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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 Federat on 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.
SPAE	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2. Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4. City 4471
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

PRESSED STEEL TANKS

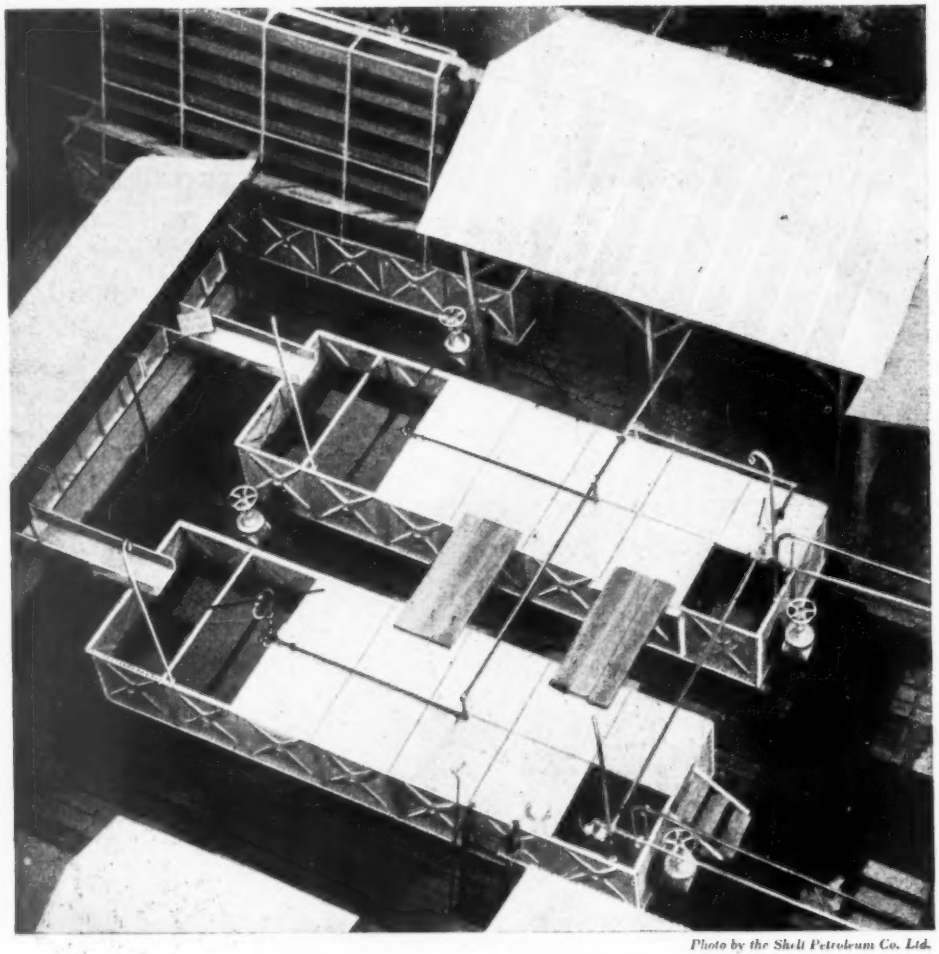

Photo by the Shell Petroleum Co. Ltd.

Oilfield Equipment showing mud storage and mud cooling plants incorporating Braithwaite Pressed Steel Tanks

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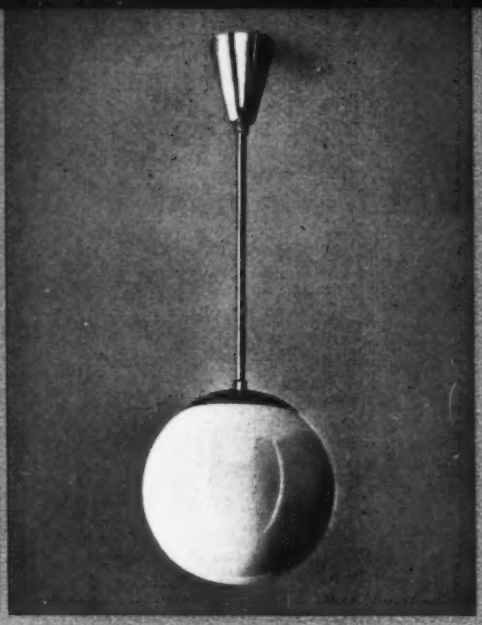
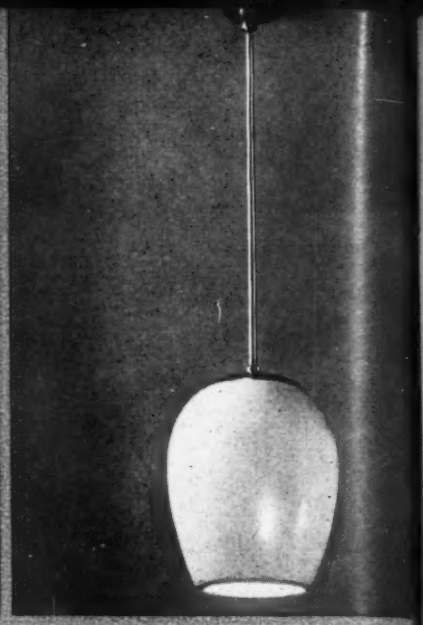
Council Chamber, Dorset County Council — *County Architect: H. E. Matthews, F.R.I.B.A.*

G.15 **PENDANT.** Bowl. Finishes: Silver anodised aluminium with chromium suspension. Glass: White or ivory flashed opal. Lamp: 200 watts.



U.13 **PENDANT.** Sphere. Finish: Chromium or coinage bronze. Glass: White flashed opal. Lamp: Up to 100 watts.



U.282 **PENDANT.** Open Base. Finish: Chrom... coinage bronze. Glass: White flashed opal. Lamp: 200...

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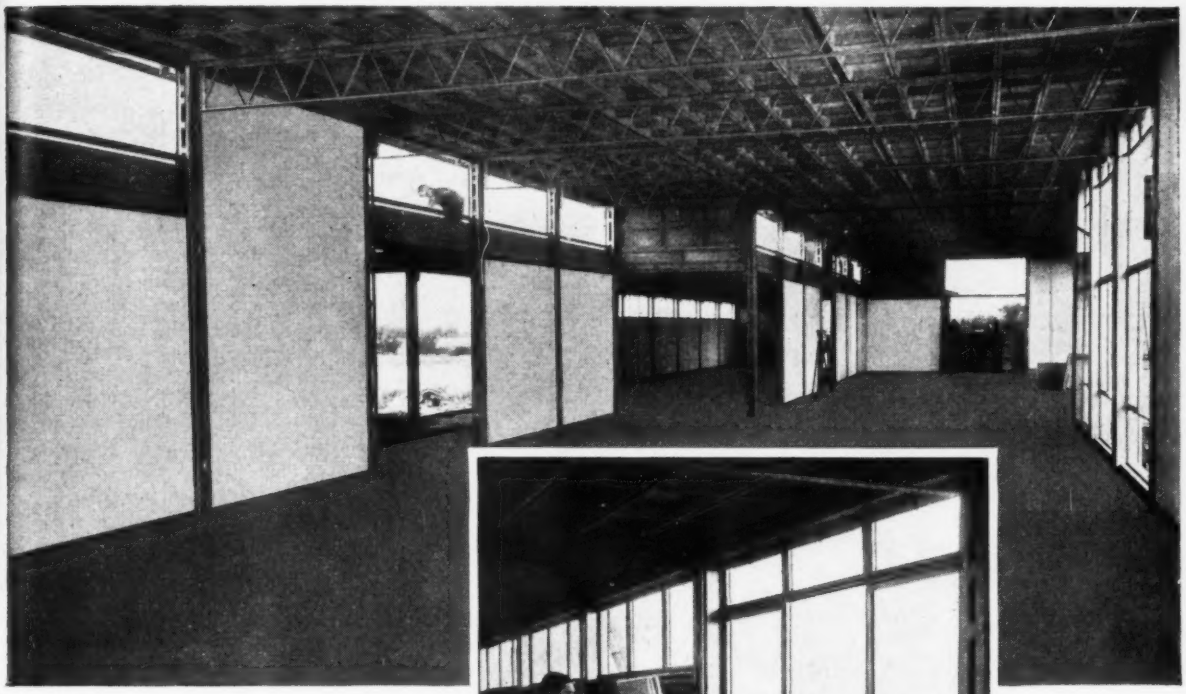
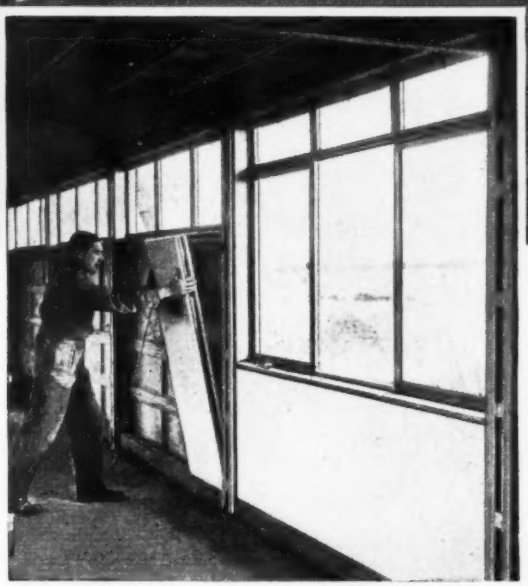
G.24 **CEILING.** Backplate. Finishes: Silver anodised aluminium, with off-white backplate. Glass: White or ivory flashed opal. Lamps: Up to 2 x 75 watts.

U.211 **CEILING.** Open Base. Finish: Chromium or coinage bronze. Glass: White flashed opal. Lamp: 200 watts.

U.26 **CEILING.** Bowl. Finish: Chromium or ... bronze. Glass: White flashed opal. Lamp: 100 watts.





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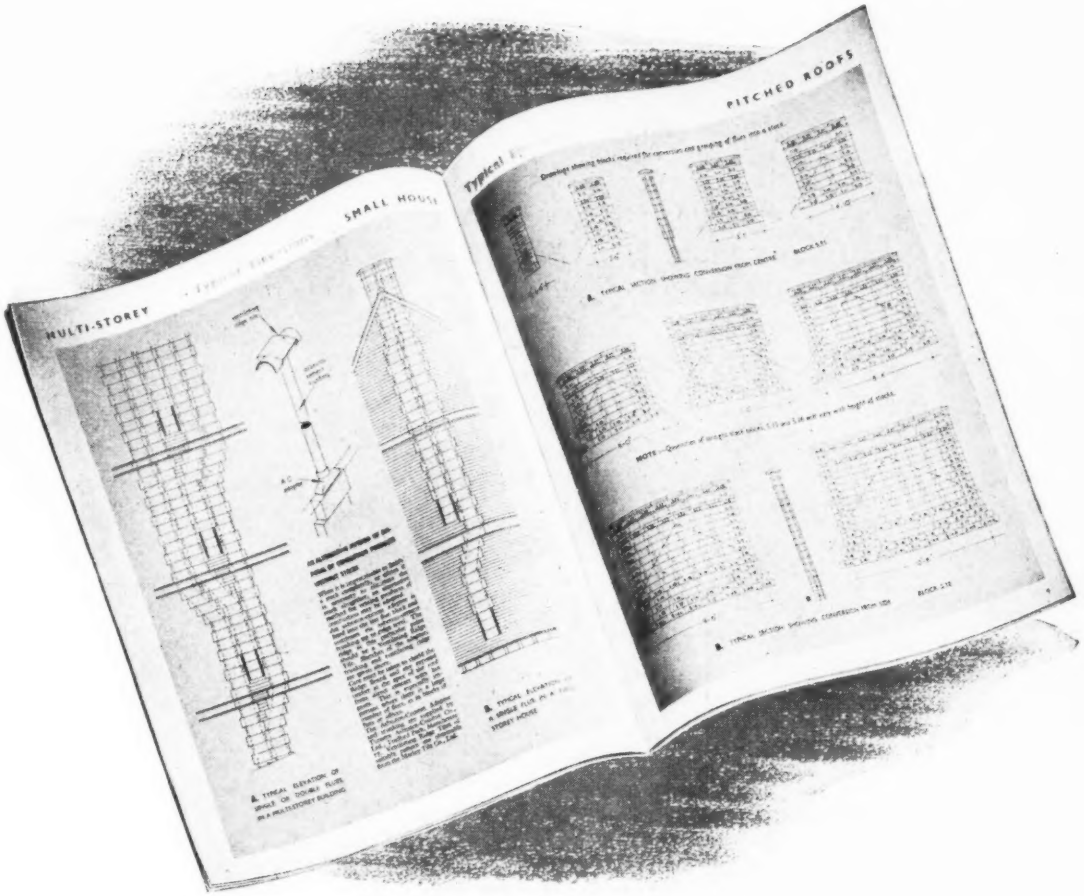

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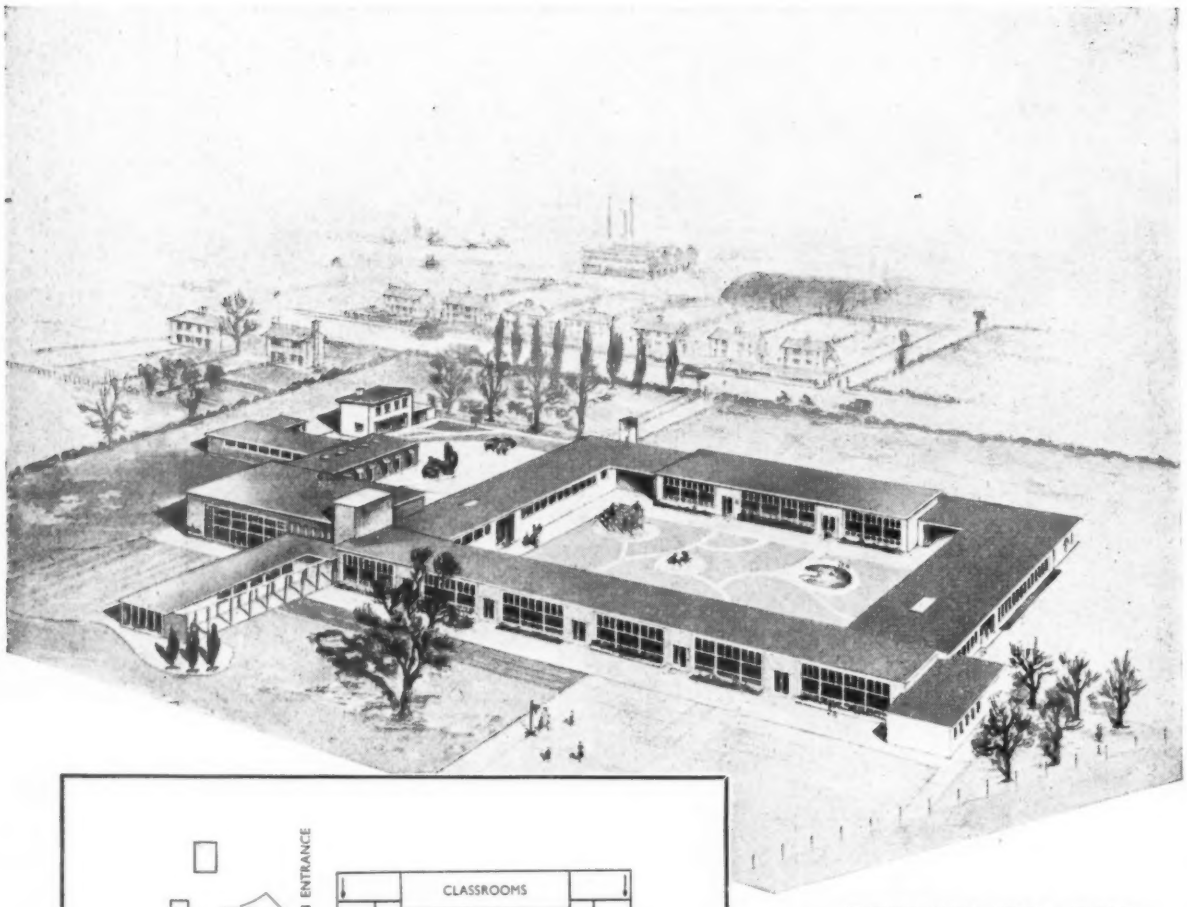

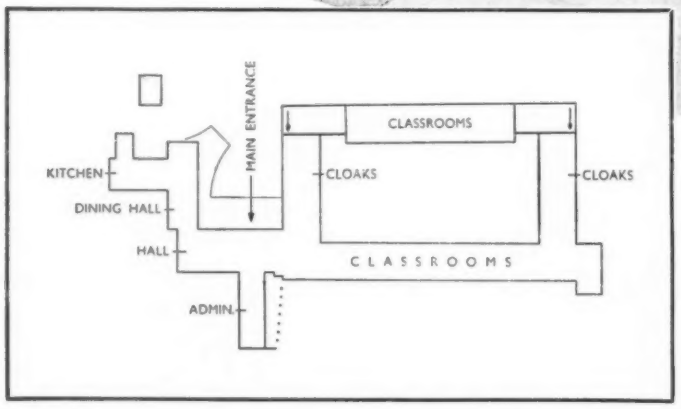

WEXHAM ROAD SCHOOL, SLOUGH
(For Bucks. County Council)

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*

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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.

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3 BRINGING COLOUR TO LIFE

IN THE HOSPITAL WORLD

There was a time when hospital decoration presented few problems: good, hard-wearing and washable paint in safe, sober colours, and that was that. But now the colour specialist asks a host of questions before proceeding to diagnosis and treatment. What colours are most tolerable and cheering to various types of patient? What finishes effectively reduce glare and light reflection? What decorative schemes provide a restful contrast for staff rooms? Will some of the more delicate shades "wear" well?

Already a long list of nationally famous hospitals and medical establishments consult Dockers' Advisory Service on all their paint problems.

SYNTHOLUX Synthetic Enamel, for example, has been widely approved by architects and builders for brilliant hard surface, extensive range of pleasing colours, its quick-drying properties and proved durability. Syntholux will withstand repeated washing and is suitable for interior and exterior use.

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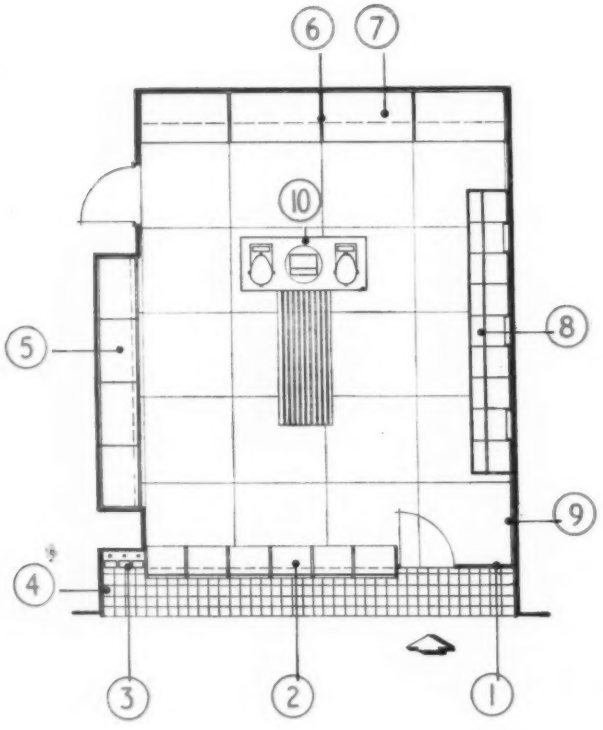
DESIGN FOR

NEW TYPE OF GREENGROCER'S SHOP

THE problem of protecting foodstuffs that are displayed and stored in shops is basically an architectural problem, which may be solved by good design and the use of appropriate materials. Here is one solution, which provides new standards of hygiene: a greengrocer's shop designed by Edward D. Mills, F.R.I.B.A.

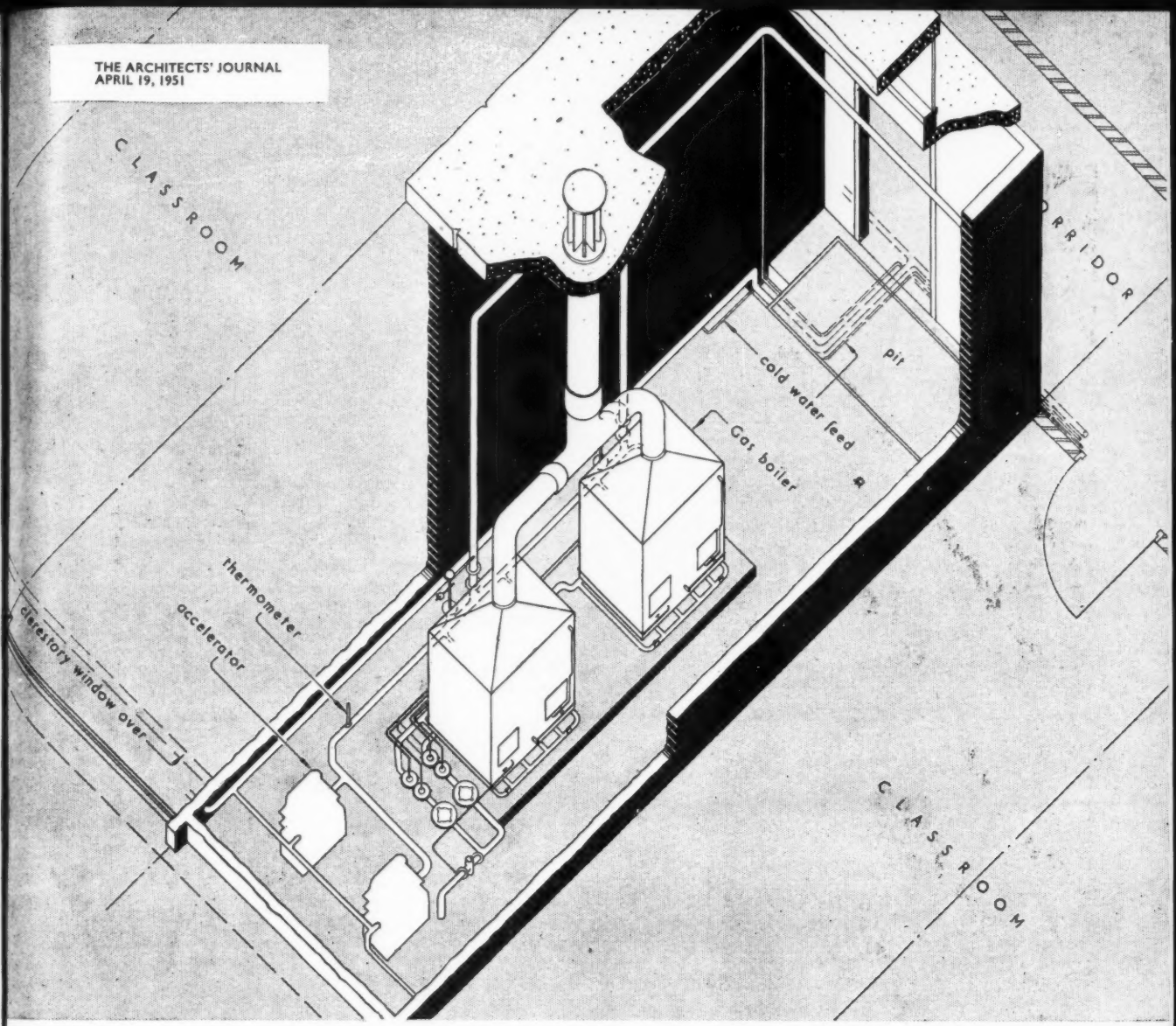
Specification of Materials



Plan Greengrocer's shop.

SCALE 1/8" = 1' 0"

1. **Entrance door and side light**
   Entrance door standard frameless "ARMOURPLATE" door with "ARMOURPLATE" side panel.
2. **Shop front**
   Hard wood display units glazed with "INSULIGHT" double glazing units to reduce condensation, and lined with mirror to increase display value.
3. **Shop front surround**
   "INSULIGHT" hollow glass blocks type P.B.3. light diffusing. Concealed lighting behind blocks for night illumination. Glazing over doors and display frame with Prismatic glass, glazed in hardwood frame to refract daylight into the shop.
4. **Reveals to shop front**
   Faced with black "VITROLITE" in standard Ashlar sizes.
5. **Vegetable bins**
   Constructed of hardwood with removable front panels in "VITROLITE". Mirror reflector behind at an angle to increase visibility. Shelves over for tinned goods.
6. **Frozen food storage cupboards for perishable foods, etc.**
   Faced with "VITROLITE" with mirror reflectors above.
7. **Special display cupboards** with frameless sliding polished plate glass doors.
8. **Fruit display**
   Hardwood trays cantilevered from the wall. Removable front edge in polished plate glass. Poster frames over with hardwood frames glazed with sheet glass.
9. All walls to shop lined with Primrose "VITROLITE" in standard Ashlar sizes.
10. Service point including bag rack, counter for scales, cash register, etc., with ½" rough cast glass top on timber sub-structure.



Boiler house for New Classroom Block, Twickenham Technical College. County Architect : C. G. Stillman, F.R.I.B.A.

GAS solved this school heating problem

Gas-fired low pressure central heating is installed in this most recent extension to Twickenham Technical College, opened in 1948.

Factors which influenced the choice of boiler plant were : the distant situation of the new buildings in relation to the main boiler house ; the difficulty of providing fuel storage and access to it ; and the difficulty of providing a suitable chimney that would be unaffected by the proximity of adjacent high buildings.

The new single-storey block contains eight classrooms with cloakroom accommodation. The total catalogue rating of the two automatically controlled boilers is 720,000 B.T.U's per hour.

Helpful information on this and other aspects of the problem of securing efficient services for cooking, hot water, space heating and refrigeration may be obtained from the local Gas Undertaking.

GAS

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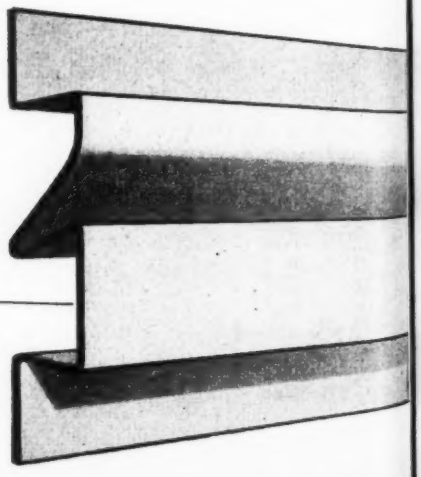

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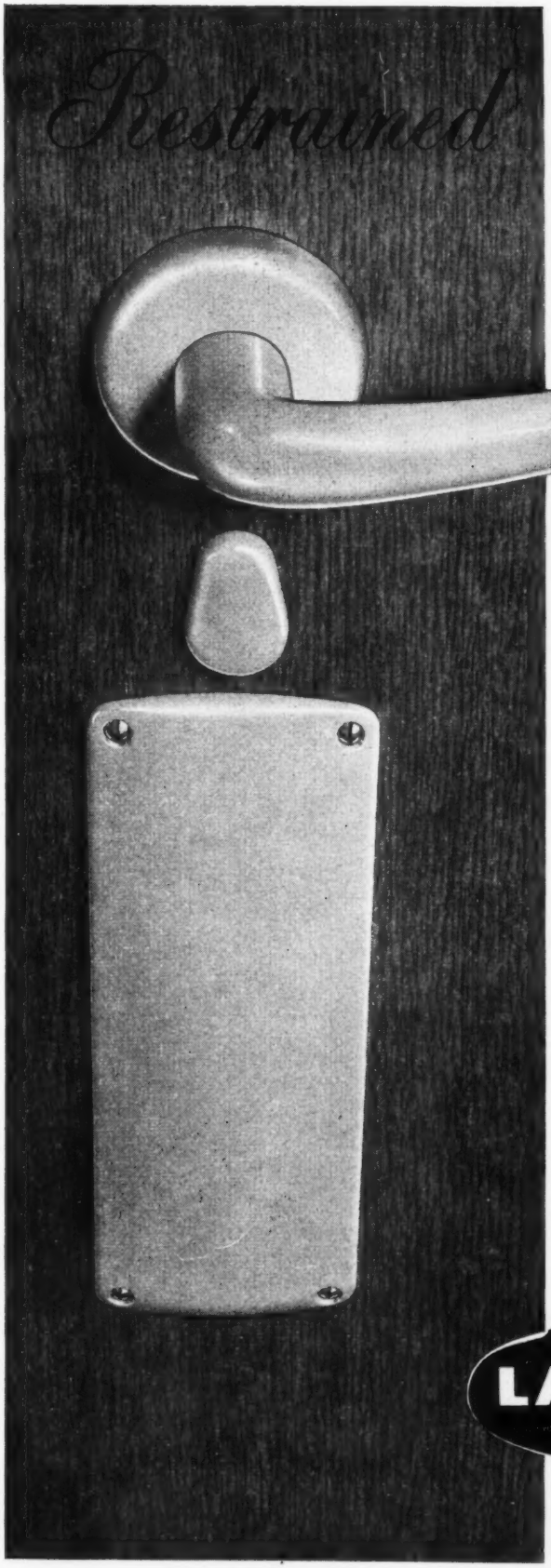
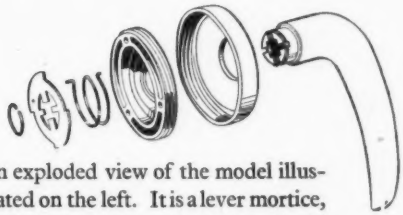
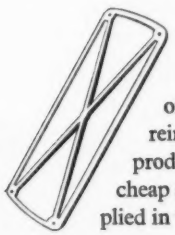


Elegance

Lacrinoid door furniture is made primarily to do its job—and to continue doing it with quiet efficiency throughout its long life. At the same time, it is pleasant to both hand and eye. Shapes are simple and rely for their beauty on restrained curves which capture and enhance reflected light.



An exploded view of the model illustrated on the left. It is a lever mortice, concealed fitting and the Lacrinoid "floating spindle" principle is used, thus dispensing with grub screws. No. 280.



The back view of the finger plate illustrated on the left showing the reinforcement. Being mass produced these plates are cheap as well as sound. Supplied in two sizes. No. 1064/3.

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BRITISH PLASTICS EXHIBITION (JUNE 6-16) STAND 29

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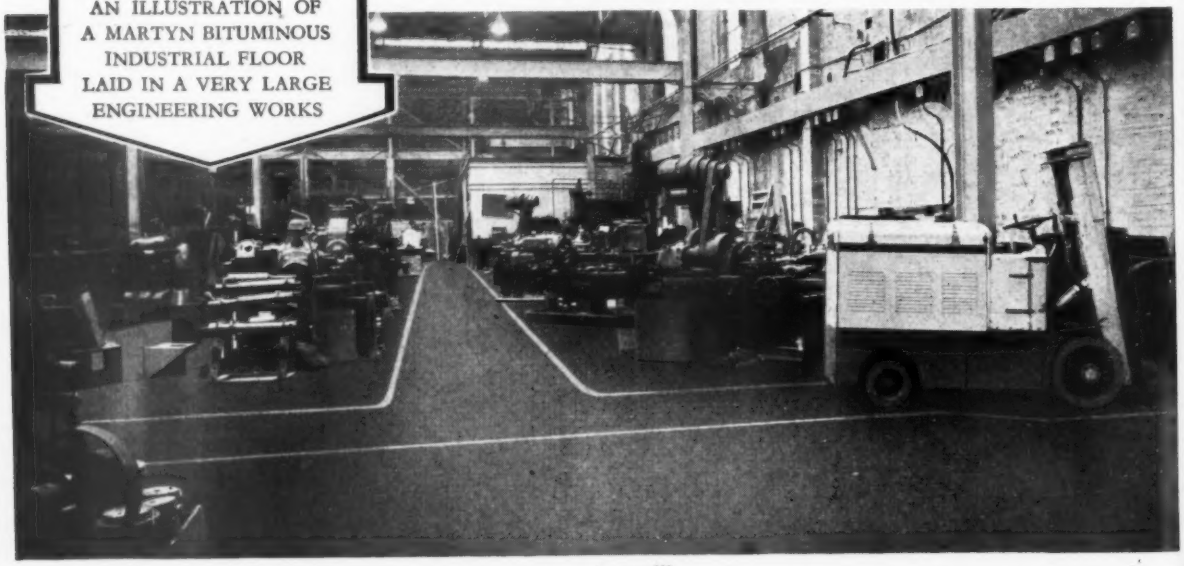
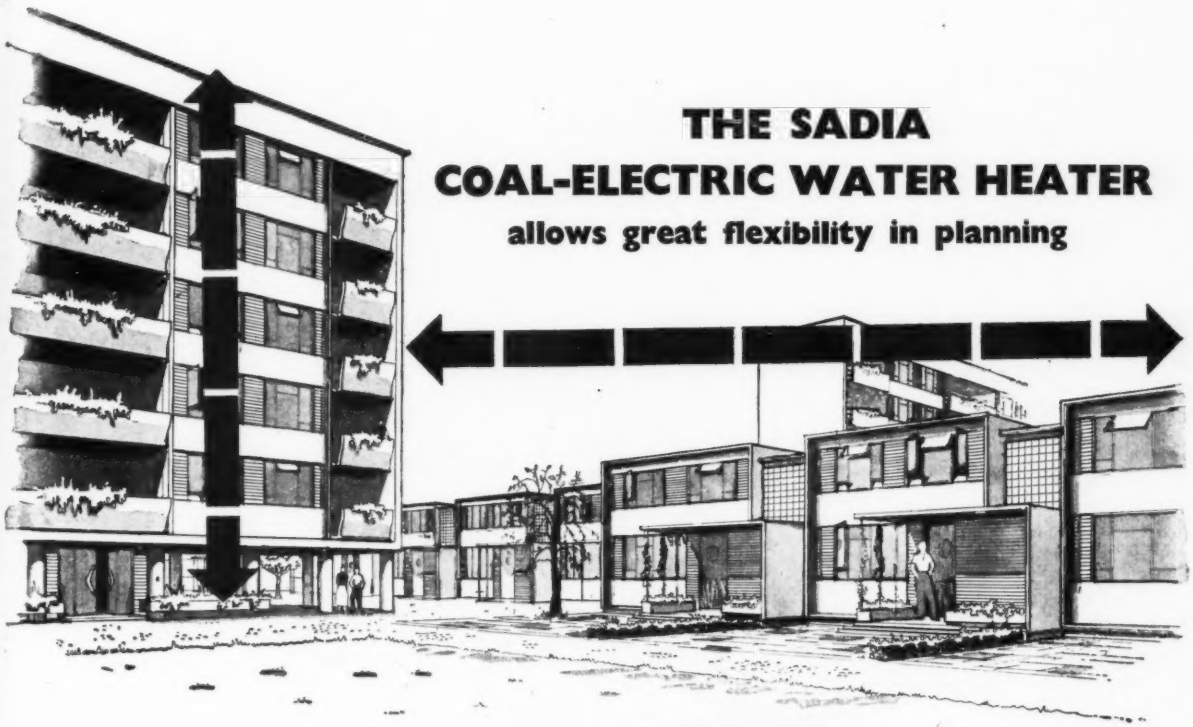
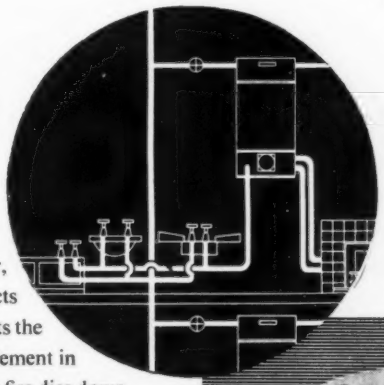
AN ILLUSTRATION OF A MARTYN BITUMINOUS INDUSTRIAL FLOOR LAID IN A VERY LARGE ENGINEERING WORKS





THE SADIA COAL-ELECTRIC WATER HEATER

allows great flexibility in planning

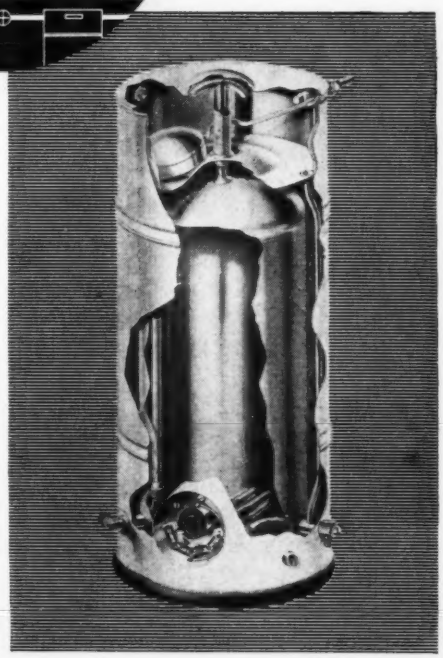


The Sadia coal-electric water heater is suitable for both houses and flats, and can be used either with a back-boiler or an independent boiler. It is a water heater planned to make the best use of available fuels. During winter, when fires are lighted, the Sadia coal-electric water heater acts as a storage 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.
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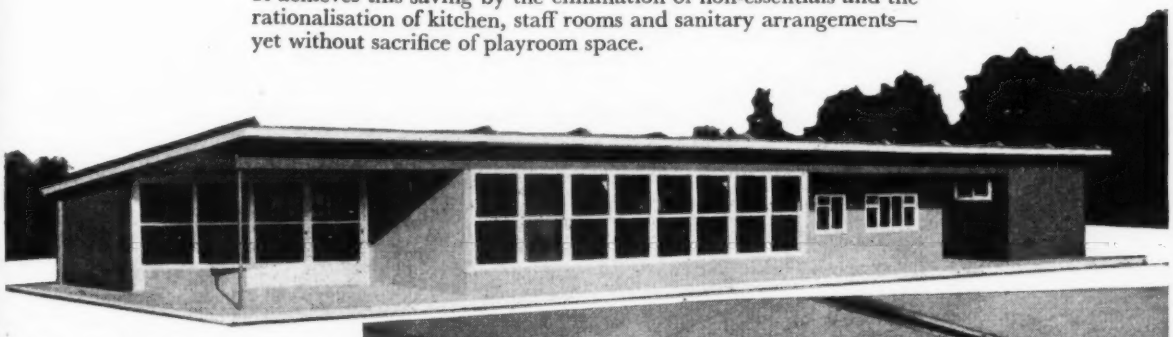

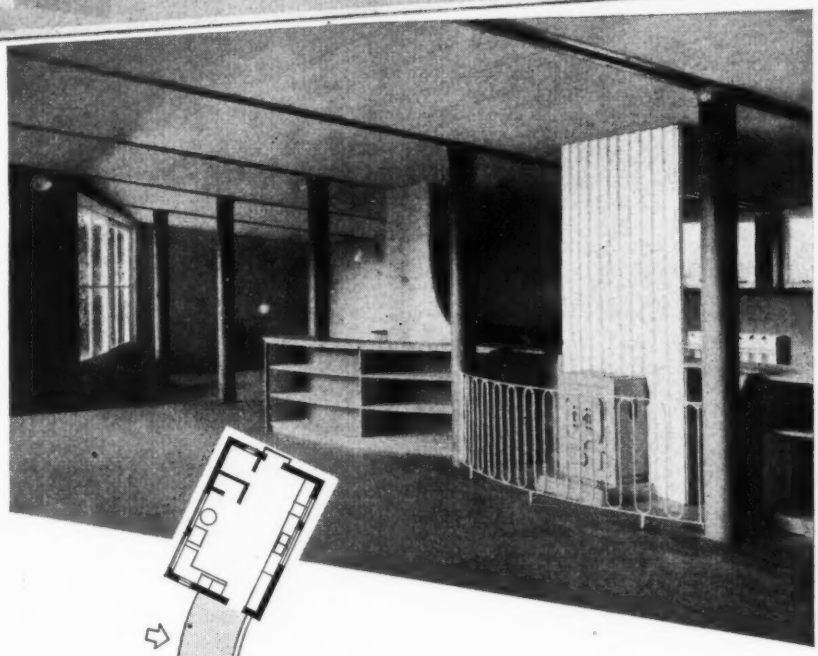

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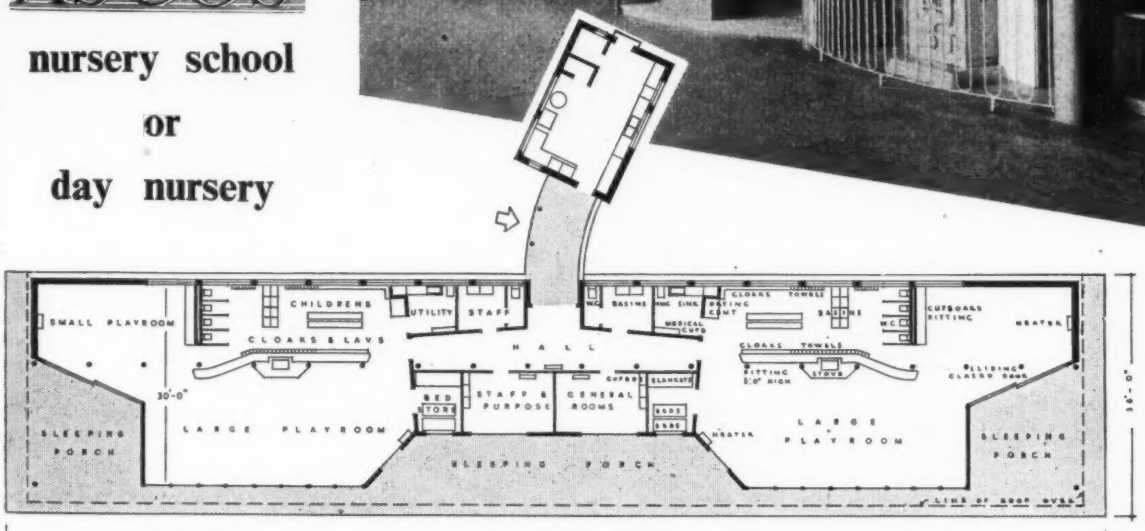

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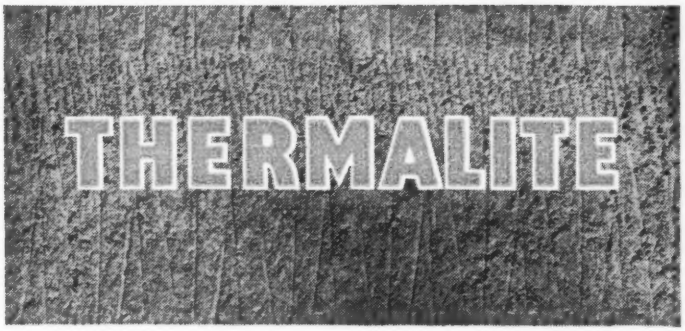

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About Aluminium... 2

ALLOYS

In this series of articles we deal very briefly with those characteristics of aluminium that are important to the student, believing that although the light metal is now second only to steel in structural significance, its nature and behaviour are not, perhaps, correspondingly known.

CHEMICALLY pure aluminium is soft, ductile and of little structural value but, as extracted, it normally contains up to ½% impurities, mainly iron and silicon. These have a marked effect on the properties of the metal, so that, with the further hardness acquired during rolling, "commercial purity" aluminium has a useful degree of strength and is widely produced in sheet form.

In the early years, however, casting was the principal outlet for the metal, and, without the benefit of work-hardening, strength and good foundry characteristics were sought by alloying, which was soon applied to the wrought forms. Alloying in itself provided a moderate improvement in properties, but the discovery, about 1909, that heat treatment could raise the strength of certain alloys far more than could work-hardening, while retaining a fair ductility, marked the real entry of aluminium into the structural field. This treatment was applied to rolled, extruded and cast alloys, enabling them for the first time to compete with structural steel on a strength basis. Today, a wide range of alloys is available to meet the varied needs of industry, each having been developed for its particular combination of properties.

The alloying elements that are now used include copper, magnesium, silicon, manganese, zinc, and nickel; chromium, titanium, cadmium, columbium, cerium, tin, lead and other metals are also employed in small quantities. The effect of these additions is generally to increase the strength and decrease the ductility of the commercially pure metal, but ease of fabrication, corrosion-resistance, and other characteristics are affected by their presence, singly or in combination.

The composition suitable for a wrought (rolled, extruded, or forged) aluminium alloy seldom fits it for casting, owing to the completely different conditions of manufacture. Casting alloys have therefore developed along separate lines, and it will be found that all aluminium fabricators offer these two main groups of alloys, wrought and cast, with distinct nomenclature systems.

Wrought Alloys

There are two major classes of wrought alloys. In the first, strength is invested by the work-hardening that results from distortion of the structure of the metal during the mechanical shaping processes of manufacture. In this class are commercially pure aluminium and the alloys containing, singly or in combination, manganese, magnesium and silicon. The desired degree of strength and hardness is achieved by controlling the amount of working during fabrication, and the metal can be fully or partly softened at any stage by annealing (at 350 – 400°C).

Work-hardening alloys can be given quite high strength (especially those with high magnesium content) and are generally cheaper than those requiring heat treatment. They are used for building and other constructional purposes, in hollow-ware, in packaging, and in general sheet metal work.

In the second class are the heat treatable alloys, in which copper, magnesium, zinc and silicon are important constituents. These alloys make it possible to use aluminium in many instances where the work-hardening type would not do. Some loss of ductility is inseparable from a gain in strength by cold-working, so that the more fully strain-hardened materials will not tolerate much forming but the temporary softness of the heat treated alloys gives an opportunity for severe forming with assurance that the full properties will be attained before the part is put into service.

Casting Alloys

Satisfactory casting in aluminium demands that the metal should flow readily to all parts of the mould; that, on solidifying, high shrinkage and low hot-strength should not produce fractures; and that the cast structure should be sound. These considerations decide the choice of alloying constituents as much as do strength requirements. Silicon is used in some alloys to enhance the castability and to reduce thermal expansion in service (important in pistons); copper, magnesium and the other elements are used, singly or in combination, to develop particular characteristics, such as susceptibility to heat treatment, good high temperature properties, and corrosion resistance.

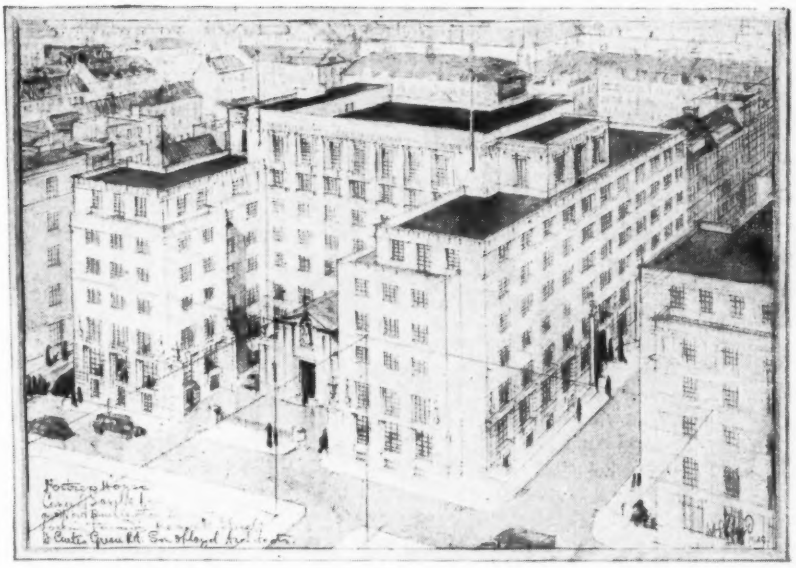
Although it has been possible only to outline the complex subject of alloying, it will be seen that aluminium is largely dependent on this technique for its engineering value and that the choice of the right alloy for each task is very necessary. The third article in this series will be concerned with heat treatment.

MAIN ALLOYING ELEMENTS	CHARACTERISTICS OF GROUP	AN EXAMPLE OF THE GROUP WITH ITS TENSILE PROPERTIES			
		NORAL Designation	·1% Proof Stress tons/sq.in	Ultimate Stress tons/sq.in	Elongat'n % on 2 in.
WROUGHT ALLOYS					
Mn 1 to 1½%	A work-hardening alloy in wide use for building, packaging and hollow-ware.	3S ½H 1¼% Mn	8½	9½	9
Mg 2 to 7%	Strong, tough, work-hardening alloys; exceptional corrosion resistance.	A56S ½H 5% Mg	17½	22½	11
Cu 1½ to 5% Mn ¾% Mg ½ to ¾% Si ½ to ¾%	Heat treatable, widely used in aircraft and other stressed structures. Fair corrosion resistance, often improved in sheet by coating with pure aluminium (Alclad).	26S WP 4½% Cu ¾% Si ¾% Mn ½% Mg	26	31	9
Mg ½ to 1% Si ½ to 1%	Heat treatable, less strong than the copper group but easier to produce and form. Better corrosion resistance.	51S WP 1% Si ⅜% Mg	18	20	13
Zn 5 to 7% Mg 2 to 2½% Cu 1 to 2%	Heat treatable, difficult to produce and confined to aircraft and other structures demanding the highest possible strength/weight ratio.	C77S WP 7% Zn 2% Mg 1½% Cu	38	42	11
CASTING ALLOYS (Chill-cast test bars)					
Si 5 to 12%	Easily cast with good pressure-tightness, and heat treatable when magnesium is present.	125 WP 5% Si 1¼% Cu ½% Mg	16	19	2
Cu 4 to 10%	Heat treatable alloys with good machining properties.	226 WP 4½% Cu	24	27	5
Mg 1½ to 10%	Exceptional corrosion resistance, shock resistance, and machinability.	350 W 10% Mg	13	21	18

This imposing new office block—23 Savile Row, now the headquarters of the Ministry of Local Government and Planning—is floored throughout with Accotile, "the low-cost floor with the luxury look."

ARCHITECTS—W. Curtis Green, R.A., Son and Lloyd, 5 Pickering Place, S.W.1.

BUILDERS—Sir Robert McAlpine and Sons Ltd., 80 Park Lane, W.1.



Mayfair's latest block of offices has Britain's latest, most handsome **low-cost flooring**

Armstrong's Accotile is quickly laid on concrete, wood, or metal. It is especially suitable for use on screeded concrete direct-to-earth since it is unaffected by alkaline moisture. Damp-proofing is not essential unless actual water pressure is suspected.

OUTSTANDINGLY DURABLE

Accotile will, in most cases, long outlast more expensive floors. Many local authorities have found repair costs, too, much reduced by Accotile installations. Accidental damage is easily and cheaply made good. Broken tiles are quickly replaced.

Accotile durability is proved. Accotile floors laid in England twelve years ago can be inspected. They are still in excellent condition.

DECORATIVE—UNLIMITED CHOICE OF DESIGN

With Accotile there is unlimited scope for decorative effect. The tiles are made in a wide range of plain and marbled colours and can be laid in any design. The colours are fast since they are an integral part of the tile.

EASILY MAINTAINED —NON-STAINING

Accotile is kept fresh and new-looking indefinitely by normal sweeping and washing, but may be polished if an extra high finish is desired. It offers good resistance to most acids and, being non-absorbent, does not stain.

* * *

If you would like to hear more about Accotile—please write to us. We shall be pleased to send you full information. Armstrong's Accotile Flooring, Armstrong Cork Company Limited, Bush House, Aldwych, London W.C.2. Tel.: Chancery 6281. Scottish Branch: 5 Oswald Street, Glasgow C.1. Tel.: Central 5703.

FOR PUBLIC BUILDINGS, HOUSES, SCHOOLS, HOSPITALS, AND COMMERCIAL PREMISES

Accotile is quiet and comfortable to walk on, warm and non-slip.

Armstrong's Top-Set Coved Skirting, available in Pompeian Red and Plain Black, gives an added finish.

In existing buildings, Accotile is laid in a matter of hours and can be used immediately, so that occupation of the room is disturbed for the minimum time.

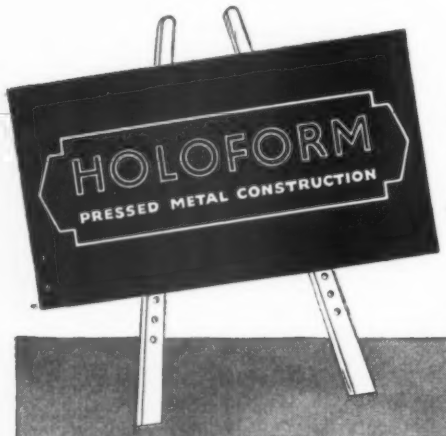
The all-in cost of flooring with Accotile compares very favourably with any other flooring method, with the added advantage of low labour costs.

ACCOTILE*

"The low-cost floor with the luxury look"

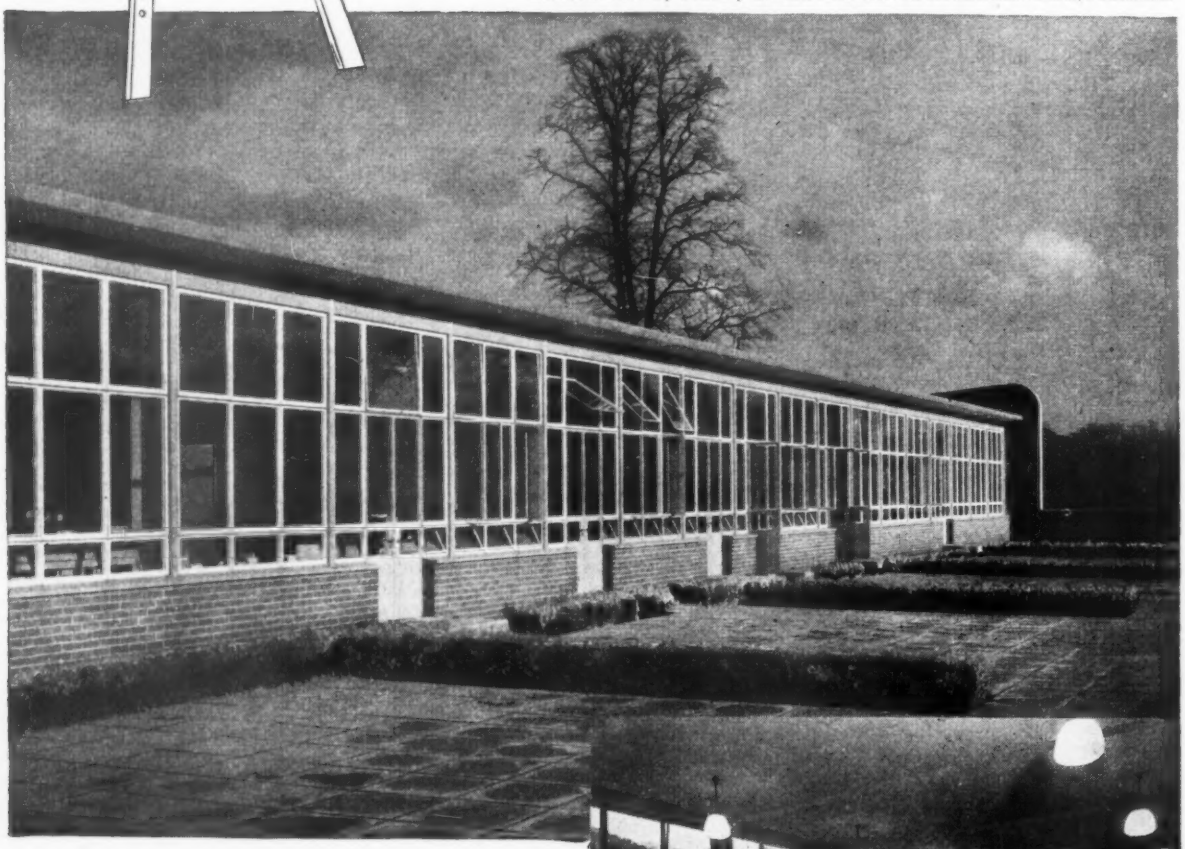
Armstrong's Accotile is a composition of inert asbestos fibres and ground rock fillers, fadeless mineral pigment, and asphalt or resin binders, supplied in accurately-cut tiles (sizes 12" x 12", 9" x 9" and 6" x 6"), border strips, etc. With 20 years' successful experience in America behind it, it is now manufactured in England at the Tyneside factory of the Armstrong Cork Company Ltd.

* British Registered Trade Mark 663698. Armstrong Cork Co. Ltd., Registered Users



A NEW SYSTEM SUITABLE FOR SINGLE-STORIED BUILDINGS WITH REPETITION OF PLAN UNITS

Sevenoaks County Primary School. Architect: S. H. Loweth, F.S.A., F.R.I.B.A.



Holoform combines the advantages of prefabrication with the pleasant appearance of more traditional methods of construction. The minimum of skilled labour is required because Holoform includes structural members, cills, facias, etc., thus requiring only straightforward infilling.

Planning is facilitated by choice from three standard grids and the alternative of flat or pitched roof construction. Time is saved as Holoform may be engineered in the factory concurrently with site preparation. Because of the rapidity with which sections are erected and immediately roofed, other works can proceed in the dry.

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FERODO Stairtreads not only give the best possible protection against accidents; they are also extraordinarily durable and long-lasting, and provide a neat finish for stairs that have to be *seen* as well as used.

Made by specialists in engineering friction materials, these treads cannot wear slippery; they give a safe, firm 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.

Neat solution to safety problem

Wherever stairs are in constant use by staff and public— in shops, offices, hotels, public buildings—safety is the first essential, with good appearance a close second. These stairs in Hamley's famous Regent Street toy and games store, often crowded with children, show how both needs are met by Ferodo Stairtreads.

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FERODO LIMITED, CHAPEL-EN-LE-FRITH

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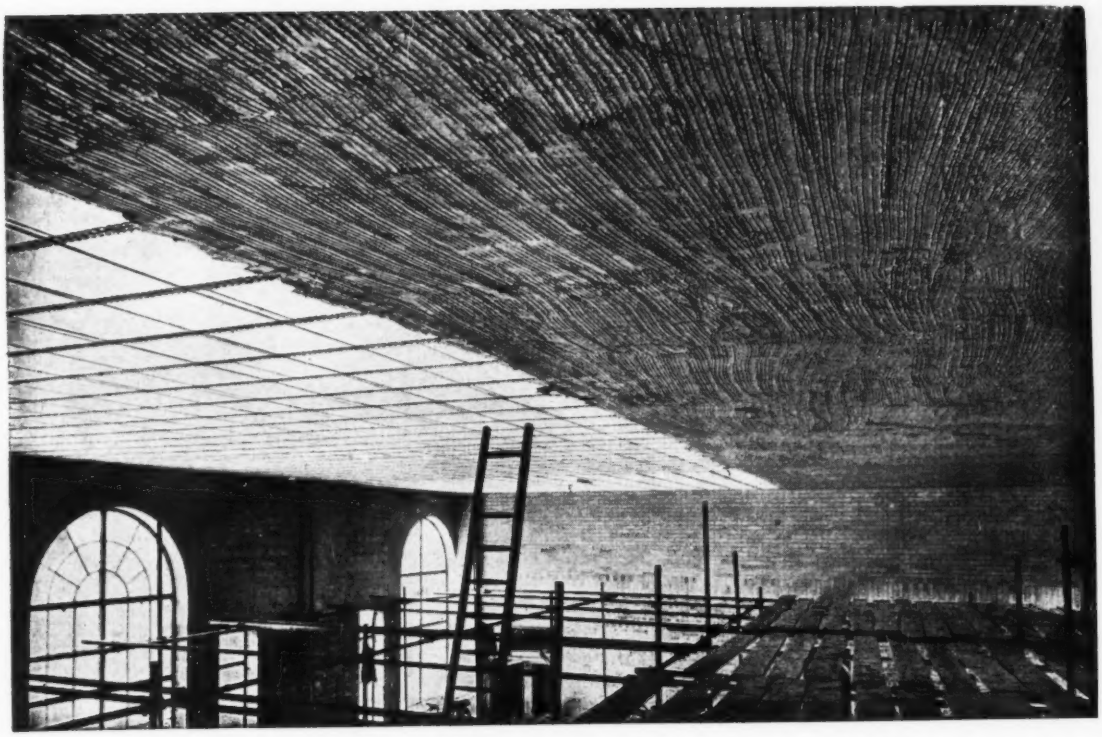
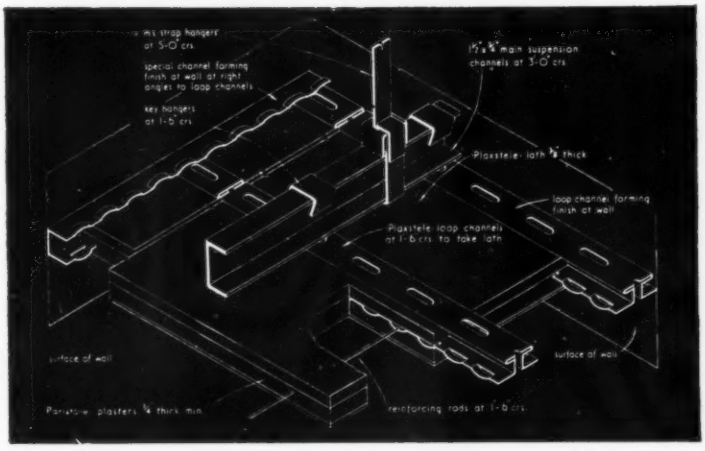


Part of a large area *of* **PLAXSTELE** *ceiling*

Registered Trade Mark

The PLAXSTELE system combines the use of PLAXSTELE lath, specially designed for plastering with PARISTONE plaster, with metal patented suspension and jointing members which hold the lath rigid and at the same time anchor metal reinforcing rods in the plaster finish.



It provides a suspended ceiling with a substantial plaster finish having high fire-resisting properties. It is adaptable to any type of building construction and can be suspended horizontally at any level below the main roof structure.

Advantages of this system include simplification of plastering work, saving of time, superior strength, high fire resistance, elimination of timber framing, improved thermal insulation.

The photograph above shows part of a large area of PLAXSTELE ceiling to which the first undercoat of PARISTONE plaster is being applied. The isometric sketch on left shows the general assembly of the component parts.

Further information about this and other GYPROC products or systems will gladly be supplied.

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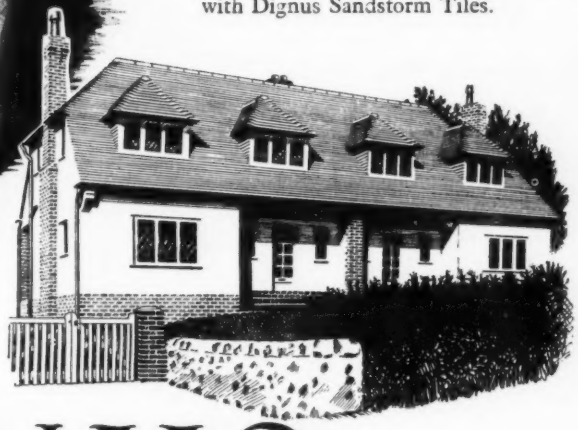
Typical post war housing — roofed with Dignus Sandstorm Tiles.



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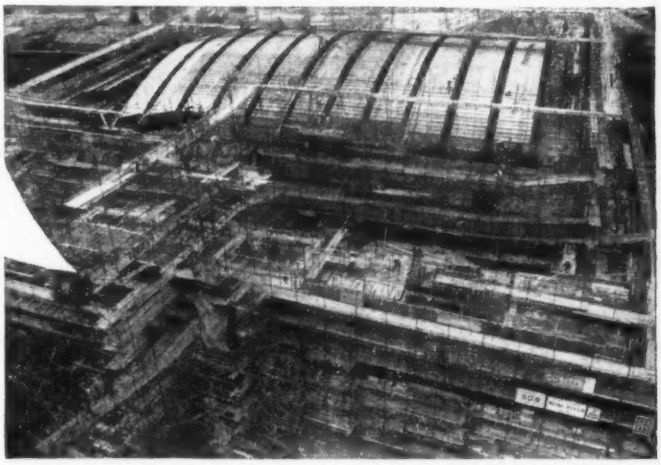
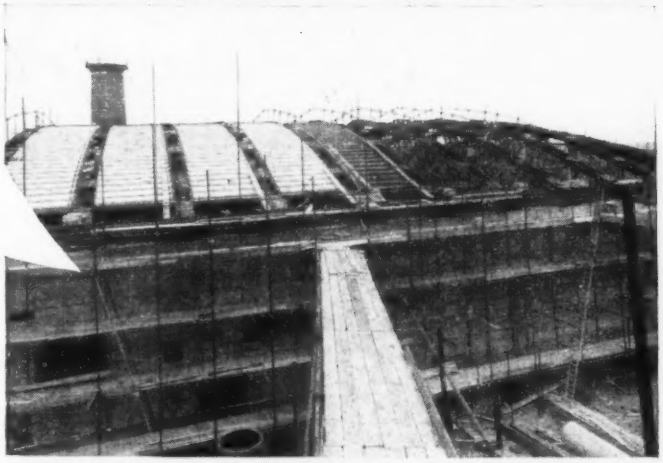
Triad for Concert Hall Roof

The Triad system of pre-cast concrete flooring units is being used in the roof construction of the Festival of Britain Concert Hall. Triad pre-centred pre-cast beams, weighing only 145 lbs. each maximum, and infilling slabs, weighing 28 lbs. each, were hoisted 115 ft. to the roof-top by a normal builder's platform. The beams were placed by two men, one at each end. Even at this great height the light weight Triad units allowed remarkably easy handling. LOWER ROOF. Between Triad beams—placed directly on the steel roof trusses—standard flat centering slabs were spaced. The whole was then covered with 4" of in-situ concrete, reinforced to carry the dwarf walls that support the upper roof, making an 8" overall depth of reinforced concrete slab. UPPER ROOF. This is designed to take a superimposed load of 30 lbs. per sq. ft. and is constructed in five layers: glass wool insulation, 2" thick infilling slabs resting on specially adapted Triad beams, 2" of in-situ concrete, insulating board and copper sheeting. The protective covering was fixed to timber battens slotted into steel channels on the beams. The ease with which Triad units are adapted to meet special requirements was amply proved in this construction.

Triads and Slabs dry-decked ready to receive in-situ concrete.



Dry-decking lower roof—Triads carried directly on steel roof trusses.



Triads being laid on dwarf walls (over glass wool) to form upper roof.

Robert H. Matthew, Superintending Architect, L.C.C. Consulting Engineers, Messrs. Scott & Wilson—and Main Contractor, Messrs. Holland Hannen & Cubitts

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THE ARCHITECTS' JOURNAL

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AA AGAIN

Last year, at the AA's annual reception I was so bar-bound, if you understand me, that when I came to write this column I found that I had omitted to attend the several entertainments which had been laid on. This year my conscience pricking and goading me past those many friends who were waiting for me to stand them the drinks I omitted to give them last year, I went through the programme from A to Z and from the basement to the attics of the AA building. As a result of such energy my impressions may be somewhat blurred, but here they are: First, animals. These intruded into the scene rather more than is usual at such receptions. Not live ones, of course, but stuffed or painted or skinned. A very flattened zebra lying at the foot of exhibition screens showing the capable, if somewhat mannered architectural designs of South African AA members. The world's most ferocious and anatomically-odd lions and tigers and horses illustrating the playbills of Hippisley Coxe's exhibition of Circusiana (the only AA member, I'm told, who trained a troop of performing cats). A stuffed dog, knee high to a rabbit in size, but once owned by a lady of the very best family who stuffed the little fellow and displayed him in the 1851 exhibition. Lastly, a series of duck portraits, most exactly and finely painted in the best Lear tradition by Peter (" they call me Widgeon ") Shepheard.

*

Second, culture. There was the usual annual quiz, heavily architectural and most entertaining, which was sufficiently difficult at first glance to cause a modest glow of pride when, on closer inspection, the answers came readily to mind. Three performances were given, during the evening, of Chekhov's one-act play " The Proposal ". The staging of this was excellent, but the intimate relationship between actors and audience which had been achieved presented a trifle too difficult a task for amateur acting, even of the AA's standard. Last in this section was a small cabaret, professional artists this time, who were as competent as they should be. There remains only the third section; physical exercise. Shaking hands, raising elbows, shuffle dancing and Scottish reels. Most overworked of all were a troupe of alarmingly important gentlemen, weighted to the knees with heavy gold chains, who paraded the rooms with the measured tread and be-trapped dignity of a rajah's pachyderms. A final, dignified touch to a most enjoyable occasion.

CANNY SCOTT

One of the few things recorded about Samuel Scott, " the English Canaletto," is that having £1,000 he bought a job in the Stamp Office. This brought him in £100 a year for six hours a week at his desk. So, finding himself with time on his hands, he took up painting—and before too long was netting another £700 p.a. for that. (Multiply by at least six for present-day equivalents.)

*

What the moral of the tale may be, I leave to civil servants to decide. But no one could fail to enjoy the exhibition of Samuel Scott's paintings and drawings that is being held at Agnew's, 43, Old Bond Street. (Your money goes to the Victoria Art Gallery at Bath, in which city Scott died in 1772.) Scott's earliest paintings were mostly of ships and sea fights. He then changed to topography, and painted some of the most delightful views of mid-eighteenth-century London and Westminster in existence.

*

Two of them are reproduced elsewhere in this week's JOURNAL, and it is fitting that both should contain Labelye's Westminster Bridge. For that great engineering work — one of the first European bridges in whose construction caissons were used — fascinated Scott: at one time or another he painted it from every conceivable angle. Old London Bridge, Northumberland House at Charing Cross and Holbein's gateway in Whitehall are other destroyed buildings perpetuated in his pictures. And, antiquarian interest apart, there is the pleasure of escaping into a London whose skyline still made sense.

THE HOUSING VOLCANO

One conclusion that can be made from the Economic Survey is that a general review of housing policy can-

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

HOPE'S WINDOWS

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not be put off very much longer. In 1945 a standard of 200 sq. ft. of well-equipped space for each person did not seem too high. But troubles have arisen from the fact that standards were not lowered when it became clear that all families who needed a home could not possibly be given a "standard" one within five, or even ten, years. We are now seeing the beginning of the consequences. Waiting lists are growing in most large towns and it is not uncommon to find towns that could not work off present waiting lists at their present rate of building in less than 15 years. What could be worse for the country than that a young couple should have to wait even 10 years for a house?

*

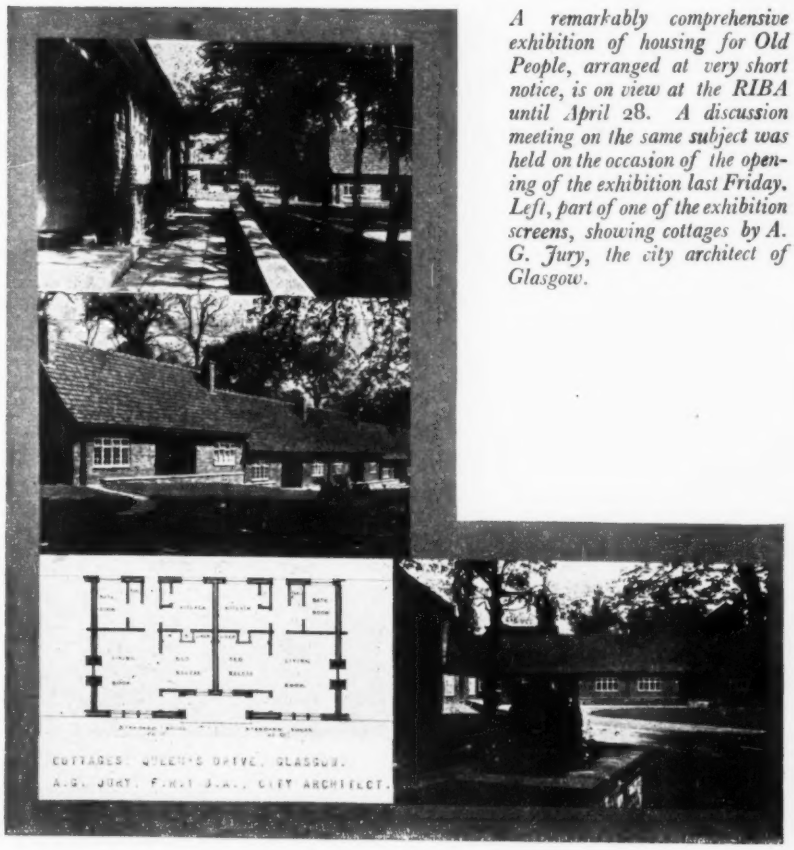
And then, of course, the steady rise in building prices will soon mean that even the lucky few who are offered new houses will not be able to pay for them. Tenders which take account of wage increases and the other raised costs of the last few months are now beginning to come in. It appears that the construction cost of the average local authority three-bedroom house is going to be £1,500 to £1,600 this year, plus about £200 for site purchase and development. Inclusive rents of 32s. 6d. to 37s. 6d. can therefore be prophesied unless the local authority can subsidize them by one device or another. Families with an income of over £7 a week may be able to face such rents. The rest of them, and there are many, cannot reasonably be expected to do so in a time of rising costs.

... AND HOUSEHOLD SIZE

Most pre-war houses were of the five-room, three-bedroom type. And since these houses are relatively cheaper to build than smaller houses, a great many of them have been built since the war. I doubt if the occupancy of most 5-room local authority houses in the country is much over three. Thus the real standard to which we are building—for the lucky few—is about 330 sq. ft. per person.

*

The logical solution to the housing problem would seem to be the building of half a million dwellings a year, of two, three and four rooms, at an average cost of not much more than £1,000. If this is called lowering standards then ASTRAGAL, for one, will be glad to fight for such a decline.

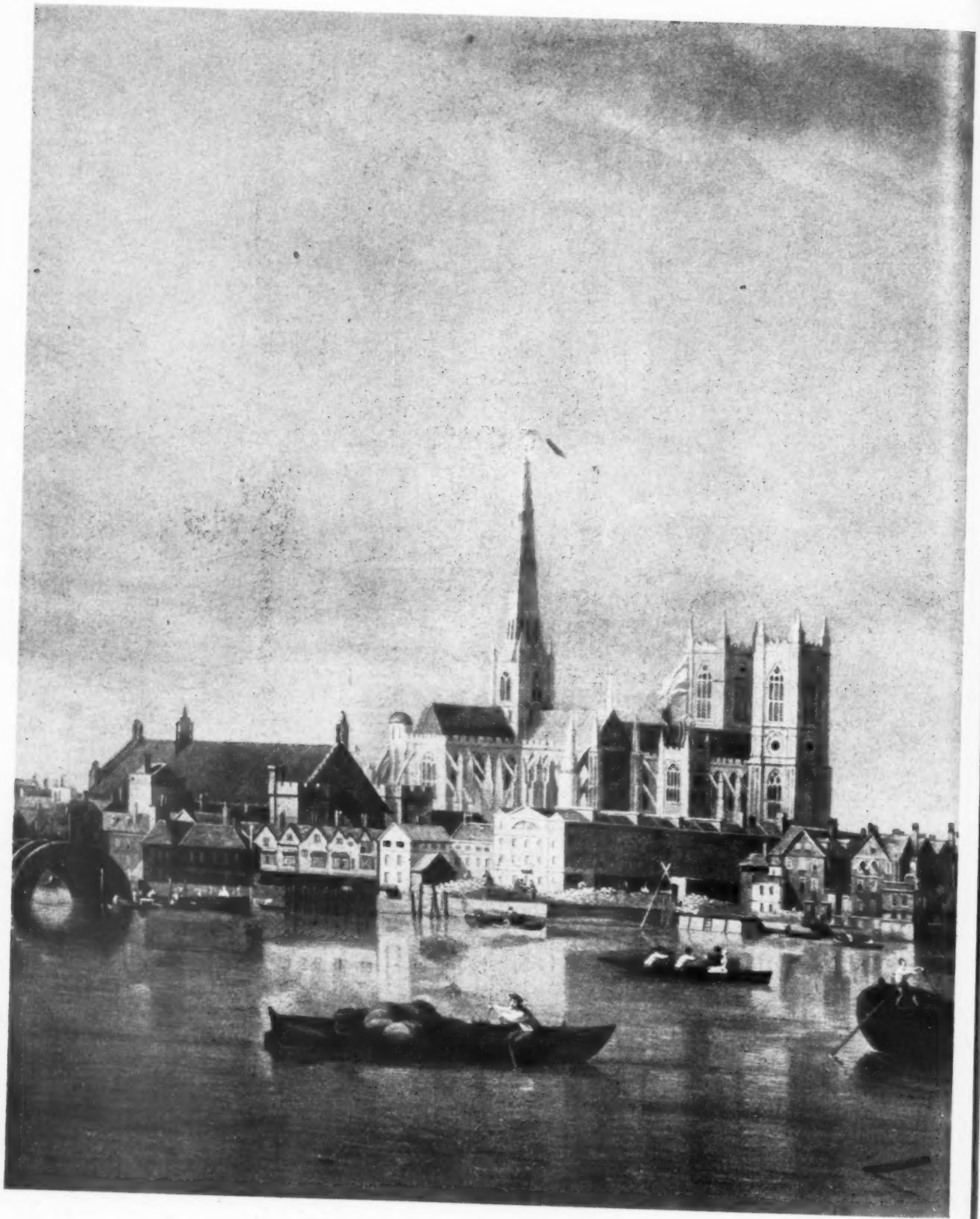


A remarkably comprehensive exhibition of housing for Old People, arranged at very short notice, is on view at the RIBA until April 28. A discussion meeting on the same subject was held on the occasion of the opening of the exhibition last Friday. Left, part of one of the exhibition screens, showing cottages by A. G. Jury, the city architect of Glasgow.

MR. J. H. V. DAVIES AGAIN

Mr. J. H. V. Davies, in a letter printed on page 476, replies to my remarks (March 22) on his article, "The State of Architectural Criticism", in *Nine*. He says that AJ readers would be surprised to know that his main purpose in that article was "to suggest the need for the careful and critical consideration of individual buildings of past and present." I must confess that I am

A correspondent in Hong Kong has sent Astragal the above snapshot, a propos of J. M. Richards's article in last week's A.J. *describing his recent trip to the Far East. It shows him and Prof. Gordon Brown at the Hong Kong University students' end-of-term party, with a group of students of the newly-founded school of architecture.*



Vertical Feature

In 1713 Wren proposed that a spire should be added to the central tower of Westminster Abbey. "It will give," he wrote to the Dean, "a proper Grace to the whole Fabric, and the West-end of the City, which seems to want it." Nothing ever came of the proposal, but among those to whom it commended itself was the painter Samuel Scott. This view of the Abbey with a spire is from a picture (reproduced *in toto* on p. 477), which was painted by Scott about 1745 and is at present being shown to the public for the first time at Agnew's in Old Bond Street. (See Astragal's comment.) The spire is copied from an engraving of 1737 which purports to show Wren's design, though it is thought that John James ("of Greenwich") was actually responsible.

surprised too. I quite agree that Mr. Davies did make the point—and certainly it is an ever-present need which can bear any amount of restatement. But "main purpose"? That was not my impression. It seemed to me that Mr. Davies's main purpose was to vent his spleen over as many people as possible. I believe him when he says that it wasn't; but a re-reading of his article hasn't made it any easier for me to do so.

•

Incidentally, I am inclined to believe that Mr. Davies is right in his belief that it is pure coincidence that the *Review* should have started a series of articles of the kind of which he can approve.

THE PARADOX OF LIVING COSTS

May I refer you to page 481. There you will find illustrations of the interior of the show house which was opened last week at Hatfield New Town—the first of 155 houses and flats under contract to be completed. Now it was a good idea on the part of the Hatfield Development Corporation to invite the CID to help with the furnishing and decoration of this house, designed by Lionel Brett and Kenneth Boyd. And although I am judging only from photographs I should say that the planners of the interior, Marjorie Holford and Joan Pattrick have done their job well. But how many people of the class that would live in this type of house—rent and rates, 32s. 4d.—could afford to furnish at one third of the amount it has cost to furnish the show house—that is, approximately £550? The average person would hardly dare even to embark on such an expenditure on the "never-never system."

•

I am not suggesting that the CID's planning of this house for a family of five is extravagant. (Most of the furniture is utility.) I am merely trying to share with you something of my perpetual astonishment at the paradox of present day costs of living. What is the point of giving a man the largest possible living space at the lowest possible rent if he cannot afford to make that space into a home? What is the solution to the furnishing problem? Should we, perhaps, go in for more built-in furniture?

ASTRAGAL

The Editors

TEMPORARY DWELLINGS

IN an adjournment debate in the House of Commons, last week, on the problem of housing people now living in ex-army huts and former war-time hostels, an extremely depressing future was painted for the 37,000 families who are living in these damp, partially-drained huts and camps. The only encouraging feature of the debate was the firm repetition by Mr. Lindgren, the Parliamentary Secretary to the Ministry of Local Government and Planning, of a ministerial policy recently put forward by Mr. Dalton, that local authorities able to prove their efficiency in house building may be allowed to build more by receiving the benefit of cuts in allocations to the slower, less efficient authorities. Such a course may, in time, stimulate the incompetent, but its immediate effect will be merely to exaggerate yet further the differences between authorities, and depress the morale of those many thousands whom circumstances force to live in an area governed by an inefficient local authority.

The particular dilemma before the local authority today is the question of repair and maintenance of the huts. Many of them are reaching the end of their days, and consequently the bill for repairs and maintenance becomes heavier and less economic annually. Naturally enough the Government is loath to spend money, labour and materials on what is only a temporary expedient. Nor dare local authorities give priority in housing to those dwelling in huts, because, to quote Mr. Lindgren: "People who want a house will go to all sorts of lengths to jump the queue . . . it would be wrong to (encourage) local authorities to give undue preference to people who sometimes create a problem for themselves by getting into these conditions."

This little debate in Parliament, however, points a cautionary finger to the future. In this instance only huts were being considered, the hastily erected products of a nation at war. In a few years time, however, the true temporary dwellings will be reaching an age when maintenance costs will become unduly heavy. They, in their turn, will be due for replacement by permanent houses. There is little indication that this future problem will be dealt with any more efficiently or expeditiously than the present, much smaller one.

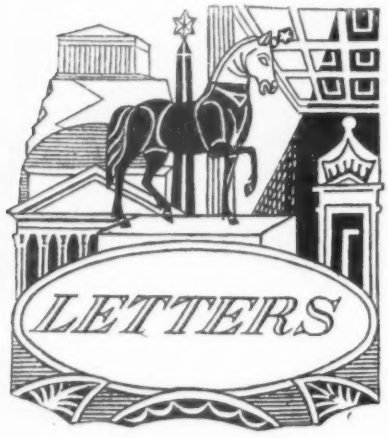
FIRE AND PRESTRESSED CONCRETE

On pages 489 to 492 of this issue we report a discussion between the editors of the JOURNAL and the architect (E. F. Peat) and the engineer (F. J. Samuely) of the important multi-storey factory at Malago, Bristol. One of the most interesting features of this factory is the extensive use of prestressed concrete. The use of prestressing has increased rapidly during the last few years, but some architects have been a little concerned as to how prestressed

concrete would stand up to fire hazards, particularly with regard to the effect of great heat on the ultra-taut, thin wires (often less than $\frac{1}{8}$ in. in diameter) upon which the strength of prestressed concrete depends. Architects need have no further fears on these grounds. The Fire Research Organisation (in conjunction with the LCC's Special Structures Department) has carried out a fire test on prestressed concrete, at its Boreham Wood testing station, and the results have been described as "quite satisfactory." Although the full report is not yet available, it can be revealed that a concrete floor, consisting of prestressed "soffit boards," 1 ft. 10 in. wide and $3\frac{3}{4}$ in. deep, with precast trough units between and a topping of *in-situ* concrete, were tested in the usual way, i.e., in accordance with B.S. 476, with a load of $1\frac{1}{2}$ times the design load and with heat applied from below. This floor had been designed by F. J. Samuely for LCC schools.

The LCC, who sponsored the test, require one hour's fire resistance for their school buildings. Yet, after two hours, the floor was still completely intact, except for the anticipated deflection and some slight spawling under the precast troughs. Although this is only the first test on this material (another, which, it is hoped, will throw some light on the after effects of fires of short duration, is due to take place in about a month's time), it should be a source of considerable satisfaction to those architects and engineers who have had the courage to be pioneers of "prestressing." And it should encourage others to make use of this technique, which can lighten our buildings, and, what is more important, save steel.

We say this with one reservation: it is to be hoped that prestressed concrete will not be used merely as a substitute for steel or ordinary reinforced concrete. If the full potentialities of this technique are developed, it may bring about as great a change in the appearance of our buildings as did the introduction of reinforced concrete fifty years ago.



J. H. V. Davies

H. O. Hamilton, F.R.I.B.A.

Robert G. Tarran

Astragal Admonished

SIR,—My attention has just been drawn to ASTRAGAL'S comments in your issue of March 22 on my article on the state of architectural criticism in *Nine*. ASTRAGAL is, of course, very welcome to exercise his somewhat uncertain wit on what I have written, but it does look from his apparent determination to travesty my entire meaning and intention that he knew well enough that no reasoned answer could be made to my cautious strictures on your sister-journal.

It would no doubt surprise your readers to know that my main purpose was to suggest the need for the careful and critical consideration of individual buildings of past and present. I did not imply that the *Review* never mentioned works of architecture or that it concentrated exclusively on Victoriana and, furthermore, I am not a passionate anti-bollardist. What I did say was that, over the past five years, the *Review* had consistently failed to criticize the major buildings and had devoted too much of its space to trivialities. It is interesting to notice, incidentally, that the *Review* has now, at long last, started a series of articles in which, so the editors assure us, the critical task will be undertaken rather in the manner I adumbrated in my article. I have no doubt that this is pure coincidence.

J. H. V. DAVIES.

London.

[ASTRAGAL replies on page 473.—ED.]

A Vulgar Piece of Design

SIR,—In your issue of April 5 your correspondent ASTRAGAL refers to the removal of the main staircase in the Conservative Club, which work is being undertaken under my instructions and supervision.

While your correspondent and your editors are entitled to quote that in their opinions this staircase should be retained, albeit that they admit that it is not a good architectural example, I do feel that they should be fair and not misrepresent the facts, *viz.*, the staircase consisted entirely of painted plaster and scagliola and did not contain any marble whatsoever. Further, the staircase could hardly have been designed and built in 1845 as it was constructed over modern structural steel supports encased in modern expanded metal, and a great number of galvanized iron hangers were also employed in its construction. From these structural conditions, it appears that the staircase could hardly have been built more than 50 years ago.

In my opinion, this staircase had no architectural claim to be preserved as an example of British architecture. I should indeed regret that this vulgar piece of design be classified with the many examples of really good design left for us to enjoy.

You may be sure that I am qualified to judge in this connection and that, if the stairway in any way constituted a monument to past British architecture, I should have been the first to reject the proposal for its removal.

H. O. HAMILTON.

London.

[ASTRAGAL comments: "Whether the staircase was of marble, scagliola or plastic-sprayed mud, and whether it was built in 1845 or 1945 seems immaterial. The important point, in ASTRAGAL'S barely qualified opinion, is the architectural effect. This was interesting, grand and 'vulgar,' just as Basevi, the architect, would have wanted it. It was worth keeping."]

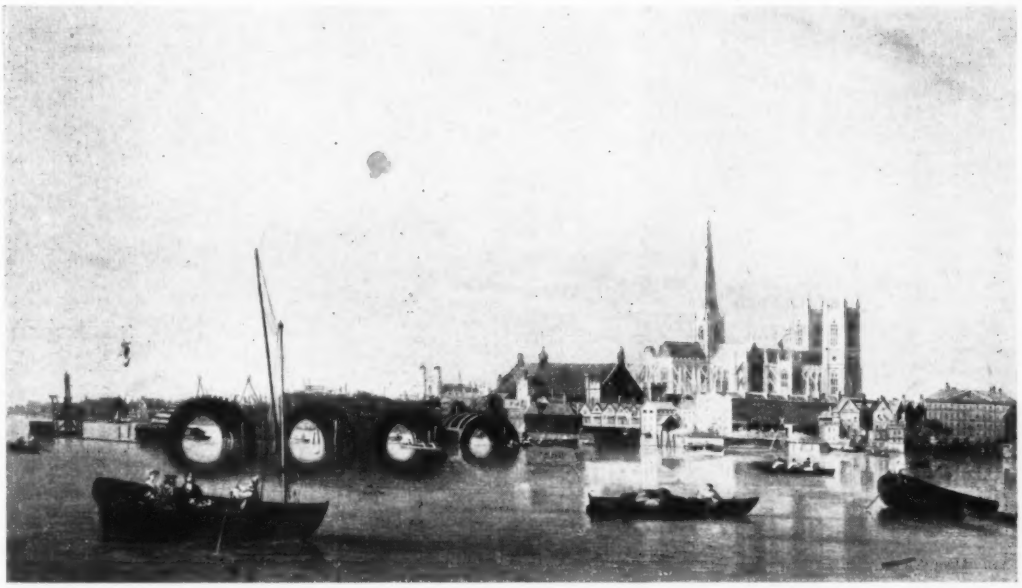
Non-Traditional Housing

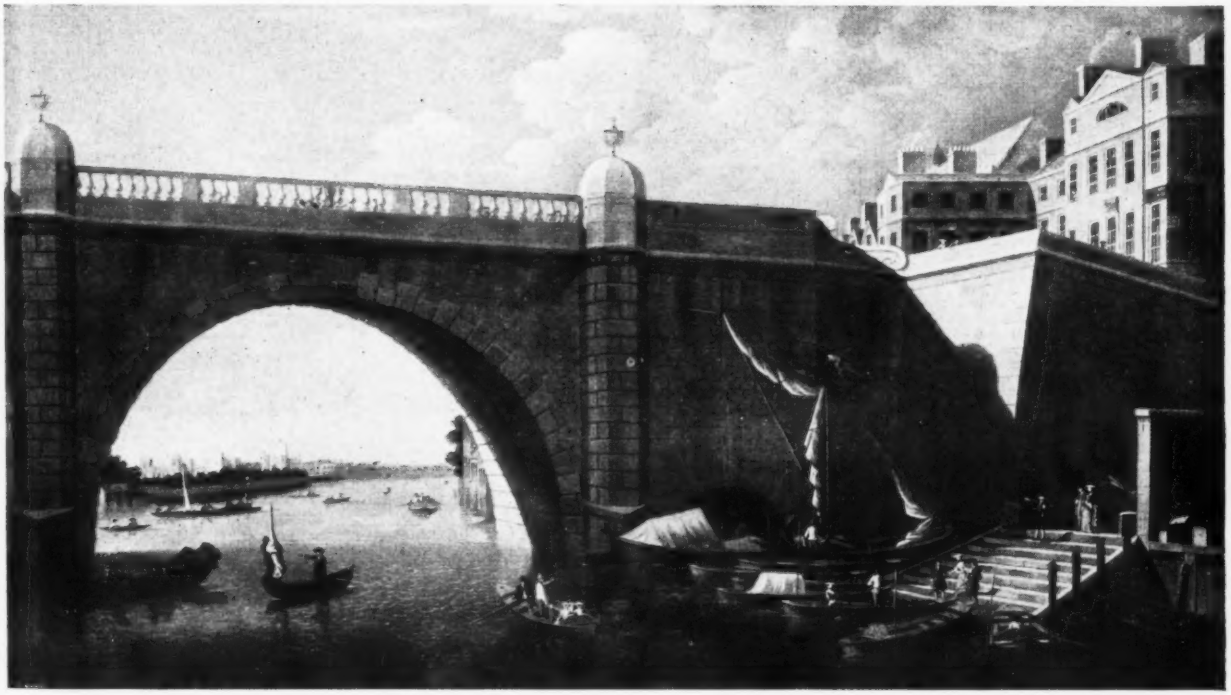
SIR,—While there is much of great interest in the report of the Scottish Housing Advisory Committee on "Design and Workmanship of Non-Traditional Houses" there is also much that has been overlooked or ignored. (See page 478.—ED.)

Outstanding among the latter is the fact that, with one solitary exception, none of the so-called "non-traditional" houses, is

THE ENGLISH CANALETTO: PAINTINGS NOW ON VIEW

These paintings by Samuel Scott, the eighteenth century artist, are part of an exhibition of his work on view at Agnew's, Old Bond Street, until April 24. Below, Westminster Bridge and Steps; right, the bridge (designed by the Swiss engineer, Labelye) under construction. See also detail on page 474 and note on page 471.





completely factory-made. In fact, during the past two or three years many builders of these houses have reverted more and more to the use of bricks.

Non-traditional houses have many merits in their own right—which were recognized by the Scottish Housing Advisory Committee—and they have also a number of points in their favour which should warrant a greater concentration on this type of house at present when both time and materials are short. The true non-traditional house, since it is completely factory-made, can be in production all the year round and the flow of production only interrupted by the most violent weather conditions. Against this we must contrast the fact that with traditional brick houses and also those which are called non-traditional but are actually made largely of bricks, weather conditions invariably hold up construction for about three months in every year. This means a loss of 25 years in a century and with wars and their aftermaths holding up house building for another 25 years per century, the construction of houses is only possible 50 in every 100 years! And that is obviously not good enough.

Again there is the fact that the amount of coal required to produce a given amount of concrete, etc., for the walls of a true non-traditional house is only about half that required to make the bricks to build an equivalent area of walling. With the nation's fuel resources as low as they are today, this is a point of vital importance.

The request made a short time ago by the Department of Health for Scotland that local authorities should build at least half of their year's allocation of houses by non-traditional methods was obviously made to take realistically the fullest possible advantage of the economics and speed which *true* non-traditional houses alone can offer. Otherwise the whole thing does not make sense.

ROBERT G. TARRAN.

Perth.

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

MOLGP

Housing Progress in February

The number of permanent houses completed in Great Britain during February was 13,984. compared with 13,150 in January. This brings the total number of permanent houses completed under the post-war programme to 848,652.

HATFIELD

First Houses in New Town Completed

The first terrace of houses at Hatfield New Town, by Lionel Brett and K. Boyd, was opened recently by G. S. Lindgren, parliamentary secretary to the MOLGP. One of these, a show house, has been furnished with the help of the CID. See photographs on page 481 and ASTRAGAL'S note on page 475.

SCOTLAND

Report on Non-traditional Houses

There is no reason why Scottish local authorities should not go on building permanent non-traditional houses. These houses have no serious constructional defects and satisfactory results can be achieved by the full use of the present system of safeguards. This is the main conclusion of a report, published recently by the Scottish Housing Advisory Committee, on the "Design and Workmanship of Non-traditional Houses."

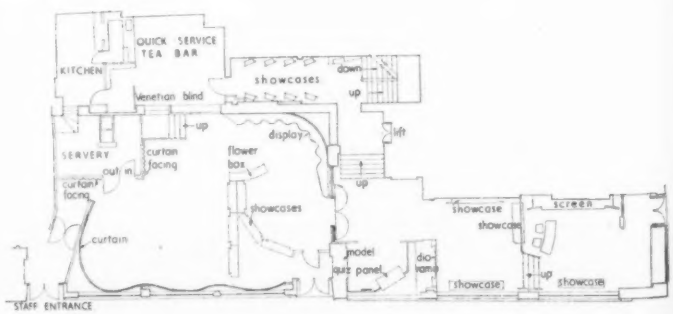
As the main task of the Committee was to make recommendations for the future, they did not deal with the temporary prefabricated house, which is not now being built in Scotland. The report is concerned solely with the permanent non-traditional house—the essential feature of which is that at least the main part of it is produced in a factory by mass production methods.

The Committee's general conclusion was "that the number of serious defects submitted in evidence was small in relation to the number of houses built . . . and that, generally speaking, satisfactory results could be attained by making full use of the present system of safeguards in accordance with our recommendations."

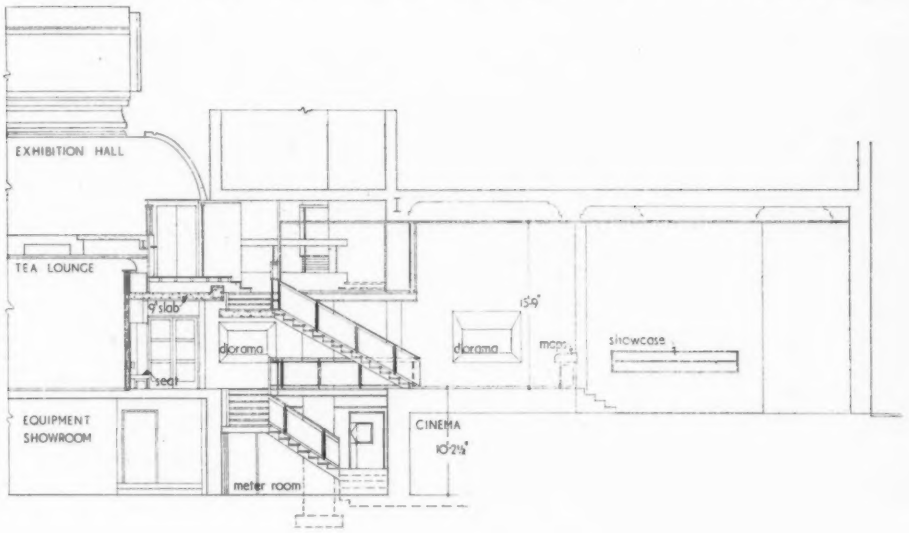
ALTERATIONS TO THE TEA CENTRE,

Alterations to the Tea Centre, Regent Street, which were carried out recently by Fry Drew and Partners (assistant architects: John Bramwell and S. Kowalczewski) were undertaken primarily to provide more direct access from the foyer to the exhibition hall. A new staircase, seen above, has been constructed from the ground floor foyer to a new gallery at mezzanine level (shown opposite, bottom right, in a view from the staircase: the entrance to the exhibition hall stairs is on the left of the picture). The staircase is lit by a new window on the Jermyn Street facade. The balcony front, as can be seen, was made open and light, so that visitors can glimpse the entrance to

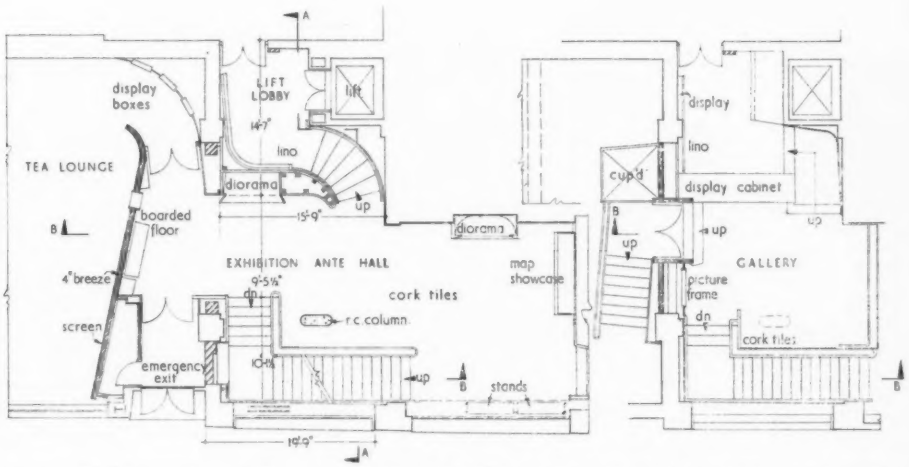
Plan of Tea Centre before conversion



REGENT STREET, LONDON, BY FRY, DREW AND PARTNERS



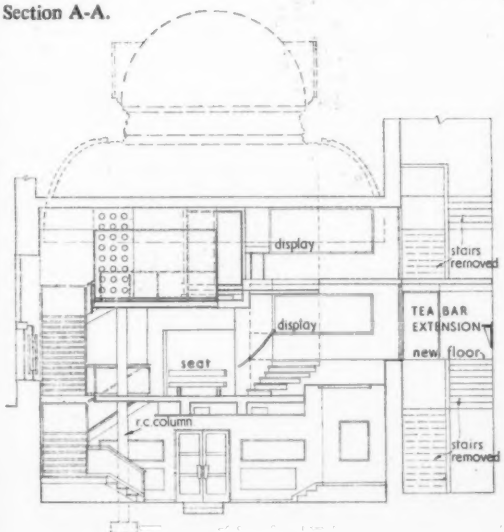
Section B-B.

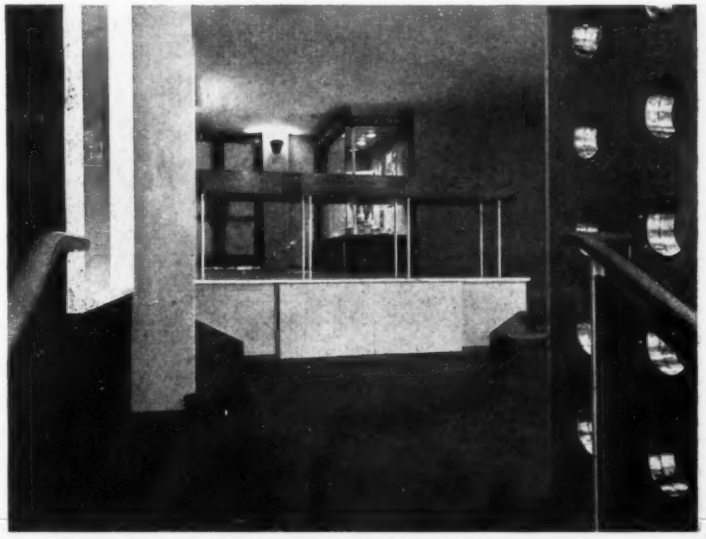


Ground floor and mezzanine plan. [Scale $\frac{1}{16}$" = 1' 0"]

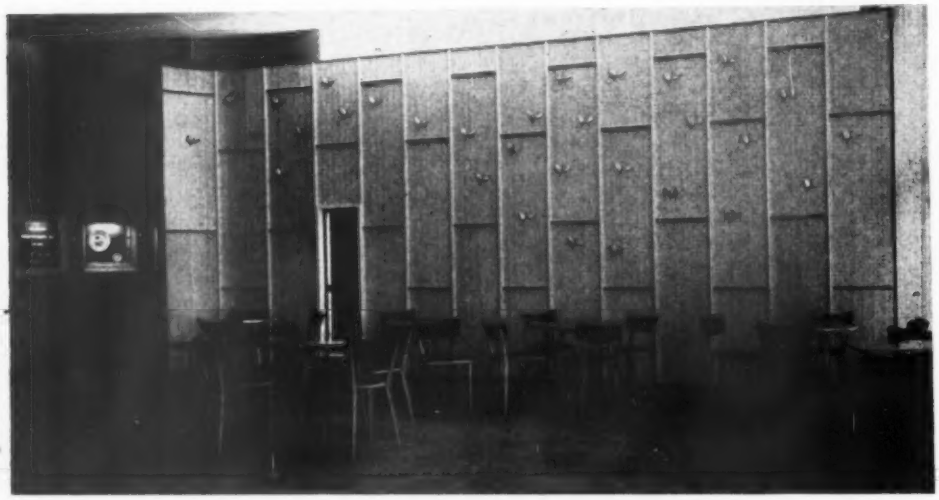
the exhibition hall from the main foyer. The brass risers and facings to the staircase, together with the bright red lacquer on the main columns and handrail, repeat the colourings of the traditional tea-caddy. In fact, throughout the scheme the architects have attempted to create " a feeling associated with traditional tea elements." This is apparent again in the screen they have provided for the tea lounge which was covered with native African matting fixed by timber battens and has a pattern of copper tea leaves superimposed on it. Accommodation in the lounge (p. 480, top) was increased by the re-planning of the inner

Section A-A.

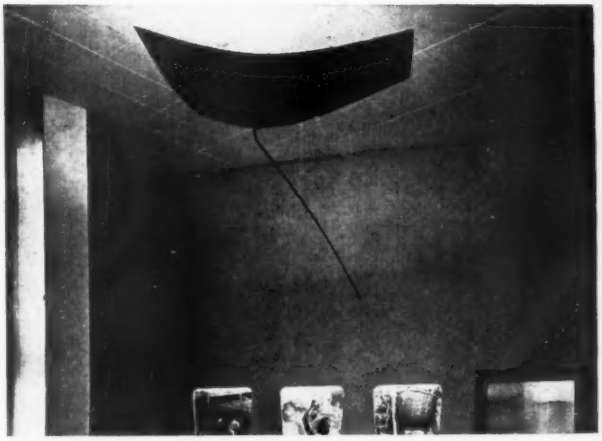


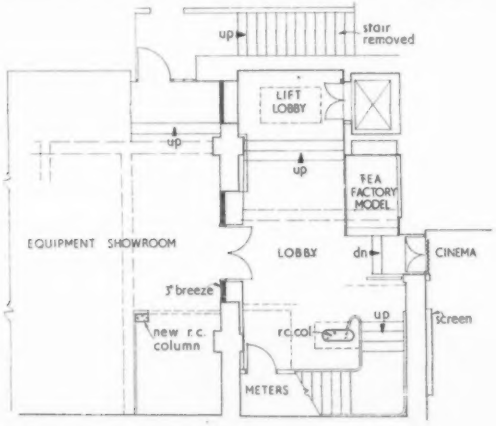


ALTERATIONS TO THE TEA CENTRE, REGENT STREET

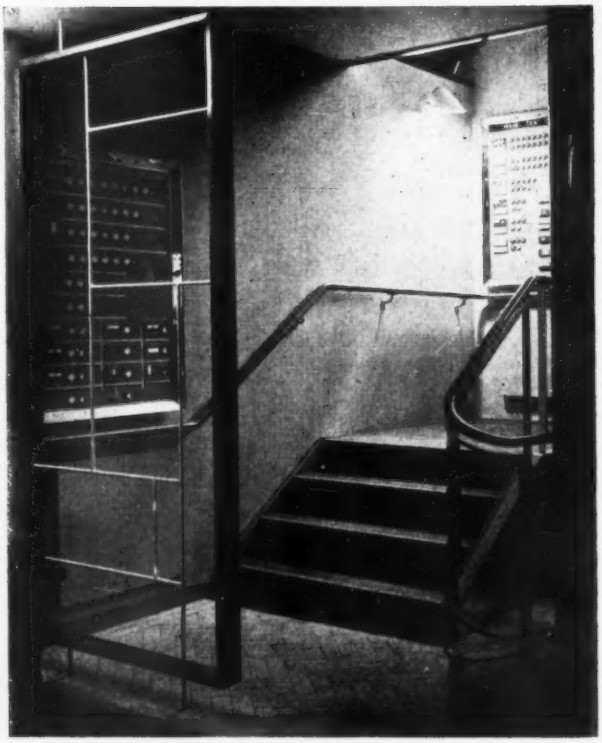


foyer (right : light fitting in lounge). The main staircase has been continued to the basement ; see below, right. Main structural additions : R.C. beams and slabs. Partitions in breeze plastered, timber studding and expanded metal plastered and in studding and veneered ply facing. Walls and ceilings distempered. Polished veneered plywood on wall of foyer (bottom). Grooved hardwood panels, stained and polished, on wall to new mezzanine gallery. General contractors : Holland and Hannen and Cubitts. Sub-contractors : page 500.





Basement plan [Scale: 1/8"=1'0"]



Some defects, say the committee, could have been avoided by good supervision by local authorities' architects and clerks of works. Bad workmanship was responsible for many defects and the only remedies are clear instructions and close supervision. But no attempt should be made to reduce the speed of work or discourage incentive schemes. Training courses for foremen and clerks of works are valuable and should be supported by both sides of the industry.

The Committee approved a suggestion by the Department of Health that a Scottish Examination Panel should be set up, on which local authorities would be represented, and which would take the responsibility for approving the design of non-traditional houses.

RIBA

An Architectural Teachers' Conference

Professor A. E. Richardson will take the chair at the Architectural Teachers' Conference to be held on Saturday, April 28, in the Council Chamber at the RIBA, 66, Portland Place, W.1.

A paper from the Northern Polytechnic School of Architecture, "The Place and Purpose of History and Theory of Architecture in the Curriculum," will be introduced by J. G. Moore. And a paper on "The Approach to Science and Structural Mechanics in the Architects' Training," from the Hammersmith School of Building and Arts and Crafts, will be introduced by E. M. Rice. There will also be a small exhibition of drawings relating to the papers discussed.

DIARY

New Towns in England and New England. Prof. W. G. Holford. At 34, Bedford Square, W.C.1. (Sponsor, AA.) 8 p.m. APRIL 25

The Building Industry and its Organization. D. Cox. At Hammersmith School of Building and Arts and Crafts. 3.15 p.m. APRIL 25

The Design and Construction of a large Span Prestressed Concrete Shell Roof. Lt. Col. G. W. Kirkland and A. Goldstein. At 11, Upper Belgrave Street, S.W.1. (Sponsor, ISE.) 6 p.m. APRIL 26

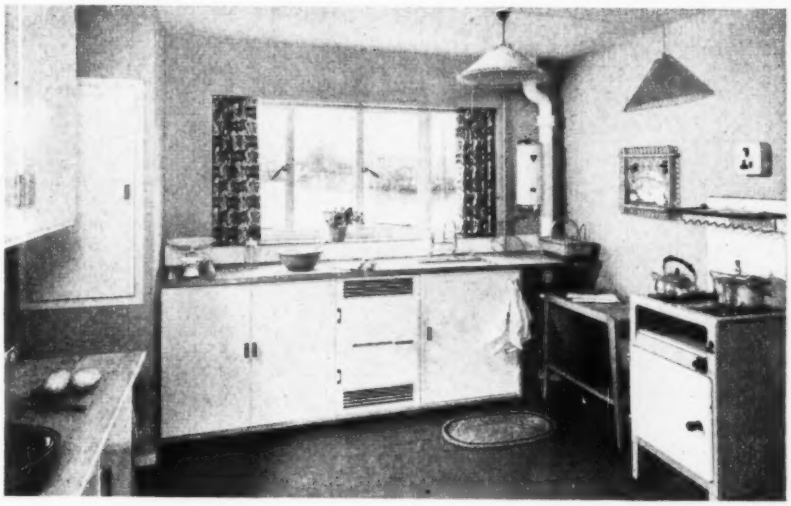
Housing Needs of the Old. Exhibition at 66, Portland Place, W.1. Weekdays: 10 a.m. to 7 p.m. Saturdays: 10 a.m. to 5 p.m. UNTIL APRIL 28

The Expert Witness. P. C. Lamb. At Hammersmith School of Building and Arts and Crafts. 3.15 p.m. APRIL 30

Hospitality at Home. At Tea Centre, Regent Street. Exhibition of furniture and furnishings. (Sponsor, CID.) UNTIL MAY 12

Comparative Tests on Various Types of Bars as Reinforcement of Concrete Beams. Dr. K. Hajnal-Konyi. At 11, Upper Belgrave Street, S.W.1 (Sponsor, ISE). 6 p.m. MAY 17

CID FURNISH HATFIELD SHOW-HOUSE



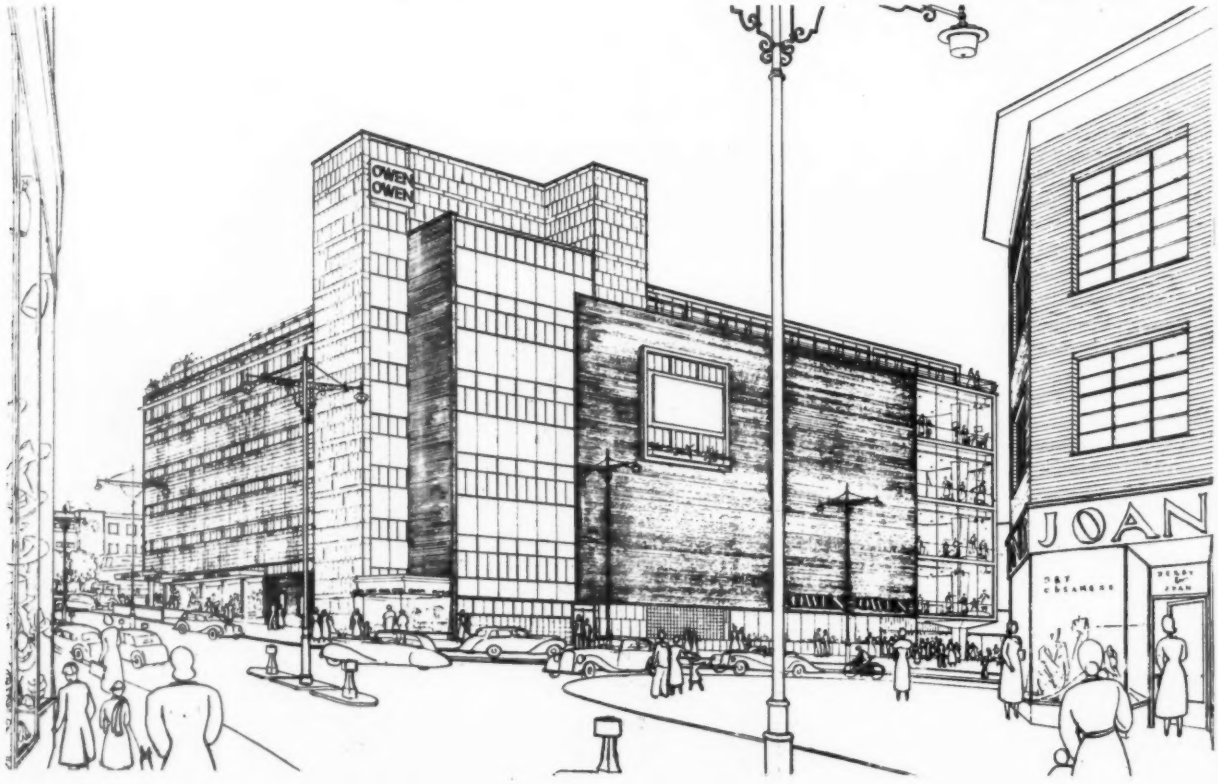
Marjorie Holford and Joan Pattrick planned the interior of this show-house (architects: Lionel Brett and Kenneth Boyd) one of the first to be completed at Hatfield New Town. They did this for the CID at the invitation of Hatfield Development Corporation. Most of the furnishing in this house, designed for a family of 5 or 6, is in the utility price range. *(See Astragal's note on page 475.)*

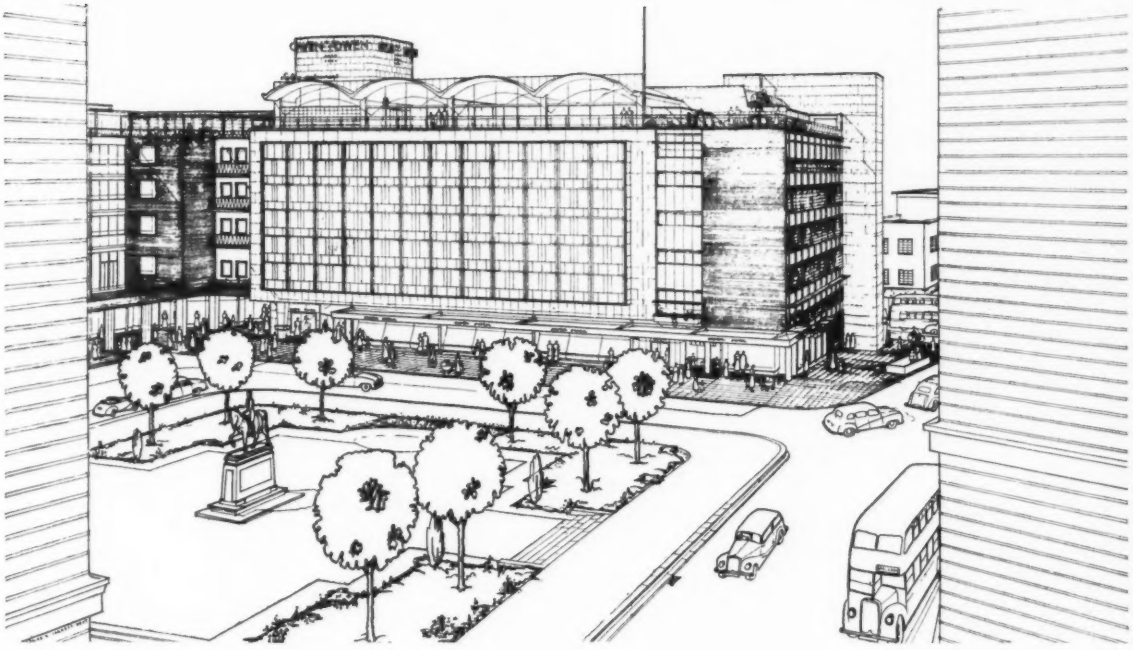
PROPOSED DEPARTMENT STORE

in BROADGATE, COVENTRY, WARWICKSHIRE
designed by ROLF HELLBERG

The new Owen Owen store, which will occupy a bombed site on the north side of Broadgate, forms a part of the Coventry reconstruction scheme, on which work has already commenced. The building contains new features, and when completed should rank among the finest department stores in the country. The plan is roughly square and will cover the present street of Cross Cheaping, which will shortly be closed to traffic. It is an island site with three sides having road frontage and the fourth a covered arcade linking Broadgate to the Burges.

View looking south-west down Trinity Street.



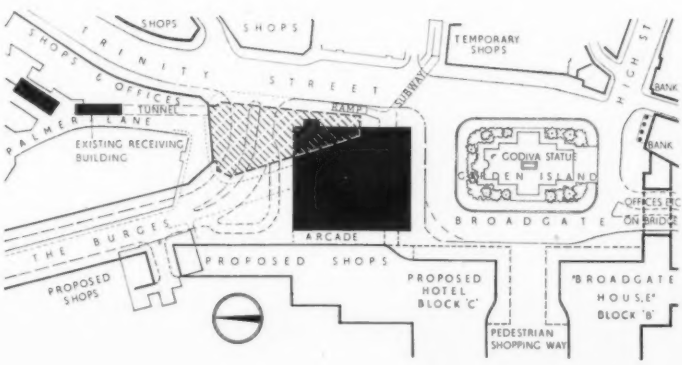


Above, the south and east facades seen across Broadgate. The large window in the south front is over 100-ft. by 40-ft. high.

PLAN.—The basement and sub-basement, which will contain the receiving and dispatch rooms and all the engineering plant, will be almost entirely outside and not directly below the building proper as indicated on the site plan. Access will be through an existing service tunnel. The building above the level of Broadgate will consist of a long, narrow stock and office block facing Trinity Street and beside it an extensive sales block. The latter will have four floors and the former six in the same height, an arrangement decided upon as the most economical and convenient after considerable research had been made by the architect. Due to the fall of the site from Broadgate to the Burges, the store will have two ground floors, each entered from different ends of the proposed arcade and with a half level entrance in the centre serving both.

CONSTRUCTION.—The building will be of reinforced concrete throughout. The sales block will be of "mushroom" construction; columns will have a square tapering form. On the Broadgate front the restaurant roof will be of four curved arches of shell concrete.

FINISHES.—On the south front there will be non-reflecting windows beside the pavement of a new type using flat plate glass set at an angle. There will be a low metal canopy and above this a large window over 100 ft. long by 40 ft. high, in a frame of travertine marble. Venetian blinds will be fixed between double glazing in an 18-in. space. The end of the administrative block on this facade will be faced with brown brick, which will be also used on



Site plan

Above, the lower ground floor entrance on the north front and the west end of the arcade.

PROPOSED DEPARTMENT STORE

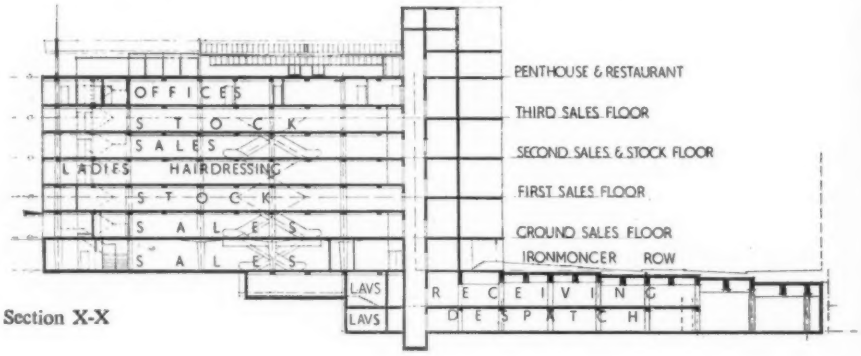
in BROADGATE, COVENTRY
designed by ROLF HELLBERG

most of the north facade except for a glazed panel 60 ft. high at the north-west corner.

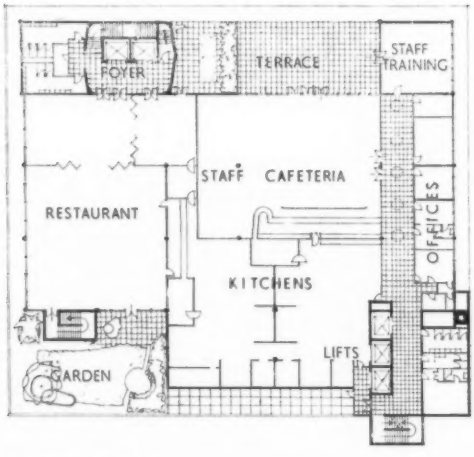
SERVICES.—All the five sales floors will be served by lifts and escalators and there will be a comprehensive system of air-conditioning, ventilating and heating. The schemes for lighting will be varied between floors and departments according to the type of merchandise on sale.

The estimated cost is £600,000. The reinforced concrete work is being designed by Scott & Wilson and Roger Preston & Partners are consultants for heating and ventilating.

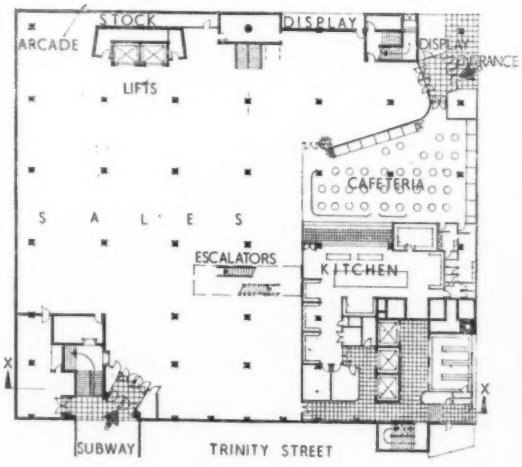
The general contractors are Bovis Ltd.



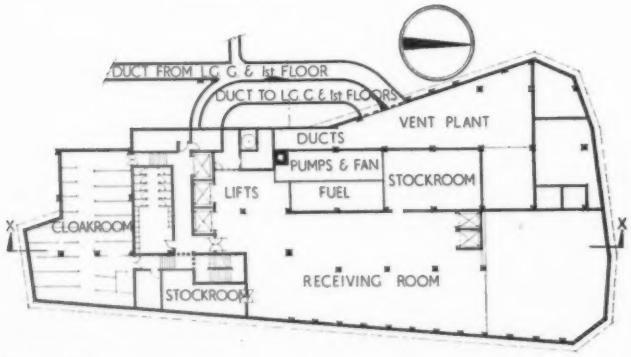
Section X-X



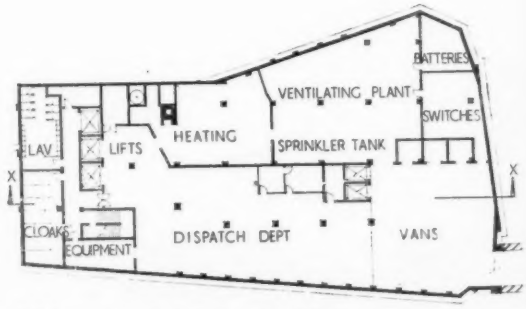
Penthouse plan



Lower ground floor plan



Basement plan



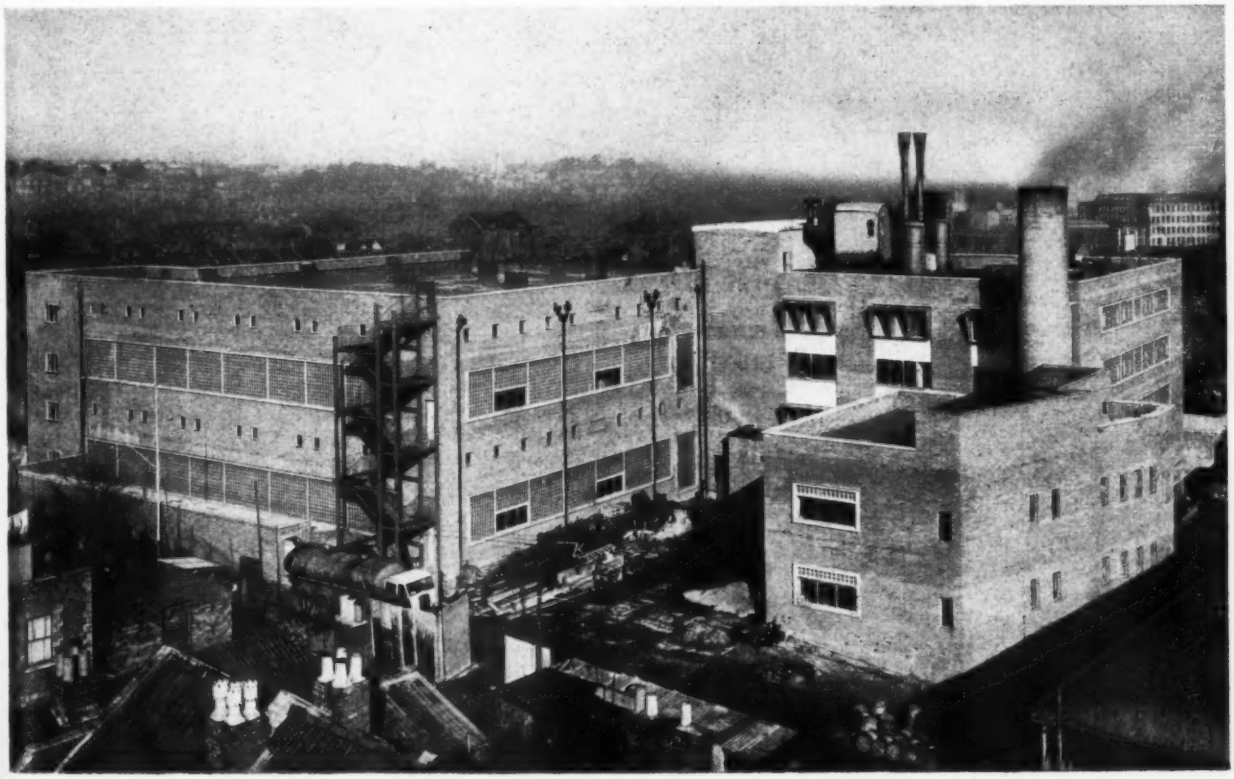
Sub-basement plan [Scale: 1/16" = 1'0"]

FACTORY

at MALAGO, BEDMINSTER, BRISTOL
designed by E. F. PEAT
consulting structural engineer F. J. SAMUELY

The new factory and annexe for Colodense Ltd., is for conversion of cellophane to wrappings, etc. The site is very restricted, but has the advantage of being close to the premises where the process was being carried on previously in cramped and unsuitable accommodation. Right of light restrictions occur only on the Argus Road side of the site, where the fifth storey will have to be set-back because of the adjacent houses. The annexe accommodates air conditioning plant, fitting shop, cloakrooms, and facilities for washing-up of ink ducts, box-making, packing, etc. Office space is only temporary until a separate office block is built. The housing of ancillary processes in the annexe leaves more floor space in the main factory area.

View of factory and annexe from the south.



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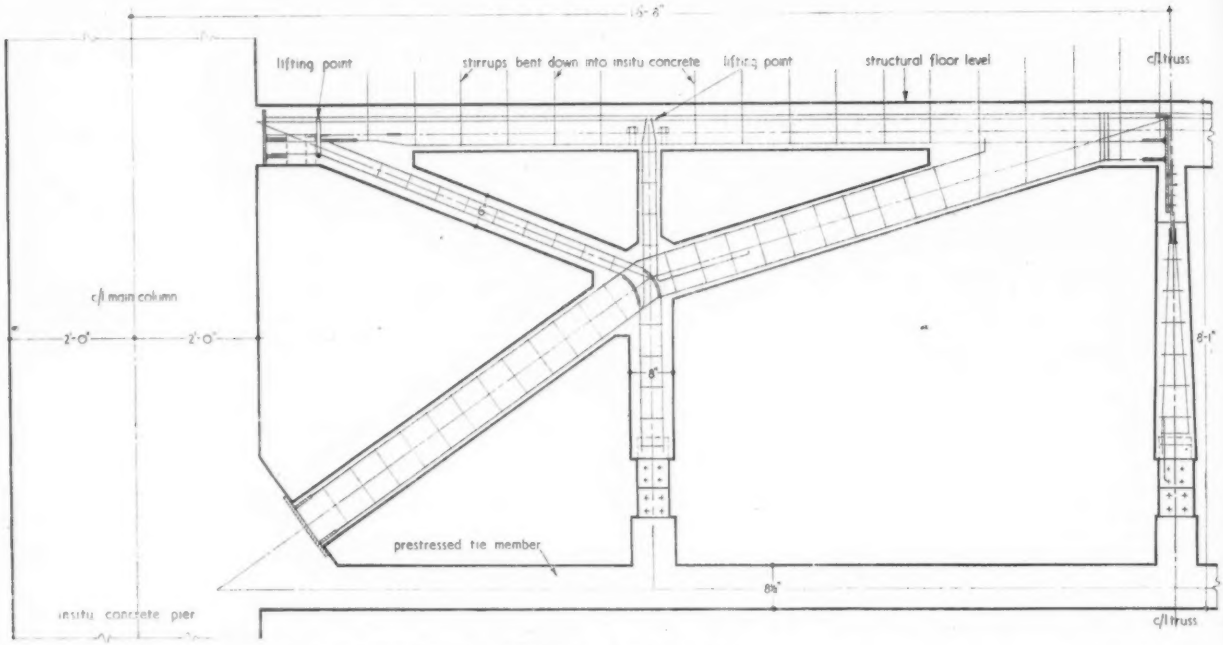
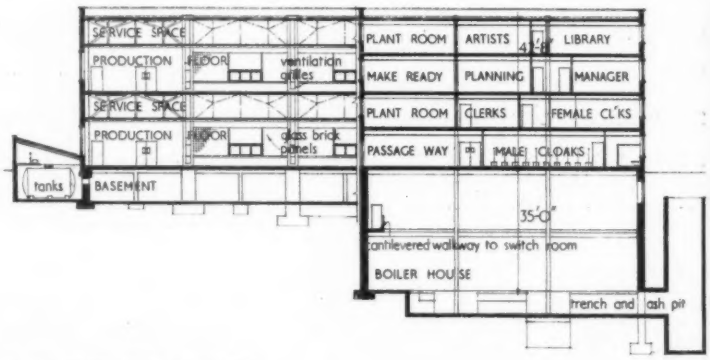


Half section of reinforced concrete truss with prestressed tie member [Scale : ¾" = 1'0"]

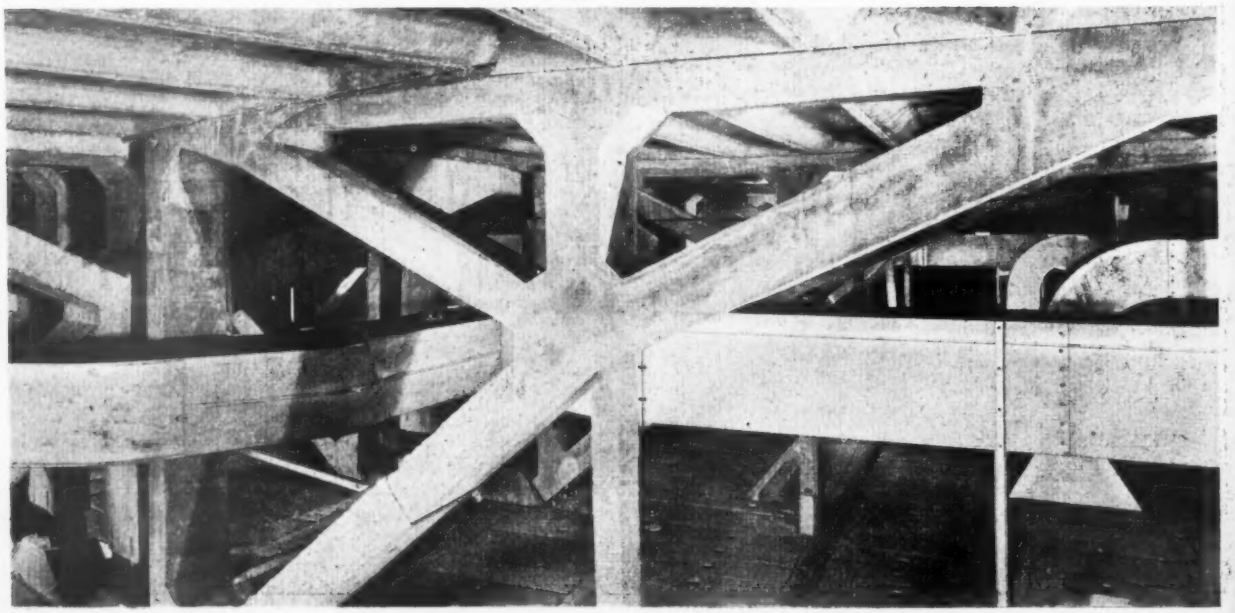


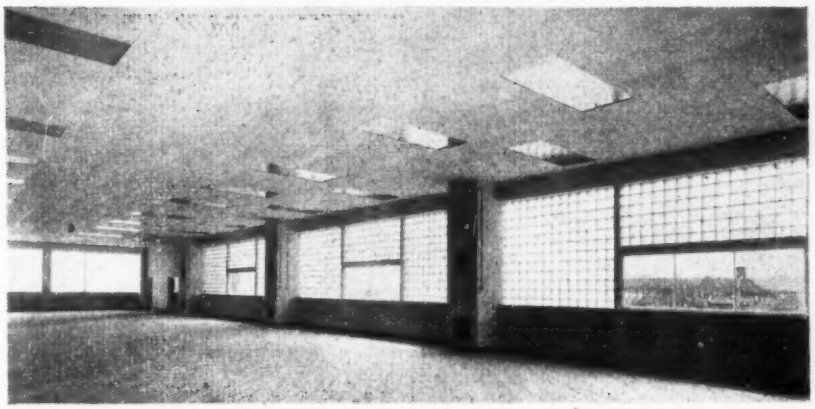
Section X-X [Scale : ¾" = 1'0"]

FACTORY

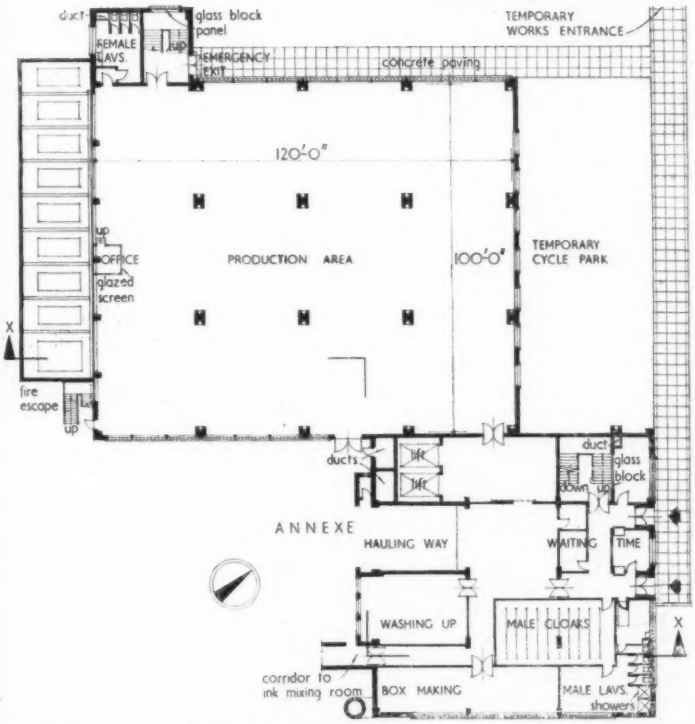
at MALAGO, BEDMINSTER, BRISTOL
designed by E. F. PEAT

Below, a prestressed concrete truss in one of the service floors of the factory block.





First floor production area in the factory, showing glass brick panels, inset fluorescent lighting in the ceiling and a timber floor.



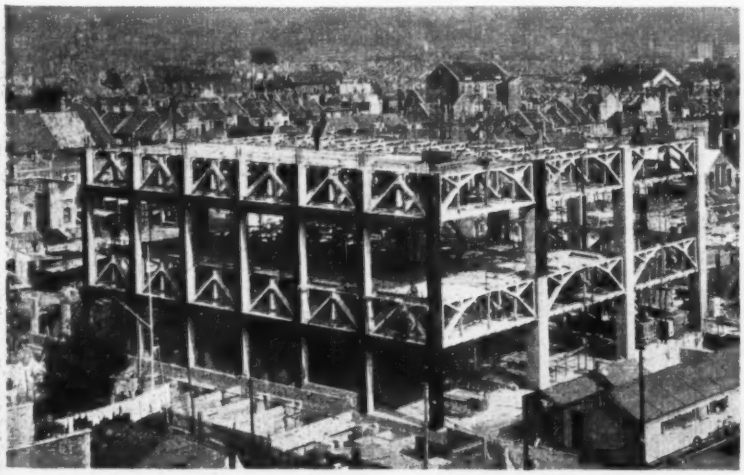
Ground floor plan [Scale: $\frac{1}{16}$" = 1' 0"]

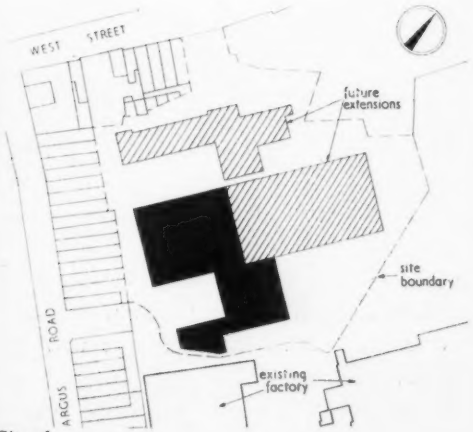
CONSTRUCTION.—The particular points of interest in the construction are the provision of a service floor between each production floor and the use of prestressed concrete to save steel and decrease the size of members. Columns are of *in situ* reinforced concrete and the remainder of the structural frame is pre-cast concrete with prestressed main and secondary tie beams. Walls are of 11-in. cavity brickwork.

Service floors consist of removable precast concrete slabs and beams. The main floors are of precast trough units, with *in situ* concrete topping. The beams in the annexe consist of prestressed tension flanges with *in situ* topping.

FINISHES.—Internal walls are of hollow tiles plastered, and there are also metal partitions. Brick walls are plastered and distempered internally. Floors in the annexe and corridors generally are finished with granolithic; in the production area, first floor timber boarding, elsewhere tiles; in cloakrooms and washrooms, terrazzo. There are glazed tiled dados in wash rooms and w.c.'s.

Below, general view showing structural frame before cladded with brickwork.





Site plan

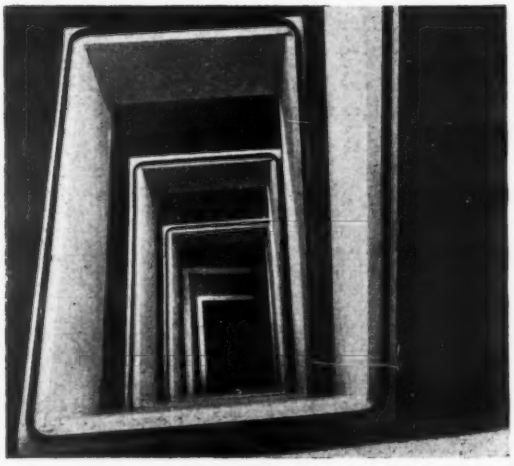
Left, the south-west facade of the annexe showing the link with the ink building on the right. Below, looking down the main staircase in the annexe.

FACTORY

at MALAGO, BEDMINSTER, BRISTOL
designed by E. F. PEAT

SERVICES.—All pipes for hot and cold water, steam and soil disposal are run in vertical ducts and two main ducts situated behind the annexe lifts, carry all solvent recovery pipes, main electric cables, etc., for distribution throughout the building. Assistant architect, J. Collins ; assistant engineers, (foundations) L. L. Kenchington, (superstructure) Miss P. Hutchings.

The general contractors are Holland & Hannen and Cubitts Ltd. For sub-contractors see page 500.



A small steel allocation, a cramped site and a client anxious for early completion presented both the architect and engineer of this multi-storey factory with a number of problems which they discuss below with the editors of the JOURNAL.

FACTORY AT MALAGO, BRISTOL

Discussion between the Architects, the Engineers and the Editors

TWELVE: I understand you had to do an enormous amount of excavation. Why did you not use pile foundations ?

ENGINEER : The site was over a disused brick field, which had been filled in with dross from a coal mine, and all kinds of other refuse. Such a mixed filling was not very suitable for piling. Also the trial borings were found to be incorrect in one or two cases and did not give a reliable indication of the bearing strata. Further the extensive basements obtained by bulk excavation gave the clients valuable storage space and a very good boiler house. All in all, we had to excavate about 47,000 cu. yds. In places, we had to go down 62 ft. to find a decent bed for the foundations, but at that depth we found very good ground, almost rock.

Eventually, there will be five working and five service storeys in this building, and each column will carry a load of 1,200 tons. Piled foundations for such loads would have required a very large number of piles and considerable construction for distribution. Actually, for the extension, where the need for basement space is not so acute, piles are being used, but the saving achieved in this way is not substantial.

NINETEEN : I imagine all the site work held up the job.

ARCHITECT : Naturally, but we think the job was done in very good time. This photo (top right), taken in September, 1948, shows an almost virgin site and by November, 1950, the job was finished.

TWENTY-FOUR : What were your principal reasons for having these unusual service floors ?

ARCHITECT : This building has an exceptional amount of services. The process must be carried out under very strictly controlled conditions of temperature and humidity and these conditions have to be different on each floor. So for a start there is a complete air-conditioning plant, housed in the annexe, providing ten air changes an hour to each manufacturing floor. Then, of course, it simplifies maintenance if all the services are so easily accessible. There was another advantage. We have put all the electric motors into the service floor and as they are cut off from the work space by the ceiling they don't have to be flameproof.

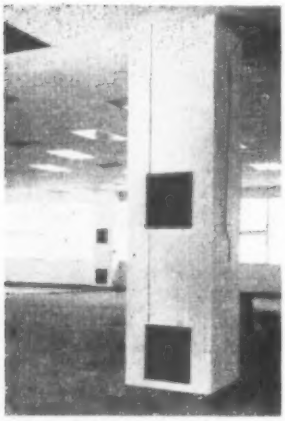
ENGINEER : There is a structural advantage too. As you know, the deeper you make your beams the more economical it is so we have used the whole depth of our service floors for lattice beams. You can imagine that the loads in a multi-storey factory are enormous and you never know what will happen in a building. We have seen how floors get overloaded with stores. In the future any of these floors may be used as warehouse space.

THIRTEEN : Is that why you prestressed the concrete ?

ENGINEER : We had to prestress the concrete otherwise our steel allocation, which was 390 tons,

The site in September, 1948.

"*In places, we had to go down 62 ft. to find a decent bed for the foundations.*"



Air conditioning outlets from ducts in the columns.

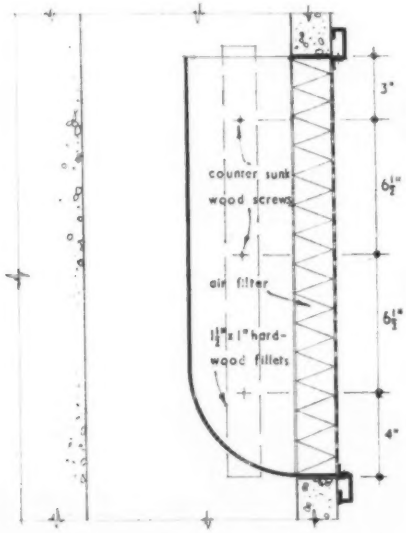
would not have been enough. But, as concrete is always strong in compression, we only prestressed the tension " flange " of the truss.

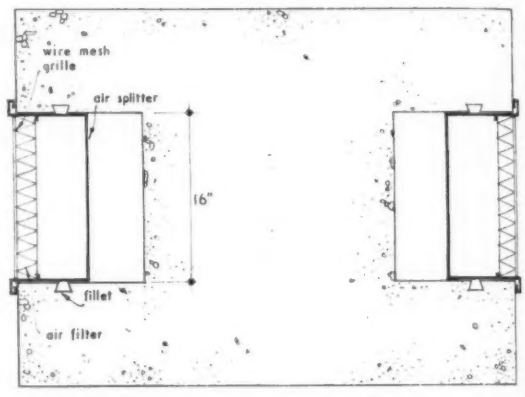
TWENTY-FOUR : How much steel would you have needed if you had used a steel frame ?

ENGINEER : Probably 1,200 to 1,500 tons. In the annexe we had another reason for prestressing the concrete. We only had 9 ft. 4 in. headroom and the architect required that the beams should project no more than 4 in. below the ceiling level. So we precast beams 4 in. deep—prestressed—which again act as tensile flanges. Poured concrete, the depth of the floor, takes the compressive stresses.

TWENTY-ONE : What determined the 9 ft. 4 in. ceiling height ?

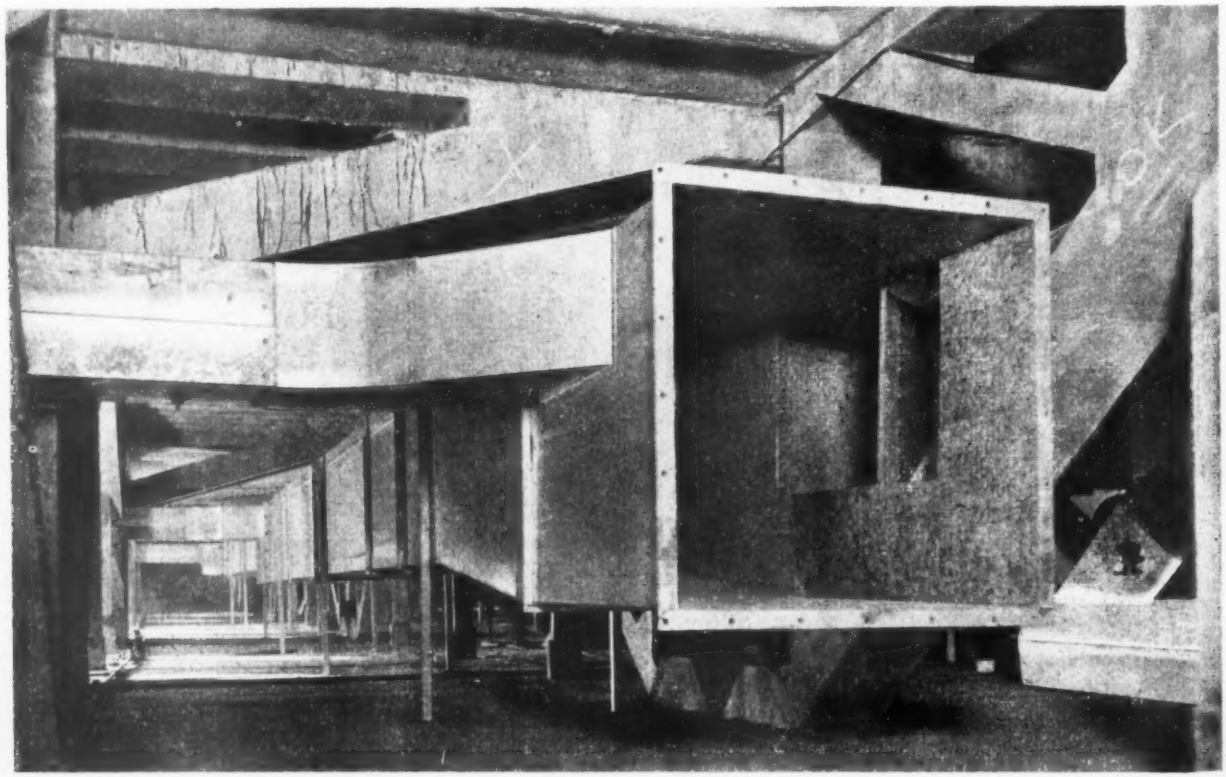
ARCHITECT: We had to get two floors of the annexe into the same height as one floor of the factory together with its service floor. Incidentally, the client was so anxious to speed up the job that we started having the floor units precast as soon as the licence was granted and before the dimensions of these prestressed beams had been calculated accurately. The result you can see in the photo (see page 491). The prestressed beams had to be a little wider than was anticipated and a little ledge is formed on either side.





Above, plan of column showing outlets from ducts (scale: ¾ in. = 1 ft. 0 in.). Left, detail of air splitter (scale: 1½ in. = 1 ft. 0 in.).

Below, view through service floor ; note size of main air conditioning duct.



NINETEEN : Isn't there a moral here? Recent reports have shown that in America such interference by the client is discouraged. Could you not have restrained your clients a little?

ARCHITECT : Possibly, but in this case the result justified the risk.

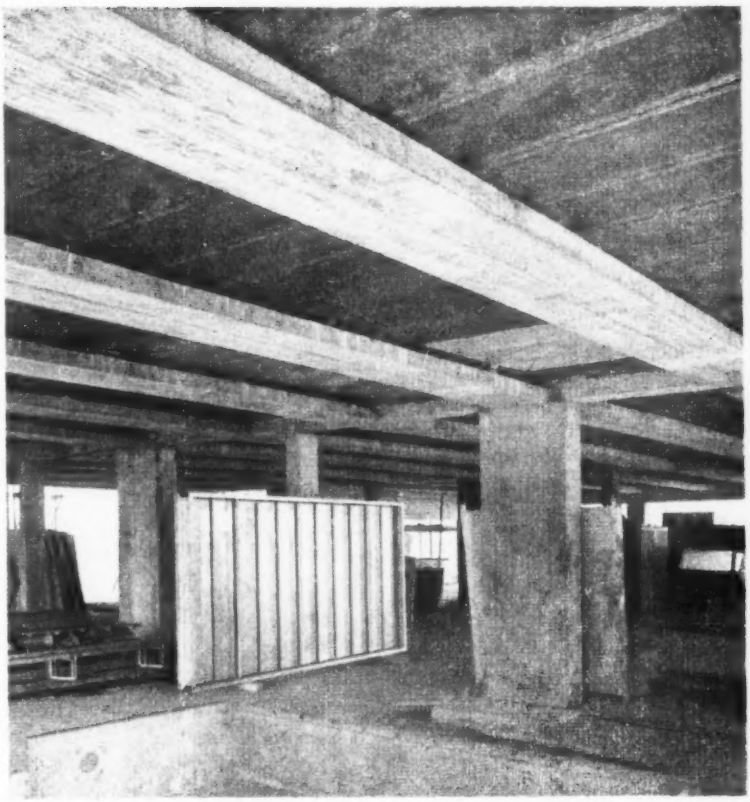
TWENTY-ONE : How did the requirements of the plant affect the spacing of columns and the floor to ceiling height?

ARCHITECT : The column spacing was governed by the machines—30 ft. 4 in. in one direction and 30 ft. in the other. That is one of the reasons why the beams carry such heavy loads—as much as 350,000 lb. on one beam. The clear height from floor to ceiling had to be 13 ft.

ENGINEER : So you can see if we had not used trusses in the depth of the service floor we would have had very deep beams, the floor to ceiling height would have had to be much greater to give the clear height of 13 ft. and we would have had all sorts of difficulties taking the various services—air-conditioning ducts, sprinkler system and so on—under the beams.

SIXTEEN : How are the production floors lit? Is the natural lighting adequate?

ARCHITECT : Most of the time, yes. A depth of 100 ft. is not too great for natural lighting, especially as we have planned the centre of the floor as a passage which, of course, does not need such good lighting as the work areas.



Interior of the annexe during progress—" the prestressed beams had to be a little wider than was anticipated and a little ledge is formed on either side."

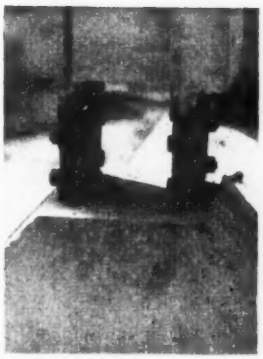
" so that the workers should not feel completely 'imprisoned' we put in small panels of ordinary glazing."

SIXTEEN : Is the work carried out very intricate?

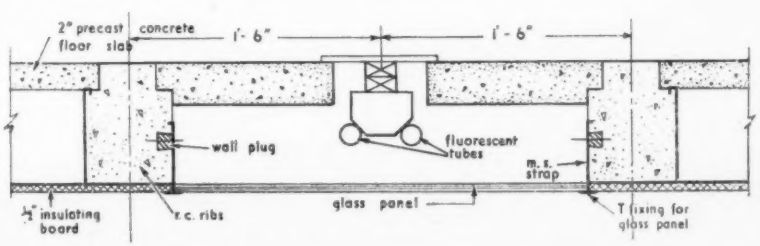
ARCHITECT : Fairly. Of course, electric lights are needed for maintenance work but for the normal work daylight is adequate on bright days, especially as we used glass blocks extensively which increased the diffusion of the sunlight.

TWENTY-FOUR : Do you not consider them expensive?

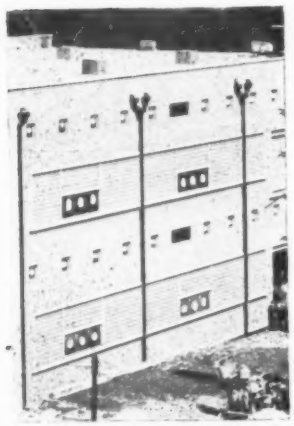
ARCHITECT : Not in the long run. They provide thermal insulation and there is no need to use curtains or blinds to prevent glare when the sun is too bright. So that the workers would not feel completely " imprisoned," we put in small panels of ordinary glazing. We think it most important psychologically that they should be able to see out.



" bolted connections between the precast elements of the lattice beams."



" pairs of fluorescent tubes . . . sunk flush into the ceiling."



"on the North-west elevation the RWP's are exposed."

"the escape staircase on the outside."

SIXTEEN : How about artificial light? What intensity do you aim at?

ARCHITECT : We provide 21 foot candles by using pairs of fluorescent tubes. They are sunk flush into the ceiling, access to them is from above.

TWELVE : On the photos you can see what look like bolted connections between the precast elements of the lattice beams. I assume these were covered with concrete afterwards for fire protection?

ENGINEER : That is so, but the bolts were only to hold these elements in position; the final connections were welded.

TWENTY-ONE : On the north-west elevation the RWP's are exposed. Couldn't you have taken these down internally?

ARCHITECT : That would have necessitated ducts and they would have covered up the valuable window area. Anyway, this is the least seen elevation.

TWENTY-ONE : Why did you have the escape staircase on the outside?

ARCHITECT: That was due to a requirement of the local authorities but we shall enclose it later.

TWELVE : I see you have used timber flooring on the first floor. That is very unusual for a factory.

ARCHITECT : Not really; that floor is used by women and the work is of a much lighter nature than that done by men on the ground floor, where we used tiles. The timber we used is hard-wearing—African Olive—and dust-proof.

NINETEEN : Did you pay any special attention to the use of colour in the factory?

ARCHITECT : We hope to paint the machines in colours which will harmonize with the general colour scheme, which is of restful colours throughout.

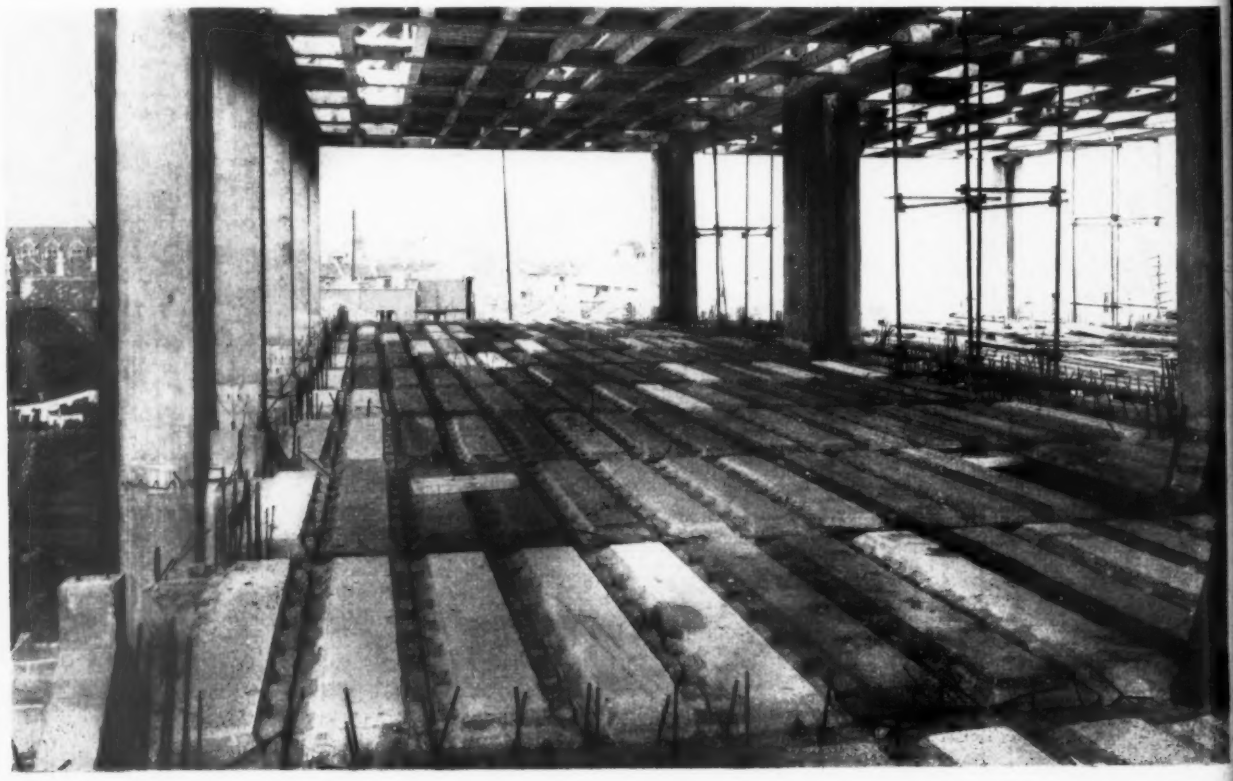
NINETEEN : Apart from the use of orange at danger points, have you used any other colours for functional reasons?

ARCHITECT : Where the work comes out of the machines we have used a cream background so that it cannot conflict with any of the printed colours.

NINETEEN : Both the planning and structure of this building is extremely unusual, but, looking at the elevations, it is hard to detect this original quality in the design. Do you feel that the service floors and the intricate lattice beams are adequately expressed?

ARCHITECT : No, that would have been quite impracticable. I think the row of small windows provides sufficient contrast to the panels of glass blocks to express the difference between the floors. And the vertical row of windows at the end expresses the staircase and lavatory block.

Below, progress view through working floor, showing precast concrete floor troughs.



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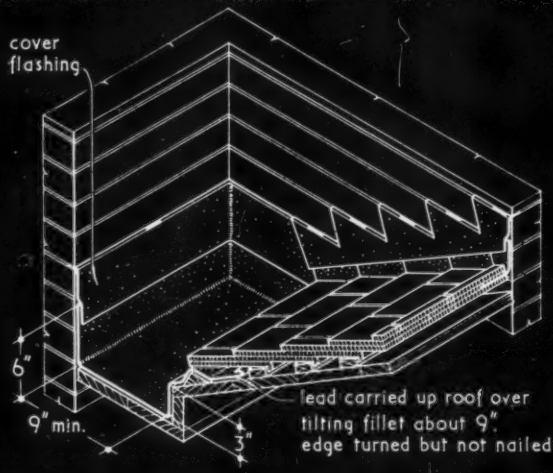
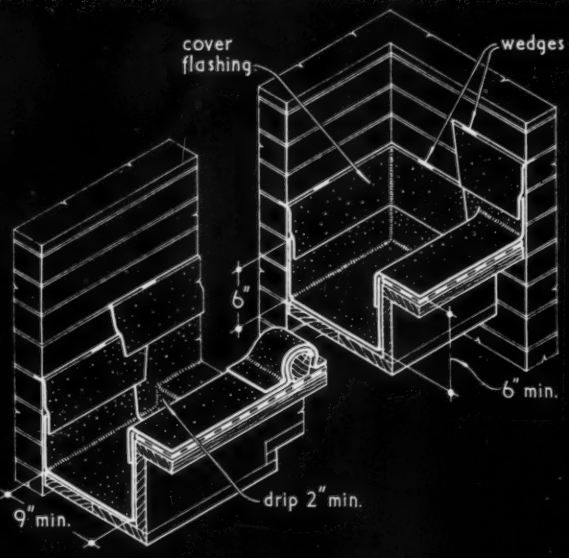
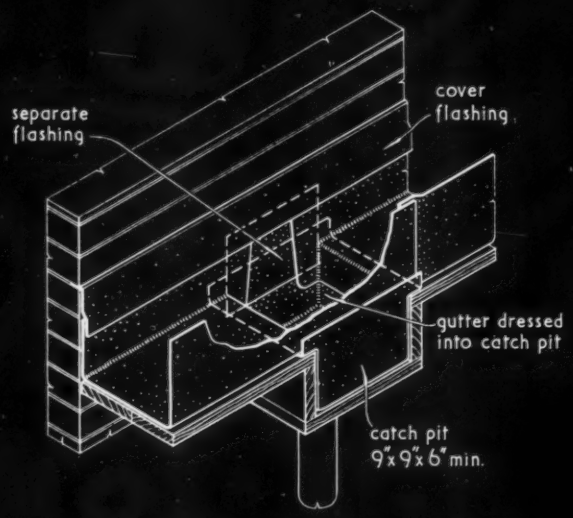


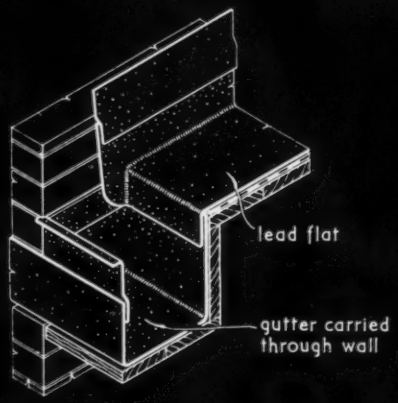
BOX GUTTER TO PITCHED ROOF: DETAIL AT HEAD.



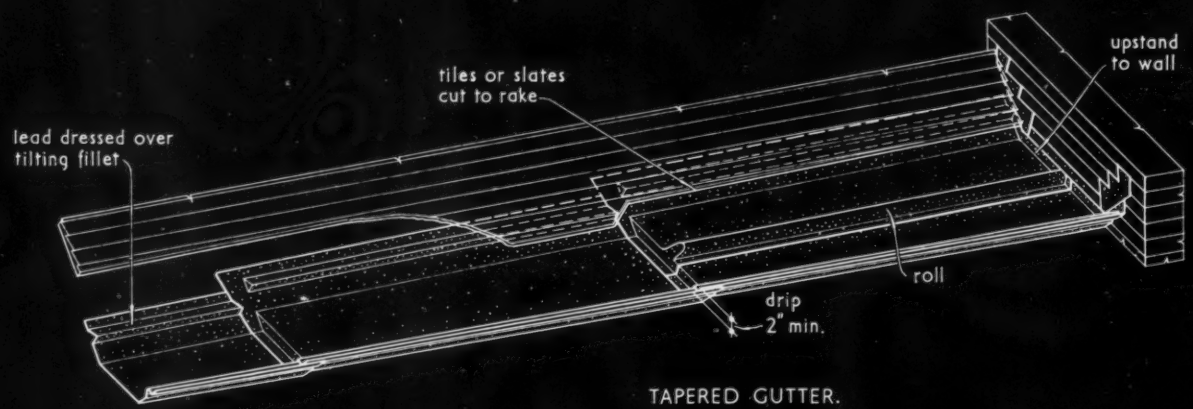
BOX GUTTER TO FLAT ROOF: DETAIL AT HEAD AND DRIP.



DETAIL OF CATCH PIT WITH INTERNAL OUTLET.



DETAIL OF SIMPLE CHUTE OUTLET: INTERNAL VIEW (for external view see Sheet 10.G13).



TAPERED GUTTER.

LEAD-LINED BOX AND TAPERED GUTTERS.

Compiled from information supplied by The Lead Industries Development Council.

10.G14 LEAD-LINED BOX AND TAPERED GUTTERS

This Sheet deals with lead-lined box and tapered gutters. The box gutter, which has parallel sides, is used where lead covered flat roofs or pitched roofs are designed with a parapet wall or where two pitched roofs are adjacent. The tapered gutter may be used as an alternative with pitched roofs in either of the above cases.

The principle of laying lead to box and tapered gutters is the same as that for lead roofs (see Sheet 10.G11); the sizes of pieces of lead used must be similarly limited and the same types of joints, drips and rolls used.

Box Gutters

The width of a box gutter should not be less than 9 in. The depth at the highest point should be 6 in. where the gutter is used with a lead flat roof but with pitched roofs this depth may be reduced to 3 in., since the lead is carried up the roof slope under the tiles or slates for about 9 in.

The minimum width of lead required to line a box gutter to a lead covered flat roof is 1 ft. 9 in. and for this width the 10 ft. maximum length of bay is permissible. If the gutter is long enough to require two drips, the depth of the lower part will increase to such an extent that the lower piece of lead will have to be about 2 ft. 9 in. wide and the length of bay accordingly reduced to about 8 ft.

The minimum width of pieces of lead for lining box gutters to slated or tiled roofs is about 2 ft. 3 in. and lengths of bays should be about 9 ft. or less, dependent on the number of drips.

Tapered Gutters

With a tapered gutter the pitched roof merges straight into the flat sole of the gutter without upstands. Therefore the gutter widens towards its highest point according to its fall and the pitch of the roof. The upper part of a tapered gutter may be too wide to be lined with one piece of lead in which case two or more pieces may be joined by means of rolls.

Tapered gutters should not be less than 6 in. wide at their lowest point but 9 in. is preferable.

Outlets for Box and Tapered Gutters

The simplest method of forming an outlet is to carry the sole of the gutter through the parapet wall as a chute to discharge into a hopper head. One outlet to every 16 ft. of gutter is usual.

A catch pit 9 in. by 9 in. by 6 in. minimum in size may be incorporated in a box gutter to create a small pressure head of water and increase the rate of flow in the down pipe. Catch pits may be used where an internal down pipe is required or where a long gutter can have only one outlet.

A catch pit with an internal outlet should be provided with an overflow pipe to discharge through the parapet wall into the open air, particularly if the gutter is likely to collect leaves or other refuse. The mouth of the internal outlet should be fitted with a bronze or cast antimonial lead grid.

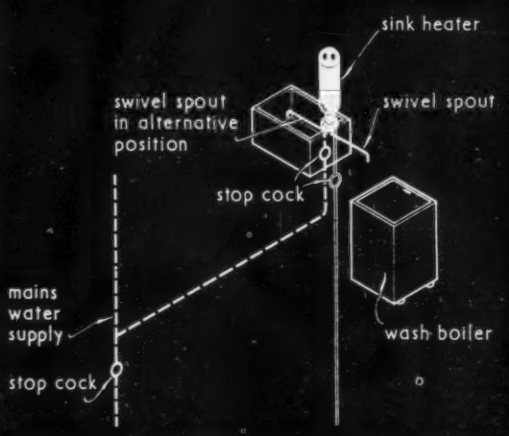
Weight of Lead

5-6 lb./sq. ft. lead is suitable for all normal work but it is usual to specify 7 lb./sq. ft. lead for monumental buildings.

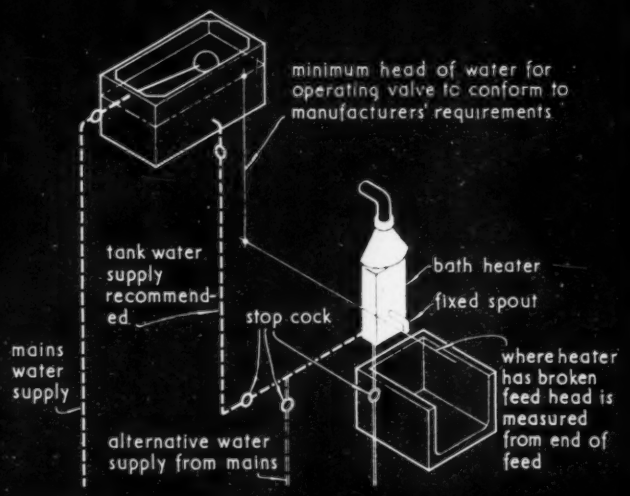
Further Information

The Lead Industries Development Council maintains a Technical Information Bureau which is available to answer questions and advise on technical problems dealing with this subject generally.

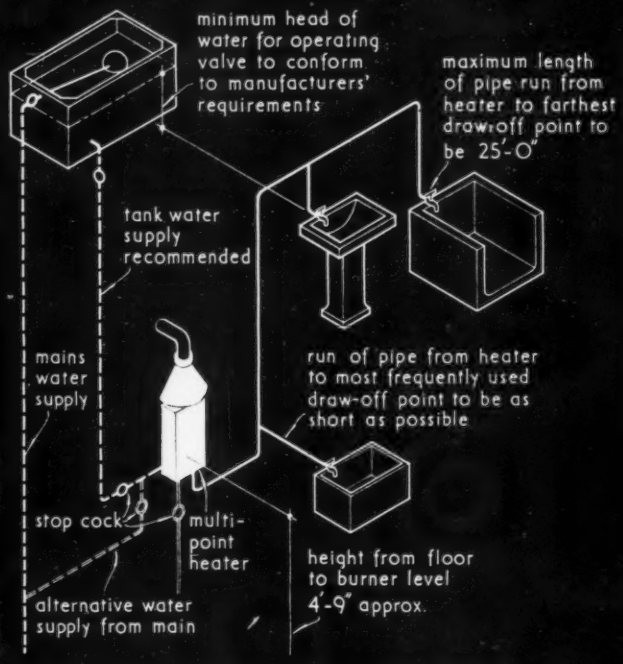
Compiled from information supplied by :
The Lead Industrie: Development Council.
Address : Eagle House, Jermyn Street, London, S.W.1.
Telephone : Whitehall 7264.



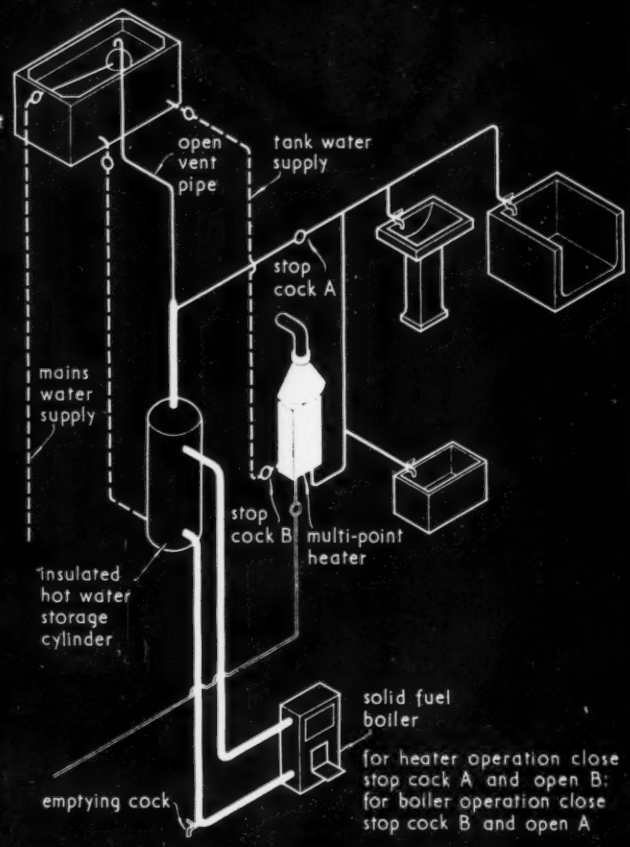
TYPICAL SINK HEATER WITH SWIVEL SPOUT.



TYPICAL BATH HEATER.



TYPICAL MULTI-POINT HEATER AS SOLE MEANS OF HOT WATER SUPPLY.



TYPICAL MULTI-POINT HEATER USED AS ALTERNATIVE TO SOLID FUEL SYSTEM.

type of heater	overall dimensions		
	height (in)	width (in)	depth (in)
sink, single or multi-point	18-33	6-9	6-10
bath, single point	30-49	14-22	9-17
multi-point	32-49	6-17	6-15

TYPICAL DIMENSIONS. note: heights, widths and depths given are not respective

KEY.

gas supply
cold water supply
hot water pipes
insulated hot water pipes

DOMESTIC INSTANTANEOUS GAS WATER HEATERS: TYPICAL INSTALLATIONS.

Compiled from information supplied by The Gas Council.

32.C10 DOMESTIC INSTANTANEOUS GAS WATER HEATERS

This Sheet summarises the main points to be considered when planning the installation of instantaneous gas water heaters.

General

With instantaneous gas water heaters a continuous flow of hot water is always available. Gas is used only when hot water is being drawn, except for the small pilot flame. No floor space is required and no hot water storage vessel is needed. They can be fitted independently or in conjunction with a solid fuel system. Small water heaters supplying boiling water for tea-making and other kitchen uses are available.

Applications

Instantaneous heaters are particularly suitable:
(*a*) where the demand for hot water is intermittent;
(*b*) as auxiliaries to a solid fuel system to give partial (single point) or complete (multi-point) service either in conjunction with, or in place of, the solid fuel system;
(*c*) to supply a distant tap which would necessitate too long a draw-off pipe from the solid fuel system.

Types and Characteristics

Type	Gas input		Water output (gal. per min.)		Flues
	B.Th.U. per min.	Cu. ft. per hr. (500 B.Th.U. gas)	Raised 100° F. for kitchen uses	Raised 60° F. for ablutionary uses	
Sink—Single point or multi-point	625	75	0·5	—	Not normally required.
Sink (boiling water)	625	75	2–3 pints (boiling)	—	Not normally required.
Single point bath (small)	1,000	120	—	1·3	Required.
Single point bath (large)	1,250 to 1,625	150 to 195	—	1·7 to 2·2	Required.
Multi-point	1,625 to 1,750	195 to 210	1·3 to 1·4	2·2 to 2·3	Required.

Note: The water supply for all types may be from a tank or mains supply. It is advisable to take the water supply to a multi-point heater from a tank and to a boiling water sink heater from the mains. Where the heater is supplied from a tank the minimum head of water required to operate the valve should conform to the manufacturer's requirements.

Installation

Position of heater: The heater should be fixed at a convenient position above the bath, basin or sink, or, in the case of a multi-point heater, with the burner at a convenient level for lighting.
Layout: In the planning of an installation the route selected for pipes should limit the use of the following positions to a practical minimum:
(*a*) on the inner surfaces of external walls (where water pipes are unavoidably so situated, they should be insulated);
(*b*) under floor boards necessitating the notching of joists.
Provision should be made during construction to install sleeves for the accommodation of flues or pipes which pass through walls.
Gas pipes: See Sheet 37.D2.
Water pipes: The installation must comply with the requirements of the local water authority. Ducts or chases fitted with easily removable covers may conveniently be provided to enclose the pipes. Sharp bends and elbows should be avoided.

Ventilation

All installations must comply with the requirements of the local authority, but the following recommendations are generally acceptable.
1. With the exception of a sink heater used intermittently an instantaneous water heater may not be fitted in a room without a window which can be opened, nor may it be fitted without a flue.
2. When an instantaneous water heater is fitted in a bathroom its hourly gas rate should not exceed an amount equal to three-fifths of the volume of the room and the bathroom should be provided with adequate positive ventilation to provide three air changes per hour.

Flues

See Sheets 30.B1 and 30.B2.

Architects' Drawings

These should indicate all the positions at which a supply of hot water will be required. The following information should also be given:
(*a*) the positions of bath, sink, basins, water and gas service pipes, runs of cold water pipes, water and gas controls, cistern, and solid fuel boilers;
(*b*) the positions and sizes of flues, of cylinders or tanks, and the lay-out of hot water pipes of any existing system;
(*c*) the materials to be used for walls, partitions and floors, pipes and hot water cylinder or tank.
It is recommended that the gas undertaking should be consulted in the planning stage.

Further Information

More detailed information will be found in British Standard Codes of Practice:
CP 331.103 (1947) *Gas installation pipes*, *CP* 331.104 (1947) *Flues for gas appliances*, *CP* 332.201 (1947) *Domestic hot water supply by gas, and in B.S.* 1250*; Part* 1*:* 1945 *Domestic gas appliances for immediate post-war housing.*

This Series of Sheets deals with the provision of service and installation pipes, meters, flues and all other considerations involving the installation of gas equipment concerning the architect.

Compiled from information supplied by:

The Gas Council.
Address: Gas Industry House, 1, Grosvenor Place, London, S.W.1
Telephone: Sloane 4554.
Telegrams: Gascil, Knights, London.

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TECHNICAL SECTION

If we are continually occupied with the technical problems of architecture, there is a danger that we may forget the human element involved. The following article, by Prof. Mackintosh, lecturer at London University and consultant to the World Health Organization, describes the strong influence which housing conditions exert on health and, in particular, on emotional stability.*

HOUSING AND HEALTH

By J. M. Mackintosh

SUMMARY

Until the end of World War I, even the best workers' dwellings in Great Britain were replicas in miniature of the houses of the well-to-do. Little thought was given to the special design of the small house. The result was that flues and open fireplaces were built in every room when there was no coal to burn. There were no labour-saving devices, because labour-saving was unnecessary in large houses.

In houses built in Great Britain between the wars there were many advances. The cottage design was improved and standards of space were increased; internal water supply became the rule instead of the exception. However, there were still gross defects—in heating, in kitchen design and in protecting plumbing from frost. In effect, our small houses, although relatively spacious, were cold and uncomfortable—only one room being effectively heated. There was, therefore, a bad distribution of family activities. In addition, there was drudgery in the kitchen; the home was still (as Bernard Shaw said) the woman's workhouse, though no longer the girl's prison.

What about the effect of bad housing on health? We must first distinguish between dilapidation and overcrowding. There is an urgent need for comparative research here, for example, between Stockholm, which has serious overcrowding but no bad houses, and (say) Liverpool, which has both overcrowding and bad housing.

Taking housing first, we know that people living in good surroundings are more healthy than their neighbours in bad housing. But bad housing alone is not to blame. We must consider another element—overcrowding. Here we are on surer ground:—

i. Infectious diseases of children (*e.g.*, measles): there is no difference in the attack rate between normal and overcrowded houses, but the death-rate is higher.

ii. Respiratory tuberculosis: until recently the evidence was confusing, because too large and varied an area had been studied. Recently, however, Lilli Stein has made a study of small, well-defined localities: "The results," she reports, "are consistent and highly significant in their evidence of the existence of a strong association between both mortality and incidence of respiratory tuberculosis and aspects of housing." It was shown that in overcrowded homes there was no great difference in the incidence, but the mortality was significantly higher. The evidence of the relation of overcrowding to pulmonary tuberculosis is overwhelming.

iii. The young child: bad housing and overcrowding are selective in their effects; they are most heavily weighed against the young child. No doubt this is because the preschool child (like his mother) is so closely attached to the home. Part of the trouble is the high rate of accidents in the home among young children, especially burns and scalds. The work of Leonard Colebrook shows that much research is needed into the prevention of accidents.

iv. Psychological effects of overcrowding: too little has been done about this, yet it is the psychological effects that determine the difference between a home and a slum. In her book "Nation and Family" Alva Myrdal summed up these influences as:

(*a*) There is insufficient sleep, especially for the children. In dilapidated and overcrowded homes adults and children encroach seriously on one another's time.

(*b*) The play-space of young children is cramped, thus thwarting their development. Their movements must be incessantly curbed, because they conflict with household duties.

(*c*) School children have great difficulty in doing their home work, and they become backward in their lessons.

(*d*) There is lack of privacy for the adolescents—no chance of having a place of their own.

(*e*) Bad and crowded houses mean constant friction within the family because what happens to one has to be shared by all.

THE FUTURE AND ITS PRIORITIES

How are we to build healthy dwellings in spite of increasing costs combined with competing claims on a limited labour market? To what ought we to give priority in respect of health and happiness?

i. Superficial space in a dwelling is more important than cubic space. Recent physiological studies have shown that reducing the height of the rooms from 8 ft. 6 in. to 7 ft. 6 in. has resulted in improved ventilation, more sense of space, improved heating at a lower cost and a saving in construction of £15 per house.

ii. Further research is needed into cheap and effective methods of heating *the whole* of a small house, so as to get better family distribution.

iii. Continued research must be carried out into the prevention of accidents in the home, *e.g.*, the provision of fireguards with fixed sockets; the protection of gas and electric fires; safer electric fittings and better design of cooking stoves.

iv. We should know more about cheap methods of refrigeration and protection of foods in the small house.

v. Little has been done to protect the users of sanitary appliances (*e.g.* toilets) from infection.

vi. There is a continuing need to study the relation of housing to the movements of two generations in one house, and making the housing space *flexible* enough to meet the changing needs of a growing family.

NEED FOR RESEARCH INTO SPECIFIC REQUIREMENTS OF SMALL HOUSES

The field of study in housing is almost unlimited and it would be too easy for me to wander into areas of which I have insufficient knowledge. I shall, therefore, try to stick as closely as I can to the extremely difficult problem of the relationship between housing and health. The first question, which in spite of much writing is still unsettled is, "What is a house for?" and this may be immediately followed by a second question of great immediate importance "If your resources are limited, to what parts of a dwelling would you give priority in order to provide for the needs of a family?" In days gone by this did not matter so much, at least among the well-to-do. Our ancestors of three generations ago built houses of many rooms because they could get cheap domestic help and cheap fuel. In those days they could avoid the necessity of thinking about planning a comfortable house; central heating mattered little because they had innumerable servants to carry coal. The provision of reasonable sanitation was little considered because of the elaborate and ungainly apparatus that depended on large numbers of scurrying

The Pool of London, Dec., 1949. Some of the last bad housing in Wapping.

* Reprinted, by permission, from the report of the United Nations (ECE) Conference on Building Research.

Overcrowding—probably the worst, and certainly the most dangerous, aspect of bad housing.

servants. Working people were obliged to live in whatever buildings were provided.

Today the situation is completely altered; firstly, the absence of domestic help makes it necessary for people of all grades of income to have labour-saving houses; secondly, the shortage of fuel makes it essential, even in Great Britain, to devise some means of heating a house other than by the charming, but entirely wasteful, open fire; and, thirdly, the cost of both houses and fuel has become so high that very few people are able to provide extravagantly for their needs.

In the houses built for the workers' families in Great Britain between the two world wars great advances were made in design and equipment. The semi-detached cottages remained the prevailing type although some timid experiments were made with large blocks of flats in the great cities. I say "timid" because very few of them had labour-saving devices, such as lifts, which are commonplace in progressive housing elsewhere. These inter-war dwellings were seriously deficient in the ordinary equipment required for comfort; the open fireplace prevailed universally and central heating was almost unknown; labour-saving devices in the kitchen were so rare as to be curiosities and intelligent designing for cooking, washing up and other household activities was still the monopoly of a few curious people who had broken away from tradition. In the main, there was no lack of goodwill, but many of the members of local authorities who were responsible for housing were elderly people who felt that the cottage built for their parents, now rose-tinted with memory, was more than good enough for the workers of today. On the other hand, this clinging to tradition had certain advantages which must not be ignored. I think it is true to say that in Great Britain the cottages built for workers in recent years have more superficial space than any others of their type in the world. A standard area for a family, of approximately 900 sq. ft., would be very good indeed if it were properly planned and could be associated with the amenities that one should reasonably expect in a dwelling of the mid-twentieth century. But costs of housing have been rising steadily and have now reached such a height in Great Britain that something has to be done which, without interfering with health, will maintain these admirable standards and at the same time enhance the comfort and functional value of the dwelling.

HOUSING AND GENERAL SICKNESS AND DEATH RATES

Unfortunately very little is known about the relation of housing to sickness. It is a matter of common observation that bad housing conditions are associated with ill health but the precise relationship is obscure. The evidence is a tangled mass which scientists find great difficulty in unravelling. In this tangle we have to look for the threads of poverty, overcrowding, neglect on the part of the tenants, ill management on the part of the owners and gross physical dilapidation of the dwellings. It is perfectly clear that many factors besides bad housing work as enemies of the people's health and, from time to time, reformers have tried to blame bad housing exclusively.

Although the time has passed when every nuisance must be labelled with its exact contribution to the death rate, we are constantly faced with the need to make some statement to convince people that bad housing is a bad investment. Well-known studies, conducted in recent years, have shown, beyond question, that people who live in good houses are healthier than those who live in bad ones.

In the case of certain diseases, especially the enteric infections, such as infantile diarrhoea, the death and sickness rates are significantly lower among those who live in sound houses than among those living in sub-standard dwellings, and this applies to families of equivalent social and financial status. It is true, as the medical officer of health of one of our north-eastern cities pointed out, that families which move from cheap dwellings of low standard to new council houses may suffer temporarily from defective nutrition owing to the higher rent in the new houses; but here the remedy is clear and the criticism cannot be laid at the door of the slums. Sharp differences in the rates of respiratory disease have been associated with the effects of bad housing, and even chronic rheumatism has been blamed on the dwelling when the weather could not be blamed.

So far I have not referred specifically to one vital factor in poor housing conditions —overcrowding. Studies made by many workers indicate that it is difficult to dissociate overcrowding from the other aspects of poverty; families who become poor for one reason or another tend to drift downwards into inferior houses and, in the process of the vicious circle, to become associated with overcrowded conditions, and so descend into actual ill-health. Which was the deciding factor? It may well be that ill health started the downward spiral and that temporary sickness was made permanent by the descent into slum conditions and an overcrowded dwelling.

INFECTIOUS DISEASES

Most of the studies which have been carried out in recent years make a valid distinction between the attack rate of common infectious diseases under bad housing conditions and the after effects. There is little difference between the incidence of illness in crowded tenements and in healthy dwellings during an epidemic; there is, however, a striking difference in what follows. The death rate from measles, for example, is greater when housing conditions are bad and the rate of complications, such as middle ear disease and eye infections, is much higher under overcrowded conditions.

The evidence suggests that the influence of overcrowding is worst on young children. The Registrar General in England has stressed the sensitivity of children in this age group to the influence of environment and, between infancy and school, it is less likely that hereditary weakness will have a predominant effect. Further, the Registrar General says: "While the gravitation of the less physically and mentally fit into the unsatisfactory conditions of housing must be a factor to be taken into account in producing an association between mortality rates and overcrowding rates, this cannot be supposed to affect the pre-school child to a greater extent than either infants or children at school, nor would it be expected that its effect on the mortality of adults would diminish with advancing age, but rather increase as the selection proceeded."

TUBERCULOSIS

It is always difficult to show a relationship between housing conditions and the spread of a particular disease. This is especially true of tuberculosis, which is so closely related to the whole environment of the community that it is almost impossible to sort out the effects of a single social factor. In studying a series of new cases in Glasgow in 1941, I was struck by the absence of primary poverty and bad housing conditions during the fifteen years or so previous to the attack, except in one respect —overcrowding. The prominent features which seem to be associated with the onset were in order of importance: the presence of an infective person in the home, gross overcrowding, and the sudden change from relatively light employment, *e.g.* school, to strenuous industrial working involving daily fatigue.

Tuberculosis is an infectious disease. When a house is inhabited by a person suffering from active tuberculosis of the lung the chances that other inhabitants of the house will be infected are increased. The increase is striking when there is serious overcrowding or persistent close contact. It must be admitted that a number of studies show no close relationship between overcrowding alone and the phthisis death rate. The spark that lights the fire is a person in the dwelling suffering from active tuberculosis. M'Kinlay in his Scottish study of 1947

Photograph by Permission of the Architectural Press

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found no correlation between the death rates of pulmonary tuberculosis and overcrowding in the family. On the other hand, American workers found greatly increased incidence of pulmonary disease among persons exposed to open cases of tuberculosis. The position is summed up by Topely and Wilson: "The spread of tuberculosis in the community is in great part the result of slowly progressive household epidemics which often lead to the transmission of the disease by contagion from one generation to another."

In an enquiry in the United States of America, based on a National Health Survey, it was found that for the whole group under sixty-five years the excess of secondary attack rates in the crowded household was under 20 per cent. but for children it was 80 per cent. In another survey* housing and economic conditions were divided into "bad," "fair" and "good." In 494 houses containing no case of tuberculosis the incidence of secondary infection was 30·4, 37·6 and 35·0 per cent. respectively. In 228 homes containing a person suffering from tuberculosis the corresponding figures were 86·4, 76·8 and 68·6. It is clear, therefore, that bad housing conditions, and especially overcrowding, are important secondary factors in the spread of tuberculosis.

Backyards in Shaftesbury Street, Hoxton, London, October, 1946. Not a slum, but a fairly familiar London scene!

THE PSYCHOLOGICAL EFFECTS

Leaving aside specific diseases in which we get lost in wandering mazes, we come to a group of disorders which admit of no doubt. Far too much has been said about the physical effects of bad houses; far too little about the psychological. Yet it is the latter which distinguish a home from a slum, whatever the physical environment may be. The effects of overcrowding are also largely psychological and moral. In her striking book "Nation and Family," Alva Myrdal summarises a number of reports on the physical and mental effects of overcrowding, referring to the work of the Committee on Social Housing:

"Sleep becomes insufficient. Persons of different ages have a different time distribution over the day. The activities of the old must encroach upon the rest of the young. It is, however, impossible to demand that all interests of adults should be sacrificed for the children.

"Also, waking hours pass under perpetual irritation. The play spaces of small children become cramped. This is not to be accepted with indifference. Play is the indispensable outlet for children's activity. It is their form of expression and experimentation by which they develop intelligence and dexterity, imagination and observation. When play is repressed there is a direct thwarting of development. In the small dwelling units a number of prohibitions and an incessant control are often added. Every housewife's ambition to keep order must conflict with each child's demand for freedom and space for his experimental attitude towards life. Children of school age also suffer particularly from the difficulty of doing their homework. School marks indicate what the lack of a study place of one's own and of a moderately quiet environment means. Education within the home is made more difficult. Fatigue and impatience on the part of the parents will often make educational measures poorly balanced. Sometimes prohibitions, admonitions, and punishments will be meted out in consideration of the others sharing the home; sometimes they will be neglected for similar considerations. It becomes difficult to make education efficient, and it is rarely flexible enough to be adjusted to the individuality of the child.

"The adolescent young run perhaps the greatest risks of all. The lack of privacy, the impossibility of being alone or of bringing home companions will, together with the restlessness of this period of life, drive them to linger in parks, in streets, in eating places, and elsewhere. The over-populated parental home simply makes it out of the question for them to devote their time to those more serious and worthy tasks about which they are often lectured.

"Sexual experiences are precipitated in crowded homes. Incest is relatively frequent, particularly in the country and in relation to children not having beds of their own. Even if direct traumata of a sexual character —seduction, homosexuality, or incest are absent—children far too early and with far too little preparation witness the sexual life of adults. This is most harmful; it spoils the harmony in the intercourse of the adults and it warps the development of the young. Sexual precocity is often the result and particularly a de-personalization of sex attitudes which often marks the individual for life with an incapacity to reach an individualized consummation of a love relation.

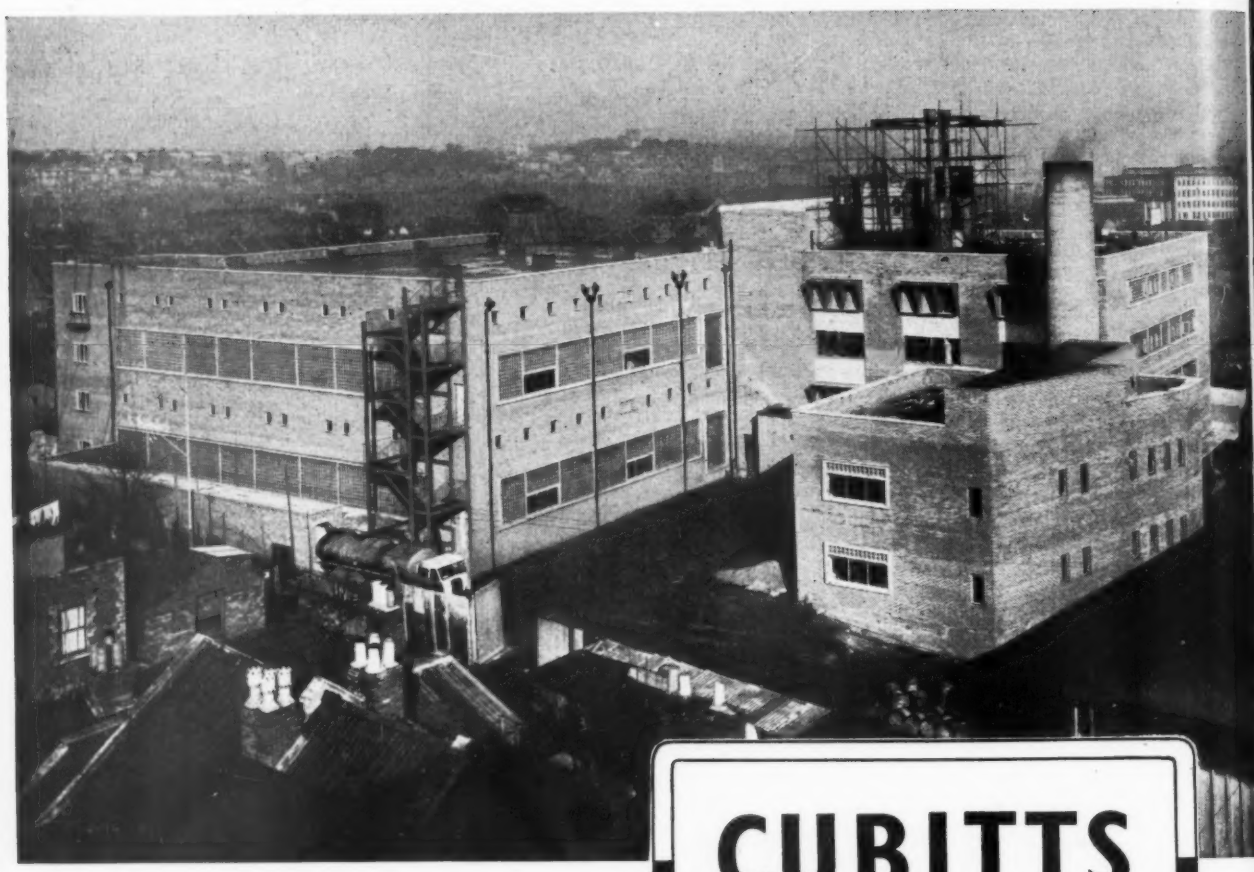
"Generally, the inevitable close relationship in small and great things alike, in conflicts, quarrels, and love, in singing hymns and playing cards, in dressing and cooking, in sleep and work, is a strain on all. The joy in family life is difficult to sense, when privacy can never alternate with being together. Even if someone in the family suffers from "nerves," intemperance, or unsocial habits, the others cannot withdraw. Moral contagion is facilitated. All must be shared by all; everything happening is experienced by everyone."

FURTHER ITEMS FOR RESEARCH

My last proposition is a return to the first question. If we are to build healthy dwellings, in spite of growing financial difficulties (*i.e.*, increasing costs combined with competing claims for the limited labour and financial resources available), to what ought we to give priority? The first point of importance, which we are just beginning to realise, is that, in the home, linear space is of greater value than cubic space. In public buildings, such as cinemas, cubic space is vital because of the congregation of people who have no control over ventilation; but in the

A depressing street in Tiger Bay, Cardiff. Often condemned but, as a result of the housing shortage, still occupied.

* Dow and Lloyd (1931): B.M.J., 1931, ii, 183-6.



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Tuberculosis, deaths per 1,000,000 population	620	720
Bronchitis and pneumonia, deaths per 1,000,000 population	950	1,170
Infant mortality (deaths under 1 year per 1,000 births)....	45	60

Regional Mortality Rates compared with England and Wales as a whole. (England and Wales as 100)

South-East	89
Eastern Counties	89
South West	93
Northumberland and Durham	115
Lancashire and Cheshire	116
South Wales.....	117

1937-8-9 Death Rates as percentage of rate for S.E. England

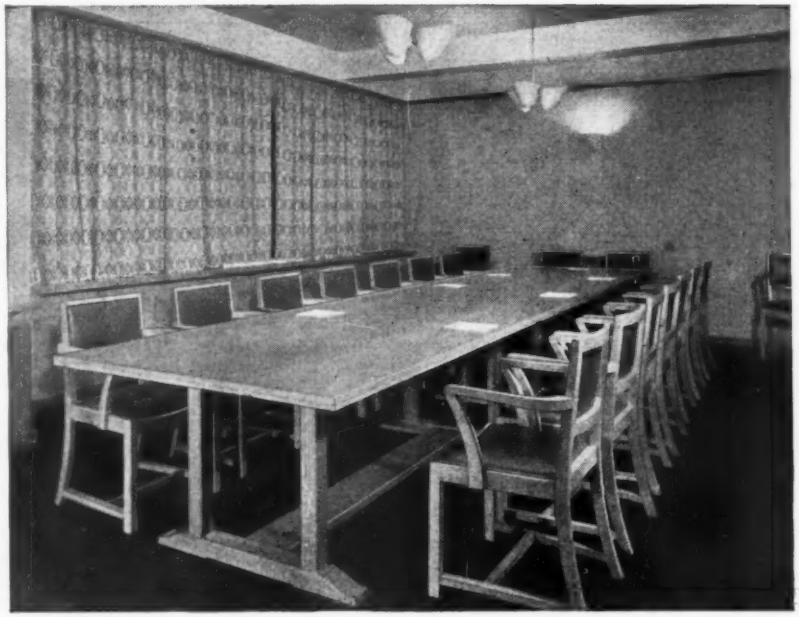
Bermondsey	120
Bethnal Green	123
Poplar	123
Stepney	126
Southwark	131
Finsbury	136

The tables above, taken from Mark Abrams "The Condition of the British Working People, 1911-1945," (Fabian Society and Victor Gollanz, 1945) indicate the variation in health due to local conditions, of which housing, and in particular overcrowding, is an important factor.

family dwelling there should be no overcrowding and the members of the family should be masters of their own ventilation. In England we have, therefore, favoured a proposal to lower the heights of rooms in dwellings built at the public expense from approximately 8 ft. 6 in. and over to 7 ft. 6 in. Careful physiological and psychological studies carried out by Professor Crowden of the London School of Hygiene and Tropical Medicine have shown, beyond doubt, that with the lower ceiling height ease of ventilation is improved and that no difference in comfort or amenity is noticed by the tenants. From the practical point of view the lower ceiling will save approximately £15 per house without reducing the floor space at all. Another principle in economic construction is concentration of services for heating and sanitation. Ideally, district heating should be chosen for concentrated blocks of apartments, but for the scattered houses so common in England the central stack, combining both the heating elements and the plumbing arrangements, constitutes a great saving, especially as it can be built on mass production lines. By this means we could rid ourselves of the sprawling festoons of plumbers' pipes, the water tanks hidden away in positions only accessible to frost, and wandering unlagged hot water systems which seem designed to waste fuel rather than to conserve it. The employment of the central stack would involve some revolutionary changes in the British home and would bring it closer to the more modern designs which one finds in Holland, Sweden and Finland. It would mean that the bathroom must be arranged in a logical relationship to the kitchen and the other sanitary fittings and that the slow movement towards central heating from a single stove must be accelerated.

The real problem today is not to fit a family into a pre-designed house, but to build a dwelling round the needs of the family so that it is flexible enough to respond to the developing and changing growth of a generation. When we consider the dwelling against the biological needs of the family we have to think not only of place but also of time. In this setting the home is no longer static but a constantly changing biological organism with a life history of its own. I remember a conversation some years ago with Alvar Aalto, the great Finnish architect, when he was engaged in rebuilding some of the townships of Northern Finland so wantonly destroyed by the retreating Germans. This kind of question arose and he answered: "There are three primary needs for a family: shelter, space and the means of warming that space." He argued, therefore, that you must provide a shell strong enough to resist the wrath of nature. Moreover there ought to be enough space enclosed by that shell to prevent overcrowding with all the changing conditions of the family; and a stove, capable of making that space warm and the family comfortable, should be provided. How do we translate these observations into our everyday problems? First we need to define our changing families in terms of their needs through two generations. At first, a house with ample space seems extravagant for the newly-married couple, but is it necessary to fill up the whole shell at the beginning of their housing adventure? Finish only the ground floor until they need the upper rooms but provide another floor ready to take the extra rooms. They may have relatives who wish to visit them and the mother-in-law must be provided for. They must have favourable conditions for their children and pleasant space in which to put their new furniture. In the second stage they need a nursery, and as the children grow, a sick room for the common infections of childhood, to save hospital and nursing space; a playroom for two or more children and, later still, a study-bedroom for the children when they go to senior school. Inexpensive additions can be made in the upper rooms. But the story is not finished yet. The children begin to grow up and to go out to work. They wish to bring their friends home. The time comes when they in turn are married and have children. There has, therefore, to be a place for the first and second grandchildren and, perhaps, for a series of young children again over a period of years.

If I were building a hospital, a railway station or a factory I would leave room for expansion from the very beginning; I would arrange the shell of my building and its essential services for heat and sanitation in such a way that they could readily and economically be extended according to the demands of time and progress. Why not think imaginatively of a family dwelling which, by the nature of things, is likely to grow and expand?



The Board Room, International Chemical Co. Ltd., Chenies Street, W.1. The furniture, designed and produced by Heal's Contracts Ltd., is of waxed natural English Oak. The table is made in two sections, and the chairs are covered in green hide. The flint-grey of the wallpaper is repeated in the grey and rust pattern of the curtains. The ceiling is a lighter shade of grey and the carpet is nigger brown.

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

INFORMATION CENTRE

4.67 planning : urban and rural

HOSPITAL PLANNING PROJECT

A Hospital Plans. Reginald R. Isaacs. (The Town Planning Review, Jan. 1951. pp. 321-356.)

A retrospective report on the activities of the Michael Reese Hospital Planning Staff from August, 1945 to July, 1950, by the Director of Planning, Michael Reese Hospital, Chicago. Illustrated.

This is an account of one of the best examples of urban re-development planning in progress today. After the second world war the governing body of the hospital decided to investigate the relative advantages of continuing to develop the hospital on its existing site or removing it to a less congested part of the town. On the advice of Walter H. Blucher, Executive Director of the American Society of Planning Officials, the governors resolved to keep the hospital on the same site.

The hospital is situated in an area, known as South Side, which the author describes as offering few possibilities for rehabilitation. Only comprehensive and planned development could halt the present course of decay. The advantages of the site are that it is close to the city's business district and to the city's greatest natural resource—Lake Michigan.

The governing body, in coming to their decision, decided to stop the haphazard growth of the hospital and, instead, to embark upon a project for planning its further development. A special planning staff was appointed, initially for a period of two years but now for an indefinite period; Walter Blucher and Walter Gropius being planning and architectural consultants respectively.

The plan covers twenty years of development when the optimum size of the hospital would be reached (twelve hundred beds), and new building and constructional work is already under way.

Apart from the planning and design interest of this scheme, it is significant that the project has been conceived on a city-wide scale. In addition, the Michael Reese project has inspired other public and private organisations to start re-development schemes for other parts of Chicago.

8.25 surveying and specification

SURVEYING AND LEVELLING

Surveying and Levelling for Builders. N. L. Reece. (George Newnes Ltd., 1950. 35s.)

Book of 268 pages aimed at the builder or architectural assistant, and dealing, in a simple fashion, with the elements of chain surveying, levelling, the use of the theodolite and setting-out; 49 illustrations.

The theoretical treatment of the subject is reduced to the minimum necessary to enable the reader to do a straightforward job in the field. The danger in this is that the student may get the impression that he has the whole subject in his grasp, and never appreciate the possibilities of, and requirements for, work of high accuracy. There are some omissions which are to be regretted, notably any treatment of the adjustment of instruments. In view of the gross maladjustment of many office instruments, and the errors to which this gives rise, it would have improved the book if methods of discovering and remedying maladjustments had been described. This would be useful particularly in the case of the level, the adjustment of which should be within the capacity of any surveyor.

A useful work for the novice, and it fills a gap which previously existed in the range of technical books.

9.18 design : general

MODULAR CO-ORDINATION: REPORT

Modular Co-ordination. BS 1708:1951. (British Standards Institution. 2s. 6d.)

A first report which reviews the subject and presents limited findings for consideration by the industry for comment. Interesting appendix lists summary of overseas standards and proposals for modular planning.

A great deal has been written about modular planning and much of this either by those so biased in its favour or so determinedly against it that it has been difficult to see the truth for the exaggerations. It is most valuable, therefore, to see the results of sober consideration of the subject by a BS committee.

This publication, unlike most British Standards, does not present a final answer. It is a first report on the findings of the committee and reviews the subject in a fairly general way. The risks of modular planning are noted and there is a brief but critical review of suggestions and actions taken abroad. The advantages in drafting time and in economy in materials are discussed. The latter are backed by some interesting figures, based on careful examination of a modular system applied to semi-detached houses. Reference is made to the various experiments which have been tried in this country, such as modular houses by the Crittall Manufacturing Co. in 1920 and, more recently, in prefabricated houses and in the planning of schools and railway buildings.

The committee seems fairly certain that a small module based on brick dimensions, such as has been adopted in some countries, is not to be recommended and that the horizontal module should be in the region of 3 ft. 4 in. A vertical module is also essential if the advantages are to be gained outside the drawing office. For flexibility, a vertical module must be less than 3 ft. 4 in. and the committee suggest 8 in. as a sensible fraction of 3 ft. 4 in. They also suggest that a limited number of " preferred sizes " on the 8 in. scale would meet all reasonable vertical requirements and they illustrate their suggestions.

Finally, the report reviews the progress of modular co-ordination abroad and tabulates what has been done or is proposed.

To carry the work beyond its present stage would involve considerable further study and research and until this is done the committee is unable to supply manufacturers with precise dimensions. Before such study is commenced the committee wish to have comments on this present report.

They point out that if a system of modular co-ordination was accepted it could only be brought into operation gradually. They also state that, even if the prime cost of some materials were increased by such a system, the final cost of a building would be reduced, because of easier assembly and reduced wastage.

Clearly, as a long term problem this is something of great importance to all sides of the industry and the report should receive careful study not only by individuals but by all our institutions and organisations.

18.76 construction: theory

SAFETY REGULATIONS

The Supervisor's Guide to the Building Regulations. (Royal Society for the Prevention of Accidents. 1951. 3s. 6d.)

Abridged edition of Building Regulations Handbook. Regulations very clearly set out under headings " Ladders," " Scaffolding," etc. Important to builders, worthy of notice by architects.

This feature answers any question connected with building confidentially and free of charge. Questions to the Technical Editor, The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1.

QUESTIONS AND ANSWERS

3038 CARAVAN SITES

Q *I should be pleased if you would advise me on the proper procedure to adopt in order to obtain authority for the use of approx. 1 acre of existing agricultural land as a site for caravans.*

I should also be pleased if you would inform me how caravans are regarded under the Building Bye-laws, and what is the position under the Town and Country Planning Act with special reference to development charges. Would such a site be subject to any other legislation?

A The use of land for caravans or tents is exempt from Development Charge (paragraph 11 of Development Charge Exemption Regulations, 1950), but planning permission would be required unless the use can be brought within Class V of the General Development Order, 1950. Apart from Town Planning, the Public Health Act, 1936, section 269, gives the local authority power to issue licences for the use of land for movable dwellings and to prescribe conditions as to water supply and sanitary matters. There are exceptions in section 269, such as the period the land is occupied for camping purposes and whether the land is to be used only by the owner or by members of his household. The Minister of Health (now the Minister of Local Government and Planning) can exempt an organization who own camping sites from the provisions of section 269 and such a certificate of exemption would come within Class V of the General Development Order referred to above.

Unless, therefore, the site referred to in the question can be brought within the exceptions under Town Planning and the Public Health Act, two applications would be necessary, *i.e.*, one to the Planning Authority and one to the local authority under the Public Health Act.

This feature covers both the production and marketing of new materials and designs of equipment, as well as the general trend of developments within the Building Industry.

THE INDUSTRY

By Brian Grant

The Aquadale automatic dish and cutlery washing machine, with self-contained hot water supply.

BRITISH INDUSTRIES FAIR

It is with a slight sense of surprise that one realizes that the BIF has come round once again and opens on Monday week, April 30, at, as usual, Castle Bromwich, Olympia and Earls Court. As usual, the main constructional items of interest to architects are at Castle Bromwich and, as a matter of general interest, the outdoor display of builders' plant and building materials has again been enlarged. Before the war, the outdoor section generally consisted of little more than occasional demonstrations of tractor ploughing and farm machinery but, since 1945, builders' plant has been shown in increasing quantities and on a scale which makes this part of the display well worth a visit.

Furniture, fabrics and much of the household equipment is, as usual, either at Earls Court or Olympia, so that any serious attempt to study the Exhibition thoroughly involves a visit to each of its three parts. The exhibition will remain open until May 11.

STANDARD CASEMENT WINDOWS

The standard EJMA timber casement window has been on the market since 1945 and has been used a great deal. Many architects, however, felt that the sections used were rather lighter than they should be in order to withstand the rough treatment which windows used for housing work usually receive. It is true that windows made with these sections were on the market before the war and, so far as one knows, have proved satisfactory, but with the rather poor quality of timber available today the adequacy of these sections is, probably, rather more open to question.

The EJMA, together with the BSI, has, for some time, been engaged in revising the specification to meet the needs of those who desire a somewhat heavier section, and the revised specification will be in print shortly. In the new design the sections have been modified to give greater strength with only a small increase in the timber content; the bottom rail, for example, being made slightly deeper when glazing bars are not fitted. The range of standard types and sizes has also been simplified slightly to meet present demands, and casement doors and frames have been omitted as they are now included in BSS's 459 Part I, and 1567. No decision has yet been reached concerning the specification of the glues to be used for the windows and this is, therefore, omitted from the new specification. An addendum covering this point will, however, be published as soon as possible.

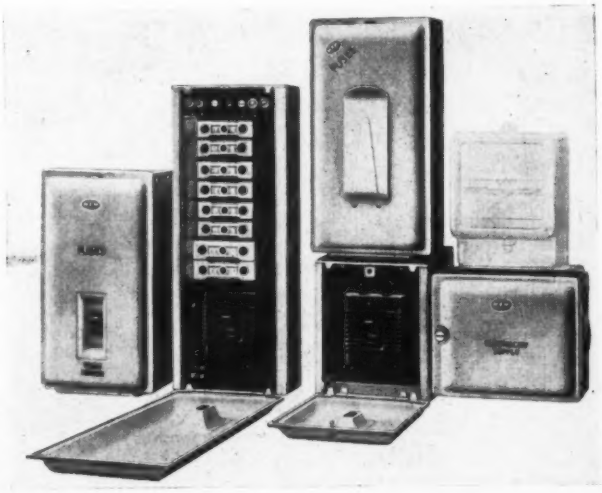
Copies of the new specification are obtainable from EJMA at Sackville House, 40, Piccadilly, London, W.1, who have already sent copies to all housing authorities in the UK. The previous specification has now been withdrawn and all EJMA windows will, in future, conform to the new one.

DISH WASHERS

The illustration above shows the Aquadale automatic washing machine, which has been designed for use in hospitals, hotels and restaurants. It is entirely self-contained and provides its own independent hot water supply from a 4-gall. storage tank, fitted with a 5-kW. electric heater. After the dirty dishes and cutlery have been loaded into the machine, the washing process is entirely automatic—2 gallons of water, heated to 100° C., are pumped from the tank to the washing section and sprayed, by four counter-rotating spinners, on to the objects to be washed. This operation continues for 4 minutes, after which the machine drains itself and then carries out a 2-minute rinse, using a further 2 gallons of water, heated to about 60° C. When this rinsing has been completed, the machine automatically drains itself again and stops, and the pieces dry in their own heat. The capacity of the standard machine is approximately 100 pieces of cutlery and 48 pieces of crockery, and the cost of the current consumed in one complete washing cycle is about a halfpenny, at normal domestic tariff rates.

The machine measures 42 in. by 21 in. by 36 in. high, so that it conforms to BS dimensions for kitchen equipment and it should be completely rust-proof since the tank, lid, work-top and kicking board are all of stainless steel, the rest of the machine being of aluminium, bonderized and stove-enamelled.

The same firm also produces the Steridale cabinet unit which contains a wash sink with hot and cold taps, operated by a foot pedal, and an automatic sterilizing cabinet for instruments. This is designed for use in doctors' and dentists' surgeries. (*W. H. Paul, Ltd., Breaston, Derby.*)



"Memera" consumers' control units, and composite units.

CONSUMERS' CONTROL UNITS

The photograph on the left shows a typical layout of some of the consumers' control units which have recently been introduced by Midland Electric. In addition to supply intake, main switch and circuit-fuse units, designed to the requirements of BS 1454, composite units in metal or hardwood cases are also available. All the units are designed so that they will take either HRC cartridge fuses or the more usual re-wireable type of fuse carriers. Most supply companies prefer the use of cartridge fuses since they make it almost impossible for the wilful householder to use heavier fuses than the wiring is designed to take. Nevertheless, I should certainly prefer to have re-wireable fuses in my own house. (*Midland Electric Manufacturing Co. Ltd., Tyseley, Birmingham*, 11.)

Readers requiring up-to-date information on building products and services may complete and post this form to The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1.

ENQUIRY FORM

I am interested in the following advertisements appearing in this issue of "The Architects' Journal." (BLOCK LETTERS, and list in alphabetical order of manufacturers names please).

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Please ask manufacturers to send further particulars to:—

NAME .....

PROFESSION or TRADE

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ADDRESS .....

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A.J. 19.4.51

Announcements

The Buckinghamshire Society of Architects held an informal dinner and dance at the Crown Hotel, Amersham, on Friday, April 6. Guests were received by the chairman, Mr. F. A. C. Maunder, R.S., DIP.ARCH., F.R.I.B.A., A.M.T.P.I., county architect of Buckinghamshire.

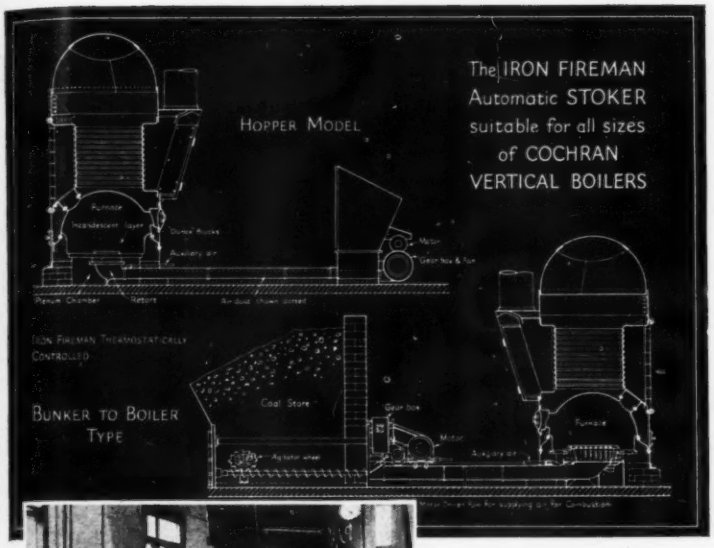
Rentokil Ltd., announce that owing to increases in the cost of materials they are increasing the price of Rentokil Timber Fluid. The retail prices will now be as follows:—4 oz. bottle, 2s.; 8 oz. bottle, 3s. 3d.; 16 oz. tins, 5s. 9d.; quarts tins, 9s. 6d. The outfits remain at 10s. 6d. each until further notice.

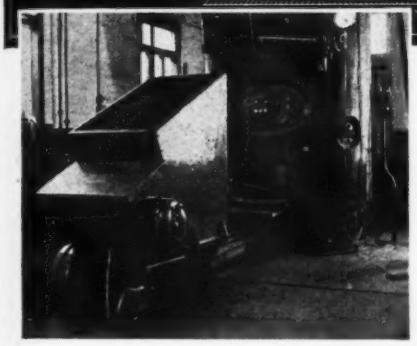
The telephone number in the Bainbridge Bros. advertisement in the JOURNAL for April 5 was incorrectly printed and should have read: Bury 1599.

Buildings Illustrated

The Tea Centre, 22, Regent Street, S.W.1. (Pages 478-480.) Architects: Fry, Drew & Partners, F./F.R.I.B.A. Assistant Architects: John Bramwell, A.R.I.B.A., S. Kowalczewski. Consulting Engineers: Ove Arup & Partners. General Contractor: Holland & Hannen & Cubitts. Sub-contractors: Demolition, reinforced concrete, Holland & Hannen & Cubitts; structural steel, steel staircases, R. Smith (Horley) Ltd.; glass, James Clark & Eaton; patent flooring, The Cork Insulation & Asbestos Co. Ltd.; linoleum, Lewis Bros (Kings Cross); electric wiring, electric light fixtures, electric heating, Strand Electrical Engineering Co. Ltd.; stairtreads, swing doors, steel staircases, metalwork, G. H. W. Cashmore & Co.; door furniture, Rennis Ltd.; joinery, furniture, West Surrey Joinery Co.; typography, J. Dennison Hunt.

Factory for Colodense, Ltd., at Malago, Bedminster, Bristol. (Pages 485-491.) Architect: E. F. Peat, A.R.I.B.A. Assistant Architect: J. E. Collins, A.R.I.B.A. Consulting Structural Engineer: Felix J. Samuely, B.SC.(ENG.), A.M.I.C.E., M.I.STRUCT.E. Consulting Engineers (Services): E. S. & A. Robinson, Ltd. Assistants: D. O. Wood, B.A., and W. H. Small, A.M.I.E.E. Quantity Surveyor: Edwin T. Wraight. General Contractor: Holland & Hannen & Cubitts, Ltd. Sub-contractors: Demolition, excavation, foundations, dampcourses, reinforced concrete, Holland & Hannen & Cubitts, Ltd.; asphalt, special roofings, Asphalt Specialists Ltd.; prestressed concrete, Concrete Development Co. Ltd.; bricks, Cattybrook Brick Co.; artificial stone, Bristol Stone & Concrete Co. Ltd.; block partitions, Sankey Sheldon Ltd., J. H. Sankey & Son Ltd.; glass and glass blocks, Pilkington Brothers Ltd.; woodblock flooring, Stevens & Adams Ltd.; patent flooring, Prodorite Ltd., Bristol Art Floors; ventilation, air-conditioning, heating, Carrier-Ross Engineering Co. Ltd.; boilers, Davey Paxman Ltd.; electric wiring, E. S. & A. Robinson Ltd.; plumbing, Richardson & Gough; sanitary fittings, Shanks & Co. Ltd.; stairtreads Bristol Art Floors Ltd.; door furniture, cloakroom fittings, Metal Agencies Company Ltd.; casements and window furniture, Henry Hope & Sons, Ltd.; telephones, The Reliance Telephone Co. Ltd.; folding gates, Potter Rax Ltd.; rolling shutters, Mather & Platt Ltd.; fireproof doors, Gardiner Sons & Co. Ltd.; iron staircases, S. W. Farmer & Co. Ltd.; plaster, A. C. V. Telling Ltd.; metalwork, Sml. Thomas; joinery, J. Long & Sons Ltd.; tiling, S. Wren & Son; lifts, Express Lift Co. Ltd.; painting signs, A. Bagnal & Co. Ltd.





The World's most successful stoker ★ firing Cochran boilers

We illustrate a typical arrangement drawing of an Iron Fireman stoker on a Cochran Boiler, and picture an actual installation. Iron Fireman stokers are firing ALL TYPES OF SOLID FUEL BOILERS throughout the Country for they are recognised as the most successful Automatic Coal Stokers in Britain. They embody all that is finest in engineering skill and performance; and, because Iron Fireman engineers first introduced automatic stoking, they are the men most likely to solve your heat problem.

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ASHWELL & NESBIT LTD., BARKBY ROAD, LEICESTER

LONDON: 12 Gt. James Street, Bedford Row, W.C.1. MANCHESTER (13): 184 Oxford Road.
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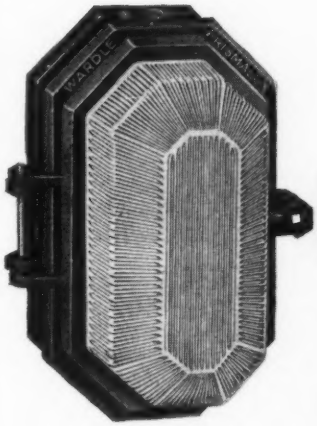

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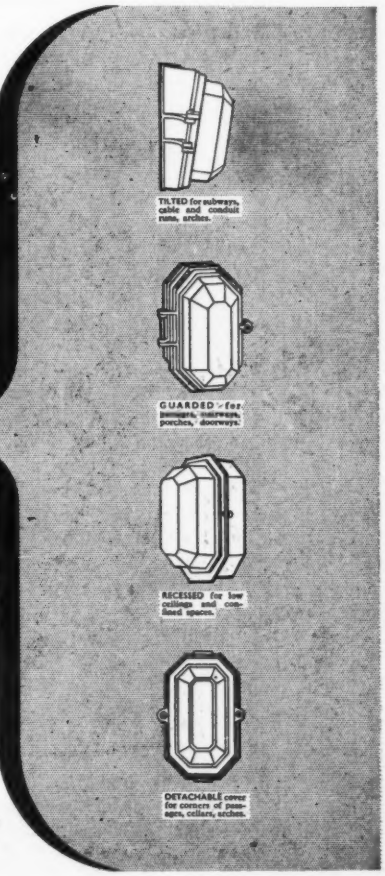
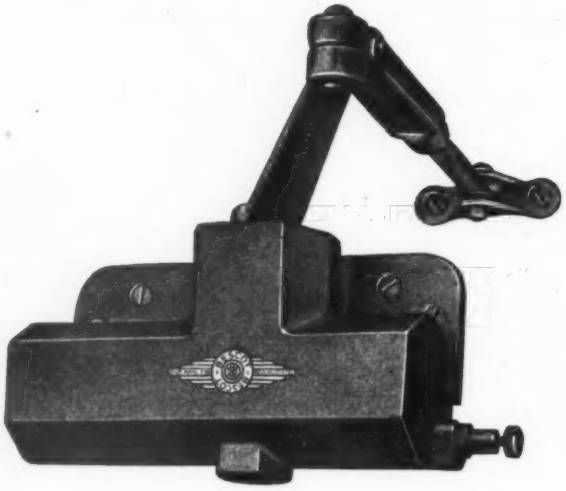
★ **PRISMALUX COMMANDS THE WORLD'S LARGEST SALE**



The **Wardle** *Please send for details to :* Engineering Co., Ltd., Old Trafford, Manchester 16.



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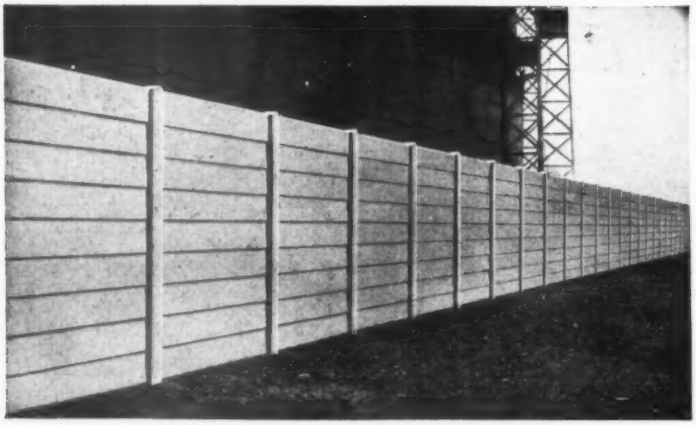
By using the Template provided. No alteration for right or left hand doors. In places where varying wind conditions prevail, a quick alteration to the strength at the point of closing can be made by means of the two hole casing bracket.

S. B. & N. Ltd., Brockhurst Crescent, BESCOT, WALSALL, Staffs.



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THE BRITISH "FRAM" CONSTRUCTION CO. (1911), LTD. Fram Works, Whitchurch Glam.

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WETTERN BROTHERS (NOTTINGHAM) LTD., Trent Bridge, Nottingham.

WETTERN BROTHERS LTD., 29, Oxford Street, Newcastle-on-Tyne, 1.

WETTERN BROTHERS (MANCHESTER) LTD., 559a, Wilbraham Road, Manchester, 21.

WETTERN BROTHERS LTD. 64, Potternewton Crescent, Leeds, 8

WORKMAN LIMITED, 465, Springfield Road, Belfast.

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

26s. per inch; each additional line, 2s.

LONDON COUNTY COUNCIL

Applications are invited for positions of ARCHITECTURAL ASSISTANT salaries up to £580 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

DEVON COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the undermentioned appointments on the permanent staff. Conditions of service and salaries are in accordance with the National Joint Council Scheme for Local Authorities.

ASSISTANT ARCHITECTS:
Grade A.P.T., V (£520-£570 per annum).
Grade A.P.T., III (£450-£495 per annum).
Grade A.P.T., I (£390-£435 per annum).

DRAWING OFFICE JUNIOR. General Division (salary according to age and experience).

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

A weekly allowance of 25s. and return fare home every two months will be paid, for a period not exceeding six months, to the successful candidates, if married, if they have to maintain a family in another home away from Exeter.

Application forms, with full particulars of qualifications and experience, required for the various posts, may be obtained from the County Architect, 97, Heavitree Road, Exeter, and must be returned to him by Saturday, the 28th April 1951.

H. A. DAVIS,
Clerk of the County Council.

The Castle, Exeter.
9th April, 1951. 2320

BOROUGH OF WEYMOUTH AND MELCOMBE REGIS.
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited from Registered Architects for appointment as Senior Architectural Assistant, in the Borough Engineer and Surveyor's Department, at a salary in accordance with A.P.T., Grade VI (£595×£20×£25—£660 per annum).

The appointment is in connection with the large scale re-development of an area of extensive bomb damage, and the candidate should have had suitable architectural training and considerable experience in the design of shops and large blocks of flats. The point of entry in the scale will be determined in accordance with qualifications and experience. Candidates must hold the examination of the Royal Institute of British Architects or a similar qualification by examination.

A flat overlooking Weymouth Bay will be made available by the Corporation for occupation by the successful applicant should he so desire.

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

Applications, stating age, qualifications, training and experience, together with the names of three gentlemen to whom reference may be made, to be forwarded, endorsed "Senior Architectural Assistant," to the undersigned not later than Monday, 23rd April, 1951.

PERCY SMALLMAN,
Town Clerk.

Municipal Offices, Weymouth.
March, 1951. 2296

COUNTY BOROUGH OF DUDLEY.

Applications are invited for the following appointments on the established staff of the Borough Architect:—

(*a*) ASSISTANT ARCHITECT, on Grade V (£520 to £570 p.a.).

(*b*) ASSISTANT QUANTITY SURVEYOR, on Grade III (£450 to £495 p.a.).

Further particulars can be obtained on application to the undersigned, to whom applications should be sent so as to be received by Tuesday, the 8th May, 1951.

P. D. WADSWORTH,
Town Clerk.

The Council House, Dudley.
10th April, 1951. 2369

ANGLESEY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the permanent appointment in the County Architect's Department of ONE ASSISTANT ARCHITECT. Salary, Grade IV, commencing at £480 per annum and rising to £525 per annum. Applicants should have had good experience in the preparation of working drawings, and preference will be given to applicants who have passed the Intermediate Examination of the Royal Institute of British Architects.

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

Candidates called for interview will be required to undergo a medical examination by the County Medical Officer.

A lodging allowance of 26s. per week will be paid for a period up to six months to the successful candidate if married (or if single with dependants) and unable to secure housing accommodation in the district, as from the date of appointment.

Further particulars regarding the appointment may be obtained from N. Sq. Johnson, Esq., A.R.I.B.A., A.M.T.P.I., County Architect, Shire Hall, Llangefni, Anglesey.

Applications, stating age, training, experience, qualifications, names of two referees, and accompanied by a copy of one recent testimonial, are to be sent so as to reach the undersigned not later than Monday, 30th April, 1951.

WILLIAM JONES,
Clerk of the County Council.

Shire Hall, Llangefni, Anglesey.
3rd April, 1951. 2316

BOROUGH OF SOUTHGATE.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
ARCHITECTURAL STAFF.

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

(*a*) TWO SENIOR ARCHITECTURAL ASSISTANTS. A.P.T., Va-VI.

(*b*) ARCHITECTURAL ASSISTANT. A.P.T., IV-V.

(*c*) ARCHITECTURAL ASSISTANT. A.P.T., I-III.

In all cases the appropriate London weighting will be paid, and the starting salary will be in accordance with qualifications and experience.

Preference will be given to applicants who are Associate Members of the Royal Institute of British Architects, but for appointments (*b*) and (*c*) applicants who are in possession of the Intermediate Examination of that Institute or who are undergoing a regular course of study for the examination will be considered.

Forms of application may be obtained from the Borough Engineer and Surveyor, and should be returned to the undersigned not later than 9 a.m. on Monday, 30th April, 1951.

Canvassing, directly or indirectly, will be a disqualification.

GORDON H. TAYLOR,
Town Clerk.

Town Hall, Palmers Green, N.13.
4th April, 1951. 2330

CITY OF BATH.
CITY PLANNING AND ARCHITECTURAL DEPARTMENT.

Applications are invited for the following permanent appointments:—

(*a*) CHIEF ARCHITECTURAL ASSISTANT. Grade A.P.T., VII (£635-£710).

Applicants must be Registered Architects, and preference will be given to those who are Associates of the Royal Institute of British Architects.

(*b*) ARCHITECTURAL ASSISTANT. Grade A.P.T., III (£450-£495).

Applicants for (*a*) should have had good experience in the design and construction of Municipal Housing and other works.

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

Applications, stating age, qualifications and experience, together with the names and addresses of three referees, should be sent to the City Planning Officer, 2, Princes Buildings, Bath, not later than the 28th April, 1951.

JARED E. DIXON,
Town Clerk.

Guildhall, Bath.
April, 1951. 2319

BOROUGH OF WALTHAMSTOW COMMITTEE FOR EDUCATION.

Applications are invited for the following permanent appointment in the office of the Architect to the Committee. Mr. Frank H. Heaven, A.R.I.B.A., A.R.I.C.S.

CHIEF ASSISTANT ARCHITECT, at a salary of £685, rising by increments of £25 to £760 per annum, plus £30 London weighting (Grade A.P.T., VIII, of National Scales).

Applicants must have had considerable experience in an Architect's office in connection with the design, construction and maintenance of educational or similar buildings, and some administrative experience.

Forms of application may be obtained from and should be returned to the undersigned within three weeks of the appearance of this notice.

E. T. POTTER,
Borough Education Officer.

Education Offices, Town Hall, Forest Road, Walthamstow, E.17. 2334

MINISTRY OF WORKS.

There are vacancies in the Chief Architect's Division for ARCHITECTURAL ASSISTANTS and LEADING ARCHITECTURAL ASSISTANTS, with recognised training and fair experience. Successful candidates will be employed in London and elsewhere on a wide variety of Public Buildings, including Atomic Energy and other Research Establishments, Telephone Exchanges, and Housing.

Salary: Architectural Assistants, £300-£525 per annum; Leading Architectural Assistants, £500-£625 per annum. Starting pay will be assessed according to age, qualifications and experience. These rates are for London; a small deduction is made in the Provinces.

Although these are not established posts, some of them have long term possibilities, and competitions are held periodically to fill established vacancies.

Apply in writing, stating age, nationality, full details of experience, and locality preferred, to Chief Architect, Ministry of Works, Abell House, John Islip Street, London, S.W.1, quoting reference WG10/BC. 2217

COUNTY BOROUGH OF BARNSLEY.
BOROUGH ENGINEER AND SURVEYOR AND PLANNING OFFICER'S DEPARTMENT.
APPOINTMENT OF JUNIOR PLANNING ASSISTANT.

Applications are invited for the permanent appointment of Junior Planning Assistant, at a salary in accordance with A.P.T., Grades I-II (£390×£15—£465) per annum.

Applicants should have passed or should be studying for the Intermediate Examination of the Town Planning Institute or its equivalent, and preference will be given to candidates who have had previous experience in a Planning Office and who have been engaged in the preparation of Development Plans.

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

The appointment will be subject to one month's notice on either side.

Applications, stating age, present and previous appointments, experience and qualifications, etc., accompanied by copies of three recent testimonials, should be addressed to the Borough Engineer and Surveyor and Planning Officer, Town Hall, Barnsley, to reach him not later than Friday, 27th April, 1951.

A. E. GILFILLAN,
Town Clerk.

Town Hall, Barnsley.
April, 1951. 2294

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF FINANCE.
CHIEF ARCHITECT'S BRANCH.

Applications are invited for ASSISTANT ARCHITECT posts in the Ministry of Finance. Subject to a probationary period of two years, the posts are permanent and pensionable.

Remuneration: The scale is £500×£25—£750. The entry point to this scale depends on age, *viz.*, £500 at age 26, plus £25 for each year above that age. The upper entry point is, however, subject to a limit of £650 per annum.

Qualifications: Candidates must be Registered Architects by examination. In addition, they must have at least two years' experience in an Architect's Office or Department in the preparation of working drawings for new buildings.

Preference will be given to candidates who have served in H.M. Forces in wartime, provided that such candidates can, or within a reasonable time will be able to fill the posts efficiently.

Closing date for receipt of applications: Application forms may be obtained from the Secretary, Civil Service Commission, Stormont, Belfast, to whom they must be returned with copies of two recent testimonials. 2357

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of ASSISTANT MAINTENANCE SURVEYOR, 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 £30 per annum.

Applicants should possess approved qualifications and experience, and preference will be given to those who are Members of the Royal Institution of Chartered Surveyors (Building Sub-Division).

They should be capable of drafting specifications in all trades, preparing schedules of dilapidations, the preparation of detailed estimates for general maintenance works, and surveys of properties.

Full details of past and present appointments should be given.

The appointment will be subject to the provisions of the Local Government Act, 1937, and the successful applicant 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 4th May, 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 applicant will be expected to make his own arrangements in this direction.

T. W. W. GOODERIDGE,
Clerk of the Council.

County Hall, Kingston-upon-Thames. 2367

COUNTY BOROUGH OF GREAT YARMOUTH.
APPOINTMENT OF ASSISTANT ARCHITECTS.

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

(*a*) CHIEF ASSISTANT ARCHITECT. Salary A.P.T., Grade VIII (£685-£760).

(*b*) SENIOR ASSISTANT ARCHITECT. Salary A.P.T., Grade VII (£635-£710).

Candidates for these appointments should be Associates of the Royal Institute of British architects. The appointments will be terminable by one month's notice on either side, subject to the provisions of the Local Government Superannuation Act, 1937, and to the passing of a medical examination. Housing accommodation will be offered to the successful applicants if married.

Applications, stating age, qualifications and experience, together with the names of three persons to whom reference could be made, should be enclosed in an envelope endorsed with the title of the appointment, and must be received by me not later than Friday, 27th April, 1951. Canvassing will be deemed a disqualification, and candidates must disclose in writing any relationship 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.
4th April, 1951. 2315

BUCKS COUNTY COUNCIL.

Applications are invited from QUALIFIED ARCHITECTS for vacancies in the undermentioned grades on the staff of the County Architect :—

Grade VIII (£685-£760 p.a.).
Grade VII (£635-£710 p.a.).
Grade VI (£595-£660 p.a.).
Grade V (£520-£570 p.a.).

The posts offer scope for initiative and enthusiasm. Applicants should preferably have been trained at a recognised School of Architecture.

The appointments are superannuable and subject to medical examination.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.

Further particulars and form of application may be obtained from the County Architect, County Offices, Aylesbury, to whom applications must be delivered by 3rd May, 1951.

GUY R. CROUCH,
Clerk of the Council.

County Hall, Aylesbury.
April, 1951. 2377

SUDAN GOVERNMENT.
MINISTRY OF EDUCATION.

The Director of Education invites applications from candidates, aged not less than 30 on the 1st July, 1951, for posts of SENIOR ASSISTANTS for the Senior School of Building and Engineering of the Khartoum Technical Institute. The School offers full-time courses of National Diploma standard in Mechanical and Electrical Engineering and Building subjects.

Candidates should have experience in similar appointments in a Technical College in the United Kingdom. Applications from those who have had no full-time teaching experience in technical education, but who have had industrial experience and possess a degree or are members of an appropriate professional body, will be considered.

Appointment will be on probation for either a Long Term Contract (salary range £E.617-£E.1,316), with special post-service gratuity or a Provident Fund Contract (salary range £E.720-£E.1,547) or a Short Term Contract (salary range £E.771-£E.1,644), with different post-service benefits.

Cost-of-living allowance, varying between £E.142 and £E.352 p.a., according to the number of dependents, is at present payable and, subject to certain limitations, an outfit allowance of £E.60 is payable on appointment. Free passage on appointment. There is at present no income tax in the Sudan.

Further particulars and application forms are available from the Sudan Agent in London, Sudan Agency, Wellington House, Buckingham Gate, London, S.W.1. Please mark envelope "Senior Assistant, Senior School—4/271." 2376

WEST BRIDGFORD URBAN DISTRICT COUNCIL.
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Senior Architectural Assistant in the Engineer and Surveyor's Department. The appointment is an established post and subject to the provisions of the Superannuation Acts.

The salary will be fixed, according to qualifications and experience, within the range of Grades V, VA or VI of the National Joint Council Scale of Salaries for Local Authorities.

Applicants should be Registered Architects, and preference will be given to persons having experience in architectural design in connection with Local Authority housing.

The Council will consider making a house or flat available to the successful applicant, if required.

Applications, on forms to be obtained from the Engineer and Surveyor, The Hall, West Bridgford, Nottingham, must be returned to him not later than 12 noon on Saturday, the 5th May, 1951.

A. G. MANSFIELD,
Clerk of the Council.

The Hall, West Bridgford, Nottingham.
April, 1951. 2379

THE NORTH-WESTERN ELECTRICITY BOARD.
AREA BOARD HEADQUARTERS.
APPOINTMENT OF THIRD ASSISTANT ENGINEER (QUANTITY SURVEYOR), CHIEF ENGINEER'S DEPARTMENT, AREA BOARD HEADQUARTERS.

Applications are invited for the appointment of Third Assistant Engineer (Quantity Surveyor) in the Chief Engineer's Department at Area Board Headquarters, Cheetwood Road, Manchester, 8.

Applicants should be competent estimators, possess a thorough knowledge of contemporary constructional methods and detailing, have had experience in the administration of contracts, and must be able to undertake the complete preparation of Bills for all types of work, valuation for interim certificates, and settlement of Final Accounts.

Corporate Membership of the R.I.C.S. (Quantities Sub-Division) or I.Q.S. will be an advantage.

The successful applicant will be expected to introduce and build up the data necessary to a Quantity Surveyor's Office.

The salary will be in accordance with the National Joint Board Agreement, Schedule "C," Class AX/DX; Grade V, *i.e.*, £579-£776 per annum.

Applications, stating age, education, qualifications, details of experience, present appointment and salary, should be addressed to the Establishment Omcer, The North-Western Electricity Board, Cheetwood Road, Manchester, 8, so as to be received not later than Saturday, 28th April, 1951. 2387

IMPERIAL WAR GRAVES COMMISSION.
PRINCIPAL DEPUTY DIRECTOR OF WORKS.

Applications are invited for the appointment of Principal Deputy Director of Works stationed in London at a salary of £1,500 per annum. Candidates should be Associate Members of the Institution of Civil Engineers or the Royal Institute of British Architects or the Royal Institution of Chartered Surveyors, and should have had experience in administration on a directorate level and in carrying out constructional work abroad. A University degree in engineering or its equivalent would be an advantage. The man appointed will be responsible to the Director of Works for the direction of works at home and overseas. Applications should reach Appointments Officer, Imperial War Graves Commission, Wooburn House, Wooburn Green, High Wycombe, Bucks., within 14 days of the appearance of this advertisement. 2386

COUNTY BOROUGH OF DERBY.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointment on the permanent staff in accordance with the National Scale of Salaries :—

ONE SENIOR QUANTITY SURVEYOR, Grade VI. Salary £595-£660.

Applicants should be Chartered Quantity Surveyors or prospective, and be fully experienced in the preparation of quantities, specifications, site measuring and estimates.

The appointment will be subject to one month's notice in writing on either side, and to the terms of the National Joint Council's Scheme of Conditions of Service, and the provisions of the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination.

Form of application may be obtained from the Borough Architect, The Council House, Corporation Street, Derby, and should be returned when completed, together with a copy of one testimonial and the names of two persons to whom reference may be made, to arrive not later than Monday, 7th May, 1951.

Canvassing, directly or indirectly, will be a disqualification.

E. H. NICHOLS,
Town Clerk.

2385

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY EDUCATION ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of ASSISTANT ARCHITECT, at a salary in accordance with Grade VI of the A.P.T. Division (£595-£660 per annum). Candidates are required to be Associates or Fellows of the R.I.B.A., and to have had experience in an architectural office in the preparation of drawings and schemes for the construction of all types of school buildings.

The appointment will be in accordance with the terms and conditions of service of the National Joint Council, and subject to the provisions of the Local Government and Other Officers' Superannuation Acts, 1937.

A lodging allowance of 25s. per week, and return railway fare home every two months, will be paid for a maximum period of six months where the successful candidate is married and has to continue to maintain his home outside the geographical County while seeking housing accommodation.

Canvassing, either directly or indirectly, will operate as a disqualification, and candidates must disclose in their application whether to their knowledge they are related to any member or senior officer of this Council.

Applications, endorsed "Appointment of Assistant Architect," stating age, qualifications and previous experience, and accompanied by copies of two recent testimonials, should be addressed to The Director of Education (A), County Education Offices, Earl Street, Stafford, and should be received not later than first post on the 30th April, 1951.

T. H. EVANS,
Clerk of the County Council.

2382

CITY OF OXFORD EDUCATION COMMITTEE.
SCHOOLS OF TECHNOLOGY, ART AND COMMERCE.
SCHOOL OF ARCHITECTURE AND BUILDING.

Applications are invited for the post of FULL-TIME STUDIO LECTURER and LECTURER IN ARCHITECTURAL DESIGN.

Applicants should be Associates of Fellows of the R.I.B.A., and preferably hold the Degree or Diploma of a Recognised School. Salary on the appropriate grade within the terms of the Burnham (Technical) Report, 1951.

Forms of application and further particulars may be obtained, on receipt of a stamped addressed foolscap envelope, from the Chief Education Officer, City Education Office, 77, George Street, Oxford, to whom completed forms should be returned not later than two weeks from the date of appearance of this advertisement. 2368

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

COUNTY BOROUGH OF MIDDLESBROUGH EDUCATION COMMITTEE.
ASSISTANT ARCHITECTS.

Applications are invited for three posts of Assistant Architect, Grade A.P.T., VII, and A.P.T., V (two posts) respectively, in the Education Offices (Education Architect : P. R. Middleton, Dipl.Arch., A.R.I.B.A.). The Committee have a large Building Programme in hand, and the posts offer excellent opportunities in the design and construction of modern school buildings.

Forms of application and conditions of service may be obtained from the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned, not later than Saturday, 5th May, 1951.

E. C. PARR,
Town Clerk.

2388

ARCHITECTS, MAINTENANCE SURVEYORS, QUANTITY SURVEYORS, AND LANDS OFFICERS.

The Civil Service Commissioners invite applications for permanent appointments to the basic (Assistant) grades given above, 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. 3405T.A. Completed application forms should be returned as soon as possible. 2383

BOROUGH OF DAGENHAM.
ARCHITECTURAL ASSISTANTS.

Applications are invited for two posts of Architectural Assisant. Salary : Grade A.P.T., VI, viz., £595 to £660 per annum, plus London weighting (£30 at age 26 and over). Applicants must be Registered Architects and hold A.R.I.B.A. or similar qualification. Forms of application, together with further details of the posts, are obtained from the Borough Engineer and Surveyor. Closing date, 30th April, 1951. Canvassing disqualifies. Housing accommodation will be made available.

KEITH LAUDER,
Town Clerk.

Civic Centre, Dagenham. 2384

CORK CORPORATION.
APPOINTMENT OF TEMPORARY TOWN PLANNING ASSISTANT.

Applications are invited from duly qualified Architects or Engineers who hold a recognised qualification in Town Planning for above position.

The appointment will be for a period not less than twelve months. Remuneration will be from £10 to £13 13s. per week; successful candidate may enter scale at a point above the minimum, according to qualifications and experience.

Applications, giving age, particulars of education, professional qualifications and experience, should be addressed to the undersigned, to reach him not later than 15th May, 1951.

PHILIP MONAHAN,
City Manager and Town Clerk.

City Hall, Cork, Eire.
14th April, 1951. 2386

IMPERIAL WAR GRAVES COMMISSION invite applications from suitably qualified candidates to fill vacancies in their London Office in the following grades :—

ARCHITECT. Candidates should have received recognised training and be Associates of the R.I.B.A., or have an equivalent qualification. They should have had considerable experience with recognised Architects in design and construction of buildings of architectural merit, and preferably have had long experience as Chief Assistant in a private Architect's office. Salary scale £750×25—£1,000 per annum, plus extra duty allowance of 3 per cent. of salary for 45½-hour week.

ASSISTANT ARCHITECTS. Candidates should have received recognised training and be Associates of the R.I.B.A., or have an equivalent qualification. They should have had employment with recognised Architects in design and construction of buildings of architectural merit. Salary scale £475×25—£750 per annum (point of entry according to age and experience), plus extra duty allowance of 3 per cent. of salary for 45½-hour week.

SENIOR ARCHITECTURAL ASSISTANT. Candidates should be up to Final R.I.B.A. standard, skilled draughtsmen with considerable experience in Architect's office, and able to prepare working drawings from sketch designs. Salary scale £625×25—£750 per annum, plus extra duty allowance of 3 per cent. of salary for 45½-hour week.

LEADING ARCHITECTURAL ASSISTANT. Candidates should have several years' experience in an Architect's office, preferably have reached *at least* Intermediate R.I.B.A. or equivalent standard, and be capable of supervising the work of a small team of Draughtsmen. Salary scale £500×20—£625 per annum (point of entry according to age and experience), plus extra duty allowance of 3 per cent. of salary for 45½-hour week.

ARCHITECTURAL ASSISTANTS. Candidates should be skilled draughtsmen capable of preparing half inch scale working drawings and full size details from the Architect's designs. Salary scale £300×£20—£525 per annum (point of entry according to age and experience), plus 1½ hours' overtime pay for 45½-hour week.

Applications to be addressed to Appointments Officer, Imperial War Graves Commission, Wooburn House, Wooburn Green, High Wycombe, Bucks. 2378

THE UNIVERSITY OF SHEFFIELD.

Applications are invited for the post of LECTURER or ASSISTANT LECTURER in Architecture, to begin duties as early as possible.

Salary scales: Lecturer £550-£1,100, Assistant Lecturer £450-£550, with Superannuation provision under the Federated Superannuation Scheme for Universities, and a family allowance. The commencing salary on either scale will depend upon the qualifications and experience of the successful candidate.

Further particulars may be obtained from the undersigned, with whom applications (three copies), including the names and addresses of two referees, should be lodged by 12th May, 1951.

A. W. CHAPMAN,
Registrar.
2356

NATIONAL COAL BOARD—SOUTH-WESTERN DIVISION.

Applications are invited for the following posts in the Divisional Architects' Branch, National Coal Board, South-Western Division, Cambrian Buildings, Mount Stuart Square, Cardiff.

The posts will be temporary, and subject to satisfactory service of not less than 12 months' duration.

(*a*) ARCHITECTURAL ASSISTANTS, Grade I. Salary: £410×£20—£550 (male); £340×£15—£445 (female).

Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects, and have had at least 5 years' office experience and be able to prepare sketch plans and working drawings.

(*b*) ARCHITECTURAL ASSISTANTS, Grade II.

Salary: £300×£20—£440 (male); £247×£15—£352 (female).

Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects or have had their testimonies of study for that examination accepted, and should preferably have had 4 years' experience and be capable of assisting in the preparation of working drawings and details.

(*c*) JUNIOR ARCHITECTURAL ASSISTANTS.

The salary will be rate for age, ranging from 67s. per week at age 18 to 130s. per week at age 27 and over (males), and 67s. per week at age 18 to 103s. per week at age 27 and over (females).

Applicants must have attained a good standard of education and have had some experience in an architect's office, and should be studying for the Intermediate Examination of the Royal Institute of British Architects.

The point of entry into the relevant salary scales for grades (*a*) and (*b*) will depend upon the qualifications and experience of the applicants.

Applications in writing, stating age, education, qualifications and experience, present appointment and salary, should be submitted within 14 days of the date of publication of this advertisement, to the Divisional Establishment Officer, National Coal Board, South-Western Division, Cambrian Buildings, Mount Stuart Square, Cardiff.

Applicants should state clearly the appointment for which application is made. 2337

BRITISH ELECTRICITY AUTHORITY.
SOUTH WALES DIVISION.

Applications are invited for the appointment of a WORKS INSPECTOR at the Uskmouth Generating Site, near Newport, at a salary of £450 per annum.

This appointment will be temporary for a period of approximately two years, and the salary is provisional and subject to negotiation through the appropriate National Machinery.

Consideration will be given to the payment of a travelling or subsistence allowance.

Applicants should have been engaged on large civil engineering works, involving pile driving, bulk excavations, and heavy foundation and superstructure work.

Forms of application may be obtained from the Divisional Secretary's office at the address below, to whom completed applications should be returned not later than 24th April, 1951.

H. V. PUGH,
Divisional Controller.
Cardiff (Pengam Moors) Airport, Cardiff.
4th April, 1951. 2347

FINSBURY BOROUGH COUNCIL.
SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of SENIOR ARCHITECTURAL ASSISTANT on the permanent staff.

Applicants should be Registered Architects and have passed the Final Examination of the Royal Institute of British Architects. They should have a sound experience of architectural work and in particular of the design and construction of Municipal flats. The post is graded on A.P.T., VI, of the National Scales, £595 per annum, rising to £660 per annum, plus "London weighting" (£20-£30).

The successful applicant will be required to pass a medical examination and contribute to the Council's Superannuation Fund, and conform to the National Conditions of Service.

Applications, stating age, experience and qualifications, and accompanied by copies of three recent testimonials, should be addressed to the Town Clerk, Finsbury Town Hall, Rosebery Avenue, E.C.1. 2346

SOUTH-WESTERN ELECTRICITY BOARD.

Vacancies exist for TWO SURVEYORS in the Board's Central Construction Department at Taunton. Candidates should possess a recognised surveying qualification and have had three years' experience, preferably on overhead line work in the industry.

Provisional salary within the range £400-£500 per annum.

Applications, giving age, present appointment and salary, qualifications and experience, to be submitted to Assistant Secretary (Establishments), Electricity House, Colston Avenue, Bristol, 1, within 10 days.
5th April, 1951. 2345

COUNTY BOROUGH OF READING.
CLERK OF WORKS FOR FLATS.

Applications are invited for appointment as Clerk of Works on the erection by contract of 60 flats, 3 storeys high, in brick construction with tiled roof, and ancillary works, to the design of Messrs. James and Bywaters, R.A., F.R.I.B.A., F.R.I.C.S.

The appointment will be for approximately two years, and the salary is at the rate of £10 10s. per week.

For forms of application apply to the Borough Architect, Town Hall, Reading, to whom applications must be sent by Saturday, 5th May, 1951.

G. F. DARLOW,
Town Clerk.
Town Hall, Reading.
13th April, 1951. 2343

AMENDED ADVERTISEMENT.
MIDDLESEX COUNTY COUNCIL COUNTY PLANNING DEPT.

PLANNING ASSISTANT (A.P.T., VI, £625, rising to £690 p.a. if 26 years or over). Applicants should possess Town Planning and architectural experience and qualifications. Established, pensionable post, subject to medical examination and prescribed conditions. Applications in writing, stating age, experience, qualifications, with copies of three recent testimonials, to the undersigned by 28th April (quoting J.204 AJ). Canvassing disqualifies.

C. W. RADCLIFFE,
Clerk of the County Council.
Middlesex Guildhall, Westminster, S.W.1. 2331

COUNTY BOROUGH OF SOUTHEND-ON-SEA EDUCATION COMMITTEE.
MUNICIPAL COLLEGE.

Principal: R. W. WILSON, B.Sc.(Eng.), A.C.G.I., Whit.Sch., D.I.C., A.M.I.E.E.

FULL-TIME ASSISTANT IN THE SCHOOL OF ARCHITECTURE.

Applications are invited for the appointment of an Assistant (Grade B) to undertake studio instruction and lecturing in the School of Architecture.

Applicants should be Associates of the R.I.B.A., and must be keenly interested in progressive architectural education. Previous teaching experience is not essential.

Salary: Burnham Technical Report, 1951.

Further particulars and forms of application may be obtained from the undersigned (s.a.e. foolscap).

Completed forms should be returned to the Principal, Municipal College, Victoria Circus, Southend-on-Sea, within 14 days of the appearance of this advertisement.

D. B. BARTLETT, B.A., M.A.Ed.,
Acting Chief Education Officer.
Education Office, Warrior Square,
Southend-on-Sea. 2338

NORTHUMBERLAND COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited from persons with suitable qualifications for the appointment of PLANNING ASSISTANT, at a salary in accordance with Grade A.P.T., III, of the National Joint Council's scale of salaries (£450-£495 a year).

Candidates for the appointment should have had considerable training or experience in planning work.

The appointment (which is a whole-time one at offices in Newcastle-upon-Tyne) will be subject to the National Scheme of Conditions of Service, to the provisions of the Local Government Superannuation Act, 1937, and to one month's notice on either side, and the successful candidate will be required to pass a medical examination to the Council's satisfaction.

Applications, on forms to be obtained from the undersigned, must be submitted not later than the 28th April, 1951.

E. P. HARVEY,
Clerk of the County Council.
County Hall, Newcastle-upon-Tyne, 1. 2335

COUNTY LONDONDERRY EDUCATION COMMITTEE.

Vacancies exist for ARCHITECTURAL ASSISTANTS in the Architect's Department. Salary in accordance with experience. Application forms may be obtained from the undersigned at the Education Office, New Row, Coleraine, Co. Londonderry, and completed forms must be returned within 15 days from the date of this insertion.

R. B. HUNTER,
Director of Education.
2333

CITY OF PORT ELIZABETH.
VACANCY.
SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited from suitably qualified and experienced persons for the post of Senior Architectural Assistant in the City and Water Engineer's Department at a fixed salary of £800 per annum, plus cost-of-living allowance.

Candidates should be Associates of the Royal Institute of British Architects, and have at least 8 years' practical experience in architectural design and practice.

Applicants should be physically fit and under 45 years of age.

The successful candidate will be required:

(*a*) to furnish a certificate of medical fitness;

(*b*) enter into a contract of service of 3 years' duration with the City Council; thereafter, the appointment will be terminable by one month's notice on either side.

Applications, endorsed "Senior Architectural Assistant," containing full details concerning age, qualifications and experience, and enclosing not more than three recent testimonials, will be received by Messrs. Davis & Soper, Ltd., 52 and 54, St. Mary Axe, London, E.C.3, not later than the 5th May, 1951.

H. TREDWELL,
Town Clerk.
10th April, 1951. 2359

HUYTON-WITH-ROBY URBAN DISTRICT COUNCIL.
APPOINTMENT OF TEMPORARY ASSISTANT BUILDING INSPECTOR.

Applications are invited for the appointment of TEMPORARY ASSISTANT BUILDING INSPECTOR, at a salary in accordance with Grade III of the A.P.T. Division of the National Scales, *i.e.*, £450×£15—£495. The position is on the temporary staff in the first instance, and the person appointed will be required to assist in the air raid shelter survey. Applicants should hold a Building Inspector's Examination Certificate of the Institution of Municipal Engineers or of the R.I.B.A.

Applications, stating age, experience, qualifications, and present and past appointments, with the names and addresses of two persons to whom reference may be made, should reach the undersigned not later than the 28th April, 1951. Canvassing disqualifies.

H. E. H. LAWTON,
Clerk of the Council.
Council Offices, Derby Road, Huyton.
10th April, 1951. 2375

BRACKNELL DEVELOPMENT CORPORATION invites applications from suitably qualified persons for the following appointment :—

ARCHITECT (Housing).
Salary £550×£40—£750.

Applicants should be Corporate Members of the R.I.B.A., and an additional town planning qualification will be an advantage. Students of a recognised School of Architecture who have exceptional ability but lack practical experience and are due to qualify in June will be considered for this appointment.

The successful applicant will be engaged on the design and construction of large housing layouts, and will work under the direction of Mr. E. A. Ferriby, B.Arch., A.R.I.B.A., A.M.T.P.I., Chief Architect to the Corporation.

The post will be superannuable under the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Candidates are required to state if they are to their knowledge related to any member of the Corporation or staff.

Applications, giving full particulars of the candidate's age, qualifications and experience, together with the names of two persons to whom reference can be made, must reach the General Manager, Bracknell Development Corporation, Farley Hall, Binfield, Bracknell, Berks., on or before 30th April, 1951, marking envelope "Architect." 2355

BOROUGH OF HYDE.
BOROUGH SURVEYOR'S DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above-mentioned appointment at a salary in accordance with Grade A.P.T., IV. The appointment will be subject to the National Scheme of Conditions of Service, one month's notice on either side, the provisions of the local Government Superannuation Act, 1937, and the passing, by the successful applicant, of a medical examination.

The person appointed will be engaged in control of junior staff and on the design and supervision of erection of houses and flats, including working drawings, detailing, estate layout, specifications and quantities. An architectural qualification of Intermediate standard is essential.

Applications, giving the usual details and enclosing copies of not more than three recent testimonials, should be addressed to reach the undersigned not later than Wednesday, 25th April, 1951.

Canvassing, directly or indirectly, will disqualify, and applicants must disclose whether to their knowledge they are related to any member or senior official of the Council.

JOHN BINNS,
Town Clerk.

Town Hall, Hyde. 2354

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, SCOTLAND.
REGIONAL ARCHITECT'S DEPARTMENT.

A vacancy occurs for a PRINCIPAL ASSISTANT ARCHITECT. Grade A.P.T., VIII. Salary scale. £685×£25—£760 p.a. Headquarters in Edinburgh.

Applicants should possess a wide experience of planning design and construction; some experience of hospital work desirable, but not essential.

Applications, giving details of age, qualifications, experience, along with the names and addresses of two referees, should be sent to the Regional Architect, 6, Cambridge Street, Edinburgh, 1, on or before 1st May, 1951. 2366

CITY AND ROYAL BURGH OF EDINBURGH.
CITY ARCHITECT'S DEPARTMENT.
ARCHITECTURAL ASSISTANTS.

Applications are invited for permanent and temporary vacancies, various grades, salaries up to £710 maximum (according to qualifications and experience).

Forms of application may be had from the undersigned, to whom these should be returned as soon as possible.

A. G. FORGIE, A.R.I.B.A., Dip.Arch.(Edin.),
City Architect.

City Chambers, Edinburgh, 1. 2360

MIDDLESEX COUNTY COUNCIL COUNTY PLANNING DEPT.

DEPUTY AREA PLANNING OFFICER (A.P.T., VIII. £715 rising to £790). Responsible under Area Planning Officer for Development Control, Survey and Planning. Candidates should possess extensive experience and suitable qualifications. Established pensionable post, subject to medical examination and prescribed conditions. Applications, giving full particulars, with three testimonials, to the undersigned by 28th April (quoting J.266 AJ). Canvassing disqualifies.

C. W. RADCLIFFE,
Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1. 2332

Tenders for Contracts

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

CITY AND COUNTY OF THE CITY OF EXETER.

Erection of 119 Traditional Dwellings at Stoke Hill Estate, divided into 9 Groups of Flats and Houses, the Groups varying in size from 6 to 19 Dwellings.

Contractors, desirous of tendering for any or all Groups (details of which will be supplied on request), should forward a deposit cheque for £2 2s., made payable to the "Exeter City Council" and crossed "Account Payee," to the City Treasurer, Municipal Offices, Exeter, not later than the 26th April, 1951.

Bills of Quantities, together with instructions for tendering, will then be supplied, and plans will be available for inspection at the offices of the undersigned during normal office hours.

The deposit will be refunded on receipt of a *bona fide* tender, which is not subsequently withdrawn, and on the return of the documents.

Canvassing of members of the Council will disqualify.

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

HAROLD B. ROWE, F.R.I.B.A., A.M.I.Struct.E.,
City Architect.

Municipal Offices, Exeter.
April, 1951. 2365

MONMOUTHSHIRE COUNTY COUNCIL.

Building Contractors desirous of Tendering for the erection of a Secondary Modern School at Llantarnam, near Newport, Mon. (4 Form Entry—600 pupils), are requested to submit their applications to Colin L. Jones, F.R.I.B.A., County Architect, Queen's Hill, Newport, Mon., by 30th April, 1951.

VERNON LAWRENCE,
Clerk of the Council.

County Hall, Newport, Mon.
9th April, 1951. 2344

Partnership

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

MAJORITY PARTNERSHIP offered in small established practice in the Channel Islands. Applications for further particulars should give details of qualifications, experience, and *bona fides*. Box 2289.

Architectural Appointments Vacant

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

THE CO-OPERATIVE WHOLESALE SOCIETY, LIMITED, invite applications for an appointment as SENIOR ARCHITECTURAL ASSISTANT, on the staff of the Manchester Architect's Department, at a commencing salary of £550-£650 per annum, according to experience and ability.

Applicants, who must have had practical office experience, are required to have a sound knowledge of building construction and be able to produce working drawings and details from sketch plans. Experience in the design and planning of modern industrial and commercial buildings will be considered an advantage.

The appointment is permanent, with prospects of promotion. The successful candidate will be required to undergo a medical examination for entry into a compulsory superannuation scheme.

Applications, stating age, experience, and qualifications, to be addressed to the Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 2209

ARCHITECTURAL ASSISTANT, Intermediate or higher standard, required for industrial projects. R.I.B.A. scale of salaries. Application invited to Box 2228.

ARCHITECTURAL ASSISTANT required, with about 5 years' office experience. Practice is of varied nature, offering ample scope for suitable man. Write, stating full particulars of experience, how soon free, and salary required. Welch & Lander, FF.R.I.B.A., 38, Gloucester Place, Portman Square, W.1. 2230

ARCHITECTURAL ASSISTANT required by Gollins, Melvin & Partners. Capable working drawings. Salary £450-£550. Office experience essential. 5 day week. Telephone Museum 0883 for appointment. 2287

ESTABLISHED London Firm requires able ASSISTANT. Permanent position. Interested contemporary architecture. Salary £500-£650. Box 2288.

ARCHITECT'S ASSISTANT, Inter. standard, with experience in industrial and commercial buildings. Clifford Tee & Gale. Central 6683. 2272

SENIOR ARCHITECTURAL ASSISTANT (3rd or 4th year) wanted for Hampshire branch office of established practice. Must be good draughtsman. Write, with full information, to Box 2275.

ASSISTANTS required in Architects's Department of large commercial organisation, London office. Sound all-round training in the profession essential, including supervision of work. Excellent opportunities for men of initiative. Apply in writing, giving details of experience, age, and salary required, to Box No. 596/1, Foster Turner & Everetts, Ltd., 11, Old Jewry, E.C.2. 2277

ARCHITECTURAL ASSISTANT required. Intermediate standard. Small progressive London office. Write, stating age, experience, qualifications salary, etc. Box 2308.

ARCHITECTURAL ASSISTANT required, of Intermediate R.I.B.A. standard or over, and with some previous experience in an architect's office. Salary according to ability. Write, stating age and experience, to Staff Officer, Handley Page, Ltd., Cricklewood, N.W.2. 2326

ARCHITECTURAL ASSISTANT required, qualified or Intermediate standard. Chiefly for housing work. Experienced in preparation of working drawings and details. Small office with good prospects. F. Greenwood, A.R.I.B.A., 25, Liverpool Road, Kingston-on-Thames, or 'phone Kingston 0652. 2372

INTERMEDIATE ASSISTANT required in busy general practice. Good prospects and salary to suitable applicant, who need not necessarily be qualified but should be good draughtsman with full experience of preparation of Working Drawings. Yorkshire area. Box 2339.

ARCHITECTURAL ASSISTANT required immediately for progressive appointment in pleasant coastal town, S.W. England. Sound knowledge of Construction and some Administrative experience essential. Salary within the range of £480-£525 p.a. Superannuation Scheme after probationary period. Box 2340.

ARCHITECT, qualified, experienced in design and construction, specification writing and supervision and control of building contracts, is required by a long established firm of Architects in South-West Lancashire. Commencing salary £800 to £1,000 per annum, according to age and ability. The appointment offers an opening to a partnership, subject to mutual confidence. Living accommodation available. Apply, stating education, age, experience, to Box 2342.

ARCHITECT'S ASSISTANT required by Manchester firm of Architects. Previous office experience and sound knowledge of construction essential. Salary offered £350-£450, according to age and capabilities. Box 2352.

MALE ARCHITECT'S ASSISTANT, who has at least passed Intermediate Examination. Work is of high character and valuable experience could be gained. Apply W. J. Lewis & Sons, 68, Cranbrook Road, Ilford, Essex, stating salary required. 2341

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, LONDON.

ASSISTANT ARCHITECTS required for permanent staff. Salary range £490-£555 per annum. Capable of preparing sketches, working drawings, and details under supervision of Senior Architects.

Sound knowledge of construction and architectural design is essential.

The work is interesting and varied, with good prospects, to suitable men.

Apply in writing to Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1, stating age, experience, qualifications and references. 2346

JUNIOR ARCHITECTURAL ASSISTANT wanted immediately, R.I.B.A. Intermediate standard, for general private practice. Telephone Chancery 7915 for appointment. 2350

SENIOR ARCHITECTURAL ASSISTANT, and capable Designer, required in London, with at least 3 years' office experience. Reply, giving particulars and salary required, to Box 2380.

ARCHITECT DRAUGHTSMAN required in Manchester Architect's office. Sound knowledge of building construction, able to prepare details and working up sketch designs to working drawings under supervision. Salary £400. Box 2362.

Architectural Appointments Wanted

ARCH. ASSISTANT (29) desires position in the London area. Comprehensive experience. Box 118.

SENIOR ARCHITECTURAL ASSISTANT, 10 years' continuous experience, particularly in factories, flats, offices, housing, etc., seeks progressive position, with room for initiative. Preferably in small office in London or Midlands. Box 116.

TWO Danish STUDENTS, Inter. standard, seek interesting work for 3 months during summer, preferably together. Previous English experience with Festival of Britain Architects' Section. Box 2311.

A. R.I.B.A., A.M.T.P.I., desires part-time employment in Manchester area. Two days per week. Box 2373.

QUALIFIED ARCHITECT (woman) seeks post. Harrow, Uxbridge or N.W. London. Varied office experience. Box 129.

ARCHITECT'S ASSISTANT (aged 24), of R.I.B.A. Final standard, and with 5 years' office experience, seeks responsible post in London office. Box 124.

QUALIFIED ARCHITECT (female) wants a job in London office as a Junior Assistant. Write Mrs. M. Fisher, 41B, Parsons Green, London, S.W.6. 125

YOUNG ARCHITECTURAL ASSISTANT (20), Inter. R.I.B.A., office trained, desires progressive position in West Country office. Box 130.

YOUNG, well-qualified private SECRETARY, two years with Chartered Architect, seeks similar position. W.1 area. Box 2364.

ASSISTANT (27), 10 years' varied progressive experience, preparing Final, requires post in London with multiple property concern. Used to handling all repair, maintenance and improvements, including contemporary design, without supervision. Write Box 126.

SCHOOL trained ASSISTANT, with 4 years' experience, desires new responsible position in London office. Box 127.

SENIOR ARCHITECT'S ASSISTANT, able to take charge of office, seeks progressive post, Leeds or W. Riding. Box 128.

AN Indian (aged 27) requires a position in a busy Architect's office in London. Qualifications: Student R.I.B.A. now studying for Final R.I.B.A. Previous experience: 5 years' office experience in India and 1½ years' experience in London. Starting pay £440-£460 p.a. Please write to Box 131.

Other Appointments Vacant

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

SECRETARY required immediately. Specialised experience preferable, but not essential. Elsom & Pearlman, A./A.R.I.B.A., 44, Catherine Place, S.W.1. Victoria 4304/5. 2307

DRAUGHTSMAN required for Reconstructed Stonework, Hollow Beam Floors and all types of Precast Concrete products. Write, stating experience and salary required, Girlings Ferro Concrete Co., Ltd., Great South-West Road, Feltham, Middlesex. 2273

UNI-SECO, LIMITED, designers and manufacturers of the SECO System of Construction, invite applications for the post of SALES REPRESENTATIVE. Duties will include calling on prospective clients in Local Government and private industrial fields, and the preparation of schemes with preliminary drawings, etc. Applicants should have a sound knowledge of and practical experience in building construction; must be prepared to travel in Great Britain and must possess initiative and good personality. Applications to be made in writing, giving details of qualifications and experience, and stating age and salary required, to 11, Upper Brook Street, W.1. 2370

DRAUGHTSMAN required by a Middle East Oil Company for service overseas. Should have had at least 5 years' experience in drawing office and should be able to prepare detailed drawings of the following types of work:—Mechanical, pipe work, electrical transmission, distribution, wiring, etc. Knowledge of drawings for buildings and drainage an advantage. Salary starting £630 per annum clear, plus living allowances, kit allowance, pension scheme. Write, giving details and quoting K.1232, to Box "P.R.," c/o J. W. Vickers & Co., Ltd., 7/8, Great Winchester Street, London, E.C.2. 2348

DRAUGHTSMAN (age 20/25), interested in commercial career with prominent company exporting structures to world markets. Knowledge of architectural and structural engineering drawing necessary. Progressive opportunity, with possible overseas travel. Full particulars to Box 2363

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MANUFACTURERS, with established connections through their own salaried Technical Representatives in England, Scotland and Wales, wish to negotiate owing to restricted supplies of materials, with other manufacturers of products for the Building Industry, with a view to representation of their products, either for the Country or for particular Counties. Sales can be guaranteed almost immediately. Box 2244.

R.I.B.A. Calculations of Simple Structural Members and Theory of Structures. Postal Tuition. Apply D. A. Fowler, Dip.Arch.(Abdn.), F.R.I.B.A., 22, Oakwell Mount, Leeds, 8. 1208

AMERICAN Town Planner, M.C.P.(Harvard), B.A., completing Ph.D. research in London, seeks temporary position. Box 2374.

Q.S. OFFERS occasional services Taking-off and Preparation of Quantities. London and East Midlands. Box 2381.

Miscellaneous

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

A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment. Harvest Works, 99-107, St. Paul's Road, N.1. Canonbury 2061.

The Race Upholstery Unit will be pleased to report on and tender for your specialised upholstery requirements and repairs. 22, Union Road, Clapham, S.W.4. 4048

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INSURANCE

ARCHITECTS' Indemnity Insurance effected. Please write for Proposal Form to E. J. SAXBY, Incorporated Insurance Broker, 31a, Carfax, Horsham, Sussex. Tel. 990. 2039

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R.I.B.A. EXAMS.—Mr. L. Stuart Stanley, M.A., F.R.I.B.A., M.T.P.I., Distn. in T.P. (Tutor in the Sch. of Arch. Lon. Univ.), and Mr. G. A. Crockett, B.A., A.R.I.B.A. (Medallist), A.M.T.P.I., F.R.S.A., prepare Students by correspondence tuition. Stuart Stanley & Crockett, 10, Adelaide Street, Strand, W.C.2. TEM. 1603/4.

TWO Scholarships, value £60 or £80, offered in Art and Music to promising candidates, aged 12 and 15. Apply Secretary, Romsey College, near Romsey, Hants. 2371

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