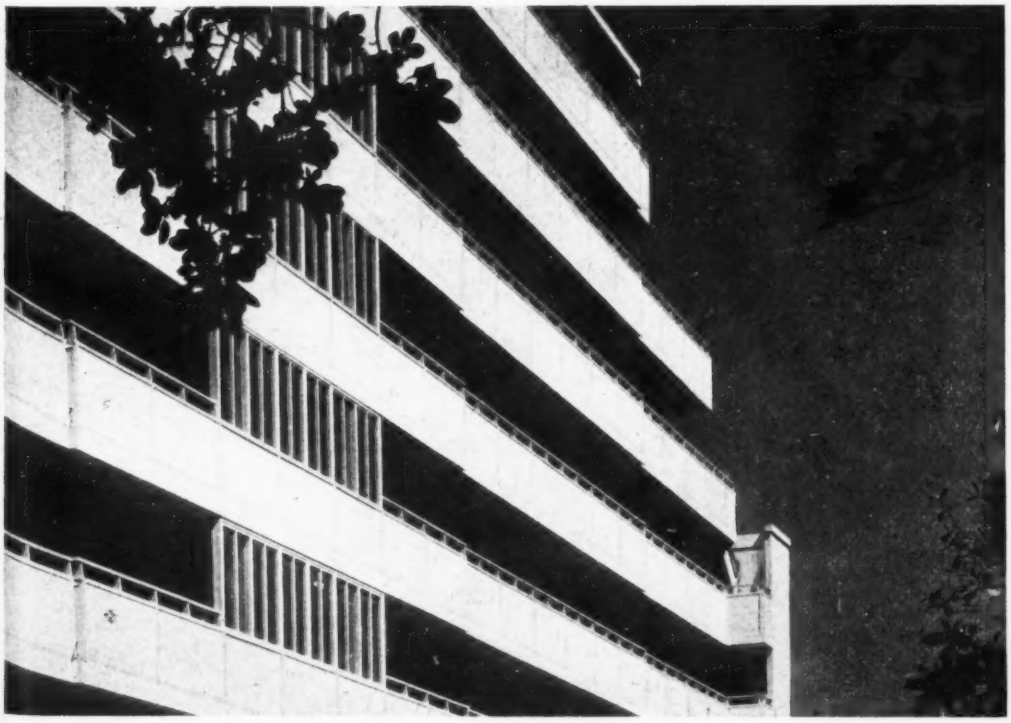
Clean, efficient design, good proportions, and, when the opportunity is present, vigorous massing, characterize the best designs of the Housing Division, particularly as indicated by their designs for some of the multi-unit dwellings and groups of local shops. The Housing Division has, however, a long way to go before it achieves distinction for the layout of small houses sited at reasonably low densities.



Right, typical plan of two-bedroom flat in a block with staircase access to a pair of flats on each floor.

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

Right, a multi-unit block of dwellings in Wellington.



Left, rear view, showing access balconies of flats in Dixon Street, Wellington, illustrated on page 354.

Photograph: Courtesy Highways Construction Ltd.

'Fibreglass' Staple Tissue for underlay application is supplied in rolls 36" wide and up to 400' long. It is laid down in exactly the same way as traditional materials and cut in position to conform to irregular shapes.

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THE INDUSTRY

By Brian Grant

IDEAL HOME

Any visit to the Ideal Home, except perhaps first thing in the morning, is a struggle against the vast crowds, who, fortunately, seem worst among the cooking gadgets in the gallery, and who queue endlessly to get a peep inside the mostly too luxuriously furnished houses. It is, however, possible to see some of the furniture and the heating section in reasonable comfort, and it is certainly worth looking at the furniture shown by Heal's, Dunn's, Story's new Unad range, and the Morris designs in the Berg house.

So far as the heating section is concerned there are several interesting new devices. First is the new Raymax convector fire shown in the illustration on the right. It is a new type of open fire, working mainly on the down-draught principle, and giving direct and reflected radiant heat, convected warm air and supplies of hot water. Down-draught burning consumes a proportion of the smoke passing through the fuel bed, resulting in a reduction in the amount of soot produced.

The upwardly-directed radiant heat from the fuel bed is reflected back into the room by a polished aluminium reflector, thus adding to the radiant heat received directly from the fuel bed at a level where it is most required. The reflector can be seen in the illustration—at the top of the firebox.

The design of the fire is such that far less air passes from the room into the chimney than is the case when an ordinary open fire is used. This is an important feature and tests have shown that good ventilation of the room is still maintained with this saving of warm air.

The boiler is sufficient for a normal domestic water load, plus some 20-25 sq. ft. of radiator surface, including the usual runs of pipe, and, by dropping the cover plate which is normally concealed by the reflector, the fire can be made to burn overnight. Boilers are available in copper or "wrought welded," and the storage cylinder should have a maximum capacity of 40 gallons. The maximum size of room which the Raymax will heat, if the convected warm air is included, is 2,000 cu. ft. *(Radiation Ltd., 7, Stratford Place, London, W.1.)*

Also shown, on the Gas Council stand, was the Fulham Finned Back boiler grate which provides heat service all the year round by both gas and coke firing. Radiation and hot water can be varied independently, and the grate occupies no more space than is required by a normal open fire with a standard 9-in. by 9-in. (or equivalent) flue.

The boiler is of the large-surface high-efficiency type, of sufficient capacity to provide an average of 250 gallons of hot water per week. When heated by the open coke fire it will provide, in addition, two radiators and a towel rail of a combined radiation area not exceeding 30 sq. ft.

For summer use, or when an open fire and central heating are not needed, the gas-fired attachment is clipped to the boiler and connected up by flexible tube and plug-in connector. The gas attachment is intended, primarily, to provide bulk supplies of hot water for baths and laundry work. Where smaller quantities of hot water are required it is recommended that a separate sink water heater should be used.

The boiler is of cast iron, with 1-in. connections at each side, and it has a removable cast-iron deflector plate for ease of cleaning. The coke grate is of the 16-in. Fulham gas ignition type and the gas attachment consumes 40 cu. ft. an hour. The solid fuel fire will heat a 30-gallon cylinder from 50°F. to 110°F. in two hours. *(Sidney Flavel & Co. Ltd., Leamington Spa.)*

Two new gas water heaters are also shown. There is the new type 901 Ascot—an enlarged multi-point with an output of just over 1¼ gallons a minute raised 100°F., with a gas consumption of 4 cu. ft. a minute. Price is £45 2s. 11d. including purchase tax. *(Ascot Gas Water Heaters Ltd., 43, Park Street, London, W.1.)*

And a new small sink heater is shown by Parkinsons. This is of clean design, and provides water raised 100°F. at the rate of half a gallon a minute with a gas consumption of 1¼ cu. ft. Height is 24 in. and the diameter is 6 ft. 6 in.; the gas connection should be half-inch. *(Parkinson Water Heaters Ltd., Terminal House, Grosvenor Gardens, London, S.W.1.)*

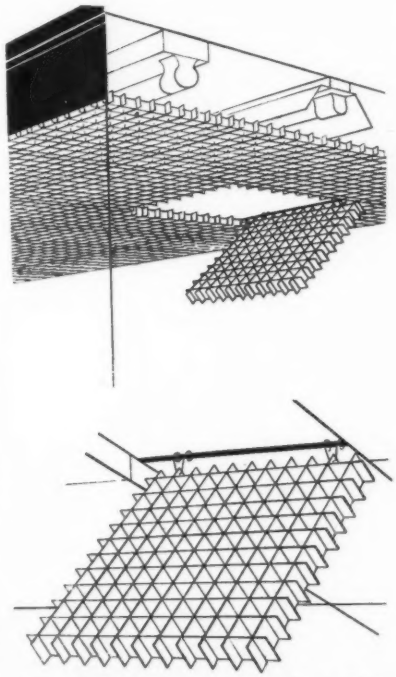
"LOUVALITE"

Crompton-Parkinson have just announced a new interior lighting development which consists of lattice-louvre sections that can form part or whole of a false ceiling, above which are fixed lighting fittings. With this arrangement, direct glare is eliminated from all normal positions and the diffused lighting has a very pleasant quality.

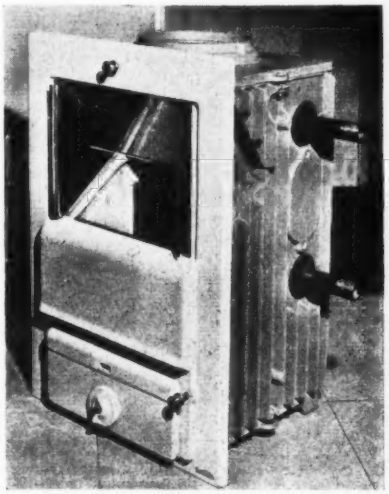
Crompton-Louvalite is supplied in 2-ft. 9-in. squares of light metal construction for fitting together to the dimensions required and can be cut to fit irregular alcoves or columns. Each section is supported on a simple structure and has an ingenious method of quick release which enables it to hinge down or to be removed completely without the use of tools. This arrangement provides for easy access to lighting fittings for cleaning and changing lamps. Alternative methods of fixing are available to suit different conditions. Fluorescent or filament lamp fittings are available from the Crompton range to provide for any particular quantity or quality of light required. *(Crompton-Parkinson Ltd., Crompton House, Aldwych, London, W.C.2.)*

EXHIBITS OF FLOORS

Yet another "Centre" (how many are there now?) has been opened; this one to deal with floorings. The sponsors are R. G. Dixon & Co., who are manufacturers of power-operated floor maintenance machinery. The display includes samples of floors by more than sixty different manufacturers, and includes examples of hardwood, cork, rubber, plaster, granolithic, terrazzo, linoleum, tiles, magnesite and various jointless floorings. A useful display, in which each example is large enough to give a reasonable idea of the appearance of a complete floor. *(The Flooring Centre, 17/19, Quadrant Arcade, Regent Street, London, W.1.)*



"Crompton-Louvalite." Top, part of false ceiling of lattice-louvre sections. Above, detail of access to fittings.



The Raymax Convector Fire (inset boiler model).

North Earlham Junior School, Norwich. Architect: Leonard G. Hannaford, F.R.I.B.A.

craftsman-laid with craftsman-made

SEMASTIC

DECORATIVE TILES

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When the bell goes in the North Earlham Junior School, this corridor presents a very different picture—a picture which provides a clue to some very good reasons for installing Semastic Decorative Tiles in schools. First, these tiles are made to stand up to the ceaseless hard wear and repeated hard knocks that only milling schoolchildren can apply and, second, they are safe for the youngsters to run and walk upon.

But if these are the most important merits of Semastic Decorative Tiles in this type of building, they are certainly not the only ones. For example, the tiles are outstandingly sympathetic to the tread, and easy to instal, to clean and to maintain.

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ISE/55

It is time we decided whether or not the housing shortage warrants the adoption of an emergency programme. Prof. Bowen suggests that a well-planned programme of temporary housing may be preferable to reducing the standard of permanent housing, but reminds us that temporary housing is not particularly economical.

HOUSING STANDARDS AND HOUSING COSTS

By Ian Bowen

Some years ago the body of an unfortunate young man was found burned in the cinders of a hay-rick situated twelve miles, by road, from his home. An announcement was made, the next day, that the police sought to establish that the youth could have walked from his house to the rick in the four hours which elapsed between his disappearance and the believed time of the fire. To do this, a police constable was detailed to make the same journey, adjusting his pace to 3 m.p.h. by means of a stop-watch. Since the road was known to be almost level, I have always thought that this experiment (if its purpose was correctly described) was singularly unnecessary. Yet similar reasoning to that of the chief constable concerned is sometimes found elsewhere.

If, as is usually conceded, small houses cost less to build than large ones, it would seem to be redundant to take elaborate steps to prove that this is so. Obviously, a house 25 per cent. smaller (say 750 sq. ft. in area, instead of 1,000 sq. ft.) will cost less to build, and the saving will depend, to some extent, on the amount of the reduction in size. But it is unlikely that this saving will be 25 per cent., and the proportion is not dependent on any special ingenuity in planning the house.

However, if bye-laws are disregarded and the Housing Manual forgotten, the proportion can be increased. With flexibility of standards almost an infinity of elegant solutions to the problem becomes possible, and the saving can be 26 per cent. or 28 per cent., according to taste.

This does not mean that efforts made to design new types of small houses are necessarily wasted; all the thought that can be devoted to this difficult subject is, or ought to be, welcomed by the housing authorities. But it is either naïve or disingenuous to suppose that new designs of small houses remove the necessity of choosing a housing policy.

WHY HOUSING STANDARDS ARE NEEDED

Few industries are as highly regulated, in respect of standards, as the building industry; few industries need to be. Standards are not laid down because an idle Government finds itself with no better sport available. They are laid down in response to public pressure of no uncertain nature. "Jerry-building" may have been the sin of a few black sheep, but the whole industry has suffered in consequence, in so far as bye-laws make it suffer.

Standards are embodied in bye-laws and in Government regulations and recommendations. They are diverse in origin, sometimes obsolete, and sometimes, no doubt, open to strong criticism. But each one of them has a history, and its amendment should be made only with extreme care. Insulation standards, for example, were adopted only after years of careful experiments; and even the notorious second w.c. was adopted as a result of expert medical opinion. All existing standards should be reviewed, but the review should be as careful and thorough as the original deliberations which led to the standards being adopted.

This is an economic as well as a social issue. The lowering of housing standards would, in the present state of the building industry (and of the local authorities' organization), lead to the risk of serious waste. Sub-standard housing may not prove to be cheap housing. If running costs as well as first costs are considered, and the period within which the houses have to be replaced (if "temporary" houses are indeed replaced within the specified period) is taken into account, the bargain, from a national point of view, may prove to be a very poor one.

SHOULD HOUSES BE SMALLER AND OF A LOWER STANDARD?

If this is considered as a permanent change in policy, the answer to this question must surely be, "no." Possibly the post-war standards of size are a little too generous. But British houses are famous for their size, if for very little else. The size, at least, enables the kitchen and the bathroom to have decent lighting and ventilation (a feature more difficult to achieve in smaller houses). And various ineptitudes of design which seem to afflict our tradition-bound houses are mitigated, to some extent, by their size. A permanent reduction in size would be a most retrogressive step.

As for lower standards, again, any permanent reduction would be disastrous. All the work of many decades would be overthrown. The abandonment of one standard would easily lead to the neglect of another.

A temporary reduction in size and standard is quite a different proposition. But what no one yet seems to have noticed is that this means a return to the assumptions that prompted the adoption of a temporary housing programme. The assumptions were that there was going to be an acute housing shortage over a number of years (at least two) and that there would also be, at the same time, a shortage of building labour and grave difficulties in obtaining certain materials. This situation, with slight variations, is repeating itself, and leading to the same arguments.

To meet the temporary problem a temporary house should have been designed. This, indeed, was the original idea, but it was lost sight of in the early days of the programme. On this occasion, *if* any standards are to go, let the *temporary* nature of the concession be fully understood from the start.

If, at any stage in rearmament, it becomes physically impossible to maintain present standards of housing, temporary measures of a radical kind should be considered. But whatever buildings are then erected, must be pulled down within the specified period. They should be *designed* to be replaced.

NEW DESIGNS AND NEW METHODS

New designs are, in principle, to be encouraged, and the designers should have two points constantly in their minds: firstly, the economic purposes which the design is meant to serve and, secondly, the new methods of construction that are available. The first point deserves much more attention than is usually given to it—to aim merely at a "cheaper house" during the first stages of rearmament is to ignore the real economic problems that will arise. New methods are not yet properly understood, owing to the absence of any proper full-scale official investigation into their economic possibilities. And, for many reasons, the experiences of the temporary and permanent non-traditional housing programmes have not been adequate to reveal which are the technically possible and economically possible methods.

The main economic problem may vary from time to time, as different bottlenecks once more reassert themselves. Coal and timber may again become very difficult to obtain. But whatever the problem alternative designs *should* be possible, and they may imply the use of "non-traditional" methods.

THE INTERIM PERIOD

Nothing very drastic seems likely to happen to the housing programme during the next 12 months, but the £120 million Government building programme, referred to recently by Mr. Gaitskell, suggests that the respite may not endure much longer than that. If, as is likely, the rearmament programme is increased in 1952, the need may arise, quite suddenly, to reconsider the priority of housing in relation to other building work.

Meanwhile, wages and the cost of materials have risen, and may rise again, and interest rates are also tending to increase. The cost of building houses will, however it is measured, become higher than ever. The need to have some sound scheme of meeting a temporary crisis, of one or two years' duration, seems, unfortunately, to be foreshadowed; and it is not too soon to prepare for that need.

Announcements

An exhibition of hand-made textiles now open at the Crafts Centre of Great Britain, 16, Hay Hill, Mayfair, W.1, is designed to show that hand-made fabrics compare favourably in their variation of pattern, colour and texture, with the machine-made. The exhibition has been organized to show that individual weavers and printers of fabrics have a wide range of uses in fashion and in furnishing. Over seventy exhibitors have sent articles for display. Traditional motifs and patterns are sometimes used, but old techniques are given a new application. Decorative panels by Michael O'Connell of Much Hadham, for instance, are given a tapesty effect by means of a secret Asiatic treatment. Many textile craftsmen use natural dyes prepared by themselves from vegetables, plants and even flowers—one particularly beautiful red is made from fuchsia.

Taylor Woodrow (Building Exports) Ltd., in conjunction with the Arcon Group, have concluded initial negotiations with the Housing Commission of New South Wales, Australia, for the manufacture, shipment and erection of 5,000 houses. Announcing this recently, Mr. Frank Taylor, chairman of Taylor Woodrow Ltd., building and civil engineering contractors, said he estimated the contract will be worth more than £10 million. "The houses," he said "will be single storey, light steel-framed, with timber floors, ceilings, walls and partitions, all of which will be fabricated in Great Britain. They have been designed in conjunction with the architects of the Housing Commission of New South Wales, and provide for the use of a wide range of different materials to suit local needs. Three thousand houses will have three bedrooms and the remainder two bedrooms. Two prototype houses are to be erected at our place at Southall by July for inspection and acceptance by the New South Wales Government. Mass production of components will begin in September and shipping will start in January, 1952, in time for erection to begin in April."

Sealocrete Products Ltd., who have had their registered offices and works at Atlantic Works, Macbeth Street, W.6, for many years, have moved their entire works and offices to extensive premises at Atlantic Works, Hythe Road, London, N.W.10. Their new telephone number will be Ladbroke 0015-6-7; their telegraphic and cable address will remain as before, namely, "Exploiture, London." The new buildings occupy an area of over a quarter of a million cubic feet and will enable Sealocrete Products to increase production to over four times the present capacity and to expand their already wide range of manufactures.

C. Edmund Wilford, A.R.I.B.A., has changed his London address to 2, Green Street, Mayfair, W.1.

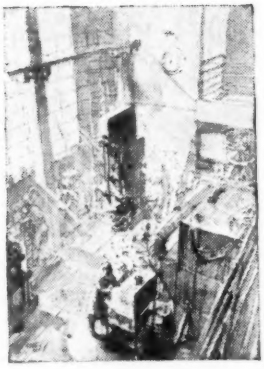
The first passenger coaches built to the new standard design by British Railways were on view to the public in London last week. Coaches of this type will shortly be seen on main line routes where they are to form Festival of Britain trains, and, with the introduction of the summer service, they will be used in many of the holiday expresses. The principal features of the new coaches are:—Standard dimensions which will allow them to be run on all the principal lines throughout British Railways; all-steel construction and new design of underframe, together giving increased strength over existing vehicles; use of automatic couplers for improving safety to passengers and staff. Double bolster bogies to give better riding. Twelve different types of main line coaches are to be built this year; they include first and third class corridor coaches; open saloons with centre gangways; restaurant cars; kitchen cars and luggage vans. The wide range of routes on which these coaches can be used will permit their maximum use in meeting seasonal or sudden traffic demands or emergencies in any of the six Regions of British Railways. Upholstery in the new coaches will be of figured moquette of nine different patterns, while 14 different veneers will be used for interior decoration. Seats in the compartments of corridor coaches will normally be arranged for three-a-side. Luggage compartments will be partitioned off from the corridors and under the guard's observation. The guard's compartment will be equipped with a desk and cupboard unit, a food warmer, steam heater, and padded swivel seat from which by means of a periscope he will be able to see signals and other land marks in either direction. Anthracite and electricity will be used for cooking on the kitchen cars, which will be the largest ever put into service on British Railways.

Buildings Illustrated

Factory Extension for Vauxhall Motors (New Engine Assembly Building) at Luton, Beds. (Pages 368-373.) Architects: Howard, Souster & Partners. Architect in Charge: R. R. Fairbairn, A.R.I.B.A. Assistant Architects: F. C. Newton, A.R.I.B.A., J. R. Ford and D. R. Rich. General Contractors: George Wimpey & Co. Ltd. Subcontractors: Excavation, foundations, reinforced concrete, joinery, George Wimpey & Co. Ltd.; dampcourses and asphalte, Ragusa Asphalte Paving Co. Ltd.; bricks, London Brick Co. Ltd.; stone for carved panel, Fenning & Co. Ltd.; artificial stone, Empire Stone Co. Ltd.; steelwork, Redpath Brown & Co. Ltd.; steel flooring, Ipscol Ltd.; special roofing, (steel deck) and roofing felt, The Ruberoid Co. Ltd.; partitions, furniture, Sankey Sheldon Ltd.; glass, W. R. Froy & Sons Ltd.; patent glazing, Mellowes & Co. Ltd., and Paragon Glazing Co. Ltd.; wood block flooring, The Philip Flooring Co. Ltd.; patent flooring, granolithic, Johnson Floor Co. Ltd.; central heating, low pressure (in office block), Rosser & Russell Ltd., high pressure, C. D. Stone, boilers, La Mont Steam Generator Ltd.; electric wiring, Hancock (1939) Ltd.; electric light fixtures, fluorescent, British Thomson-Houston Co. Ltd., external lighting, General Electric Co. Ltd., bus bars, Holliday Hall & Stinson Ltd.; ventilation, C. D. Stone; plumbing, Matthew, Hall & Co. Ltd.; sanitary fittings, John Bolding & Sons Ltd.; stairtreads, Brookes Ltd.; door furniture, Yannedis & Co. Ltd.; casements, W. James & Co. Ltd.; folding gates, A. J. Binns, Ltd.; roller shutters, Mather & Platt Ltd.; iron staircases, S. W. Farmer & Sons, Ltd.; paint manufacturers, R. Gay & Co. Ltd.; painting, J. & B. Abbott (Contractors) Ltd.; metalwork, Kingsmill Metal Co. Ltd.; tiling, Carter & Co. London Ltd.; hydraulic goods lift, Aldous & Campbell Ltd.; blinds, J. Avery & Co.

Correction

The following errors and omissions occurred in a news note on the FOB designers, published on February 1:—The "Power and Production" building was described as "Power and Industry." Its designer is Warnett (not Warner) Kennedy. Reece Pemberton is a sub-section designer to Mr. Kennedy and is not associated with "Sea and Ships," as was implied. W. M. de Majo is a co-ordinating (not chief) designer for the "Ulster Farm and Factory." R. C. Carvell, who was not included in the list, has designed the exhibition of twentieth century Scottish books, to be held in the Mitchell Library, Glasgow, and the exhibition of eighteenth century Scottish books, to be held in the Signet Library, Edinburgh.



This view of the Mechanical Test Laboratory at Reliance Works, Chester was drawn by Will Nickless for Williams and Williams Ltd.

Do you ask awkward questions about metal windows before you specify them? "Have these sections been tested?" or "How was the breaking strain of your frame-welding tested?" If you do ask such pertinent questions, Williams and Williams can answer them. For the staff of the Mechanical Test Laboratory at the Reliance Works, Chester, are there to guard both the client's interest and the firm's reputation in precisely such matters. They are well equipped and possess, as the artist's drawing shows, a machine (right) for carrying out tests under wind pressure. Architects who specify Williams and Williams windows can rely on the scientific integrity of the men in the Mechanical Test Laboratory.

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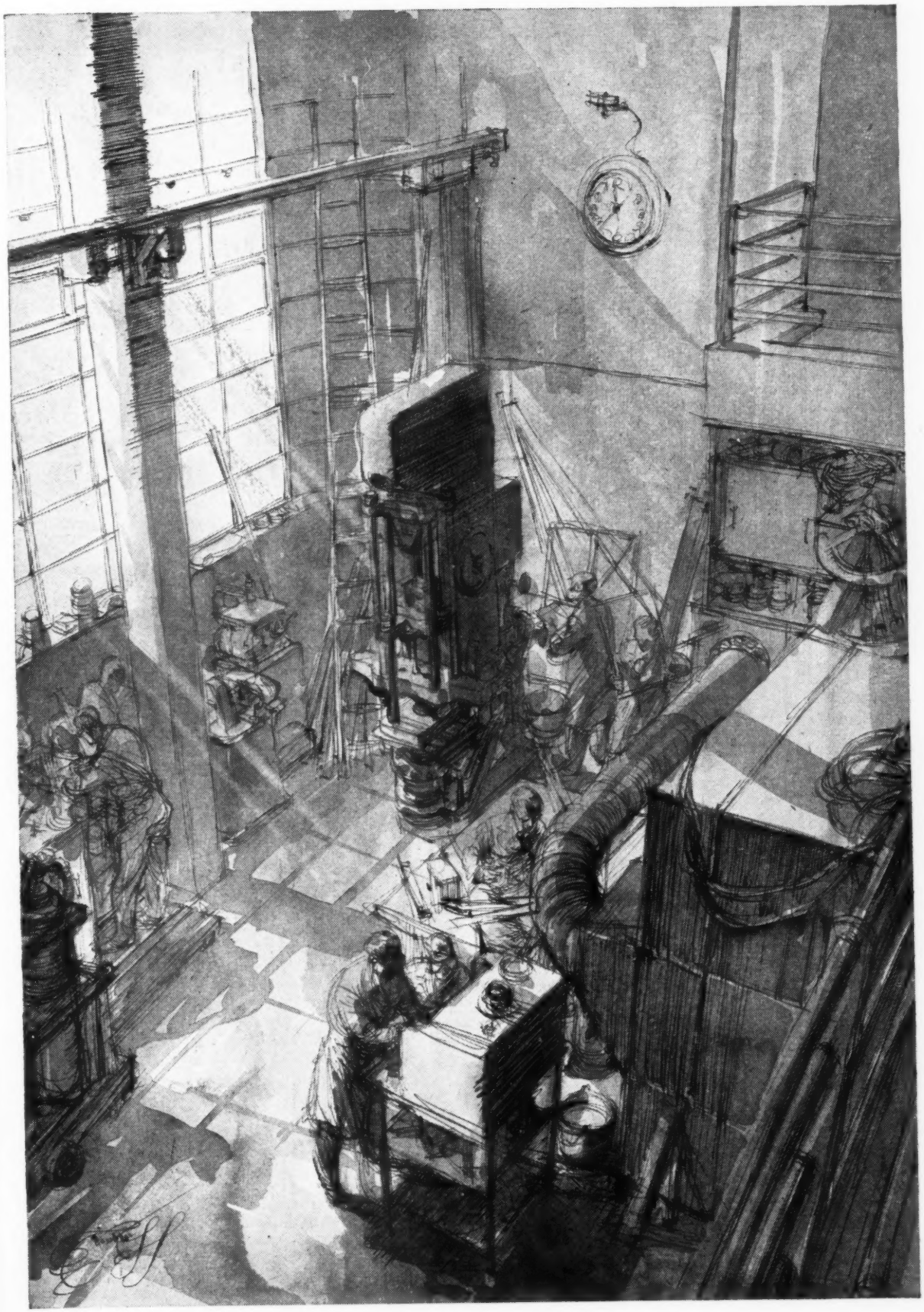

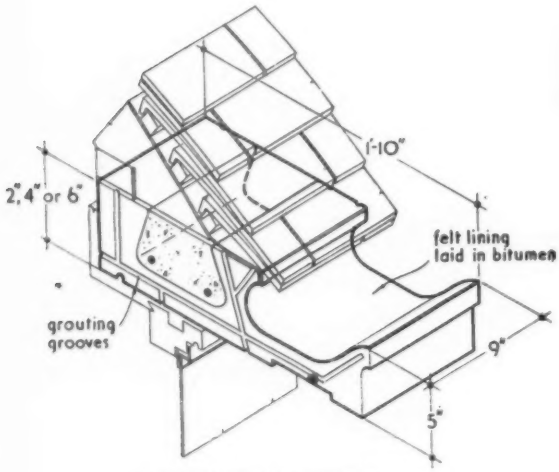

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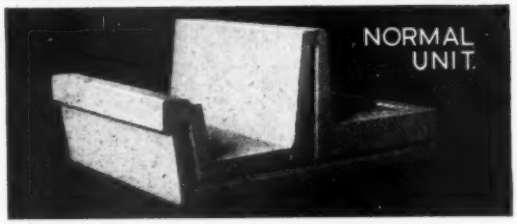

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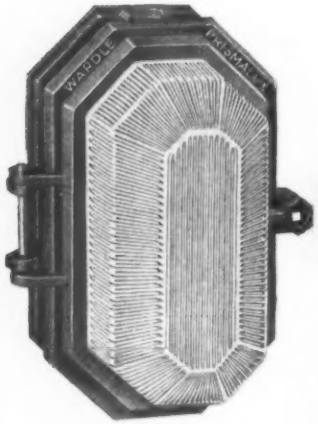

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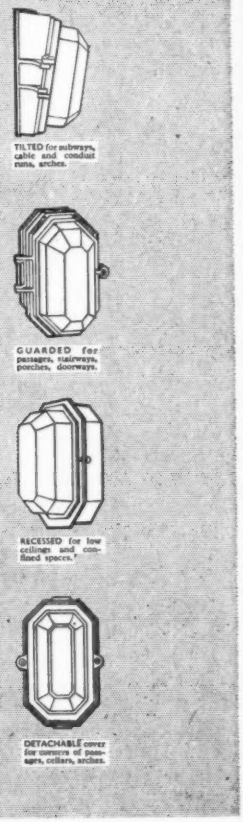

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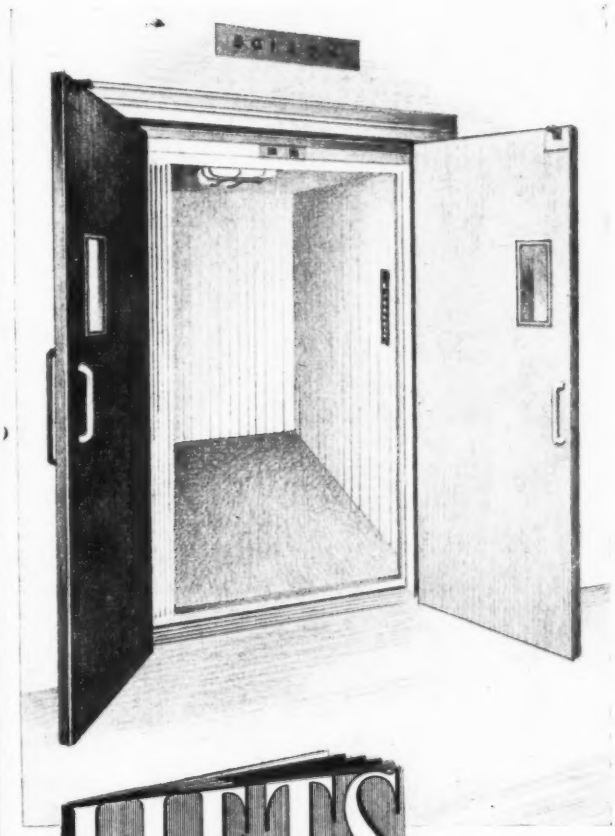

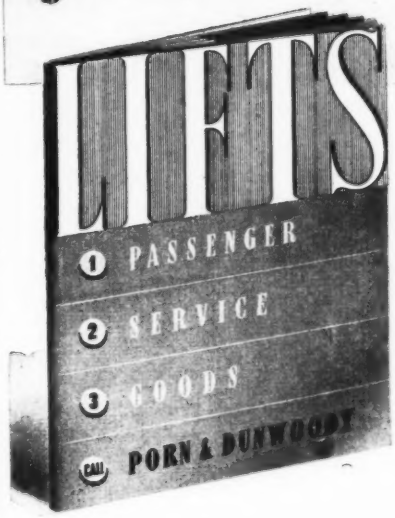

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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

25s. per inch; each additional line, 2s.

NORTH THAMES GAS BOARD.

Applications are invited for the following appointment in the Architects' Section of the Chief Engineer's Department of Westminster: SENIOR ARCHITECTURAL ASSISTANT, minimum starting salary £650 per annum.

Applicants, who must be Registered Architects and should be studying for or have passed the Final Examination of the R.I.B.A., should be capable of preparing working and detailed drawings and specifications, and supervising and controlling the work on contracts. Experience in design and planning of industrial buildings would be an advantage.

The appointment is of a permanent nature, and pension arrangements will be discussed with short list candidates.

Applications, stating age, qualifications, and particulars of previous appointments held, must be submitted to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, London, W.8, quoting reference 9757 4341

LONDON COUNTY COUNCIL.

Applications are invited for positions of ARCHITECTURAL ASSISTANT salaries up to £680 a year) in the Housing and Valuation Department. Commencing salaries will be determined according to qualifications and experience. Engagement will be subject to the Local Government Superannuation Acts, and successful candidates will be eligible for consideration for appointment to the permanent staff on the occurrence of vacancies.

Successful candidates will be required to assist in the design, layout and preparation of working drawings for housing schemes (cottages and multi-storey flats), and will be employed in the Housing Architect's Division.

Forms of application may be obtained from the Director of Housing, The County Hall, Westminster Bridge, S.E.1 (stamped addressed envelope required and quote reference A.A.1). Canvassing disqualifies. (816) 4558

CITY AND COUNTY OF THE CITY OF EXETER.

Applications are invited for the following appointments on the Staff of the City Architect's Department:—

(*a*) HEATING ENGINEERING ASSISTANT (Permanent Staff). A.P.T., Grades III/IV (£450-£525).

(*b*) QUANTITY SURVEYORS' ASSISTANT (Temporary Staff). A.P.T., Grades I/II (£390-£465).

Forms of Application and further particulars and conditions of appointment may be obtained from H. B. Rowe, F.R.I.B.A., A.M.I.Struct.E., City Architect, Municipal Offices, Exeter. Completed forms must be received by him not later than 7th April, 1951.

C. J. NEWMAN,
Town Clerk.

Exeter.
March, 1951. 2113

COUNTY BOROUGH OF HALIFAX.
BOROUGH ENGINEER'S DEPARTMENT.

Applications are invited for the following appointments:—

ARCHITECTURAL AND QUANTITY SURVEYING:

CHIEF ARCHITECTURAL ASSISTANT. Salary A.P.T., VII (£635-£710).

QUANTITY SURVEYOR. Salary A.P.T., VII (£635-£710).

ARCHITECTURAL ASSISTANT (General). Salary A.P.T., V (£520-£570).

ARCHITECTURAL ASSISTANT (Schools). Salary A.P.T., III (£450-£495).

ARCHITECTURAL ASSISTANT (General). Salary Misc. III (£315-£375).

HEATING AND VENTILATING ASSISTANT. Salary A.P.T., IV (£480-£525).

TOWN PLANNING:

DEPUTY PLANNING OFFICER. Salary A.P.T., VI (£595-£660).

PLANNING ASSISTANT. Salary A.P.T., V (£520-£570).

ENGINEERING:

GRADUATE ASSISTANT. Salary A.P.T., I (£390-£435).

Candidates should possess appropriate technical qualifications, and will be required to pass a medical examination. The appointments will be subject to the conditions of service adopted by the Corporation and to the Local Government Superannuation Act, 1937.

Candidates must disclose whether to their knowledge they are related to any member of, or the holder of any senior office under, the Council.

Applications, stating age, qualifications, present position, salary and experience, accompanied by copies of three recent testimonials, should be appropriately endorsed and delivered to the undersigned not later than Saturday, 7th April, 1951.

RICHARD DE Z. HALL,
Town Clerk.

Town Hall, Halifax.
10th March, 1951. 2152

LINDSEY COUNTY COUNCIL.
PLANNING DEPARTMENT.

SENIOR PLANNING ASSISTANT (ARCHITECTURAL) wanted on Grade A.P.T., VII (£635×£25—£710). Duties mainly in connection with preparation of development plan. A.R.I.B.A. qualification essential. Planning experience also preferred. Person appointed must provide and maintain car, for which normal allowance payable.

Allowance of 25s. per week and return fare home bi-monthly may be paid for up to 6 months to married man unable to find house.

Applications, stating age, qualifications and previous experience, together with one testimonial and the names and addresses of two referees, must be forwarded to Mr. R. L. Stirling, County Planning Officer, The Castle, Lincoln, not later than 31st March, 1951.

Candidates must disclose, in writing, whether to their knowledge they are related to any member or senior officer of the Council. Canvassing, directly or indirectly, will disqualify.

H. COPLAND,
Clerk of the County Council.

County Offices, Newland, Lincoln.
2nd March, 1951. 2068

BOROUGH OF TAUNTON.

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

(*a*) SENIOR ASSISTANT QUANTITY SURVEYOR (A.P.T., Grade Va). Salary £550, rising by annual increments to £610 p.a.

(*b*) SENIOR ASSISTANT ARCHITECT (A.P.T., Grade V). Salary £520, rising by annual increments to £570 p.a.

Applicants for appointment (*a*) should be fully qualified surveyors, having had experience in Municipal Housing Contracts.

Applicants for (*b*) should be fully qualified Architects, having had experience in the design and construction of Municipal Housing Estates.

The Council have adopted the National Scheme of Conditions of Service, and the appointments will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Act, 1937. The successful candidates will be required to pass a medical examination.

Consideration will be given to housing accommodation if required.

Applications, stating age, qualifications, previous experience and the earliest date when available, together with copies of two recent testimonials, should be sent to C. Bacon, F.R.I.B.A., Borough Housing Architect, No. 2, Baldwin Road, Taunton, to reach not later than Monday, 2nd April, 1951.

L. ATWELL,
Town Clerk.

Municipal Buildings, Taunton.
1st March, 1951. 2092

BOROUGH OF HESTON AND ISLEWORTH.
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the permanent appointment of a Senior Architectural Assistant in the Department of the Borough Engineer and Surveyor (salary in accordance with A.P.T., VII, £635×£25—£710 per annum, plus London weighting of £30 per annum).

Other things being equal, preference will be given to applicants who have passed the examination for the Associateship R.I.B.A., or hold a university degree or diploma in architecture accepted by that Institution.

The person appointed must have had good experience in architectural design and building work under construction. Duties will include preparation of sketch designs, working drawings, and the handling of building contracts under construction. Experience in housing and multi-storeyed flats will be considered to be an advantage.

The Council is unable to assist the successful candidate with housing accommodation.

Applications on forms to be obtained from the Borough Engineer and Surveyor, 88, Lampton Road, Hounslow, must be returned to him not later than noon on 2nd April, 1951, endorsed "Senior Architectural Assistant."

HAROLD SWANN,
Town Clerk.
2089

BOROUGH OF EALING.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the permanent appointment of an ARCHITECTURAL ASSISTANT, in accordance with Grade VI of the A.P.T. Division of the National Joint Council's Scales, at a salary commencing at £595 per annum, and rising by annual increments to £660 per annum, plus £30 London weighting.

Applicants must either be Associate Members of the Royal Institute of British Architects or possess a recognised equivalent qualification. Preference will be given to candidates with Municipal experience.

The Council are unable to provide housing accommodation for the successful candidate.

Forms of application, together with conditions of appointment, may be obtained from the Borough Engineer and Surveyor, Town Hall, Ealing, W.5, and must be returned to me not later than the 2nd April, 1951.

E. J. COPE-BROWN,
Town Clerk.

Town Hall, Ealing, W.5.
9th March, 1951. 2131

THURROCK URBAN DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT, GRADE IV.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT, at a salary in accordance with Grade IV of the A.P.T. Division of the National Scale of Salaries, i.e., £480 p.a., rising by three annual increments of £15 to £525 p.a.

General architectural experience is necessary, and applicants must be capable of preparing detailed plans and specifications and supervising housing schemes.

Candidates should have passed the Intermediate Examination of the Royal Institute of British Architects.

Housing accommodation, if necessary, may be provided for the successful candidate if he lives more than 20 miles from the Thurrock Urban District.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination.

Applications, endorsed "Architectural Assistant, IV," stating age, qualifications and experiance, and quoting three references, should reach the undersigned not later than first post on Monday, 2nd April, 1951.

Canvassing will disqualify, and applicants must disclose in writing any relationship to any member or senior officer of the Council.

A. E. POOLE,
Clerk of the Council.

Council Offices, Whitehall Lane,
Grays, Essex. 2151

NORTHUMBERLAND COUNTY COUNCIL.
SMALLHOLDINGS DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment at a salary in accordance with Grade IV (A.P.T.) of the National Joint Council's Scale of Salaries (£480-£525 per annum).

Applicants should be accurate draughtsmen and have been trained in an appropriate professional office. They must have an adequate experience of building construction, and preference will be given to those with a knowledge of farm buildings and rural houses.

The appointment will be subject to the National Scheme of Conditions of Service, to the provisions of the Local Government Superannuation Act, 1937, and to the successful candidate passing a medical examination

Applications, on forms to be obtained from the undersigned, must be submitted not later than the 6th April, 1951.

E. P. HARVEY,
Clerk of the County Council.

County Hall, Newcastle-upon-Tyne, 1. 2160

OXFORD REGIONAL HOSPITAL BOARD.

Applications are invited for the post of ASSISTANT ARCHITECT, scale £800×£25—£900 per annum. They should have had a wide experience in planning and construction and in the preparation of working drawings. It is essential that they should have had experience in all types of hospital planning. The post will be permanent and subject to deduction for superannuation under the National Health Service Scheme.

Candidates must be Registered Architects and have passed the Final Examination of the Royal Institute of British Architects.

Applications, stating age, qualifications, experience and present appointment, with the names of two referees, should reach the Secretary of the Board, 43, Banbury Road, Oxford, not later than 14th April, 1951. 2104

WYCOMBE RURAL DISTRICT COUNCIL.
QUANTITY SURVEYOR.

Applications are invited for the appointment of Quantity Surveyor in the Architect's Department of the above Council.

Candidates must be competent to undertake the preparation of Bill of Quantities and Specifications, interim valuations for payment, measurement of variations and settlement of final accounts, chiefly in connection with housing schemes, including road and sewerage works.

The salary will be in accordance with the National Joint Council's Salary Scales, according to qualifications and experience, *viz.*:—

A.P.T., Grade III (£450-£495). Candidates who have passed the Intermediate or equivalent examination of the appropriate professional body.

A.P.T., Grade IV (£480-£525). Candidates who have passed the Intermediate or equivalent examination of the appropriate professional body and have had two or more years' practical experience.

A.P.T., Grade V (£520-£570). Candidates who have passed the Final Examination of the appropriate professional body and have had at least five years' practical experience.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and will be terminable by one month's notice on either side.

Travelling expenses will be paid on a mileage basis in accordance with the Council's scale.

Housing accommodation will be provided if necessary.

Applications, endorsed "Quantity Surveyor," stating age, qualifications and experience, accompanied by copies of two testimonials, should be sent to reach the undersigned by the 31st March, 1951.

Canvassing, directly or indirectly, will disqualify.

J. AUTON,
Clerk to the Council.

17, High Street, High Wycombe.
14th March, 1951. 2148

COUNTY OF LINCOLN—PARTS OF HOLLAND.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the appointment of a PLANNING ASSISTANT, in the Boston Office of the above Department, at a salary in accordance with A.P.T., Grade I, of the National Scale of Salaries (£390-£435 per annum).

Candidates should preferably have had previous experience in the office of a local planning authority and should be neat and expeditious draughtsmen. Intermediate Examination standard of the Town Planning Institute or other technical qualification will be an advantage.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate must pass a medical examination.

Applications, stating age, education, experience, present position and salary, together with the names of two referees, should reach the County Planning Officer at 21, Haven Bank, Boston, within 14 days from the appearance of this advertisement.

H. C. MARRIS,
Clerk of the Holland County Council.
County Hall, Boston, Lincs. 2128

BOROUGH OF CHATHAM.
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT.

Applications are invited for the appointment of Chief Assistant Architect, within Grade VII (£635-£710).

Housing accommodation will be made available if required.

Conditions of appointment and form of application may be obtained from Mr. H. D. Peake, M.Sc.(Eng.), Borough Engineer and Surveyor, Town Hall, Chatham, to whom completed application forms should be returned not later than Friday, 6th April, 1951. 2112

THE IMPERIAL WAR GRAVES COMMISSION invite applications from suitably qualified candidates for the post of ASSISTANT to Engineer, United Kingdom.

Candidates must have had general engineering experience, a good education and technical training, and should preferably possess engineering qualifications and be ex-Service. Experience with a Government or Local Authority or well established firm is desirable, including drawing and general office administration and supervision of high-class architectural construction in natural stone. The man appointed will be stationed at Wooburn House, but may be required to visit all parts of the United Kingdom from time to time. Salary scale £470×£20—£595 per annum.

Applications should be addressed to the Appointments Officer, Imperial War Graves Commission, Wooburn House, Wooburn Green, High Wycombe, Bucks. 2139

SOMERSET COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.
SENIOR PLANNING ASSISTANT.

Applications are invited for the above appointment in the Headquarters Office, Taunton, at a salary in accordance with A.P.T., Grade VIII (£685×£25 to £760).

Applicants must be Members or Associate Members of the Town Planning Institute, and must be capable of supervising the work of the Survey and Development Plan Section of the Department. The successful applicant will be required to provide a car for official journeys, for which an appropriate allowance will be paid.

The appointment is subject to the Local Government Superannuation Act, 1937, and forms of application obtainable from the undersigned should be completed and returned by 9th April, 1951.

R. W. DALE,
County Planning Officer.
41, Upper High Street, Taunton. 2150

FLINTSHIRE COUNTY COUNCIL.

Applications are invited for the appointment of a PLANNING ASSISTANT, in the County Planning Department, at a salary in accordance with Grade A.P.T., IV (£480 per annum, rising to £525 per annum). Applicants must have had good experience in Town and Country Planning, and particularly in the preparation of Development Plans, and should have passed at least the Intermediate Examination of the Town Planning Institute. The possession of a motor car would be an advantage in connection with the appointment, in respect of which appropriate mileage allowance will be paid in accordance with the National Joint Council's Scales. Applications, on a form to be obtained from the undersigned, are to be returned not later than the 4th April, 1951.

W. HUGH JONES,
Clerk of the County Council.
County Buildings, Mold. 2130

METROPOLITAN BOROUGH OF POPLAR.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited from suitably qualified persons for the under-mentioned established post:—

ARCHITECTURAL ASSISTANT (Grade A.P.T., IV, £480-£525).

Commencing salary £480 per annum, rising to £525 per annum, plus £10 to £30 "weighting," according to age.

Full details of the appointment and forms of application may be obtained from the Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3, to whom completed applications must be delivered not later than first post on Monday, 2nd April, 1951.

Poplar Town Hall, Bow Road, E.3.
9th March, 1951. 2154

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

Applications are invited for the undermentioned appointments to deal with:—

(*a*) a large programme of normal Housing; and
(*b*) the provision of some 3,000 to 3,500 Multi-storied Flats to form a new Neighbourhood Unit, to be undertaken by a new Sub-section to be established in the Department.

Appointments under (a):

ONE PRINCIPAL ASSISTANT ARCHITECT. A.P.T., IX, £750-£900.
TWO SENIOR ASSISTANT ARCHITECTS. A.P.T., VII, £635-£710.
ONE SENIOR ASSISTANT ARCHITECT. A.P.T., VI, £595-£660.
ONE SENIOR ASSISTANT ARCHITECT. A.P.T., V, £520-£570.
ONE ASSISTANT ARCHITECT. A.P.T., III, £450-£495.

Appointments under (b):

ONE PRINCIPAL ASSISTANT ARCHITECT. A.P.T., IX, £750-£900.
ONE SENIOR ASSISTANT ARCHITECT. A.P.T., VIII, £685-£760.
TWO SENIOR ASSISTANT ARCHITECTS. A.P.T. VII, £635-£710.
TWO SENIOR ASSISTANT ARCHITECTS. A.P.T., VI, £595-£660.
ONE ASSISTANT ARCHITECT. A.P.T., IV, £480-£525.
ONE ASSISTANT ARCHITECT. A.P.T., III, £450-£495.

Applicants for all appointments in Grades VI to IX should be Associates of the R.I.B.A., and those for appointments in Grades VIII and IX of the new Sub-section, must have had considerable experience in the design and construction of large blocks of flats, and be able to act in an administrative capacity. Applicants for the post in Grade IX, table (*a*), must have had extensive experience in Housing, both in design and administration.

The appointments will be subject to the National Conditions of Service as adopted by the City Council, to the provisions of the Local Government Superannuation Act, 1937, and to one month's notice on either side. The successful candidates will be required to pass a medical examination.

Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials and the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle-upon-Tyne, 1, not later than the 14th April, 1951.

JOHN ATKINSON,
Town Clerk.
Town Hall, Newcastle-upon-Tyne, 1.
14th March, 1951. 2161

WOMAN TRACER. The Prison Commissioners invite applications for one post in their drawing office in London.

Candidates must be at least 16 years of age and not more than 25. Preference will be given to those between the ages of 20 and 25. A good knowledge of tracing essential.

Pay 52s. per week at age 16, rising to 87s. per week at age 25, then annually by 3s. to 96s. per week. Entry to pensionable post considered after one year's service.

Paid annual leave of 12 working days for those under 18 years old and 18 days for others.

Application form from the Establishment Officer (E.126/2/6), Prison Commission, Horseferry House, Dean Ryle Street, S.W.1, to be returned by 6th April, 1951. 2149

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECT, Grade VI, at a commencing salary of £595 per annum, rising by annual increments of £20/£25 to a maximum of £660 per annum, plus London allowance of up to £30 per annum, according to age.

Applicants must be Associate Members of the Royal Institute of British Architects, and should have had a good training and an adequate experience in the design and construction of modern buildings.

(*b*) ARCHITECTURAL ASSISTANT, Grade IV, at a commencing salary of £480 per annum, rising by annual increments of £15 to a maximum of £525 per annum, plus London allowance of up to £30, according to age.

Applicants must be of good general training and give full details in their applications, and preference will be given to applicants who have passed the Intermediate Examination of the Royal Institute of British Architects.

The appointments will be subject to the provisions of the Local Government Act, 1937, and the successful applicants will be required to pass a medical examination.

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to the County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than the 31st March, 1951.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

The Council will be unable to provide any housing accommodation, and the successful applicants will be expected to make their own arrangements in this direction.

T. W. W. GOODERIDGE,
Clerk of the Council.
County Hall, Kingston-upon-Thames. 2127

STAFFORDSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL STAFF.

Applications are invited for the above, from experienced and capable ARCHITECTURAL ASSISTANTS, at salaries within Grades V to IX of the National Scales (commencing salary between £520 and £750 per annum, according to grading), plus a temporary lodging allowance in appropriate circumstances. Applications, giving full details of experience, qualifications, age, etc., together with copies of three recent testimonials, should be forwarded as soon as possible to the County Architect, Martin Street, Stafford.

T. H. EVANS,
Clerk of the County Council.
County Buildings, Stafford.
5th March, 1951. 2117

COUNTY BOROUGH OF GREAT YARMOUTH.
APPOINTMENT OF CLERK OF WORKS.

Applications are invited for the appointment of Clerk of Works, to act under the direction of the Borough Engineer in the supervision of the erection of six-storey flats.

Applicants should have a thorough knowledge of the building trade, the erection of multi-storeyed flats, of steel-frame building and pile foundations. Membership of the Incorporated Clerk of Works Association of Great Britain would be an advantage. The salary will be £12 per week.

Applications, stating age, qualifications and previous experience together with the names of three persons to whom reference may be made, should be enclosed in an envelope, endorsed "Clerk of Works," and must be received by me not later than Thursday, 29th March, 1951.

Canvassing, directly or indirectly, will be deemed a disqualification; and candidates must disclose in writing whether to their knowledge they are related to any member or holder of any senior office under the Council. Candidates who fail to do so will be disqualified and, if appointed, will be liable to dismissal without notice.

FARRA CONWAY,
Town Clerk.
Town Hall, Great Yarmouth.
10th March, 1951. 2125

WORSLEY URBAN DISTRICT COUNCIL.
APPOINTMENT OF QUANTITY SURVEYOR.

Applications are invited for the above position in the Engineer and Surveyor's Department.

The salary will be in accordance with Grade VI (£595 to £660 per annum), and should the successful candidate be married the Council would, if necessary, assist in providing housing accommodation.

Applicants must be Associates of the R.I.C.S. (Quantities Section), and have had considerable experience in the taking-off and preparation of Bills of Quantities in connection with houses, shops, etc., and the measuring up and checking up of accounts for such work.

The Council has in preparation, and under construction, large scale Neighbourhood Units which will total 4,000 to 5,000 houses and other buildings, and good experience is offered in the post of Quantity Surveyor.

The post is nominally temporary, but the present programme of work is expected to take at least 7 years to complete without any additions thereto.

The post is subject to the Superannuation Acts, and the applicant must satisfactorily pass a medical examination therefor. One month's notice will be given or required to determine the appointment at any time.

Applications, endorsed "Quantity Surveyor," should be sent to the undersigned on or before the 30th March, 1951.

HAROLD LOMAX,
Clerk of the Council.
Town Hall, Walkden, Manchester.
9th March, 1951. 2129

PROFESSIONAL POSTS IN GOVERNMENT DEPARTMENTS.

The Civil Service Commissioners invite applications for permanent appointments to the basic (Assistant) grade of ARCHITECT, MAINTENANCE SURVEYOR, QUANTITY SURVEYOR, ESTATE SURVEYOR, CIVIL ENGINEER, SANITARY ENGINEER, STRUCTURAL ENGINEER, LANDS OFFICER, in a number of Departments in England and Scotland. Applications will be accepted at any time up to and including 31st December, 1951. Selected candidates will be interviewed as soon as possible after the receipt of their application forms. Successful candidates may expect early appointments. Candidates are advised to apply as early as possible.

All candidates must be at least 25 and under 35 years of age on 1st January, 1951, with extension for regular service in H.M. Forces, and up to two years for permanent Civil Servants. All candidates must have the appropriate professional qualifications and experience.

The London salary scale for men aged 30 and over is £600×£25—£750. Lower starting salary for younger entrants (from £475 at age 25).

(The next higher grades are:—Main Grade, £750×£25—£1,000; Senior Grade, £1,050×£35—£1,270.)

Salaries for women and for officers appointed to the provinces will be somewhat lower.

Forms of application and copies of the regulations, with full details of qualifications required, from the Civil Service Commission, Scientific Branch, Trinidad House, Old Burlington Street, London, W.1, quoting No. 3405TA.

Completed application forms should be returned as soon as possible. 2126

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for positions of ARCHITECT, Grade III (£550-£700), and TECHNICAL ASSISTANT (up to £580) for work on new housing, schools, and other public buildings. The positions are superannuable. Candidates for Grade III positions should possess professional qualifications. Application forms from the Architect (AR/P/S), The County Hall, Westminster Bridge, S.E.1, enclosing stamped addressed foolscap envelope. Canvassing disqualifies. (384) 3914

NORTH RIDING COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment on the permanent staff of an ASSISTANT ARCHITECT, A.P.T., Grades IV and V (£480-£570).

Appointment subject to the provisions of the Local Government Superannuation Act, 1937; to a satisfactory medical examination, and two months' notice in writing on either side.

Forms of application are not being issued, but further information may be obtained from the County Architect, County Hall, Northallerton. Applications, stating age, qualifications and experience, together with particulars of present and previous appointments and the names and addresses of three persons to whom reference can be made, must be delivered to the undersigned not later than the 2nd April, 1951.

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

H. G. THORNLEY,
Clerk of the County Council.

County Hall, Northallerton. 2153

Tenders for Contracts

6 lines or under, 12s. 6d.: each additional line, 2s.

COUNTY BOROUGH OF BURNLEY.
EDUCATION COMMITTEE.
ST. ANDREWS C. OF E. JUNIOR SCHOOL.

Tenders are invited on behalf of the Managers of the St. Andrews C. of E. Junior School for work in connection with the minor alterations and improvements and repairs required at the School in Colne Road, and Briercliffe Road, Burnley.

Forms of Tender, together with Bills of Quantities and Specification, may be obtained on application to the Architects, Messrs. Leach Rhodes & Walker, 15, Manchester New Road, Middleton, Lancs., or at Cathedral Close, Blackburn, on payment of a deposit of one guinea, which will be returned on receipt of a *bona fide* tender and the return of all documents.

Tender documents will be dispatched on or about 27th March, and should be returned to the Town Clerk, Burnley, in the envelope provided not later than noon on Tuesday, 10th April.

Drawings may be inspected at the office of the Architects either at Middleton or at Blackburn, during the normal office hours, and also at the Borough Engineer and Surveyor's Office, Burnley.

C. V. THORNLEY,
Town Clerk.
2124

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

ARCHITECTURAL ASSISTANT required by Gollins, Melvin & Partners. Capable working drawings. Salary £350-£550. Office experience essential. Five-day week. Telephone Museum 0883 for appointment. 2021

REQUIRED, at Company's head office, Guildford, ARCHITECTURAL ASSISTANT, R.I.B.A. Intermediate standard. Varied work, mainly factory. Five-day week. Salary by arrangement. Box 2045.

SCHERRER & HICKS, 19, Cavendish Square, W.1, require ARCHITECTURAL ASSISTANT, post-Intermediate standard. Salary by arrangement. Telephone Museum 1105. 2122

ARCHITECTURAL ASSISTANT, of Intermediate standard, required immediately by firm of Architects in West End of London. Salary according to experience and qualifications. Box 2079.

REQUIRED, by London Architects, a capable ASSISTANT ARCHITECT for their West Indies office, with initiative and all round knowledge. Passage paid. Box 2109.

WANTED, for Architects' Branch Office at Andover, Hants., capable ASSISTANT, having passed Intermediate Examination standard, to take charge and work on own initiative. Must be first-class draughtsman. Write, with copies three testimonials, stating salary required, to Box 2081.

TWO ASSISTANTS urgently required in small London office to work directly under Principal on interesting projects. To be enthusiastic with initiative in contemporary design and construction. Maximum salary will be paid to successful applicants. Write in confidence to Box 2077.

ASSISTANT urgently required for mid-Herts office. To be enthusiastic and should be able to carry out work on own initiative. Good salary and prospects for successful applicant. Write in confidence to Box 2078.

ARCHITECTURAL ASSISTANT (fully qualified) required for progressive appointment with firm of private Architects in the Midlands. Must have had good office experience; age 25-35. Salary between £550 and £750 per annum, dependent on experience. Apply, with full particulars of qualifications and experience, to Box 2141.

ASSISTANT required. Good draughtsman, capable working drawings. Office experience essential. Salary £400/£500, for general building work. Initiative essential. Reply by letter, stating age and experience, R. Jelinek-Karl, L.R.I.B.A., A.I.A.A., 22, Chancery Lane, W.C.2. 2134

JUNIOR ASSISTANT required. Capable of measuring up and general drawing office duties. Salary according to ability. Write, stating age and experience, R. Jelinek-Karl, L.R.I.B.A., A.I.A.A., 22, Chancery Lane, W.C.2. 2135

WANTED, immediately, JUNIOR ASSISTANT, Inter. standard, for small private practice in Bloomsbury area. Box 2136.

ARCHITECTURAL ASSISTANT. Of at least Intermediate standard. Previous office experience essential. Full particulars and salary required. H. S. W. Stone & Partners, F.F.R.I.B.A., 20, The Crescent, Taunton. 2132

ASSISTANT in small Office in Kent. Student R.I.B.A. Salary according to ability and experience. Box 2133.

ARCHITECT'S ASSISTANT required. Must be good draughtsman; working drawings, details, and good knowledge of construction. Experience in supervision an asset. Write, stating previous experience and salary required, to H. S. Goodhart-Rendel & Partners, 13, Crawford Street, London, W.1. 2165

ARCHITECTURAL ASSISTANT required immediately in busy Country Practice, about 12 miles from London. Some experience in one or more of the following essential: Housing, Flats, Schools, Hospitals. Housing accommodation available, if required. State salary required and when available to start. Tooley & Foster, Midland Bank Chambers, Buckhurst Hill, Essex. 'Phone BUC. 2211. 2140

ARCHITECTURAL ASSISTANT, with 3-4 years' practical experience, required to work in Manchester office. R.I.B.A. qualification and Hospital experience desirable. Permanent and interesting post for man with initiative and ambition. State experience and salary required. Harry S. Fairhurst & Son, 55, Brown Street, Manchester, 2. 2166

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required (permanent position) for varied and interesting work. Write, giving particulars of experience and salary required, to Ruddle & Wilkinson, F./L./A.R.I.B.A., Long Causeway Chambers, Peterborough. 2163

ARCHITECTURAL DRAUGHTSMEN required in Contractors' Architect's Department for detailing, mainly housing. Salaries up to £500 per annum, according to ability. Write, stating age, experience, and salary required, to Wates, Ltd., 1258-60, London Road, S.W.16. 2164

LEADING Oil Company is appointing to its staff an ARCHITECT, qualified and registered, age 30-40, resident London area. Commencing salary £850-£1,000 per annum, according to qualifications and experience. Full particulars to STAFF/E. Box 2142.

WEST END London firm of Architects requires SENIOR ASSISTANT, qualified R.I.B.A., with office experience in preparation of working drawings, preferably in connection with industrial building. Write, stating qualifications, etc., and salary required, Box 2157 or telephone Welbeck 8962.

WANTED, a fully qualified ARCHITECT for a well-known London Architect's office, with experience in carrying out important works and capable of taking over the organisation of a section of interesting work. Must be a capable designer, able to develop rough sketches. A permanent position is contemplated. Commencing salary £1,200 per annum. Box 2158.

Architectural Appointments Wanted

CHARTERED Danish ARCHITECT, with all round experience, seeks situation in Great Britain. Further details upon request. Box 109.

EXPERIENCED SECRETARY to Architect, excellent references, desires similar post. Please write Box 2145.

SWEDISH ARCHITECT (Lady), fully experienced and competent in design and all forms of construction—9 months in England on flats scheme—seeks post with progressive firm on interesting work. Write A. B. C., 54, Headington Road, Earlsfield, S.W.18.

B.A. (ARCH.), A.R.I.B.A., planning qualification, 18 months' office experience (32), married, desires appointment in small private office, London or Surrey. Min. salary £500, where prospects. Box 110.

SCHOOL trained ASSOCIATE, with varied experience as Senior Assistant, desires new responsible position. Box 2159.

Other Appointments Vacant

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QUANTITY SURVEYOR required immediately by firm of Architects in the South-West. Applicants must be A.R.I.C.S., and should be not more than 45 years of age. Salary £600 p.a., but there is a possibility of a Partnership to a suitable applicant. Box 2010.

DRAUGHTSMAN, with experience in the design of structural steelwork on industrial buildings, required. A knowledge of reinforced concrete and general building construction also desirable. A flat will shortly be available. Write, stating age, experience, and salary desired, to Box 2155.

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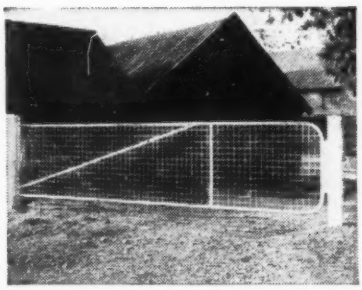

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