



WALTHAMSTOW CIVIC CENTRE

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Consulting Engineer.

P. D. Hepworth, F.R.I.B.A.
Architect.

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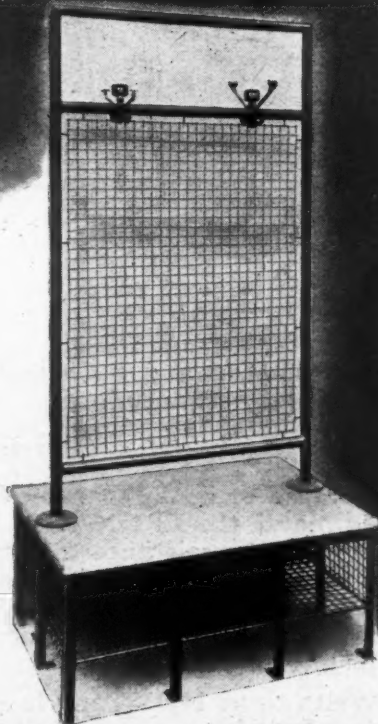
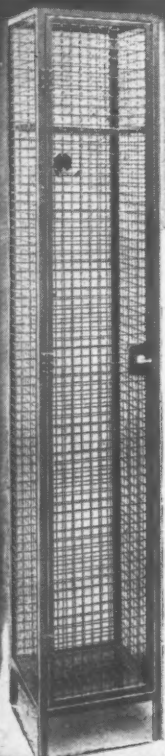
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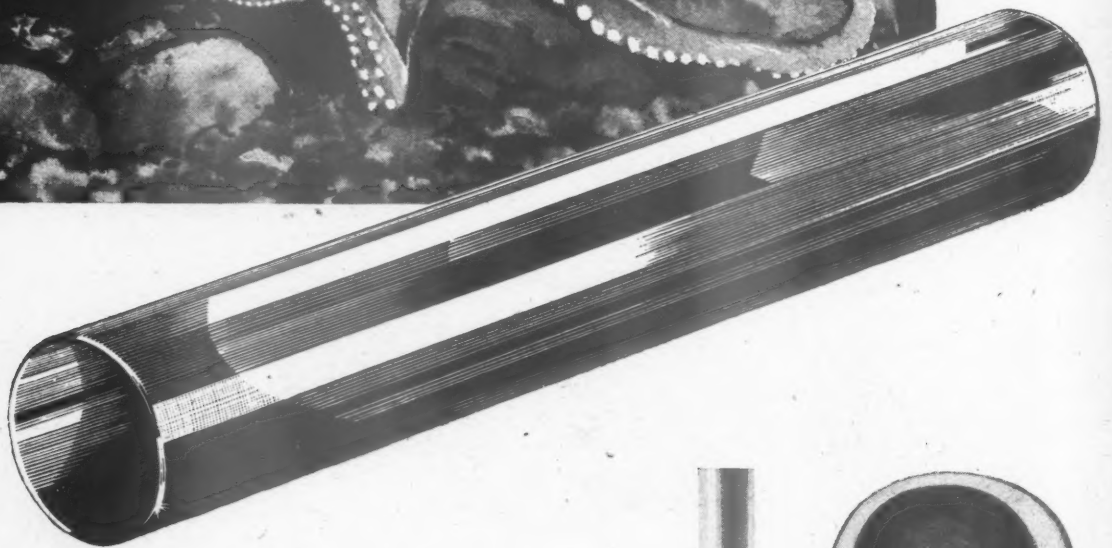
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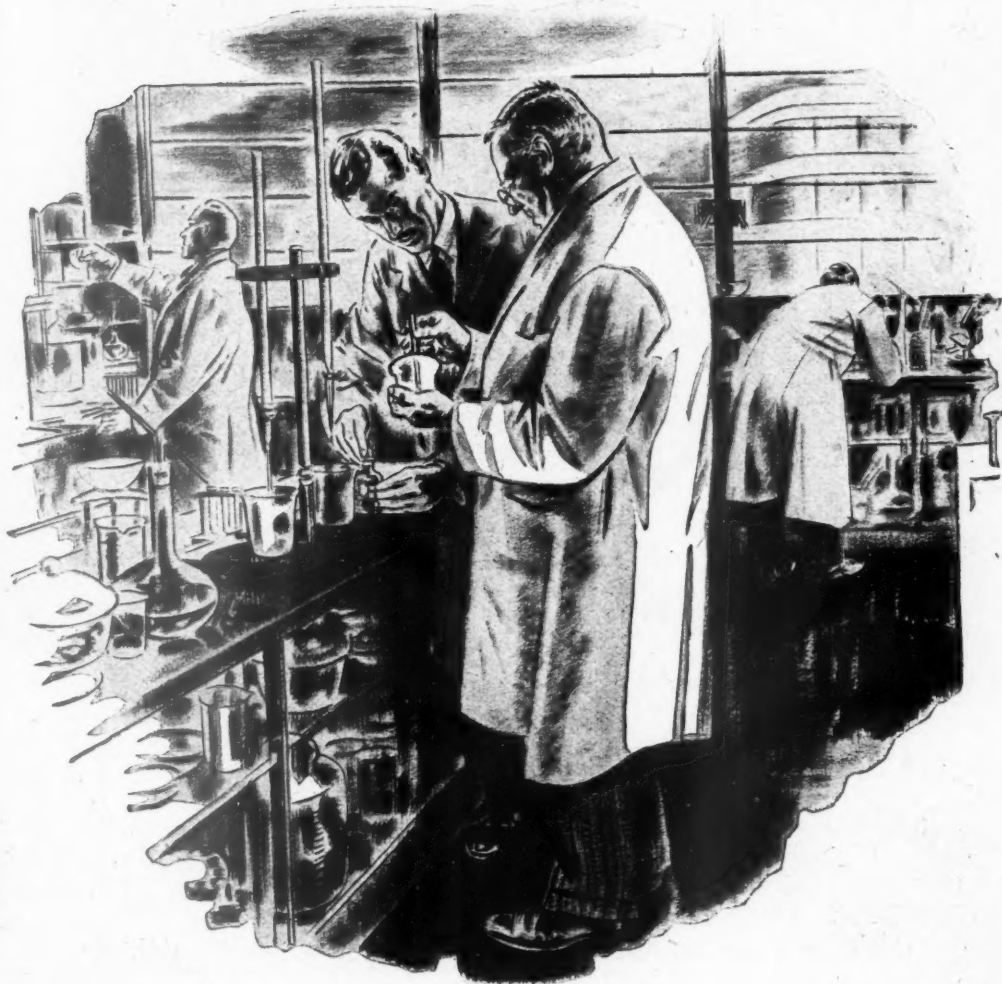
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METAL FINISHES LTD., CROMALIN WORKS, NEW SPRING ST., BIRMINGHAM, 18

WIMPEYS AT WORK

Scientific methods in Building construction



THE LABORATORY IS THE STARTING POINT

The primary function of Wimpeys' laboratory staff is to exercise rigid technical control over the materials used for each contract. Frequent tests, continued throughout the job, ensure that the predetermined standard is fully maintained. Specific problems (concerning soil mechanics, for instance) are also submitted to the laboratory by the men on the site.

Architects have long been familiar with Wimpeys' reputation for sound and speedy construction. It is not so well known, however, that the smooth progress and high quality of every Wimpey job are largely due to the work of analytical

chemists, research engineers and other technicians at headquarters. From start to finish of a Wimpey contract, the quality of the building materials is under constant control by the laboratory staff. Tests are continually being made on concrete cubes, on cements, ballasts, sands and gravels, on soils and asphalts. These tests and others, all conducted in close collaboration with the men on the site, ensure that the materials used in every Wimpey building are right for the job.

The work of the laboratory is only one aspect of Wimpeys' scientific approach to the problems of building construction. For over sixty years, Wimpeys have taken a leading part in developing methods

by which efficient, economical construction can be predetermined. It is these methods which enable the firm to offer an exceptional service as building contractors.

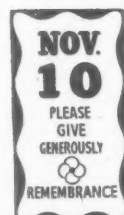
The post-war years will find Wimpeys well equipped for every branch of modern building — from hotels and cinemas to civic centres and labour-saving houses for the people.

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GEORGE WIMPEY AND COMPANY LIMITED
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... ONCE AGAIN ON SCHEDULE . . .
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When the present delivery restrictions are removed the full benefit of London Brick Company's vast productive and distributive resources will again be available to assist in Britain's drive for houses.



LONDON BRICK COMPANY LIMITED

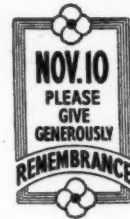
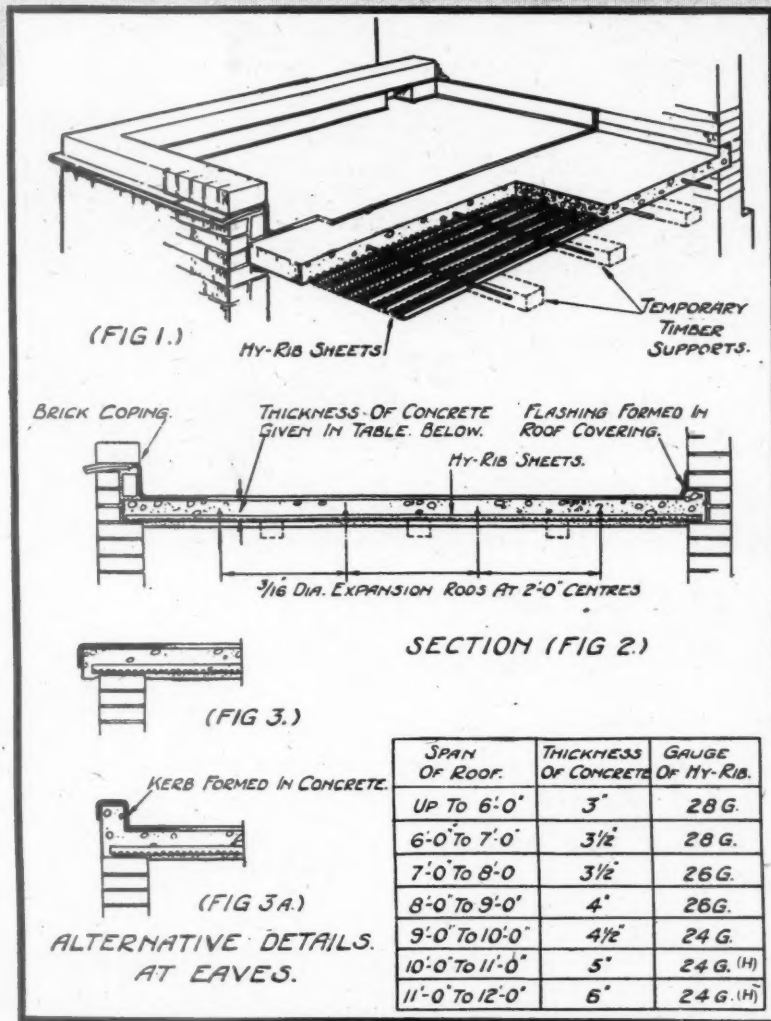
HEAD OFFICE: Africa House, Kingsway, London, W.C.2. Telephone: Holborn 8282

BIRMINGHAM OFFICE: Prudential Bldgs., St. Philip's Place, Birmingham 3. Tel.: Colmore 4141

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HY-RIB CONSTRUCTION

for CONCRETE ROOFS OF OUT-BUILDINGS IN HOUSING SCHEMES



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ELIMINATES
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ENSURES SPEEDY
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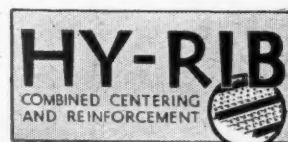
CONSERVES
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General details of concrete flat roofs in Hy-Rib construction

For the guidance of Constructional Staffs we provide working drawings for particular applications of Hy-Rib.

Hy-Rib is unequalled in providing the above facilities and its use reduces labour costs to a minimum.

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Siegwart System

Avoids delays at site . . .



The first advertisement of this series illustrated some of the factors which enable Siegwart Floors to be very quickly fixed. Another important factor to this end is the delivery of the precast units in the right order and at the right time. Siegwart deliveries are organised so that the precast units for each floor bay arrive from the factory on the day required for fixing them. They are then taken direct from the lorry into their place in the building without intermediate handling and stacking. These photographs show the delivery operations in progress.

SIEGWART PRECAST FLOORS

SIEGWART FIREPROOF FLOOR CO. LTD.

Croxley Green, Rickmansworth, Herts. Tel.: Rickmansworth 2268

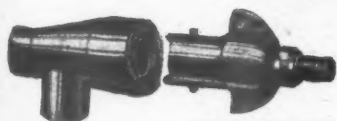
Branch offices at Birmingham, Manchester and Glasgow.

★ The new Siegwart housing booklet is still available to all interested on receipt of a 1d. stamp.





to GAS...



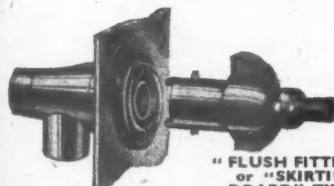
"ORDINARY" TYPE
No. 1. Mk. II.
Socket screwed $\frac{1}{2}$ in. B.S.P.
Nose piece of Plug screwed $\frac{1}{2}$ in. B.S.P.



"PEDESTAL" TYPE
No. 2. Mk. II.
With Flange for floor fixing
Socket screwed $\frac{1}{2}$ in. B.S.P.
Nose piece of plug screwed $\frac{1}{2}$ in. B.S.P.



"PEDESTAL" TYPE
with stem cock.
No. 3. M. II.
This only differs from No. 2. in that the stem cock is added.



"FLUSH FITTING" or "SKIRTING BOARD" TYPE
No. 4. Mk. II.
This type has heavy brass plate 4 ins. long and 3 ins. wide with holes in corners for fixing screws.
Socket screwed $\frac{1}{2}$ in. B.S.P.
Nose piece of plug screwed $\frac{1}{2}$ in. B.S.P.



"THROUGH" TYPE
No. 5. Mk. II.
Socket screwed in $\frac{1}{2}$ in. B.S.P.
M. & F. Threads.
Nose piece of plug screwed $\frac{1}{2}$ in. B.S.P.

Gas automatically turned on

THE ever growing use of gas appliances, both in the home and industry, makes it essential that it should be possible to change them from point to point, easily and safely.

Edgar Flexible Plugs and Sockets are specially designed for this purpose, and being instantaneous in use, are a perfect safeguard against the accidental or careless turning on of the gas.

The neat design of the various types permit gas points to be installed in the most convenient places, unobtrusively and efficiently.

With Edgar Flexible Plugs and Sockets the connecting of a gas fire, poker, iron, blow lamp, or boiler, etc., is a simple one-handed job. Merely insert plug into socket, give a quarter turn and the gas is instantaneously turned on.

In all new buildings specify

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FLEXIBLE PLUGS AND SOCKETS

WM. EDGAR & SON, LTD.

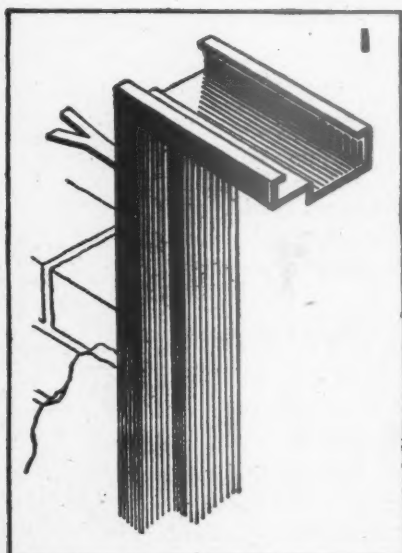
BLENHEIM WORKS, HAMMERSMITH, LONDON, W.6.

Telephone : RIVerside 3486

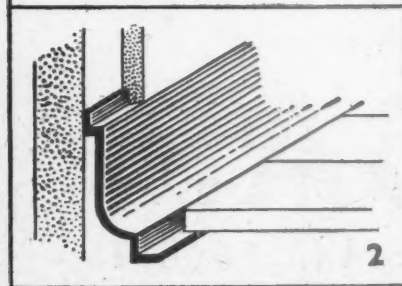


STEEL INSTEAD OF WOOD

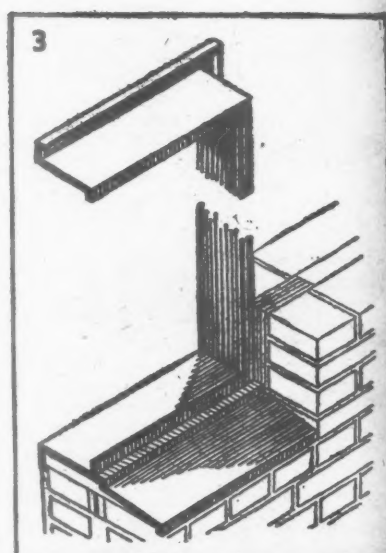
Sankey METAL TRIM



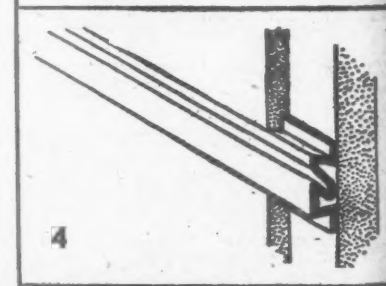
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Pressed Steel Door Frame.
Corners Welded and Complete.
with Hinges, Strike Plate and Lugs
for fixing.



2
Coved Skirting.
Stock lengths 10ft. or cut accurately
to size. Corners may be Mitred
or Special Corner Pieces used.



3
Lining for Interior Window Reveal
and External Cill. All Sections
Purpose Made and Rust Proofed
if desired.



4
Flush Picture Rail fixed by Nailing
and Corners Mitred in the usual
way. Stock lengths 10ft.

Metal Trim will undoubtedly play an important part in post war reconstruction, and those interested are welcome to a copy of our catalogue. For the time being, of course, we are only able to execute orders carrying Government permits.

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The New **CELMAC**

W.C. SEAT

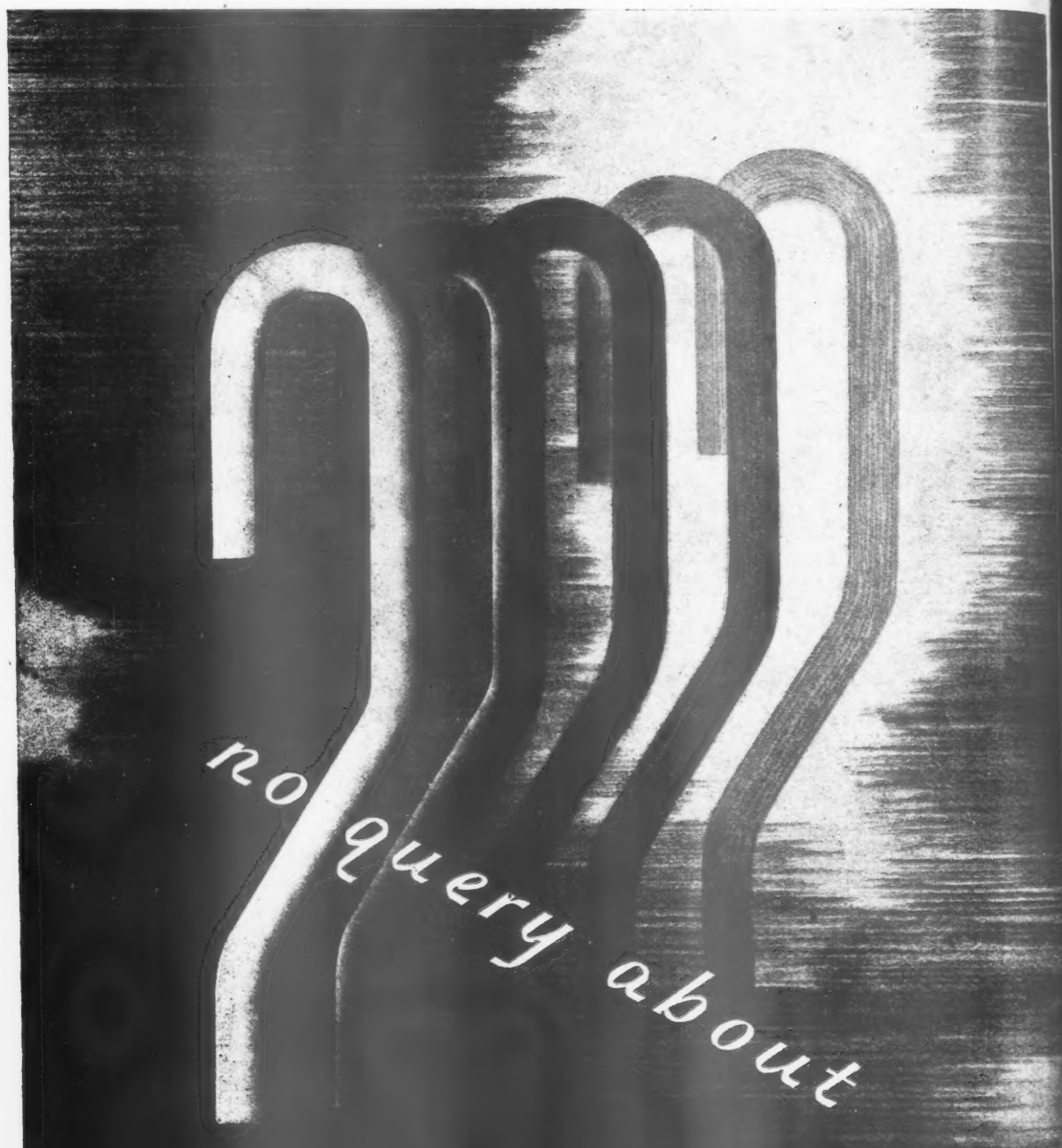
— Plastic Moulded of course!



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- NO BREAKAGES
- IMPERVIOUS TO WATER & ACID
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Used in Government Depts., Institutions, Public Buildings, Hotels, etc.

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CROWN WORKS • DENTON • MANCHESTER
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BY Mc CALL'S**

Mc CALL & CO. (SHEFFIELD) LTD.
TEMPLEBOROUGH · SHEFFIELD - and at LONDON

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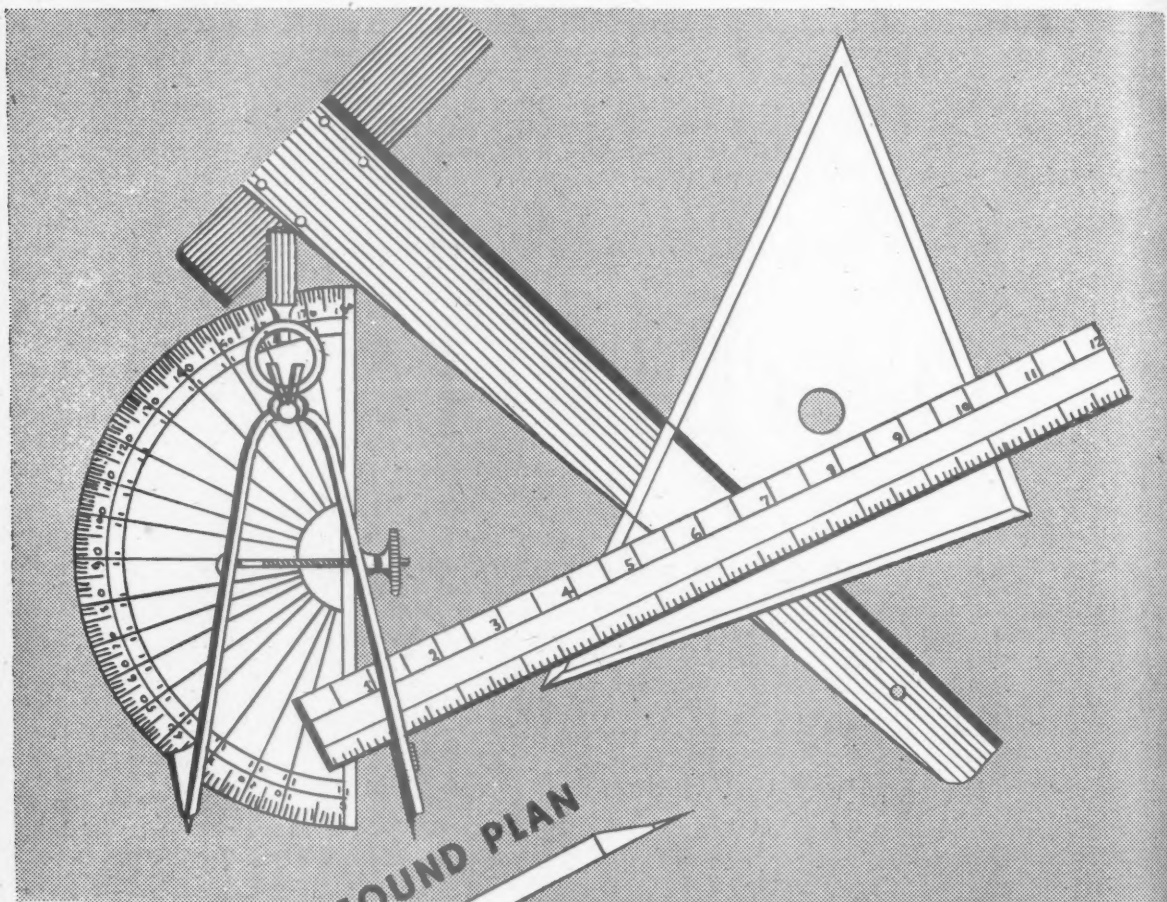
Cotton is an essential raw material in the production of leathercloth. Cotton fabrics are, however, in short supply, and any improvement will only be on a gradual scale. Meantime we shall continue to supply leathercloth to customers under quotas, this having been found to be the fairest method of distribution.

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END WITH THE PERFECT FINISH

The
LAST WORD
in
specifications

Start every job — construction or re-construction — with the finish in mind. CERRUX is the logical specification, for these excellent Decorative Finishes afford the utmost protection to wood or metal fittings: are easy and rapid to apply, whether by brush or spray: offer a fine colour choice: and, whilst maintaining the seemly appearance of the structure as a whole, reduce paint maintenance costs to a minimum.

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Meanwhile CERRUX experience is making the best of available substitute materials and is thus still producing a product second only to the pre-war (and post-war) CERRUX itself.

Cerrux

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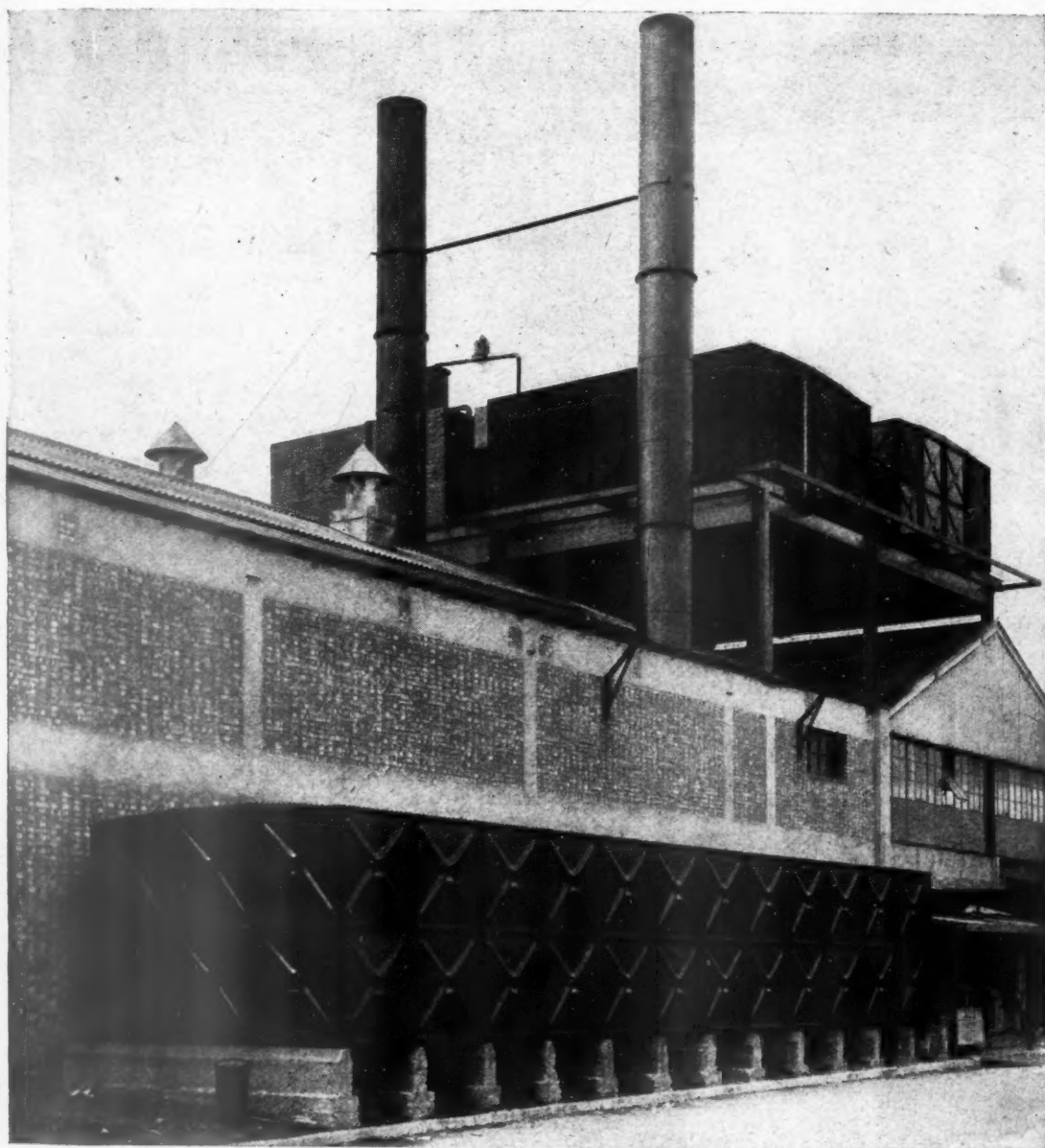
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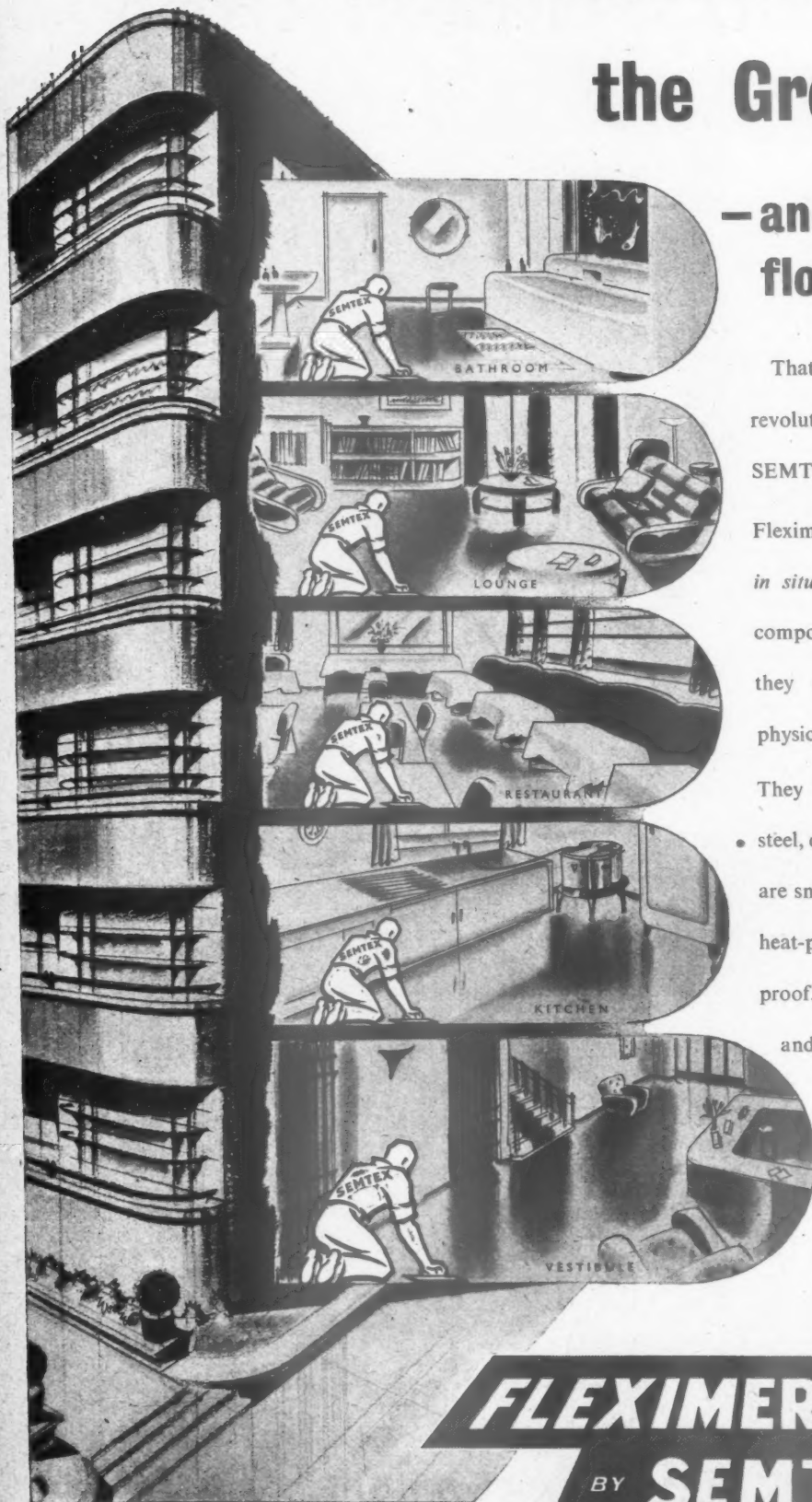
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You'll want SEMTEX on

the Ground Floor

—and on every other floor as well



That will be your inevitable reaction to the revolutionary flooring compositions which SEMTEX Technologists have evolved. Fleximer floors by SEMTEX, laid cold *in situ*, possess all the advantages of the compound of natural rubber and cement they replace, together with many other physical characteristics.

They bond positively to a clean base of steel, concrete, or other rigid material. They are smooth, flexible, damp-proof, hygienic, heat-proof, oil-proof, slip-proof, and acid-proof. They are easy to clean, to keep clean, and possess outstanding durability.

● Only work of first degree priority is at present undertaken, but arrangements are in hand for fleximer material to become generally available for the building programmes of the future.

FLEXIMER FLOORS

BY **SEMTEX** LTD.



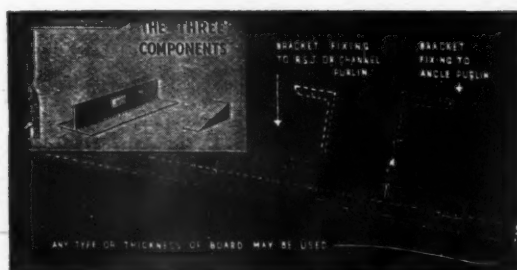
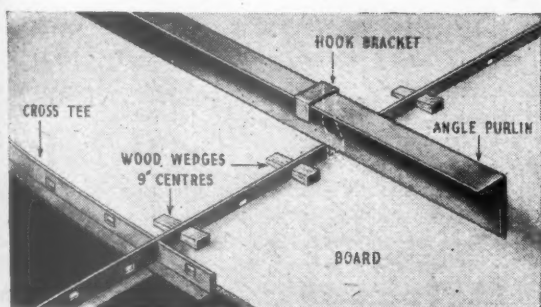
Patent No. 519405

FOR APPLYING ANY TYPE OF BOARD TO CEILING & WALLS

The Wallboard is secured to sherardised, pressed steel, slotted T-section by wedges. Below are shown the methods of attaching the support to various forms of purlin.



Escalator Tunnel of St. John's Wood Underground Station. Architect: S. A. Heaps



8 POINTS TO BE NOTED

1. Fixed to **UNDERSIDE** of purlins—steel or wood—covering unsightly hook bolts, clips, etc.
2. Assures the Insulating value of air-space between roof and underside of purlins. No dust or dirt.
3. Can be fixed to steel or wood purlins of roofs and joists of flat ceiling.
4. No unsightly nail heads showing.
5. Can be applied to new or old buildings of any construction independently of the roofing contractor,
6. Any thickness of board can be used, from $\frac{1}{8}$ " to $\frac{3}{4}$ ".
7. This method can be used for applying linings to exterior walls.
8. The simplicity of application is such that any contractor can apply the AnD Wedge Method, and the materials making up this method can be purchased by the contractor.

Full particulars, specification and a typical layout will be sent on request

C. F. ANDERSON & SON, LTD.

Wallboards for Government Work

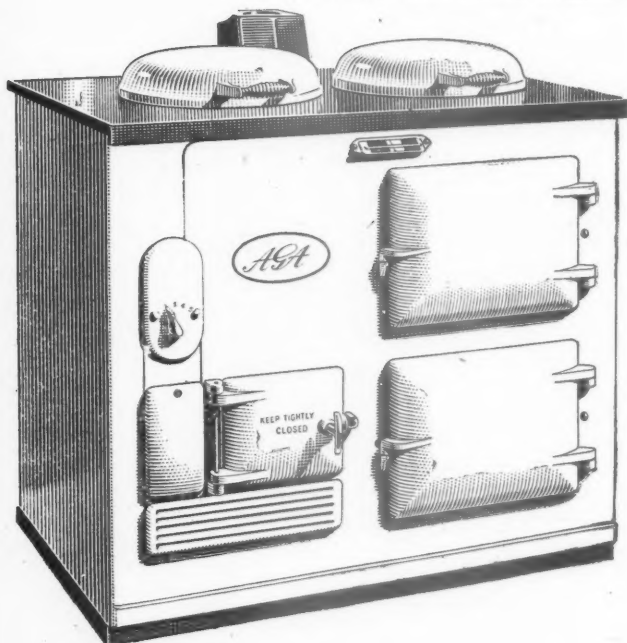
HARRIS WHARF, GRAHAM STREET, LONDON, N.I.

TELEPHONE: CLERKENWELL 4582

HEAT STORAGE COOKING

EXAMPLE

THE AGA COOKER

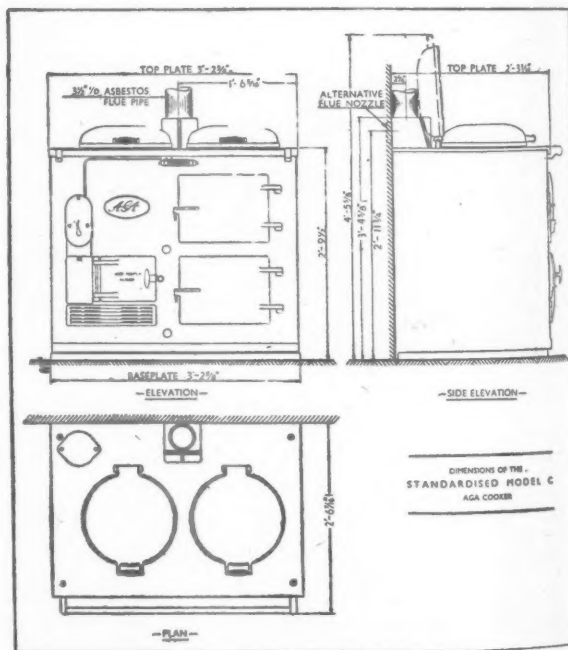


WEIGHT: Approximately 10½ cwt.

INSTALLATION: It fits right back against the wall: the flue pipe can be taken either straight up to the chimney or else a different flue chamber can be fitted and the stub taken to a built-in flue. It is recommended that the AGA Cooker should stand on a sheet of asbestos cement or asbestos millboard (in the case of a wooden floor): or it may be raised on a brick or cement dais flush with the front plate of the cooker. It is important that the hearth or base upon which the cooker stands should be perfectly level.

SPECIFICATION FOR MODEL C:

The dimensions of this model are given in the drawings below, which show front and side elevations and plan. It is recommended for average conditions in a medium-sized house. It provides a fast boiling plate and a separate simmering plate, and two ovens, one for roasting and one for simmering and plate-warming. It is guaranteed not to consume more than an annual maximum of 2½ tons of fuel.



ONE OF THE MANY CONTRIBUTIONS TO THE POST-WAR HOME THAT WILL BE MADE BY

ALLIED IRONFOUNDERS LIMITED

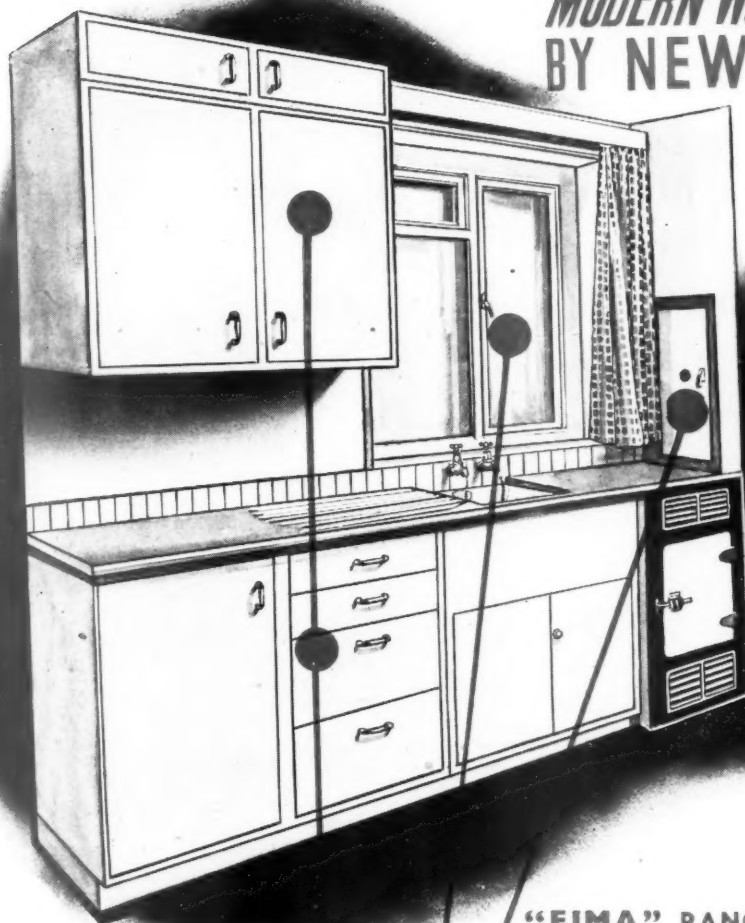


Proprietors of: AGA HEAT LIMITED; ALLIED IRON (R.W.) LTD.; BRITISH BATH CO. LTD.; THE BURTON FOUNDRY CO. LTD.; CALLENDER ARSON FOUNDRY COS. LTD.; THE JAMES CLAY (WELLINGTON) LTD.; THE COALBROOKDALE CO. LTD.; M. COCKBURN & CO. LTD.; E. W. CROSTHWAITE LTD.; DOBBIE, FORBES & CO. LTD.; EXCELSIOR FOUNDRY CO.; THE FALKIRK IRON CO. LTD.; THE FORTH & CLYDE & SUNNYSIDE IRON COS. LTD.; GENERAL GAS APPLIANCES LTD.; F. HELM LTD.; H. E. HOOLE & CO. LTD.; MCDOWALL STEVEN & CO. LTD.; PLANET FOUNDRY CO. LTD.; SINCLAIR IRON CO. LTD.; THE WELWYN FOUNDRY CO. LTD.

KETLEY • WELLINGTON • SHROPSHIRE



MODERN WOODWORK BY NEWSUMS



"EJMA" RANGE OF CUPBOARD UNITS

TO EQUIP ALL NEW
KITCHENS.
TO MODERNISE OLD
KITCHENS.

The Cupboards are designed
to Unit Pattern as recom-
mended in B.S.S. 1195.

"EJMA" RANGE OF STANDARD CASEMENT WINDOWS

ECONOMICAL, WEATHER AND DRAUGHT
RESISTING, MAXIMUM DAYLIGHT
ADMISSION.

Adopted as a British Standard (B.S.S. 644)
No. 1/1944.

NEWSUM'S TRADESMAN'S HATCH

INEXPENSIVE, FOOLPROOF,
HYGIENIC, CONVENIENT.

Every Tradesman's Hatch is fitted with a
Patent Automatic Locking Device which
prevents any interference with contents
from the exterior.

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TELEGRAMS -
NEWSUMS, LINCOLN.

H. NEWSUM SONS & CO. LTD.

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LINCOLN 812 (4 LINES)

CHART FOR BUILDERS

CUT THIS OUT AND KEEP FOR FUTURE REFERENCE!



Remember, the next time the specification calls for building board, there's a Celotex product which will fit the bill exactly. This chart is necessarily brief, but Celotex Limited will gladly supply any further information.

CELOTEX PRODUCT

PRINCIPAL USES

INSULATING BOARD $\frac{1}{2}$ " THICK

Wall and ceiling lining, partitions, floors and roofs, plaster base, thermal insulation, permanent shuttering to concrete, sound insulation, acoustical correction, prevention of condensation, decorative finish.
Sizes 4' wide, 8', 10' and 12' long.

BUILDING BOARD $\frac{3}{8}$ " THICK

Wall and ceiling lining, partitions and floors, plaster base, decorative finish.
Sizes 4' wide, 8', 10' and 12' long.

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Wall and ceiling lining, partitions and floors, decorative finish. Sizes 4' wide, 8', 10' and 12' long.

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Type C3 $\frac{11}{16}$ " thick. Type C4 $\frac{11}{16}$ " thick. Acoustical correction. Sound quietening.
Sizes 6" $\times$ 12", 12" $\times$ 12" and 12" $\times$ 24".

ROOF INSULATION $\frac{1}{2}$ " THICK

Thermal Insulation. May be built up to any thickness.
Size 48" $\times$ 24".

HARDBOARD $\frac{1}{8}$ " & $\frac{3}{16}$ " THICK

Panelling, cupboards, dadoes, flush doors, signs, blackboards, shopfitting and many other uses.
Size 4' $\times$ 12'.

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Panelling, cupboards, dadoes, flush doors, signs, blackboards, shopfitting and many other uses.
Size 4' $\times$ 12'.

* Celotex Products comply with British War Emergency Standard 1142:43.

Other sizes of sheets will be available when conditions permit.

CELOTEX

INSULATING BOARD
BUILDING BOARD
HARD BOARD
ACOUSTIC TILES

CELOTEX LIMITED, NORTH CIRCULAR RD., STONEBRIDGE PARK, LONDON, N.W.10 (ELGAR 5719)

MEMBERS OF THE BUILDING BOARD MANUFACTURERS ASSOCIATION

**“We must be
*emphatic...***

... about post-war deliveries”

To avoid long delay
when the time comes
to convert plans on paper
into actual structures
and equipment, now is
the time to approach us.



LIFTS & ESCALATORS

Even if a scheme is in such an early stage of planning that the preparation of a fully detailed specification and an accurate estimate of cost must be deferred, that is of no consequence. Allow us to assist you in preparing an outline of the best installation at the lowest cost consistent with fulfilment of essential requirements and the highest standards of material and workmanship. By accepting this offer you will not incur any obligation but you will secure three important advantages. *First, of having your name entered high up on our list for priority in the carrying out of our post-war contracts.* Second, you will have at your service in

planning, knowledge of the design, construction and installation of lifts and escalators which can only be acquired by long experience in that particular branch of engineering. Third, if you eventually place your order with us, you will have available for the carrying out of your scheme the resources of a large organisation provided with ample skilled labour and up-to-date equipment which, during the war, has produced for the Army, Navy and Air Force, for the Merchant Navy, for Government Departments and for many other important Clients, numerous engineering products of the highest quality requiring the utmost precision in manufacture.

J. & E. HALL

L I M I T E D

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"English Electric"

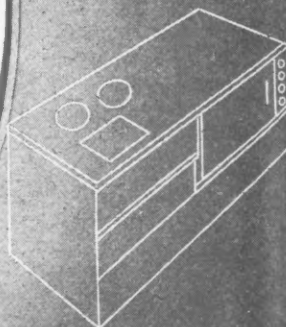
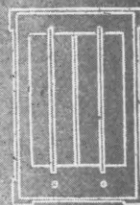
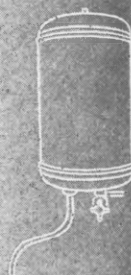
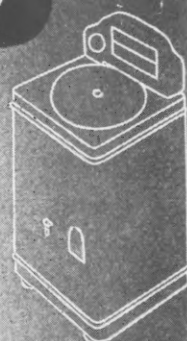
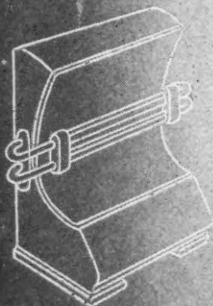
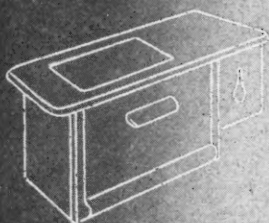
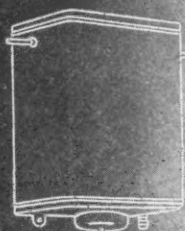
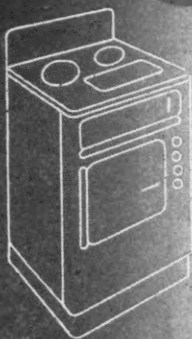
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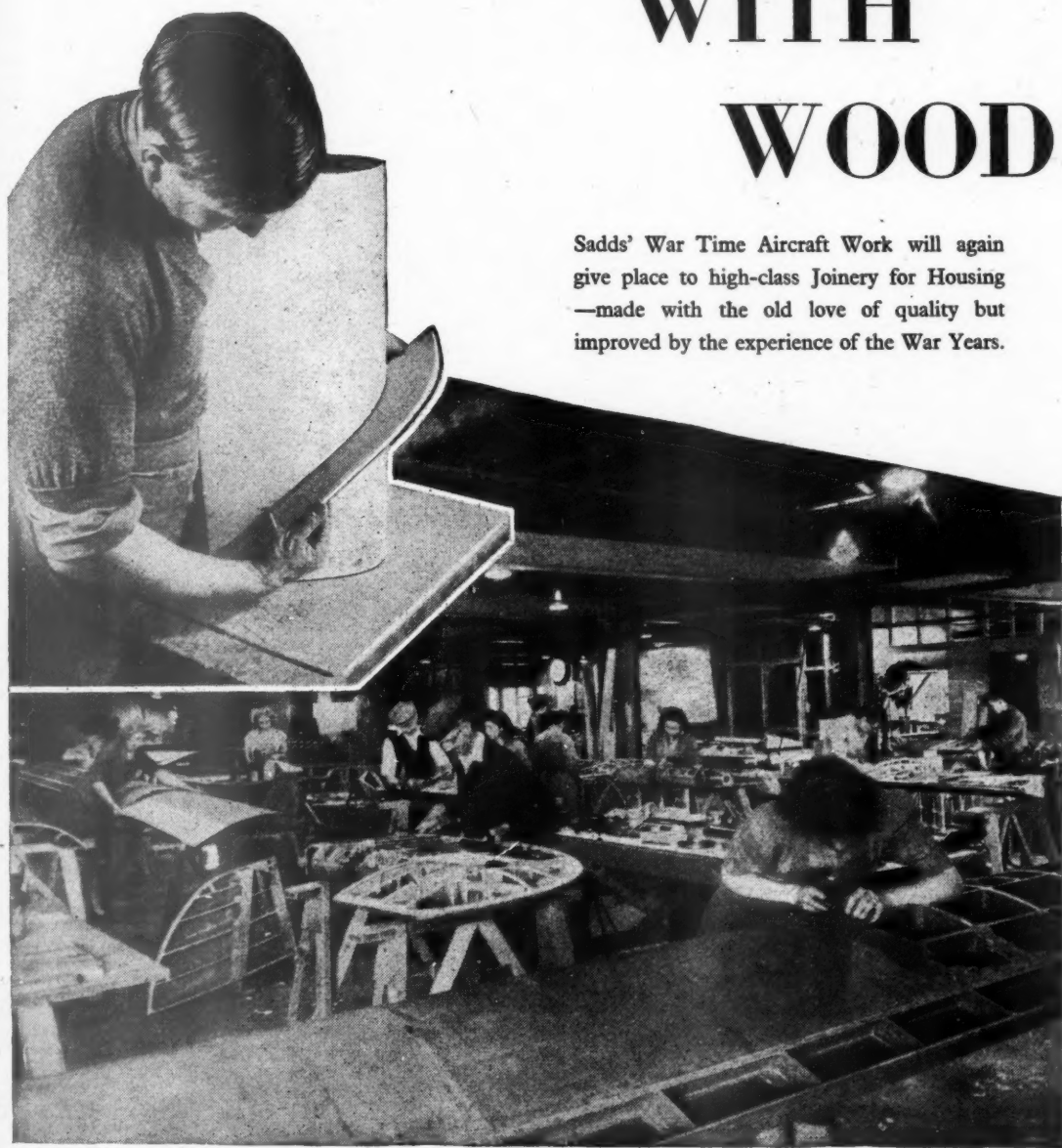
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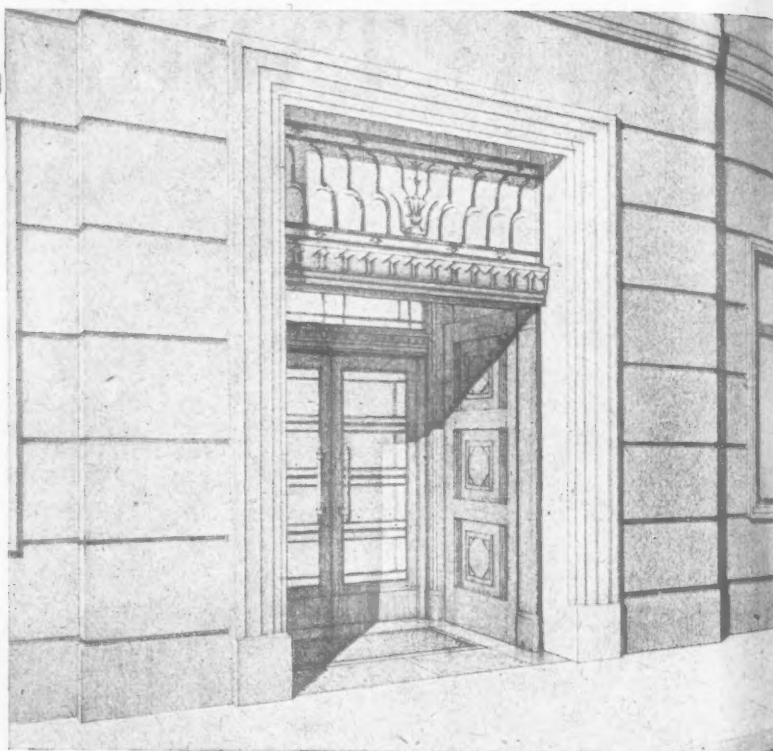
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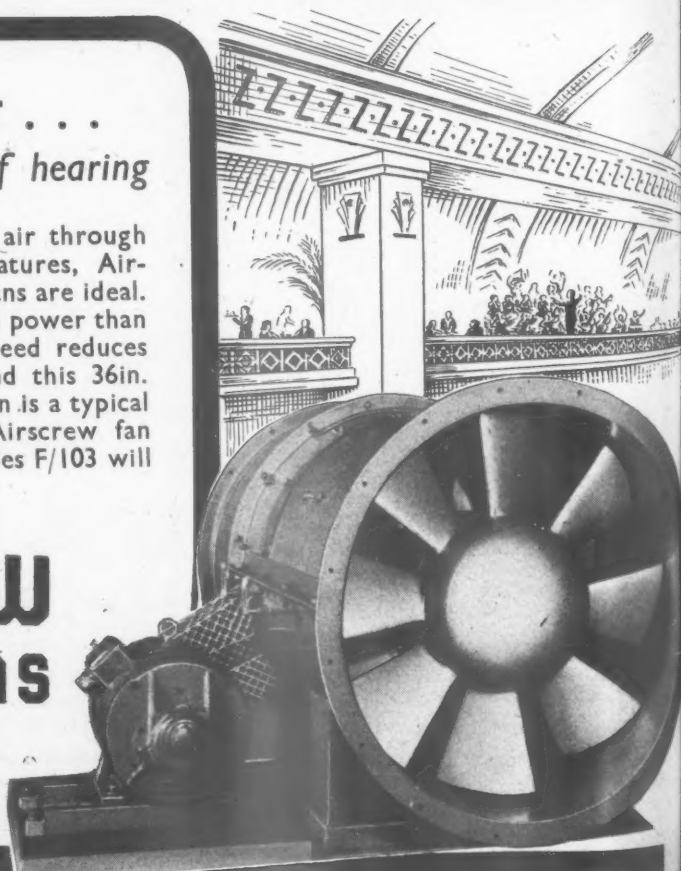
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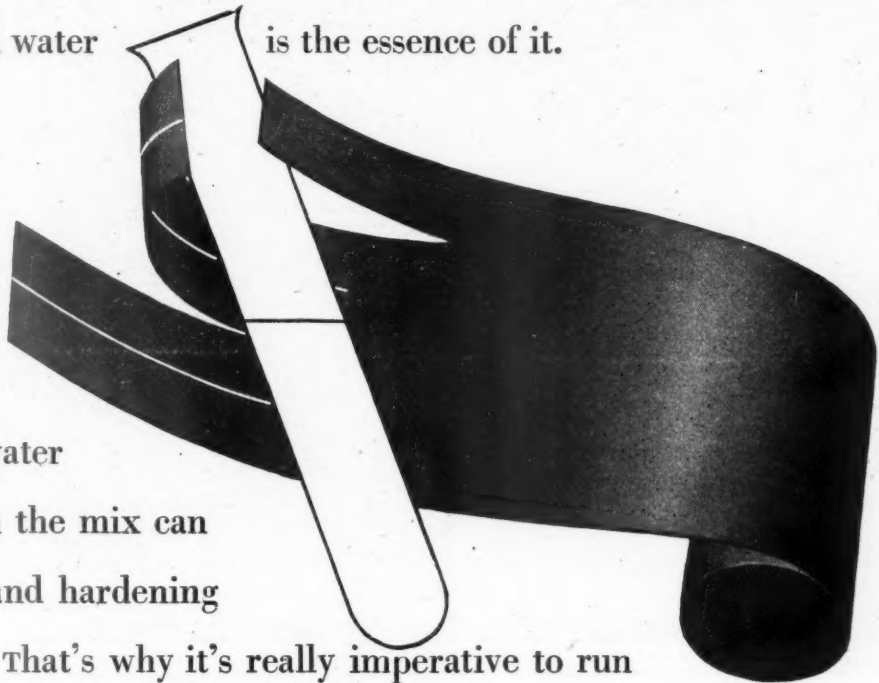
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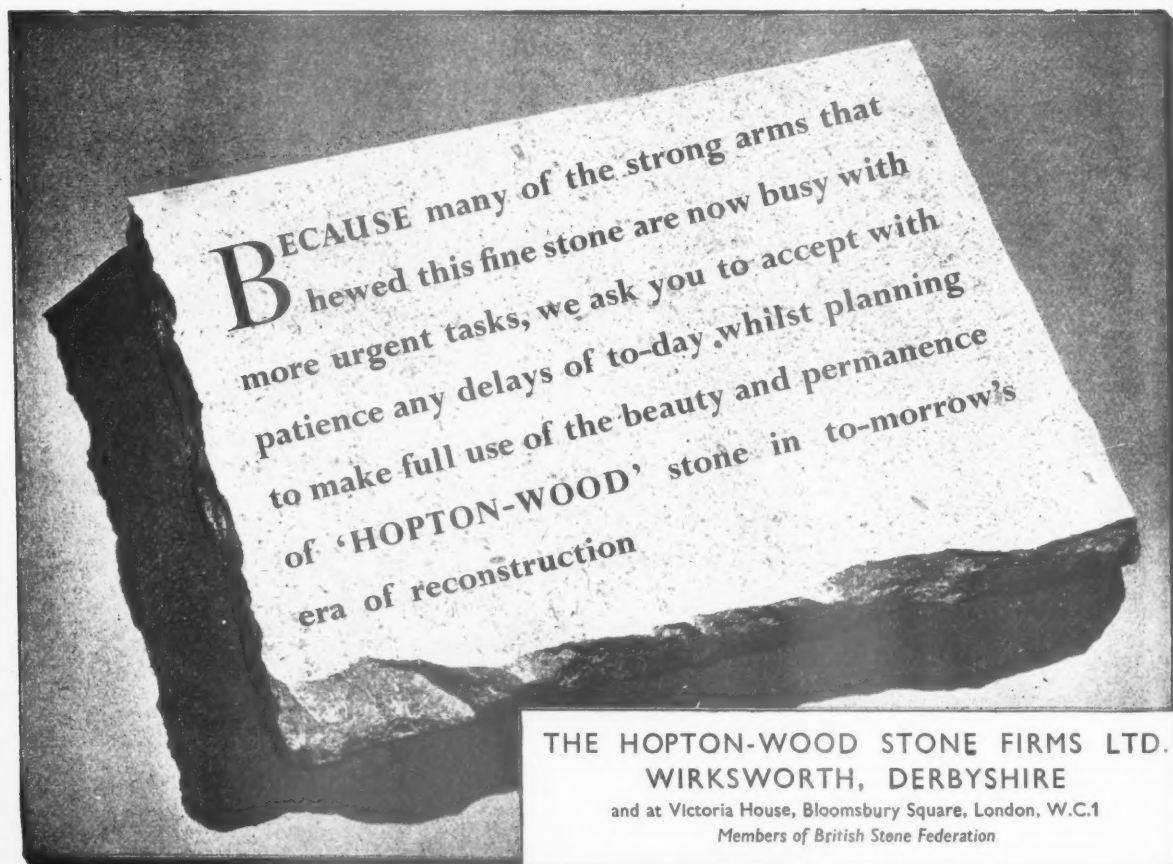


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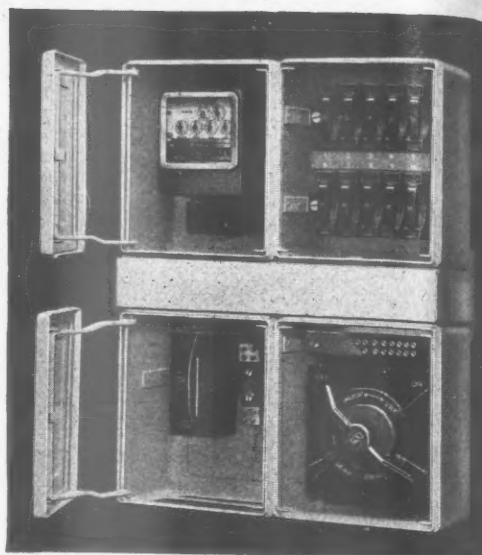
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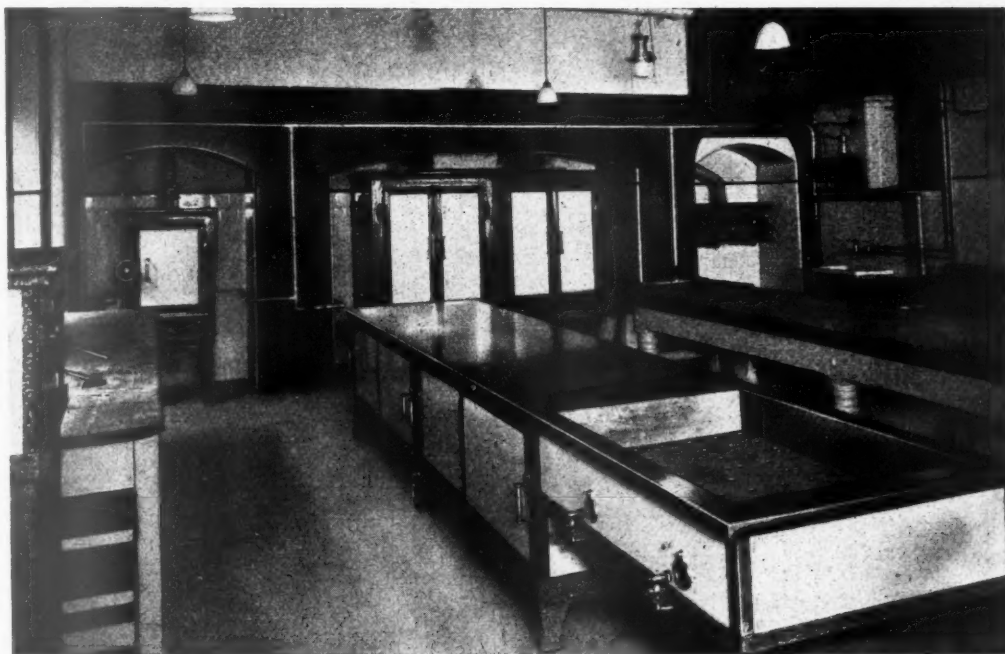
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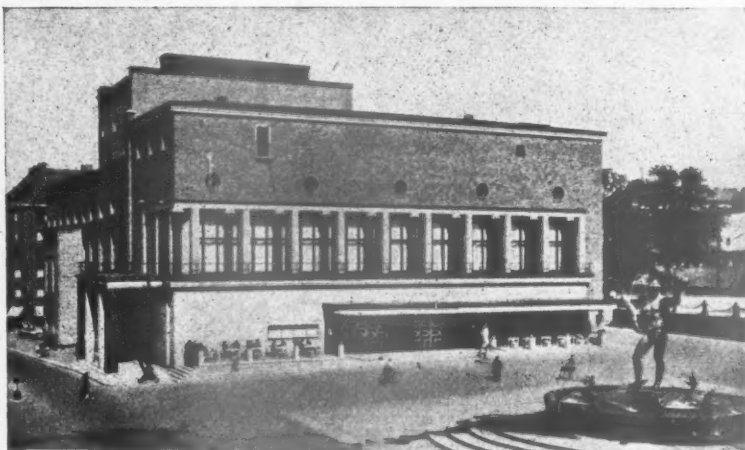
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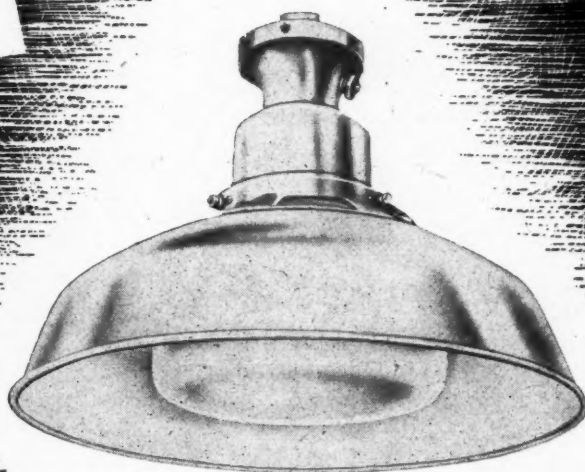
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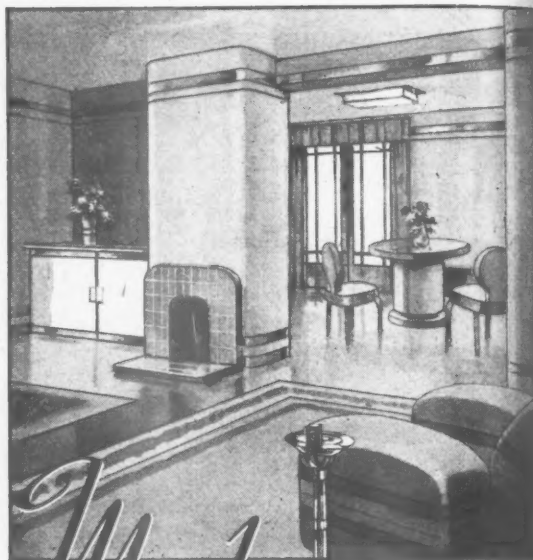
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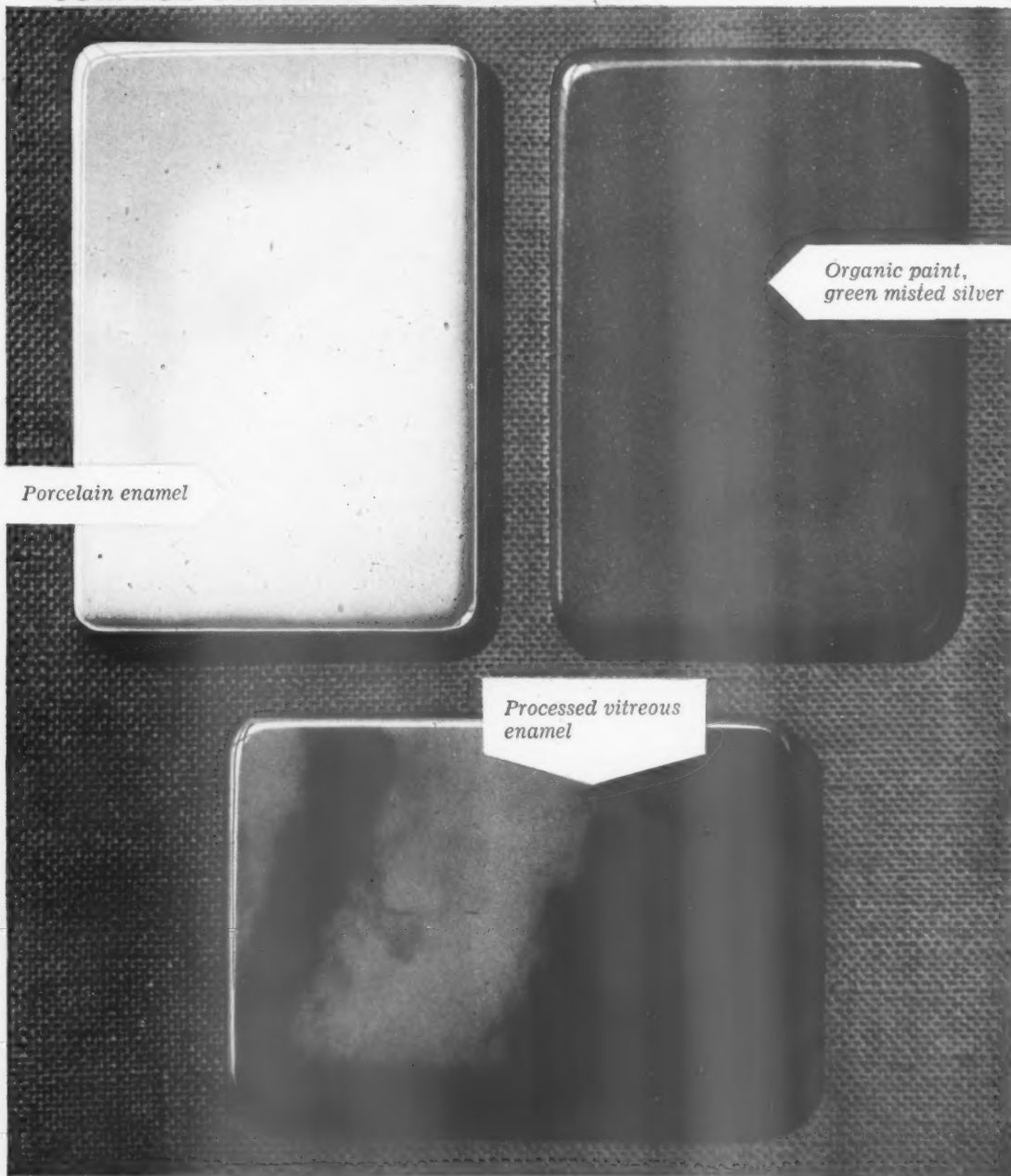
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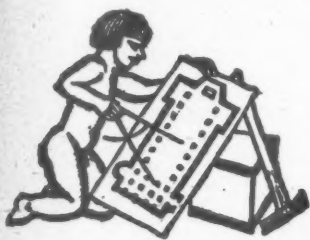
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DIARY FOR NOVEMBER DECEMBER AND JANUARY

Titles of exhibitions, lectures and papers are printed in italics. In the case of papers and lectures the authors' names come first. Sponsors are represented by their initials as given in the glossary of abbreviations on the front cover.

BIRMINGHAM. R. Dore. *Review of the Application and Development of Oxygen Cutting.* At the John Watt Memorial Institute, Great Charles Street, Birmingham. (Sponsor, Institute of Welding, Birmingham Branch.) 6.30 p.m. Nov. 9

LEICESTER. P. O. Reece. *Timber and Plywoods.* At the College of Art, The Newarke, Leicester. (Sponsor, Leicester and Leicestershire Society of Architects, in association with Leicester School of Architecture.) 6.30 p.m. Nov. 13

LONDON. Sir Charles Tennyson, Chairman, Central Institute of Art and Design. *The Place of the Artist in Industrial Design.* At the Polytechnic, Regent Street, W.1. (Sponsor, The Polytechnic.) 6.30 p.m. Nov. 21

Exhibition of Water Colour Drawings by Tom Waghorn, at the Batsford Gallery, 15, North Audley Street, London, W.1. Daily 10 to 5.30 p.m. Saturday 10 to 12 noon. Nov. 8-10

Exhibition of Pencil Drawings by R. Myerscough-Walker. At the Building Centre, Maddox Street, W.1. Exhibition free. Nov. 8-17

Geoffrey Clark. *Planning an Agricultural County.* At the Planning Centre, 28, King Street, Covent Garden, W.C.2. (Sponsor, TCPA.) Buffet lunch 12.45 p.m. to 1.15 p.m. Talk and discussion 1.15 p.m. to 2.15 p.m. Nov. 8

E. C. Lennox. *Street Lighting.* At the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. (Sponsor, IEE.) 5 p.m. Nov. 8

E. B. Gillett. *Presidential Address.* At the Chartered Surveyors' Institution, 12, Great George Street, Westminster, S.W.1. 2.30 p.m. This will be the first time since 1938 that a president has delivered an inaugural address, and the hour of the meeting has been specially arranged to enable country members to attend. New members attending a meeting for the first time are invited to meet in the Library at 2 p.m. prior to the meeting for introduction to the President. Those intending to avail themselves of this opportunity are requested to notify the secretary beforehand. (Sponsor, CSI.) Nov. 12

Lt.-Col. Sir Leonard Woolley. *The Preservation of Historical Architecture in the War Zones.* At the RIBA, 66, Portland Place, W.1. (Sponsor, RIBA.) 6 p.m. Nov. 13

Dr. Joan Evans. *Medieval and Renaissance Art in 15th Century France.* At the Courtauld Institute of Art, 20, Portman Square, W.1. (Sponsor, Courtauld Institute of Art.) 5.30 p.m. Nov. 14

Lecture Demonstrations. A series of lecture demonstrations by artists and craftsmen at the Church Artists' Agency, 25, Ebury Street, S.W.1. The first of these series is as follows: *Stained Glass*, by Miss M. Aldridge Rope. November 8, 15 and 21. *Subject Matter in Liturgical Art*, by Miss Joan Morris. November 29, December 6 and 13. Fifteen shillings for a course of three lectures, or 7s. for a single lecture. All are at 5.30 p.m. (Sponsor, Church Artists' Agency.) Nov. 8-DEC. 13

Landscape Architecture. Conference at the Waldorf Hotel. Speaker, Professor Sir Patrick Abercrombie on *Housing in the Landscape.* Clough Williams-Ellis on *Holidays in the Landscape.* Conference to be opened by the Rt. Hon. Lewis Silkin, Minister of Town and Country Planning. (Sponsor, Institute of Landscape Architects.) 2.30 p.m. Nov. 12

F. C. Vokes. Engineer to the Birmingham Tame and Rea District Drainage Board. *The Modern System of Sewage Disposal and the Methods and Materials Employed.* Bossom Gift Lecture. At the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1. Chairman, W. J. E. Binnie. (Sponsor, Chadwick Trust.) 2.30 p.m. Nov. 13

J. Wardrop, Assistant Keeper of Library, Victoria and Albert Museum. *Art and the Printed Word.* At the Polytechnic, Regent Street, W.1. (Sponsor, The Polytechnic.) 6.30 p.m. Nov. 14

Henry Berry, Chairman of The Metropolitan Water Board. *The Thames Conservancy.* At the Royal Society of Arts, John Adam Street, W.C.2. Chairman, Rt. Hon. Tom Williams, M.P., Minister of Agriculture and Fisheries. (Sponsor, RSA.) 1.45 p.m. Nov. 21

A. F. Blunt. *French Art in the 16th Century.* At the Courtauld Institute of Art, 20, Portman Square, W.1. (Sponsor, Courtauld Institute of Art.) 5.30 p.m. Nov. 21, 28 AND DEC. 5

Dr. E. M. Chossudovsky. *The Economic Background to Soviet Architecture and Town Planning.* Third of a series of introductory lectures to the study of Soviet architecture. At the RIBA, 66, Portland Place, W.1. Tickets from SCR Architecture Group, 98, Gower Street, W.C.1. Admission free to members of the Group, non-members 1s. 6d. 6.30 p.m. Nov. 19

NALGO Exhibition. At the Geffrye Museum, Kingsland Road, E. (Sponsor, BIAE.) DEC. 3-15

NEWCASTLE. *News of the World Housing Exhibition.* Architect for the Exhibition, Frederick W. Hagyard. NOV. 8-DEC. 5

N E W S

THURSDAY, NOVEMBER 8, 1945
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Though no feature in the JOURNAL is without value for someone, there are often good reasons why certain news calls for special emphasis. The JOURNAL's starring system is designed to give this emphasis, but without prejudice to the unstarred items which are often no less important.

★ means spare a second for this, it will probably be worth it.

★★ means important news, for reasons which may or may not be obvious.

Any feature marked with more than two stars is very big building news indeed.

★ Entry into crafts in the building industry is shortly to be limited to INDENTURED APPRENTICES.

This is the effect of a decision of the London Regional Joint Apprenticeship Committee at its meeting last month. For some time the Committee has had the question of unindentured apprentices and learners under consideration, and it has now decided that the principle of indentured apprentices only should be applied as soon as possible. At present there are large numbers of young men in the building industry who are not indentured. To protect their interests it is suggested that written agreements should be signed between them, and their parents or guardians, and their employers. This would bind the boy to serve the rest of his time with the particular firm by which he is employed, as if he were an indentured apprentice under the national scheme. The Building Apprenticeship and Training Council has agreed that all unindentured apprentices who sign written forms of agreement before December 31, 1945, shall be eligible in due course for registration as apprentices under the Government scheme. Learners with whom the employer has not signed a written agreement by December 31, 1945, will not be eligible for registration. The particular form of agreement recommended may be obtained on application from the London Master Builders' Association, 47, Bedford Square, W.C.1. To give full effect to the recommendation of the London Regional Joint Apprenticeship Committee it is necessary to fix a date after which no lad may enter a craft except as an indentured apprentice. The date suggested is March 1, 1946. As from the appointed date, when fixed, it will be contrary to the Working Rule to employ other than indentured apprentices or learners who are completing their training under written agreement.

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From AN ARCHITECT'S Commonplace Book

THE HOUSES OF PARLIAMENT FIRE: HOW IT GREW. [From The Houses of Parliament by Hans Wild and James Pope-Hennessy (Batsford).] All London turned out to watch the flames turning the old Palace into a great Gothic lantern in the autumn night. In Old Palace Yard three regiments of Guards and part of a troop of Horse Guards strove to hold back the crowds that pressed forward towards the Palace. The fire lit up the towers of Westminster Abbey and shimmered in the windows of Henry the Seventh's Chapel. High in a cloudless sky the bright moon shone, but over Westminster the night air was heavy with a canopy of crimson smoke. So strong was the glare from the fire that passers-by on Blackfriars Bridge could guess its locality precisely, while at Westminster the bridge was thronged, people clambering astride the balustrades and standing on carts down the centre to get a better view. The river, which unhappily was low, was crowded with barges and row-boats, and many thousands of Londoners stood ankle-deep in mud upon the strand for many hours to watch the marvellous sight. So excited were they, so forgetful of the fire's purport of and their city's loss, that they greeted each new column of flame by cheering and clapping their hands. The fall of the roof of the Lords' Library, quickly followed by the collapse of its whole façade, aroused particular enthusiasm.

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A White Paper shows a big INCREASE IN THE COST OF PREFABRICATED HOUSES.

The White Paper, on the financial aspects of the programme for large scale production of prefabricated temporary houses, contains the following tables which show the revised figures submitted to the Minister concerned when the present Government took office, together with increases which had occurred since the earlier estimates had been made in January. The costs include site preparation (excluding land, roads, and sewers), supply of hulls, erection, and provision of components and fittings:—

Type.	No. in provisional programme.	Estimated cost per house.	Total cost.
		£	£
Arcon	40,000	1,085	43,400,000
Uni-Seco	29,000	1,020	29,580,000
Tarran	21,000	1,000	21,000,000
	1,000	1,074	1,074,000
Spooner	1,200	992	1,190,400
Universal	1,200	1,135	1,362,000
Phoenix	2,430	1,099	2,670,570
Aluminium	54,500	1,365	74,392,500
American	8,150	—	10,000,000
Total	158,480	—	184,669,470

The figures for American houses depend upon the outcome of discussions with regard to the number of American houses to which the lend-lease arrangement will apply.

Up to October 1 the total houses allocated for England and Wales was 130,794, and for Scotland 34,300; sites acquired were 89,580 and 14,155 respectively; development begun, 64,292 and 15,458; houses begun, 9,603 and 604; houses completed, 4,049 and 103.

The number of houses ordered and the number of hulls delivered from production up to October 1 were:—Arcon, 25,000 and 2,260 respectively; Uni-Seco, 20,000 and 7,650; Tarran, 16,000 and 955; Spooner, 1,200 and 113; Universal, 1,200 (ordered); Phoenix, 2,430 and 2,392; Aluminium, 50,000 and 10; and American, 30,000 and 8,150; the totals being 145,830 and 21,530 respectively.

For Builders' Manufactured Goods of Iron and Steel, other than Canteen Equipment, a CERTIFICATE TO PURCHASE IS NO LONGER REQUIRED.

From October 1, a Certificate to Purchase builders' manufactured goods of iron and steel was no longer required unless the iron and/or steel content of the individual article is more than 5 cwt. Hitherto a Certificate to Purchase has been required when the individual article contained 3 cwt. or more of iron and/or steel. This procedure does not apply to heat storage cookers which require a Certificate to Purchase whatever the weight. *Authorisations on Form "M."*—The attention of merchants and suppliers of builders' manufactured goods is drawn to the fact that the M authorisation is primarily an instrument to acquire iron and steel for manufacturing

purposes. Bulk authorisations are at present given by the appropriate Government Departments to manufacturers of builders' goods required for civilian purposes up to the production capacity of the individual manufacturers and within the limits of raw materials available. It is not necessary for users to apply to the appropriate Government Departments for M authorisations to acquire manufactured builders' goods because requirements are met out of such bulk authorisations.

November 1 was fixed by Sir Malcolm Trustram Eve, K.C., Chairman of the Building Apprenticeship and Training Council, as the date on which REGISTRATION OF APPRENTICESHIPS in the building crafts shall commence.

The purpose of the scheme is to encourage apprenticeship and raise the standard of craftsmen and craftsmanship, and only those apprentices will be registered whose agreements conform to the Council's minimum standards. Under this the agreement must be in writing and provide for full craft training; be enforceable in the sense that any party not complying with its obligations will be answerable to a Joint Apprenticeship Committee of the industry; provide for the release of the apprentice up to the age of 18 years to attend a technical course during normal working hours on one day a week or the equivalent. Boys qualifying will have issued to them a registration card, and at the end of their training will receive a certificate of completion of apprenticeship.

Mr. C. A. F. Hastilow, M.Sc., has been released from his appointment as DIRECTOR OF PAINT MATERIALS in the Raw Materials Department of the Ministry of Supply to return to industry. Mr. C. Gillies Shuck, Assistant Director of Paint Materials, will be in charge of the directorate.

	Earlier Estimate.	Revised Estimate.	Increase.
	£	£	£
Arcon	816	1,085	269
Uni-Seco	772	1,020	248
Tarran	721	1,000	279
Spooner	710	992	282
Universal	756	1,135	379
Phoenix	935	1,099	164

The aluminium house was originally estimated to cost £914; the price now suggested is £1,365, but this figure is subject to negotiation. Allowing for the differences in the numbers ordered, the average increase in the cost of the various types as shown in the preceding table, excluding the Phoenix house, is £268.

Increased cost is accounted for by: insufficient allowance for uneven sites; the need for higher standards of drainage; the fact that houses are sited in smaller groups than originally estimated for; clearance of bombed buildings from sites in towns; too optimistic estimates of man-hours required for erection of the houses; subsistence allowances to mobile labour being paid by contractors where it was assumed that local labour would be employed; improvements and modifications of the designs; shortages of certain materials and other causes.

The Health Departments had allocated to local authorities 165,000 temporary houses before the date when the lend-lease arrangements came to an end and at a time when the full number of American houses was still expected.

The White Paper states: Provided that Parliament is willing to make the necessary additional provision, the Government is prepared to supply houses up to that total allocation by increasing the number of British houses, and a provisional programme has been framed up to a total so far of 158,480 houses, as shown in the following table:—



Natural Baroque

This lobby to a cloakroom in a Stockholm club, by Sven Markelius, provides a good example of the use of foliage indoors that not only acts as a decorative foil to the simple geometrical lines of contemporary design, but satisfies the

instinctive human need for contact with living nature even within four walls. Other examples of the use of plants indoors from a number of different countries are shown on pages 335 to 340 of this issue.

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W I N D O W S

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Bristol Housing Committee has decided to REQUISITION ALL HOUSES ADVERTISED FOR SALE by auction or private treaty with vacant possession.

The only exception will be owners compelled to leave the district who have to sell property to buy another house. Special consideration will be given to instances of hardship submitted within 14 days. The chairman of the Committee, Alderman C. Gill, said: We know where people have seen selling their houses at fancy prices and then going to live with relatives or friends. The following two interviews are from the *Evening Standard*. Mr. W. G. Hawkins, secretary of the Bristol Property Owners' Association: This decision is going to make the settling up of estates extremely difficult. When a man dies his house is frequently put up for sale and the legatee gets the proceeds. If the house is requisitioned, the settling up may be indefinitely postponed. In London, Mr. E. M. Goldring, secretary of the Property Owners' Protection Association, said: The question is whether the action of Bristol Housing Committee is valid, and whether they are acting within the scope of the Emergency Powers (Defence) Acts in meeting their housing difficulties by dispossessing occupying owners and preventing free dealing. It seems the only hope for the owners is to find some means of testing the validity of the decision. This can only be done where, in a particular case, it is considered that the authority has exceeded the powers conferred on them. Where this is believed to be the case, and the owner comes to us, his case will be fully considered with the view to supporting an action. I agree that the Committee's action will create a black market in housing. Owners may be forced to negotiate sales secretly rather than advertise or put up for auction, and so give notice of their intention to sell with vacant possession. According to the *Evening News*, the Government's attitude to the decision of the Bristol Housing Committee is one of surprise that many more of the larger local authorities have not taken similar advantage of the wider powers of requisitioning granted on July 20. There have been other instances of houses being taken over in this way. Since the July order it has been open to local authorities to requisition houses without previous application to the senior regional officer of the Ministry of Health, and without a reasonable opportunity being given to the owner or tenant to let. Now and until December 31 local authorities can requisition unoccupied houses provided a notice is posted on the premises and another sent to the owner or agent. If an owner within that 14 days tells the local authority that he or his family intend to occupy the house, no further action is taken.

With the consent of Cooper Brothers and Company, Mr. Henry A. Benson, FCA, has JOINED THE MINISTRY OF HEALTH until December 31, as adviser to the Ministry in the organization of the housing programme and on housing progress at all stages. Mr. Benson has been Controller of Building Materials at the Ministry of Works.

THERE is a Science and an Art of making windows. It is our business to be concerned with both, and at the same time. The application of the results of research in this field was made convenient for architects by the publication last year of *Graded Daylight Factor Tables* by the DSIR. The use of these Tables could become as easy and familiar as those showing the properties of rolled steel sections. They give the values for daylighting of a range of domestic windows of different heights and widths. The significant lesson to be learned from the Tables is that the height of the window head above working plane is much more important than the width. But surely that was something that we knew already: or, had we forgotten? The Georgians used tall windows, the Victorians made them even taller—using stucco ornamentation to mask the astonishing percentage of glass area in their facades. It was not until the cottage cult began in the Nineties that windows became long and low again after 300 years of effective daylighting. Then, the modernistic fashion for streamlining took over the cottage windows from the revivalists, and extended them into continuous horizontal bands. The streamlining was done, oddly enough, in the name of Functionalism. Perhaps that is why it has needed the publication of much scientific data on daylighting, over a period of years, to get us out of such an unreasonable way with windows. Or, it may just have been the swing of fashion—we were tired of long windows and wanted tall ones. Anyhow, the best of the current small house designs have high window heads.

The difficulty about dealing rationally with windows is that Fenestration is by far the predominant element in the external pattern of buildings. It is the arrangement and detailing of the windows that give the character to a facade. This means that we are bound, as things are, to look upon windows as something more than machines for admitting daylight. Indeed, as machines, they were always more than that, as their name implies. These holes in the wall that are made to look out of, to lean out of, to look into, to let stinks out and heat, and fresh air in, and to admit daylight (sometimes excluding part of the solar radiation, either designedly or in error)—these "windows" might with advantage be reconsidered in their several functions separately, as is being done so well for the opaque parts of the wall. If we could forget for a moment the stilted patterns of little holes with glass in them arranged in stiff rows, we might be more receptive to the possibilities of modern construction.

When glass was scarce and made in small pieces, when openings in brickwork had to be spanned by wood or stone lintols, the parsimonious glazed hole was the only thing. But in dry construction it is just a survival. The wall-membrane itself could very well be made in translucent material, in double thickness for heat insulation, with part transparent for the view but mostly diffusing for privacy. Glass is no longer

the only translucent structural material. The addition of some of the plastics gives a wide range of thermal and lucent properties for exact specification of the various parts. For ventilation, the opening casement needs drastic reconsideration, since owing to the inefficiency of the current detailing at the rebates it is impossible really to close it. Mechanical ventilation, with air conditioning, may some day be universal: but till then we need holes for air in our walls that can readily be closed at will—the spring stoppers with a gasket fitted to the vents in air-raid shelters for gas-proofing were nearer the mark. But if walls and windows (and roofs as well) are to dissolve into continuous areas of external envelope, now opaque, now transparent, now translucent, here excluding infra-red, there admitting ultra-violet, in an infinite variety of shapes and colours and patterns—what will become of Fenestration, or of Architecture itself? It will take some getting used to, but in the end we shall wonder how ever we could have bothered with Fenestration at all.



The Architects' Journal

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N O T E S &

T O P I C S

BINC CONFERENCE

Judged by some standards, the Building Industries National Council conference, held last week at Westminster, was a success. It was well attended by a great variety of individuals and delegates. It was addressed by three Cabinet Ministers and heard the speech of a fourth read by one of his assistants. And it was opened by none less than the Archbishop of Canterbury. Yet, looking back on those two days, I find it difficult to put my finger on any really constructive development during its course.

A conference of this kind can serve various purposes. Probably such a conference cannot actually originate anything but it can approve and accept a constructive plan laid before it and give it the necessary life and impetus to carry it out on to the road to success. A conference, too, can serve as a sounding board and magnify to sufficient volume voices and views that would otherwise never be heard. I doubt if this particular conference served either of those two ends. No one laid any plan of action before it—the need for action was stressed but there was no plan. Nor was there any new voice crying in the darkness and receiving new life from those who had assembled to listen.

Yet it would be impertinent, as well as mistaken, to dismiss the conference as one of those events that raise expectations and leave no fulfilment. For one thing, building industries as a whole have now a much better idea of, and respect for, the Ministers concerned with their industry than they had before and nothing but good can result from that.

The outstanding figure among them was, of course, Mr. Aneurin Bevan, Minister for Health. He succeeded as an orator and, I should say, as a man. Even if you do not approve of Mr. Bevan you cannot listen to him without respect. He is exceedingly astute. He has confidence in himself. He has drive and ambition. He does not de-

ceive himself over his difficulties and yet he has the skill to persuade as well as the weapons to drive. The building industries will have to reckon with Mr. Bevan. They will find that he will know their trades as well as they do and that he will use that knowledge to get what he wants, which is houses for the working classes.

Mr. George Tomlinson, Minister of Works, is quite a different being. He is the solid, intelligent and painstaking trade unionist. Mr. Lewis Silkin, Minister of Planning, on the other hand, is the able and patient administrator. Both of them will achieve a great deal but neither of them has Mr. Bevan's explosive power.

The main topics of interest to the rank and file of the conference were, of course, the shortage of labour and materials, the slowness of Service releases, the present low ebb of output per man-hour. (As much emphasis was placed on faulty organisation as on the lethargy of the employees.) There was general dislike (and misunderstanding) of prefabrication and a distressing lack of interest in town planning, compensation and betterment—in fact, in all problems connected with the land itself. It seems that the average builder looks on land as something in which you put a foundation and dig a drain, something that is a fixed cost that you cannot alter.

As for this love of traditional building, I am convinced that over the next two years the industry is due for some nasty shocks from the big factories, not least because of Mr. Bevan's avowed interest in flexible systems of prefabrication. I came away from the conference with a conviction that assembled houses will come, as iron ships came, and that if the trade is not careful it will suffer the fate of the men who believed only in hulls of wood.

BREWERS' PATRONAGE

Another round was fought and won in the task of bringing art to the people, when four brewers decided to commission a number of artists (amongst them John Piper, Kenneth Rowntree, Barbara Jones) to depict

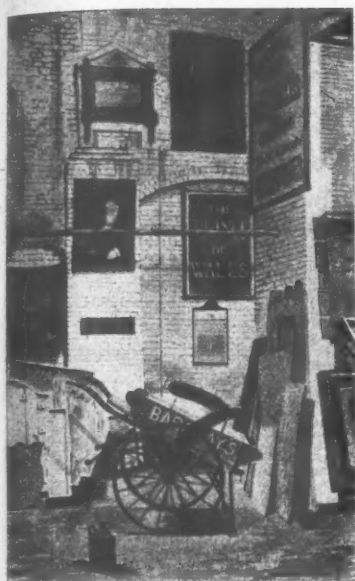
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Signwriter's Shop by Kenneth Rowntree at the Londoners' England Exhibition, on which Astragal comments this week. See also page 334.

the London Scene in some 160 pictures, which are to adorn the walls of the brewers' companies' licensed houses. The scheme was sponsored by the Central Institute of Art and Design, and was launched a few days ago in the presence of a brilliant gathering, including London's artistic cream and two Ministers of the Crown.

There was a good deal about this luncheon which recalled mediæval times, when artists were employed by guilds, great merchants and local VIPs. Like their mediæval colleagues, who introduced the figures of their patrons into the paintings, the artists for *The Londoners' England Scheme* have chosen as subjects mainly views of public houses, maltings or at least hopfields. This makes them less suited for public exhibition in a gallery (they are now being shown at the Royal Society of British Artists' Gallery) than in the pub. Congratulations are due

all around to those responsible for this enterprising venture, which gives bread to the artists and added spiritual food to the pub crawler.

INSCRUTABLE ORIENT DIVISION

Parcels from the Far East contain queer things—remember the banana which turned up in a crate of snakes and spiders consigned to the Zoo?—and one of the queerest seen for some time is *Magadha Architecture and Culture*—an illustrated monograph by Sris Chandra Chatterjee, published by the University of Calcutta.

For those reared among the ebony elephants, Shan shopping bags and brass tea tables of an Anglo-Indian home, oriental art and architecture will probably always lack appeal, and it is perhaps unfair to comment upon Mr. Chatterjee's book when one's ignorance of Indian religion, symbolism and culture is only equalled by one's prejudice against their physical expression. All that can be said for the moment is that in this enthusiastic, deeply sincere and practically unreadable book, the author traces the history of the ancient Magadha civilisation and recommends the regeneration of its traditions in the new architecture of India.

From the appendix, containing tributes to the author, it is clear that Mr. Chatterjee has worked indefatigably for the re-establishment of a national Indian architecture, and is himself a practising architect—"taking his stand," writes one enthusiast, "in the history of architecture side by side with Christopher Wren and Inigo Jones."

An illustration of his latest work, the new National Congress Hall at Patna, is reproduced below.

ASTRAGAL



National Congress Hall, Patna, a modern Indian design by Sris Chandra Chatterjee illustrated in *Magadha Architecture and Culture*. See Astragal's note.



LETTERS

R. V. Boughton,
A.I.Struct.E.

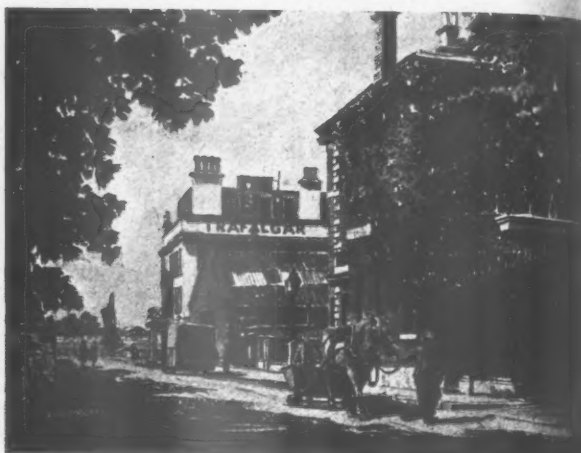
Estate Agents and War Damage Surveying

SIR,—A matter has come to my notice which compels me to appeal for press-broadcasting in an effort to ascertain whether any architects and building surveyors have been offered the handling of or been "handed a baby" of a particularly squally type, and, if so, whether they have refused the handling as promptly as I have recently done. A firm of estate agents sought my services to visit bomb-damaged properties, make surveys of the damage, and prepare specifications and any necessary estimates. Upon seeking information as to terms, I was offered 33½ per cent. of the fees allowed by the War Damage Commission. Not being out of work, or down at heel, and having no wish to be a nursemaid to babies of estate agents, my refusal of such terms was couched in perfectly plain English. I was informed that other qualified surveyors work on these terms (more fools they) and that the services which I have specified only represented a part of the work, there being typing and negotiations to be done—evidently considered to be worth 66½ per cent. of the fees.

This method of employing trained building surveyors or other professional men requires analysing as follows in a few ways in an effort to safeguard the interests of more parties than one:

(1) The duties which a well-trained surveyor does in connection with war damage repairs, etc., are: (a) taking instructions from client; (b) making journeys to and from the property; (c) inspecting most carefully the damaged work and separating into war-damaged and non-war-damaged categories and making survey; (d) writing up specifications and preparing estimates for purposes of obtaining licence; (e) preparing

AT THE LONDONERS' ENGLAND EXHIBITION



When the Pilgrim Trust announced that they would no longer be able to continue the Recording Britain Scheme, four London Brewers (Messrs. Barclay Perkins, Courage, Watney and Whitbread) agreed, on the suggestion of the Central Institute of Art and Design, to institute a Scheme on similar lines; to record the London scene and places of beauty and interest in the Home Counties. The Londoners' England Scheme began early in 1944 with a Management Committee set up by the Central Institute of Art and Design, consisting of the following members:—Sir Charles Tennyson, C.M.G. (Chairman), Sir Kenneth Clark, K.C.B., M. V. Courage, J. G. Durrant, W. Russell Flint, R.A., H. L. Grimston, P. H. Jowett, R.W.S., Gerald Millar, Sir Sydney Neville, T. A. Fennemore (Secretary to the Management Committee), Hon. Arnold Palmer (Secretary to the Selection Committee). The same Selection Committee that had acted for the Recording Britain Scheme have consented to serve as the Selection Committee for the Londoners' England Scheme. The four Brewers who were responsible for the finance of the Scheme undertook to suggest subjects, but the Scheme was not limited to these and the Selection

Committee and, indeed, the individual artists, were quite free to provide interesting subjects themselves. As a result, 164 works have been so far completed and of these about 120 form an Exhibition at the Royal Society of British Artists' Galleries, Suffolk Street, S.W.1. Only a few of these paintings depict the tavern; indeed, the great majority show London's river, scenes of London, country market places, hop fields, maltings, churches and villages. They provide a record which may be said to be complementary to the original Recording Britain Scheme but confined to London and the surrounding countryside. There is, however, one important aspect in which the Londoners' England Scheme differs from its predecessor and that is that this Scheme forms part of a movement to bring the arts to the pub, for it is the intention of the four Brewers to show selections of these paintings in their licensed Houses. These selections will move round from House to House at convenient intervals. Top left, Wolverton Church by John Piper. Top right, Park Row, Greenwich by Claud Muncaster. Below left, The Saracen's Head, Beaconsfield, by Frances Macdonald. Below right, the Floral Hall, Covent Garden, by Barbara Jones.

certain forms; (f) probable negotiations with authorities; (g) arranging contract with a builder; (h) inspecting work during progress; (i) checking builders' accounts; and (k) submitting claim to War Damage Commission. Item (b), of course, takes time, and (c) and (d) represent the highest brain-value work, the foundation stones of the whole of the business, and in time alone

takes more than half that required for the other duties which follow to a great extent on the brain-work of (c) and (d). For services (a), (b) and (c), 33½ per cent. of the fees is preposterously inadequate.

(2) Apart from this inadequacy of fees, is a matter of really great importance, which is: It requires a well-trained architect or building surveyor to inspect work during

progress and to check builders' accounts, and I feel convinced in the justness of my stating that as a general rule estate agents have neither the knowledge, nor have many of them efficient staff, capable of carrying out the onerous duties which I have outlined in regard to War Damage Repairs and Reconstruction.

London

R. V. BOUGHTON.

Left, the living room in the lavish new Villa Engkvist by Sven Backstrom and Leif Reinius with its tropical garden of growing trees and plants. Other views are shown on the next page.

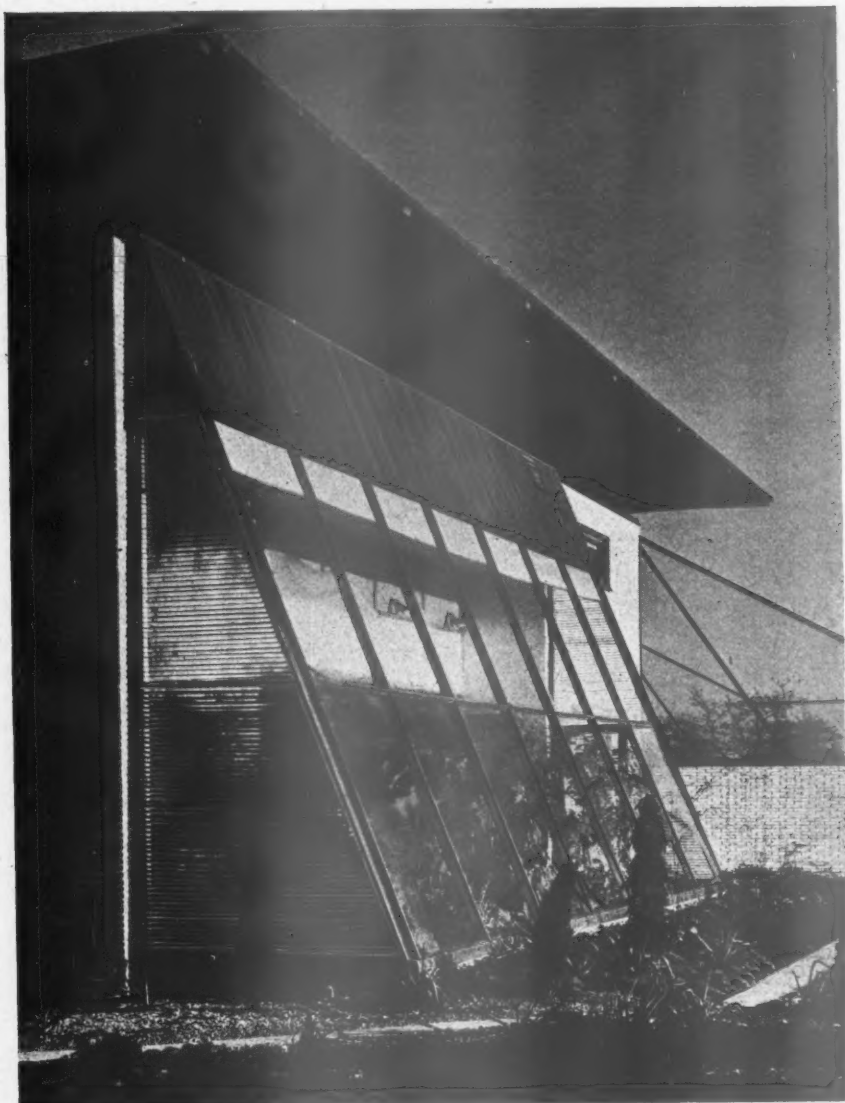


THE GARDEN COMES I N D O O R S

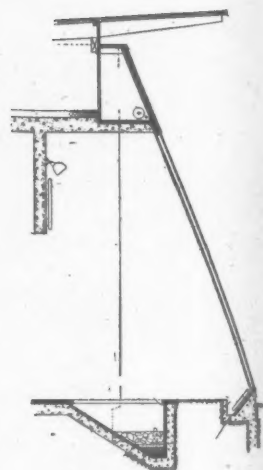
These contemporary examples from different countries illustrate the value of plants in the inside of buildings not merely as extremely effective free and dynamic decoration in contrast to the rigid, static

geometry of the architectural setting, but as natural living links with the outside environment. A classic example is that shown above where a generous tropical indoor garden forms the main feature of

the house. This must be especially appreciated during the long Scandinavian winters. Other Swedish examples are shown on the following pages, as well as examples from Switzerland and the United States.



Left, the exterior of the Villa Engkvist showing the sloping glass front of the indoor garden. Below, another inside view from the staircase which leads directly into the living room; and a section through the window; radiators can be seen at the base of the glazing and below the lamps along the lintol.



SECTION

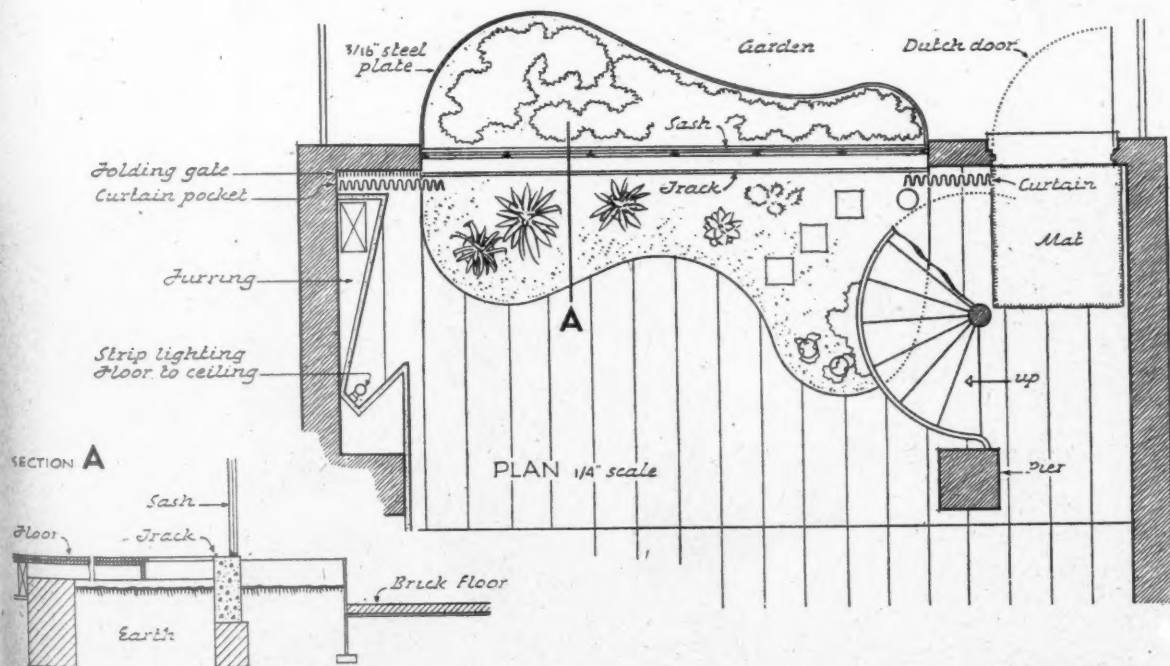
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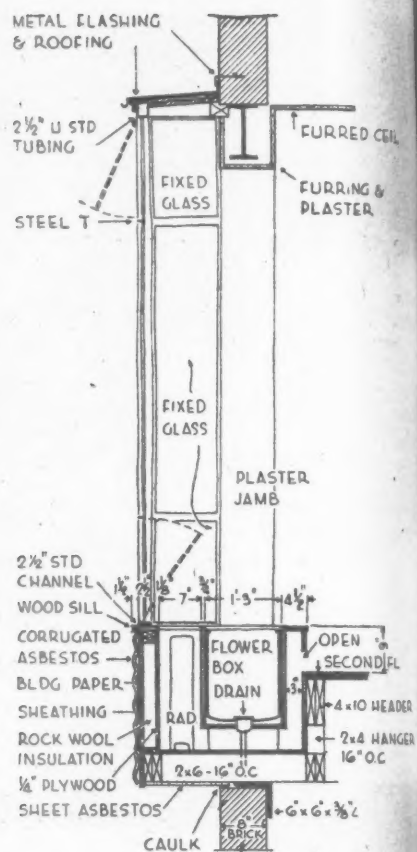
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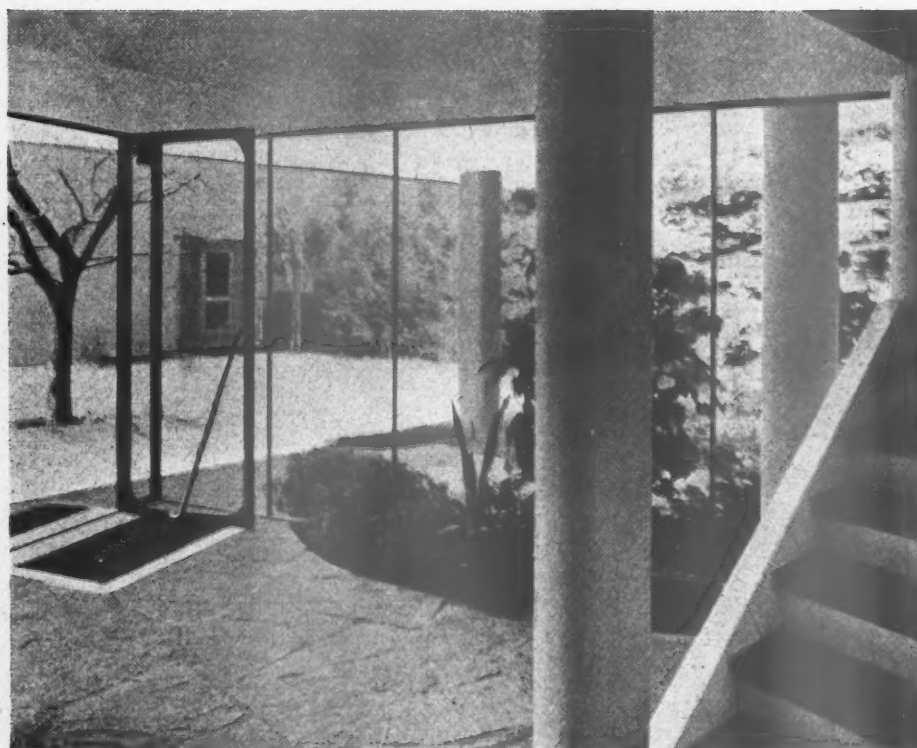
On this page, photograph and plan of an American example of the indoor garden designed by George Kosmak.



THE GARDEN COMES INDOORS



Above, a
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Above left, a planting bay
in America designed by
George Daub and Associ-
ates. Above right, section
through this bay. Left,
entrance hall of a block of
flats at Zurich designed by
A. and E. Roth and
Marcel Breuer.

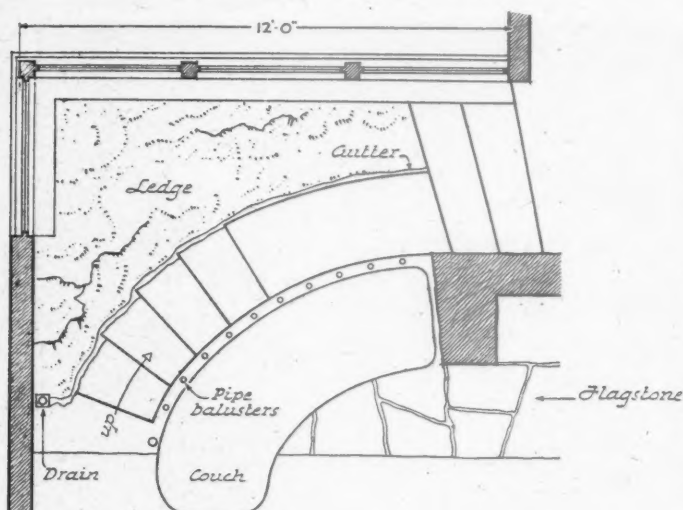
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Above, a remodelled office for an advertising agency designed by Robert Carson and Earl H. Lundy where a box with an irregularly curved front is planted with formally decorative cacti. Right, the hall of a house in America by Richard J. Neutra. Below, a Stockholm restaurant where decoration as well as a certain amount of privacy is provided by plant boxes which separate the tables from each other.



THE GARDEN COMES INDOORS



Above, plan and view of an indoor garden designed by Carl Koch; the pipe balusters support a rope handrail. Below, another Stockholm example in a small meeting hall where the silhouettes of the plants form a particularly effective decoration.



THE GARDEN COMES INDOORS

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INFORMATION CENTRE

The function of this feature is to supply an index and a digest of all current developments in planning and building technique throughout the world as recorded in technical publications, and statements of every kind whether official, private or commercial. Items are written by specialists of the highest authority who are not on the permanent staff of the Journal and views expressed are disinterested and objective. The Editors welcome information on all developments from any source, including manufacturers and contractors.

PHYSICAL PLANNING

2176 Bristol

ENGLISH CITY: THE GROWTH AND THE FUTURE OF BRISTOL. (J. S. Fry & Sons, Ltd., and University of London Press, Ltd., 1945, 10s. 0d.) Story of Bristol, showing life of the city at selected periods—1200, 1500, 1750 and 1939, destruction caused by the Blitz, and plans for future.

2177 Community Restaurants

COMMUNITY RESTAURANTS IN DESIGN. F. Le Gros Clark. With Designs by L. H. Bucknell and R. Ellis, F.F.R.I.B.A. (London Council of Social Service, 1945, 2s. 6d.) Alternative plans for "model" community restaurant, with written report and short appendices on construction and costs.

2178 Nursery Schools

PLANNING THE NEW NURSERY SCHOOLS. The Nursery School Association of Great Britain. (University of London Press, 1945, 2s. 6d.) Series of recommendations to local education authorities for new nursery schools in urban districts. Information on siting in relation to population densities. Gardens and external layout. Planning of the school building. Comprehensive schedules of requirements for accommodation and equipment.

2179 Planning and the Engineer

THE POSITION OF THE ENGINEER IN RELATION TO TOWN AND COUNTRY PLANNING. (Institution of Civil Engineers, 1945, 3s. 0d.) Record of four lectures delivered at ICE, 1944, by H. J. Manzoni, W. C. Cameron, D. G. Bevan, J. B. Watson. Extent to which engineering forms basis of town and country planning. Manner in which work of the engineer contributes towards development of towns and countryside.

1. *The Basis of Town and Country Planning*.—By H. J. Manzoni, City Engineer and Surveyor, Birmingham. General considerations ranging rather widely over the whole field of town and country planning. The need for co-ordinated planning on the basis of a national skeleton plan. The scope of regional and local planning with particular reference to the place of the science of engineering in relation to the work of other specialists.

2. *Traffic Problems*.—By W. C. Cameron, City Engineer, Leeds. The historical sur-

vey of transport means and road systems shows that there have always been traffic problems whenever changes of methods of transport have taken place. Present-day traffic problems, especially in built-up areas, largely arise through the outward sprawl of urban areas where the growth of road traffic has so exceeded the capacity of urban roads, and roads connecting urban areas, that the segregation of the several types of road user becomes an urgent necessity. The re-planning of the road system is inseparable from the re-planning of the use-zoning of town and region and can be achieved only by the co-operation of engineer, economist, industrialist, architect and agriculturist. A comprehensive survey of existing conditions is necessary before any form of re-planning and re-zoning in a specific area can be undertaken. In addition all calculations for road layout and transport conditions in built-up areas must be based on extensive traffic studies carefully considering future policy.

3. *Drainage, including River Works*.—By D. G. Bevan, Deputy City Engineer and Surveyor, Birmingham. Lack of planning and foresight in regard to drainage and river works always results in considerable expenditure on future necessary improvements. Engineering problems of surface water drainage, foul water drainage, and sewage disposal are explained in detail for the Birmingham area.

The engineer has an important part to play in planning all matters relating to drainage. The matters that come within his special province are:—

In Regional Planning:—

1. The study of existing rivers in the area and provision for their maintenance and improvement where necessary as far as they are likely to be affected by redevelopment.
2. The restriction of development in areas where drainage and sewage disposal would be very uneconomic to carry out.

3. The study of existing sewerage of the area and its development on a basis of regional sewerage and regional sewage disposal wherever conditions are suitable.

4. The location of industry in relation to sewerage facilities.

In Town Planning:—

1. The planning of the main sewerage in advance of development and the reservation of the necessary land for carrying out the work.

2. Siting of sewage-disposal works.

3. Detailed planning of river improvement works.

4. The control of the order in which expansion shall take place within the area in relation to the expansion of the sewerage system.

4. *Services (Electricity, Water, Gas, and Post Office)*.—By J. P. Watson, City Engineer and Surveyor, Plymouth. The need for national planning of the surface of town and country has now been recognized, but no planning can succeed without considering the utility services, i.e., the works under the ground. They must form an integral part of any planning, as no policy on the use and development of the land surface can be framed or executed without proper

consideration being given to how water (clean and dirty), light, heat, and power can efficiently be supplied and distributed. The Utilities Engineer must co-operate with the Town Planner and become one of the town-planning team in order that favourable conditions may be created for him to develop his distribution system. If there is to be planning, the underground can no more be left to the mercies of the individual utilities than the surface to the owners of property.

With an expanding economy the utilities' space must be planned for expansion and must take account of future entrants, such as for example centralized district heating and hot-water supply which have passed the experimental stage.

The services of the trained engineer are essential to deal with the congestion of services buried beneath every city. Questions such as the life of mains, their location, the possible provision of common subways to house a variety of utilities' mains, the future of surface development, etc., are dealt with in detail.

STRUCTURE

2180

Vibration Insulation

VIBRATION INSULATION AND STRUCTURAL RUBBER. J. A. Connon. (*Electrical Engineering*, June, 1945, p. 325.) Principles of mechanical vibration and insulation. Properties of structural rubber. Design of suspension units.

This paper summarises clearly the nature of mechanical vibration and the means of using rubber to prevent its transmission. The treatment is technical, but the argument is readily followed.

It is shown that there are several different forms or directions of motion in a single vibrating system, and that any "spring" system (including rubber) has natural frequencies of its own in whatever directions it can move. If the frequency of the vibrating source and that of the insulator correspond, the transmission of vibration, so far from being prevented, is, in fact, greatly enhanced. Insulation, in effect, is obtained through mis-matching of frequencies.

The author illustrates seven types of unit in which rubber is mounted so that its deflection properties are most effectively used, and he discusses the types of rubber used for the purpose. Apparently none of the artificial rubbers have displayed such versatility in use as the natural rubbers, although they are being improved.

2181

Builders' Calculations

BUILDERS' CALCULATIONS. S. H. Glenister (George G. Harrap & Co., 5s. 0d.) Compact book on simple arithmetic, algebra, logarithms, geometry, trigonometry, formulae useful to building students.

The clue to this book is to be found in the preface, where the Author refers to a craftsman who eventually became an executive in a building business and who found that figures and calculations represented his greatest stumbling block.

The book itself deals with simple arithmetic, algebra, logarithms, geometry, trigonometry, and formulae. Its chief merit is that it is unusual to find all of these subjects in one compact book. Care has been taken to select examples relating to the building industry, so that the reader will appreciate the practical application of the subjects, as well as the underlying theory.

As the Author states, the book should be useful, not only to craftsmen anxious to get on, but for First Year National Certifi-

cate Classes in building, for part-time day classes for builders' apprentices, and for the post-war short courses for trainees.

2182

Plywood House

THE SCOTTWOOD PLYWOOD HOUSE. Consulting Architect: H. V. Diplock. (*Architectural Design and Construction*, September, 1945, pp. 208-212.) Prefabricated two-storey house in phenol-bonded laminated wood.

A feature of this house is the small number of sections used in its construction. It is a stressed skin structure. Each section is a complete wall, joints occur only at the corners.

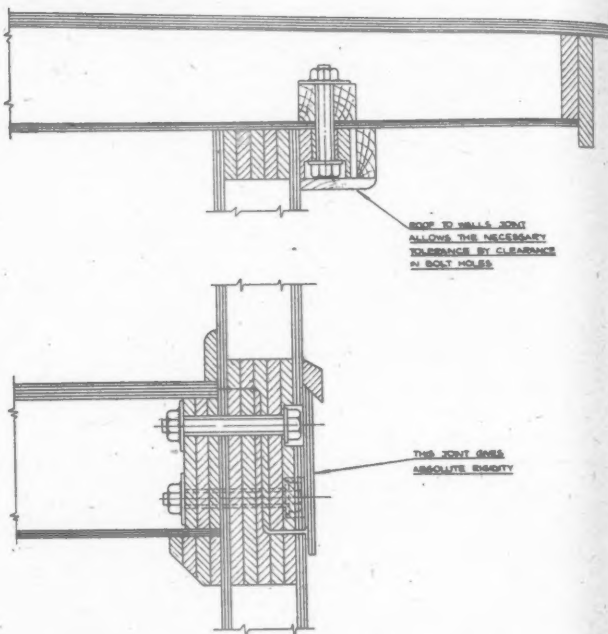
The external wall and internal partition panels are $3\frac{1}{2}$ in. thick, built up of two skins of $\frac{1}{2}$ in. phenol-bonded laminated wood glued to $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. timber studding spaced at 12 in. centres. Both the upper and lower floors are composed of twelve panels of 6 in. depth. The construction of the six roof sections is similar, the panels varying in thickness from 8 in. at the ridges to 4 in. at the eaves. The joints are so arranged as to cover manufacturing tolerances.

Wall cavities are filled with glass wool between bitumen paper moisture barriers, and it is claimed that the resulting sound and insulating properties are excellent.

The prototype house at Hythe was erected in a little less than two days, but it is claimed that with specialized equipment erection time may be reduced to one day.



Left, erection of the Scottwood Plywood House at 9 a.m. on the second day, when the first floor and roof are completed. Below, two detail sections showing the joints at first floor and roof levels. See No. 2182.



2183

Bricklaying Invention

A NEW INVENTION FOR EXPEDITING THE LAYING OF BRICKS. (*The Builder*, September 7, 1945, p. 196.) Equipment, called Transome, composed of steel angle guide posts and transomes. Rising transomes form horizontal and level shutter against which bricks are placed. Mortar prevented from falling into cavity walls.

MATERIALS

2184

BS Handbook

HANDBOOK OF BUILDING STANDARDS, MATERIALS AND COMPONENTS: Supplement to BS Handbook No. 3. (*British Standards Institution*, 1945, 7s. 6d.) Revisions of 18 and additions to 4 standards included in Handbook No. 3. Details of 78 new and revised standards and full index of whole range of building specifications referring to both volumes. Publication announced in No. 1759:28.12.44.

2185

Asbestos Cement

ASBESTOS CEMENT SLATES AND SHEETS. BS 690: 1945. (*British Standards Institution*, 2s. 0d.) Second revision. Slates and unreinforced flat and corrugated sheets, both straight and curved. Dimensions and tolerances. Tests. Recommendations for use of unreinforced corrugated sheets for roofing.

2186

Electroplating

ELECTROPLATED COATINGS OF NICKEL AND CHROMIUM ON STEEL AND BRASS. B.S. 1224:1945. (*British Standards Institution*, 2s. 0d.) Definition, classifications, tests.

This specification is intended to cover articles which are to be electroplated for decorative purposes with either nickel or chromium finish. Articles to be chromium plated must first be plated in nickel in accordance with the specification and then given additional deposit of chromium.

The committee which has prepared this specification has realized that it is impossible, at the present time, to specify completely every factor affecting the performance of an electro-plated coating. The specification will be reviewed when a reasonable time has elapsed.

2187

Brick Testing

METHODS OF TESTING CLAY BUILDING BRICKS. B.S. 1257:1945. (*British Standards Institution*, 2s. 0d.) Sampling. Determination of compressive strength. Water absorption tests and calculation of saturation coefficient. Soluble salts analysis. Efflorescence test. Drying shrinkage measurement.

In the past the methods adopted for determining certain physical properties of bricks and other clay products have varied, according to the individual views of the testing authority. This has given rise to serious difficulties, both to the user and the manufacturer, since the results of tests from two different sources could not strictly be compared. It is essential that the procedure for carrying out a particular test should be independent of the testing authority. The specification does not include all tests at present in use, but it contains a number which can be standardized now, and it is hoped that others can be added later.

2188

Metal Wall-Ties

METAL WALL TIES. B.S. 1243:1945. (*British Standards Institution*, 2s. 0d.) Materials, types, dimensions, tests.

The specification covers metal wall ties suitable for cavity walls in which the width of the cavity does not exceed 3 in. Since the life of a steel tie is largely dependent on the weight of zinc coating, a minimum weight of coat per unit of exposed surface is specified. This minimum is smaller for ties made from wire than for ties made from strip.

Attention is drawn to the fact that breeze mortars may cause rapid corrosion of galvanized ties of either type.

LIGHTING

2189

Fluorescent Complaints

THERE IS SOMETHING WRONG WITH OUR FLUORESCENT LIGHTING APPLICATIONS. L. D. Morgan. (*Illuminating Engineering*, May, 1945, p. 275.) Possible causes of complaints attributed to fluorescent lighting.

Three recent notes in these columns have recorded the contemporary storm in America about fluorescent lighting. Harmon and Ley reported an extraordinary incidence of eye troubles which they said appeared to be due to certain effects from fluorescent lights, and Luckiesh threw some doubt into the previous arguments. Now Morgan has found some more cases of frequent com-

plaints, which is little royal, still. In this the north consulting to one-fifth of eye-fluorescent statement knows incandescent centage cases. F. concerned as with the sort, and possibilities hands of the new the possible glare (w there was Luckiesh and flicker clear com Luckiesh discussion There war that one day.

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plaints, which he attempts to analyse. There is little doubt that this is now a battle-royal, still to reach its full fury.

In this paper, the author records that in the north-west district of the USA, eye-consultants have observed that one-third to one-fifth of their patients first complain of eye-strain when they work under fluorescent light. This somewhat surprising statement hardly seems of value unless one knows also what percentage complain under incandescent light, and whether the percentage is the same or different in the two cases. However, Morgan is not so much concerned with the accuracy of the data as with the fact that they are evidence of a sort, and he proceeds to examine the possibility that trouble is caused by certain bands of ultra-violet which are radiated by the new lamps. Reference is also made to the possibility that the trouble is due to glare (which, so far as he would agree there was trouble, was the cause which Luckiesh suggested). Stroboscopic effects and flicker are mentioned, but there are no clear conclusions.

Luckiesh contributes vigorously to the discussion.

There has been evidence all during the war that this controversy would blow up one day. Now it is here.

2190 Fluorescent Radiation

RADIANT ENERGY FROM FLUORESCENT LAMPS. M. Luckiesh and A. H. Taylor. (*Illuminating Engineering*, February, 1945, p. 77.) Comparison of radiant energy from lamps and from sun and sky. Effect upon the eye.

The suggestion that fluorescent lamps are the source of harmful radiation was made in two articles recently reviewed in Nos. 1884:19.4.45 and 1887:19.4.45. Evidence was quoted which was intended to show that a majority of persons working in a certain room in Texas suffered from eye troubles which the author, Harman, ascribed to the fluorescent lighting used. In the present note the whole range of visible and invisible radiation from natural and artificial sources is discussed, and its effect upon the eyes and skin of human beings is briefly considered. Reference is made to Harman's claims, and it is suggested that he has taken insufficient care to see whether glare alone could not have been the cause of the trouble reported. Apparently certain wartime work has shown that the very deficiencies which Harman observed can be caused, for instance, by the reflected glare of sun on water as seen from aircraft. It is also suggested that Harman drew wrong deductions from certain of his evidence.

After reading the note one feels more confident that fluorescent light is at least as harmless as any of our previous artificial sources.

2191 Mirror Lighting

LIGHT WHERE YOU WANT IT. M. Fashender. (*Lighting and Lamps*, May, 1945, p. 30.) Fluorescent mirror lighting for bathrooms and dressing tables.

2192 Amusement Park Lighting

THE ROLE OF LIGHTING IN AMUSEMENT PARKS. E. D. Tillsen. (*Illuminating Engineering*, May, 1945, p. 290.) Floodlighting, pools and fountains, colour, luminescent effects, light sources.

2193 Road Lighting

LIGHTING OF BENDS, JUNCTIONS AND ROUNDABOUTS. Francis F. Middleton. (*Paper read at Association of Public Lighting Engineers' Conference*

at Glasgow, September, 1945.) Interesting examination of efficiency of road lighting in terms of objects viewed against light or dark background. Shows value of lighted pavement as compared to lighted road.

2194 Glasgow's Streets

GLASGOW'S STREET LIGHTING. S. M. Wood. (*Paper read at Association of Public Lighting Engineers' Conference at Glasgow, September, 1945.*) Description of street lighting, sizes of lamps, types of poles and methods of switch control. Includes useful description of public lighting of tenement stairs.

2195 Factory Lighting

EFFICIENT FACTORY LIGHTING. (*Production and Engineering Bulletin*, June, 1945, p. 193.) Public services available to factory managements and designers for guidance in lighting.

The article is in the Ministry of Labour's bulletin. It describes a variety of cases to show the skill required to obtain lighting which will yield high efficiencies from men and tools. It is pointed out that the Home Office Industrial Museum, Horseferry Road, London, S.W.1, will give advice on these types of problems, and that DSIR establishments (the IHRB, the NPL, and the BRS) also advise on many specialist aspects.

QUESTIONS

and Answers

THE Information Centre answers any question about architecture, building, or the professions and trades within the building industry. It does so free of charge, and its help is available to any member of the industry. Answers are sent direct to enquirers as soon as they have been prepared. The service is confidential, and in no case is the identity of an enquirer disclosed to a third party. Questions should be sent to: THE ARCHITECTS' JOURNAL, 45, The Avenue, Cheam, Surrey.

2196 Breathing Plaster

Q In a locality, South-West Coast, where condensation has often been troublesome, I wish to plaster or skim the internal walls of a surface shelter, now to be converted to a goods store.

This shelter has never given any trouble as regards condensation. The floors, walls, and roof are monolithic, of 8½-in. reinforced concrete. The walls have concrete blocks externally and 2½-in. breeze blocks internally as permanent shuttering.

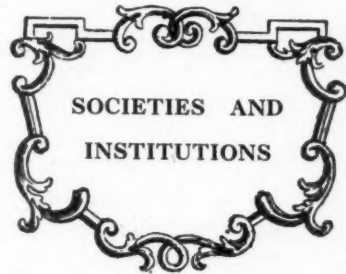
My clients would like everything glazed, but this I know would at once cause trouble, and they have agreed to plaster and distemper.

I want a plaster that can breathe. Can you give me a specification for this, using foamed slag fines?

A A plaster containing foamed slag would be suitable and we would suggest a mixture of one part cement, two parts hydrated lime and nine parts ½-in. dust foamed slag. You would do well to have a coat of cement slurry washed on to the breeze before applying the plaster, as this will prevent the absorption of water before hydration has taken place.

There may be difficulties in getting small quantities of foamed slag at the present

time. We should advise you to make enquiries of Holland, Hannen & Cubitts, Foamed Slag Department, 13/14, Dartmouth Street, London, S.W.1.



Speeches and lectures delivered before societies, as well as reports of their activities, are dealt with under this title, which includes trade associations, Government departments, Parliament and professional societies. To economize space the bodies concerned are represented by their initials, but a glossary of abbreviations will be found on the front cover. Except where inverted commas are used, the reports are summaries, and not verbatim.

DIA

Dr. E. G. West

At Burlington House, London, W.1. Meeting of the Design and Industries Association. Paper on ALUMINIUM by Dr. E. G. West.

Dr. E. G. West: Aluminium, although one of the most plentiful metals present in the earth's surface, was produced on a commercial scale less than 100 years ago. Up to the outbreak of war, world production was rather less than 500,000 tons annually, but during the past six years there has been a most spectacular increase to at least 2,500,000 tons per annum, with a corresponding increase in fabricating capacity. With the release from wartime controls of this metal, there is now a great opportunity for designers in all branches of industry to make use of the unique combination of characteristics of aluminium and its alloys for a multitude of new purposes. Parallel with the increase in production, the price of the metal has fallen from £60 per lb. in 1856 to just over 9d. per lb. to-day, and many people anticipate that further reduction will take place in due course. There has also accumulated a considerable stock of virgin and secondary metal throughout the world—a further factor to be considered in assessing new, economic applications and developments.

The Aluminium Industry is conscious of the urgent need to design products which are not only aesthetically satisfying but are also capable of easy and inexpensive manufacture. It is unfortunate that sometimes the best efforts of the designer are nullified

by the subsequent efforts of the production engineer who must make modifications to assist economic manufacture. Changes which to the engineer seem insignificant often have the effect of so altering the final appearance of the article that it bears but a superficial resemblance to the designer's original conception.

It is important to consider at what stage the necessary close co-operation of the industrial designer and the aluminium expert should commence. Or put in another way—when should the designer be considered as an artist, or the engineer, considered as production expert, predominate.

It is suggested that in the case of mechanical production or stress carrying structures, the initial design must be the work of the engineer, who must ensure that his design will not only work but can also be constructed. The artist may then be unnecessary, for a well designed mechanism is usually aesthetically satisfying—as shown by the modern aeroplane. On the other hand consumer goods, and the like, interior fittings of say, railway trains or motor coaches, should surely be designed in the first instance by the industrial designer, and his view should prevail unless his demands are so remote from possible practice as to be uneconomic.

To some people there may be no problem here, but the author's experience to date suggests that there is a major difficulty to be resolved. This is a simple way to assist in the solution of this problem, and it sets the pattern for this paper:—

- (1) An engineering approach first, including mechanical properties, allowable stresses, deflections, etc.;
- (2) A designer's approach, indicating ways of working and manufacturing the material to five desired results.

WHAT IS ALUMINIUM?

Aluminium is a metal discovered early in the last century and possessing a distinguished record based entirely on its fitness for specific purposes. It is most certainly not a new chameleon-like amorphous mass requiring treatment by special processes and difficult techniques. Aluminium possesses the characteristics of a metal and requires treating on the same general lines as the older metals, although the procedures used may differ in detail. There is the same opportunity for individual craftsmen and mass-production experts to work in aluminium as in other metals—in fact, there is probably more chance for aluminium has been described as the versatile metal—not a happy term, perhaps, but containing considerable truth, as will be shown.

First, however, it must be made clear that the word Aluminium as used to-day normally means either the metal itself or one of its alloys, of which there are several widely differing groups. In view of this usage of the word it is necessary to specify which aluminium alloy is required for a particular purpose, otherwise there is likely to be disappointment with the result. Expert advice should be sought when choosing aluminium or an alloy, and only the main points can be discussed herein.

Aluminium is obtained on the commercial scale at present from the mineral bauxite, which is found in many parts of the world, notably the South of France, British and Dutch Guianas, Greece, several areas in Central Europe and North America, Indies, etc. The ore is an impure form of aluminium oxide and is refined by a series of chemical operations. The next stage is electrolytic reduction, for which approximately 24,000 kw. of electrical energy is required per ton of metal. It will be realised that aluminium reduction works will therefore be located only where electricity is cheap—in particular where water power may be used. Thus, there are reduction plants in Scotland and North Wales, at Niagara Falls and other places in Canada and USA, in Scandinavia and Switzerland, Russia, Germany, Italy, etc.

Plants for processing the virgin metal so

produced are located at any convenient centre, and although in this country the majority of rolling mills, extrusion shops, forges and foundries for aluminium are still in the Midlands, there are several in other parts of the country—South Wales, the London area, Slough, Cumberland, etc.

Pure aluminium is available in several commercial grades, varying from 98 to 99.99 per cent. purity, the chief impurities being iron and silicon. Its mechanical strength is low, the ultimate tensile strength ranging from 5 to about 9 tons per square inch, according to the amount of cold working it has undergone.

The wrought aluminium alloys, on the other hand, include materials which have strength values of 30-40 tons per square inch.

Groups of Alloys

The aluminium alloys are usually divided into two principal classes: the casting alloys and the wrought materials.

The first process in the production of all aluminium alloy articles is that of casting. The casting alloys are used for components on which no further working operations, other than machining, are required, while the wrought alloys are first cast in cylindrical or rectangular billets of suitable dimensions for subsequent working.

Castings are of three types—sand, gravity-die and pressure-die castings—according to the method of production.

Wrought materials are produced by the mechanical working of cast ingots or billets, as a result of which the homogeneity and properties show a considerable improvement over those of cast metal. Working may include extrusion, hot and cold rolling into sheets and strip, forging by hammer or press, and drawing into tubes and wire. The wrought alloys are therefore available in the form of plate, sheet, and strip, forgings, extruded sections; bars for machining or forging, tubes and wire.

The alloys are subdivided into two main groups, namely, those in which mechanical strength is developed entirely as the result of working, and those in which it is developed by a final heat-treatment.

Cold working of aluminium and its alloys, such as by rolling, drawing, pressing or stamping, increases their strength and at the same time reduces ductility. The mechanical properties of work-hardened alloys thus depend on the degree of working, and some alloys can be obtained in various tempers such as hard, half-hard, quarter-hard, etc.

The strengthening of certain aluminium alloys by heat-treatment was discovered about 1907, in an alloy similar to duralumin. When this alloy was quenched from about 500 deg. C. it became soft, but after standing for several days its strength increased to a level considerably above the original figure. This was the first time age-hardening had been noticed. To-day there are other age-hardening alloys, including some which require low temperature precipitation to produce maximum properties. The behaviour of the aluminium alloys is different from that of steel which is at its maximum hardness immediately after quenching.

The number of proprietary alloys offered before the war often confused consumers, but the chief alloys are now covered by specifications to which purchases may be made.

Physical Properties

The best known property of aluminium is its low specific gravity—about $\frac{1}{3}$ that of iron and steel, less than $\frac{1}{2}$ that of copper and its alloys, and $\frac{1}{4}$ that of lead and silver. The alloys range from a density of about 162 to 180 lbs. per cu. ft.

Aluminium melts at 659 deg. C., and the alloys over a range which may commence about 530 deg. C.

The electrical and thermal conductivities of the pure metal rank next to those of copper at about 50 per cent. of the values for copper. The alloys conduct heat and

electricity rather less rapidly, and values range from 30 to 45 per cent. of those of copper, according to composition.

Aluminium and its alloys expand with rise of temperature about twice as much as steel, exact figures again depending on the type of alloy.

The natural colour of the metal is a most important characteristic, and there is general agreement that the soft white appearance of aluminium is an advantage.

Mechanical Properties

The mechanical constants for all the aluminium-base alloys are approximately as follows:—

Young's modulus of elasticity

10×10^6 lb./sq. in.

Torsion modulus 3.8×10^6 lb./sq. in.

Poisson's ratio 0.32.

The modulus of elasticity is seen to be about one-third that of mild steel, i.e., for a specific stress the elastic deformation is approximately three times that of steel. Hence, for applications in which resistance to deformation (stiffness) is the chief factor, allowance for the difference in elastic modulus must be made by change in the geometric form of the section, i.e., by increasing its moment of inertia. The lower elastic modulus also tends to cushion impact shocks—an important practical advantage.

Tensile strength ranges from about 5 tons per sq. in. for soft pure aluminium to nearly 40 tons per sq. in. for heat-treated wrought alloys. It may be taken that there is a suitable class of alloy, from the point of view of mechanical strength, for almost any purpose within this range. An important factor for designers to note is the high ratio of proof stress to ultimate tensile strength—especially when composed with many other common metals. Economic designs should therefore be based on proof stress instead of the more usually employed ultimate stress figure.

Resistance to Corrosion

The resistance of a metal to chemical attack or corrosion is often the determining factor in its selection, and in this respect aluminium ranks high among the common metals.

Aluminium and its alloys are, in general, very resistant to atmospheric attack, the higher resistance being due to the thin film of oxide which forms spontaneously on the surface of the metal. This film varies with the composition of the particular alloy and may be thickened by electrolytic or chemical methods, with a consequent increase in resistance to corrosion.

It should be realised that the resistance of different alloys to corrosive attack varies. Under normal urban and rural conditions, most of them are very resistant. In marine atmosphere it will be found that the non-heat-treatable alloys of the aluminium-magnesium type will give most satisfactory service, since these alloys particularly withstand the action of chlorides. Under these conditions the strong heat-treatable alloys containing copper are not so resistant.

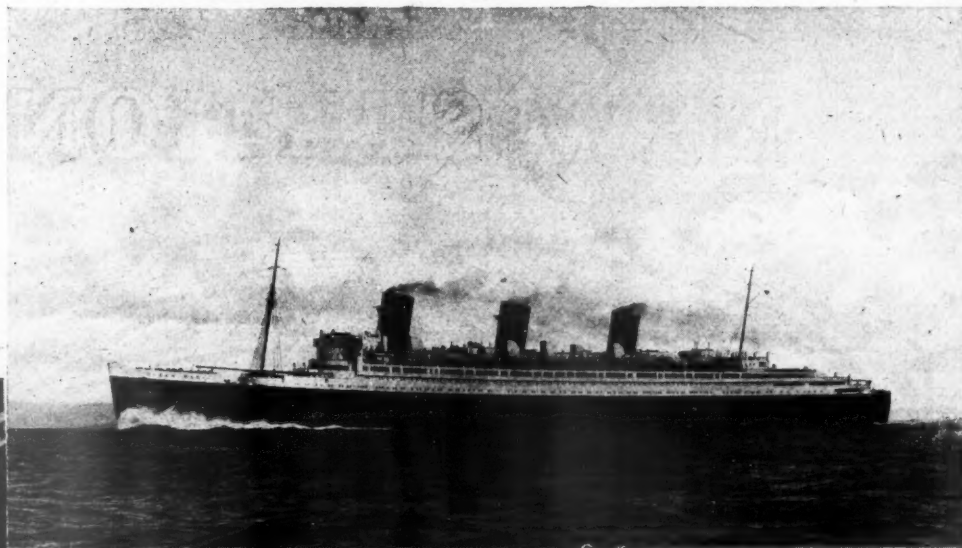
Much of the success to be achieved in corrosive environments therefore depends on the selection of the most suitable alloy for the required purpose, and advice should be sought when specific applications are being considered.

Aluminium alloys will give the best service when they are kept clean and free from dirt deposits.

Clad Sheet and Strip

High resistance to corrosion, combined with optimum mechanical properties, is obtained in the case of sheet by the use of a strong alloy coated with pure aluminium—for example, Alclad and Aldural. Sheet of this type consists of a core of a heat-treated alloy covered on each side by a thin coating of high-purity aluminium, which prevents contact between corrosive agents and the core. It also confers electrolytic protection on the core, even at cut edges.

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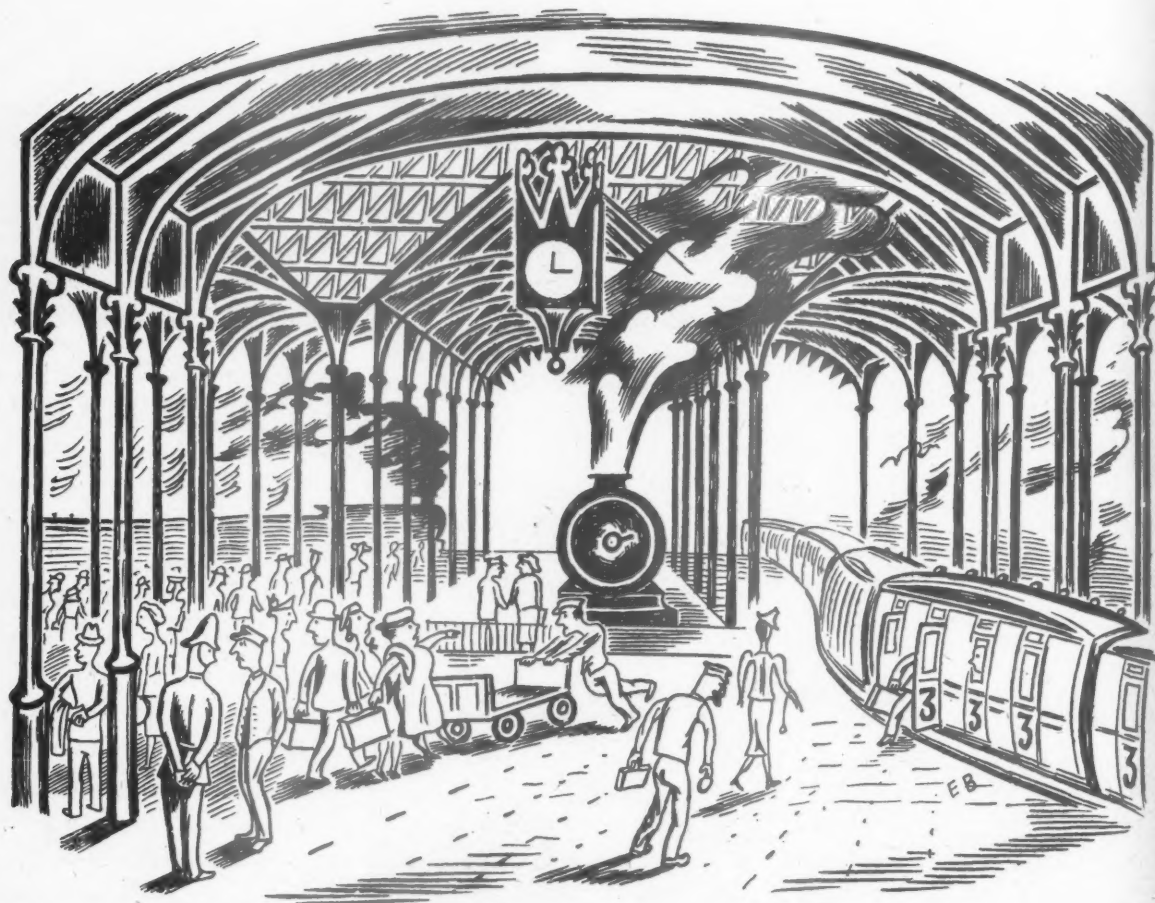
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well to give consideration to the advantages of Zinc. Its lightness, long life and low cost are obvious recommendations. So is its suitability for buildings traditional and modern, site-built and prefabricated. Zinc has had a long and useful past, and, thanks to new processes and applications, will have a great and widening future.

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The pure aluminium coating is approximately 5 per cent. of the total thickness of the sheet on each side.

When installing aluminium alloys it is important to ensure that there is no contact with other metals, since aluminium is anodic to most of the commoner metals; i.e., if electrolytic action occurs the aluminium alloy suffers preferential attack, especially when in contact with copper or copper alloys. To prevent such corrosion, the aluminium alloys should, as far as possible, be insulated from other metals by asphaltum, bituminous paint or, preferably, zinc chromate primer, fibre washers, etc. Cadmium-plated or galvanised nuts and bolts are suitable where parts have to be assembled and taken apart repeatedly.

WHY USE ALUMINIUM?

The designer requires to be well informed about the methods of working suitable for aluminium and its alloys, and a summary is therefore attempted. Considerable developments in mechanical methods and equipment have taken place during the war years and it is generally advisable for an individual to ascertain what plant and skilled labour are available for a project before the initial work is undertaken.

In general, aluminium and its alloys may be formed by all the usual metal working processes as follows:—

Castings

Sand castings are produced by the same general methods as are used for cast iron and other heavy metals, but the special characteristics of aluminium must be taken into consideration. In particular, a good permeable sand, well vented with open and weak cores, is required, and precautions to avoid oxidation and gas absorption are required. Pure aluminium is seldom used for castings, although one of the most famous statues—Gilbert's Eros in Piccadilly Circus—was cast in aluminium in 1896—and incidentally stood unprotected for nearly 50 years without deterioration.

Gravity die castings (known as "permanent-mould" castings in USA) are made by pouring molten metal into cast iron or steel dies or moulds, resulting in greater accuracy and better appearance than can be obtained by casting into sand. Often lower weights and thinner walls may be obtained, whilst mechanical strength is improved. The greater accuracy of die castings permit smaller allowances for machining, whilst production of die castings requires less manpower in the foundry than for sand castings.

Both sand and die castings may be made to virtually any dimensions, although die castings in excess of 150 lb. weight are uncommon. Typical die castings are pistons, pipe connections, motor car gear boxes, cylinder heads, toys, household utensils, door furniture, window fittings.

In pressure die castings the metal is forced under pressure into a permanent metal mould, but at present the maximum weight of aluminium alloy castings produced by this process is about 10 lb.

Pressure die castings are produced to very fine limits of accuracy—finish machining is often unnecessary—but large numbers of similar castings are required to make the process economic.

Extrusion

In the extrusion process the metal, heated to a plastic condition, is forced by hydraulic power through a die of the desired form to give a long length of aluminium alloy section. The process allows the designer the widest possible scope in the production of sections which may combine, for example, decorative and structural functions. Certain sections are covered by B.S.1161, and the recent booklet outlines the general principles underlying the design of extruded aluminium alloy sections. (*Aluminium Alloy Extruded Sections—Notes on Design and Manufacturing Toler-*

ances published by the Aluminium Development Association, 1945).

The discerning designer should certainly investigate very carefully the possibilities of using extruded sections in place of perhaps the more familiar tubes or assemblies built up by welding.

Machining

Aluminium stock can be turned at much higher speeds than heavier metals. In some cases, the speed of machining is limited only by the machine itself; so that a component in aluminium, owing to reduced machining costs, together with the saving in weight, may cost less than a similar component made of a metal costing less per lb. Pure aluminium machines satisfactorily, but owing to its softness attention must be paid to the design of the tools. In the case of the alloys, which are harder than the pure metal, more normal tool shapes can be employed.

Specific machining jobs require individual attention, and a good surface finish is readily obtained on the wrought alloys, provided that the correct feeds and speeds are used.

Cold Forming

The pure metal and the non-heat-treatable alloys, particularly those of the aluminium-magnesium type, generally possess good cold-working properties, but severe cold forming may necessitate a series of operations with intermediate annealing. The heat-treatable alloys require greater care, particularly in pressing and deep drawing, and working is carried out either on fully softened (annealed) material or on solution-treated material within a short time of quenching or of removal from refrigerated storage chambers.

The forming of sections from strip has been extensively developed in connection with the aircraft industry, and the production of complex sections is possible. Tubes are produced in a variety of sections and sizes, and both tubes and extruded sections may be manipulated to the desired form.

The use of the drop-hammer, the stretching press and the rubber-pad press has extended very considerably, and large numbers of components are now produced by these processes. Aluminium and its alloys are readily formed by spinning, and the hand process of panel beating.

Forging

Aluminium alloys are forged by means of powerful hydraulic presses, drop stamps and power hammers, forgings up to at least 600 lb. weight being possible at present. Excellent dimensional accuracy is obtainable with a good surface finish and high mechanical properties. Ordinary "smithing" methods are suitable only for aluminium itself and the softer alloys which can be cold forged quite satisfactorily.

Joining

Riveting has long been used as the standard method of joining aluminium sections, and automatic riveting machines maintain a high rate of production on straightforward assemblies.

Joining of light alloys with plastics as adhesives is now receiving considerable attention, but, at present, knowledge of the mechanical behaviour of these joints is limited.

While soldering is possible by the use of special fluxes and solders, combined with a suitable technique, it is not recommended, owing to the very low resistance of the joint to corrosion.

Brazing, however, is being increasingly used, particularly the blowpipe and furnace brazing processes for mass-produced assemblies. The usual brazing metal is an alloy of high silicon content, and the application is limited for most purposes to the non-heat-treatable alloys.

Aluminium itself is readily gas welded, provided the technique used takes into account the special properties of the metal.

The non-heat-treatable alloys are also weldable, but if the heat-treatable aluminium-base alloys are fusion-welded, optimum properties are not obtained.

The metallic arc process is used to a small extent only for pure aluminium and the non-heat-treatable alloys, but developments here have been rapid of late and the method may shortly be used for structural items.

Spot welding is applied very successfully to the high-strength alloys, but owing to their high electrical conductivity, all the wrought aluminium alloys require high currents and an accurate degree of control of current, pressure and time. Automatically controlled machines are available for spot welding sheets up to approximately 0.13 in. thick and sheet can also be welded to extruded sections or several sheets can be welded together.

Seam welding has been used to a limited extent, but flash and butt welding methods are not yet employed commercially.

Surface Finishing

This is perhaps one of the most important aspects to the designer, and there are many commercial methods of finishing the aluminium alloys—polishing and similar mechanical processes, pickling or chemical etching (frosting, etc.), electro-plating, anodizing, painting, enamelling, etc.

Anodic oxidation is the most interesting surface-treating process for aluminium and is used either "as formed" or after "sealing," with or without colouring, or as a base for paints. Anodizing is an electrolytic process, rather simpler than ordinary electro-plating, by which the natural film of aluminium oxide is considerably thickened to give a hard coating of very high resistance to corrosion. Films of considerable flexibility can also be produced for special purposes, and in all cases the film is very adherent and will not flake off.

There are two main processes—one using chloric acid as an electrolytic (the original Bengough-Stuart process) and the other using sulphuric acid. Oxide films exceeding 0.001 in. in thickness can be obtained by the selection and control of suitable processes.

The film possesses the valuable property of reacting with and absorbing certain dyes and pigments to give a wide range of coloured finishes. The undyed film, which may be varied from dull grey to silver, is extensively used for outdoor applications. If colour finishes are to be used outside, it should first be ascertained whether they are fast to sunlight, and it is hoped to standardize a range of fast colours in due course.

Pickling may be carried out for a variety of reasons: to clean the material, to procure a matt finish, or for purposes of inspection. Treatment is usually carried out by complete immersion of the component in a solution in suitably lined tanks. A number of solutions are available, of which the following are typical:—Various concentrations of hydrofluoric acid with other acids sometimes added, sulphuric acid with or without fluorides or chromic acid or caustic soda solutions.

It is not easy to deposit other metals on to aluminium, but silver, nickel and chromium finishes are possible. They are not recommended for general use, particularly as there are other alternatives which are easier and cheaper to produce, while the deposits themselves may be porous and so not completely satisfactory.

Paint stoving enamels, synthetics and plastic finishes can be applied direct to dry, clean aluminium alloy surfaces, although it is better after pickling or over an anodic coating a chemically produced film. Some of the usual paint pigments are not suitable, owing to the possibility of reaction between heavy metal oxides and the aluminium, but zinc oxide and zinc chromate are both satisfactory, the latter having a valuable corrosion-inhibiting effect.

WHITHER ALUMINIUM?

Hitherto aluminium has been used chiefly on account of its lower weight than the other common metals or its high resistance to chemical attack. The low weight was immediately appreciated by the early designers of aircraft and their demands stimulated the metallurgists to improve the mechanical properties, with the result that to-day there is a particularly wide range of alloy available. Following the early days of aluminium, when it was used for cooking utensils and chemical plant, its high electrical conductivity led to its widespread use for overhead conductors and "bus-bars." During the 1914-1918 war aluminium became prominent for aircraft engine components where the combination of strength and lightness was essential. Between the two wars, aluminium began to be used structurally for aircraft and for other transport applications where, again, the high strength/weight ratio was essential. During the early 1930's aluminium alloys began to be used on a small scale for various marine purposes, in particular, the building of lifeboats and other small craft. During the same period an increasing interest was taken in aluminium for building purposes, mainly decorative and semi-structural items such as window frames. During the second World War, light alloy supplies were earmarked for aircraft purposes only, where again the wide range of properties coupled with low weight made them pre-eminently suitable for structural and non-structural parts.

The general theme of the development of the aluminium industry during the past 50 years has, therefore, been Fitness for Purpose. The material has seldom, if ever, competed simply on price considerations with the older established metals and other common materials. Growth in the capacity of the industry has certainly been stimulated by the two wars, but between the wars steady expansion continued into the normal industrial fields so very briefly outlined above.

Building

Aluminium has demonstrated its suitability for many building components, perhaps the best-known being glazing bars and window frames, but here there remains a considerable amount of work for the designer to do. Practically all the aluminium windows produced to date have been based on the designs developed for steel windows, although the fundamental properties of aluminium indicate that at least changes in dimensional details will be required in order to produce a window as rigid and as strong as the steel window. Full advantage has not yet been taken of the extrusion and die-casting processes in the production of window frames, whilst very little attention has been paid to the one-piece manufacture of pelmets, curtain-rails, weather-bars, etc., in aluminium alloy. An interesting example of an extending pelmet was shown at the recent Aluminium Exhibition. Aluminium curtain rails and fittings have been made for many years. They have indeed competed in initial (consumer) cost with the older materials, but the large-scale development of the combined unit has not yet taken place.

Considerable attention has been paid to the replanning of kitchens and the designing of aluminium kitchen equipment offers many interesting possibilities. For fixed items the principal virtues of aluminium are its relative freedom from corrosion, the ability to produce coloured surfaces by anodizing and the facility with which the metal may be formed. Sufficient attention has not yet been paid, however, to attractive means of obtaining the required rigidity of cupboard units and, particularly, doors. Drumming is also an important problem on which attention might well be concentrated by designers anxious to produce

items in immediate demand. Vibration can be reduced by increasing the rigidity of a panel and this rigidity can be increased by fluting, corrugating, or the development of an embossed design in the metal. Such designs may be produced readily by mechanical brazing operations and offer a most fruitful field for combining decorative features with practical requirements.

For movable items in building, the low weight of aluminium is normally an advantage and, in particular, certain types of furniture can well be made of aluminium in place of heavy metals and also materials at present in short supply. The value of the process of extrusion is particularly evident when considering frames of all types of chair, settee, divans, beds, occasional tables and the like. The popular prejudice against tubes of circular section is so strong that the designer should welcome the comparative ease with which sections of almost any required form, or tubes of square or other section, can be produced in aluminium alloys. Welding of joints may raise objections on account of finish or cost, but there are other methods equally deserving of investigation, such as the plastic joint combined with mechanical fittings, or the use of the brazing process.

Small items of furniture, fittings, etc., are readily made by many of the processes already mentioned, and they offer excellent scope for the designer to try his hand with a new material. It may well be that new design can best be introduced to the general public from the development of first-class small items such as are sold in their thousands in the various stores of all classes. At the present price levels of aluminium and other materials, especially considered in relation to the ease of fabricating and finishing aluminium, there appears to be an assured market for aluminium products in this category, and it is a truism to say that good design certainly costs no more than poor design and should in fact cost less.

In connection with building fittings, another interesting characteristic of aluminium should be mentioned, namely, its high reflectivity not only to light, but also to the infra-red heating rays. It has been used extensively as a reflector on certain makes of electric fire, and its use as a lighting reflector has been well established during the war on search-lights, aircraft-lights, etc. The low weight of the metal makes its particularly desirable for lighting fittings, whilst the permanence of the anodic coating is an added reason for its use for such items which are often somewhat inaccessible. There is a tremendous scope here for well designed fittings incorporating reflectors and obtaining a wide range of colours.

Transport

In the case of transport the value of low weight has already been mentioned, but it is particularly important to appreciate the value of the extrusion process in the production of members for vehicle frames and bodies. An interesting example of this is the use of a fairly complex extruded section for the side rive of a goods lorry built of aluminium alloy before the war. Greater attention will be paid on post-war models of motor-cars, buses, coaches, etc., to well designed fittings such as door furniture, and here aluminium can contribute very substantially to a reduction in weight which is always desirable in anything which moves.

A similar amount of attention to detailed design will, it is anticipated, be repeated in other transport fields such as agricultural equipment, container vehicles for various industries, and through such large items to the humble but important perambulator, on all of which attention must be concentrated by the designer.

Conclusion

In conclusion, it is stressed that the particular qualities of aluminium—its light weight, its permanence, its ready fabrication, its unique range of surface finishes,

and the wide range of mechanical properties available—warrant the closest attention of designers in every field of application. Aluminium is a metal, and its general treatment is governed by this consideration, but the methods of fabrication and treatment available leave a widest possible choice to the designer. Attempts to transfer the design directly to aluminium from another metal are not, in general, either technically or economically successful, and it is urged that the fullest possible use should be made of all the facilities which interest to impart and disseminate information about the aluminium group of metals.

TCPA**Dennis Chapman**

At the Planning Centre, 28, King Street, W.C.2. Lunch-time meeting of the Town and Country Planning Association. Talk on SOCIAL SURVEYS AND TOWN PLANNING by Dennis Chapman. Chairman: Robert Silvey.

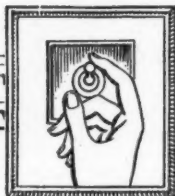
D. Chapman: The problems of town planning are primarily the concern of the sociologists and only secondarily the concern of the artist, the engineer and the architect. This point of view was recognised by the pioneers of the Garden City Movement and by Patrick Geddes, who in effect began the Town Planning Movement in this country. In spite of this, the importance of the sociological aspects of town planning is not sufficiently recognised by the Ministry of Town and Country Planning, who has no sociological section, nor by the Town Planning Institute whose syllabus makes no reference to any of the social sciences other than history, and whose book list contains only one sociological title.

Nevertheless there is now a considerable interest in the sociological approach. This has been shown by the RIBA, by the Department of Health for Scotland, by the Central and South-east Scotland Planning Advisory Committee, the Clyde Valley Regional Planning Advisory Committee, and to a less extent by the Ministry of Town and Country Planning.

If a town is to be designed to take account of the social and economic life of its inhabitants, it must be based on knowledge of the requirements of the inhabitants at all times. That is to say, social research must be continuous, as Patrick Geddes suggested, and the town must be regarded as a changing organism accommodating the developing life of its inhabitants. This is in direct antagonism to the Master-Plan theory which argues that the town should be built or rebuilt to fit a fixed plan decided at a given point of time and accomplished (as suggested in some current examples) in a period of 50 years—a concept which in my opinion ensures that the town, each year, becomes progressively more out of date. In my view, all planning authorities should have a Social Survey Section in continuous operation.

In the social survey of Middlesbrough which was carried out for the Ministry of Town and Country Planning, as an experiment in connection with the Middlesbrough Plan, directed by Max Lock, it was found that relations between neighbours were very important. In fact the housewife's chief sources of friendship were relatives and near neighbours, and for people working away from home the most important sources of friends were workmates, relatives and near neighbours.

This suggests that the Community Centre may not provide the strong social ties that many planners expect, and that perhaps it might be wise not to lay such a marked emphasis on the neighbourhood unit concept in planning. It seems to me that the



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The Electrical Section at the Building Centre, Maddox Street, London, W.1, provides interesting illustrations of electrical applications in domestic and industrial premises.



separation between home and work tends to break down one of the natural ways in which people become friendly. Neighbourly friendship, too, takes place between groups that are so small that nuclear planning will not affect them one way or the other.

On these accounts therefore, there seems to be no reason why planners should accept the restrictions imposed by the neighbourhood unit, which appears to be based on a romantic harking back to a non-existent Merrie England.

The information that the social survey can obtain, relates to:

1. Population and its application to housing needs.
2. Social data about such matters as present housing conditions, present provision for recreation, for institutions, churches, cinemas, libraries, etc., the extent of their use and the extent of deficiencies.
3. The study of public opinion in planning matters; whether the planner is ahead of his public, or whether his ideas are in tune with those of the people for whom he plans.

RIBA

New Members

As Fellows (23): Alliston, James Thomas, M.A. (Lieut.-Col. R.E.) (Cambridge); Broadbent, Godfrey Lionel (Nottingham); Chipindale, Frank, DIP.ARCH. LEEDS (Leicester); Conolly, Harold (Chelmsford, Essex); Davies, Elidir Leslie Wish (London); Dyer, Harold Thornley (Reading); East, Thomas William (Croydon, Surrey); Houfe, Eric Alfred Scholefield (Amphill, Bedfordshire); Howard, Frank Foster (Wing, Comdr.,

R.A.F.V.R.) (Brighton, Sussex); Martin-Smith, Donald Frank (Norwich); Morris, Cyril Lawrence (Pinner, Middlesex); Nash, Vivian Leslie (Cardiff); Osman, Louis, B.A.(ARCH.) (Edenbridge, Kent); Reece, Noel Lees (Ramsgate, Kent); Sirotkin, Zwi, A.A.DIPL. (London); Wood, Lesley John (Capt., R.E.) (Derby); Allan, Joseph Anderson (Portsoy, Banffshire); Danvers, Frederick Dudley (London); Edwards, Henry Norman (Cardiff); Urquhart, Reginald Buchanan (London); Wride, James Barrington (Cardiff); Cox, Richard George (Birmingham). (*Overseas*): Gehlote, Ramprakash Lalchand Jaipur City (Rajputana), India.

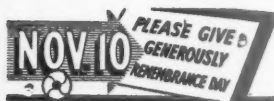
As Associates (23): Bowyer, Gordon Arthur (The Polytechnic, Regent Street, London) (Twickenham, Middlesex); Coulton, Thomas (University of Liverpool) (Tarleton, near Preston, Lancs.); Davies, Richard Horron (Architectural Association) (Kingswood, Surrey); Drake, Herbert, DIP.ARCH. (Sheffield) (University of Sheffield) (Sheffield); Heywood, Leslie Albert John (Exeter); Jones, Kenneth Alban (Leeds School of Architecture) (Wetherby, Yorks.); Lancaster, Frank William (London); Lewis, John Newel (The Polytechnic, Regent Street, London) (London); Stewart, Duncan McKenzie, DIP.ARCH. (EDIN.) (Edinburgh College of Art) (Edinburgh); Stiles, Peter Huish Flamank (Dorking); Thorne, Frank Richard (Birmingham); Vickery, Maxwell Edward (Architectural Association) (London). (*Overseas*): Blythe, Sydney Wallace Thomas (Hobart, Tasmania); Collins, Edward William (LIEUT. R.N.V.R.I (Colombo, Ceylon); Engineer, Jehangir Bomanjee (Bombay, India); Fassler, John, B.A.RCH. (Johannesburg, South Africa); Lewis, Robert Anthony Clyde, B.A.RCH. (McGill University, Montreal) (Trinidad, B.W.I.); Littlemore, David Surrey (Sydney, New South Wales); Porter, David George, B.A.RCH. (University College, Auckland, New Zealand) (Wellington, New Zealand);

Schaerer, Walter Rudolphe (Johannesburg, South Africa); Tarapore, Dorab Vicaji (Bombay, India); Thorpe, Rupert Lyell (Auckland, New Zealand); Tilley, Cedric Charles (Bulawayo, Southern Rhodesia).

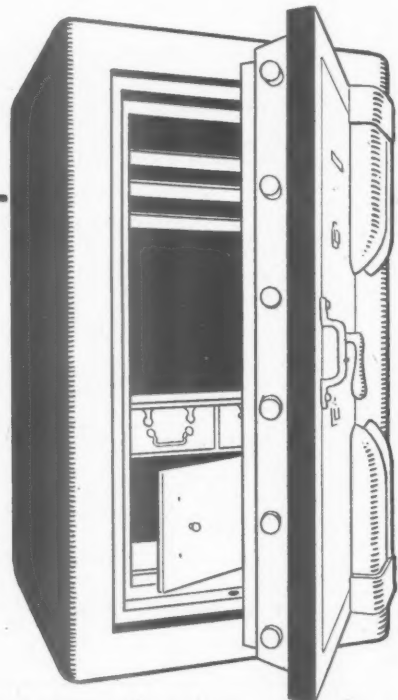
As Licentiate (30): Atkinson, Frederick Edward Frank (London); Bassett, Samuel John Francisco Ferrer (Aberdeen); Bassett, William Adolphus (Tonbridge); Baxter, David William, Jun. (CAPT.) (Dundee); Bull, Frank Howard (Birmingham); Campbell, Ian Alexander (CAPTAIN, R.E.) (Ayr.); Craike, Charles Walter (Newmarket, Suffolk); Eades, Hugh Reginald Harry (Guildford); Feldman, Alec (Hove, Sussex); Forsyth, Andrew Ross (Gosforth); Gates, Lionel Montague (London); Hartington, Geoffrey (Manchester); Hearnden, Eric George (Liverpool); Joy, Douglas Blake (London); McIntosh, Charles Douglas (Warrington); Mason, Arthur (London); Mullins, Arthur William John (Woodbridge); Olle, Henry Ernest (Canterbury, Kent); Oxland, Arthur George (South Molton, Devon); Peebles, Hugh (Newark); Pye, Richard (Blackpool); Reid, Thomas Whytock (Hawick, Roxburghshire); Richardson, George Kenneth (Leeds); Robertson, Douglas De-Butts (Edinburgh); Salmond, William (Belfast); Shaw, John Beetham, J.P. (Nottingham); Silvester, Bert (London); Stevens, Joseph Henry Robert James (Aylesbury); Sutton, William Frederick John (London); Taylor, Arthur (Derby).

ANNOUNCEMENT

Mr. Arthur J. Wood, F.R.I.B.A., architect and surveyor, having completed his various engagements in the War Department and on other essential and emergency works, has re-established his private practice. His address is: 63, Westfield Road, Western Park, Leicester. Telephone: 88374.



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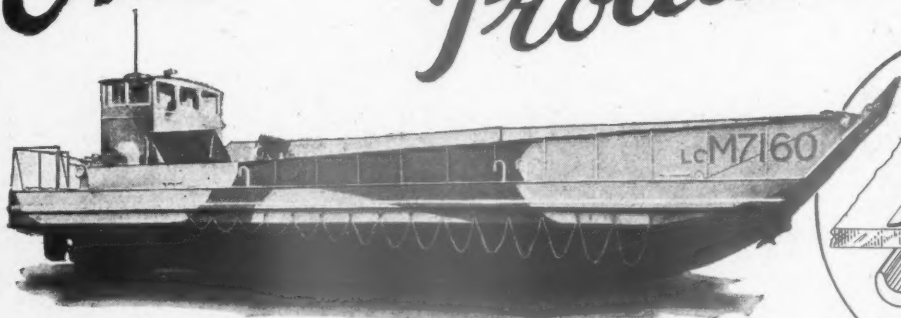
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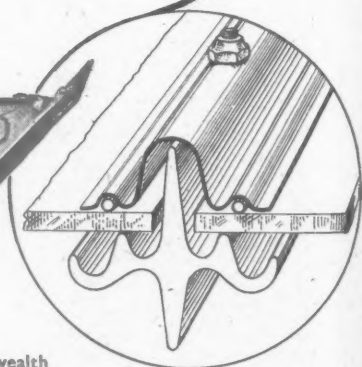
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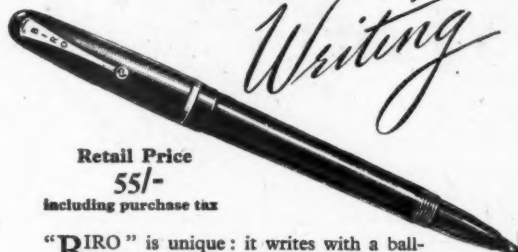
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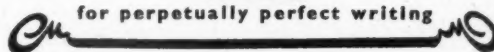
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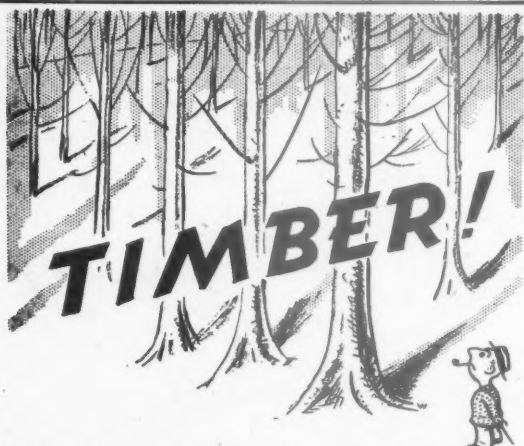
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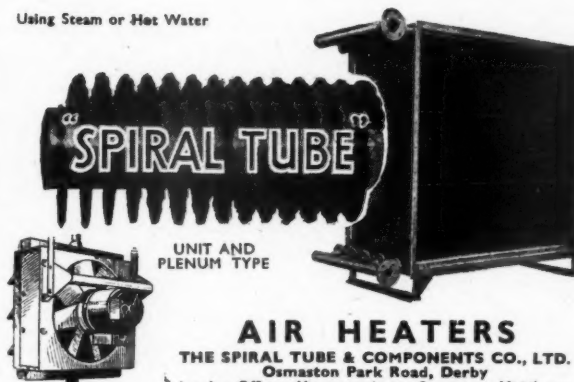
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CORNWALL COUNTY COUNCIL.

Applications are invited for the post of ASSISTANT in the Architectural Department, at an annual salary from £300 to £360, according to qualifications and experience.

Forms of application may be obtained from the County Architect, County Hall, Truro, to whom applications must be sent not later than Monday, the 12th November, 1945, accompanied by copies of three recent testimonials.

L. P. NEW,
Clerk of the County Council.

County Hall, Truro.
19th October, 1945. 811

NORTHAMPTONSHIRE COUNTY COUNCIL.

PLANNING ASSISTANTS.

Applications are invited from members of H.M. Forces and others for the following Technical Appointments on the permanent staff of the County Planning Department:—

(a) TECHNICAL ASSISTANT. At a salary of £350-£412 10s.-£400 per annum, plus war bonus, as authorised by the Council from time to time.

(b) TWO JUNIOR ASSISTANTS. At a salary of £200-£210-£250 per annum, plus war bonus, as authorised by the Council from time to time.

Applicants for (a) should have had experience in the preparation of planning schemes, and preference will be given to those candidates who possess qualifications of the Town Planning Institute.

Applicants for (b) should have had experience in the preparation of planning schemes, and be neat and expeditious draughtsmen.

The successful candidates will be required to provide and maintain a motor car for use in connection with their duties, for which an allowance will be paid, in accordance with the Council's scale.

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

Applications, endorsed (a) "Technical Assistant" and (b) "Junior Assistants," stating age, qualifications and experience, past and present appointments, accompanied by a copy of one recent testimonial, and the names of two persons to whom reference may be made, must be submitted to the Acting County Planning Officer at the address below, not later than the 15th November, 1945.

J. ALAN TURNER,
Clerk of the County Council.

County Hall, Northampton. 823

COUNTY BOROUGH OF OLDHAM.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant in my Department.

The salary will be at the rate of £320 per annum, rising by two increments to £350, plus £59 16s. cost-of-living bonus.

Applicants must be neat and capable draughtsmen, competent to prepare working drawings, take out quantities and prepare estimates. They should preferably possess a recognised Architectural qualification, and experience in a Municipal Office will be an advantage.

The appointment will be subject to the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination. Conditions relating to the appointment can be obtained from the undersigned.

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials must reach me not later than Saturday, 17th November, 1945.

A. L. HOBSON,
Borough Engineer and Surveyor.

Municipal Buildings, 75, Union Street,
Oldham.
26th October, 1945. 837

BOROUGH OF DUNSTABLE.

ARCHITECTURAL ASSISTANT.

Applications are invited for the post of Architectural Assistant, in the Borough Engineer and Surveyor's Department. The commencing salary will be £310 per annum, rising by annual increments of £15 to £355 per annum, plus cost-of-living bonus, at the rate now or hereafter payable (at present £59 16s.), and also payment in respect of increased working hours.

The appointment will be superannuable, and the successful applicant will be required to pass a medical examination.

Applications, stating age, present position, qualifications, and full particulars of previous experience, accompanied by a copy of one recent testimonial, and the names of two persons to whom reference can be made, should be sent to the undersigned not later than 19th November, in envelopes marked "Architectural Assistant."

A. D. HARVEY,
Town Clerk.

Municipal Offices, Dunstable.
20th October, 1945. 830

COUNTY BOROUGH OF SOUTHAMPTON.

TOWN PLANNING AND DEVELOPMENT DEPARTMENT.

Applications are invited for the under-mentioned appointments in the Town Planning and Development Department:—

(1) SENIOR PLANNING ASSISTANT, at a salary commencing at £500 per annum, rising to £550 per annum. Applicants should be corporate members of the Town Planning Institute, or hold an equivalent qualification. Additional professional qualifications would be an advantage. Applicants must also have had considerable experience in the preparation of planning schemes and the administration of the Town and Country Planning Acts, 1932-44.

(2) TECHNICAL ASSISTANT, at a salary commencing at £330 per annum, rising to £375. Applicants should have had good experience in a town planning office. Professional qualifications would be an advantage.

Both appointments will be temporary in the first instance. A cost-of-living bonus is at present payable in respect of both appointments.

Applications, in writing, accompanied by copies of two testimonials, should be made to the undersigned, at the Civic Centre, Southampton, to be received not later than Saturday, 24th November, 1945.

R. R. H. MEGGESON,
Town Clerk.
844

DERBYSHIRE COUNTY COUNCIL.

ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT. Candidates must be over 30, unless medically unfit for military service.

Salary £325, by annual increments of £12 10s. to £350, plus cost-of-living bonus, at present £59 16s. per annum.

Applications should be sent to the County Architect by 15th November, 1945.

The appointment is subject to the approval of the Ministry of Labour.
County Offices, Derby.
8th November, 1945. 833

BOROUGH OF BRENTFORD AND CHISWICK.

APPOINTMENT OF ARCHITECTURAL ASSISTANTS.

Applications are invited for the following permanent appointments in the Borough Engineer and Surveyor's Department.

(1) Senior Architectural Assistant.
Salary £440-£520-£500 per annum, plus cost-of-living bonus, at present £59 16s. per annum.

Candidates should be Members of the Royal Institute of British Architects (or hold equivalent qualifications), and have had experience in school and house planning and design, and in general architectural work.

(2) Architectural Assistant.

Salary £365-£415-£425 per annum, plus cost-of-living bonus, at present £59 16s. Candidates should preferably be Associates of the Royal Institute of British Architects, with experience in general architectural work and in the preparation of working drawings, specifications, and setting out in connection with housing work.

The appointments will be subject to the Local Government Superannuation Act, 1937, and to one month's notice on either side, and the successful candidates will be required to pass a medical examination, and to enter into a Fidelity Bond with the Council's Insurers at the expense of the Council.

Applications, endorsed "Senior Architectural Assistant" or "Architectural Assistant," stating age, qualifications, present and previous appointments and experience, and accompanied by copies of three recent testimonials, should reach the undersigned not later than 12 noon on Tuesday, 13th November, 1945. Canvassing, directly or indirectly, will disqualify.

JOHN SKINNER,
Town Clerk.

Town Hall, Chiswick, W.4.
24th October, 1945. 839

DERBYSHIRE COUNTY COUNCIL.

ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment as QUANTITY SURVEYOR.

The salary will be £400 per annum, rising by annual increments of £12 10s. to £450 per annum, plus cost-of-living bonus, at present £59 16s. per annum.

Candidates must be over 30 years of age, unless medically unfit for Army Service.

Applications should be sent to the County Architect by 15th November, 1945.

The appointment is subject to the approval of the Ministry of Labour.

County Offices, Derby.
8th November, 1945. 831

COUNTY BOROUGH OF OLDHAM.

APPOINTMENT OF TEMPORARY BUILDING CLERK OF WORKS.

Applications are invited for the appointment of a temporary Building Clerk of Works in my Department.

Applicants should have a sound knowledge of building construction, and of the several building trades. They should preferably have had previous experience in the supervision of construction of housing schemes.

The salary will be at the rate of £7 7s. per week, plus war bonus, which is at present 23s. per week.

The appointment is designated as "temporary," but the Corporation have a large housing programme, and a considerable period of continuous employment should be assured.

Applications, accompanied by copies of two recent testimonials, must be delivered not later than Saturday, 17th November, 1945.

A. L. HOBSON,
Borough Engineer and Surveyor.

Municipal Buildings, 75, Union Street,
Oldham.
26th October, 1945. 838

DERBYSHIRE COUNTY COUNCIL.

ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR ARCHITECTURAL ASSISTANT.

The salary will be £400 per annum, rising by annual increments of £12 10s. to £450 per annum, plus cost-of-living bonus, at present £59 16s. per annum.

Candidates must be qualified as Associates of the Royal Institute of British Architects, and over 30 years of age, unless medically unfit for Army Service.

Applications should be sent to the County Architect by 15th November, 1945.

The appointment is subject to the approval of the Ministry of Labour.
County Offices, Derby.
8th November, 1945. 832

CITY OF LEEDS.

HOUSING DEPARTMENT.

Applications are invited for the following appointments:—

One ASSISTANT ARCHITECT, Class 3 (Temporary). Basic salary scale, £350 per annum to £400 per annum.

ASSISTANT ARCHITECTS, Class 3a. Basic salary scale, £310 per annum to £400 per annum.

One ASSISTANT ARCHITECT, Class 4 (Temporary). Basic salary scale, £250 per annum to £300 per annum.

ASSISTANT ARCHITECTS, Class 4a (Temporary). Basic salary scale, £220 per annum to £300 per annum.

Applicants must be Registered Architects, and have had a wide experience of large scale housing.

One ASSISTANT SURVEYOR, Class 1. Basic salary scale, £400 per annum to £500 per annum.

One ASSISTANT SURVEYOR, Class 1a. Basic salary scale, £400 per annum to £450 per annum.

ASSISTANT SURVEYORS, Class 2 (Temporary). Basic salary scale, £310 per annum to £350 per annum.

One ASSISTANT SURVEYOR, Class 3 (Temporary). Basic salary scale, £220 per annum to £300 per annum.

Applicants must be fully qualified, good draughtsmen, fully conversant with estate surveying and development, and be able to undertake the making and plotting of large surveys, setting out, contouring and levelling.

The present cost-of-living bonus, which is additional to the above basic salaries, is in each case £59 16s. per annum.

The commencing salary will be the minimum in each case.

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

The position with regard to National Service must be stated.

Applications, on forms obtainable from the undersigned, accompanied by copies of not more than three recent testimonials (not returnable), must be received by me in the envelope supplied therefor, not later than 10 a.m. on Thursday, the 15th November, 1945.

Canvassing in any form, either directly or indirectly, will be a disqualification.

R. A. H. LIVETT, O.B.E., A.R.I.B.A.,
Housing Director.

Priestley House, Quarry Hill, Leeds, 9.
26th October, 1945. 840

CITY OF CARDIFF EDUCATION
COMMITTEE.

THE TECHNICAL COLLEGE.

Acting Principal : A. BUXTON, M.A.(Oxon.),
F.R.A.S.Required, to commence duty on 1st January,
1946, a Temporary ASSISTANT LECTURER IN
ARCHITECTURE.Salary according to Burnham Technical Scale,
with due allowance for professional and teaching
experience.Forms of application, together with further par-
ticulars, are obtainable from the undersigned (on
receipt of a stamped addressed envelope), to
whom they should be returned by 27th November,
1945.W. J. WILLIAMS,
Director of Education.
858

TARVIN RURAL DISTRICT COUNCIL.

CLERK OF WORKS AND BUILDING
INSPECTOR.Applications are invited for the appointment
of a temporary Clerk of Works and Building
Inspector in connection with the erection of
Houses and general inspection of Building Works
in the Tarvin district.The salary will be at the rate of £350 per
annum.Applicants should have a good knowledge of
building trade, and be conversant with the
building bye-laws.Applications, stating age, qualifications and
experience, accompanied by copies of three recent
testimonials, and endorsed "Clerk of Works,"
should be delivered to Mr. Thomas Pritchard,
M.Inst.M. & Cy.E., Surveyor to the Council at
this address, not later than the 12th November,
1945.J. H. MOORE DUTTON,
Clerk to the Council.Westminster Buildings, Newgate Street,
Chester.
27th October, 1945. 843OVERSEAS EMPLOYMENT.
GOVERNMENT OF INDIA.Applications are invited for the newly created
post of CONSULTANT ARCHITECT (Medical
Institutions, etc.), Government of India. Candi-
dates should be of high standing in the pro-
fession, with wide experience in designing
modern Medical Institutions. Special experience
in designing Hospitals is essential.The appointment will be on contract for a
period of three years.Pay Rs.2,500 a month (approx. £2,250 a year),
but higher salary might be considered in the
case of an Architect possessing outstanding qualifi-
cations.

Free passage to and from India.

Write, quoting EA.1666A, to Ministry of Labour
and National Service, Appointments Department,
Technical and Scientific Register, Room 670,
York House, Kingway, London, W.C.2, for
application form, which must be returned com-
pleted by 23rd November, 1945. 855

COUNTY BOROUGH OF GREAT YARMOUTH.

APPOINTMENT OF SENIOR TOWN
PLANNING ASSISTANT (PERMANENT).Applications are invited for the permanent
appointment of a Senior Town Planning
Assistant in the Borough Engineer's Department,
at a salary of £365 per annum, in accordance
with Grade C, rising by annual increments of
£15 to a maximum of £410 per annum, plus
cost-of-living bonus (at present £59 16s. per
annum), the commencing salary depending upon
the qualifications and experience of the person
appointed. Applicants must have had experience
in the preparation and administration of Planning
and Reconstruction Schemes, the lay-out of
estates, and negotiations with regard to displace-
ment and compensations. Preference will be
given to candidates who have passed the examina-
tion of the Town Planning Examination Board.The appointment will be subject to one month's
notice on either side, and to the provisions of the
Local Government Superannuation Act, 1937. The
successful candidate will be required to pass a
medical examination. Applications, stating age,
qualifications, and previous experience, together
with copies of two testimonials, should be
enclosed in an envelope endorsed "Town
Planning Assistant," and must reach the undersig-
ned not later than Thursday, 29th November,
1945.Canvassing, directly or indirectly, will be
deemed a disqualification, and candidates must
disclose in writing whether to their knowledge
they are related to any member of or any holder
of any senior office under the Council. The
candidate who fails to do so will be disqualified,
and if appointed will be liable to dismissal with-
out notice.FARRA CONWAY,
Town Clerk.Town Hall, Great Yarmouth.
21st October, 1945. 852

HALTEMPRICE URBAN DISTRICT COUNCIL.

ARCHITECTURAL ASSISTANT (PERMANENT).

Applications are invited for the above appoint-
ment in the Engineer's Department at a salary
of £450 per annum, rising by annual increments
of £25 to £525 per annum, plus cost-of-living
bonus (at present £59 16s. per annum).Applicants should be A.R.I.B.A. or equivalent,
with experience of preparation of plans, specifica-
tions, and quantities for architectural work, and
the successful candidate will be the principal
Architectural Assistant to the Engineer.The Council's post-war plans offer considerable
scope to an Architect who is interested in de-
signing houses, urban centres, civil buildings, and
other works.The post is subject to the provisions of Local
Government Superannuation Act, 1937, and the
successful candidate will be required to pass a
medical examination.Forms of application may be obtained from the
Engineer, Anlaby House, Anlaby, East Yorks, and
should be returned to the undersigned not later
than 10 a.m. Tuesday, the 20th November, 1945.
Canvassing, directly or indirectly, will disqualify
applicants.The Ministry of Labour and National Service
has given permission under the Control of
Engagement Order, 1945, for the advertisement
of the above vacancy.A. B. GLASSPOOL,
Clerk of the Council.Anlaby House, Anlaby.
November, 1945. 857

COUNTY BOROUGH OF NEWPORT.

BOROUGH ARCHITECT'S DEPT.

Applications are invited for the following
appointments:(a) Two SENIOR ASSISTANT QUANTITY
SURVEYORS.Salaries, Class 3, £474 10s. per annum, with two
annual increments to £507 per annum, plus cost-
of-living bonus, £59 16s.Applicants must be members of the Chartered
Surveyors' Institution, qualified by examination
(quantities), and should have wide experience in
the preparation of specifications, bills of quantities,
estimating, measuring, and the settlement
of final accounts.(b) One ASSISTANT ARCHITECT.
Salary, Class 2, £442 per annum, rising to
£474 10s. per annum, plus cost-of-living bonus,
£59 16s.Applicant must be qualified member of the
R.I.B.A. by examination.The above appointments are temporary, but it is
possible that permanent positions may develop
later.The appointments are also subject to the Cor-
poration's conditions of service and superannua-
tion scheme, and the successful candidates will
be required to pass a medical examination.Applications, accompanied by three recent testi-
monials, must reach the undersigned not later
than 19th November, 1945.JOHNSON BLACKETT, F.R.I.B.A.,
Borough Architect.

Town Hall, Newport, Mon. 853

SOMERSET COUNTY PLANNING OFFICER.

The Somerset County Council invite applica-
tions for this appointment from gentlemen who
are Associate Members of the Town Planning
Institute by examination and also Associate
Members of the Royal Institute of British Archi-
tects. A sound knowledge of the law relating to
planning and ribbon development and practical
application of planning principles is essential.The salary for the appointment will be at a
rate not exceeding £1,200 a year, and in fixing
the commencing salary regard will be had to the
age, qualifications, and ability of the successful
applicant.The post is superannuable and war bonus and
travelling and subsistence allowances will be
paid as may from time to time be determined
by the County Council.The duties will include advising the County
Planning Committee on planning matters and
on applications received under the Restriction of
Ribbon Development Act, and attendance at meet-
ings of the Joint Planning Committees dealing
with the preparation of draft Schemes for the
County, and at Local Inquiries.The person appointed will have to devote his
whole time to his duties, and will not be per-
mitted to engage in private practice or any other
business.The appointment is subject to passing a medical
examination to the satisfaction of the Council,
and may be terminated by three months' notice
and otherwise held at the pleasure of the County
Council.Applications, in sealed envelopes endorsed
"County Planning Officer," accompanied by not
more than three recent testimonials (members of
H.M. Forces may submit names of not more than
three persons to whom reference may be made),
must be received by the undersigned not later
than 15th January, 1946.

Canvassing will be a disqualification.

HAROLD KING,

Clerk of the County Council.
County Hall, Taunton.
30th October, 1945. 850

BOROUGH OF SCUNTHORPE.

ARCHITECTURAL ASSISTANT.

Applications are invited for the permanent
appointment of Architectural Assistant in the
Borough Engineer and Surveyor's Department,
at a commencing salary of £450 per annum,
rising by two annual increments of £25 to £500
per annum, plus cost-of-living bonus, at present
£59 16s. per annum.Applicants should hold a recognised Archi-
tectural qualification, and have had experience
in housing.The appointment will be subject to the Local
Government Superannuation Act, 1937, terminable
by one month's notice on either side, and the
successful candidate will be required to pass a
medical examination.Applications, stating age, qualifications and
experience, endorsed "Architectural Assistant,"
accompanied by copies of two recent testimonials,
must reach the undersigned not later than 22nd
November, 1945.W. P. ERRINGTON,
Town Clerk.Municipal Offices, 34, High Street,
Scunthorpe, Lincs.
1st November, 1945. 854

Financial

Six lines or under, 8s.; each additional line, 1s.

GENTLEMAN will purchase Builder's
Collateral Deposits with Building Society;
North of England preferred. Box 696.

Architectural Appointments Vacant

Four lines or under, 4s.; each additional line, 1s.

SENIOR ARCHITECTURAL and Surveying
Assistant required by London Property
Company; good general London experience
essential; prospects of permanency; commencing
salary about £450 per annum. Full particulars
of experience, age, etc., to Box 787.SENIOR ARCHITECT'S ASSISTANT required;
experience of large scale work and modern
construction; hospital experience desirable; state
salary and qualifications. J. R. Boyd Barrett,
A.R.I.B.A., F.R.I.A.I., Chartered Architect, 61,
South Mall, Cork, Eire. 815SENIOR ARCHITECTURAL ASSISTANTS
required for housing and general work.
Write or 'phone REgent 5765 for appointment.
Box 817.SENIOR ASSISTANT required immediately in
West Riding, Yorks; office for housing and
other general work; experienced draughtsman;
capable in levelling and surveying work, and
knowledge of quantities; state age, experience,
salary required, and when available. Box 834.ARCHITECTURAL ASSISTANT required by
Professional firm in West End of London;
5-6 years' experience in architectural draughts-
manship, general building construction, etc.,
essential; good prospects offered, and varied ex-
perience in all branches of the architectural and
surveying professions to suitable applicant.
Reply, stating age, experience, and salary re-
quired, to Box 836.ASSISTANT required, who must have interest
in contemporary design, and is an ex-
perienced draughtsman; progressive position is
offered in recently formed practice in London
area. Box 784.SENIOR and JUNIOR ASSISTANTS required
in Architect's office, near Kingston, for work
connected with war damage rebuilding. Box 785.ARCHITECT required for preparation of
layout plans, road works, and domestic
architecture, in connection with development of
large private estates in the Midlands. Applicants
must have sound experience, and be thoroughly
acquainted with the Town and Country Planning
Acts, etc.; permanent position, with prospects for
capable and reliable applicant; commencing
salary, £550 per annum. Apply Box 841, stating
details of experience, qualifications, etc.WANTED.—Junior Architectural Assistant.
Sanctuary & Son, chartered land agents
and surveyors. Bridport, Dorset. 851ARCHITECT, in private practice in county
Town in Midlands, urgently requires
capable General Assistant; permanency for suit-
able man. Apply, giving full particulars as to
age, experience, and salary required, to Box 859.QUALIFIED ARCHITECT, to take full
control of comprehensive Building Depart-
ment, which includes erection of new premises
and all maintenance work; capable of preparing
plans, models, specifications, and estimates.
Applications, stating age, experience, salary
required, and names for two references, to
Secretary, Doncaster Co-operative Society, Ltd.,
1, John Street, Doncaster, by 17th November,
1945. Envelopes to be endorsed "Architect." 847JUNIOR ARCHITECTURAL ASSISTANT
STUDENT (R.I.B.A.) required immediately
for work on electrical research laboratories in
Stafford; salary according to experience; good
prospects. Write to the Site Architect, the Baines
Group, at English Electric Co., Ltd., Stafford. 846

ARCHITECT'S ASSISTANT required in West End office for development of pre-fabricated housing project from early stages, and for general practice. State experience and salary required to Box 849.

Architectural Appointments Wanted

A.R.I.B.A. (39), recently released, now reviving pre-war London practice, seeks part-time work during day; excellent draughtsman; also experienced in preparing surveys and schedules of dilapidations. Box 167.

SITE-RESIDENT Senior Assistant Architect, i/c large works, seeks appointment as Staff Architect or Building Manager, or would accept responsible and interesting work in Architect's office; 29; exempt; school trained (Liverpool); experienced in structural alterations, departmental stores, licensed houses, large war projects (Air Ministry); accustomed supervision of work; spec. quant.; testified as "excellent draughtsman, good in design." Box 168.

REGISTERED ARCHITECT, Dipl. Arch., aged 23, requires responsible position; in London or North-West England; salary required, £500. Box 169.

FREELANCE—Draughting and Tracing work required on a freelance basis. Apply, P.F. Elliott, 13, Lomond Av., Patcham, Brighton, Sussex. 170

JUNIOR ARCHITECTURAL ASSISTANT, school cert., age 20, seeks position in London architect's office; some experience in surveys; studying for R.I.B.A. exams. Box 171.

QUALIFIED CONTINENTAL ARCHITECT, with British practice in housing and war damage, requires position; London area. Box 172.

WREN (Drawing Duties), expecting demobilisation in January, wishes to work as tracer-typist to Architect, with office in or near London. Box 159.

Other Appointments Vacant

Four lines or under, 4s.; each additional line, 1s.

DRAUGHTSMAN DESIGNER wanted by progressive Building Contractors in London, with extensive post-war programme; must have knowledge of general building and interior decorations, and able to interpret practical ideas when drawing up designs. Box 824.

CONSTRUCTIONAL STEEL SALES MANAGER required by a North-East Coast Steel Company, who are extending and developing their structural activities; applicant must possess outstanding sales experience and technical qualifications; an established connection in London and Southern Counties with leading architects, consulting engineers and contractors essential; applications will be treated in the strictest confidence, and should give full details of experience, age, and salary required to Box 835.

ARTIST-DRAUGHTSMAN, with accomplished style in modern idiom, required; talent rated higher than experience; London. C. Entwistle, M.Inst.R.A.; Sloane 3535. 848

Other Appointments Wanted

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

HOUSING ARCHITECT (37), resident London, will shortly become available to join company able to provide opportunities to use wide knowledge gained in actual erection of prototypes of new housing construction; 15 years' pre-war experience with estate developers in London area. Box 789.

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WANTED—One set of "Arts Et Matiers Graphiques." Please reply to Box 5.

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WANTED—A Copy of "The Architectural Review" for December, 1935. Box 152.

DOOR SPRINGS, overhead, check action, now available from stock; order early. Also "Forward" Automatic W.C.; coin collecting locks. Write for list AL80. Parker, Winder & Achurch, Ltd., 80, Broad Street, Birmingham, 1. 781

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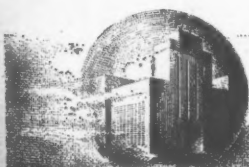
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Carrier Engineering Co., Ltd.	lv	Lamont, James H., & Co., Ltd.	xxxiv	Thorp, John B.	—
Cellacite & British Uralite, Ltd.	—	Lancashire Dynamo & Crypto, Ltd.	—	Travis & Arnold	xxxii
Cellon, Ltd.	xiv	Lead Industries Development Council.	liv	Tretol, Ltd.	—
Celotex, Ltd.	xx	Limmer & Trinidad Lake Asphalt Co.	—	Trussed Concrete Steel Co., Ltd.	vii
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Croft Granite, Brick & Concrete Co., Ltd.	—	McCarthy, M., & Sons, Ltd.	lviii	United Steel Companies, Ltd., The	xxxvii
Cutting, R. C., & Co., Ltd.	lviii	Main, R. & S., Ltd.	—	United Ebonite & Lorival, Ltd.	—
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Essentials first

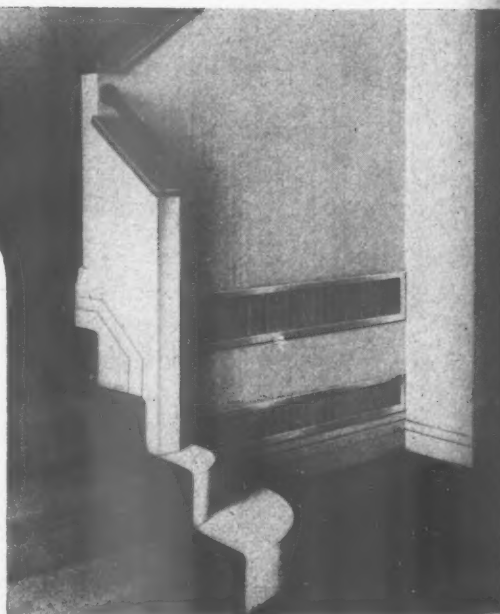
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