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tandard contents every issue does not necessarily contain

all these contents, but they are the regulat features which continually recur.

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ARCHIT

JOUR

The Architects' JOURNAL for July 10,

RARY

AA AAI	Architectural Association, 34/6, Bedford Square, W.C.1. Association of Art Institutions. Secy.: W. Marlborough Whitehead, Castle Hill Avenue, Berkhampstead, Herts.	Museum 0974 "Dyneley,"
ABS ABT	Architects' Benevolent Society. 66, Portland Place, W.1. Association of Building Technicians. 5, Ashley Place, S.W.1.	Welbeck 5721 Victoria 0447-8
ACGB ADA APRR	Arts Council of Great Britain. 9, Belgrave Square, S.W.1. Aluminium Development Association. 33, Grosvenor Street, W.1. 1 Association for Planning and Regional Reconstruction. 34, Gordon	Sloane 0421 Mayfair 7501/8
ArchSA	Architectural Students' Association. School of Architecture, Manche	Euston 2158-9 ester
ARCUK ASB	Municipal School of Art, All Saints, Manchester, 14 Architects' Registration Council. 68, Portland Place, W.1. Architectural Science Board of the Royal Institute of British Architec	Ardwick 3480 Welbeck 9738 ts.
AScW	66, Portland Place, W.1. Association of Scientific Workers. 15, Half Moon Street, Piccadilly,	
BAE BATC	Board of Architectural Education. 66, Portland Place, W.1. Building Apprenticeship and Training Council. Lambeth Bridge Hou	Welbeck 5721 use, S.E.1.
BC		7611. Ext. 1706 Mayfair 8641/6
BCC	British Colour Council. 28, Sackville Street, W.1.	Regent 3613
BCCF	British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13.	Perivale 6869
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 25, Victoria Street, S.W.1.	Abbey 5422-3
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2. Te	
BGC	British Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
BGF	British Gas Federation. 1, Grosvenor Place, S.W.1.	Sloane 8266
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2	
TATAT		w Central 2891
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.I.	Euston 5385
BID		Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Millbank, S.W.1.	Whitehall 5140
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	British Steelwork Association. Eggington House, Buckingham Gate	S.W.I. ictoria 7301-2-3
BSA	Building Societies Association 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333
CAS	County Architects Society. C/o A. Guy Chant, F.R.I.B.A.	
CCA	Salop County Council, 5, Belmont, Shrewsbury. Si Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CDA CIAD	Copper Development Association. Kendals Hall, Radlett, Herts. Central Institute of Arts and Design. C/o National Gallery, W.C.2.	Radlett 5616 Whitehall 2415
CIAM	Congres Internationaux d'Architectures Modernes. Doldertal, 7. Zuri	ch. Switzerland
CID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	
CPC	Codes of Practice Committee. MOW, 42, Onslow Gardens, S.W.7.	
CPRE		ensington 7070
CUJC	Council for the Preservation of Rural England. 4, Hobart Place, S.V. Coal Utilization Joint Council. 54, Victoria Street, S.W.1.	Victoria 9851
DIA	Design and Industries Association. 9, Conduit Street, W.1.	Mayfair 5432
DOT	Department of Overseas Trade. 35, Old Queen Street, S.W.1.	Victoria 9040
EC		emple Bar 7565
EJMA	English Joinery Manufacturers Association (Incorporated). Sackville	
Later	40, Piccadilly, W.1	
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 8, Buckingham Palace Gdns.,	S.W.1. Sloane 2837
FASSC	Federation of Association of Specialists and Sub Contractors. 21, Tothill Street, S.W.1.	
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.V	
FDMA	Flush Door Manufacturers Association. Stapleford Road, Trowell,	Sloane 1002 Nottingham. Ilkeston 623/4/5
FLD	Friends of the Lake District. Pennington House, Nr. Ulverston, La	ncs. Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn,	W.C.1. Chancery 7583
FRHB	Federation of Registered House Builders. 82, New Cavendish Stree	t, W.1. Langham 4041
FS (Eng.)	Faculty of Surveyors of England. 8, Buckingham Palace Gdns., S.V.	V.1. Sloane 2837
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
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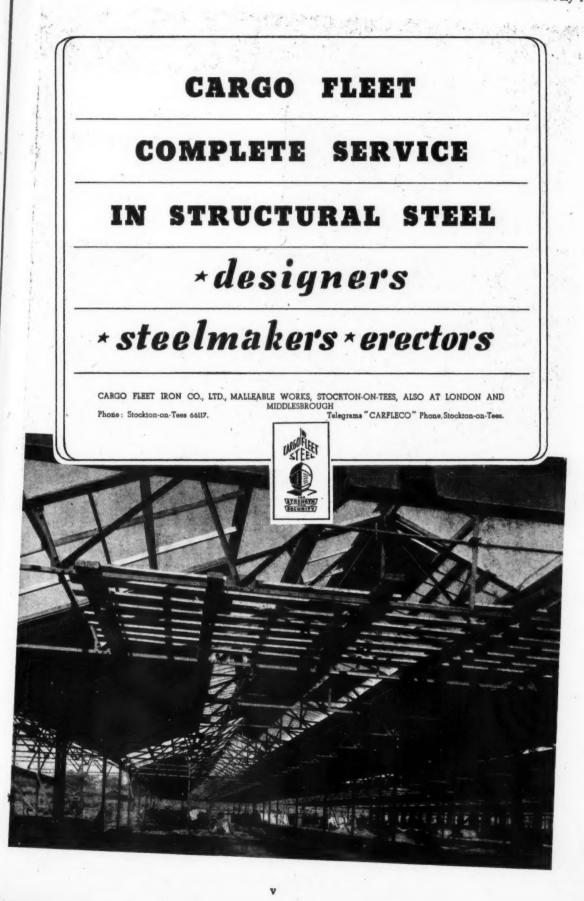
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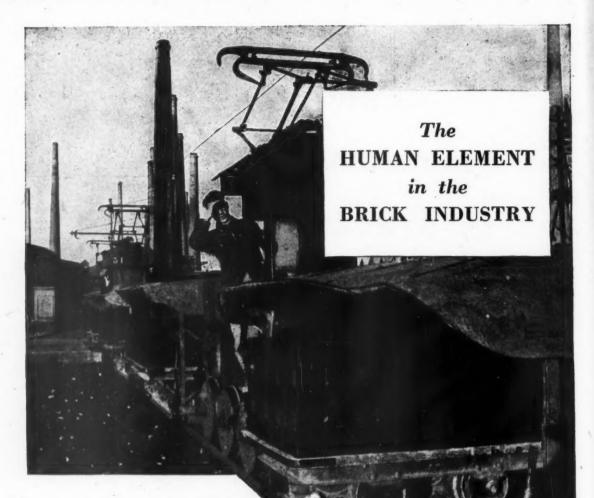


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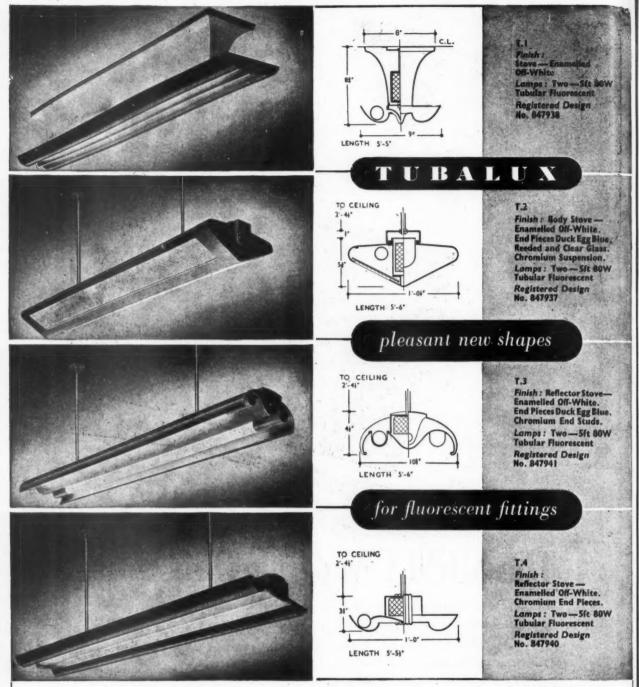
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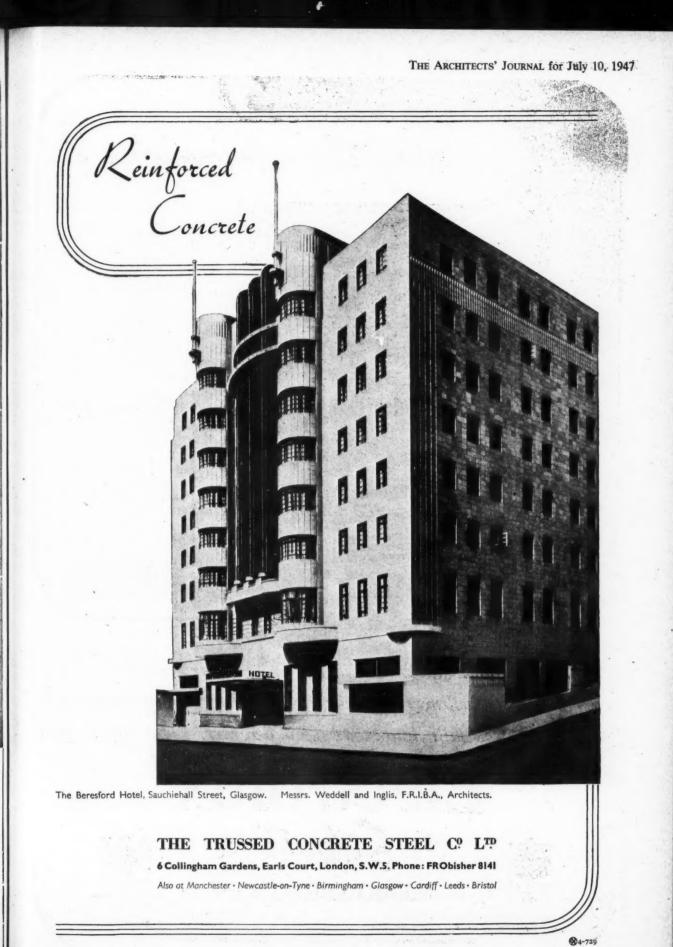
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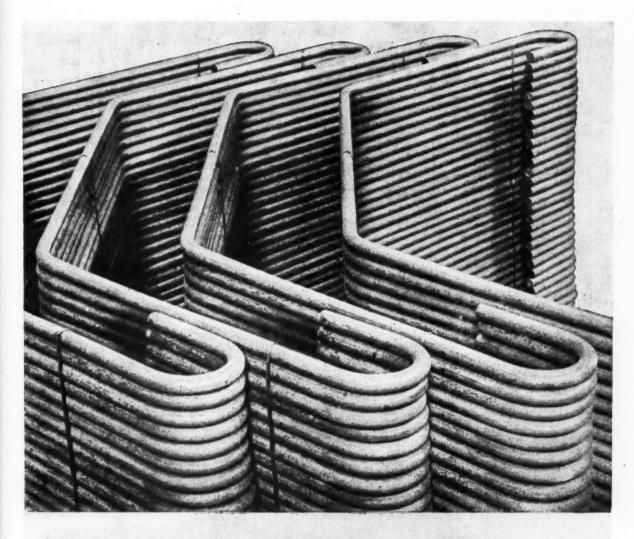
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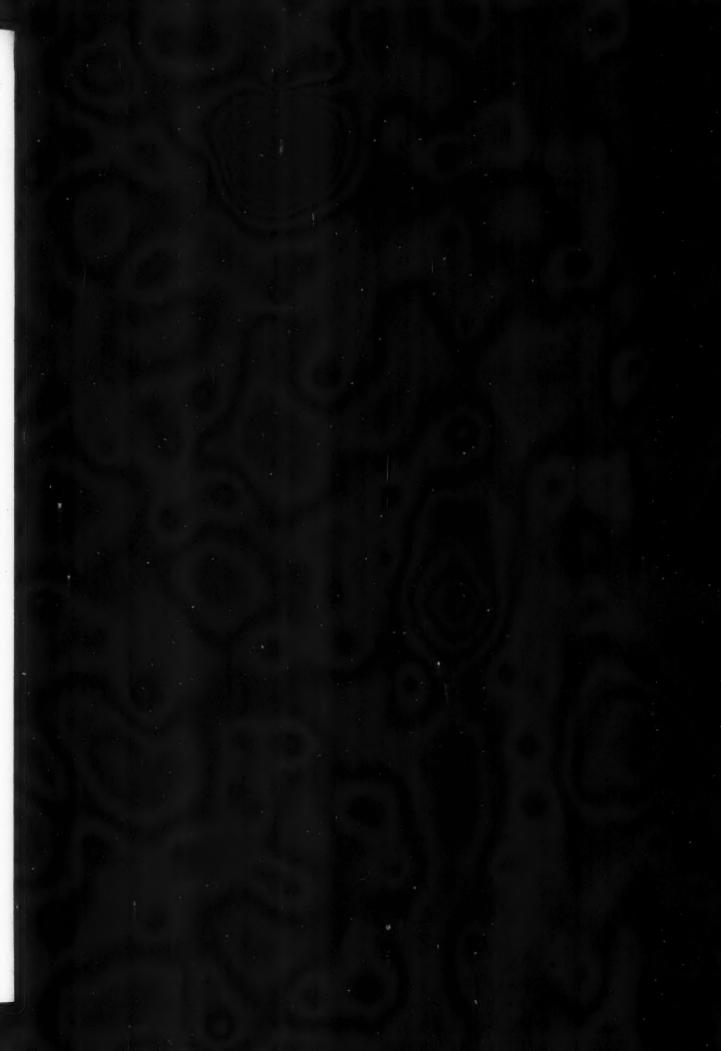
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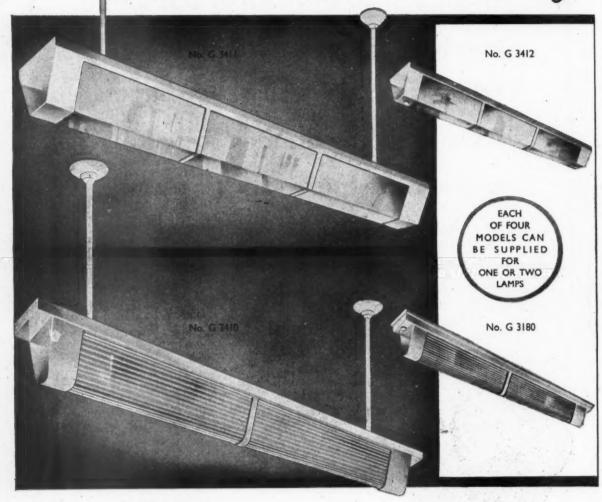
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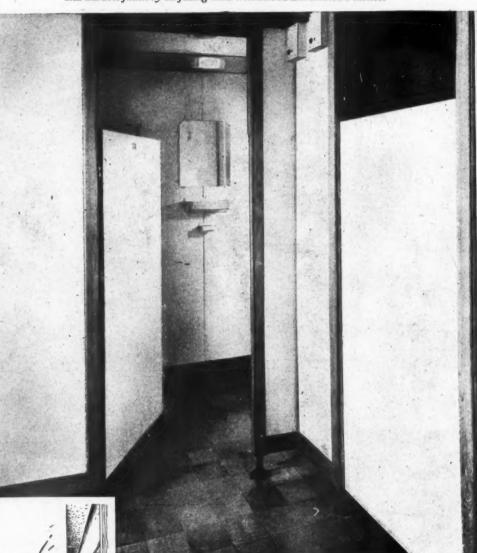
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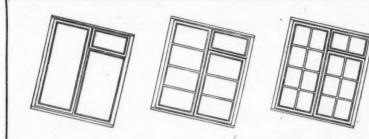
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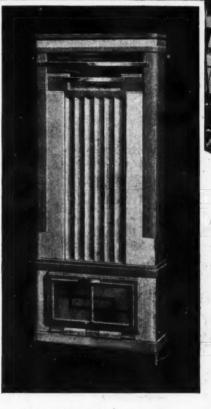
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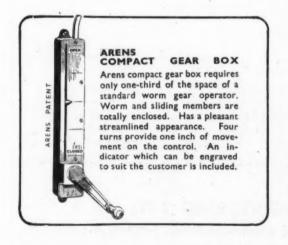
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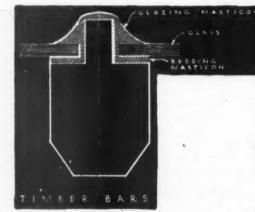
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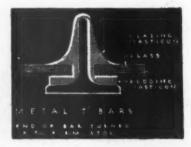


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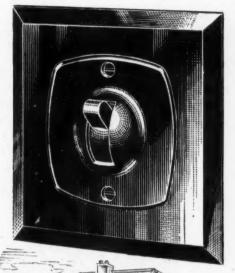
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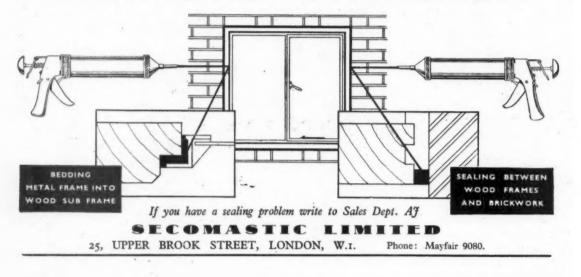
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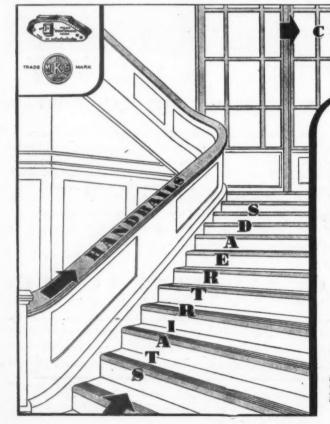
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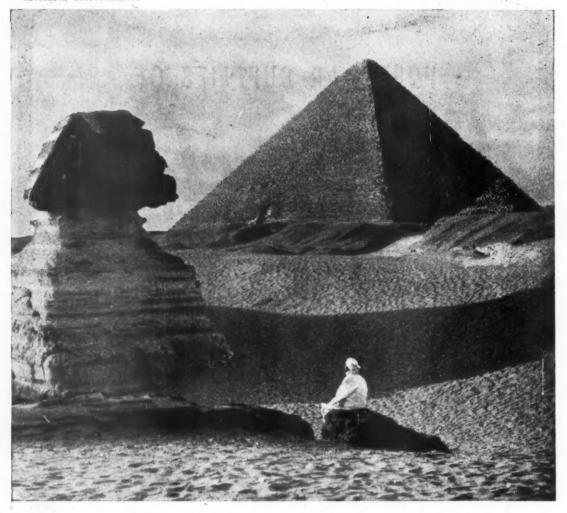
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These pages from pre-war technical journals, deal with a removable switch arm, and the 'Duplex' double duty fuse introduced by Sanders in 1933 and 1937 respectively. The degree of advanced thought with which their design was inspired, may be measured by the fact that fourteen years later, similar features are being 'claimed by contemporary manufacturers as 1947 innovations.

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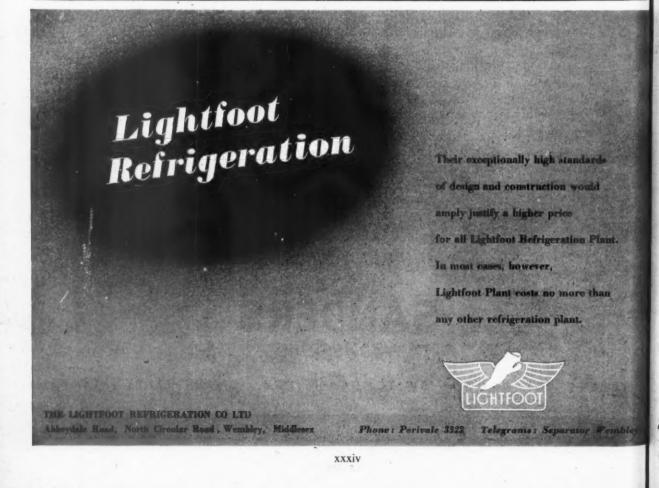
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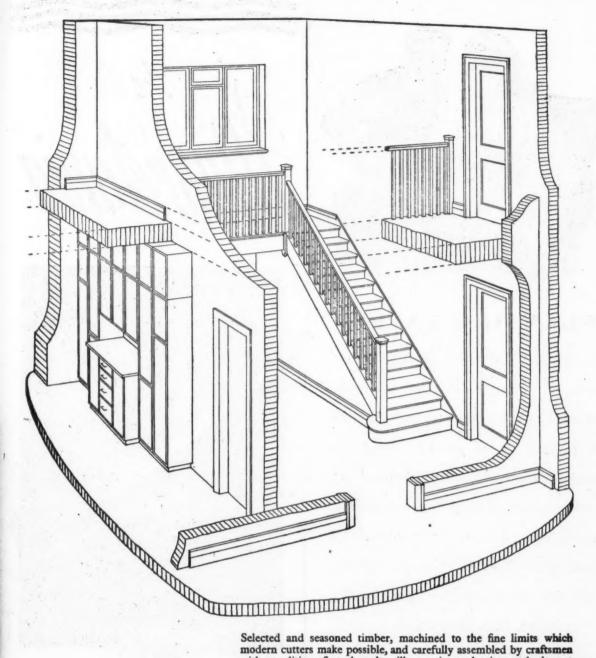


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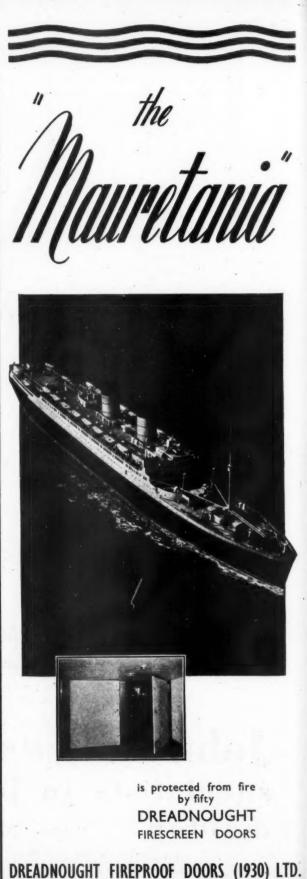


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PIPE FOR ECONOMY

Section of Silver-Copper-Lead enlarged 4 times showing grain structure.

USE LEAD ALLOY

Section of ordinary lead pipe enlarged 4 times showing grain structure.

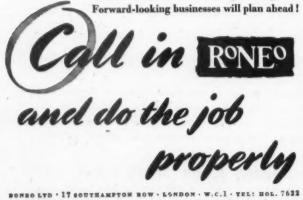
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The Technical Information Bureau of the Lead industries Development Council, which exists to give assistance on problems relating to the use of lead sheet and pipe in building work, will be pleased to advise on any questions relating to the present restricted uses of the materials.

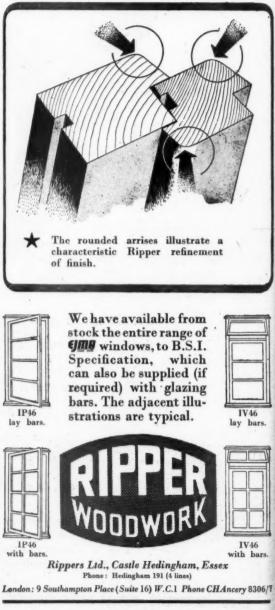
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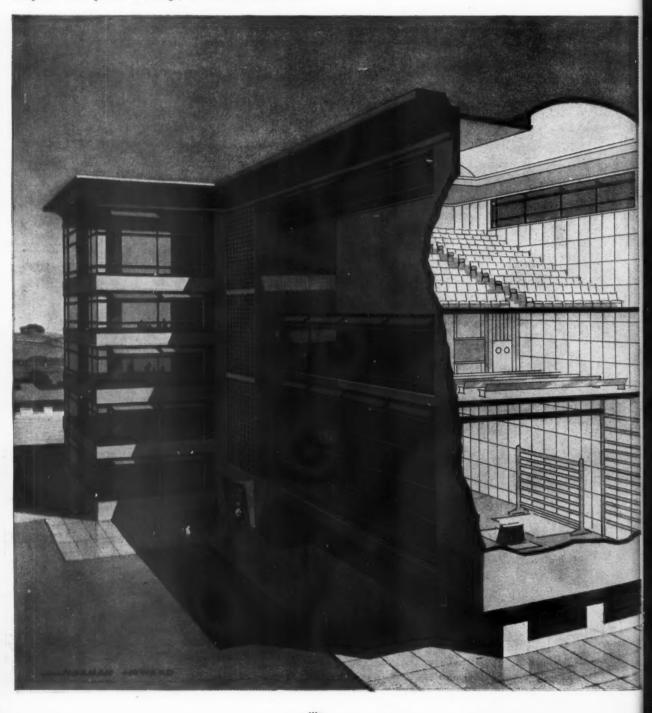
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#### THE ARCHITECTS' JOURNAL for July 10, 1947 [23

In common with every other periodical this JOURNAL is rationed to a small part of its prewar needs of paper. Thus a balance has to be struck between circulation and number of We regret that unless a reader is a subscriber we cannot guarantee that he will pages. get a copy of the JOURNAL. Newsagents now cannot supply the JOURNAL except to a " firm



order." Subscription rates : by post in the U.K. or abroad, £1 155. od. per annum. Single copies, 9d.; post free, 11d. Special numbers are included in subscription; single copies, 15. 6d.; post free, 15. 9d. Back numbers more than 12 months old (when available), double price. Volumes can be bound complete with index, in cloth cases, for 15s. each; carriage 1s. extra. Goods advertised in the JOURNAL and made of raw material now in short supply, are not necessarily available for export.

#### DIARY FOR AUGUST AND SEPTEMBER

papers and lectures the authors' names come first. Sponsors are represented by the initials as given in the glossary of abbreviations on the front cover.

C ARDIFF. National Federation of Building Trade Employers' Summer Meeting. In the Lecture Theatre, South Wales Institute of Engineers, followed by a Reception by the President of the South Wales Federation, Mr. T. H. Huxley Turner, and Mrs. Turner. (Sponsor, NFBTE.) JULY 10

LEICESTER. CESTER. Building Science Ex-hibition. At the City Museum and Gallery. (Sponsor, Department of L hibition. At the Call Art Gallery. (Sponsor, Department of Scientific and Industrial Research.) UNTIL JULY 19

Timber Research and Building. Forest Products Research Laboratory exhibition. At the School of Architecture and Building, Newarke Street, Leicester. The exhibition is of interest to all concerned with building in presenting the essential requirements of economy in timber, viz, the use of efficient design and preservation against de-cay and insect attack. Some information is also given on flooring timbers, plywood and machining of timber. The Forest Products Research Laboratory also provides an advisor service on all problems connected with the utilization of timber. An officer is present at the exhibition each day and will be pleased to answer enquiries. (Sponsor, FPRL.) UNTIL JULY 12

LONDON. English Place-Name Society. Annual Meeting. At the British Academy, Burlington Gardens, W.1. 3.30 LONDON. JULY 12 p.m.

Infra-Red Heating by Gas Exhibition. At Gas Industry House 1, Grosvenor Place, London, S.W.1. (Sponsor, British Gas Council.) UNTIL JULY 31

Windmills. Exhibition of photographs at Heal's Mansard Gallery, 196, Tottenham Court Road, W.1. (Sponsors, Windmill and Watermill Section of SPAB in collaboration with Heal and Son, Ltd.) 9 a.m. to 5.30 p.m. daily, Saturday 1 p.m. UNTIL JULY 26

Regional Conference of Local Authorities, in London and the Home Counties. At the County Hall, London. The Conference will consider Housing and Town and Country Subjects. (Sponsor, NHTPC.) 10.45 a.m. JULY 17

AA School of Architecture. Annual Prize-Giving and Opening of Exhibition of Students' Work. At 34, Bedford Square, W.C.1. Opening address by Robert Atkin-Jon. (Sponsor, AA.) 3.30 p.m. JULY 18

JULY Titles of exhibitions, lectures and papers are printed in italics. In the case of

> AA School of Architecture Exhibition of Students' Work. At 34, Bedford Square, W.C.1. (Sponsor, AA.) 10 a.m. to 6 p.m. JULY 19-31

> Eleventh Public Works Roads and Transport Congress. At Olympia, London. JULY 21 to 25

> Alexander Block. Sociology of Housing. At the Housing Centre, 13, Suffolk Street, S.W.1. (Sponsor, HC.) Buffet lunch 12.45 p.m., 2s. 6d. Talk 1.15 p.m., 6d. JULY 22

MAIDSTONE. J. Singleton Green. Making Good Concrete. At the Maid-stone Technical Institute. (Sponsor, South-Eastern Society of Architects, Tunbridge Wells Chapter, Maidstone Group.) 7 p.m. JULY 16

J. C. Browne. Paint. At the Maidstone Technical Institute. (Sponsor, South-Eastern Society of Architects, Tunbridge Wells Chapter, Maidstone Group.) 7 p.m. Aug. 20

E. H. B. Boulton. Timber. Its Properties, Defects, Preservation and Uses. At the Maidstone Technical Institute. (Sponsor, South-Eastern Society of Architects, Tun-bridge Wells Chapter, Maidstone Group.) 7 p.m. SEPT. 17

MANCHESTER. Builders' Plant, Equip-MANCHESTER. Builders' Plant, Equip-ment, Tools and New Materials. Ex-hibition at the Government Building Trade Training Centre, Denton, Manchester. The aim of the exhibition is to bring to the notice of all engaged in the industry, the small plant, equipment, etc., which has been designed to help speed up production and also to help in meeting the universal short-age of labour. (Sponsor, The Building and Civil Engineering Joint Committee under the chairmanship of the Regional Director, Ministry of Works.) JULY 17-26 Ministry of Works.) JULY 17-26

OXFORD. Building Science Exhibition. At the Electricity Showrooms. (Spon-sor, DSIR.) JULY 28-AUG. 9

READING. Town and Country Planning Summer School. At Reading Univer-sity. (Sponsor, Town Planning Institute.) JULY 16-23

SOUTHAMPTON. Building Science Ex-hibition. At the Art Gallery, Civic Centre. (Sponsor, DSIR.) SEPT. 6-20

SURBITON. Art in England. Summer School. At Hillcroft College, South Bank, Surbiton, Surrey. JULY 26-AUG. 9

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NEWS

Minimum House, Los Angeles, California. Designed by Gordon Drake ... 36 . . . . **Technical Section :** Information Centre ... 40 . . The Industry. By Philip Scholberg .. 43

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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.

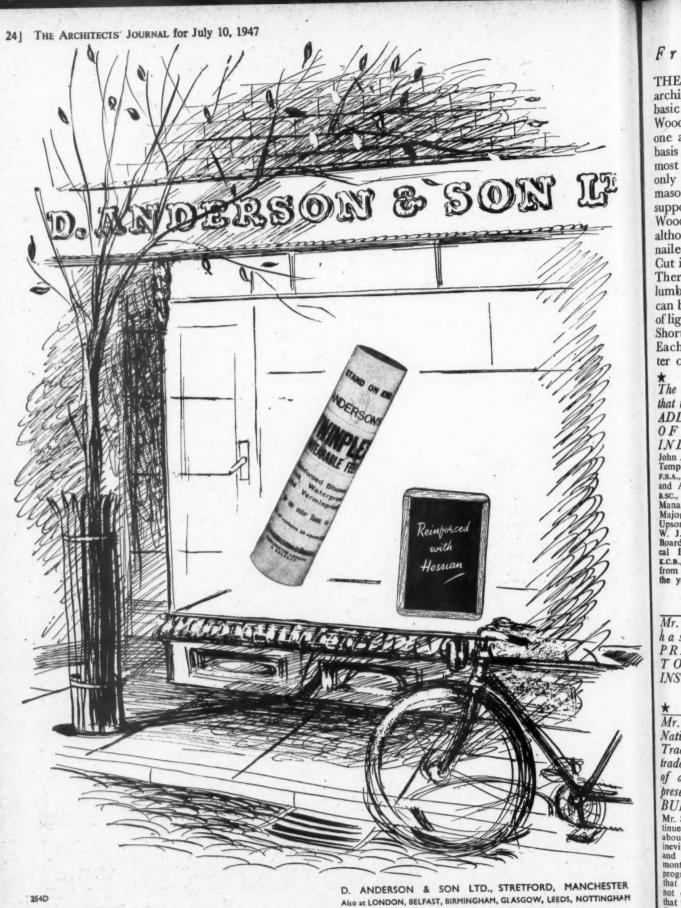
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means spare a second for this, it will probably be worth it.

\*\* 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.

Sir Malcolm Trustram Eve, Chairman of the Building Apprenticeship and Training Council since its inception in 1943, has TENDERED HIS RESIGNATION to the Minister of Works, who has accepted it with great regret. Sir Malcolm's last function as Chairman of Sir Malcolm's last function as Chairman of the Building Apprenticeship and Training Council was to preside at the meeting on June 24 and present awards to apprentices who have won scholarships (£200 a year for three years) for University or Higher National Diploma Courses in Building. (See page 3 of our last issue.) Mr. E. F. M. Durbin, M.P., Parliamentary Secretary to the Ministry of Works, thanked Sir Malcolm on behalf of the Minister, the Ministry, and the behalf of the Minister, the Ministry, and the members of the Council, and said: "Throughout the Regions I have visited everyone has been made 'apprenticeship conscious.' Apprenticeship and training seems to be a permanent item on the agenda of Regional Consultative Committees. In In of the long run, the training of youth is the key problem of the building industry. For an industry is nothing better than the men in No equipment can be used, no new elenew elements raised, unless the men are properly trained, have zeal and the right attitude towards a craft, and a facility in obtaining knowledge and experience as was found necessary." it.



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#### From AN ARCHITECT'S Commonplace Book

THE USE OF MATERIAL. [From "If you Want to Build a House," by Elizabeth B. Rock.] An architect works with the intangibles of space and light, but he defines them with material, and it is a basic principle of good architecture that each material be used according to its own inherent nature. Wood and brick, for example, have quite different characteristics, and forms which are suited to the one are false and meaningless in the other. The modern architect accepts these differences as the basis of his design and gives them clean, emphatic expression. Brick, stone and concrete block are most appropriately used as heavy, unbroken mass, for their strength is solely in compression and the only way they can bridge a large opening without extraneous support is by means of the arch. If masonry is used merely as non-supporting, weatherproof curtain walls and the building is actually supported by a steel or concrete skeleton, this qualified function should be made visibly apparent. Wood is a light material, strong in tension, therefore has a much more varied usefulness than masonry, although it takes considerable upkeep and is easy prey to fire and termites. Long thin pieces are nailed together to form the light netlike framework and the exterior surfacing of most of our houses. Cut into heavier timbers, it can be used as a more pronounced skeleton of widely-set posts and beams. There are not only innumerable ways to use wood in these traditional forms of nailed or notched lumber, but there is wealth of possibilities opened up by modern technics. Great rotary-cut sheets can be bonded together with plastic to become tough, flexible plywood, and used as the "stressed skin" of lightly framed structural panels, or steamed and pressed into curved shapes of extraordinary strength. Short strips can be plastic-bonded to form laminated arches of wide span and amazing lightness. Each of these structural techniques will give its own expressive form to the house, affecting the character of walls and roof and openings.

\*

The Board of Trade announces that the following have been appointed ADDITIONAL MEMBERS OF THE COUNCIL OF INDUSTRIAL DESIGN. John Anderson, Managing Director of James Templeton and Co. Ltd.; A. Leigh Ashton, FS.A., Director and Secretary of the Victoria and Albert Museum; G. W. Lacey, C.B.E., BSC., A.R.I.C., Director and General Sales Manager of British Aluminium Co. Ltd.; Major F. J. Stratton, Managing Director of Upsons Ltd (Dolcis Shoe Company); Dr. W. J. Warboys, D.PHIL., Chairman of the Board of Plastics Division, Imperial Chemical Industries Ltd. Sir Kenneth Clark, K.C.B., and Mr. G, W. Odey, C.B.E., resigned from membership of the Council earlier inthe year.

Mr. J. R. Howard Roberts, C.B.E., has been ELECTED PRESIDENT OF THE TOWN PLANNING INSTITUTE for the year 1947-48.

Mr. E. J. Smith, President of the National Federation of Building Trades Employers : Building trade employers are sometimes accused of apparent complacency about the present HIGH COSTS OF BUILDING. This is unfair. Mr. Smith, who was speaking at Bath, continued: Builders are much more concerned about high costs than about the failure, an inevitable failure due to the lack of materials and the interruption of work in the early months of the year, to achieve the building programme. They have all along realized that if prices go higher, or even if they do not come down, there is a serious danger that what is already happening in the United States will happen here, and our customers, whether they be local authorities or the general public, will not be able to afford to pay for our products. Materials are the chief trouble, and the trouble with them is two-fold. Not only are prices high, but costs are further increased by the delays still arising frequently on all building sites due to shortages of materials. Builders are not responsible for this, nor for the recent fuel crisis. But with all our difficulties it is, I am certain, possible, given the will on the part of both employers and operatives, to get a higher output on the site than we are getting to-day. It has been said recently that the building industry as a whole still retains the place it has held for several generations as one of the least progressive and most

wasteful of British industrice. I strongly resent that statement. Before the war the building industry was building 350,000 houses a year, apart from all the other works and buildings required. It has been publicly acknowledged by those who know the facts that during the war it did a grand job of work in the provision of camps, aerodromes, defences, factories, and Mulberry Harbours. I claim that we should be praised instead of criticised for what we have done since the war. Although we have had to cope with the repair of war damage on an unprecedented scale, our achievements in the housing field have not been equalled by any other country which took part in the war.



Architect's sketch of the proposed International Aviation Building on the site of the Central Station, Canadian National Railways, Montreal. The elevation shown is of the new University Street side. Tower and buildings in rear show how the site can be further developed.



## Architect to the GWR

Mr. Frederick F. Curtis, D.Eng., A.R.I.B.A., the new architect to the Great Western Railway Company, was until his appointment lecturer in Liverpool University School of Architecture, a post he had held since 1936. Born in 1903, he was from 1934-36 an Assistant in the Architect's Office of the Southern Railway, and an Assistant in the office of Adams, Holden and Pearson, consulting architects to the LPTB. In 1940 and 1941 he was with Alexander Gibb and Partners, engaged on the construction of Royal Ordnance factories and hostels for munitions workers. During the first half of 1942 he was Deputy to the Chief Labour Allocation Officer, Ministry of Works; from July 1942 until December 1945, he served with the R.E's, was a Staff Officer in GHQ., India Command, and was demobilised with the rank of Major.

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An a, the E tions eering of I The s as the these tembe Buildi Schem Caven payme at Ch THE FIRST EXPORT TRADE FAIR for the display of goods produced in the joint US/UK Zones of occupation in Germany will be staged in the Vereinigte Leichmetall Werke factory at Laatzen, Hanover, from August 18 to September 7. The Fair will be housed in four large buildings with a total covered area of approximately 24,000 square metres. Among the exhibits will be electrical machinery and equipment and electrical domestic appliances, mechanical and optical instruments and equipment, light metal products and hardware, building machinery, textiles and clothing, ceramics, glass and woodware, leather goods, plastic and rubber products. UK firms wishing to visit the fair should write to the Board of Trade, German Division, I.C. House, Miltbank, S.W.1.

The Exhibition of SWISS PLANNING and Building shown at the RIBA last Autumn is now in Copenhagen. Mr. Furrer, the Architect of the Exhibition, has written to the RIBA saying that it has been very enthus: astically received there.

The North of Scotland Hydro-Electric Board has announced schemes for the distribution of ELECTRI-CITY in the Ullapool District of Ross-shire and the Islands of Livis, Islay and Shetland. In approving these schemes the Electricity Commissioners have said they will give financial sanction for partial developments in the first place. This will permit the Board to proceed with a first stage of each scheme. The scheme for the Island of Lewis will eventually cover the whole Island, and the Board propose to go ahead with a first instalment covering the Eye Peninsula and North Tolsta. In Shetland it is proposed as a first step to extend the Board's distribution line across the mainland from Lerwick to Scalloway. In Islay the Board has bought a small diesel engine power station at Bowmore from the Air Ministry, and it is proposed to provide supplies in the first place from Bridgend in the one direction to Port Ellen in the other. At Ullapool the existing small generating station has been acquired. Diesel engine generating plant of increased capacity will be installed to give better supplies in the village and to provide for any local industries. The Board is anxious to extend supplies to the full in all four Schemes, and this will be done as soon as financial authority can be obtained and the shortage of materials overcome.

An agreement has been made between the Employers and Operatives Federations in the Building and Civil Engineering Industries for payment in respect of PUBLIC HOLIDATS. The scheme, based on the same principles as the Annual Holiday Scheme applying in these Industries, comes into force on September 1, and will be administered by the Building and Civil Engineering Holidays Scheme Management, Ltd., 82, New Cavendish Street, London, W.1. The first payments under the scheme will be made at Christmas.

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# INCENTIVES IN THE INDUSTRY

WE have already drawn attention to the dearth of information available about the cost of building. The Minister of Supply congratulates the manufac-

turers of materials and components on their increased output without inviting attention to the very considerable increases in price which are all too plain to the buyer. The Minister of Works regards the decline in operatives' output as not proven, although most contractors maintain that it is roughly half the 1939 figure. While Ministers may provide selected facets of the truth and add a judicious mixture of wishful thinking, almost everyone else even remotely connected with the building industry will agree that costs are far too high and that the work is done far too slowly. In the absence of published figures these opinions are difficult to prove, but they are almost universally held, and they cannot be put down to the mere grumblings of frustration. Material shortages have a great deal to do with low output, and until such time as fuel and raw materials are in free supply long and costly delays on the site are bound to be inevitable. When bricks for two days are on the site no bricklayer can be expected to maintain full output and work himself out of a job, but the low rate tends to become the maximum rate as well, irrespective of the supply position.

Eighteen months ago the building trade craftsmen received an extra sixpence an hour, the Unions maintaining that output would be correspondingly increased. Six months ago a further demand was made, and was turned down by the employers, whose decision was upheld at the subsequent arbitration.

The wage rates of operatives are not the primary concern of the JOURNAL, but the building industry, like peace, is indivisible, and there are signs that costs are rapidly rising to a figure which the public cannot be expected to pay. Even in America, where the backlog of housing and other work is probably greater than our own, a recent survey shows that the dollar volume of work in progress has dropped by 40 per cent. in the last 12 months, simply because prices have gone beyond even the capacity of the flat speculator, and New York has 20,000 unemployed craftsmen, although the rate for those still working remains as high as \$2.50 an hour.

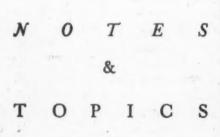
The JOURNAL would be the last to suggest that operatives should carry the whole burden of reducing costs, but there is no reason why some form of production bonus should not be tried out. Payments of this kind are quite common throughout the country, even though, out of respect for regulation 56AB, they may be disguised as lodging money or travelling allowances. In effect, the gross wage bill goes up, but the cost per thousand bricks laid goes down, and the operative gets some extra money. Although the idea of piecework has always been abhorrent to the Unions, it was, in fact, quite widely practised in the 30's by the small gangs of operatives who would sub-contract the brickwork or the plumbing for the small builder who was more speculator than craftsman. 28] THE ARCHITECTS' JOURNAL for July 10, 1947

The Unions may be right in their fear that straight piecework leads to shoddy workmanship and the victimisation of the weaker brother, but we can see little objection to a basic rate in conjunction with a premium bonus system of the type so widely used in the building supply industries, and for that matter by innumerable other firms. Even with income tax at its present rate there are unlikely to be many operatives who will object to a bonus system provided that they feel it to be fair and that it is simple enough to be easily understood.

Reference has already been made in this and other journals to a cumbersome and unintelligible system evolved during the war years by the German building industry. No system based on the employment of slave labour and displaced persons would have the remotest chance of success here, nor do we suggest that an individual or group bonus system is necessarily the right answer. We do suggest, however, that the Unions and employers must find some system to provide extra incentive for extra output. The writing is already on the American wall, it can happen here, but it mustn't.



The Architects' Journal 9, 11 and 19, Queen Anne's Gate, Westminster, S.W.1 Phone : Whitehall 0611



#### GILBERT AND ALUMINIUM

After eight years' exile in Egham Eros has returned to Piccadilly Circus. The fifty-four-year-old principal boy how appropriately placed in the heart of matinée land—was hoisted on to his pedestal in pouring rain and in the presence of a distinguished gathering of LCC Councillors, Royal Academicians and flower girls, and once more he aims what Alfred Gilbert called "his missile of kindness," made of aluminium, down at the buses which circle round him.

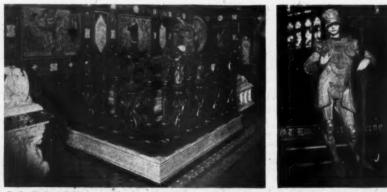
How many people, one wonders, of the thousands who pass him daily remember the man whose name and work Eros commemorates, or who was the sculptor who fashioned him, or how muddled and disgraceful were the circumstances of the whole project? "The Piccadilly fountain," Gilbert said in an interview with the Art Annual of 1903, "in no way represents my original design . . . the site, chosen for the typical reason that it is an intersection of thoroughfares, was not finally given me until the fountain was ready for erection . . . the buildings surrounding are subject to no control . . . the basin of water and the fountains, which were the main feature of the design. were never built. . . . The octagonal cistern provided by special request to store drinking water has never been filled . . . the drinking cups were stolen in the first week, and the whole affair is six feet lower than intended." As for

the dog troughs, they were an almost insoluble problem, "though I hear," added Gilbert brightening, "that dogs do occasionally lap from the basins I provided for them and return alive to the pavement." He did not mention the crippling financial losses in which Eros had involved him and which brought the bailiffs into his Maida Vale home the very day of his inaugural lecture as Professor of Sculpture at the Royal Academy.

It was in this same house in Maida Vale that Gilbert worked on the Clarence tomb. During parties it was kept reverently screened from view. "One could not have been inclined to mirth," says the Art Annual, " in the shadow of so solemn a work." The photographs below, reproduced by permission of the Ministry of Works, illustrate this remarkable and insufficiently well - known example of Gilbert's virtuosity as sculptor and craftsman. In the tiny figure of St. George the hands and face are of ivory, the sword of steel and the kneecaps of bronze, the armour of aluminium - almost as complicated as an aeroplane engine. How amused and interested Gilbert would have been to know that Angelo Colarossi, whom he employed as the model for Eros, is now, at 72, working in an aircraft assembly shop at Feltham.

#### SMARTER RAILWAYS

A few days ago a small nephew showed me a perspective of the proposed new colour scheme for locomotives which is to be used for the nationalised British railways. Frames and wheels will be black, also the front bit of the boiler where the steam comes



Left, Duke of Clarence Tomb, Albert Memorial Chapel, Windsor Castle. Right, Statuette of St. George in Aluminium and Ivory on the Clarence Tomb. See Astragal's note.

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Rotating "Spider" for neckties. See Astragal's note.

out (smoke box to you), with a pillarbox red for the rest; BR, with a coat of arms in yellow, on the tender.

Just now, of course, all railway stock seems to be one shade or another of black, and you can't really tell what line you're travelling on unless you go and give the engine a good rub with a well-licked thumb. While I shall regret the passing of the distinguished GW green, on which I was brought up, ·I suppose that some degree of brightness will be very welcome. It struck me that pillar-box red was a faintly surprising choice, as its brilliance dulls all too quickly under grease and soot. Then I noticed that for some unfathomable reason the new colour scheme has been prepared by the Postdepartment, who master-General's naturally only knows two colours when it comes to paintwork, whatever tasty pastel shades they may find for our stamps.

But why the PMG—even if he is a major railway customer? This seems just another of the many faits accomplis where one can only shrug one's shoulders and think that it all might have been worse.

#### JAMES LAVER, PLEASE NOTE

Depending on habit, temperament, mood and the lateness of the hour, various means of putting away a necktie suggest themselves.

One might meticulously fold it, insert it in a press, hang it over the dressing table, dangle it on the gas bracket, throw it in a drawer, stuff it in a vase, lose it amidst a pile of underclothes. Only men with wives and officers with batmen ever find it the morning after.

Now America produces the answer. A neat little, cute little gadget in plastic, ideal for the Methodical Person, tired business men, bucks, gallants and beaux. A "spider" that may be rotated, fixed to a wall bracket, and is designed purely and simply to accommodate a maximum of sixteen neckties.

#### EUROPE-TARGET AREA

Lost Treasures of Europe (Batsford. 30s.) is a grand tour of Europe, and all in the past. With its 450 plates, representing major monuments of every major phase of European art (Spain excepted) from the Roman onwards, this is the kind of picture book one would have looked at ten years ago on a winter's evening, wondering how many of these great sights could be crammed into the next summer trip abroad. Now you will see none as they are pictured here, our Aunt Sallys of yesterday, neither the spires of Saint-Lô, nor the magic toy cathedrals of Novgorod, neither the high baroque of Munich nor that of Naples, neither medieval Danzig, nor top-heavy medieval Lisieux, nor the Romanesque churches on the Rhine.

"The spectacle of man's destructive fury against himself and his achievements lies spread before us," says Professor De Wald in his introduction. Here is part of the cost of victory and part of the price of defeat.

Several bouquets are ordered. One to Professor De Wald, who, with disarming modesty, claims that no American can share the European's sense of loss before this spectacle. He shows himself still a better European than most in this as in his work in Austria and Italy during the war. Another to Henry La Farge and his team, who has collated mountains of reports, rummaged through the world for the photographs, and commented with both learning and understanding. A third for Messrs. Batsford for another grand picture-book and no cause to grumble at the price.

ASTRAGAL



# LETTERS

Viscount Hailsham P.C.

E. V. Penn, M.A., (General Secretary, Association of Building Technicians)

7. Tyrwhitt

#### Professional Classes : An Appeal

An Appear Sir,—I write as President of the Professional Classes Aid Council, to ask the courtesy of your columns, in the hope that your readers will give us any help in their power to augment our funds. The Annual Report for the year ended March 31 shows the wide field covered by

The Annual Report for the year ended March 31 shows the wide field covered by our work, such as by annual grants to the elderly and infirm and others left without means, by grants to young people for the purpose of their education and training and general help for specific needs.

In these days of difficulty, the high cost of living and other hardships continue to fall particularly heavily on members of the professional classes and their dependants, whose incomes, generally speaking, have remained stationary. Expenditure on relief amounted to £10,350

Expenditure on relief amounted to £10,350 (11 months) compared with £9,551 in the previous year (12 months). The number of families helped during this period was 247 compared with 213 during the latter. A large number were advised of appropriate sources of help. The number of new applicants accepted for aid during the year was nearly double that of the previous one. There is anxiety for the future owing to the

There is anxiety for the future owing to the reduction of income from converted investments and the lower rate of interest available.

The Professional Classes Aid Council is made up of representatives of most of the recognized professional funds. Included in this are the Royal Institute of British Architects and the Architectural Association. Any subscriptions or donations which your readers may be able to give should be addressed to me as President, the Rt. Hon. Viscount Hailsham, P.C., at the Council's offices, 20, Campden Hill Square, London, W.8.

Details of the work will be gladly given to any enquirers. London HAILSHAM

#### Salaries

SIR,—Mr. John H. Jones raises an issue of personal importance to salaried architects. The ABT has every sympathy with the point of view put forward; the weekly array of salaries offered to qualified architects, engineers and surveyors is sufficient proof.

We would like to inform Mr. Jones and those who feel the same way that the Association of Building Technicians includes all these professions in its membership of salaried technicians, and one of our main

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#### RUSSIAN STUDENTS' WORK









Most of the larger cities of the Soviet Union boast of an architectural institute ; chief among them are those at Moscow, Leningrad, Kharkov, Kiev, Riga, Lvov and Odessa. At the Moscow Architectural Institute a teaching staff of some 250, including two Academicians and 30 professors, contrive to expound Soviet principles of architecture to more than a thousand students. Their sixyear course embraces drawing, the graphic arts, sculpture, construction, design and materials together with practical training in offices, on construction jobs and the restoration of historical monuments. In the sixth year the course culminates in a graduation project.

Top : Main elevation of a project for a harbour station building in Riga designed by Oleg Rusakov, who received an honorary mention and a prize from the State Examination Commission. Left top : the Moscow Architectural Institute ; left middle : Soviet students at work ; left bottom : Soviet girl student expounding her graduation thesis. Right bottom : interior of a project for a sea harbour station in Odessa. This received an honorary mention and a prize.



jobs is to fight for the improvement of their status and salaries. We are constantly in negotiation with private firms, local authorities and other employers. Success comes with persistence on our part and support from the technicians themselves. We have recently issued the following salary scales which provides the basis for

our negotiations:-

#### Architects:

Architects: Grade 1: £6 per week (£312 per annum)— £12 per week (£624 per annum). Efficiency bar at £8 10s. 0d. per week (£442 per an-num). Commencing at an average age of 21, juniors engaged on tracing  $\frac{1}{2}$  in. scale draw-ings and full-size details, preparing  $\frac{1}{2}$  in. details from sketches and specifications and routine supervision, up to the efficiency bar at £442. Above the efficiency bar, assistants engaged on specifications. sketch plans. engaged on specifications, sketch plans, in scale drawings, interviewing sub-contractors, and supervision of work and iuniors

Grade II: £11 per week (£572 per annum) —£17 10s. per week (£910 per annum). Assistant architects responsible for carrying out one or more jobs under the general direction of a senior architect, section head, or of a partner. Also responsible for inter-viewing clients or committees, general cor-respondence interviewing contractors and respondence, in site supervision. interviewing contractors and

Grade III: £19 per week (£988 per annum) —upwards. Architects responsible for a branch office or a section of a large office, responsible to a higher authority on policy only. Deputies should receive not less than 75 per cent. of the salary of the Chief Architect.

We invite Mr. Jones and others to get in touch with us at 5, Ashley Place, S.W.1.

E. V. PENN, M.A., General Secretary,

Association of Building Technicians. London.

#### American Housing Problems

SIR,—Following are extracts from a letter 1 have received from Catherine Bauer, Graduate School of Design, Department of Regional Planning, Harvard University, Cambridge, Massachusetts:— "Everything is bećic as usual and control

Cambridge, Massachusetts:— "Everything is hectic as usual, and pretty depressing. We have, proportionate to population, a worse housing shortage than you have, did less about it in 1946, and the rate of production will fall off in 1947. This Republican Congress wouldn't be any worse on the question than the last Demo-ortic our but there invitient's our met cratic one, but there just isn't any real political steam on the question. Our well-known flexibility is a curse as well as a virtue. The boys who fought the war with the sole idea of getting home to live a normal family life as quickly as possible are now in furnished rooms or mother in are now in furnished rooms or mother-in-law's attics, not liking it but not blaming anybody either. We simply have not learned to expect public responsibility in *consumer* issues... only the threat of un-employment will make any dent. And if quantitative housing needs are not an issue, it's useless to expect action on more refined planning questions. Still, it's probably the bottom of the trough . . . if only because the downward building curve itself presages the end of the general boom. But how I

the end of the general boom. But how I hate to sit around like an old crow, looking hopefully for signs of disaster. "The English scene, despite all your desperate dangers and miserable crises, is the one thing that keeps up our morale at all . . since after all we usually do tag along a generation or so later. The trouble is: how much time is there? I have great faith in the longerup conscities for creative faith in the long-run capacities for creative progress of this country, but I wonder if the world is going to spare us enough time to grow up."

London

J. TYRWHITT, Association of Planning and Regional Reconstruction

Right, J Deanery on the o blend Forens School. y enem

## REI



Right, part of the east front of the Deanery, showing how the new work in the oriel window has been made to blend, with the old. Below, the Forens Gate, adjoining King's School, which was totally destroyed by enemy action in June, 1942,

REBUILDING

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# CANTERBURY

BY HAROLD ANDERSON

The buildings in the Precincts were extensively damaged during the raids in 1940 and 1942. The Cathedral itself escaped with minor injuries, but the Library, on the north side, was demolished. The 14th century Forens Gate, adjoining King's School, was totally destroyed in June, 1942, and as at that time there were no records of any kind available, it was necessary, in order to prepare plans for rebuilding, to piece together fragments of masonry, and make an extremely accurate survey of those portions remaining. Adjacent parts of King's School were badly damaged, but these have also been reinstated. As far as possible, the original masonry was used in the reconstruction for arch mouldings, cornices, and quoins, but where these were damaged beyond repair, skilled craftsmen have made reproduction mouldings.

The Deanery and No. 29, The Precincts (home of the Archdeacon of Canterbury) were clad in 19th century stucco work before war damage, but when this was stripped Right, the west front of the Deanery from the Dean's garden.

off it was found that both buildings possessed features of considerable architectural merit. The rebuilding of the Deanery, so far as the western façade and part of the east front are concerned, has been carried out in 2-in. bricks. many of which are the original ones used by Dean Godwin in his reconstruction of the Deanery in 1570. The brickwork is interspersed with flint and stone, a characteristic feature of East Kent architecture. At the back of the fireplace in the first floor drawing room, a 15th century stone fire surround was uncovered, but as it was considered to be out of keeping with the character of the room, the Adam fireplace was replaced. No. 29, The Precincts, originally

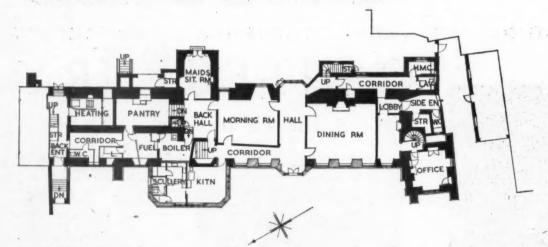
No. 29, The Precincts, originally built by Prior Chillenden in about 1400, was damaged in September,





[Scale : #"-1'0"]

THE DEANERY, WESTERN ELEVATION AS EXISTING PRIOR TO WAR DAMAGE



[Scale: 4" =1'0'] THE DEANERY, GROUND FLOOR PLAN AS REBUILT

CANTERBURY: REBUILDING IN THE CATHEDRAL

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Right, the South front of No. 29, The Precincts, from the Archdeacon's Garden. Below, No. 29, The Precincts, immediately after being war damaged. Bottom right, when the stucco work was stripped these two 14th century oak window frames were exposed. They have now been glazed.



1940, and June, 1942. On stripping the stucco work, fine oak halftimbering was revealed, on to which lathing had been nailed to form a key for the plaster work. Two small oak window frames were also uncovered, which have been reglazed. All the woodwork has now been exposed.

It is proposed to carry the flue from the new heating chamber up with the stack of No. 29a, The Precincts (which has yet to be rebuilt) to avoid an unsightly isolated stack in the immediate vicinity of the Cathedral. This heating chamber, which is to replace the old system destroyed during the air attacks, will provide central heating throughout the Cathedral, and will be entirely below ground level.

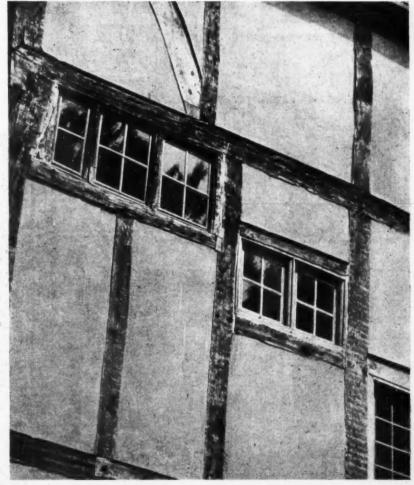
These three buildings in the Precincts constitute a step towards the rebuilding of Canterbury in which the skill and æsthetic judgment of the architect has been put to a severe test.

Extensive restoration work was carried out in The Precincts shortly before the war by Messrs. Seely and Paget.

BY HAROLD

ANDERSON

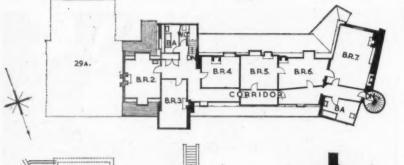


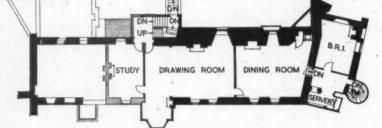


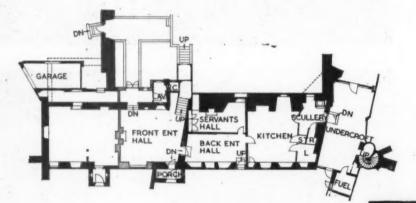
PRECINCTS : BY

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Bottom, two views in the garden room at No. 29, The Precincts. The fire surround is constructed of 2-in. Tudor bricks.



No. 29, THE PRECINCTS, CANTERBURY, GROUND, FIRST AND SECOND FLOOR PLANS AS REBUILT. [Scale : 1/"=1"0"]

CANTERBURY: REBUILDING IN THE CATHEDRAL PRECINCTS

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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 Except where inverted cover. commas are used, the reports are summaries, and not verbatim.

#### HC

#### Harris H

July 1. At the Housing Centre, 13, Suffolk Street, S.W.1. A lecture by H. C. Harris, Technical Adviser to the Lead Industries Development Council, ON PLUMBING AND FROST PRECAUTIONS.

H. C. Harris : When water in a pipe freezes the ex-H. C. Harris ; when water in a pipe freezes the expansion due to ice formation must be accommodated in one or perhaps a combination of three ways. First, by the water being able to move without restriction along the pipe (such as back into the main); secondly, by expansion of the pipe; thirdly, by fracture of the pipe with perhaps an immediate escape of water. It has been found that not infrequently in practice water service and distribution of the pipes will freeze without any distortion of the pipe in an unrestricted manner to accommodate the expansion. The conditions which give rise to trouble are where freezing water is trapped between closed taps

which give rise to trouble are where freez-ing water is trapped between closed taps on stopcocks or between a tap or stopcock and an immovable ice plug. From time to time different pipe materials have been suggested as being re-sistant to the effect of freezing up. Whilst it has been accepted that no such com-pletely resistant material in a practical form is available, it has been suggested that materials of different mechanical properties might behave differently, and a material might be found which, although not elimi-nating all danger, would mitigate the nating all danger, would mitigate the trouble by withstanding a larger number of freezings under totally confined conditions.

Regarding the relative merits of different the mechanical properties of the materials above and below the freezing tests under various conditions has been carried out. The materials tested included lead, various

lead alloys in which the alloying constituents were such as to vary the mechanical properties of the lead considerably, and hard and soft copper.

Tests at temperatures between plus 20 deg. C. and minus 20 deg. C. showed that variation in properties between the upper and lower limits of this temperature range was not sufficiently great to alter the character of the material. Further tests were carried out with loaded pipes totally immersed to obtain uniform freezing con-ditions by simultaneous freezing. Under ditions by simultaneous freezing. Under such conditions the number of freezings re-quired to produce failure depended upon the ducility of the pipe material. Thus whilst hard metals failed at one freezing, lead and lead alloy expanded on successive freezings and withstood four to six freez-ings depending on the ductility of the metal, and to a lesser degree on the dimensions of the pipe. Expansion of lead nine without and to a lesser degree on the dimensions of the pipe. Expansion of lead pipe without actual failure does, of course, happen con-stantly in practice. However, it must be recognised that the reduction in the inci-dence of burst pipes by virtue of the ability of lead pipes to expand on freezing only modifies slightly the severity of the trouble. Experiments showed that the conditions of freezing can modify the behaviour of the pipe. It is clearly difficult to ensure that uniform freezing occurs in practice. If there is any difference in temperature along the length, freezing will start at one end and proceed along the pipe, and the maxi-mum expansion will occur at the end of the pipe in which the water is last to freeze. Even the ductility of lead pipe may be in-sufficient to prevent a burst under such conditions. conditions

systems against freezing has received all too little consideration in the past. Protection little consideration in the past. Protection can be provided by planning and by insula-tion. The plan of the building may be such as to lend itself to the secure and economic planning of the water supply sys-tem without the use of insulation, but nor-mally even a well-planned system will call for some degree of insulation. The entire system should be designed so that it can be completely emptied. Special draw-off points should be provided where the stopcocks or the taps on fittings will not serve for emptyshould be provided where the stopcocks or the taps on fittings will not serve for empty-ing the system. The service pipe should, if possible, enter the building at the level at which it is buried in the ground, and rise at a convenient place within the building, away from the external wall and preferably close to an internal chimney stack. Branch pipes should be attached to, but if possible fixed clear of, the internal face of the wall. so that they are exposed to the warmth of fixed clear of, the internal face of the wall. so that they are exposed to the warmth of the house. Cold draughts are a common cause of the freezing of pipes. Where a pipe, passing vertically up an external wall, enters the roof space, it is often exposed to draughts at the eaves. Preferably, pipes should be kept away from the eaves, but, in any case, all pipes in the roof space should be lagged along their entire length. It is much more important to protect the pipes in the roof space than the storage tank, because frost is much more likely to cause fractures in small pipes than in comparafractures in small pipes than in comparatively large cisterns."

tively large cisterns." There have been several plumbing units introduced in which pipework is concen-trated into a space inside the dwelling, the best known unit being that used by the Ministry of Works for temporary buildings. From the point of view of frost precautions such units must be considered to afford a real advancement over the old haphazard way of installing plumbing so commonly met with in small housing. With proper forethought, however, there is no reason why much the same concentration of pipe-work should not be achieved with more traditional methods of plumbing and avoid the undue restriction on planning arrangethe undue restriction on planning arrange-ments which the plumbing unit is apt to impose.

#### HC

## Dr. Marian Bowley

June 17. At the Housing Centre, 13, Suffolk Street, Haymarket, S.W.1. A talk by Dr. Marian Bowley on THE ECONOMIC ASPECT OF HOUSING.

Most Dr. Marian Bowley : people take an exaggerated view of the present housing shortage. It is true that there are not enough houses, but the shortage is not not enough houses, but the shortage is not as serious as it has been at various times in the past. It is probable that the actual demand for new houses to replace those destroyed during the war and to meet the needs caused by the creation of new family units up to and including 1947 is about 700,000. Two years after the end of the first world war the number stood at 8-900,000. It is not the absolute size of the shortage which is the really serious problem, but whether it could be over-come and how fast or how slowly this will be done. be done.

At the end of 1946 there were 11 million At the end of 1940 there were rainform men in the building and civil engineering industry. In 1924 (longer after the end of the first world war) there had been a million men in the building industry and some 200,000 in the civil engineering indussome 200,000 in the civil engineering indus-try. The supply of men is therefore better now than at the time of the previous housing shortage, but there was some dis-content in the industry about earnings, and it does not now appear to be a particularly attractive industry to enter. In the thirties building workers were among the highest earners in the country. This was partly due to the fact that over a great part of the industry contractors were building for private persons or acting as speculative private persons or acting as speculative builders and introduced payment by results. This had the effect of putting up earnings above the standard trade union Looking at the situation to day the position is difficult. Actual rates of wages have not increased more than in other comparable industries, though the industry has certain slight advantages. The advantage which building operatives used to gain by piece-work or bonus rates had very largely dis-appeared, and so the relatively attractive nature of the industry has fallen considerably.

ably. It is necessary to decide what proportion of our building resources are to be used for new building and for other purposes. We have started too many houses for the labour force and materials available. The result is that many of these houses have been carried over to this year. We began this year with 204,000 houses started and not completed. A great number of these are in a very elementary state, and the greater proportion of work on them still has to be done. Under the current programme, houses started last year are to be finished, and in addition 36.000 new houses are to be built and a further 204,000 started for completion next year. 204,000 started for completion next year.

204,000 started for completion next year. Economists would say the programme is too large. It should be cut down in the interests of getting houses completed to enable something to be done about dealing with the long-term problem of the slums and to prevent absurdly inflated costs. Alternatively, they would say that an attempt is being made to build bigger and better houses than ever before at a time when resources are shorter than ever before. We are now building three-bedroomed houses. This is to a large extent unneces-sary. The people most urgently in need of homes are newly married people with one or two children. By all standards, families of this size can be housed satisfactorily in two-bedroomed houses.

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Right, the terrace. Below. the living room looking towards the entrance door.



# MINIMUM HOUSSELES, CALIFORNIA DESIGNED BY GORDON DRAKE

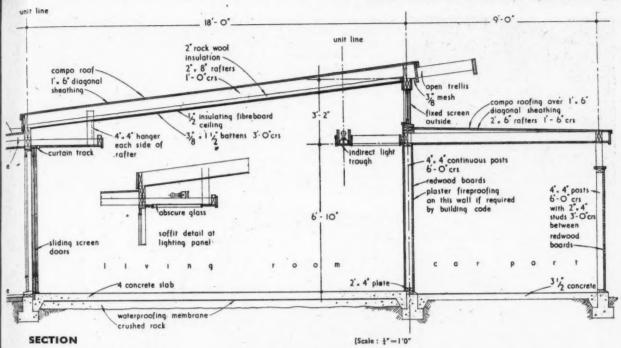
This design, built of timber for its architect's own use was one of the winners in *Progressive Architecture's* competition for the best buildings erected during 1946. The four winning designs were published in our issue for-June 12. The house, including terrace, lilypond, and built-in features cost only 4,500 dollars, while the furniture required amounted to only 300 dollars.

The site consists of three small inexpensive lots in a wooded canyon to the west of Los Angeles. The space for building was obtained by excavating a flat area back to a rocky cliff. Three oak trees on the property were retained. Since the property offered no advantages as far as view was concerned, the house was turned in towards a small terraced garden serving as an extension of the interior space. Every attempt has been made to do away with any feeling of enclosure or smallness.

On the side of the house facing the road a continuous band of glass

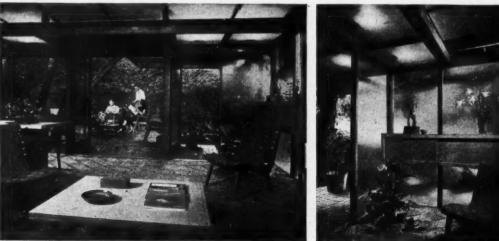


Right, seen fri proach car par left. the list looking the terr right, th door living



Right, the house seen from the approach road, the car park is on the left. Below left, the living room looking towards the terrace. Below right, the entrance door from the living room.

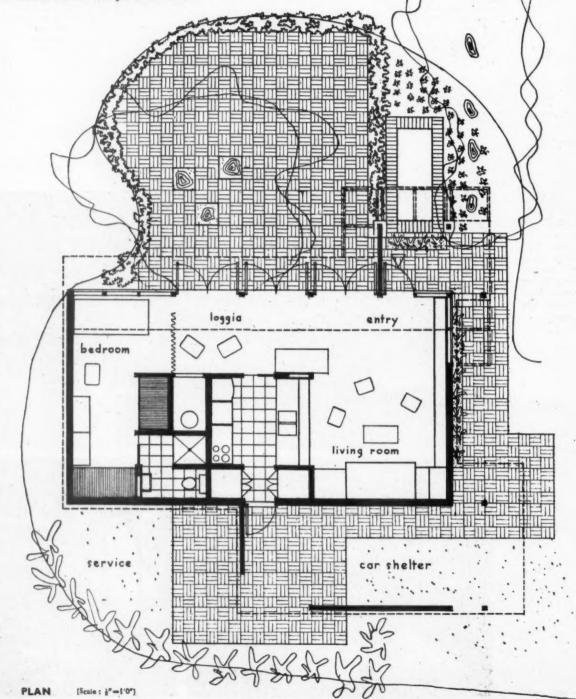






The entrance corner seen from the terrace.

above eye level lets in light and sunshine and allows a glimpse of sky and tree tops while maintaining complete privacy. The mechanical elements are grouped in one area for economy. Lighting is incorporated in the structure through the use of illuminated translucent glass panels in dropped soffits and an indirect lighting trough forming part of an interior trellis over the living room couch. Direct light for reading is from adjustable gooseneck lighting fixtures on the walls.



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The entrance door seen across the lily .pool.

MINIMUM HOUSE, LOS ANGELES

## TECHNICAL SECTION

The function of this feature is to supply a digest of, and commentary on, current information of interest to architects as recorded in technical publications and statements of every kind throughout the world. Items are prepared by specialists of the highest authority who are not on the permanent staff of the Journal, and views expressed are disinterested and objective. Items are printed on one side of the paper only to permit of cutting out and pasting up in classified order in readers' files. The Editors welcome information on all developments from any source.

#### INFORMATION CENTRE

To enable items to be filed all information is classified under the following headings:

18 Classified under the following negatings: 1 SOCIOLOGY. 2 PLANNING : General. 3 PLAN-NING : Regional and National. 4 PLANNING: Urban and Rural. 5 PLANNING : Public Utilities. 6 PLAN-NING : Social and Recreational. 7 PRACTICE. 8 SURVEYING, SPECIFICATION. 9 DESIGN : General. 10 DESIGN : Building Types, 11 MATER-IALS: Timber. 14 MATERIALS: Metal. 13 MATER-IALS: Timber. 14 MATERIALS: Concrete. 15 MAT-ERIALS : Miscellaneous. 17 CONSTRUCTION : General. 18 CONSTRUCTION : Theory. 19 CON-STRUCTION : Details. 20 CONSTRUCTION : Miscellaneous. 22 SOUD INSULATION, 26 SERVICES, 23 HEATING, VENTILATION. 24 LIGHTING, 23 HEATING, VENTILATION. 26 SERVICES, EQUIPMENT : MISCELLANEOUS.

#### 4.12 planning: urban and rural FARMERS AND NEW TOWNS

Farmers and the New Towns. Wilfred Roberts, M.P. (Town and Country Planning, Spring 1947, pp. 10-13.)

Reaction of farmers against building development. Advantages of publicly stated objections at local inquiries under New Towns Act, Extent of farmland involved in connection with New Towns in Greater London Plan. Inadequacy of compensation payable to owner-occupiers and tenant farmers in view of re-establishment difficulties. Scarcity of new farms. Recognition by National Farmers' Union of advantage of careful New Town planning over damage to agriculture through previous haphazard developments.

#### 10.9 design: building types HOUSING STANDARDS

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Report of the Standards of Fitness for Habitation Sub-Committee of the Central Housing Advisory Committee. Ministry of Health. (HMSO, 1946, 2d.)

Background of inquiry-into standards of fitness. Previous statutory definitions. Need for further guidance. Recommended standards. Suggested amendment of Housing Act, 1936. Interpretation of term "reasonable expense."

This report is based on an inquiry undertaken by a Committee appointed in January, 1945, to consider what guidance could be given to local authorities as to standards of fitness for habitation within the terms of the existing Housing Acts. It is stated that the present housing law as contained in the Housing Act, 1936, nowhere lays down any definite standard of fitness for human habitation, that it only gives local authorities certain powers in relation to individual unfit houses, and that there is a definite need for establishing a recognised standard setting out what is required if an existing house is to be regarded as satisfactory. The Committee's recommended standard is

The Committee's recommended standard is contained in a detailed list of 16 items which are considered to be essential to comfortable domestic life and to represent a satisfactory target for the improvement of houses which are structurally adaptable and have a good expectation of life. This standard instead of merely serving for guidance should be prescribed by law as a minimum. The Housing Act, 1936, should be amended accordingly, laying down that any house falling below the minimum standard be regarded as unfit for human habitation. The final section of the report deals with the Committee's views on the interpretation of the term " reasonable expense" as contained in Sections 9 and 11 of the Housing Act, 1936, relating to the powers of local

The final section of the report deals with the Committee's views on the interpretation of the term "reasonable expense" as contained in Sections 9 and 11 of the Housing Act, 1936, relating to the powers of local authorities to require the repair or the demolition of an insanitary house. It is suggested that it is undesirable to attempt to lay down any hard and fast rule. What is reasonable expenditure is likely to vary according to the supply and cost of new houses and the availability of materials.

#### 15.8 materials : applied finishes and treatments MILDEW AND PAINT

Mildew and Paint. Extracts from Paper by R. C. Harnden, US National Paint, Varnish and Lacquer Association. (The Decorator, April, 1947, pp. 43 and 68.)

Nature of mildew, conditions favouring growth; paint films which support mildew; tests for fungicides; consideration of water paints; the problem of storage.

A brief explanation of the factors underlying the problem. Some general recommendations on choice of paint and treatment of surface to avoid mildew.

#### 18.5 construction : theory STRUCTURAL DESIGN IN ALUMINIUM

Handbook of Structural Design in the Aluminium Alloys. J. E. Temple. (James Booth & Company Limited, Birmingham 7.) Published at one guinea, but complimentary copies available to architects and engineers.

General properties of most suitable alloys. Data and recommendations for structural design. This book is written for engineers already experienced in the design of steel structures, with emphasis on those questions in which practice might be expected to differ as between the use of aluminium alloys and steel.

At a time when steel is in short supply, whereas aluminium alloys are easily obtainable, it is a natural tendency to try to replace the former by the latter. This, however, requires far more mental effort than the mere substitution of one material for another, since the different properties of aluminium necessitate certain changes in the design. Designers attempting to introduce aluminium in their structures have so far been in a very difficult position, since no textbook on this subject was available. The present publication will be of great help. It remains to be seen whether the expectation expressed in the foreword, that the relative cost of aluminium and steel structures

It remains to be seen whether the expectation expressed in the foreword, that the relative cost of aluminium and steel structures erected will be close to two to one, will in fact be realized. In the present national emergency there are many cases in which the time factor is far more important than cost, and where the application of aluminium alloys would enable factories to commence production many months earlier than if the supply of steel had to be awaited. Architects should, therefore, consider the application of aluminium alloys in such cases.

#### 19.22 construction : details PILED FOUNDATION

Welded Steel Piles Support 26-storey Skyscraper in Back Bay Area of Boston. (Civil Engineering [USA], March, 1947, pp. 15-19.) 1,637 steel H-piles driven to 155 ft. below surface support 10 ft. thick reinforced concrete raft over an area of 62,500 sq. ft. serving as foundation for steel framework of building. Many piles welded on site from shorter lengths. On 14 in. 117 lb./ft. piles 90 tons were permitted.

## 21.6 construction : miscellaneous ROADS

Secondary Roads Paved With Soil Cement. (Engineering News-Record [USA], April 3, 1947, pp. 64-67.)

Secondary roads in North Carolina constructed with a 6-in. thick soil-cement base, followed by bituminous surface treatment or addition of a top of sand asphalt. New machine mixes soil and cement for the full depth of the base in a single passage. Cost varies from \$0.95 to \$1.41 per sq. yd.

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#### 22.10 sound insulation and acoustics ACOUSTIC SPLAYS

Convex Wood Splays for Broadcast and Motion Picture Studios. M. Rettinger. (J. Acoustical Soc. Am., March, 1947, p. 343.)

Use and misuse of wood splays; theoretical and practical results with curved splays on walls and ceiling. Interesting and useful; 2 illus.

It is pointed out that splays increase the surface area in a room and thereby increase the number of reflections of sound per second. This increases the diffusion and assists a smooth decay of sound. The use of too large a number of splays decreases reverberation at low frequencies (by enhanced absorption), and when the reverberation curve drops at the lower end, voices are said to have an unnatural ring and music lacks body. Installation of pillars round an orchestra was also said to have caused music to lack definition, or to sound enshrouded in an acoustic fog. The conclusion is reached that occasional curved splays are In a changing world

> An early nineteenth century stage coach, still in daily use at Chessington Zoo.

# **Timber endures**

ORTHAMPTON

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"Thus we may gather the necessity of a more than ordinary knowledge requisite in them that deal in timber, to study their art well; nor is it a small stock of philosophy." John Evelyn, in the 17th century, wrote those words recognising the vast and diverse uses of wood for decorative and structural purposes. And to-day's designers and craftsmen have at their command a far wider choice of timber than ever before . . . . including hardwoods and veneers from all over the world, water resistant plywood (flat, shaped or metal faced) and the advantages inherent in modern kiln drying, fireproofing, etc.

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THE ARCHITECTS' JOURNAL for July 10, 1947

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desira room wall a are m other This The f use of 2. W SU fc 3. R 4. D fli in In th splays have desira curves The The p audito tects archit

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desirable, and illustrations of a successful room suggest that about one-quarter of the wall and ceiling is thus covered. The splays are made of wood, and it is stated that no other material had such satisfactory results. This is attributed to its non-homogeneity. The following criteria are laid down for the use of splays;

- 3
- Reverberation curve reasonably smooth. Decay curve for music to have no large 4. fluctuations. (In speech rooms an initial drop favours intelligibility.) In the studios illustrated the space between fluctuations.

splays has sound-absorbent tiles. It might have been expected this would cause an un-desirable drop at high frequencies, but no

curves are shown. The use of splays is not limited to studios. The principles have a general application in auditoria and should be studied by archi-tects with a view to developing suitable architectural treatment.

## 23.30 heating and ventilation PRINCIPLES OF INSULATION

The Use of Heat Insulation in Building Design and Construction, Professor E. A. Allcut. (J. Royal Architectural Institute of Canada, March, 1947.)

Discussion of heat insulation under four headings:-(a) The Problem. (b) Materials. (c) Infiltration. (d) Application, Clear and valuable. Eleven-page paper on subject of considerable general interest. Bibliography of 41 items

This article by the Professor of Engineering, University of Toronto, is an unusually clear explanation of some of the theory of heat insulation together with a collection of interesting and valuable facts.

Commencing with a general presentation of the case for more insulation as applying to Canadian conditions it then describes very clearly the mechanism of heat flow and explains the essential requirements of heat insulators.

The differing requirements for buildings heated intermittently and continuously are described and the importance of considering heat capacity is then explained. Specific

Heat losses are referred to. Heat losses are divided into "avoidable" and "unavoidable" and it is argued that this reduces possible savings by insulation to from 28 to 42 per cent.

from 28 to 42 per cent. The section dealing with materials empha-sizes the importance of ascertaining pre-cisely how test results are obtained and describes laboratory test methods. At the same time the lack of standardisation of such test methods is deplored. The author has carried out investigations into the properties of materials which affect insulation value and has a good deal to say on the subject of internal convection and on the liabilities of some materials to absorb water The latter point raises the question vapour. of the use of water vapour barriers which of the use of water vapour barriers which are now in common use in Canada and USA. The effect of width of air spaces in cavity construction is discussed and the value of filling such spaces with lightweight materials is mentioned. The use of reflec-tive insulators is described and some values given given.

The section on infiltration deals with the use of sheathing papers. The final section on Application is interest-

ing but relates rather specifically to Canadian conditions.

The Bibliography is of interest as it con-tains a fairly full list of Canadian references which are not well known in this country.



Ceiling louvre system. See 24.28

# 24.28 lighting LOUVRE CEILING LIGHTING

Slimline Fluorescent Lighting Installation. (Lighting and Lamps [USA], April, 1947, p. 56.)

Dimensions of ceiling louvre system; arrangement of lamps. Interesting, illus. 5 photos.

Louvre ceilings, particularly of the "egg-crate" type seem to be fashionable in the USA. We have little or no experience of them for artificial lighting in this country, but there is no reason to doubt that they are fundamentally sound and architectur-ally interesting. This article describes an ally interesting. This article describes an installation in Chicago, and gives the following details. The grille consists of solid aluminium strips  $\frac{1}{2}$  in x 6 in., spaced 22 $\frac{1}{2}$  in. attained and the second secon the strips key into one another. The tops of the strips are 5 in. below the ceiling, and the ceiling height is 16 ft. 6 in. The arrange-ment provides cut off angles of  $38\frac{1}{8}^{\circ}$  and 20°

The lamps are held in fixtures let into the ceiling with the centre-lines of the lamps 4 in. above the strips. The lines of lamps occur at 224 in., to match the louvres in one direction. The intensity on the work-ing plane is 35 foot-candles.

The area of the office (which is a ticket office for an air-line) is over 50 ft. in each direction, and the louvre ceiling extends outside the main window to form a canopy. The illustrations suggest that the installa-tion gives attractive lighting. In this case, probably no expense was spared, and there appears to be scope for ingenuity in working out less expensive treatments.

## 25.22 water supply and sanitation BALL VALVES

Ball Valves ("Portsmouth Type.") BS. 1212:1946. (British Standards Institution, April, 1947, 3s. 6d.)

Standardises range of 7 ball valves from 3/8 in. to 2 in. nominal size. Close control of dimensions to ensure interchangeability of parts.

The "Portsmouth" type of ball valve to which this Standard refers has a horizontal action, and is the most usually fitted in domestic work. The standard sizes are  $\frac{3}{4}$  in.,  $\frac{1}{2}$  in.,  $\frac{1}{4}$  in.,  $1\frac{1}{2}$  in., and

TECHNICAL SECTION

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2 in., the body pattern varying according to size, and the nominal size being that corresponding with the pipe thread of the inlet shank. Detailed tables of dimensions for every component are given so as to ensure advance in plumbing technique, for replace-ments to ball valves have always been a troublesome matter owing to the variety of types in existence. Spherical copper floats and lever arms are included, and there is a table of correct float diameters and arm lengths to suit each nominal size of valve lengths to suit each nominal size of valve for high, medium, and low pressure working. Non-spherical floats are allowed, provided the "lifting effort" is not less than that of the spherical type in standard diameters from 4½ in. to 12 in. A hydraulic test of every standard valve is demanded, and there are tests for shutting-off capacity and for strength of the lever arm. An Appendix gives computed discharges in gallons per minute through standard valves at various working pressures. working pressures.

The important design feature is the adop-The important design feature is the adop-tion of removable seats, so that corrosion-resisting alloys can be used for this part, giving longer life. Also different sized orifices can be fitted to the same body to suit orifices can be fitted to the same body to suit varying conditions, and replacement of the seat is simple and cheap. Another point is insistence upon provision for a silencing pipe in all sizes of valve. This rigid speci-fication may make BS ball valves slightly more expensive, but the small additional cost will be well worth while. Presumably a standard for "Croydon" type vertically operating valves will follow. The British Watarwork Association will

The British Waterworks Association will accept valves to this Standard as complying with its provisions; the valves also comply with Model Byelaws Series XXI.

26.7 services and equipment : miscellaneous ELECTRIC FUSES

Cartridge-Fuses for Domestic Units. BS. 1361:1947. (British Standards Institution. 25.).

Cartridge Fuse-Links for Use in Plugs. BS. 1362:1947. (British Standards Institution. 25.)

Description and sizes. Methods of test.

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

# QUESTIONS ANSWERS AND

# 2901 JAM FACTORY FLOORS

Can you give me a source of informa-tion about suitable floor finishes for Q. the boiling rooms of a jam factory? These floors, which now need renewal, are sub-jected to heavy barrel traffic, as well as strong corrosive action from fruit and sugar acids

Blue-brick paving has been used, but no satisfactory jointing material has been found so far. Various concrete finishes have been so far. Various concrete tried, but all have failed.

A. You should obtain from the Building Research Station, Garston, nr. Wat-ford, Herts, a copy of Note No. 915 pub-lished in November, 1944, entitled Floors for Factories Processing Fruit or Vegetables or Using Sugar

# INDUSTRY, SOCIAL&DOMESTIC SERVICE = ALL DEPENDENCES

The call upon equipment for electrical supply is heavy and increasing. When production and maintenance resources are strained it is more than ever essential to ensure safety and freedom from trouble by installing only the best obtainable transmission material.



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In June abou Welf Cant Oxfe Bure taker the usefi kitch num steps has with Equa equip to the fish archi will and Buik cove This feature covers both the production and marketing of new materials and designs of equipment, as well as the general trend of developments within the Building Industry.

# THE INDUSTRY

# [by Philip Scholberg]

## MORE ABOUT CANTEENS

In the last instalment of these notes (June 26) there was a reference to a book about canteens published by the Industrial Welfare Society. Another one, *The Small Canteen*, has just been published by the Oxford University Press for the Empire Tea Bureau at a price of 7s. 6d. Small is here taken to mean up to 350 persons. From the architect's point of view the most useful section shows typical layouts for kitchens and subsidiary rooms for varying numbers, starting with 25 to 50, thence by steps of 50 up to 350 persons. Each layout has its appropriate equipment schedule, with dimensions of the various items. Equally useful is a list of the essential loose equipment, from crockery, cutlery and linen to the odds and ends like tin openers and fish slices. Not that it is likely to be the architect's job to order all these, but he will certainly be blamed if the cupboards and shelves and racks are inadequate. Building and equipment costs are briefly covered, and although the examples given



Christie-Tyler Armchair.

are based on 1942 to 1944 prices, they are usefully broken down into cost per person under various headings. Like *Canteens in Industry*, this book is

Like Canteens in Industry, this book is mainly for the works manager type, and it is encouraging to see right at the beginning of the planning chapter, "an architect should be called in when the site is being selected" (not my italics). Since this book is sponsored by the Empire Tea Bureau, one might well expect a certain amount of propaganda. In the chapter devoted to the organization of the tea service during breaks I could find about six lines which might be described as propaganda for tea as a drink, probably an all-world low for a book of 100 pages. There is naturally a fair amount of space devoted to the purely catering side of canteens, but the majority of it is quite useful background information. A good 7s. 6d. worth.

## KITCHEN CABINETS

With only a little difficulty most people can think of a dozen or more firms, normally associated with the aircraft industry, but now producing equipment for the small house as a means of absorbing surplus production capacity. Aluminium alloy is nearly always the material chosen, partly because it is familiar, perhaps more so because it is not controlled. Most firms start with kitchen cabinets, almost always to BS sizes, but not always at all well designed, particularly in such minor but important details as handles. One of the better efforts has been produced by Marston Excelsior, a firm which has been making crash-proof petrol tanks, radiators and other sheet work. The photograph shows a standard 42-in. wide cabinet in stove enamelled light alloy with chromium handles; 21- and 63-in. units are also made, with plain tops or sinks with single or double draining boards, and a simple superstructure is also produced 'so that the cupboards can be turned into a dresser, leaving the full area of the working top clear.

boards can be turned into a dresser, reaving the full area of the working top clear. Hotel proprietors are also using these fittings, since the 21-in. square cabinet makes an excellent bedside cabinet if it is painted to match the existing furniture, and it can also be fitted with a washbasin top and used in bedrooms or cloakrooms. This is a new idea to me, but it seems quite logical.

The same firm also makes a range of chairs, tables and bar stools for restaurants and cafes, and a range of insulated food containers. (Marston Excelsior, Ltd., Wolverhampton.)

## A SELF-ADJUSTING CHAIR

Another newcomer from the aircraft industry is the firm of Christie-Tyler, who have evolved a deck chair type of seat which appears to be extremely comfortable in use. In the years before the war a good deal of time was spent on the problem of fatigue in air crews, and it was found that seats of this type reduced fatigue very considerably, even on flights of several hours duration. The photograph shows the household version of this seat, which has now been in production for some months. The stuffed cushion is suspended from a fixed bar at the top, like a deck chair, but at the bottom it is supported by a segmental plate which is free to pivot. By sitting up straight, or by stretching out, it is therefore possible to vary the distance between the points of support of the cushion, and we thus have something which is an extra comfortable adjustable deck chair which we can alter as we wish without any getting up and fiddling with the back supports. The chair illustrated is £15 retail plus £3 17s. 9d. purchase TECHNICAL SECTION

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tax, but you can buy it now from places like Harrods without any dockets or permits. In current models the arms are padded to do away with the coldness of the light alloy frame. A three piece suite is also to be produced in a fortnight or so, with two easy chairs and a 62-inch three-seater settee. In the latter unit the three seats are of course individually adjustable so that you don't all have to sit up when your visitor does. Price for the complete suite is not yet fixed, but is expected to be somewhere between £130 and £140, including purchase tax; various 'ypes of upholstery will be standardized.

Christie-Tyler are also continuing to make seating for aircraft, buses and all forms of transport, and they tell me that seating of this type is to be used in future by the Swedish State Railways. Encouraging that the Swedes should occasionally come to this country for a piece of straight industrial design. (Christie-Tyler, Ltd., 55, Pall Mall, S.W.1 and the Trading Estate, Bridgend, Glam.).

# **CEILINGS AND PARTITIONS**

Most of us probably remember the Bricanion lathing which was available here pre 1939. It is now being reintroduced to this country, and for the benefit of those who have forgotten it consists of a 4-inch square wire mesh with a small clay cross at the intersection of each wire. The crosses give a first class key for plaster, and the fact that they are on a base of wire mesh means that curved surfaces are easy, apart from more normal uses for partitions, or for ceilings on concrete or timber joints. The lathing is supplied in rolls 3 ft. 3 in. wide and is easily cut to size; it is simple to fix and can be bent to provide a base for casing joints or columns. There is very little waste, as short lengths can be wired together. (Osborne and Partners, 7/11, High Street, Croydon).

# **ALUMINIUM PRICES**

British Aluminium have recently announced an increase in price of about 1d. per pound in most of their fabricated products: this rise has been brought about by the increase in the price of aluminium pig recently announced by the Ministry of Supply. Much has already been said about the enormous increase in production capacity during the war years and the fact that this metal is available in greater quantity and at a lower price. This is a very considerable achievement, but it should be realised that the price figure applies mainly to the raw material, and that most of the wrought forms cost more, owing to increases in the cost of production. (British Aluminium Co., Ltd., Salisbury House, London Wall, E.C.4).



Aluminium alloy working cabinet which may be fitted with plain or sink top.

The form printed below is to assist readers requiring up-to-date information on building products and services. Complete and post it to The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1, and the advertisers listed will be asked to supply information direct.

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# Announcements

The new telephone numbers of the Building

The new telephone numbers of the Building Centre, 9, Conduit Street, London, W.I, are now Mayfair 8641 to 8646. The Royal Academy School of Architec-ture is a day school for ten students who have taken a British University degree in Architecture or have passed the final exam-ination of the Royal Institute of British Architects. Qualified students may be accepted for an advanced course of training comprising an intensive study of civic archi-tecture and the preparation of designs for buildings of national importance. The course is for one year and is gratuitous. The students will compete each year for a Royal course is for one year and is gratuitous. The students will compete each year for a Royal Academy Grand Prize of £300, and a Second Prize of £150 presented by the Lord Fair-haven. Students who wish to take this course should apply to the Secretary, Royal Academy of Arts, Piccadilly, W.1, stating their age and qualifications, and should send with their application a morfolio of studies with their application a portfolio of studies and designs, on Monday or Tuesday, July 14 or 15. Selected candidates will be invited to an interview with the Director of the School.

Messrs. Cyril Kieft & Co., Ltd., an-nounce: Due to the increased production of the new K146 Deadlocking Cylinder Latch created by the heavy demand, it has Latch created by the heavy demand, it has been decided that as from July 1 prices wil! be reduced by approximately 15 per cent. The new price with bronze finish will be 14s, to the consumer and in chromium plate 14s, 10d., with the usual discount to the trade. The lock can also be supplied in a range of colours; prices on application.

Mr. E. S. W. Atherton, A.R.I.B.A., A.M.T.P.I., and Mr. B. E. Brenchley, A.R.I.B.A., A.M.T.P.I., have moved their Lon-

don office from 36, Paddington Street, W.1, to 9, Mansfield Street, Portland Place, W.1; Langham 4167-8.

All communications for Mr. J. H. C. Hofmeyr, B.ARCH.HONS. (Liverpool), A.R.I.B.A., M.I.A., AM.T.P.I., chartered architect and town planner, should in future be addressed to P.O. Box 3885, Cape Town, South Africa. Tarran Industries Ltd. are moving their London offices to 7, Warwick House Street, Cockspur Street, S.W.1. Telephone:

Cockspur Street, WHItehall 0595.

# Building S Illustrated

Canterbury: Reconstruction in the Cathedral Precincts. (Pages 31-34.) Architect, dral Precincts. (Pages 31-34.) Architect, Harold Anderson, F.R.LBAA, F.A.S. General Contractor, G. H. Denne and Son Ltd. Subcontractors: Asphalting, Val de Travers Asphalte Co, Ltd. Reinforced concrete, Kent Concrete Products Ltd. Bricks were generally re-used; new bricks by Wills and Packham Ltd. Leaded glazing, Welstead. Wood block flooring, Bennett's Wood Flooring (Tungit) Ltd. Electrical installa-tions, S. W. Bligh Ltd. Gas installations, Canterbury Gas and Water Co. Metal Casements, Welstead.

# Gorrection

On page 513 of our issue for June 19 it was announced under the King's Birthday Honours that Mr. H. M. Fairweather has been awarded the O.B.E. This is incorrect. It should have been stated that Mr. Fair-weather had been awarded the C.B.E.



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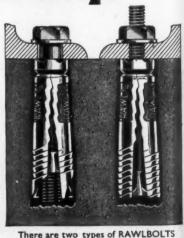
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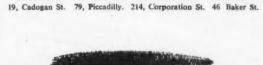
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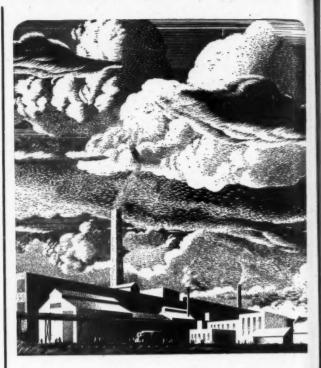
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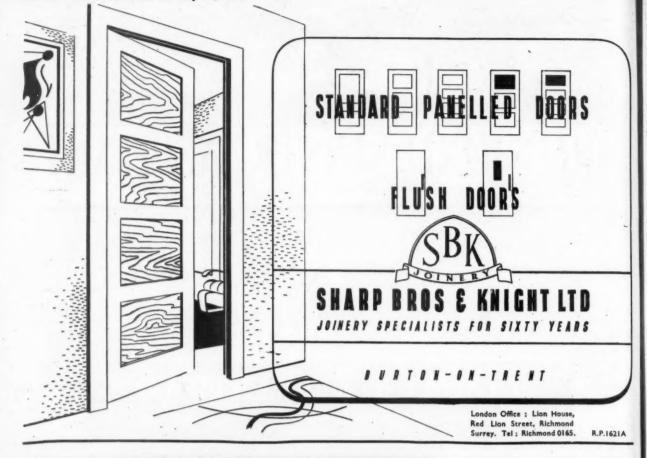
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# PAINT STOVING

A Metrovick Electric infra Red oven stoving paint on outer cases of water heaters, ranging from  $l_{\frac{1}{2}}$  to 30 gallons capacity, in 5-6 minutes.

The plant is equipped with 96 Metrovick Infra Red lamps, having a total loading of 24 kW. In addition to its ability to reduce

In addition to its ability to reduce vital production time this oven requires a floor space of only 12 ft. x 4 ft. x 11 ft. high. Metrovick equipments are readily

Metrovick equipments are readily adaptable to various production and factory requirements. Executives are invited to visit our London Demonstration

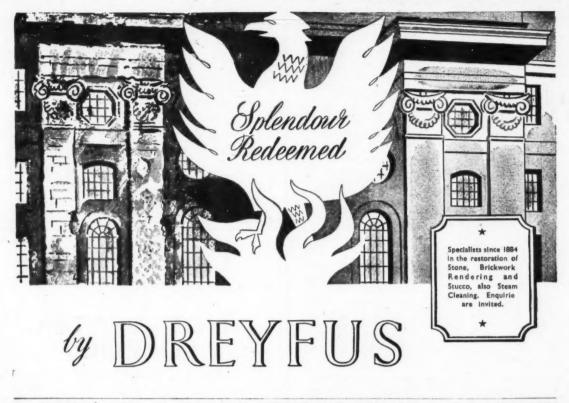
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> Photograph by courtesy of Messrs. Johnson & Phillips Ltd.

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Comfortable, smart, form-supporting seating, that will stack away into a small area when not in use. OF STEATING THE MUSIC The Modern Seating-durable, colourful and easy to maintain. In short supply at present like all good things; as materials become available in sufficient quantity, Cox & Co., manufacturers and designers for 20 years, will expedite deliveries and create new designs to enrich their already wide range of Tubular Steel Furniture for all purposes. 0 (WATFORD) LTD. WATFORD BY-PASS, WATFORD, HERTS, Phone: WATFORD 5631 (5 LINES)

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Water Heating? COPPER CALORIFIERS SOLVE MANY A PROBLEM Problems of scale, deposit, excessive rust, and the provision of cheap, constant and clean hot tap water are solved by "Range Boiler" Copper Calorifiers, heated by the ordinary Domestic Boiler. Made of strong hard-rolled copper with brazed seams in standard sizes, to British Standard Specificato british Standard Specifica-tion, or to your own require-ments. The illustration shows a Coil Type—also available in Annular Type. From Builders Merchants Merchants everywhere. Write now for full details and Technical Advice. SOLE MANUFACTURERS GE BOILERS subsidiary companies) STALYBRIDGE CHESHIRE THE EMPIRES LARGEST COPPERSMITHS



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## CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there

by first post on Friday morning for inclusion in the following Thursday's paper. Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

# Public and Official Announcements 6 lines or under, 10s.; each additional line, 1s. 6d.

THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. Applexes: 75, Earon PLACE, LONDON, S.W.1. TEL. SLOAME 5615. 991

LONDON COUNTY COUNCIL. COUNTY OF LONDON PLAN-VACANCIES FOR PLANNING STAFF. Applications are invited for positions in the following grades:-PLANNING OFFICER, Grade III, up to 2700

PLANNING OFFICES, Grand and Particle States and Particular States and Particular Science Scien

soning plans. A knowledge of current town planning legisla-tion is desirable in all cases, and candidates for Grade III positions should possess architectural, surveying or town planning qualifications. Application forms obtainable from Architect to the Council, County Hall, S.E.I (enclose stamped addressed envelope), returnable not later than 10 days from this date. Canvassing disqualifies. (1680) \$35

WORCESTERSHIRE COUNTY COUNCIL. COUNTY PLANNING DEPARTMENT. APPOINTMENT OF SENIOR PLANNING ASSISTANT. Applications are invited for the appointment on the permanent staff of the Counity Council of a SENIOR PLANNING ASSISTANT at a salary in accordance with Grade VI of the Administrative, Professional and Technical Division of the National Joint Council Scalar of Salaries (£555-£660 a year) plus cost-of-living bonus, at present £59 16s. 0d. per annum. A travelling allowance will be paid in accordance with the County Council's scale for the time being. with being.

Applicates should have had considerable ex-Applicates should have had considerable ex-perience in the control of new development under the Planning Acts, and in the general work of a planning authority. Applicates must be corporate members by ex-amination of the Town Planning Institute, and architectural or engineering qualifications will be considered an advantage. (a) The provisions of the Local Government Superannuation Act, 1957; (b) The Passing of a medical examination; (c) The passing of a medical examination; (d) Three months' notice in writing on either side. Applications endorsed "Senior Planning Assistant." setting out age, experience and qualifications, together with the names of three persons to whom reference can be made, must be delivered to the undersigned not later than the first post on Saturday, 19th July, 1947. W. R. SCURFIELD, Clerk of the County Council. Shirehall, Worcester. (M.143) CITY OF WAKEFIELD '

CITY OF WAKEFIELD ' APPOINTMENT OF QUANTITY SURVEYOR. Applications are invited for the permanent ap-pointment of a Quantity Surveyor in the City Engineer's and Surveyor's Department. Salary is in accordance with Grade A.P.T. V of the National Joint Council, £460-£510 plus cost-of-living bonus, at present £59 16s. per annum.

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annum. Applicants should hold an appropriate quali-fection and be capable of preparing Specifications and Bills of Quantities for all classes of Building Work, and should also be experienced in measure-ment of work and final settlement of contractors unta

accounts. Carvassing will disqualify and every applicant must disclose in writing whether, to his know-ledge, he is related to any member or senior officer of the Corporation. Applications, stating age, present and previous appointments with salaries, qualifications, and full particulars of experience, enclosing two copies of recent testimonials should be sent to the under-signed not later than Saturday, 25th July, 1947. Town Hall, W. S. DES FORGES.

W. S. DES FORGES, Town Clerk.

June, 1947.

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 Salaries, vis., £390-£15-£435 per annum, with cost of living bonus (at present £59 15s. per annum) in addition.

 The County Council have adopted the Conditions of Service as set out in the National Scheme for their temporary employees. The appointments will be determinable by one month's notice on either aide, and the selected candidates will be required to pass a medical examination before the appointments are confirmed.

 No form of application will be issued, but applicants should give particulars of age, qualifications and experience, and send a copy of one recent testimonial and the names, status, and addresses of two other persons to whom reference may be made, in envelopes endorsed "Temporary Assistant," to the County Architect.

 County Hall, Northampton, to be delivered not later than Wednesday, 32rd July. 1947.

 J. ALAN TURNER, Clerk of the County Council.

 County Hall, Northampton.

 3rd July. 1947.

 3rd
 July, 1947.
 786

 LONDON COUNTY COUNCIL.
 Required at Brixton School of Building, Ferndale Road, S.W.4, as acon as possible, the following full-time teachers:-- 

 (i) PERMANENT LECTURER, to take charge of teaching of Science in Senior School courses in Building. Architecture, Structural Engineering and Surveying. Applicants should have experience of industry or industrial research.

 (ii) TEACHER OF SCIENCE, at the Secondary Technical School at Merton Road Branch. This post is temporary, pending determinations of permanent fixed staff. A special responsibility allowance will be considered in connection with posts (i) and (ii).

 (iii) TWO LECTURERS IN MATHEMATICS (one permanent and one temporary pending determinations

(iii) TWO LECTURERS IN MATHEMATICS (one permanent and one temporary pending deter-mination of permanent fixed staff) in senior full-time and part-time courses. Experience of industry, industrial research or teaching in a technical college, and ability to teach science subjects regarded as recommendations. Applicants for all appointments should be graduates of a British University and have teaching experience. Burnham (London) scale salaries. Application forms (stamped addressed foolscap envelope necessary) and further par-ticulars from the Principal at the School, return-able by 9th Angust, 1947. (1995) 76 GOVEPNMENT OF THE UNITED PROCENCES

able by 9th August, 1947. (1996) 796 GOVERNMENT OF THE UNITED PROVINCES, INDIA. Applications are invited for the appointment as ARCHITECT with the above Government. Qualifications: Age not less than 40; F.R.I.B.A. or equivalent; experience in the design of public buildings, e.g., hospitals; knowledge or experi-ence of Civil Engineering an advantage. Appointment on contract for five years. Pay scale, Ra.1,750-Rs.100-Rs.2,150 per month (ap-proximately £1,575.£1,935 per annum); initial pay according to experience and qualifications. Leave. Free passage. Provident Fund. Medical attendance.

according to experience and questions Leave. Free passage. Provident Fund. Medical attendance. Further particulars and forms of application on request by postcard quoting N.343, from the High Commissioner for India, General Depart-ment, India House, Aldwych, London, W.C.2. Last date for receipt of completed applications. 31st July, 1947. 797

BOROUGH OF HARROGATE. APPOINTMENT OF CLERK OF WORKS. Applications are invited for the appointment of a Clerk of Works, Miscellaneous Division, Grade II, in the office of the Borough Engineer, at a salary of £315 to £360 per annum, plus war bonus of £59 16s. per annum. Applications, stating age and experience, to-gether with not more than three testimonials. should be delivered to the undersigned not later than the 19th July, 1947. L. H. CLARKE, Borough Engineer. Municipal Offices, Harrogate.

Municipal Offices, Harrogate. 26th June, 1947.

Borough Engineer. 26th June, 1947. 791 LONDON COUNTY COUNCIL. SENIOR ARCHITECTURAL VACANCIES. Weil-qualified Architects are invited to upply for the following positions:-ARCHITECT, Grade II, £240-£40-£960. ARCHITECT, Grade II, £70-235-£40. The persons appointed must be capable of initiating and developing important architectural projects related to programmes for the erection of schools and other buildings. They will also be responsible for organizing the work for and direction of subordinate staff. Successful candidates are required to contri-bute to the Council's Superannation and Provident Fund, and will be eligible for per-manent appointment according to merit. Application forms may be obtained from the Architect to the Council, County Hall, London, S.E.1 (stamped addressed envelope required), re-turnable within ten days. Canvassing disqualifies. (1642) 603 HUNTINGDONSHIRE COUNTY COUNCIL ASBISTANT COUNTY PLANNING OFFICER. Applications are invited for the position of Assistant County Planning Officer, at a com-mencing salary of 2625 per annum, on Grade VIII, rising, subject to satisfactory service, to a maximum of £700, plus war bonns, at present at the rate of £55 168. Applicants will be required to serve under the disould have had considerable planning Officer, and should have had considerable planning Applications displands the train of the considerable planning accessions Applicants will be required to serve under the disould have had considerable planning experi-tions.

carce and possess appropriate technical qualifica-tions.
 The appointment will be subject to a medical examination, and to termination by one month's notice on either side.
 Detailed applications, together with copies of three recent testimonials, should be delivered to Mr. T. H. Longstaff, M.Inst. C.B., F.R.I.B.A., M.T.P.I., Walden House, Huntingdon, by not later than Monday, 14th July.
 Clerk of the County Council.
 County Buildings, Huntingdon.
 789
 DEPARTMENT OF HEALTH, DUBLIN

 County Buildings, Huntingdon.
 789

 26th June, 1947.
 DEPARTMENT OF HEALTH. DUBLIN.

 VACANCIES FOR TEMPORARY ASSISTANT

 ARCHITECTS IN CONNECTION.

 Qualifications: Candidates must hold a recognized University degree in Architecture or an equivalent academic qualification, and must have had satisfactory architectural experience.

 Salary: Salary to be determined according to be quetermined according to qualification and must have had satisfactory architectural a week (men) and £7 10s. to £10 10s. a week (women).

 Female caqdidates must be unmarried or widows.

27 10s. to £10 10s. a week (men) and 27 10s. to £10 10s. a week (women). Female candidates must be unmarried or widlows. If a sufficient number of candidates resident in Great Britain is forthcoming arrangements may be made to interview them at a suitable centre in Great Britain. Application forms and conditions of service may be obtained from the Secretary. Department of Health, Room 225. Custom House, Dublin. Completed forms should be forwarded so as to reach that address on or before the 6th August, 1947.

# THOMAS MCARDLE, Secretary.

Department of Health, Dublin. 26th June, 1947.

 26th June, 1947.
 768

 26th June, 1947.
 768

 CITY OF PETERBOROUGH.
 CITY ENGINEER AND SURVEYOR'S DEPARTMENT.

 APPOINTMENT ASSISTANT QUANTITY SURVEYOR.
 Applications are invited for the appointment of Assistant Quantity Surveyor, A.P.T., Grade III.

 259 16s. per annum.
 per annum.

 Applications super invited for the appointment of Assistant Quantity Surveyor, A.P.T., Grade III.
 Grade III.

 259 16s. per annum.
 Applications data should have had experience in a Quantity Surveyor's Office, and should be capable of abstracting, billing and measurement of works on site.

of abstracting, billing and measurement of works on site. The appointment is subject to the provisions of the Local Government Superannuation Act. 1937, and the successful applicant will be required to pass a medical examination. Applicants, stating age, qualifications and experience, accom-panied by copies of ndt more than three recent testimonials, and suitably endorsed, must be delivered to the undersigned not later than the 16th July 1947. Candidates should state whether they are re-lated to any member or senior officer of the Council. Canvassing, either directly or indirectly, will

Canvassing, either directly or indirectly, will disqualify. ARTHUR J. REEVES. Town Clerk.

Town Hall, Peterborough. 28th June, 1947.

788

ESSEX EDUCATION COMMITTEE. MD-ESSEX TECHNICAL COLLEGE AND SCHOOL OF ART, CHELMSFORD. Applications are invited for the following appointment:— Full-time LECTUREE in the Department of Architecture, to assist in the instruction of Full-time Day and Hvening Students preparing for the Intermediate and Final Examinations of the Royal Institute of British Architects. The successful candidate should have suitable gualifications, preferably trained at a recognized School of Architecture and with experience in an Architect's office. Previous teaching experience, though desirable, is not cssential.

in not essential.

Previous teaching experience, inough desirable, is not essential. Salary in accordance with the Burnham (Technical) Report, £300 by £15 to £255, with allowances for approved professional and/or teaching experience. The succeasful candidate will be required to commence duties on 1st September, 1947. Purther particulars and application forms may be obtained from Mr. E. W. Alston, Clerk to the Governors, Mid-Essex Technical College, Market Road, Chelmsford, on receipt of a stamped addressed envelope, to whom they should be returned as soon as possible. B. E. LAWRENCE, Chief Education Officer. County Offices, Chelmsford. 790

THE CROWN AGENTS FOR THE COLONIES. Applications from qualified candidates are invited for the following post:-ARCHITECT required by the Government of Iraq. Ministry of Communications and Works (Buildings) for a tour of two years in the first instance. Fixed salary between I.D. 100 and LD.250 a month, according to qualifications and experience, plus high cost-of-living allowance of LD.24 a month (LD.1=£1). Free passages. Provident fund. Candidates must possess University degrees or diplomas in archi-tecture or be A.R.I.B.A., and have had at Last specialized either in the design or in the con-struction of public buildings. Apply at once by lefter, staining age, whether married or single, and full particulars of qualifications and experi-ence, and mentioning this paper, to the Crown Agents for the Colonies, 4, Millbank, London. S.W.1, quoting M/N/18197 on both letter and envelope.

SUDAN GOVERNMENT. The Public Works Department requires (a) ONE ASSISTANT ARCHITECT and (b) TWO ARCHITECTURAL ASSISTANTS, for service in the Sudan, for (a) the design of, and preparation of working drawings for, the several building works of a public authority, and for (b) the pre-paration of working drawings for general build-ing work.

of working draw, inc design 0, and preparation works of s public authority, and for (b) the pre-paration of working drawings for general build-ing work. Candidates for (a) must hold recognized pro-fessional qualifications; preference will be given to those who have passed the whole, or part, of the final examination R. I.B.A. Adequate experi-ence of design is required, and also of the pre-paration of working drawings to general build-ing construction standard, and for (b) should have had a sound architectural training and ex-perience of general building work, and be capable of the preparation of working drawings required. In both cases experience of Hospital work would be an advantage. The slarty range in the case of (a) is £E.600 to £E.1200, and in the case of (b) £E.450 to £E.975. The starting rate in each case would be according to age, experience, and qualifica-tions. Appointment on short term contract for tw years.

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 PUNDEE COLLEGE OF ART SCHOOL OF LACHITECTURE

 The Governora of the Dandee Institute of Art and Technology invite applications for the posi-tion of SENIOR LECTURER AND STUDIO INSTRUCTOR.

 Applicants should be members of the R.I.B.A. and should preferably be holders of a degree or diploma of a recognized School of Architecture. Special experience in Comptructional Subjects will be an additional qualification.

 Balary scale: Men. £600 by £25 to £750; women.sc400 by £20 to £600, with placing accord-ing to qualifications and experience.

 Applications should be lodged by 21st July. And should be on the prescribed form, copies of which, with full particulars, may be obtained trom the undersigned.

 Better H. THOMSON, Clerk and Treasurer. 26th June, 1947.

Bell Street, Dundee. 26th June, 1947.

 EASINGTON RURAL DISTRICT COUNCIL

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Canvassing, directly or indirectly, will dis-qualify.

J. W. GRAY, Clerk of the Council. Easington, Co. Durham. Council Offices, 27th June, 1947

27th June, 1947. 204 CITY OF OXFORD. CITY ARCHITECT'S DEPARTMENT. Applications are invited for the following appointment on the permanent staff. OHLEF ARCHITECTURAL ASSISTANT

CHIEF ARCHITECTURAL ASSISTANT (HOUSING). 575-2650 per annum, plus cost-of-living bonus (at present £59 16s.). Applicants should be Members of the R.I.B.A., and have had experience in Housing work for a Local Authority. The successful applicant will be required to take charge of the Section dealing with new housing work in the City Architect's Depart-ment.

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

Housing accommodation will be made available

HOUSING ACCOMMODATION will be made available if necessary. Forms of application may be obtained from E. G. Chandler, A.R.I.B.A., A.M.T.P.I., City Architeck, Town Hall, Oxford, and thould be returned, completed, not later than 23nd July., 1947.

HARRY PLOWMAN, Town Clerk

# Town Hall, Oxford.

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later than noon on Monday, the 28th July, 1947. The appointment will be subject to the pro-visions of the Local Government Superannuation Act, 1937, and the passing of a medical examina-tion, and will be terminable by one month's notice on either aide. The answer of the subject of the subject of any senior office, under the Council. Candidates who fail to do so will be disqualified and, if appointed, will be liable to dismissal without notice. EAREA CONWAY.

# FARRA CONWAY, Town Clerk,

Town Hall, Great Yarmouth. 1st July, 1947. 826

COUNTY BOROUGH OF NEWPORT, MON. BOROUGH ARCHITECT'S DEPARTMENT. APPOINTMENT OF A TEMPORARY CLERK OF WORKS. Applications are invited for the above post in connection with the Control of Civil Building-Defence Regulation 56A. The successful candidate will be required to inspect and report upon all buildings, etc., in connection therewith. The salary for this position will be in accord-ance with Grade II, A.P. and T. Division of the National Scheme for Local Government Officers, namely, 2500-2405 per snnam, plus the current cost-of-living bonus, at present 259 16s. per annum.

cost-of-living bonus, at present 209 108. per annum. The appointment will be subject to the Cor-poration's Condition of Service and Superannua-tion Scheme, and the successful candidate will be required to pass a medical examination. In accordance with the Town Council's resolu-tion, the successful candidate (if married and residing outside the Borough) will be offered, if required, the tenancy of a temporary bungalow in Newport for the duration of service with the Newport Corporation. Applications, accompanied by two recent testi-monials, must reach me not later than Monday, the 21st July, 1947. JOHNSON BLACKETT, F.R.I.B.A., Borough Architect.

Town Hall, Newport, Mon. 28th June, 1947. 811

COUNTY OF WARWICK. ARCHITECT'S DEPARTMENT. Applications are invited for a QUANTITY SURVEYING ASSISTANT on the Established Staff, at a commencing salary of £420 per annum, rising by two annual increments of £20 to £460 per annum, plus cost-of-living bonus, at present £59 16s. per annum. Applicants should have a good technical education and knowledge of measuring and adjusting variations under build-ing contracts and preparing approximate estimates. estimates.

estimates. The successful applicant will be subject to the conditions of the Local Government Superannua-tion Act, 1937, and will be required to pass a medical examination.

Application forms can be obtained from and should be returned to C. H. Elkins. County Architect, Shire Hall, Warwick, by 23rd July, 1947.

L. EDGAR STEPHENS, Clerk of the Council.

Shire Hall, Warwick.

Shire Hall, Warwick.
 Shire Hall, Warwick.
 BEDFORDSHIRE COUNTY COUNCIL.
 APPOINTMENT OF COUNTY PLANNING OFFICER.
 Applications are invited for the permanent appointment of County Planning Officer.
 The salary will be £1,250 per annum, rising by annual increments of £50 to a maximum of £1,500 per annum, plus cost-of-living bonus (at present £59 16s, per annum).
 The successful candidate must provide a motor car for use in connection with his duties, in respect of which an allowance under the Council's scale will be paid to him.
 He will be required to reside in the County. Candidates must be Corporate Members of the Town Planning Institute, and have had considerable experience in the preparation and administration of planning schemes. Preference will be given to persons who also possess a recognized qualification in architecture, civil engineering, or surveying.
 The appointment will be subject to the provisions of the Local Government Superannuation.
 The appointment will be subject to the provisions of the Local Government Superannuation at the scheme of Conditions of Service of the Notico on either side, and will be subject to the scheme of Conditions of Service of the National Joint Conneil for Local Anthorities' Administrative, Professional, Technical and Clerical Services.

National Joint Conneil for Local Anthorities' Administrative, Professional, Technical and Clerical Services. Canvassing, either directly or indirectly, will be deemed a disqualification. Application forms, which may be obtained from the undersigned, must be completed and returned in envelopes marked "County Planning Officer." not later than 15th Aurust. 1947. J. B. GRAHAM, Clerk of the County Council. Shire Hall, Bedford. 2nd July, 1947.

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from eer." COUNTY BOROUGH OF WALLASEY, APPOINTMENT OF ARCHITECTURAL ASSISTANT. Applications are invited for the appointment on the permanent staff of an Architectural Assistant, at a salary of £420-£465, National Grade IV, plus cost-of-living bonus, at present £59 16s. Applications, oi forms to be obtained from the Borough Surveyor, fown Hall, Wallasey, should be returned by 8th September, 1947. EMRIS EVANS, Town Clerk. 830

CITY OF CARDIFF EDUCATION COMMITTEE. THE TECHNICAL COLLEGE. Principal: A. HAWN, Ph.D., B.Sc., F.Inst.P. THE WELSH SCHOOL OF ARCHITECTURE. Applications are invited for the post of a SENIOR ASSISTANT in the School of Archi-tecture. Candidates should have been trained in a Recognized School of Architecture, to be Associates of the R.I.B.A., and to have had previous teaching experience. Preference will be given to candidates who are also Associate Members of the Town Planning Institute. Salary in accordance with the Burnham Scale

also Associate Memoers of the Line line Institute. Salary in accordance with the Burnham Scale for Senior Assistants, £600.2750, plus training allowance where applicable. Further particulars and application form may be obtained from the undersigned on receipt of a stamped addressed foolcasp envelope. W. J. WILLIAMS, Director of Education. 217

CITY OF CARDIFF. CITY SURVEYOR'S DEPARTMENT. Applications are invited for the following appointments. which are subject to (i) the Scheme of Conditions of Service approved by the National Joint Council for Local Authorities; (ii) to the Local Government Superannuation Act, 1937; (iii) to the passing of a medical examina-tion by the successful candidate; (iv) to deter-imation by one month's notice on either side; (v) a candidate must disclose in writing when making an application whether to his knowledge he is related to any member of the Council or a holder of any senior office under the Council, and (vi) canvassing directly or indirectly will diaqualify.

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COUNTY BOROUGH OF BLACKBURN. Applications are invited for the following appointments in the Borough Engineer and Sur-reyor's Department: (a) ASSISTANT QUANTITY SURVEYOR. Grade V. Salary 460-£510 (by three increments of £15. £15 and £20). (b) ARCHITECTURAL ASSISTANT. Grade III. Salary £390-£435 (by three increments of £15).

15). (c) ARCHITECTURAL ASSISTANTS. Grade L. Salary £360-£405 (by three increments of II

IL Salary 2360-2405 (by three increments of P15). The salary for each of the posts will also be subject to the addition of a bonns, at present E59 15s, per annum. Applicants for the architectural appointments must be Registered Architects, and preference will be given to Associate Members of the Boyal Institute of British Architects. Those for the post of Quantity Surveyor (a) must have experi-ence in the preparation of bills of quantities, specifications, estimates, and the settlement of mal accounts. Preference will be given to pro-fessional associates of the Chartered Surveyors' Institution.

final accounts. Prefetcher feasional associates of the Chartered Surveys. Institution. Applications. appropriately endorsed, stating age, qualifications, experience, present and past appointments, together with not more than three recent testimonials, should be delivered to the Borough Engineer and Surveyor, Town Hall, Blackburn, not later than the 17th July, 1947. CHAS. S. ROBINSON, 798

Town Hall, Blackburn.

CITY OF ROCHESTER. ARCHITECTURAL ASSISTANTS. Applications are invited for the following pointments, in the City Surveyor's Depart-

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JOHN L. PERCIVAL. Town Clerk. And July, 1947. 203 NORTH RIDING OF YORKSHIRE COUNTY COUNCIL. Applications are invited for SENIOR ASSIS-TANT ARCHITECT, Grade A.P.T.. V, of National Scales (£460.£510), plus bonus of £59 16s. p.a. Applicants should have had some experience in the Architect's Department of a Local Anthority. Appointments superannuable and subject to medical examination. No form of application is issued, but further information obtainable from J. Catchpole, A.R.I.B.A. County Architect, Northallerton. Applications, stating age, qualifications, and ex-perience, together with particulars of present and previous appointments, and names and addresses of three persons to whom reference can be made, to be sent to undersigned by Monday, 21st July, 1947. 1947

1947. Canvassing, directly or indirectly. will dis-qualify, and candidates should state, in writing, whether they are related to any member of the Council, or to the head of any department or his standing deputy. H. G. THORNLEY, *Clerk of the County Council.* County Hall, Northallerton. 27th June, 1947.

County Hall, Northallerton. 27th June, 1947. 831 CITY OF OXFORD EDUCATION COMMITTEE. SCHOOLS OF TECHNOLOGY, ART AND COMMERCE. Applications are invited for the full-time post of SENIOR ASSISTANT, in the School of Archi-tectare and Building. Candidates must be suitably qualified and should have some experience in teaching. The successful candidate will be required to under-take teaching duties in connection with National Certificate Courses in Building and in full-time Coarses in Architecture. The successful candi-date will be asked to take up duties as soon as possible. Approval is being sought from the Ministry of Education for the recognition of this post as a Senior Assistantship (salary £600×225 to £750, in accordance with the Burnham (Technical) Re-port, 1945). Terms of application and further particulars may be obtained on receipt of a stamped addressed toolesce previope from the Chief Educa-tion Officer, City Education Office, 77, George Street, Oxford, to whom completed forms must be returned as soon as possible, and in any case not later than a fortnight from the date of this state than a fortnight from the date of this forms must on the terms of application and further particulars Street, Oxford, to whom completed forms must or the chief Educa-tion officer, City Education Officer, 77, George Street, Oxford, to whom completed forms must or the state than a fortnight from the date of this advertisement.

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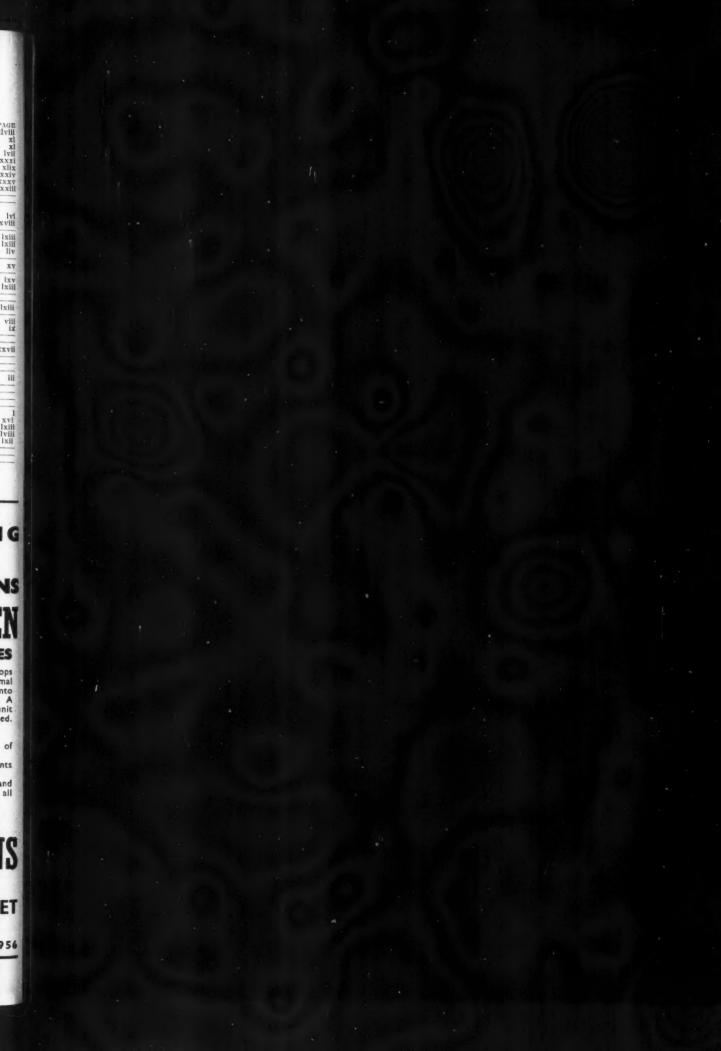
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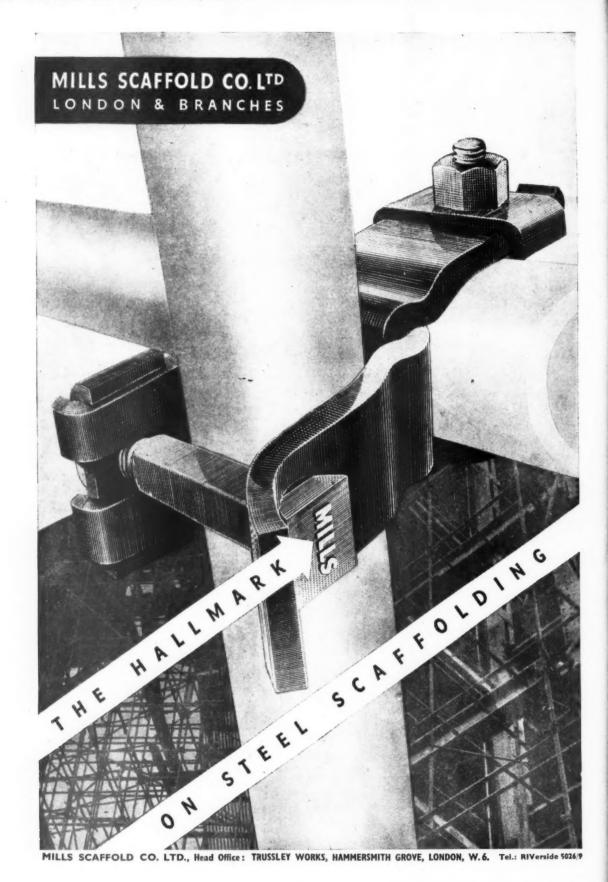
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