

THE ARCHITECTS' JOURNAL



standard contents

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

NEWS and COMMENT

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CURRENT BUILDINGS

HOUSING STATISTICS

Architectural Appointments
Wanted and Vacant

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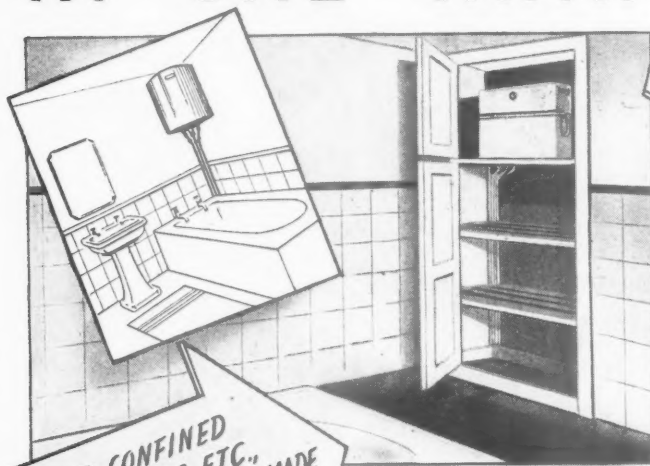
Registered as a Newspaper.

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

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 75, Eaton Place, S.W.1.	Sloane 3158/1601
IIBD	Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb.	Institute of Arbitrators, 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
IWA	Inland Waterways Association. 11, Gower Street, W.C.1.	Museum 9200
LIDC	Lead Industries Development Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MARS	MARS Group (English Branch of CIAM). Secretary: Gontran Goulden, Building Centre, 9, Conduit Street, W.1.	Mayfair 8641
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Saville Row, W.1.	Regent 8411
MOLGP	Ministry of Local Government & Planning. Whitehall, S.W.1.	Whitehall 43 0
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 37, Onslow Gardens, S.W.7.	Kensington 8161
NCBMP	National Council of Building Material Producers. 10, Princes Street, S.W.1.	Abbey 5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives, Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesley 1380
NSA	National Sawmilling Association, 14, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Whitehall 9936
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Edinburgh 20396
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors, 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RST	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 14, Moorgate, London, E.C.2.	Central 4444
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TGC	The Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 69, Cannon Street, E.C.4.	City 4444
WDC	War Damage Commission. Devonshire House, Mayfair Place, Piccadilly, W.1.	Mayfair 8866
WEDA	Welfare Equipment Development Association. 74, Victoria St., S.W.1.	Victoria 5783
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988

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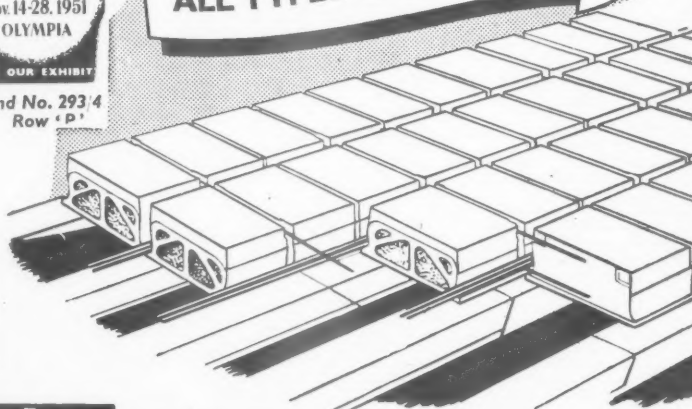
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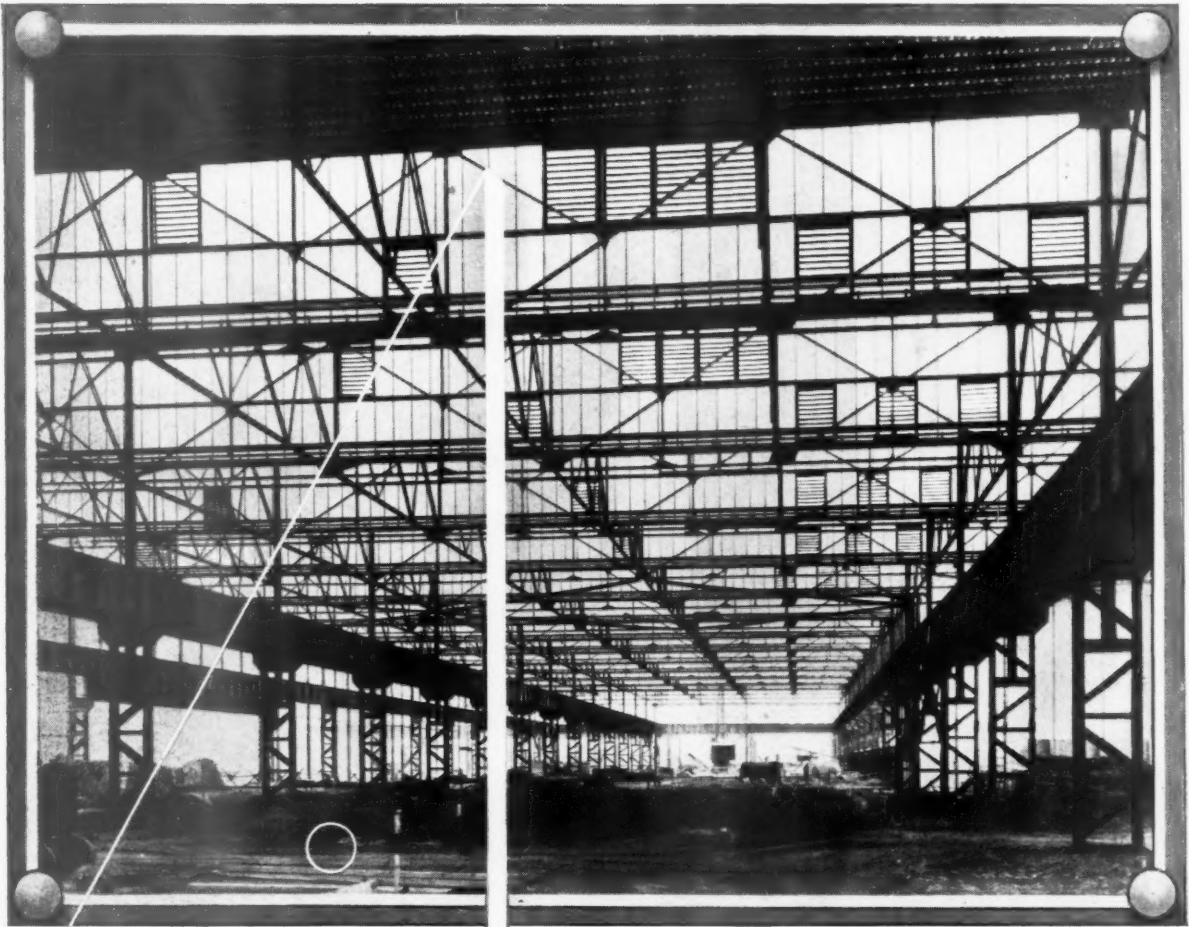
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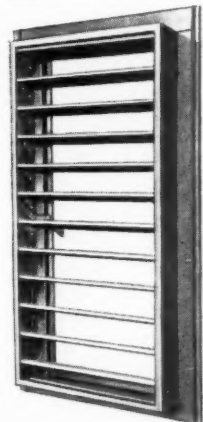
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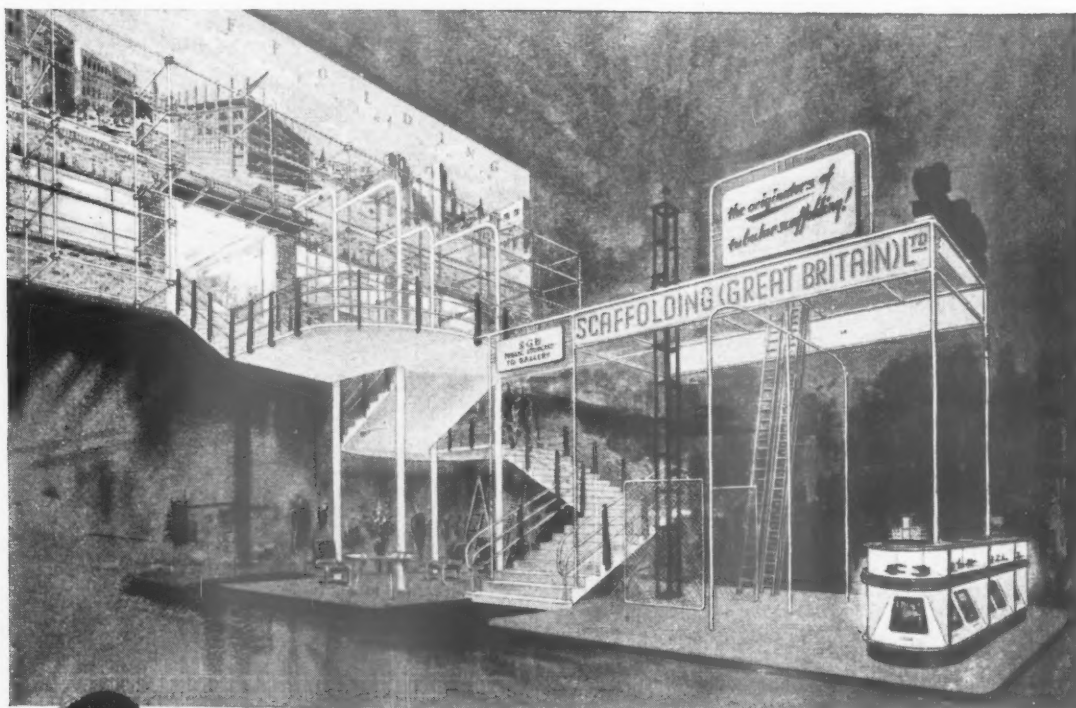


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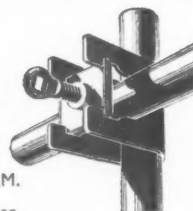
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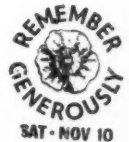
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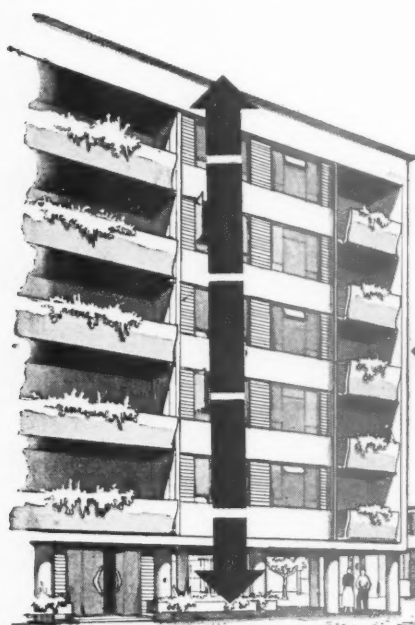
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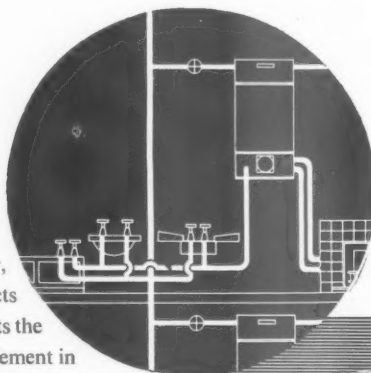
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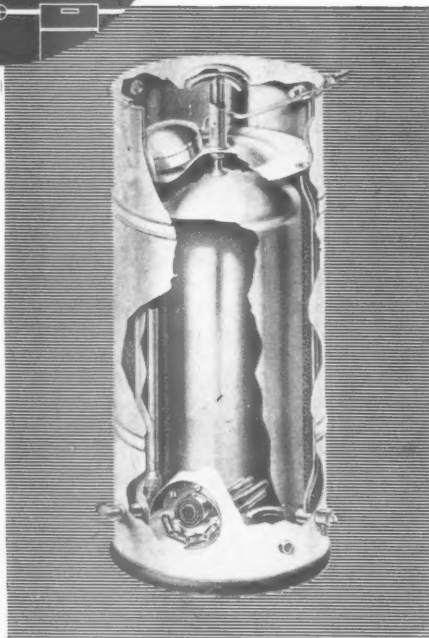
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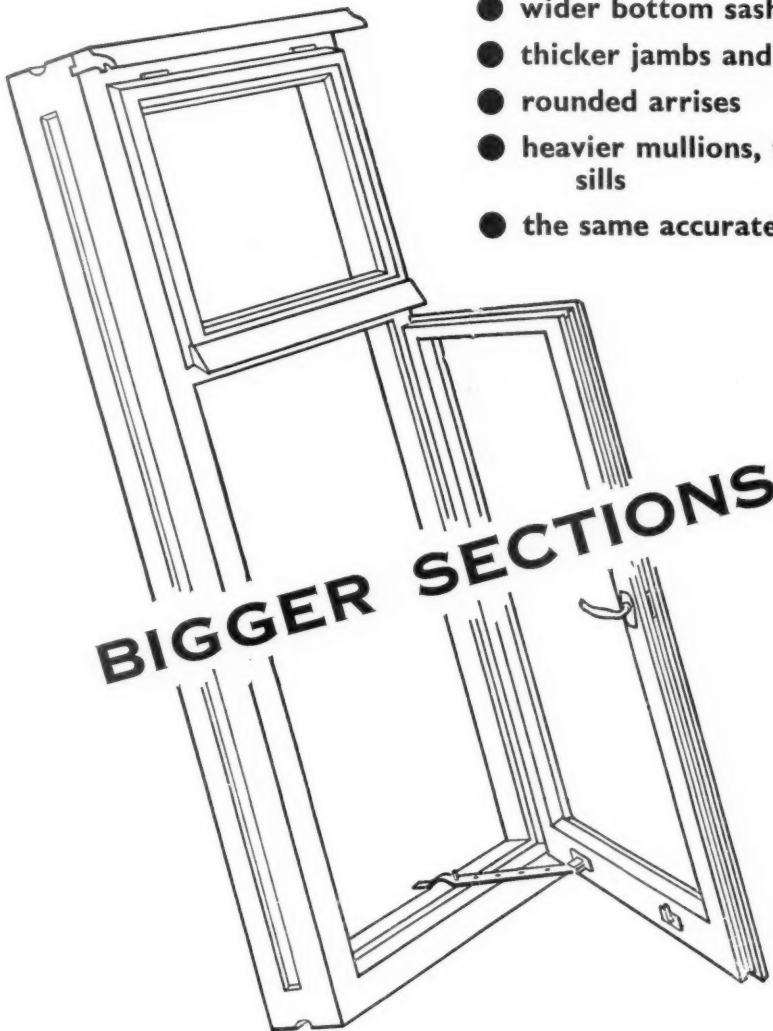
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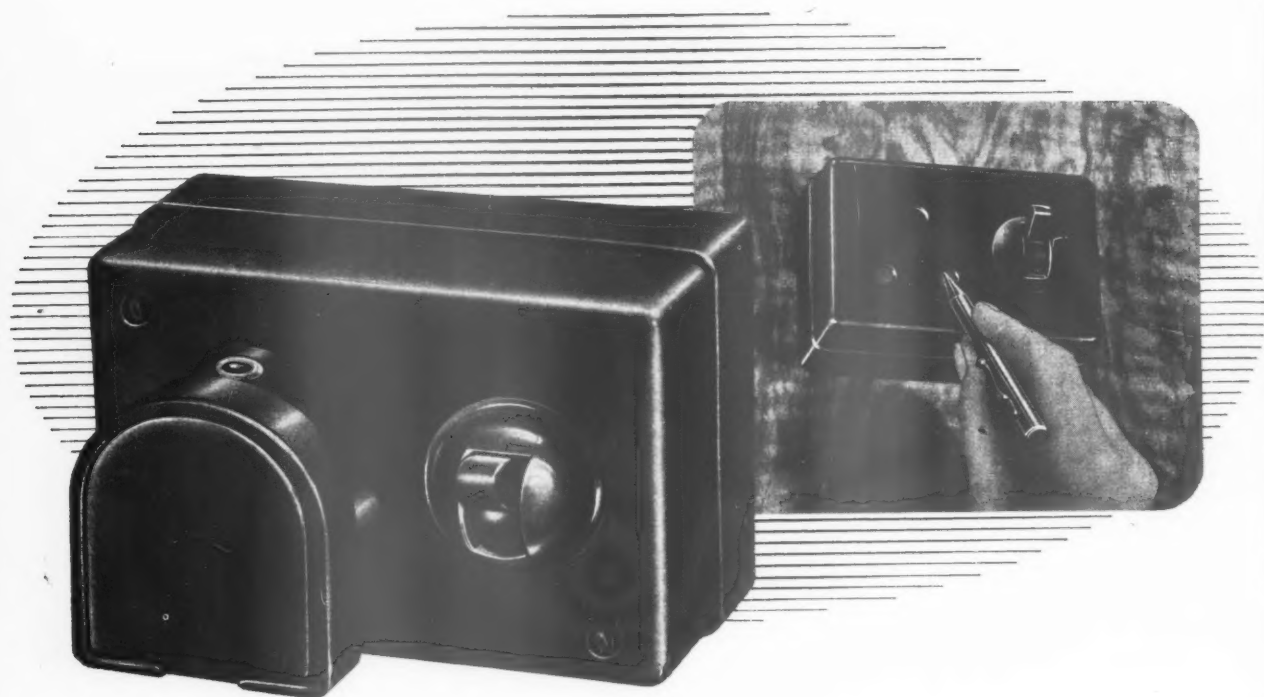
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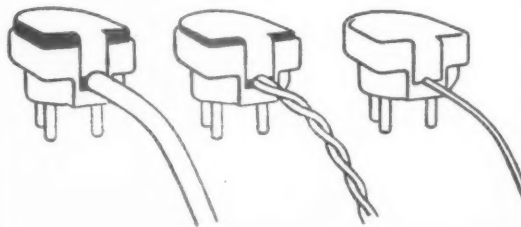
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(d) Technical Brochure RUBBER POWDER IN ASPHALT ROADS

(e) Information Sheet RUBBER FLOORING, SHEETS AND TILES

(f) Information Sheet CEMENT/RUBBER-LATEX FLOORING

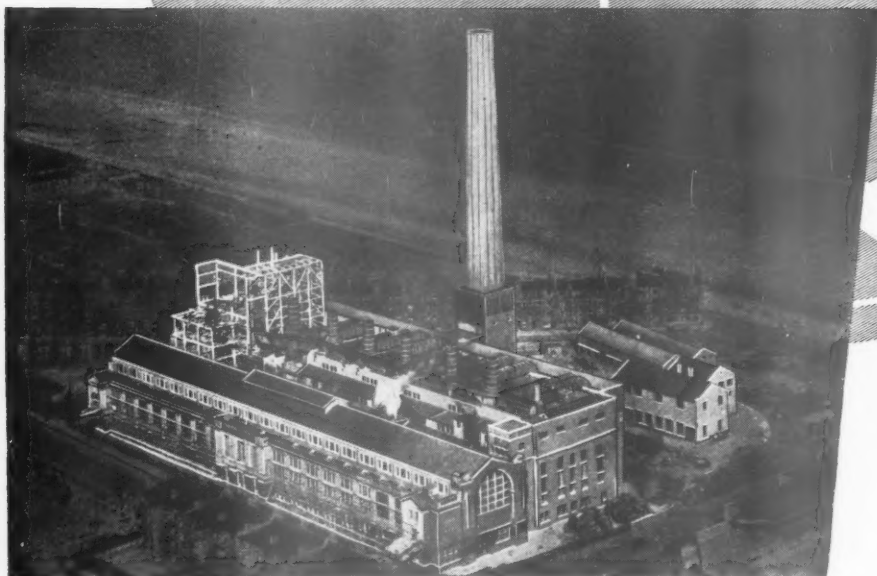
(g) Information Sheet RUBBER STAIR TREADS, NOSINGS AND RISERS

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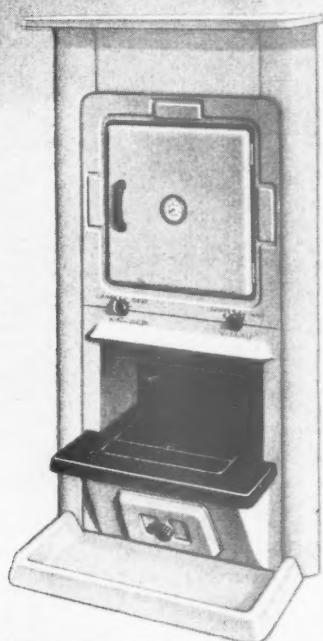
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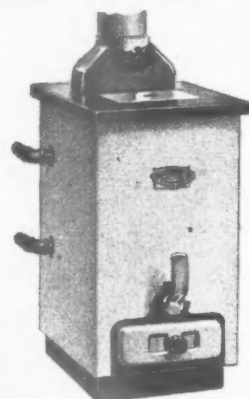
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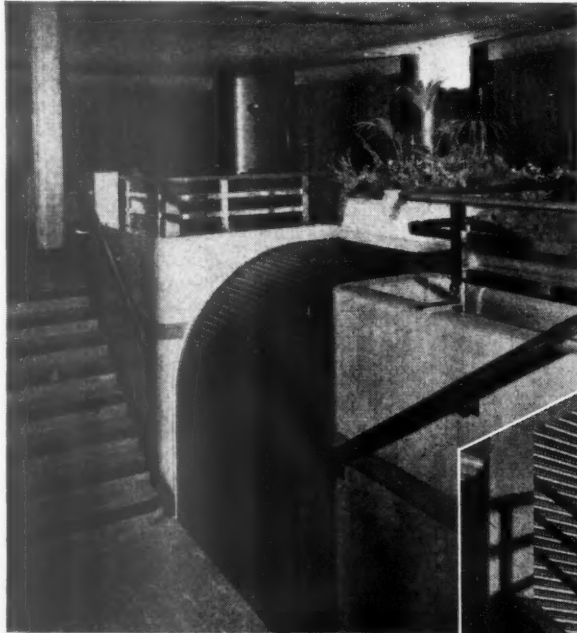
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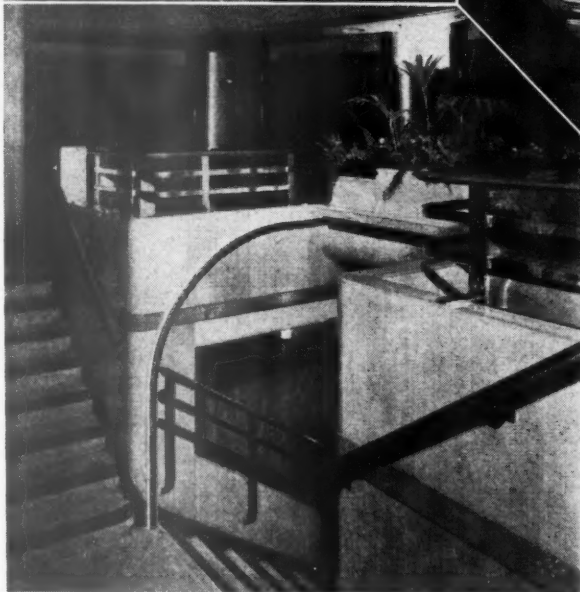


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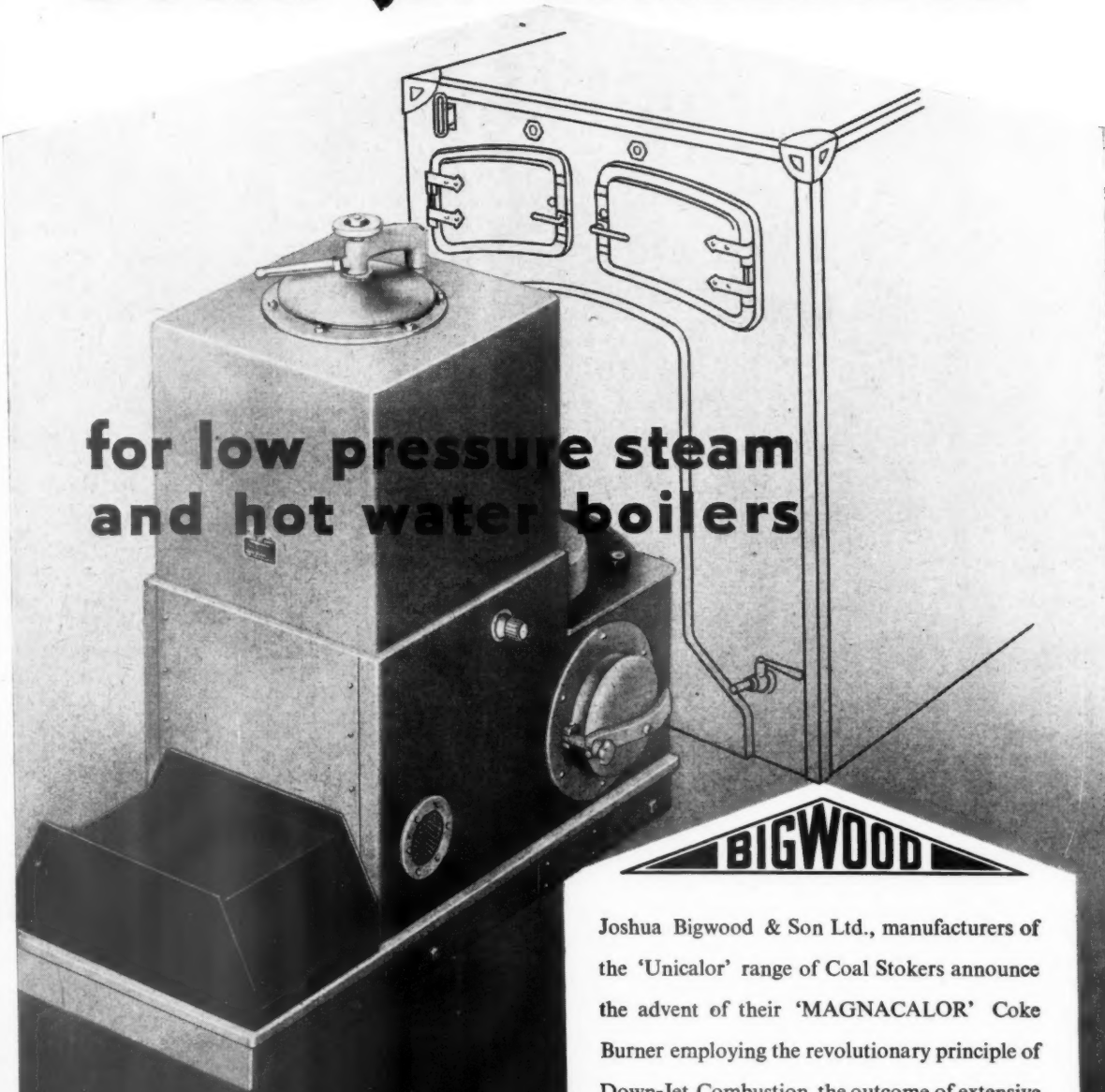
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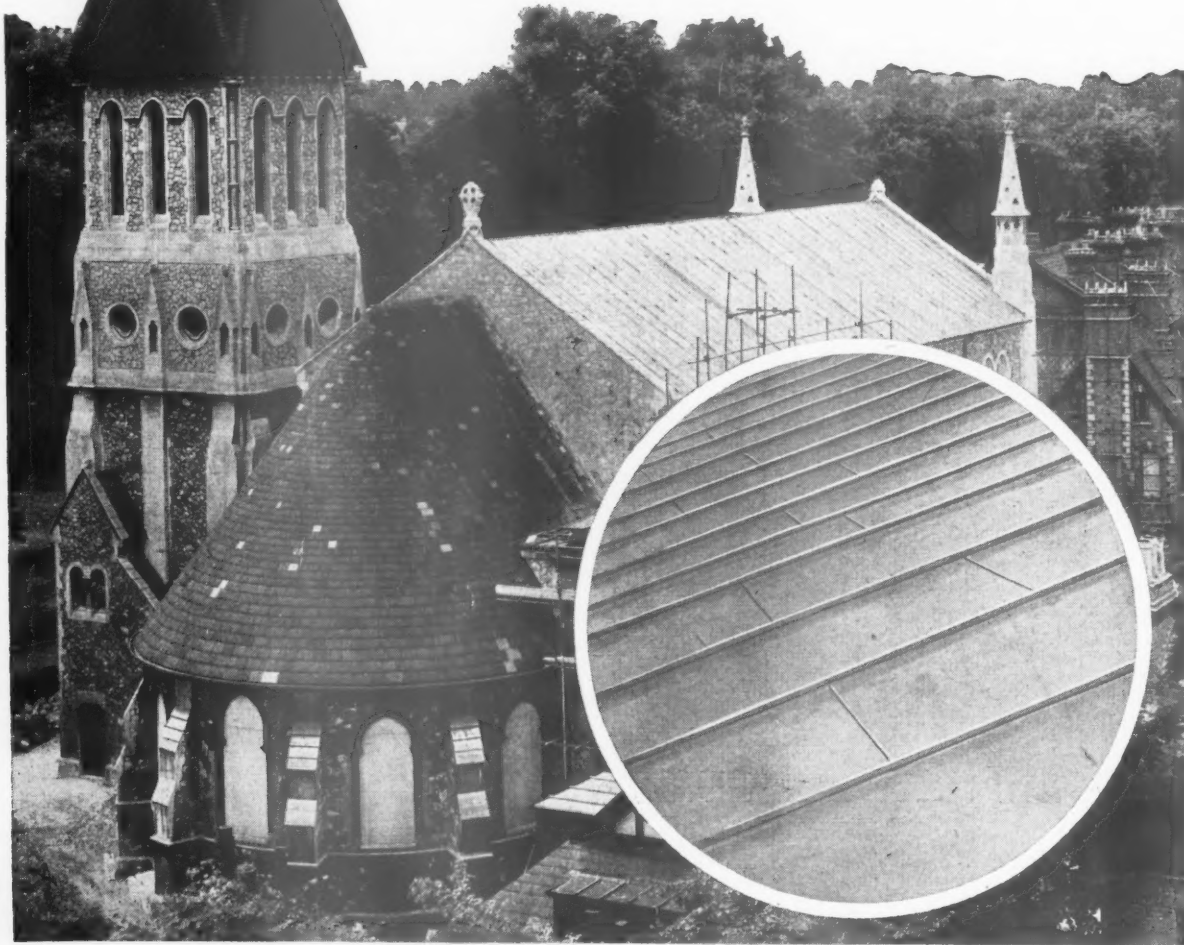
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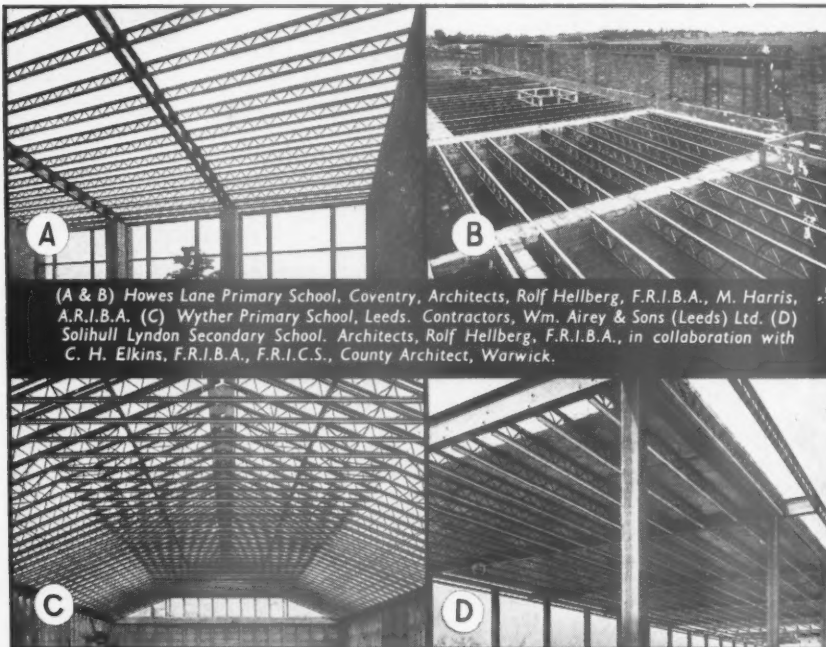
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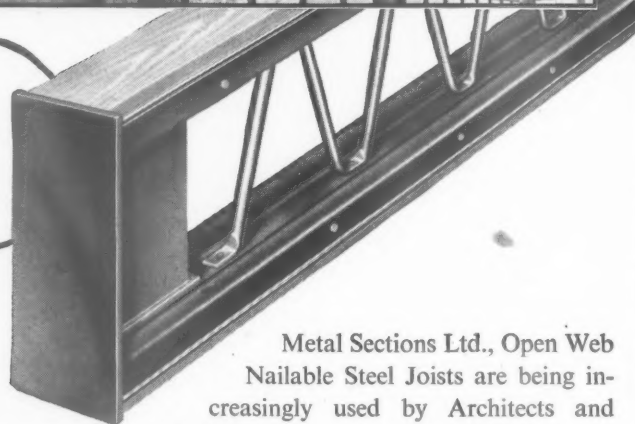
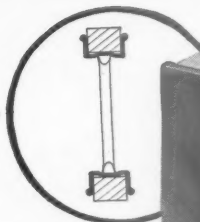
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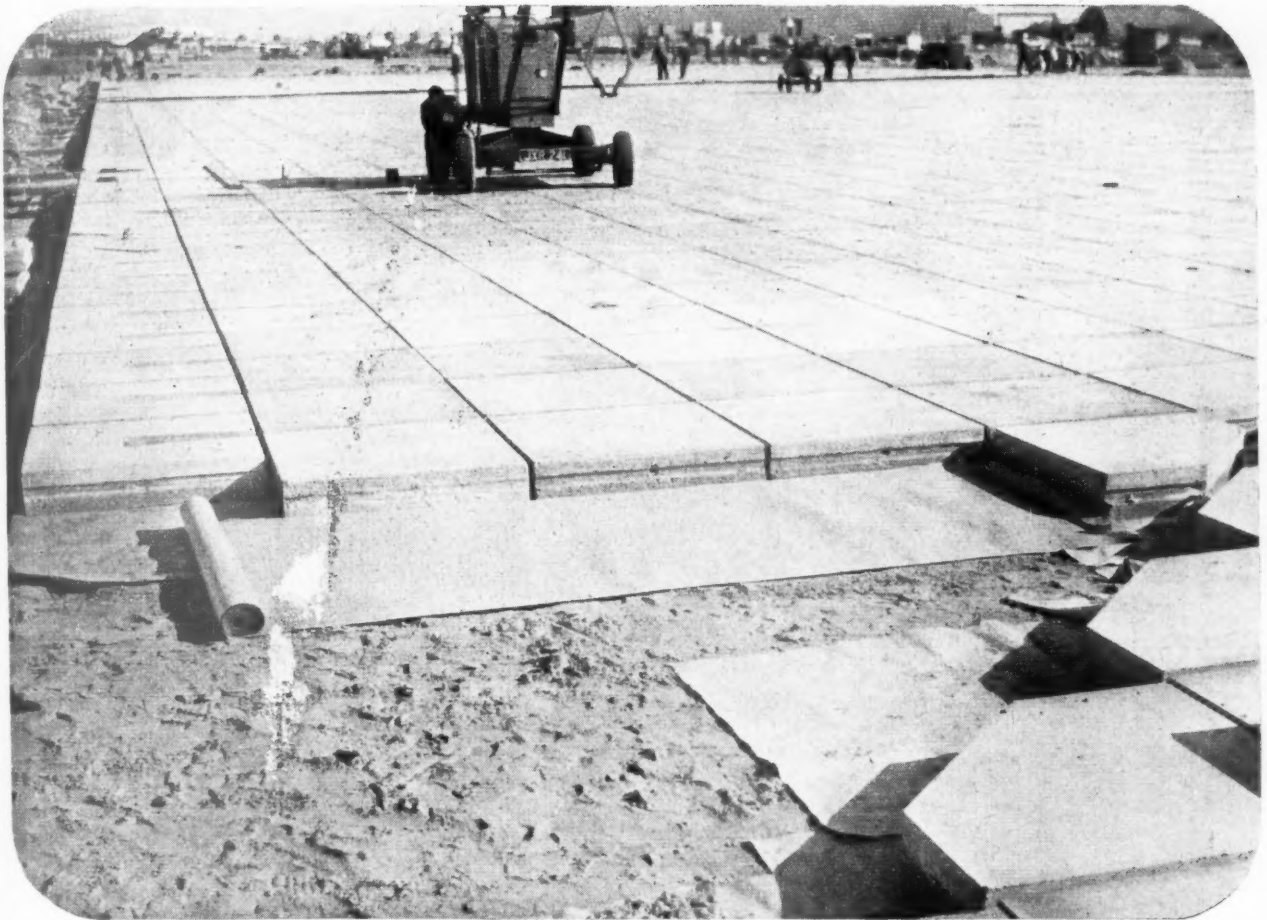


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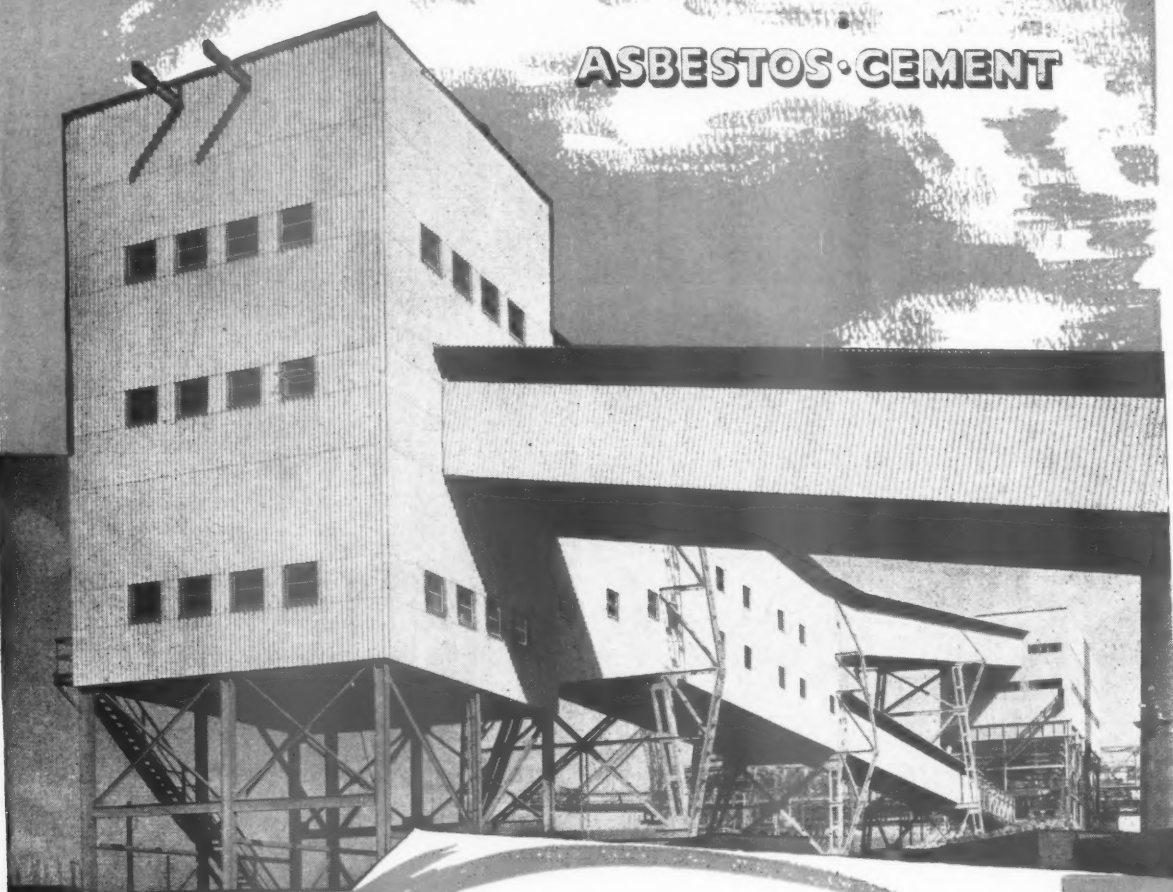
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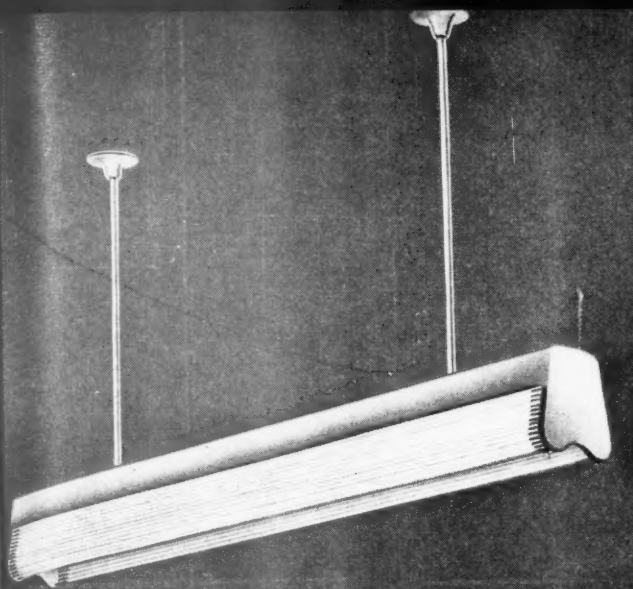
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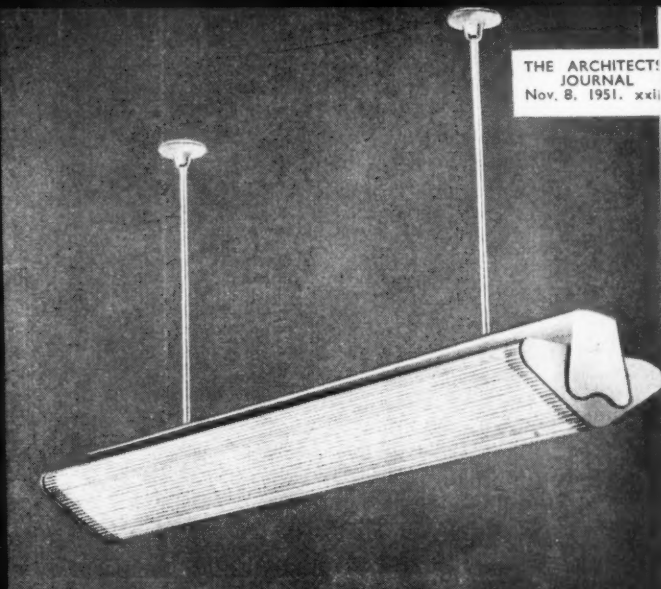
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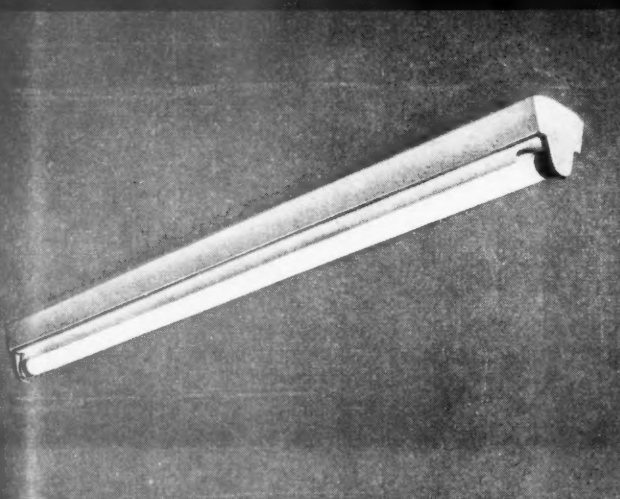
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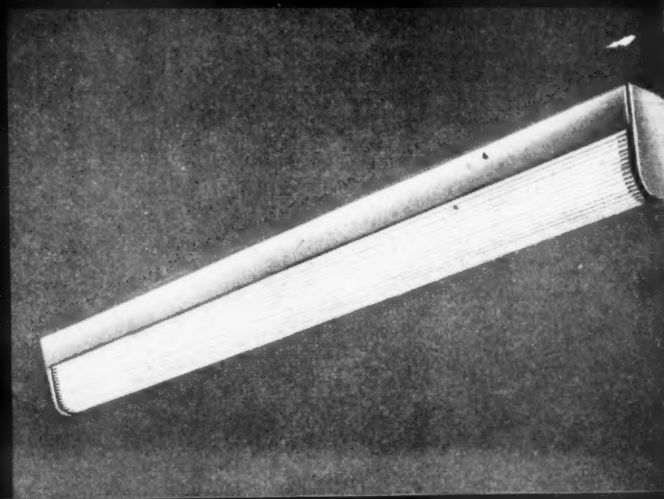
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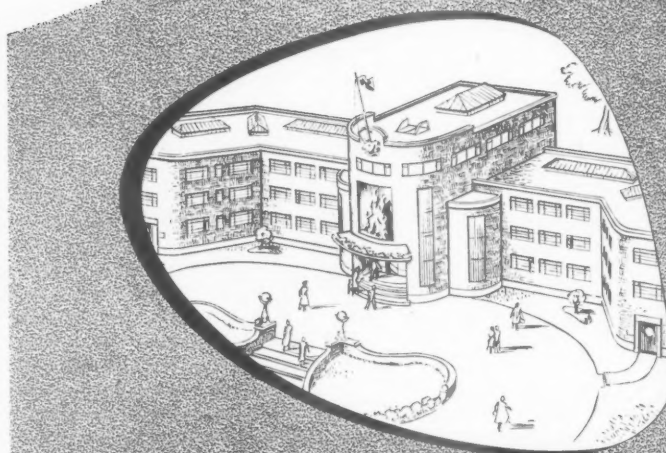


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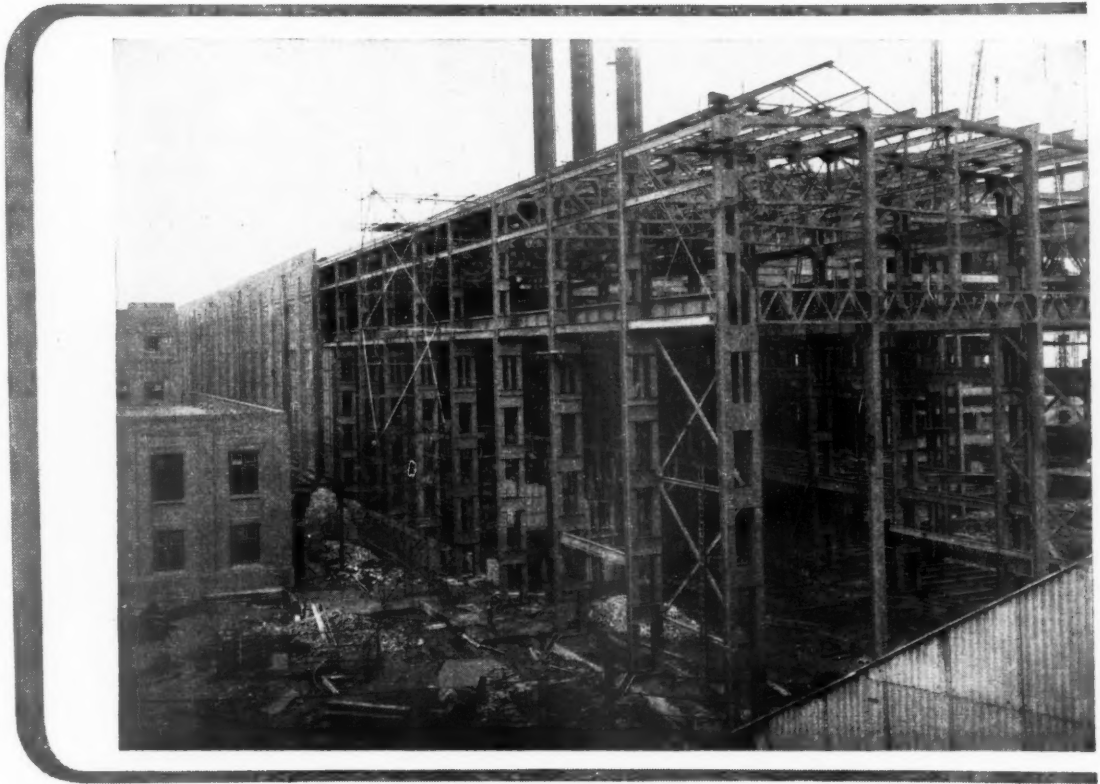
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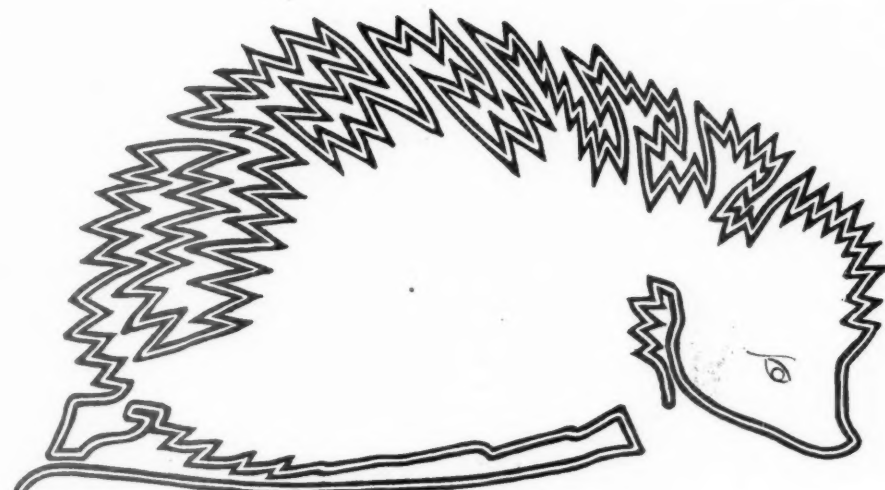
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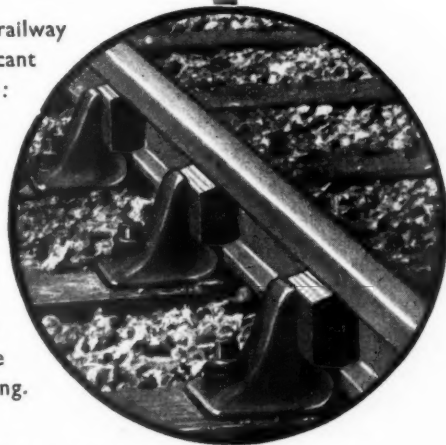
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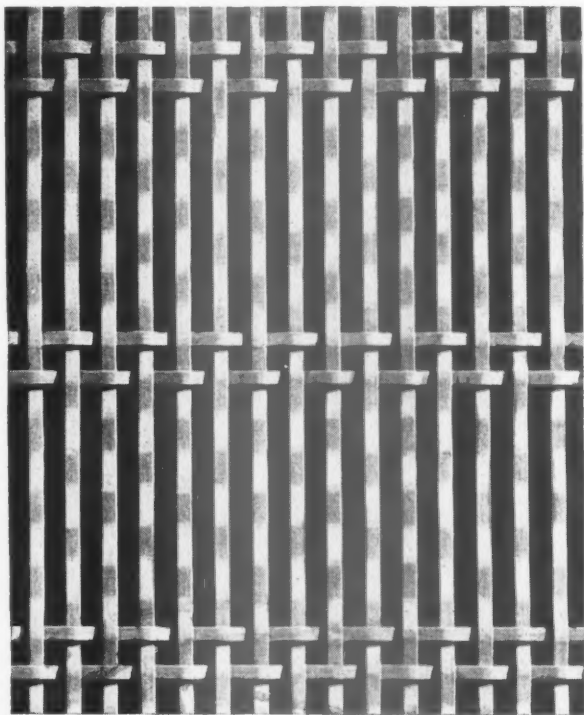


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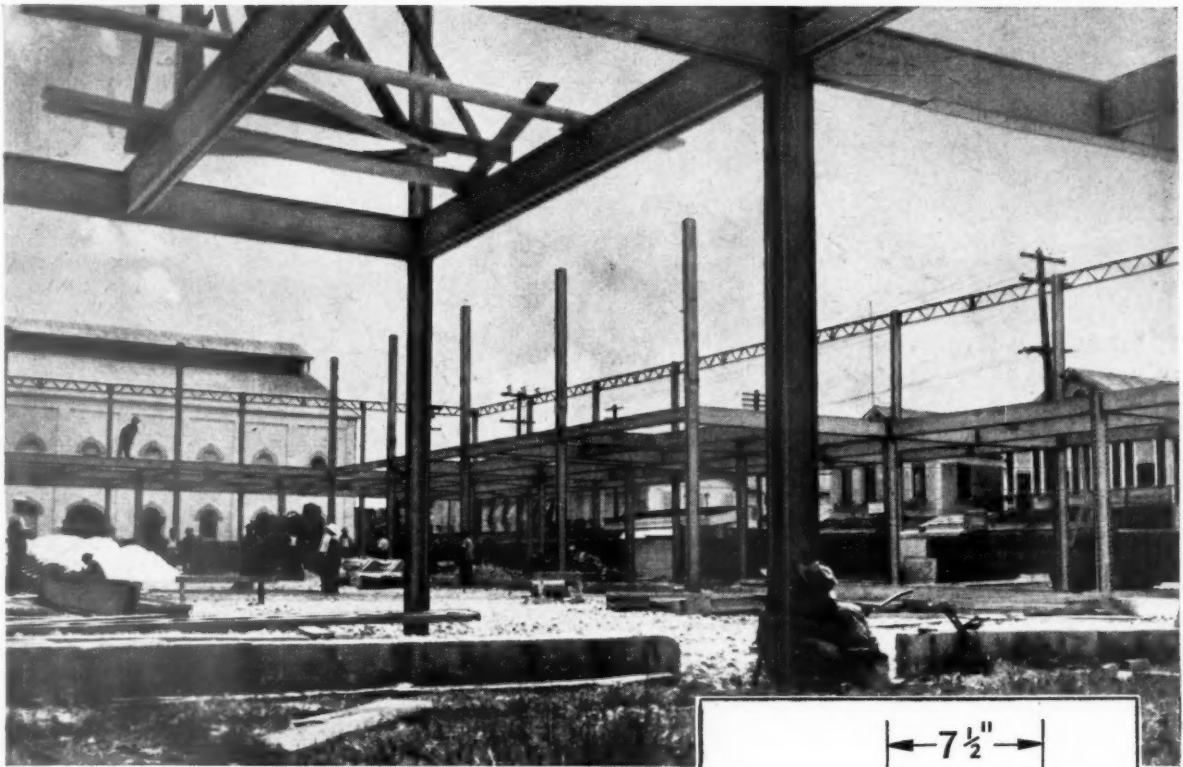
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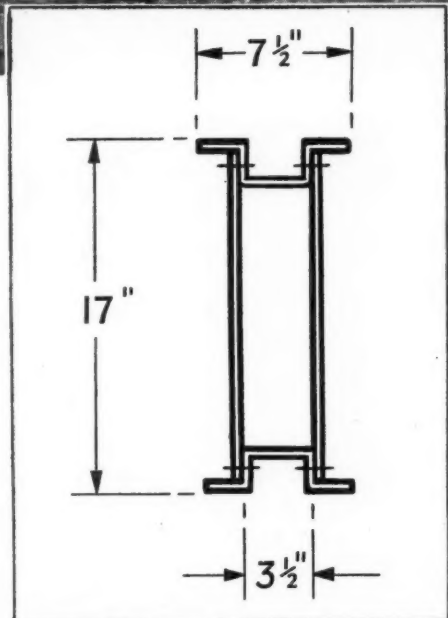
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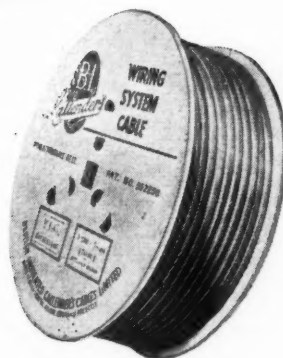
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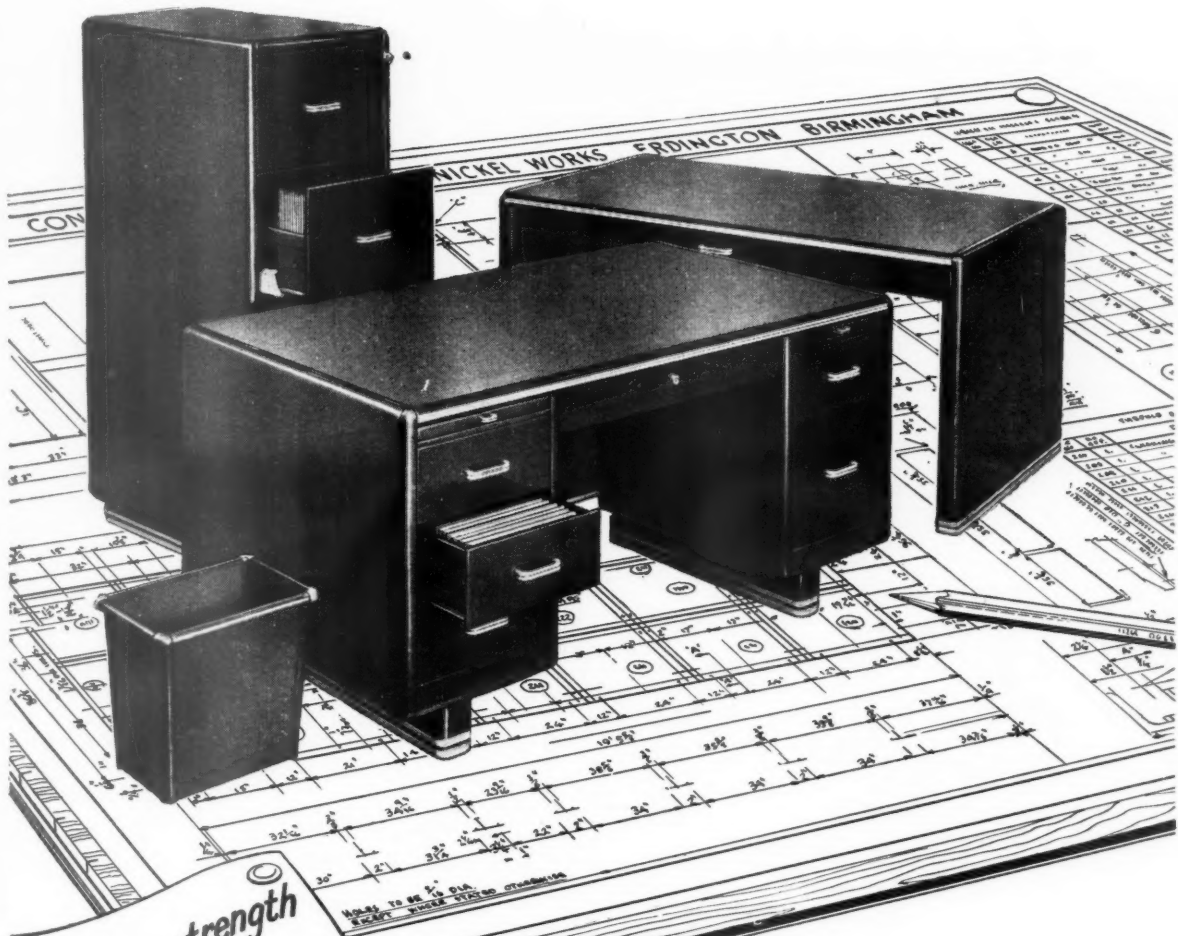
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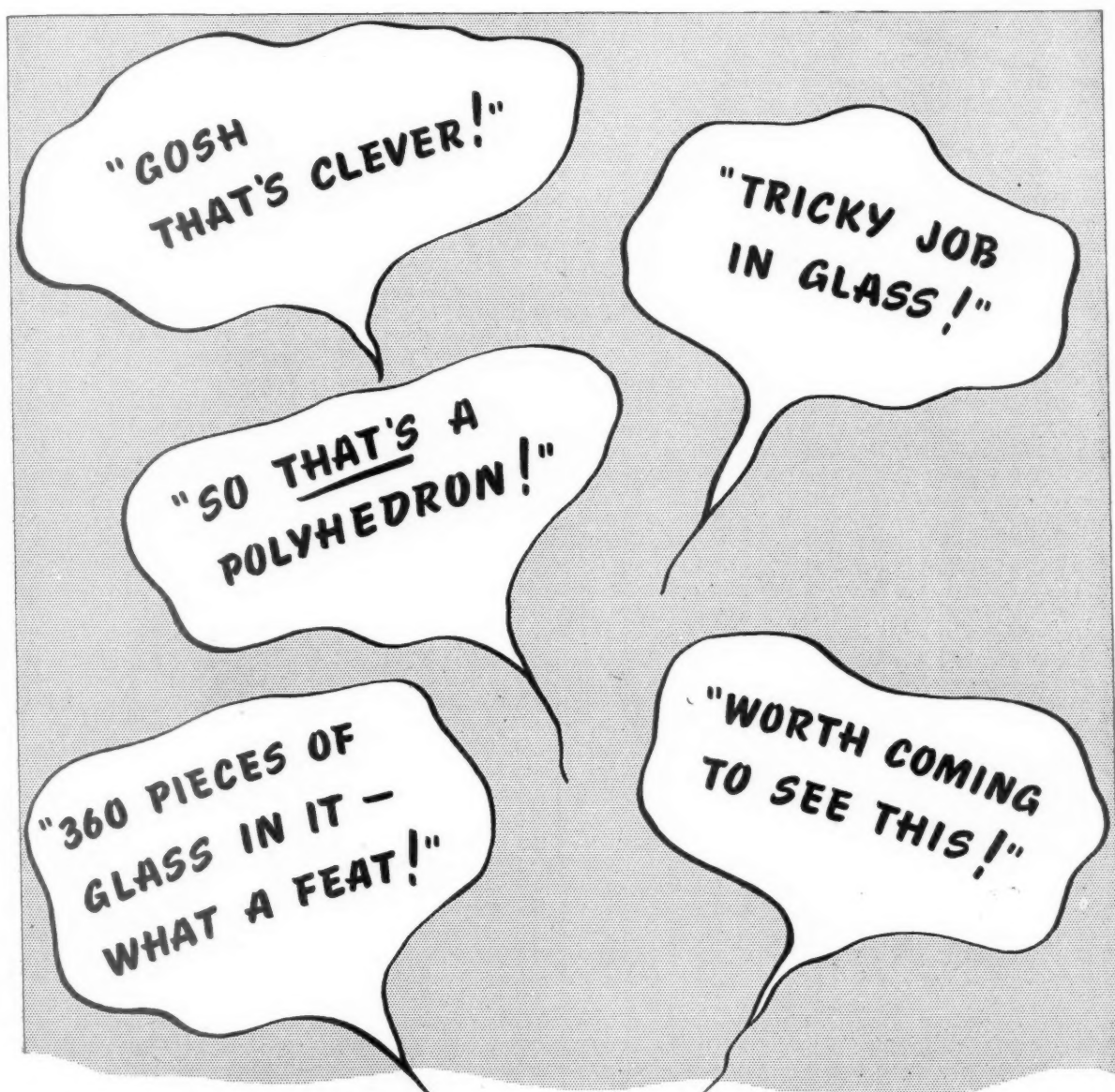
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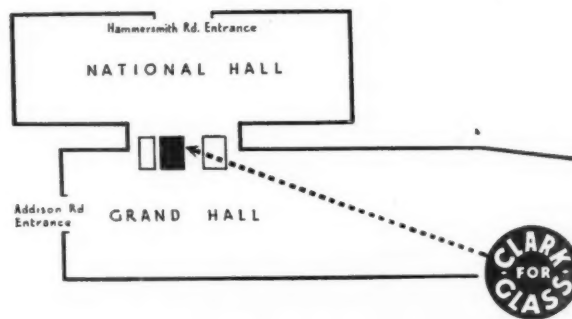
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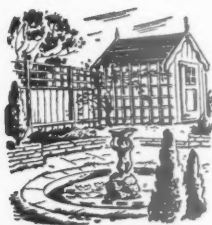
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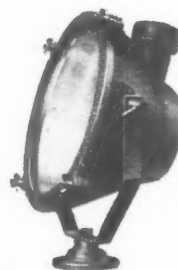
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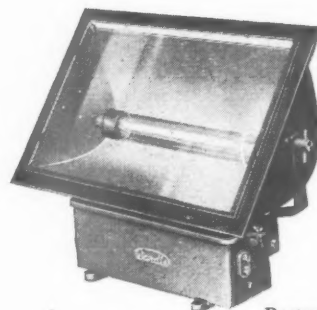
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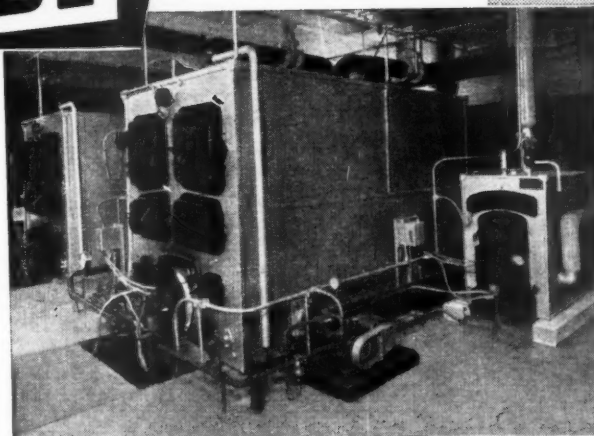
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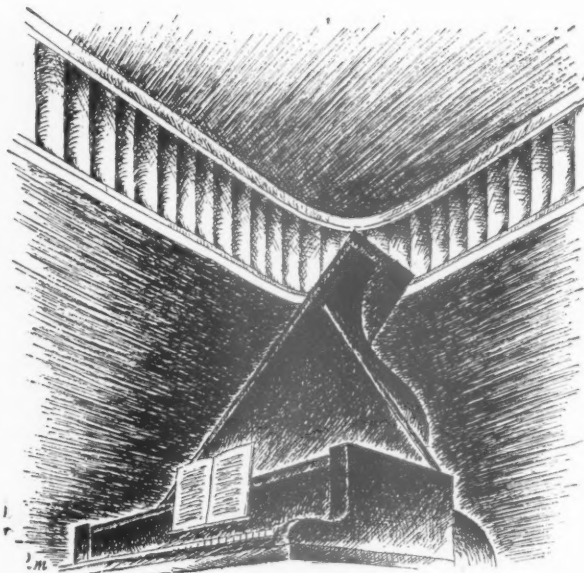


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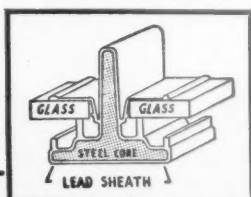
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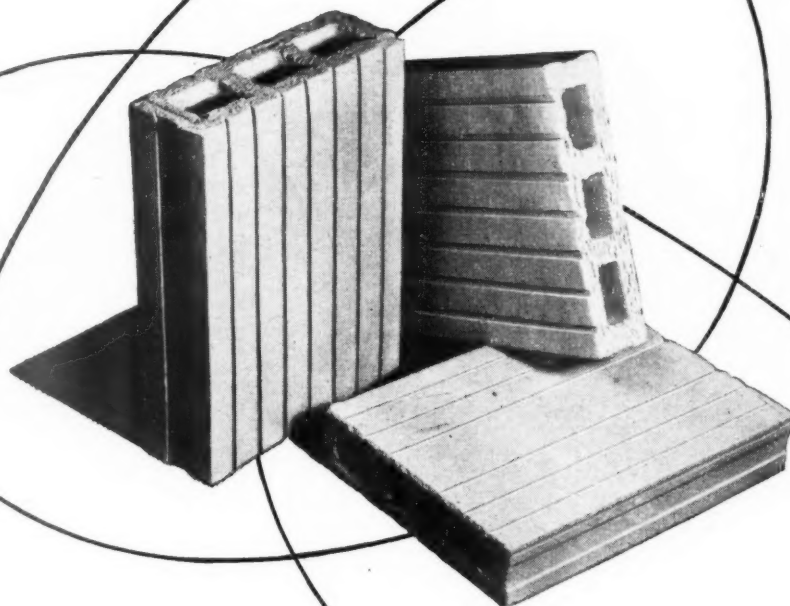


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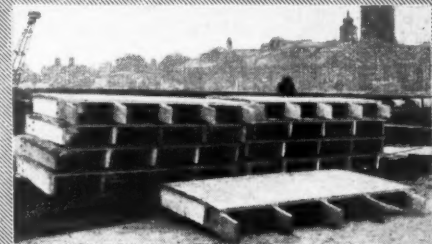


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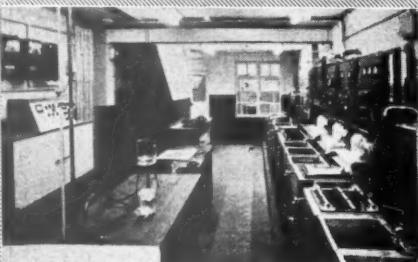
1. A window sill made from a strip of 'Pluto' board.



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3. Fire-proof sliding doors at the Hendon Hall Hotel, awaiting decoration.



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THE ARCHITECTS' JOURNAL

No. 2958 8 NOVEMBER, 1951 VOL 114

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STRONG MEN STRUGGLING WITH A WORD

"P" stood for Planning, whose weapons of defence were (to mangle GKC) strong, high sounding principles, and common sense. These virtues haven't got very far. You must have noticed, if not, the cover of this week's JOURNAL will show you (I hope) that, with the change of Government the "H" of "Housing" has been substituted for the "P" of "Planning" in the name of the old Ministry of LG and P.

With that sweet ingenuousness so typical of politicians everywhere, this change has been earnestly described as showing the government's determination to "forward the housing programme." No wonder our housing rate

faltered, with the ministry responsible spending half its time planning instead of housing. Can we be assured that from now on we'll get a good supply of unplanned housing? If the past is anything to go by, we can.

Those innocents who think we are still governed by ministers (and not by an army of civil servants who, by procrastination, resolutely marking time, adjusting the balances of ministerial power, and consuming strong tea (madly costly) are gradually achieving the civil service heaven of the *status quo*) will be intrigued that the conservative with most experience of town and country planning, W. S. Morrison, has been chosen to be the Speaker of the House. The new minister of the ministry which is responsible for town and country planning in fact, if not in name, is Harold Macmillan who has had previous experience as Parliamentary Secretary to the MOS, and as Under Secretary of State for the Colonies.

As the Minister of Housing and Local Government he will be able to introduce the "gust of new ideas which were often a little startling to the Conservative Party" of 1924 . . . to quote *The Times*. The new Minister of Works is David Eccles who, I read, has previously concerned himself mainly with matters financial and economic. So, as regards the two ministries perhaps nearest the architect's heart, and pocket, we have new brooms and, it is important to note—clean sheets.

In all seriousness, though, I would ask the strong men who rule us not to struggle too long with the word "plan-

ning." We need it—for town and country. This land is old, used-up, and littered with the rapidly ageing, uneconomic buildings, railways, docks, factories and houses of a Victorian prosperity. I hope Macmillan will put the MOHLG into a position where it can exercise the real power which it should have.

THE BEST OF BOTH WORLDS

The standard of architectural design at the LCC under Robert Matthew, architect to the Council, is getting better and better. The new designs for a housing estate at Roehampton (shown elsewhere in the JOURNAL) is a definite improvement on the very promising earlier work. I'll be interested to hear comments on the proposal to have internal bathrooms and wc's in the point blocks: if it's good enough for the wretched inhabitants of the Dolphin Square flats and the Cumberland Hotel I suppose it should do for the LCC.

The point blocks have a reasonably good plan with regard to orientation, and all the flats are for small families—a civilized touch. The larger families are housed in double-decker maisonettes and terrace houses. The latter, by the way, are very well grouped. This is one of the very few post-war layouts which has managed to achieve a really urban appearance by the intimate grouping of houses while still managing to retain a fair amount of privacy.

As a final kick in the teeth to the weary willies who have been running down district heating schemes for the past few years, I am glad to report that the point blocks of flats in this scheme will get central heating and hot water from a single source at a charge of about nine

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FIFTY UP

While in congratulatory mood I raise my hat to Herts CC whose schools department held a party last week to celebrate the commencement of their fiftieth school since the war. Can any county beat that?

DECENTRALIZED CRITICISM

To architect Lance Wright my sincere congratulations. He is a young Bristolian who has taken on the honorary editorship of the *Journal of the Bristol Society of Architects* and has boldly plunged into a new editorial policy of using the journal for critical analysis. This is a courageous move which takes up on a local scale what the JOURNAL and other national architectural papers have been advocating for some time. It is, perhaps, the more courageous in that objectivity and avoidance of personalities is far more difficult to achieve on an intimate parochial scale than on a national one. "It is an anxious matter launching experiments in criticism in so small a world as Bristol," says Mr. Wright in his foreword. One hopes that his colleagues will support him, and that they will see, as he does, that "insufficient design is more the responsibility of all architects, regarded corporately, than of individuals." To save any future hard blows of criticism, he adds that those who may be aggrieved, "may justly be invited to reflect that a critic, if faced with the same problem would, in all probability, have done just as badly, if not worse."

*

Mr. Wright's first experiment is devoted to the new Colston Hall interior in Bristol designed by Nelson Meredith, the city architect. The criticism is severe. Is this because an official is always fair game? Will such outspoken criticism of the work of private practitioners be possible without causing embarrassing personal relationships? We shall see. If it does not work, the need for a new profession will become even more apparent—that of the disinterested architectural critic, who knows all



On the left is David Eccles, the new Minister of Works, above is Harold Macmillan, Minister of Housing and Local Government. See Astragal's note on page 545.

about architecture but does not practice it. Critics of the other arts exist and write for the general public, and are rightly considered indispensable to the development of the arts. The most damning comment on the present state of architecture is not merely that good architectural criticism is so rare, but that professional criticism, like that connected with the other arts, barely exists. Until it does, we should all encourage men like Mr. Wright, however much they may trample on our own, sensitive and (to us) brilliant designs.

DIALECTIC

While I'm on the subject I must say more about Mr. Wright's outspoken and stimulating foreword in the Bristol Society's journal. He writes that differences in architectural thought may go so deep as to make the discussion on them unfruitful and the consequent disagreement deeply unedifying to the public. These differences, however, seem to him "unimportant when weighted against that other fact that nobody except ourselves is at all interested in architecture, and that even among ourselves the overwhelming majority is interested in it only as a means of earning a living, never as a reflection of ideas."

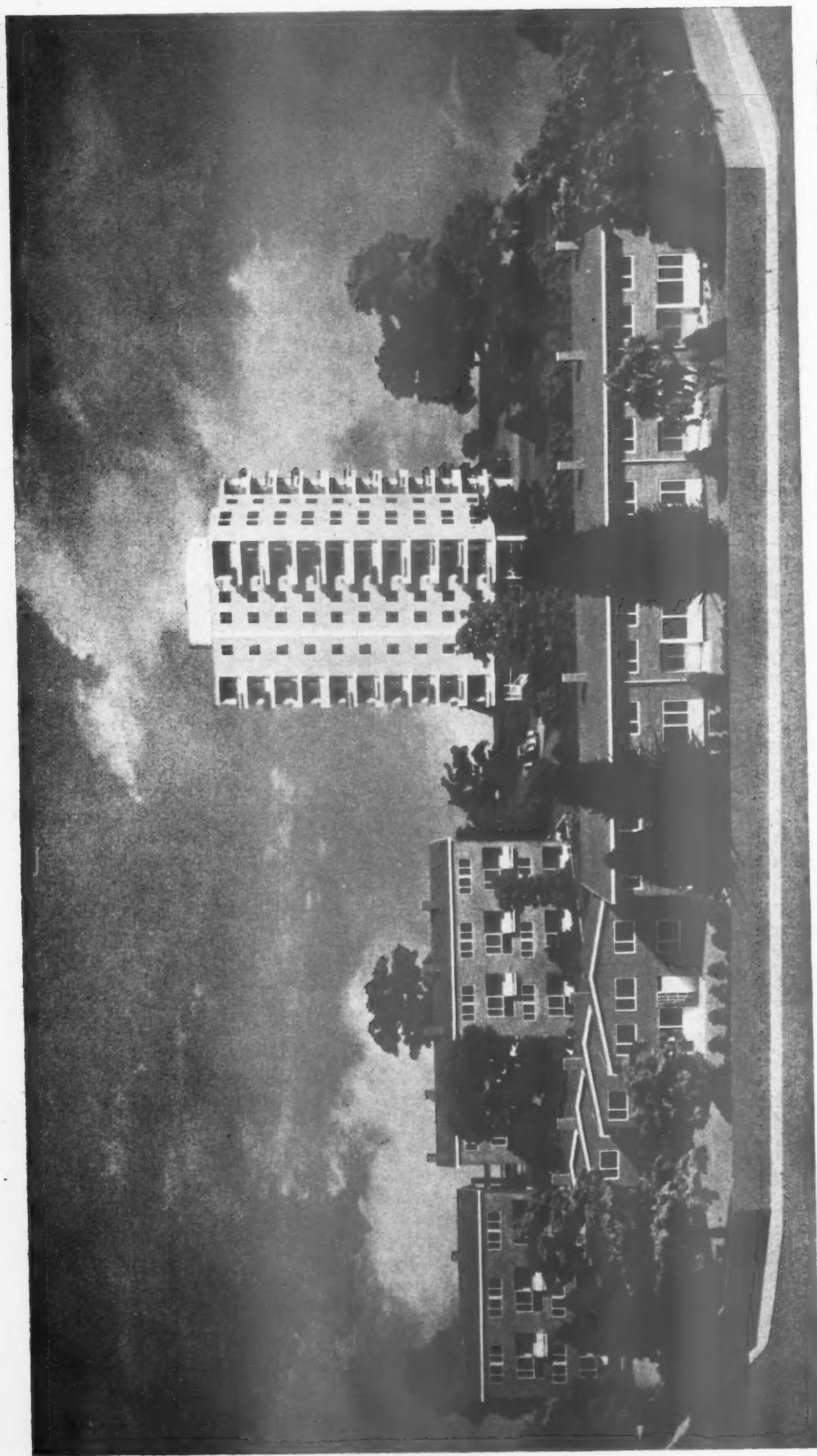
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Architecture, he believes, is a philosophical activity and implies a continuous anxiety about ends; changes in

style reflect changes in the architect's estimate of what Society requires of him. The architect should always keep this in mind and "it is the function of criticism to aid him to do it." I think he is right, but I would add the phrase "and the estimate of what the architect requires of Society." When Mr. Wright declares that "Design is now as bad as it has ever been" he is implying that architectural criticism as such is not enough. Criticism by architects of the very bases of our culture, which are after all much more powerful creators of our environment than architects *as architects*, is also needed.

*

Now, of course, we are on even more dangerous ground—that of politics—and also on what should be the solid foundation of politics, but really is a creative philosophy of life as a whole, of which architectural aesthetics is an integral part. This first number of the new Bristol journal deals with the Colston Hall purely as architecture, but the editor's foreword touches on wider issues. One of them is of fundamental importance. When showing how architectural criticism can avoid the injury of personalities, Mr. Wright says that fortunately "personal identification in design is something which is on the way out—responsibility is shared among a group so that in the finished work it is almost impossible to decide who did what." Is this really so; if it is, is it a good thing for architecture? A few years ago the idea would have



Another "Mixed Development" Housing Scheme for the LCC

The LCC has just published its plans for the development of a large area in the Wandsworth area—a twenty-five acre site at Portsmouth Road, Roehampton. The scheme was prepared by a development group working under H. Whitfield Lewis, the principal housing architect, and Robert H. Matthew, architect to the council. The above view of models (prepared by the LCC architect's staff model makers), which shows the south-west corner of the site, gives a good impression of "mixed development," which is the basis of LCC plans for housing in this part of London. There

are, in fact, only three basic types of accommodation: eleven-storey point flats, with small ground coverage, and considerable open space around; four-storey (two-tier) maisonettes, and two-storey terrace houses. The maisonettes and houses are for large families and all have private gardens. In design, equipment and technique, the scheme carries further the considerable break with tradition which is becoming a feature of LCC architecture. (See also page 545, for a comment by ASTRAGAL, and this week's leader on the opposite page.)

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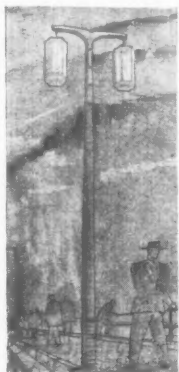
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been greeted with horror. Now I am not so sure.

TIMBER DESIGN ADRIFT

When I heard that the TDA was going to design a timber lamp standard for street lighting, I was delighted to think that the usually unpleasant precast concrete posts now



almost universal would be faced with a serious rival. Imagine the disappointment when, as you can see from the illustration, the TDA appears to have gone to considerable lengths to make their lamp standards look

as much like reinforced concrete as possible. Look at the T-piece at the top, for example, or the grooves cut in the base. These are surely not expressive of their material. Of course, it may be that the lamps referred to are to be made in concrete and merely the shaft will be in timber. In any case, I am disappointed in the TDA. Perhaps it will one day design a really wooden lamp standard instead of this hybrid performance.

AA SKETCHES

One final subject this week; and not a very exciting one: the members' sketches at the annual AA exhibition, which, mistakenly in my view, are scattered this year through several rooms. Whether the inspiration is Flint or Braque, the effect of almost all of them is the same—one of timidity and the repression of spontaneous feeling. Technique is moderately good in most cases and one feels sad at the immense amount of labour expended to so little purpose.

*

One tiny square sketch stands out. It is not officially listed, but seems to be an Eastern street scene. The artist is Hugh Casson. He must have a good collection of such sketches by now. I hope that we shall soon see the pick of them in book form. For in their unpretentious way they are masterful in their composition, colour and power of suggestion.

ASTRAGAL

The Editors

CHANGE OF GOVERNMENT—

RIGHTLY or wrongly the general public, after the last war, decided that a Labour Government was better fitted to attempt to create what, after the first world war was called "a land fit for heroes" than a Conservative one. The whole idea of trying to plan the rebuilding and development of a democratic country was a new one, but there was a precedent, of a kind. The whole nation had been planned and trained to become an efficient fighting machine in a world war. Surely, people thought, if such enormous energies can be harnessed to fight they can be harnessed to peaceful purposes. And so, some of the war-time restrictions were kept and adjusted by a Labour Government to serve peace-time ends. Unfortunately, it was not realized quickly enough that a system of government suitable for war was a relatively inefficient one in times of peace. Inevitably the Labour Party slowly lost its majority. Today the country stands divided equally between the party supporting the enterprise of the individual and the party supporting a controlled, planned development.

As usual, the answer will be a compromise. The Conservative Party has achieved power at a singularly low moment in the nation's fortunes. In addition, it has a past which renders it suspect in the eyes of many. But during the last six years it has had an opportunity to learn from the errors of the Labour Party. The way to achieve success can be put quite succinctly. The Conservative Government has got to provide incentives to work for everybody—employer or employee. At the same time the Government has got to keep sufficient control to avoid the evils of unplanned, uncoordinated development and production, and unemployment. It is no use for it to look back to pre-war achievements for guidance. Conditions then were totally different.

We are, today, a poorer nation. As an added burden we still have standing the outworn, outmoded shells which were built to house our industrial machinery and our population during the prosperity of the great Victorian era. We are paying the inevitable price for our early success. We are faced with a rebuilding problem which will strain our resources to the utmost. Nevertheless, our eventual prosperity depends upon it. Without new schools we cannot educate the population to a standard which will enable us to maintain our efficiency in science and technology. Without new industrial buildings we cannot achieve the productivity necessary to maintain our standards of living. The wealth of this country lies in its natural resources, in its capital equipment, in the form of machinery and buildings, and in its skilled workers. A government will only stay in power today if it proves itself capable of increasing the wealth of this country in those three things without sacrificing one of them.

It is undoubtedly true that the Labour Government never

managed to get the best out of the building industry. It is to be hoped that the Conservatives will be more successful. Time is running short and by some means this industry has got to be jerked into efficiency or a vital factor in the nation's economy will be affected.

No. 8: Specialist Editor

LCC HOUSING: CONTINUED IMPROVEMENT

The LCC has gone a stage further in its plans for "mixed development" in the Roehampton-Wimbledon area with an interesting and architecturally exciting scheme of flats, maisonettes and houses at Portsmouth Road, Roehampton. (See frontispiece on page 548.) Some twelve months ago plans were announced for a similar but smaller scheme (now at tender stage) for a site at Princes Way, Wimbledon (see the JOURNAL for November 23 and December 7, 1950), which included four 100 feet high point blocks, and a variety of lower blocks of flats, maisonettes and houses from two to five storeys. The present scheme has nine 100 feet high "points," constituting about 60 per cent. of the total accommodation. (There are none of the usual five-storey balcony or staircase-access blocks.) And the remaining 40 per cent. are two-storey terrace houses and four-storey maisonettes. The nine point blocks are to have central heating and hot water from a district scheme, at very economic rates, from a boiler-house to be built on the site, and also (such is the courage of the architectural direction now at the LCC) internal artificially-lit and mechanically-ventilated bathrooms and wcs.

To these, and other matters of technical interest we shall return later. For the moment let us consider the architectural and social principles behind the scheme. The point blocks, says architect Whitfield Lewis, cover only a small area and so permit the 40 per cent. of larger families (three and four-bedroom families) to have houses or maisonettes, each with a private garden, while at the same time preserving the maximum amount of open space on the site. The lower-storey maisonettes and terrace houses may more easily be staggered, vertically or horizontally, than higher slab blocks, to suit contours, trees and other natural features. The increase in the proportion of point-blocks from the Princes Way scheme to the Portsmouth Road scheme has been made possible by the design of a much more economic type of point block, which in turn has made district heating an economic proposition.

This scheme, which has been prepared within the normal level of costs of LCC housing, under extremely difficult economic conditions, shows real improvement in the social and architectural standards of London housing. The Housing Committee of the LCC is to be congratulated on its courage in putting forward such a scheme at the present time. Are these ideas, we wonder, to be limited to the Roehampton-Wimbledon area? Or, are they a sign of things to come in the reconstruction areas, in those depressingly named "out-county estates," or even in the new towns?



GOVERNMENT

Some Ministers Appointed

Among the members of the new Government are the following ministers, each one followed by his parliamentary secretary: Ministry of Housing and Local Government, Harold Macmillan and Ernest Marples; MOW, David Eccles and A. H. E. Molson; BOT, Peter Thorneycroft and H. G. Strauss; MOH, Captain H. F. C. Crookshank and Miss M. Patricia Hornsby-Smith; MOE, Miss Florence Horsbrugh and Mr. K. W. M. Pickthorn.

RIBA

President's Inaugural Address

The President of the RIBA, A. Graham Henderson, delivered his inaugural address to the Institute on November 6. He also presented the London Architecture bronze medal to A. J. P. Powell and J. H. Moya, for the Westminster City Council's Housing Scheme, Pimlico. Speaking about the Festival exhibitions, he said: "One hesitates to criticize where generally the effort has been so good, but it would be no compliment to refrain from criticism. My general one would be that the designers have been often too self-conscious, that many of them, in an effort to be different, have been over-elaborate; and, broadly speaking, that the 'frame' became in many cases more important than the 'picture.' In my simple mind I had always believed that the main purpose of an exhibition was to interest the public in the articles shown, be they works of art or manufactured goods or even natural objects, and that the setting or display of these should be of secondary importance. It may well be that the fault lay with those who selected the exhibits, which in some cases did not appear to be worth exhibiting."

"It is only right that I should say a few words about a particular exhibition which was unique of its kind. It was the Live Architecture one at Poplar, where the exhibits were the buildings of a new neighbourhood centre created on a bombed site and comprising housing, shops, schools, a church, etc. This was something which as architects we could thoroughly approve, and the fact that considerable public interest was taken in it is of real significance to our profession."

Concerning the International Building Research Congress, he said: "I believe generally in the value of building research, and that it was right and in fact necessary for architects to take part in this congress. I

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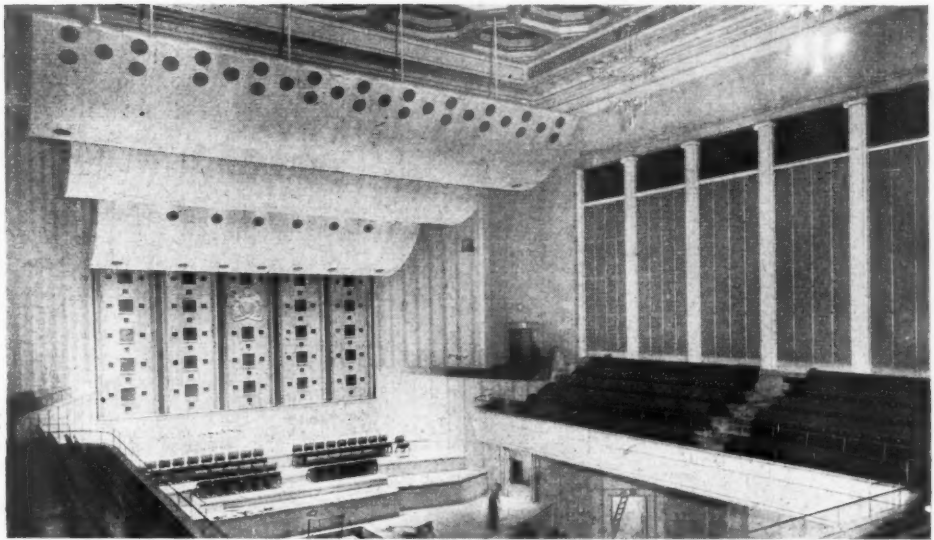
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The photograph on the right shows the auditorium of the reconstructed Free Trade Hall at Manchester. The work of reconstruction was carried out under the direction of Leonard C. Howitt, the city architect. The total seating capacity is 2,860 for public meetings and 2,534 for concerts. The ground floor seats can be dismantled and stacked clear of the area. The tip-up seats have acoustically absorbent under surfaces. The grand and side circles seats are fixed. The floor is of polished beech. Over the platform are three sycamore-faced sound reflectors. The hall will be opened by the Queen on November 16.



think that the scope of research must be kept closely related to the solution of our day to day building problems.

After referring to the Coventry Cathedral Competition, the President said: "I have drawn attention to this particular competition because I wish once again to plead for more competitions. The competition system, one not possible in other professions, gives opportunities to younger men for early recognition and ensures to the promoters, with almost definite certainty, the best solution of their problem."

Appointments

At the Council meeting on October 9, the following RIBA representatives were appointed to serve on juries to consider awards for the RIBA Architecture Bronze Medal in the Areas of Allied Societies. For the Northern Architectural Association: Colin Rowntree, President of the York and East Yorkshire Architectural Society. For the West Yorkshire Society of Architects: Robert Cawkwell, President of the Sheffield, South Yorkshire and District Society of Architects and Surveyors. For the western Australian Chapter, the Royal Australian Institute of Architects: E. W. Warne. The RIBA Representative on the Committee convened by CPRE to consider means of securing improvements in the external appearance and siting of Farm Buildings, will be C. J. Epril. The RIBA representative on the National House Builders Registration Council will be A. W. Kenyon, (re-appointed). The other two representatives, C. H. James and Kenneth Peacock will continue in office. For the West Midlands Advisory Council for Technical, Commercial and Art Education the RIBA representative on Advisory Committee for Art and Industrial Design, will be G. B. Cox, President of the Birmingham and Five Counties Architectural Association. For the Plumbing Trades National Apprenticeship Council, the RIBA representative will be W. A. Guttridge (re-appointed).

Midland Award

The Council gave formal approval to the recommendation of the Jury entrusted with considering submissions, that the RIBA Architecture Bronze Medal in the area of the Birmingham and Five Counties Architectural Association for the period 1946-1950 be awarded to the Needle Industries Ltd. Factory, Studley, Worcs., designed by S. N. Cooke and Partners (S. N. Cooke, E. Holman, H. Loxley Hare and Louis Hayes).

Copyright

The Council approved the action taken by the Executive and Practice Committees during the recess in preparing a short memorandum of evidence which was submitted to the BOT Copyright Committee. In this memorandum some clarification of Section 1(2)(a) of the Copyright Act, 1911, was requested in regard to the reinstatement of war damaged premises being considered as "reproduction" under that section of the Act. A slight element of doubt also exists in regard to the definition of architectural drawings and plans within the category of artistic and literary works and some clarification of that point was also requested.

Contract Settlements

The Council considered a report of the Practice Committee on the question of the issue by an architect of a final certificate in regard to work for which a local authority was the client. Discussions had been held with representatives of the Ministry of Local Government and Planning with a view to confirming the architect's independent position in regard to the issue of a final certificate. The Ministry have agreed to issue a memorandum reminding local authorities that the final accounts, if submitted to the Treasurer or Financial Officer, should be

susceptible only to arithmetical check and not to any analysis or investigation as to items of expenditure. For their part the Council approved an amendment to Clause 5 of the RIBA Form of Agreement for general use between a Building Owner (including a Statutory Authority) and a Firm of Architects in the following terms:—"that as soon as he has issued his final certificate the architect will supply to the employer such details of the final account as will enable standing orders or financial regulations to be complied with."

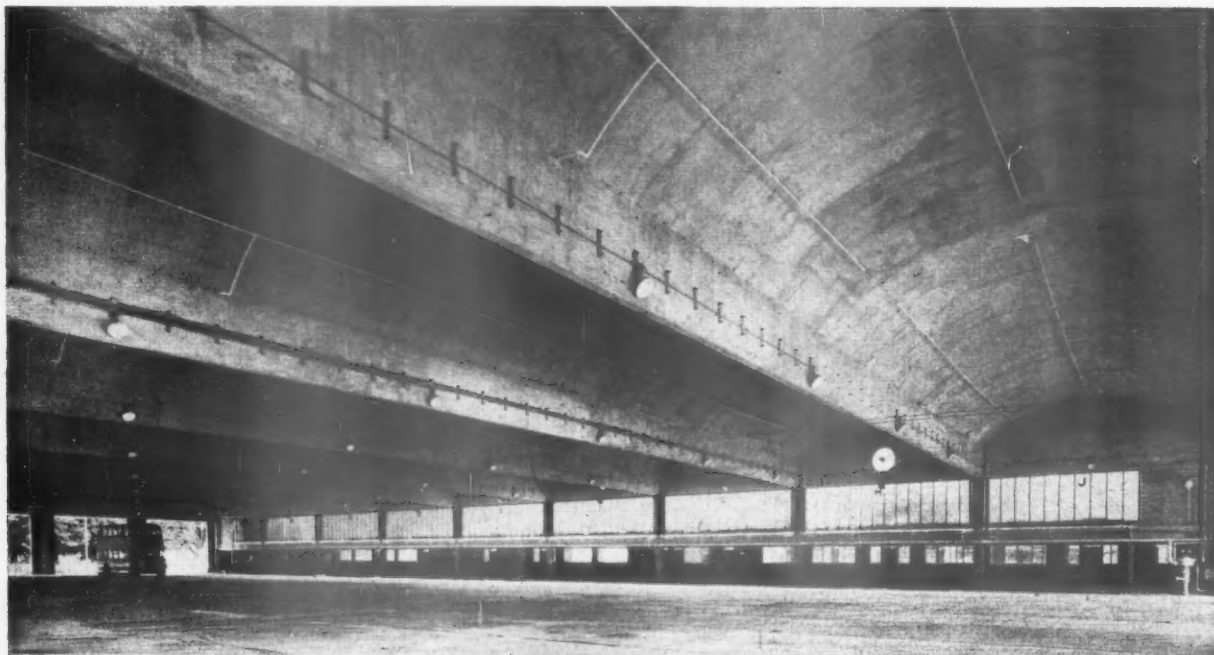
Timber Stress

The Council considered a report on a meeting held at the MOW and attended by representatives of the RIBA, the TDA, the Forest Products Research Laboratory and the BRS. This meeting had been convened as a result of representations originated in the Allied Societies' Conference on the danger of sagging of roofs constructed in accordance with the provisions of the Ministry's Economy Memorandum owing to the shortage of stress graded timber. In the course of discussion it was pointed out that the present British Standard on stress grading was to be withdrawn and a new Standard issued. It was also stated that supplies of better quality timber would shortly become available. Representatives of the Ministry had carried out a check over a large number of houses

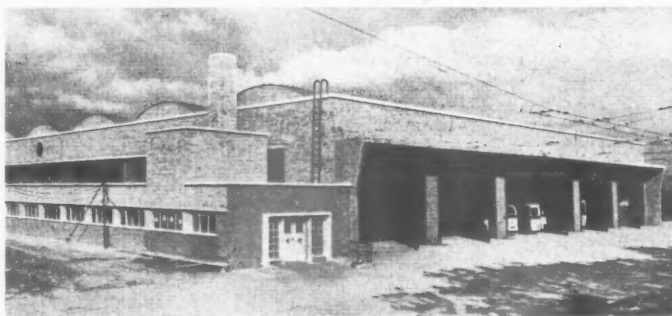
The photograph on the right shows the dome of super purity aluminium which has been used on the roof of the Norton Road Junior School, Luton, Beds. The tongued and grooved roof boarding was covered by sacking felt. The aluminium panels were restricted to 10 sq. ft. to allow for expansion. The jointing of the main roof panels was by means of single lock welts. Ease of handling and lightness are the advantages of this metal. If lead of a comparable thickness were used, the cost would be approximately 4-5 times as much. The dome was designed by the British Aluminium Co., Ltd.



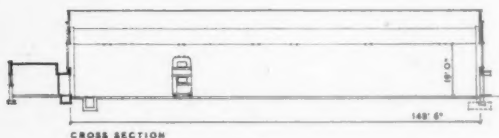
BUS GARAGE WITH SHELL CONCRETE ROOF



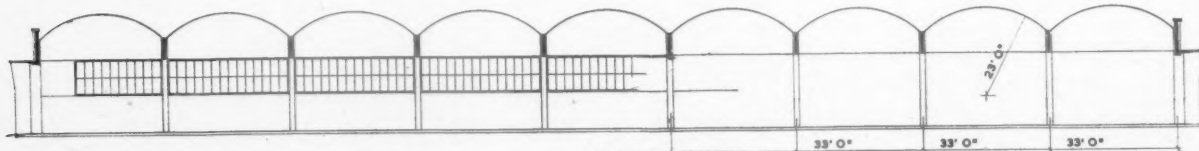
This new 'bus depot, designed by Jackson and Greenen, is at Castle Lane, Bournemouth, on a site of 24 acres. Eventually there will be two garages, each large enough for 99 'buses, with a long narrow offices block running between. The scheme will also include a wash building, a maintenance workshop block, etc. The garage building, right, and top of page, gives a column-free covered space of approximately 45,000 sq. ft., 300 ft. long by 150 ft. wide. This span of 150 ft. is the largest yet constructed in this country with prestressed edge beams and a shell roof. The longitudinal and cross sections of the garage are shown below. The roof is a reinforced-concrete thin shell structure made up of nine cylindrical-shaped vaults with prestressing in the edge beams. The span, which is transversal, bridges the 150-ft. width of the building without intermediate support. All nine vaults have a radius of curvature of 22 ft. 10 $\frac{3}{4}$ in., a rise from springing to crown of 6 ft. 9 $\frac{5}{8}$ in., and except at the



ends and springing, where there is some slight increase, a shell thickness of 2 $\frac{1}{2}$ in. The chord width all through is 33 ft. Intermediate edge beams are alike 10 in. wide and 5 ft. 6 in. deep. These were cast in situ and post-tensioned by the Magnel-Blaton system. An extractable rubber core was used to form the cable ducts and the complete cable threaded in after the withdrawal of the core. The wire used was 0.276 in. diameter hard drawn steel of 95 to 110 tons ultimate strength. With an extension of 7 $\frac{3}{4}$ in. on the 150-ft. span the stress induced in the 152 wires used in each intermediate edge beam was 125,000 lb. per sq. in., which, in turn, induced a total compressive force in the concrete of 1,136,250 lb. There is no roof lighting. The calculated value of natural illumination from the side lighting provided is 15.00 lumens per sq. ft. with doors open and 9.50 lumens per sq. ft. with doors closed. For contractors see page 574.



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and had found that complaints were of insufficient quantity, poor quality or bad workmanship but not that roof members themselves were too small.

Other Items

The Council accepted with regret the resignation of R.W.M. Orme from the appointment of Assistant Secretary (Public Relations).

The Council approved the recommendation of the Public Relations Committee that the offer of the Anglo-Brazilian Society to arrange an exhibition of Brazilian architecture at the RIBA in the spring or early summer of 1952 should be accepted.

The Council approved a recommendation that in future an honorarium of three guineas per subject plus a capitation fee of five shillings per candidate be paid to Intermediate Examiners officiating at provincial centres.

The Council approved a recommendation that for 1952 and thereafter the Institute should make a grant of £50 annually towards providing for one student from each recognized school in the metropolitan area in turn to take part in the Easter Visit to Rome.

The British Architects' Conference in Edinburgh is to be held from June 25-28, 1952.

NFBTO

New Wage Demand

A claim for an increase of 22s. a week, or 6d. an hour, for about a million building workers has been submitted to the NFBTE by the NFBTO. A joint meeting will be arranged. The twelve unions affiliated to the NFBTO decided to make the demand at a joint meeting last September.

CIAM 8

Points from the Congress

As announced briefly on page 514 of the JOURNAL for October 25, the official report of the 8th International Congress of Modern Architecture (CIAM 8), which was held at Hoddesdon, Hertfordshire last July, is now available. The conference was attended by delegates from twenty-two countries. The subject under discussion was the *Core* of the village, town or city—the physical and psychological heart of the community—to which, it was thought, that many planners had not given sufficient attention while studying other urgent matters like housing and territorial planning. The following extracts are taken from the papers and remarks by some of the principal delegates.

Jose Luis Sert (USA), in his address as president, said: "There is no doubt that civic planning in the last few years has been escaping to the suburbs; urbanism has really become suburbanism. The majority of treatises that we see on city planning deal much more with suburban development, of the type of the garden city development, and with other problems that have nothing to do with the core or the heart of the city. This has corresponded to the trend of decentralization in cities. The majority of people in the cities have gone suburban. Town planners have also become suburban and have followed this trend, but now we find that if we want to do something with our cities we have

again to talk in civic and urban terms, and we believe we must tackle the difficult problem of the core of the city. There is only one real advantage of living in a city and that is to get man together with man, and to get people to exchange ideas and be able to discuss them freely.

"The role of the architect in the core is a special one. We agree that cores should be planned, like all important city planning work, by a team of specialists and that we should get outside help from other people specialized in other subjects; but we believe that the architect and planner have a very important role in planning this core and we believe that there are some general principles on which the architect is perfectly clear.

In his lecture on *L'Echelle Humaine*, Le Corbusier (France), said: "At Chandigar, Pakistan (where Le Corbusier is planning a new town, Ed.), there are exceptionally favourable circumstances: a broad-minded administrator: a chief engineer who is a man of great quality—these two are Indians; then myself as consultant and Maxwell Fry and Pierre Jeanneret. I found myself in a country that tested all I thought I knew of architecture and town-planning. When I left, everyone said: 'He is going to build skyscrapers as high as the Himalayas.' Well, I am building a one-storey town. The site consists of a large well-chosen plateau, containing a dozen villages which, unfortunately, we are forced to destroy. The houses are primitive, built by hand from clay bricks taken from the ground itself—the principle being to make the walls so thick as to be a protection from the sun which lasts ten months of the year, and from the torrential rains which come in the remaining two months. We have decided to change this idea, and we are building walls of 5-cm. so that they may cool quicker in the night.

Jaqueline Tyrwhitt (GB), speaking on the historical background of the core, said: "There must be a close physical nearness of all that goes to build up the heart of the city. It should be possible for both stranger and citizen to move easily from, say, window-shopping along a row of brightly-lit windows, to observe a passing civic procession and then look in at a small art gallery. Kunio Mayekawa (Japan), in the discussion which followed, said: "The core must have open ground and serve the citizens for recreational and cultural activities. Japan

has no such cores at present, but in the Hiroshima Peace Project one is being built."

J. L. Sert added: "The core is a place where people can see people. Whenever a beautiful woman or a dog crosses the Piazza San Marco it is perfectly designed against an architectural background—like a Carpaccio.

Philip Johnson (USA) said: "In Harlow New Town they have left space which is said to correspond to the place where the church was in old English villages. It may correspond, but does it do the same thing? Is it a symbol, is it an enclosure, is it the reason for coming to the place, is it a development where you turn and twist to reach a place where you feel fine? No, and my guess is it will always remain just an open space and not correspond to the village church square in old English villages."

COID

Scottish Chief Appointed

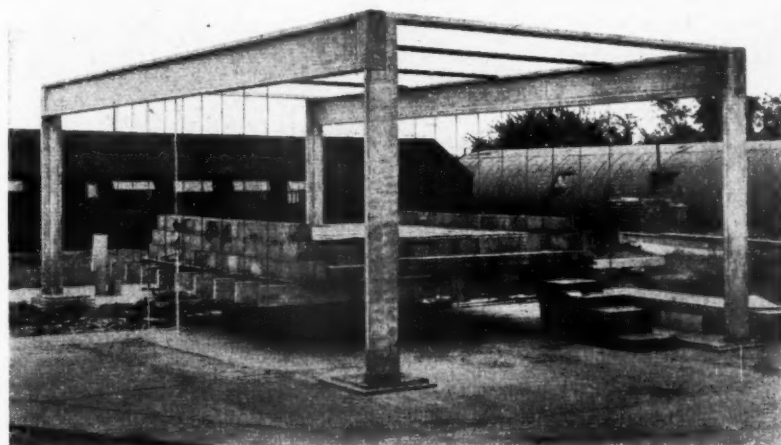
Alister Maynard has taken over the position of chief officer to the Scottish Committee of the COID, in succession to Wyndham Goodden.

TURKEY

Competition Clauses Unacceptable

The secretary general of the International Union of Architects has announced that the Union has been informed that an international competition has been launched for a psychiatric and orthopaedic clinic, and for an amphitheatre, for the Faculty of Medicine at Istanbul. "The International Union of Architects has not been informed of this by the organizers," says the secretary general; "the Union only knows a few clauses of the conditions. These conditions are wholly unacceptable, and we invite national sections of the International Union immediately to request all their members to abstain from participating in such a competition."

BUILDING EXHIBITION STAND



The above photograph shows the trial erection of the skeleton frame of the Cement Marketing Company's stand for the Building Exhibition. It consists of prestressed concrete joists, suspended by steel wires from a prestressed concrete frame. This forms the platform for the stand. The test was carried out with a load of 6 tons.

Following is another article in the series on planning control. A further article will appear in next week's issue.

ERNEST WATKINS

Planning and the State (3)

We can see how many conflicting claims are made for the use of land by considering the processes by which a new town is created. However well chosen its site, every new town must make use of some agricultural land for housing or for industrial building. Under the 1946 New Town Act the decision to use land for such purposes is made—or has been made to date—by the Minister of Local Government and Planning, after consultation with the existing local authorities and the holding of a public enquiry.

THE DEVELOPMENT CORPORATION

When the development corporation has been set up it is not free to make its plan independently. Fortunately it is now freed from its earlier handicap of having to seek the approval of the local authority as well as that of the minister. But the minister's approval must still be sought and the plan must be one which will make the new town a part of its district and not an alien intrusion.

The development corporation cannot work independently any more than it can make its own planning decisions. Immediately it is established it is in competition with every other authority in the country. It needs staff and engineering equipment for its sewage and service installations. It must obtain post office equipment and electricity. It must take on employees—apart from professional staff—through the Ministry of Labour. And its purchases of material must be sanctioned by the MOW, for it needs a building licence for all it undertakes.

CLASH OF INTERESTS

The development corporation encounters a clash of interests in the allocation of its housing. The share of housing it is given may be ten times as large as that given to the local housing authority for its area and it is not easy for local residents to stomach the fact that these houses are intended for people moving into the district. Another difficulty arises in the case of new towns around London which are designed to drain away the population of defined London areas. Although the London boroughs want new houses for people who are housed under the worst conditions, the development corporations want to choose men for their trades.

A new town is, then, very much a compromise. People already in a new town area may look on the new town with hostility—and with some reason. Their country freehold is transformed, compulsorily, into an urban leasehold. Owners of land are dispossessed and the compensation they are given falls short of what they could have obtained in the open market had they sold earlier. Farms are cut to pieces, old landmarks uprooted and the life of the area transformed. Above all, services which the existing ratepayers had demanded in vain for years are now lavished on the area—for the benefit of strangers—and the existing resident, however badly housed, sees no hope of obtaining one of the new and well-subsidized houses.

Yet to the newcomer the picture is very different. He has a new home in new surroundings and work in better conditions. He is part of an experiment and he has a chance of contributing to its success. For

once, a vast machine seems to have been set up for his benefit and the vested interests which he, as an individual, could never have hoped to defeat are blasted out of the way by Act of Parliament. He has the status of a returned prodigal son and is as pitying, or as resentful, of the comments of the established family as prodigals are traditionally supposed to be.

THREE CLAIMS ON LAND

In planning there will always be present, in varying strengths, three elements:—

(a) The claims of the individual landowner, or land developer (sometimes no more than a deadweight of opposition, sometimes a potential driving force towards desirable development), who can be sacrificed only at the cost of some reduction in the dynamic strength of the country.

(b) The claims of the region, sometimes purely local (as when Newbury protested that its common should again be taken for an airfield); sometimes almost national in effect.

(c) The claims of the state, the sum total of all individuals, localities and regions. They may require that a particular county shall not be allowed to expand its population still further, equally that central Wales must provide both military training grounds and a new reservoir. In some instances the community must be prepared to destroy a present amenity for what it believes will be to the benefit of posterity.

Control of development is, then, essentially the process of reconciling as many claims as possible and of providing machinery through which those claims can be given proper expression. But it also involves the making of decisions when the point at which reconciliation is not possible is reached. Reconciliation is the basis of communal living. Decision is the basis of government. If the community entrusts the defence minister with the responsibility of defence it must, ultimately, accept a decision that a particular piece of land is needed as a training ground and that the decision when given must be effective and absolute. Otherwise the whole basis of government has gone.

The man who wants the minimum of planning wishes to be satisfied that what control exists is directed to some useful and intelligible purpose. The man who would entrust much more to the state wishes the state to be properly guided and to hold an equitable and informed balance between the various interests that make up the life of the community. But both want reconciliation and decision.

In this concluding article Mr. Nicholson discusses the means by which an employed architect is assessed for income tax and the expense claims he may make.

D. T. H. NICHOLSON

Income Tax and the Architect (2)

EMPLOYED ARCHITECTS

The employed architect is assessed on his actual earnings in the fiscal year, and his employer is instructed to deduct tax from each monthly, or other payment under the PAYE regulations. Each employee is

given a code, according to his personal circumstances, reflecting the allowances to which he is entitled, and tax is deducted according to that code. It is often felt that this method is just an idea thought up by the tax collector, in order to extract more tax out of the individual than that which the Revenue is entitled to under the Acts. Although agreeing, owing to the fact that a code number is used to cover cases whose allowances differ by a few pounds either way, that differences occur between the tax deducted and the true tax liability, the difference is seldom more than a few shillings, providing the code is correct. Where differences do exist is when the code is wrong, and no appeal is made against it. Any person, wishing to satisfy himself as to the correctness of the tax deducted, may apply to his PAYE District Inspector of Taxes, after the end of the fiscal year, for a detailed assessment setting out his earnings, the allowances deducted therefrom, and the true liability to tax. The actual tax deducted is also shown, together with the balance under or over-paid. In practice, any small differences are carried forward to the next year.

EXPENSE CLAIMS

There is one matter which often occupies the minds of persons earning a salary, and that is the question of relief for expenses incurred. They fail to see why somebody owning his own business should be in a different position from one earning a salary. The reason lies in the precise wording of Rule 9 of Schedule E, under which such persons are assessed. The precise wording which is somewhat archaic, is as follows:—

"If the holder of an office or employment of profit is necessarily obliged to incur and defray out of the emoluments thereof the expenses of travelling in the performance of the duties of the office or employment or of keeping and maintaining a horse to enable him to perform the same or otherwise to expend money wholly, exclusively and necessarily in the performance of the said duties, there may be deducted from the emoluments to be assessed the expenses so necessarily incurred and defrayed."

The most important words in this rule, "necessarily" and "in the performance of the said duties," are in italics. Expenses voluntarily incurred, cannot be claimed, no matter how reasonable they may be.

MEMBERSHIP OF SOCIETIES

Subscriptions to professional societies, where membership of those societies is not a condition of employment, are not expenses "wholly, exclusively and necessarily" incurred in the performance of the duties, but where membership of a professional society is a condition of employment, in practice, a deduction from the emoluments received is allowed as a concession, though not as a right. A leading case on this point throws interesting light on the interpretation of this rule. A doctor who held a salaried appointment, claimed to deduct subscriptions to professional societies. The claim was refused, but in the course of his judgment, the judge made the observation—"He does not belong to societies in order that he may get the journals and read them to the patient."

The phrase "in the performance of the said duties" excludes expenses of travelling between residence and place of employment. That is merely putting oneself into the position where the duties are to commence. If an employee holds an office in one town, and a separate employment in another, expenses of travelling between the two points are not allowed, since each employment commences when the employee reaches the place of employment. Deductions are allowed for contributions under the National Insurance Act, 1946, contributions to approved superannuation schemes,

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"THE BUILDER" LOW-COST HOUSES

and drawing equipment etc., when the employer does not provide such equipment.

The reason for the different rules between those relating to Schedule D, and those under Schedule E, lies in the fact that in the first case, the individual is engaged in the making of profit, and in the second case, under Schedule E, he gets a fixed emolument, and therefore, expenses wholly and necessarily incurred can be rigidly, or fairly rigidly fixed. Attempts to alter the rule, in the case of Schedule E, in recent years during Budget debates have all failed. Expenses claimed under Schedule E are either included in the detailed assessment issued after the end of the fiscal year, or where a round sum allowance is agreed, relief is given by adjusting the code number of the individual.

There are, no doubt, a number of persons holding salaried appointments, who in their spare time run small practices. In this case the two sources of revenue will be kept separate for taxation purposes and, as explained above, the salary will be assessed under Schedule E, whereas the fees received, less the expenses incurred in earning those fees, will be assessed under Schedule D. On the other hand, a practising architect may take up a salaried position on a part-time basis, for example as a consulting architect. In that case the salary he earns will be brought into his computation of his business profits and included in his assessment under Schedule D. Tax will not be deducted at source under the PAYE regulations.

DIARY

Exhibition Design and Textiles. Products designed by members of the SIA. At the Colour Design and Style Centre, 19, York Street, Manchester, 2. Weekdays 10 a.m. to 5 p.m.; Saturdays 9.30 a.m. to 11.30 p.m.

UNTIL NOVEMBER 10

Exhibition: Scandinavian Design for Living. At Heal & Son, 196, Tottenham Court Road, W.1. During shopping hours.

UNTIL NOVEMBER 13

The Design and Construction of Concrete Pavements. A paper by F. N. Sparkes. (Sponsor, RCA.) At ISE, 11, Upper Belgrave Street, S.W.1. 6 p.m.

NOVEMBER 14

Building Exhibition. At Olympia. Weekdays 10 a.m. to 8 p.m.

NOVEMBER 14 TO 28

The Future of Planners. A talk by Sir George Pepler. Organized by the Students' Planning Group of the TCPA. At 28, King Street, Covent Garden, W.C.2. At 6.15 p.m.

NOVEMBER 15

What the Building Industry expects from the Technical Colleges. A discussion between F. M. Sleeman, W. A. Yeomans and R. L. Jones at the NFBTE Conference. At 82, New Cavendish Street, W.1, at 10.30 a.m.

NOVEMBER 17

The Evolution of the RIBA Form of Contract. An address by H. A. Close. At the RICS, 12, Great George Street, S.W.1. 6 p.m.

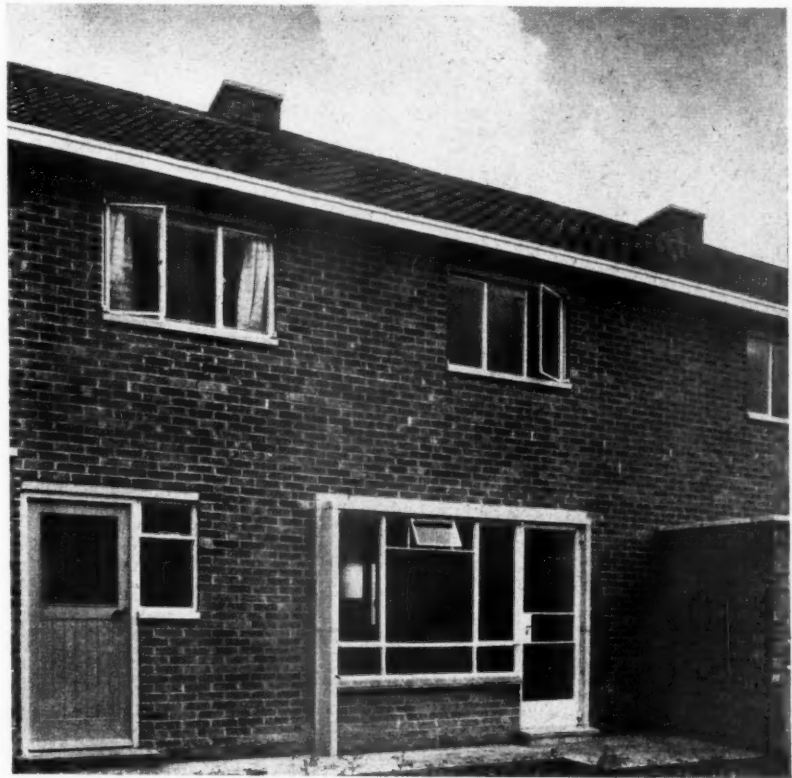
NOVEMBER 21

The Obsolete Street. R. Furneaux Jordan. (Sponsor, Students' Planning Group of TCPA.) At 28, King Street, Covent Garden, W.C.2. 6.15 p.m.

NOVEMBER 22

The Reclamation of Abandoned Industrial Areas. A paper by L. Dudley Stamp. At the RSA, John Adam Street, W.C.2. 2.30 p.m.

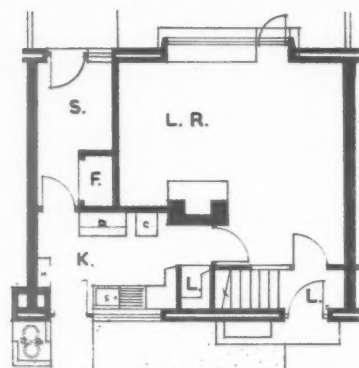
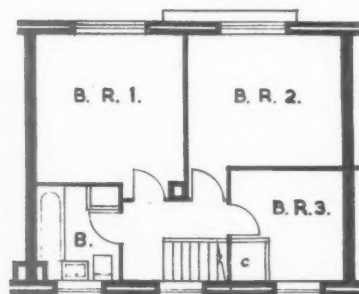
NOVEMBER 21



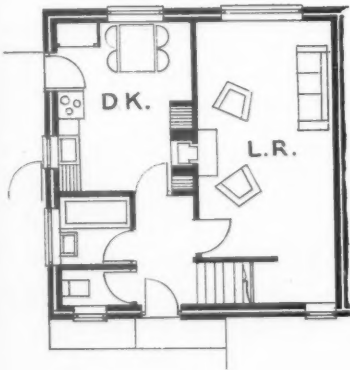
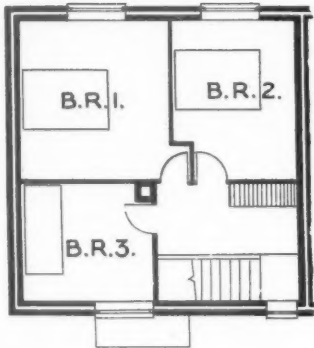
The winning design (by J. L. Womersley and G. Hopkinson) of "The Builder" £1,000 House Competition (reported at length in the AJ for March 1, 1950) has now been built. Of a block of four of these houses, at Delapre, Northamptonshire, three are already occupied and the fourth was officially opened today by Sir Stephen Tallents. Above, the rear view of one of the houses; below, one of the bedrooms. On the following two pages the plan and several internal and external views of the house are compared with the "low-cost" house designed and built for the Eastern Federation of Building Trade Employers, and previously described in the AJ for October 11, 1951. (General contractors: T. Wilson & Son, Ltd.)



LOW-COST HOUSES : A COMPARISON BETWEEN "THE BUILDER"



WINNING COMPETITION DESIGN AND A SCHEME AT IPSWICH



The illustrations on the opposite page—ground- and first-floor plans (scale $\frac{1}{12}$ in. = 1 ft.), front elevation, living room, kitchen and main bedroom—are of the now built winning design of "The Builder" £1,000 House Competition. Licences had been granted by the Northampton County Borough Housing Committee, and the houses were built in $3\frac{1}{2}$ months, with an average of only 1,690 man-hours per house. Final cost of an intermediate house was £1,083; the cost having risen £133 over the £950 estimate as a result of increases in rates of wages, costs of materials and a few minor improvements incorporated into the design. On this page, for purposes of comparison, are the plans (scale: $\frac{1}{12}$ in. = 1 ft.), and further illustrations—main elevations, living room and kitchen—of the Eastern Federation of Building Trade Employers' house at Ipswich (architects: Hare and Pert). On the next page the planning, construction and costs of the two houses are compared.

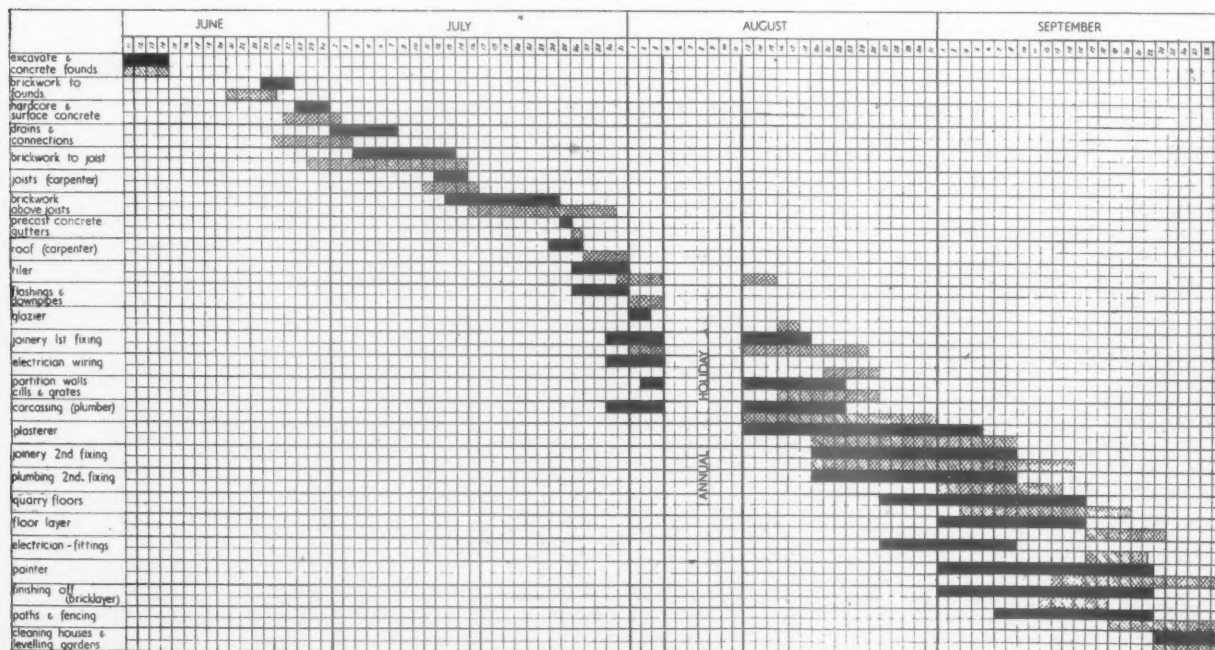


TWO LOW - COST HOUSES (continued) : A DETAILED COMPARISON

	"THE BUILDER" HOUSE	THE EASTERN FEDERATION HOUSE
Superficial area (approx.)	765 sq. ft.	820 sq. ft.
Areas of individual rooms :		
Living room	206 sq. ft. (incl. dining area)	191 sq. ft.
Kitchen and larder	83 sq. ft.	112 sq. ft. (incl. dining area)
Bedroom, 1	120 sq. ft.	140 sq. ft.
Bedroom, 2	110 sq. ft.	112 sq. ft.
Bedroom, 3	62 sq. ft.	78 sq. ft.
Total area of living space	581 sq. ft.*	633 sq. ft.
Additional accommodation	Store and fuel store	—
Ceiling heights :		
Ground floor	7 ft. 9 in.	7 ft. 6 in.
First floor	7 ft. 6 in.	7 ft. 6 in.
Frontage (centre to centre party walls)	22 ft. 9 in.	21 ft. 5 in.
Estimated cost	£950	£1,000
Actual cost	{ £1,083 (intermediate house) £1,112 (average for block of 4) }	£1,106
Cost per sq. ft.	29s. 1d. (average for block of 4)	27s.
Man hours	1,690 (average for block of 4)	2,038
Construction :		
External walls	11-in. cavity brickwork	11-in. cavity brickwork
Party wall	9-in. brickwork	11-in. cavity brickwork
First-floor partitions	Hollow blocks	Stud and plasterboard
Roof	Traditional timber	TDA trusses
Windows	Standard metal	Wood casements
Doors	Standard	Flush
Floor finishes :		
Ground floor	Thermoplastic tiles (quarries in kitchen and screed in store)	Thermoplastic tiles
First floor	Timber	¾-in. T & G boarding
Decorations	Distemper (living room papered)	Distemper throughout
Heating	Slow combustion, solid-fuel stove in living-room, providing hot-water supply and heating 2 radiators and towel rail	Convector open fire in living room, providing domestic hot water and warm air to kitchen

Below, is reproduced the progress chart for the four "Builder" houses at Delapre, Northamptonshire. Estimated progress is shown in black; actual progress, hatched. The use of this chart, doubtless, played a considerable part in reducing costs and, particularly, in reducing man-hours. Other reasons for the

relatively low cost of these houses were, according to a press notice issued by "The Builder," the simplification of plan, fittings, plumbing and drainage, the elimination of wasteful halls and passages, and the reduction of bedroom sizes to a workable minimum.



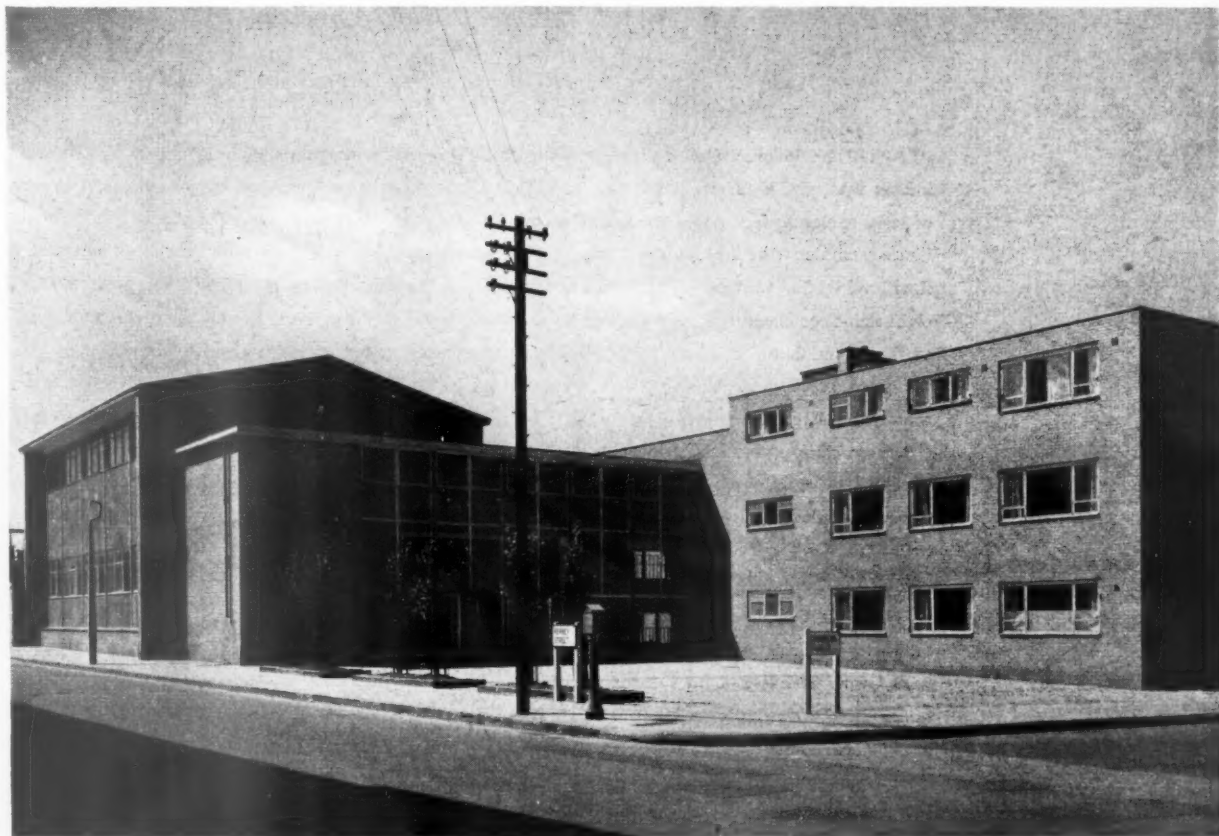
PRIMARY SCHOOL

in RICARDO STREET, LANSBURY, POPLAR

designed by F.R.S. YORKE, E. ROSENBERG and C. S. MARDALL
assistant architect, K. W. GRIEB, consulting engineers : CLARKE, NICHOLS
and MARCEL. consulting heating engineers : OSCAR FABER and PARTNERS

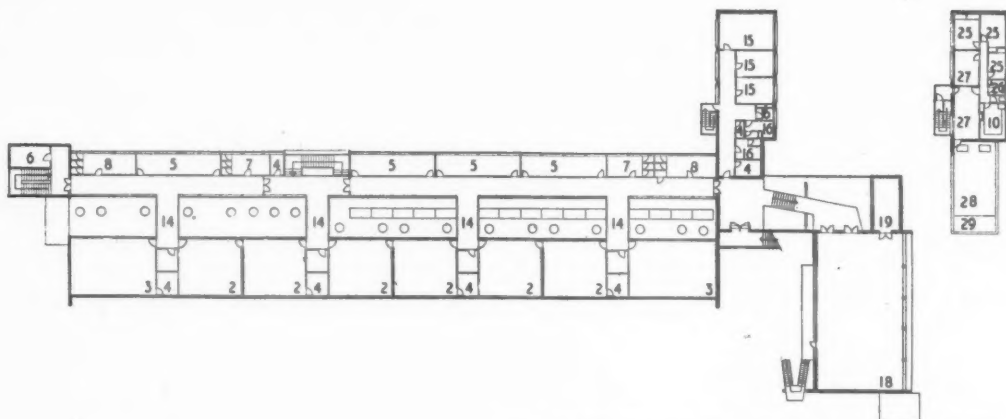
This school, first illustrated in the JOURNAL for September 6, is shown in greater detail this week, and forms the subject for a discussion between designers and editors on pages 561 to 566. The school was part of the "Live Architecture Exhibition" of the Festival of Britain and forms part of the Lansbury neighbourhood unit. Alongside the school is a separate nursery school which is shown on the site plan but is not included in either the description or the discussion which follows.

From the north, the entrance to the assembly hall with the administration block on the right.

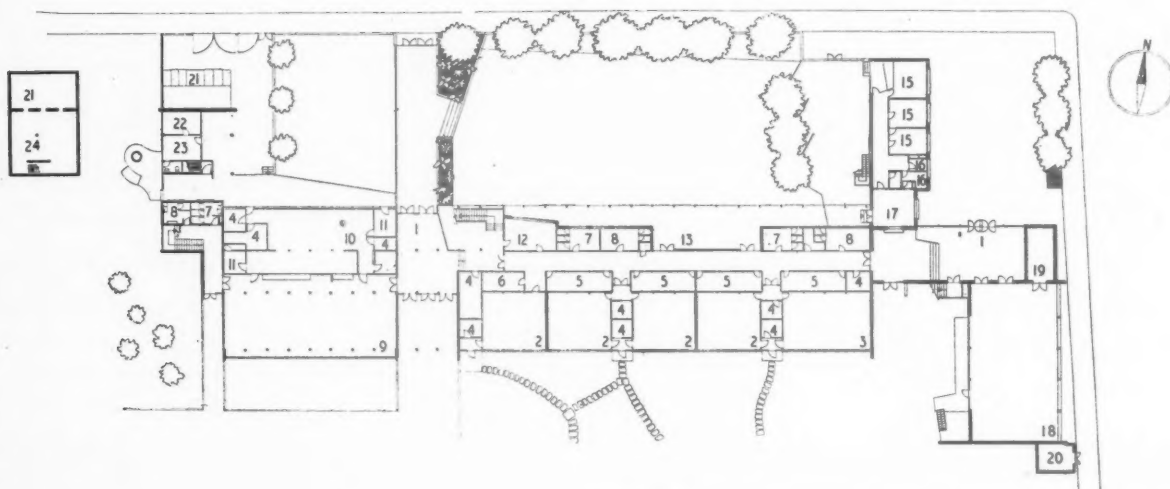


KEY :

- 1 Entrance hall
- 2 Classroom
- 3 General purpose room
- 4 Store
- 5 Cloakroom
- 6 Drying room
- 7 Girls' lavatory
- 8 Boys' lavatory
- 9 Dining room
- 10 Kitchen
- 11 Kitchen staff
- 12 Medical room
- 13 Covered play area
- 14 Bridge
- 15 Staff room
- 16 Staff lavatory
- 17 Waiting space
- 18 Assembly hall
- 19 Chair store
- 20 Transformer
- 21 Fuel
- 22 Meters
- 23 Caretaker
- 24 Boiler room
- 25 Bedroom
- 26 Bathroom
- 27 Living room
- 28 Roof garden
- 29 Tanks



First floor plan and second floor plan of administration block



Ground floor plan and basement plan of boiler house [Scale: 1/4" = 1' 0"]

PLAN.—The Primary School accommodates 200 infants aged five to seven years, and 320 juniors of seven to eleven years. It is planned as two narrow blocks standing side by side, and joined at first floor level by four bridges. The juniors occupy the eight first-floor classrooms, and the infants the five on the ground floor. The rest of the ground floor of the classroom block is planned as a common dining room with kitchen facilities. The design of the classroom block provides cross lighting and through ventilation to all classrooms; access to the first floor classrooms is by means of bridges across the light well.

CONSTRUCTION.—The buildings are planned on an 8-ft. 3-in. grid, using light, welded steel framework, with standard mild steel stanchions and beams in the classroom block, and light, welded low-pitched steel trusses to the assembly hall. Roof beams are partly exposed, and partly concealed by suspended ceilings. Structural load-bearing brickwork is used for the administration block.

External walls are partly in 8-ft. 3-in. by 1-ft. 4-in. by 2½-in. spar-faced precast concrete slabs clipped back to stanchion flanges, and partly in stock brickwork. Part of the assembly hall block and part of the administration wing are faced with Hornton stone cramped back to the 4½-in. brick backing. Inner leaves of external walls are generally 3-in. thick hollow terra cotta blocks, or 4½-in. brickwork with a 2-in. cavity. Internal partitions are 3-in. hollow terra-cotta blocks, or 4½-in. fair-faced brick. Ground floor slabs are 5-in. mass concrete on 4-in. oversite hardcore. A damp-proof membrane is inserted between the site concrete and the floor finishing material. Upper floors to the main building are 5-in. precast concrete slabs spanning 8 ft. 3 in. with a solid concrete floor to the first floor assembly hall, and terra-cotta hollow tile and concrete floors to the administration wing. Except for the assembly hall the flat roofs are constructed with standard precast slabs, finished with three layers of bituminous felt with a ½-in. spar top dressing, on a ½-in. layer of insulation board. The assembly hall roof is

covered with sheet copper on 2-in. strawboard backing. Windows to the administration block are constructed of extruded aluminium sections in wood frames; all other windows are built up from standard mild steel window sections, zinc-sprayed to prevent rusting. The connecting bridges to first floor classrooms are enclosed with standard vertical aluminium patent glazing. All internal doors are standard size flush doors in wood frames. Standard door furniture is used throughout.

SERVICES.—Heating and hot water are provided by solid fuel boilers in a basement heating chamber beneath the north-west corner of the school. Heating is by low-pressure hot water by means of panels of small diameter pipes in the floors and dados of classrooms, and cast-iron radiators or pipe coils elsewhere. All electrical wiring is in screwed steel conduit, and the main meter cupboard adjoins the caretaker's rooms on the ground floor.

INTERNAL FINISHES.—General classrooms are tiled to window-cill level with glazed tiles and plastered above. Large areas of cork pin-up boards are provided. Lavatory walls are tiled to cill level, and corridors are fair-faced flint lime brickwork. All other wall surfaces, including the assembly

halls, are plaster, distempered or painted. Glazed wall tiles, specially designed by Peggy Angus, have been used in the main two-storey entrance hall and on the servery wall between the dining room and kitchen. Flooring to the classrooms and dining hall: composition block on cement screed; corridor floors: coloured composition tiles; lavatories, and kitchen floors: quarry tiles; entrance hall: Hornton stone. The ground floor assembly hall flooring is hardwood strip on 1½-in. by 1½-in. battens, and the special acoustic floor to the first floor assembly hall consists of 1 in. tongued and grooved Sapele boarding on 2-in. by 1½-in. splayed battens in 1 in. of weak cement screed. The screed is on top of a layer of building paper, and beneath it are two layers of ½-in. thick fibreboard. This floor is insulated from the main structure by a 3-in. by 3-in. cork border. All ground floor steelwork is protected against fire by gypsum plaster on expanded metal lathing. All ceilings are woodwool slab on fibreboard suspended from the structural steelwork, except for the first floor assembly hall, where acoustic tiles are used. Built-in venetian blinds are provided to all south-facing classroom windows. The main contractor was Jensons Ltd. For list of sub-contractors, and for the source of certain of the illustrations, see page 574.

PRIMARY SCHOOL, LANSBURY

Discussion between the Editors of the JOURNAL and F.R.S. Yorke (shown below, centre), the assistant architect, K. W. Grieb (left) and the engineer, O. M. Marcel (right).



ELEVEN: One of the outstanding things about this school is the quality of the materials, the high level of detailed design, and the excellent workmanship. One experiences something of the delight of the Royal Festival Hall in walking about in it. Was it in any sense a special building for the Festival? If not, how did you get away with the cost?

ARCHITECT: We were told that we would have no more money than for the usual LCC school, and, so far as we know, we are within the estimated cost. Of course, this school was in the 1949 programme; the big cuts came in 1951. There was certainly no special allowance because of the Festival. We did, however, have an allowance in excess of a normal school because of certain special site conditions.

ELEVEN: To illustrate the point in more detail—you have used many yards of Hornton stone, as external wall facings, as pavings, even as copings.

PRIMARY SCHOOL LANSBURY

Discussion between the Editors of the JOURNAL and F.R.S. Yorke, the assistant architect K. W. Grieb and the engineer O. M. Marcel.

There are also large areas of specially designed decorative wall tiles. Most schools can afford perhaps a certain amount of these rich materials in entrances and assembly halls, but throughout this school the standard is kept up. For example, all classrooms have wood composition floors with underfloor heating. Both classrooms and assembly halls have sliding metal windows. Lavatories have 1-in. slate window sills, extensive areas of good quality coloured glazed wall tiling, terrazzo cubicle partitions and terrazzo floors. We do not deny these things—they are a magnificent achievement—but we would like every school to have the same. How do you do it? Is it true that the school cost well over £200 a place? Will you be able to provide such excellent finishes in other schools, which, we understand, you are now building?

ARCHITECT: The quality of the finishes depends on how the architect decides to spend the money available. For instance, we save a lot by not sight lining our windows and we do not screed to falls on roofs. Our total cost was £106,000—about £200 a place.

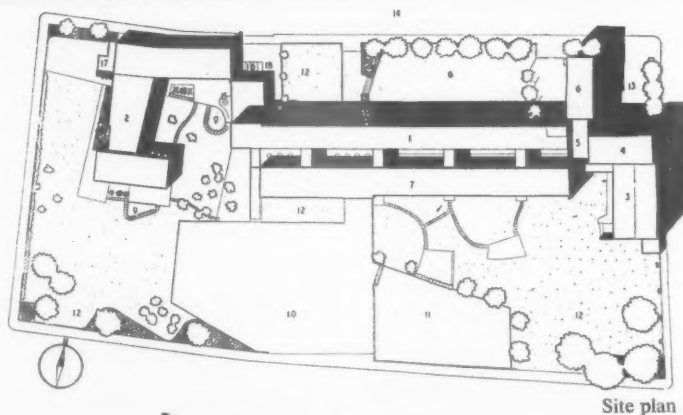
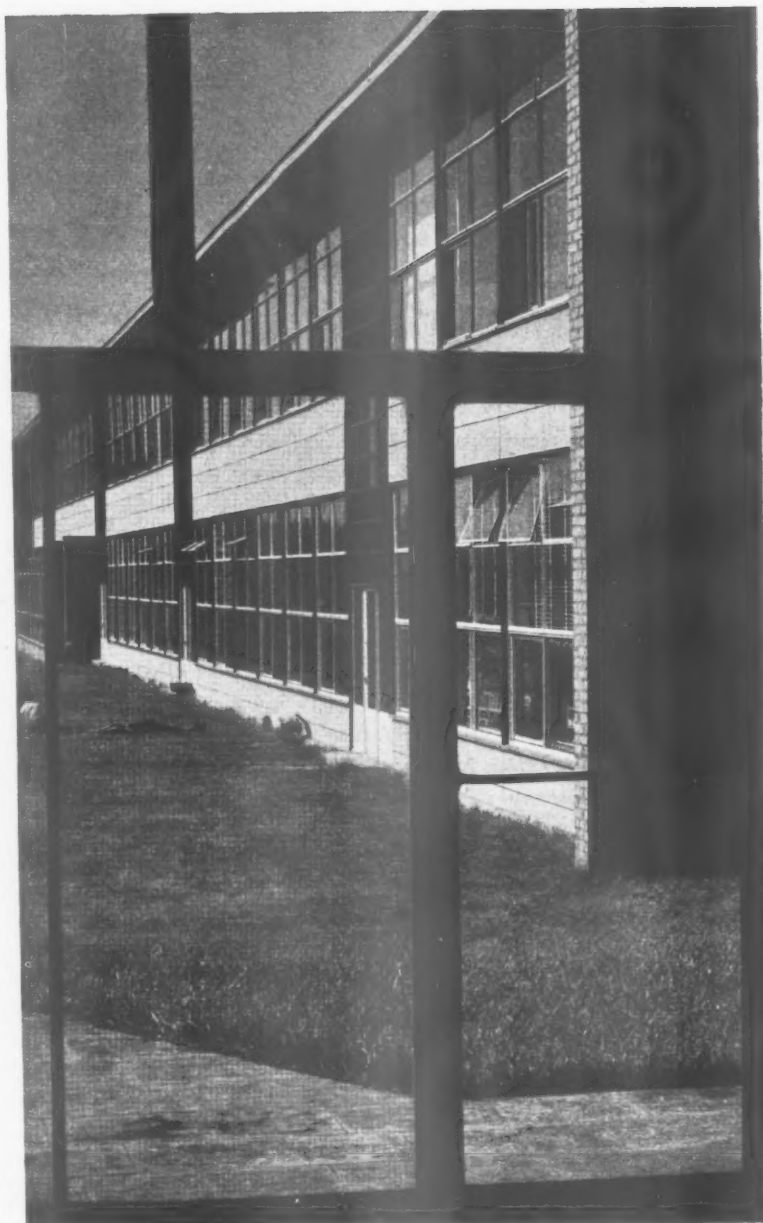
TWELVE: How did you obtain such good workmanship—notably in brickwork, plastering and wall-tiling?

ARCHITECT: By having good contractors and constant supervision. We worked in close co-operation with the contractors from the beginning, and had a first-class site agent. We stuck up perspectives to show the men what the job would look like. Normally at the outset of the job the chaps who are digging have no idea what it is all in aid of.

TWELVE: The structure seems to be more than a little mixed. Light steel beams and column for the classrooms, with precast concrete floor and roof blocks; in situ reinforced concrete for part of the structure of the halls mixed with light steel columns and roof-trusses and a copper roof; load-bearing brick in the 3-storey administration block with hollow-pot floors and roof. Also aluminium windows in the administration block in wood frames, and zinc-sprayed steel windows elsewhere. Did not this mixture of techniques and materials add to the cost and to the time of erection?

ARCHITECT: We studied each part of the building and chose the type of structure accordingly. There is no point in sticking to one system if it isn't the best for the purpose. We used aluminium windows in wood frames because aluminium was easily available and we got it at a low price because we were experimenting with box sections.

ENGINEER: No, this variety of structural materials didn't add to the cost. The contractors started the job with a good supply of plant; they had an 80-ft. jib crane, a central concrete mixer, and they



KEY

- 1 Junior and Infants' school
- 2 Nursery school
- 3 Assembly hall
- 4 Entrance hall
- 5 Roof garden

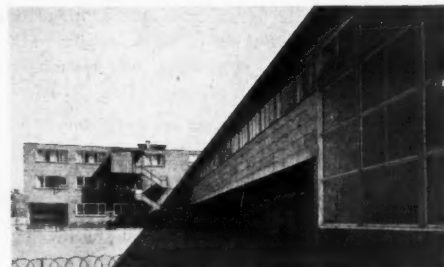
- 6 Administration and caretaker's flat
- 7 Classroom wing
- 8 Infants' court
- 9 Sandpit
- 10 Junior pitch
- 11 Junior court

- 12 Lawn
- 13 Paved entrance court
- 14 Approach road
- 15 Chimney to boiler house
- 16 Fuel hatches
- 17 Frams
- 18 Yard

Site plan



Opposite page : the view from the infants' assembly hall. Above, the junction of administration block, on the left, with the classroom block showing the outside staircase to the caretaker's flat. Right, the classroom block from the south-west. Extreme right, general view from the west.



could shift all over the site quickly. This was a big advantage. It didn't add to the time of erection either ; while Tersons were erecting Hills beams, for instance, the others were getting on with the concreting, with brick-laying, and so on.

TWENTY-FOUR : What is your attitude to the standardization and prefabrication of columns, beams and wall units ? For example, you take a few Hill's beams and cladding units for a straight row of classrooms, and then you go into reinforced concrete or brick. Is this really getting the most out of prefabricated building components ? Is there not a strong case, particularly when working with the producers of whole programmes of schools, for developing standardization further—in the interests of economy, speed of erection and architectural simplicity ?

ARCHITECT : This is the difference between a firm doing one school for a local authority, and doing

a series of schools for an authority. Herts schools' architects, for example, knowing their programme well ahead, can take advantage of prefabrication, perfect a system and stockpile units. If, however, you are building schools for a number of authorities, each job is bound to be more tailor-made. I doubt whether it is more expensive as you have to stick to a price, anyway, like everyone else.

TWELVE : How do you avoid differential settlement between the framed parts of the building and the load-bearing brick parts ?

ENGINEER : We kept the ground bearing uniform throughout. Each foundation is worked out so that the load on the ground is the same everywhere. It was a very tricky site. We came across water, mud and sewers. Because the ground varied so much, every foundation hole was inspected so that we could decide on the bearing it could take. This was a damned nuisance, but an essential precaution.

PRIMARY SCHOOL LANSBURY

Discussion between the Editors of the JOURNAL and F.R.S. Yorke, the assistant architect K. W. Grieb and the engineer O. M. Marcel.

TWELVE: What provision is there for expansion in the length of the classroom block?

ENGINEER: Room for expansion was only allowed for at the ends. The gable walls are completely independent of the main structure.

NINETEEN: You have used virtually the same classroom-cloakroom block in this school as you did at the Stevenage Secondary School several years ago. Is it right to use the same sort of classroom unit for secondary school pupils as for juniors and infants? Do not the infants, at least, require rooms with a more domestic, home-like character, with lower ceilings and perhaps little bays off, where they can play and learn in small groups? Possibly each classroom being connected to its own lavatory unit?

ARCHITECT: It isn't exactly the same as Stevenage: it's very different. For instance, the ceilings are lower—as low as it was possible to get them. The lavatories are about as close to the classrooms as they are ever planned in a school. The headmaster, used to lavatories out-of-doors, thought they were too close at first. As regards bays, the L-shaped classroom can be as inflexible as the rectangular one.

FOURTEEN: Do not infants make a terrible amount of noise during their so-called "lessons," and will this not disturb the more sedentary juniors overhead? Particularly by airborne noise through the windows? The same thing, of course, applies to the assembly halls which presumably will both be in use throughout the day.

ARCHITECT: We have had no complaints about it. The suspended wood-wool ceiling to the ground floor may help.

NINETEEN: Why is the entrance to the main stair from the main entrance hall tucked outside and beyond the back wall of the hall so that it is quite difficult for the visitor to find? Particularly when the upper part of the stair is as spectacular as a Chinese dragon, and in fact one of the most exciting architectural antasies in the school?

ARCHITECT: This is *not* the main stair, it is just a connecting link. The upper assembly hall is always approached from the top floor. It is only the ground floor hall which can be let for external use. If we had included the staircase in the entrance hall, we would have lost space where we most wanted it and would have had no wall for the mural.

NINETEEN: Is not the concrete frame supporting this stair a source of danger? We understand children have already been caught attempting to walk on it. Also, why does the floor slab widen by 3 in. at this point? And finally, another danger point, which applies more to the other staircase. Should not stair rails have knobs, to prevent children sliding down them?

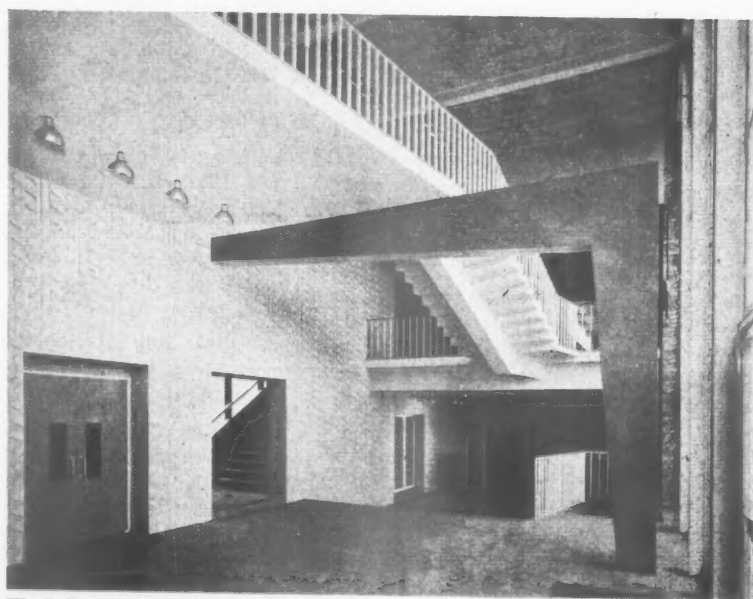
ARCHITECT: As for the concrete frame, we think



First floor landing of main staircase in classroom block.



The dining room. On the right is the kitchen.



The "Chinese dragon" stair to the juniors' assembly hall.



The bridge to the first floor classrooms.



The juniors' assembly hall.



The assembly hall escape stair.



The clerestory window of the infants' classrooms.

it is no more than a reasonable hazard! The floor slab widens as an aesthetic break to keep the stairs and landing separate. As regards sliding on the bannisters, knobs have been put on the glazed side of the staircase. The idea is to see whether children get more injured by the knobs than they do by falling off the stairs.

NINETEEN: To revert to an interesting point about the planning. There are a great many entrances to the school—a small one at the west end to the juniors, an entry from both sides in the middle, an entry by the covered play space, an entry into the waiting space of the administration block, and finally the main entry from the north-east court. I feel this variety of entry, combined with two large entrance halls, causes the school to lack a focal point—a centre. Wouldn't a single large entrance hall have provided more useful space than two smaller ones?

ARCHITECT: The plan must be read as a whole. There are two separate schools, an independent entrance hall is needed for the ground floor assembly hall.

TWENTY-FOUR: We find the splayed ceiling to the clerestory side of the classrooms a little disturbing. It certainly does not make the rooms any more restful. On the first floor there is a curious and rather ugly little splay—the end wood-wool ceiling slab is canted up about 1 in. only. This can obviously make no difference to the light, since there is some cut off anyhow from the wall thickness and windowhead. Why is this done?

ENGINEER: The splays on the clerestory side help considerably with daylight factor. They could have been avoided if we had not lowered the ceiling heights. The small splay upstairs has been caused by material shortage. We originally intended having the fibreboard close against the concrete slabs, but we couldn't get the type of electric cable which would allow us to do this, so the ceiling was lowered to allow ordinary steel conduit to pass between. The board had to be canted up at the window or it would have necessitated a non-standard window detail.

TWENTY-FOUR: The boiler house is almost completely below ground with some natural cross-ventilation at the top through louvres, but with almost no natural lighting, and with a perilously steep metal stair. It has three boilers which are hand-fired by stoking with a shovel from the base of the coke bunker. Since the boilers have to be maintained by the caretaker, would it not have been worth while (it may still be worth while) to instal mechanical stokers, and also some measure of natural lighting, even at the expense of some of the finishes in the school? If it had to be hand-fired, it is a pity more space was not allowed for the stoker when stoking—he cannot withdraw the rake in a straight line.

ENGINEER: The LCC wanted hand-fired cone-burning boilers. Boiler houses are cheaper to build above ground, especially if, as we did, one meets a lot of water below ground level. But it means you rely more on the circulating pump, which, like a mechanical stoker, is out of action in the event of a power cut, and there is a source of danger to the boilers. If the house is cramped it is because,

having to build it below ground, which is expensive, we made it as small as possible.

TWENTY-FOUR: The lighting fittings look most scientific, particularly those in the assembly halls. The classroom fittings are of low intensity with pearl bulbs, and no baffles. Are these all of your own design?

ARCHITECT: We designed the ones in the assembly hall. Those in the classrooms are LCC standard fittings.

TWELVE: Why was the electrical wiring not done before the plastering—the chasing is very visible.

ARCHITECT: Is it? We've never noticed it.

NINETEEN: Most of the materials used are so excellent that we have nothing but praise for them. But we would like to have your comments on some of them. For instance, the decorative wall tiles designed by Peggy Angus. These are a first-rate, colourful, permanent wall decoration. How expensive are they? Are the manufacturers co-operative in regard to colours and design? Is there a big future for this sort of thing?

ARCHITECT: We weren't allowed anything for "art," not even the half per cent. So, in order to give something visual, we did this. It cost about 25s. per yard above the cost of normal glazed tiles, but a mural would have cost a lot more. The manufacturers were very helpful. We are using this idea again. I think there is a great future in these patterned tiles and, of course, there are no maintenance costs.

NINETEEN: Would the manufacturers be willing to produce similar tiles at that price?

ARCHITECT: I believe so.

NINETEEN: How do you think the external precast concrete spar-faced wall blocks will weather in ten years' time?

ARCHITECT: It has now been up nearly a year and it looks very similar to when it was finished. The aggregate gets washed clean by the rain. Any staining will be uniform.

ELEVEN: We like the scraped finish of the internal plaster and the matt paint. How did you get it? Have you any fears that it may look dirty rather quickly? It shows markedly at hand-rail level in the hall. Have you any answer to this?

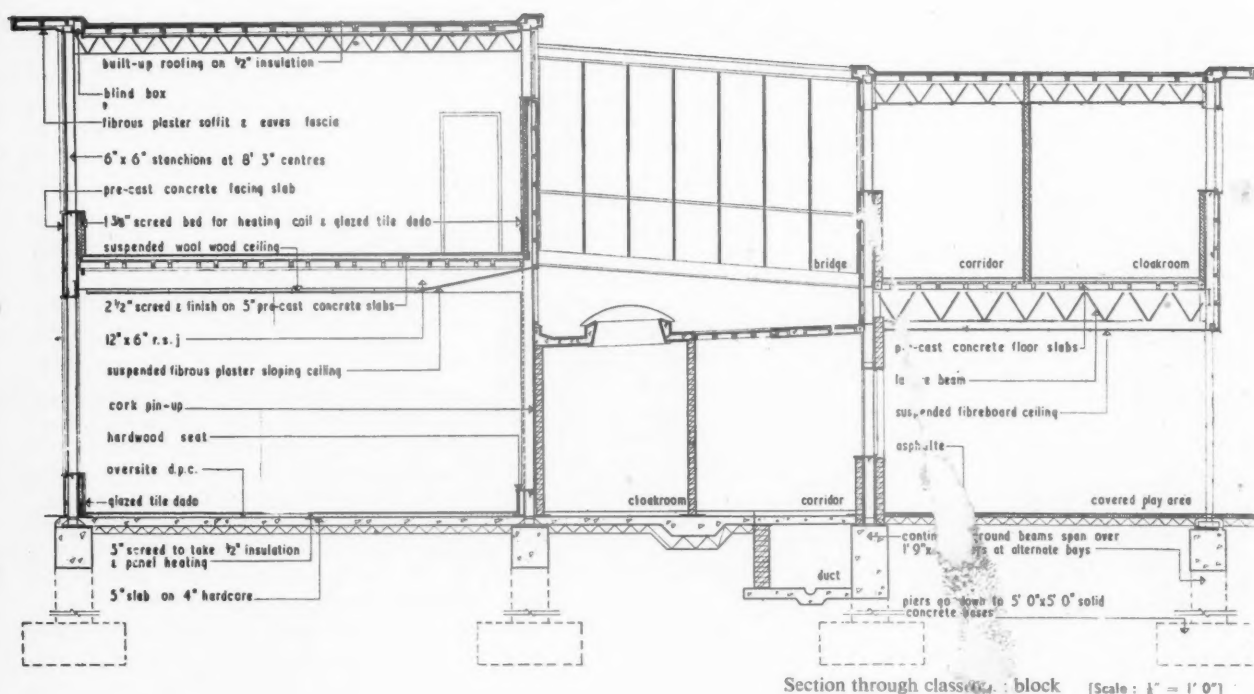
ARCHITECT: We used a wood float finish. As regards marking, one of the troubles with a well-lit building is that you see all this more. But so do the children! Their behaviour has been remarkable. There was more marking in the first week than in the next three months. On the matter of detail, the handrail might have been put a little farther away from the wall.

TWENTY-FOUR: We are very glad to see this kind of grass-cum-asphalt play surface being tried out in Poplar. Have you any doubts about it?

ARCHITECT: It might be as well to keep the children off the grass after heavy rain.

ELEVEN: The cork wall tiling for pin-ups appears to be mostly coming off. Why?

ARCHITECT: The cork has shrunk. We haven't had this trouble before; we are still investigating it.



PRIMARY SCHOOL LANSBURY

Discussion between the Editors of the JOURNAL and F.R.S. Yorke, the assistant architect K. W. Grieb and the engineer O. M. Marcel.

NINETEEN: The staff rooms are intended, surely to provide privacy. The staff have put up net curtains to prevent people seeing in. The fixing of the net curtains is obviously an afterthought and compares ill with the well-detailed sunken rail for the main curtains. Some of the windows I have in mind, the headmistress's room, look directly on to the public square. Should you have foreseen this?

ARCHITECT: When the school was new, people were intensely curious. They are not nearly so troublesome now. If the staff had waited until the exhibition was over, they wouldn't have had to bother with net curtains.

NINETEEN: We note that the postman's letter box is on the staffroom verandah. As the school is not open when he delivers his letters, he has to leap the fence to get to it. Could not the letter box have been put in an outside wall?

ARCHITECT: The gates are not supposed to be locked—particularly that one, which is the caretakers'. The whole idea is that the schoolchildren should use the playgrounds freely, at any time, out of school hours, and not have to play on the streets.

NINETEEN: With regard to the medical room, doctors do not like interviewing a child in front of other children and possibly parents. Where are

the children supposed to undress? In the passage? Where are the parents supposed to wait? In the entrance hall? If so, why no chairs?

ARCHITECT: No waiting room was included in the original programme of requirements. I understand they use the cloakroom across the corridor and manage quite well. But I agree a separate waiting room would have been better.

ELEVEN: The railings on the outside stair case to the upper assembly hall are causing rust marks on the edge of the concrete slab.

ARCHITECT: The trouble here is that it was not painted at the right time. The railings are of mild steel, which is an awful architectural material.

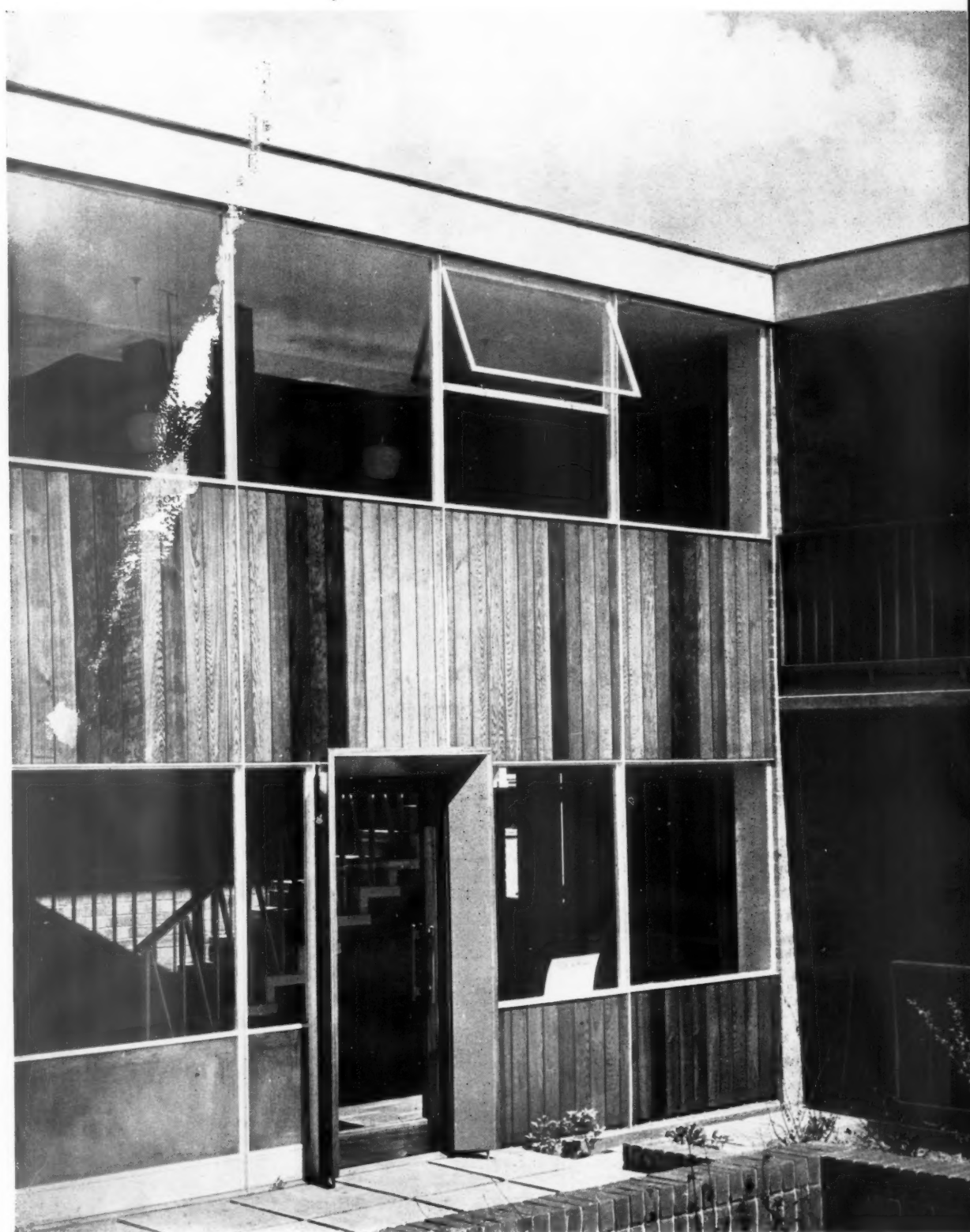
NINETEEN: We've fired off a lot of questions, some superficial, some off the mark. One or two may serve to throw some light on your reasons for doing things the way you do. There is one point which should be made quite clear to anyone reading this. We, in asking these questions, are more concerned with discovering "how a good architect works than with trying to pick holes. All on my side of the table will agree that this school is one of the best in the country—and certainly far and away the best in London.

WORKING DETAIL

DOORS :

ENTRANCE DOORWAY: FLATS AT TWICKENHAM

Eric Lyons and G. Paulson Townsend, architects



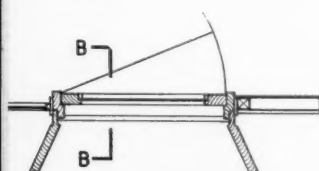
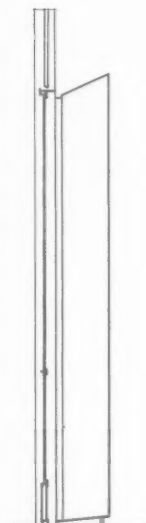
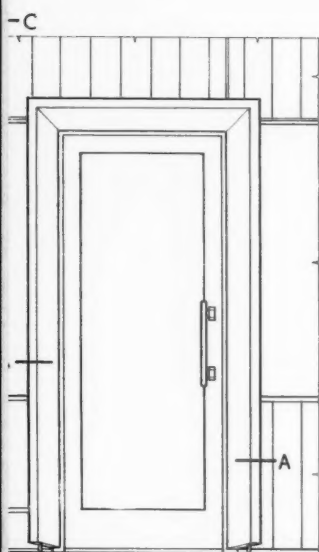
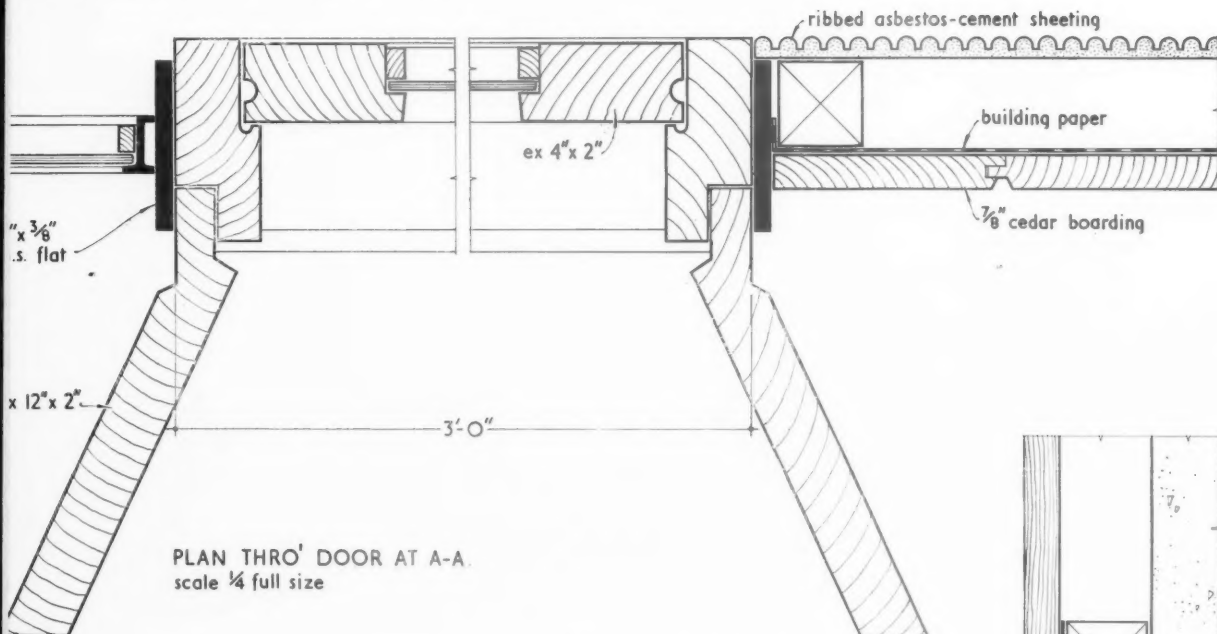
The door, which is a single panel of plate-glass framed in hartwood, is set between splayed jambs and a tilted lintel.

WORKING DETAIL

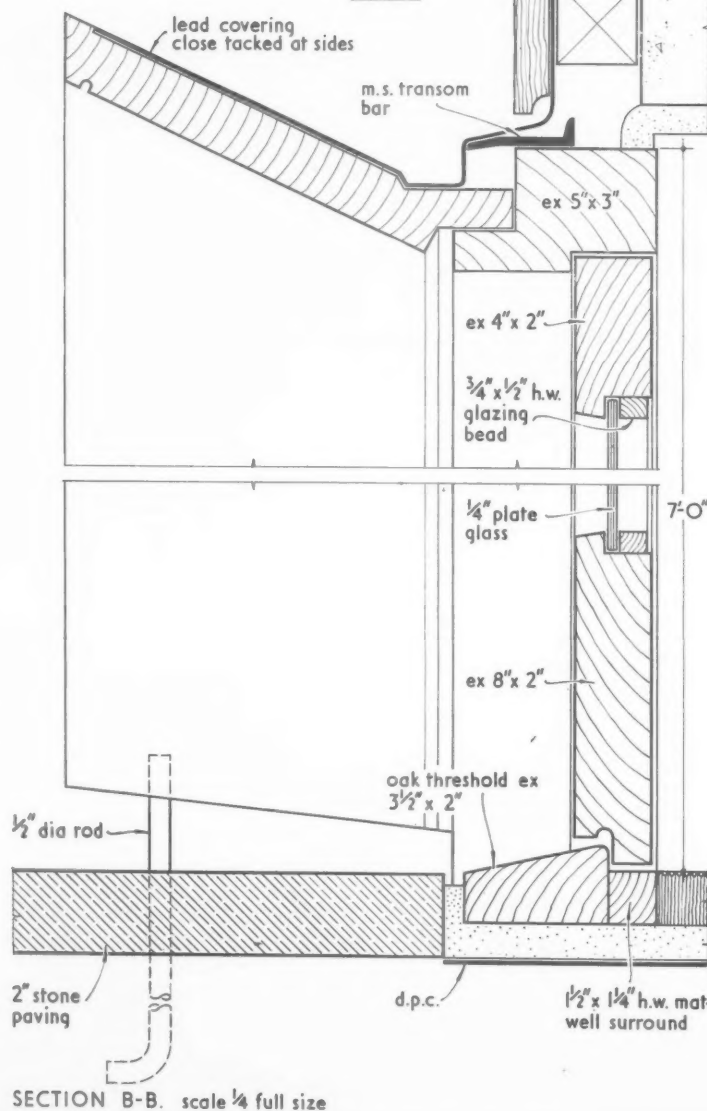
DOORS : 5

ENTRANCE DOORWAY: FLATS AT TWICKENHAM

Eric Lyons and G. Paulson Townsend, architects



LAN. scale 3/8" = 1'-0"



WORKING DETAIL

WINDOWS :

DISPLAY WINDOW: MOTOR SHOWROOM IN NEW ORLEANS

Curtis and Davis, architects



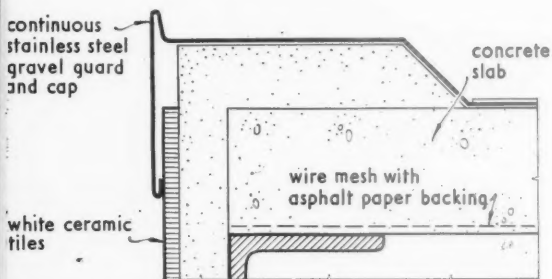
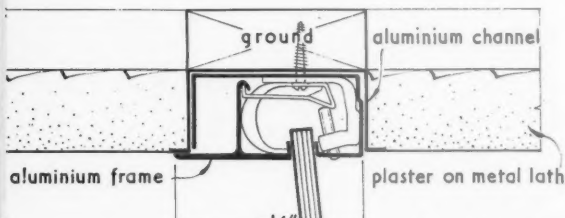
The inclined glass of the display window is held in aluminium sections and the shaped cantilevered canopy above is faced around the edge with ceramic tiles.

WORKING DETAIL

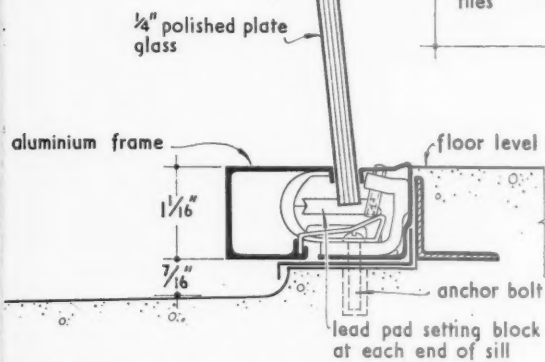
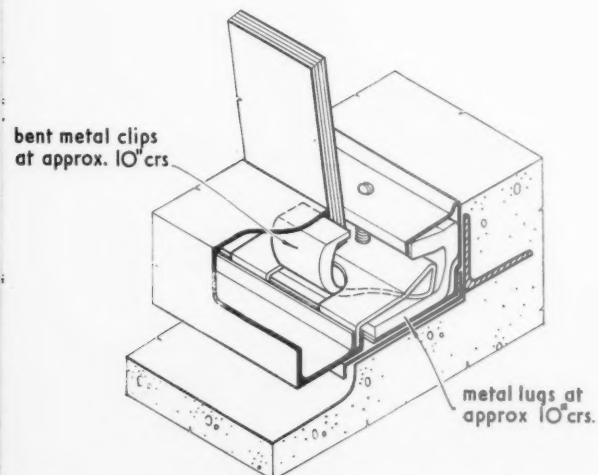
WINDOWS : 8

DISPLAY WINDOW: MOTOR SHOWROOM IN NEW ORLEANS

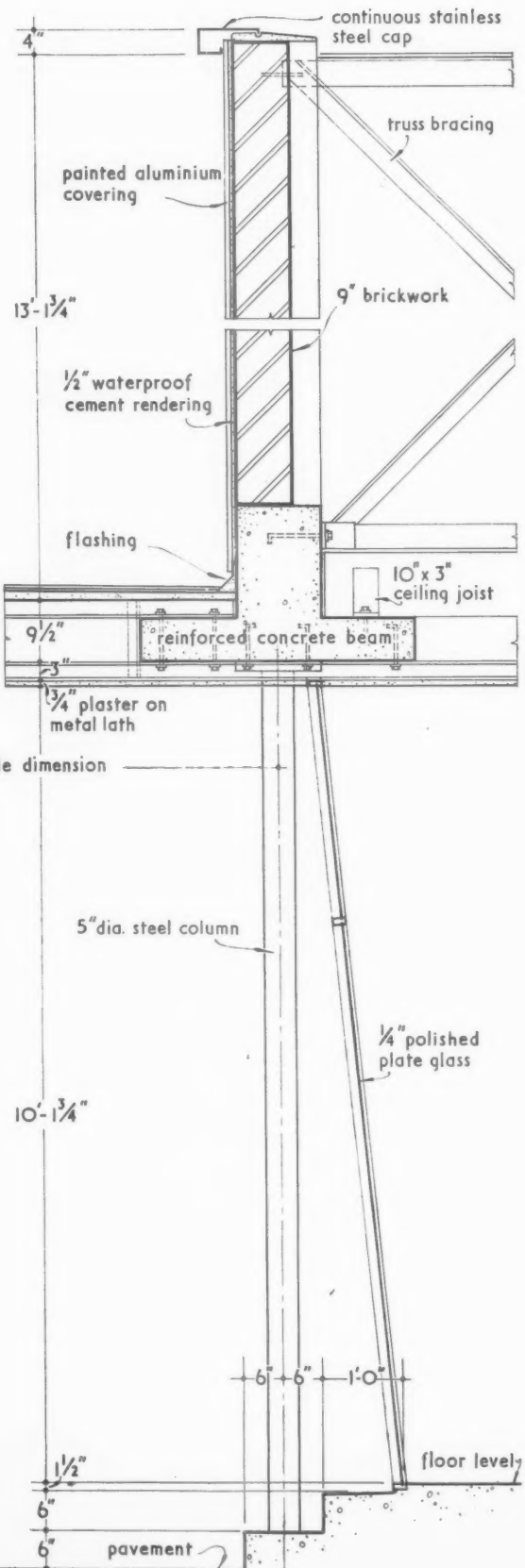
Purtis and Davis, architects

DETAIL OF CANOPY AT X. scale $\frac{3}{8}$ full size

SECTION THROUGH HEAD OF WINDOW.

SECTION THROUGH SILL. scale $\frac{1}{2}$ full size.

ISOMETRIC SKETCH SHOWING FIXING AT SILL.

SECTION THROUGH DISPLAY WINDOW WALL.
scale $\frac{1}{2} = 1-0$

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TECHNICAL SECTION

By comparison with 13 other European countries, the utilization of space in post war flats and houses in the UK is good. Not that there is no room for improvement (see the suggestions which have been put forward on pages 555-558), but, in general, most European countries could learn a lot from our post-war efforts and most of the recommendations of the UN report summarized below have already been assimilated into standard practice in this country.

THE UTILIZATION OF SPACE IN HOUSES AND FLATS

A pilot study of the three types of dwelling most commonly found in Europe has been made for the United Nations Economic Commission for Europe, by Maurice B. Blackshaw of MOLGP. The principal conclusions of the report were outlined in a news note published in the AJ for August 2, 1951. The full report,* consisting of 47 pages of typescript, 16 pages of plans and tables of comparative floor areas, has now arrived in this country.

British readers will be interested mainly in discovering to what extent architects in other European countries have adopted a similar approach to the problem of planning dwellings as have architects in the UK. Certainly the problem of saving space or, rather, of how to make greater use of space is common to all European countries.

The three types of dwelling dealt with in the report are: (i) a two-bedroom flat; (ii) a two-bedroom and (iii) a three-bedroom house.

THE ANALYSIS OF SPACE WITHIN BUILDINGS

It seems that in about eight of the countries which submitted evidence it is a common practice to construct dwellings over basements or cellars. This is most extensive in the Scandinavian countries and in Switzerland. It has been explained that in these countries the severe and prolonged frosts make it necessary to take the foundations of dwellings down below the frost line (often two metres below ground level) and that, in consequence, the construction of a cellar

becomes a reasonably economic proposition. It is reported from Sweden, however, that some doubts have arisen on the economics of the matter and experiments are being carried out to determine whether or not new methods of constructing foundations would reduce costs. This may lead to the omission of the cellars.

In some countries there appears to be a preponderance of single detached dwellings. The comment is made in the report that if cost is an important factor—as it usually is—fewer detached dwellings should be constructed, unless, of course, they are wholly of timber construction.

In most countries room heights are prescribed by building bye-laws but, as there are considerable variations in the heights of rooms in different countries, it seems that no common basis of approach has been found. It is understood that in France and in the Netherlands the subject is being studied in much the same way as it has been studied in this country. The main conclusion reached here was that ceiling heights could safely be lower than that permitted at present by the bye-laws. The economies which would result in building costs through any general reduction in ceiling heights would be especially noticeable in the case of multi-storey blocks of flats.

Mr. Blackshaw does not comment on the plans submitted by the individual countries, but reference is made to the development by the Greek government of "nuclei" dwellings. The housing needs of Greece are very great and, as the Greek Government was unable to embark upon a normal programme of temporary and permanent dwellings, it has instead developed an "expandable" dwelling. This begins with a "nucleus" which, whilst admittedly being sub-standard, provides a family with shelter

and certain minimum requirements. This "nucleus" is planned in such a way that it may be enlarged when physical and economic resources permit, and the "nucleus" thus becomes the central core of the future dwelling.

THE GROSS AREAS

The main substance of the report consists of a detailed analysis of the areas devoted to the different parts of dwellings. The factors which form the background to this analysis are: (i) that a dwelling must be economical in its planning and overall size; (ii) that individual room sizes should be sufficient for the purposes for which they are designed; (iii) that the space provided should be planned so that full use can be made of all of it; (iv) that circulation space should be reduced to the minimum; (v) that the dwelling should be convenient, healthy, well-lighted and ventilated, and "labour-saving."

Mr. Blackshaw has made some careful statistical comparisons between the floor areas of the different parts of the houses and flats described in the report. In the captions to the plans reproduced with this summary are given the areas of the principal sections of the houses and flats—Living Space, Service Space and Circulation Space.

Living Space

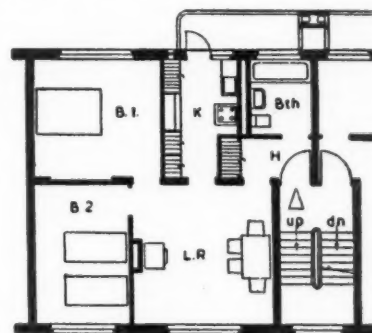
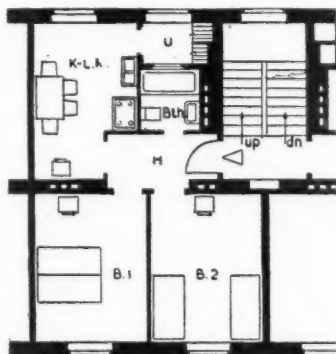
Living space is defined as the total of the net areas of living room, sitting room, kitchen and bedrooms. Contrary to normal practice in this country, the kitchen has been included in order to give the figures some degree of consistency, in spite of the many different types of plan. For the kitchen may serve one, two or three of the following purposes: cooking, eating (regularly or occasionally), and sitting.

Living Room

Nearly 90 per cent. of the plans have separate access from a hall, corridor or landing

Below, Fig. 1, Austria, two-bedroom flat.

Gross area : $58.4 \text{ m}^2 = 4 \text{ persons.}$
Living space : $44.5 \text{ m}^2 = 76.2\%$
Service space : $6.8 \text{ m}^2 = 11.6\%$
Circulation space : $4.6 \text{ m}^2 = 8\%$

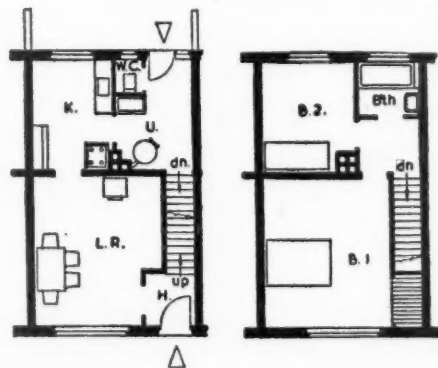


Above, Fig. 2, Belgium, two-bedroom flat.

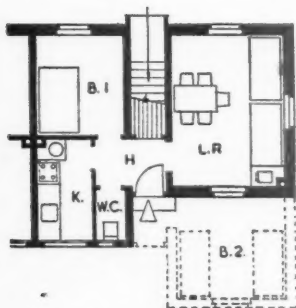
Gross area : $61.1 \text{ m}^2 = 4 \text{ persons.}$
Living space : $50.2 \text{ m}^2 = 82.2\%$
Service space : $4.1 \text{ m}^2 = 6.8\%$
Circulation space : $3.2 \text{ m}^2 = 5.3\%$

Right, Fig. 3, Belgium, two-bedroom house.

Gross area : $78.8 \text{ m}^2 = 3 \text{ persons.}$
Living space : $52.0 \text{ m}^2 = 67.9\%$
Service space : $10.6 \text{ m}^2 = 13.7\%$
Circulation space : $10.2 \text{ m}^2 = 13.3\%$



* "A Comparative Study of the Utilization of Space in Current Types of Dwellings in 14 European Countries (1948-1949)" by Maurice B. Blackshaw. (United Nations, Economic Commission for Europe, Industry and Materials Committee, Housing Sub-Committee, 1951.)



Above, Fig. 6, Greece, nuclea dwelling.

Gross area : 45.6 m.² 4 persons.

Living space : 32.3 m.² = 70.7%.

Service space : 6.2 m.² = 13.5%.

Circulation space : 4.5 m.² = 9.9%.

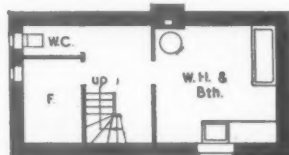
into the principal rooms. The device of giving access to other rooms from the living room is unpopular in most countries.

Many of the living rooms might be criticized on account of the relative positions of doors, windows and heating appliances. These are often placed in such a way that it would be very difficult to furnish the rooms comfortably. For example, there are several cases where the heating appliance is flanked by two doors, leaving no convenient space for furniture to be arranged satisfactorily in relation to the source of heat. Similarly, insufficient thought has been given to the problem of arranging furniture in many of the living rooms which are used to gain access to other rooms. The extent to which whole-house heating is adopted would, however, affect some of the above criticisms.

Kitchens

Even allowing for the fact that some of the kitchens are used for secondary purposes and others are not, wide variations in the size of kitchens can be seen on the plans. It is clear, the Report states, that many of the kitchens are too small for their purpose; the resulting economy in space has only been achieved at the expense of the housewife.

It is apparent from the evidence submitted that there is much room for improvement in the planning of kitchens. There appears to be a wide variation in the size and shape of equipment and cupboards, and it would be an obvious advantage if essential kitchen equipment could be designed to standard dimensions. If this could be achieved, the tasks of the planner would be simplified and the kitchen could be so planned that a range of equipment of equal height and convenient size could be arranged compactly along one or two walls, with good side or front light. There are, for example, many cases where the cooker is so placed that the housewife must stand in her own light to cook. In other cases, the cooker is situated close to the doorway, thus increasing the risk of



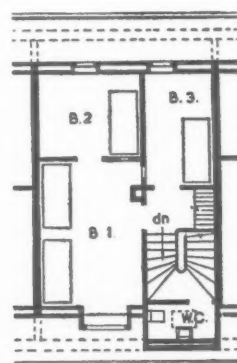
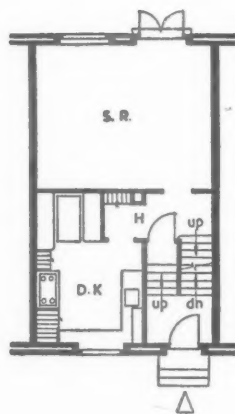
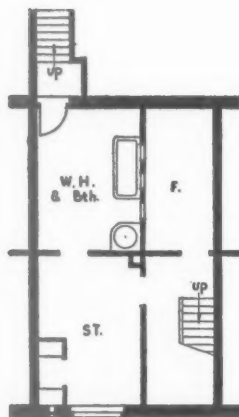
Right, Fig. 5, Finland, three-bedroom house.

Gross area : 117.4 m.² 6 persons.

Living space : 75.0 m.² = 63.9%.

Service space : 18.9 m.² = 16.1%.

Circulation space : 18.8 m.² = 16.0%.



Below, Fig. 4, Denmark, three-bedroom house.

Gross area : 131.7 m.² 4 persons.

Living space : 62.9 m.² = 47.8%.

Service space : 38.9 m.² = 28.8%.

Circulation space : 26.7 m.² = 20.3%.

accidents. There are kitchens planned with several doors leading into them (including external doors), which reduce the effective working space, and some kitchens are situated into a direct line between the front and back doors, thus inviting draughts. On the other hand some of the kitchens are well planned.

Bedrooms

The proportion of living space allocated to bedrooms is, in most cases, substantial, although it seems probable, from a study of the plans, that this space is only used during the night. The Report favours an inquiry into whether or not some bedroom space could not serve a dual purpose and be made useful during the day too. The development of a "study-bedroom," for instance, would be one method. It would, undoubtedly, create problems of heating and furnishing, but these difficulties are not insuperable, and the arrangement may well be the most economical in the long run.

SERVICE SPACE

Service space includes the net areas of bathroom, w.c., utility room, washhouse and stores. There is considerable variation in the proportion of service space provided in the dwellings, due, in part, to the provision of basements as a normal feature in some countries and not in others, and, possibly, due also to the provision of certain facilities not shown on the plans. Thus, in

this respect, the statistical evidence may be misleading.

Bathrooms and w.c's

Here there is no real basis for comparison. In Scandinavian countries the bath is often situated in the basement, either in a separate compartment or in the same room as the domestic hot water boiler. In some other countries, it is the practice to dispense with a fixed bath altogether and to provide instead a shower or douche, and in one case the bath is provided in the scullery.

Wash-houses and Laundries

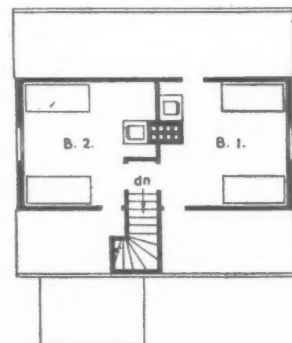
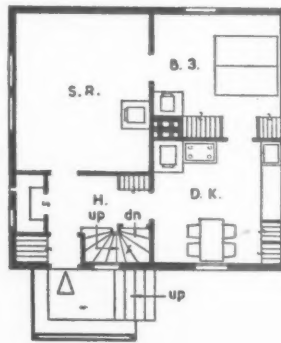
Where washhouse or laundry facilities are not shown on the plans, it is suggested that the small size of some of the kitchens, especially dual-purpose kitchens, would lead to congestion combined with an undesirable increase in humidity when household washing is carried on, unless, of course, some form of laundering facilities are provided outside the house, as may be the case.

CIRCULATION SPACE

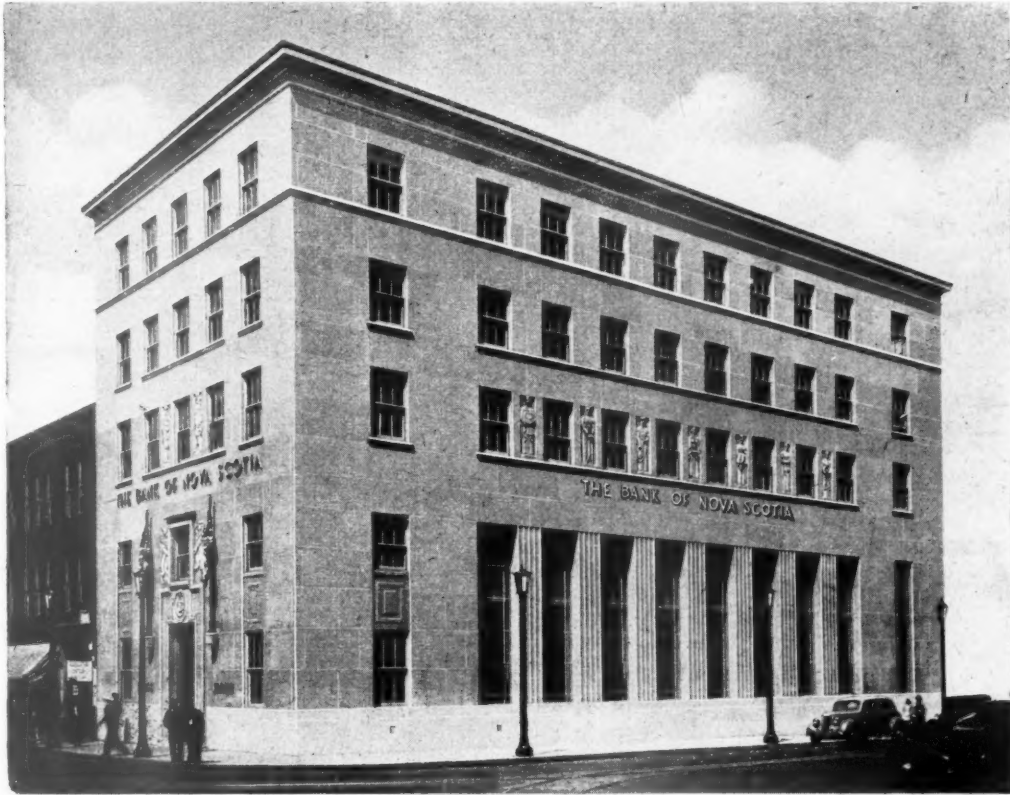
Circulation space comprises hall, lobby, corridors and landing and as much of the staircase as belongs to a single household.

Halls

With the exception of two schemes, all the plans in the Report have an entrance hall or lobby. In general, entrance halls are



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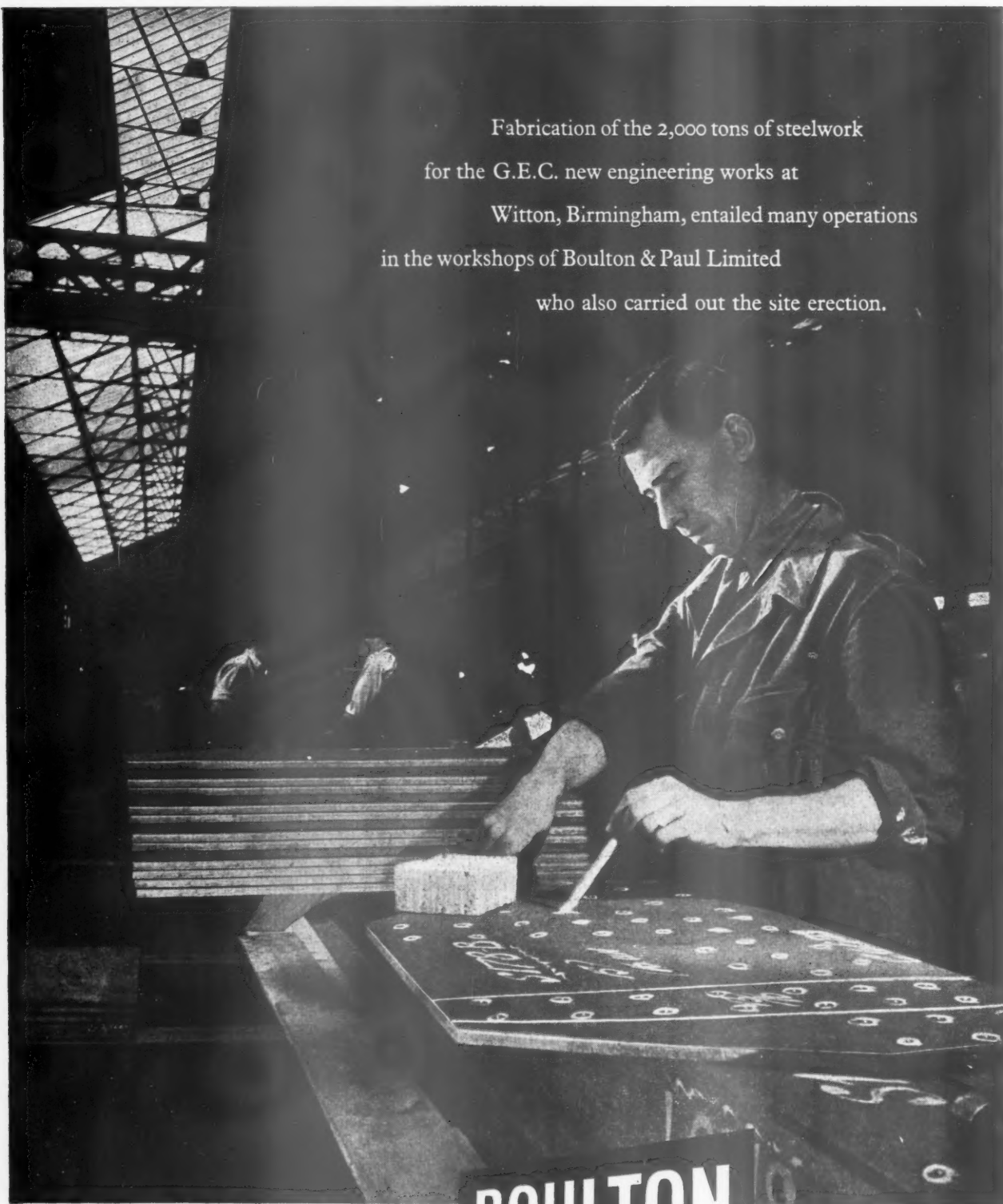
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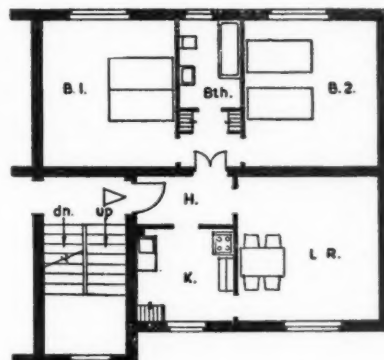
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Below, Fig. 7, Italy, two-bedroom flat.

Gross area : 77.9 m^2 4 persons.
 Living space : $61.8 \text{ m}^2 = 79.3\%$.
 Service space : $4.5 \text{ m}^2 = 5.8\%$.
 Circulation space : $8.0 \text{ m}^2 = 10.6\%$.



Above, Fig. 8, Italy, three-bedroom house.

Gross area : 94.6 m^2 6 persons.
 Living space : $69.3 \text{ m}^2 = 73.2\%$.
 Service space : $6.9 \text{ m}^2 = 7.3\%$.
 Circulation space : $15.2 \text{ m}^2 = 16.0\%$.

reasonably planned, provided that they can be kept clear of encumbrances, but if a bicycle or a perambulator were to be placed in some of them they would be impassable.

Staircases

Many of the staircases illustrated on the plans are very cramped for space with the result that the staircase becomes a series of winders. This is a false economy, as accidents are liable to occur on winders, especially if the lighting is inadequate, and the extra cost of constructing a winding stair over a straight flight might well prove to be more than the cost of the extra space taken up by a straight flight.

Corridors and Landings

Generally, these have been planned with the minimum amount of space.

CUPBOARDS

In most of the plans, a liberal provision of cupboards is made; some of them are well grouped and well arranged, as in those examples where a pair of cupboards is

COMMENTS BY AJ SPECIALIST EDITOR NO. 8

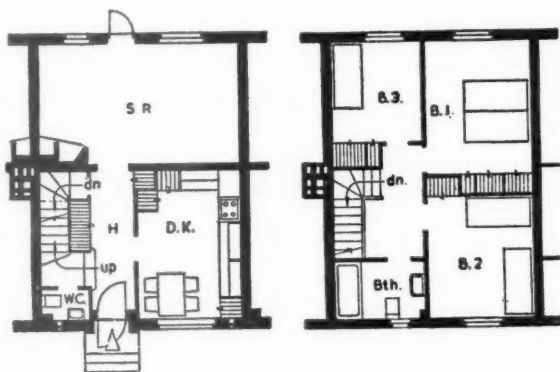
The plan of the Austrian flat (Fig. 1) is straightforward and seemingly spacious but the bathroom is small or even cramped. The minimum area devoted to circulation is in the Belgian flat (Fig. 2) and two-storey house (Fig. 3). The Danish house (Fig. 4) has an attractive-looking dining alcove in the dining-kitchen but access to Bedroom 2 is not good.

In the Finnish house (Fig. 5) there is something cosy about the layout of the ground

floor bedrooms, but the staircase is redolent of English country cottages at their worst.

The planning of the Italian flat (Fig. 7) and house (Fig. 8) works well; the indirect lighting of lobbies may seem a boon in Italy. The Swedish house (Fig. 9) is neat. The planning of the Swiss one (Fig. 10) not quite so good; the lighting at the back of the kitchen is poor and the staircase most awkward.

Since most European countries use the metric system floor areas have been given in square metres. To convert these approximately to square feet, multiply by 10; For accurate conversion tables, see AJ Information Sheet 2.A3 (AJ, April 6, 1950).



Left, Fig. 9, Sweden, three-bedroom house.

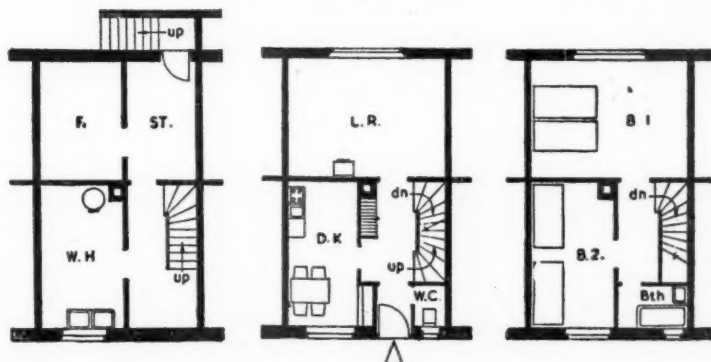
Gross area : 147.6 m^2 5 persons.
 Living space : $69.8 \text{ m}^2 = 47.2\%$.
 Service space : $52.2 \text{ m}^2 = 35.4\%$.
 Circulation space : $19.3 \text{ m}^2 = 13.1\%$.

arranged separating bedrooms. In other cases, however, it seems as if cupboards have been used to fill in awkward spaces, and the depth of the cupboards is often insufficient for normal purposes.

THE PLANS REPRODUCED

The plans which illustrate this article are a good cross-section of the specimen plans in the Report. They have been chosen to illustrate plans with which readers are least likely to be familiar; for this reason type plans for the UK have not been included.

Even allowing for variations in ways of living, it will be seen from these plans that the planning of the ordinary contemporary English home, including its counterpart in Scotland and Northern Ireland, is, in general, of a higher standard than can be found in neighbouring countries.



Below, Fig. 10, Switzerland, two-bedroom house.

Gross area : 79.8 m^2 4 persons.
 Living space : $54.7 \text{ m}^2 = 68.6\%$.
 Service space : $9.8 \text{ m}^2 = 12.12\%$.
 Circulation space : $15.0 \text{ m}^2 = 15.0\%$.

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INFORMATION CENTRE

2.117 planning: general TOWN PLANNING ANALYSIS

Town Planning Analysis. William M. Ogden. (Journal of the Inst. of Municipal Engineers, pp. 149-181. Aug. 1951.)

Comprehensive paper, by a Regional officer of MOLGP, on the three-fold process of Town and Country Planning Analysis—the qualitative assessment of land need, its quantitative measurement, and the choice and arrangement of land use. In fact, the author outlines the procedure for drawing up the written analysis with which local planning authorities must support their development plans. Recommended.

6.35 planning: social and recreational HOUSING STATISTICS

*The Housing Statistics of Great Britain—*Marian Bowley. (Reprinted from the Journal of the Royal Statistical Society, pp. 396-411. Vol. cxiii, 1950. 2s.)

Housing statistics are much to the fore today. MOH publishes quarterly, in two parts, an elaborate document of over 100 pages called the Housing Return for England and Wales, and a summary statement on the number of houses erected and under construction is published monthly. Before the war the comparable report was an 18-page affair published every 6 months.

This pamphlet is not the kind of paper architects normally enjoy reading, but it is one well worth knowing about. It describes some of the intricacies of these statistics; such as, number of houses built, housing needs, finance and rent, house-building costs, and structure of the house-building industry. Marian Bowley aptly remarks that the main purpose of housing statistics is to enable us to compare the houses available with the houses required.

6.36 planning: social and recreational POST-WAR HOUSING

Some Aspects of Post-War Housing. A. S. Hamilton. (Journal of the Inst. of Municipal Engineers, pp. 118-119. Aug. 1951.)

Interesting paper by the Borough Surveyor of Blackpool, who, as might be expected, is much concerned with the cost and organization of housing schemes.

Mr. Hamilton considers that the main secret of the success of the pre-war speculative-house builders was continuity, and that it is a great pity that no formula has been devised which can utilize their experience and organization. He adds a plea that architects must be allowed sufficient time to consider their designs fully and to plan building operations prior to the letting of a contract.

Much of the paper is taken up with a consideration of space standards, and the

effects upon cost both of floor area and of different forms of construction and layout, especially with regard to the broad-fronted as compared with the narrow-fronted type of house. The commentary is well supported by data.

12.52 materials: metal ALUMINIUM AND ALUMINIUM ALLOYS

Wrought Aluminium and Aluminium Alloys—Forgings. BS 1472:1951. (British Standards Institution. 4s.)

Specification for wrought aluminium and aluminium alloys used for general engineering purposes in forgings, hot pressings, hot stampings, drop stampings and drop forgings. Supersedes BS 532 and BS 533, which have been withdrawn.

This standard covers 7 alloys and describes both the forgings themselves and the bar material used for forgings. In each case, chemical composition, condition and mechanical properties are specified. General clauses cover freedom from defects, tolerances and mechanical tests. An appendix gives notes, for design purposes, on the properties that may be expected from test pieces cut from forgings up to approximately 4 in. in diameter. Another appendix gives information on heat treatment.

14.48 materials: concrete LIGHTWEIGHT CONCRETE

Concrete Made with Lightweight Aggregate. BRS Digest No. 32. (HMSO. July, 1951.)

Types and properties of lightweight aggregates, clinker, foamed slag, pumice, expanded clay, slate, shale, vermiculite and perlite, organic aggregates. Use in concretes and qualities of such concretes.

Digests 28 and 29 dealt with lightweight concrete made by aerating a plastic mix. More commonly used are concretes made from various types of lightweight aggregate. This Digest commences by describing the various types of material. Clinker is perhaps the commonest of these aggregates but, although very widely used, its properties are not as well known as they should be. For instance, many people still refer to "breeze blocks," implying that coke breeze aggregate can be used, whereas in fact such aggregate is most unsuitable. Clinker, which means well-burnt furnace residues, can also have a number of drawbacks and these are described. The most important of them is the danger of there being in the clinker an appreciable amount of combustible material. This danger can be reduced if proper precautions are taken. The Digest describes these precautions and warns that all clinker used for block making should conform to BS 1165:1947.

Foamed slag has become more readily available and its popularity has increased in recent years. It weighs only 20-55 lb./cu. ft. and should conform to BS 877:1939.

Expanded clay, shale and slate can all make useful aggregates and are widely used abroad. So far they have not been available in large quantities here, but, apparently, expanded clay is to be produced soon on a commercial scale. The Digest does not give any useful guide on quality.

Expanded vermiculite, which is another lightweight aggregate, has become available during the last few years. Pumice is difficult to obtain, as it has to be imported. Expanded perlite is not available at present. Sawdust and peat are used to make lightweight concretes but they are not discussed in this Digest as they result in materials different from those made with other lightweight aggregates.

The Digest describes the qualities of concrete made with light aggregates and



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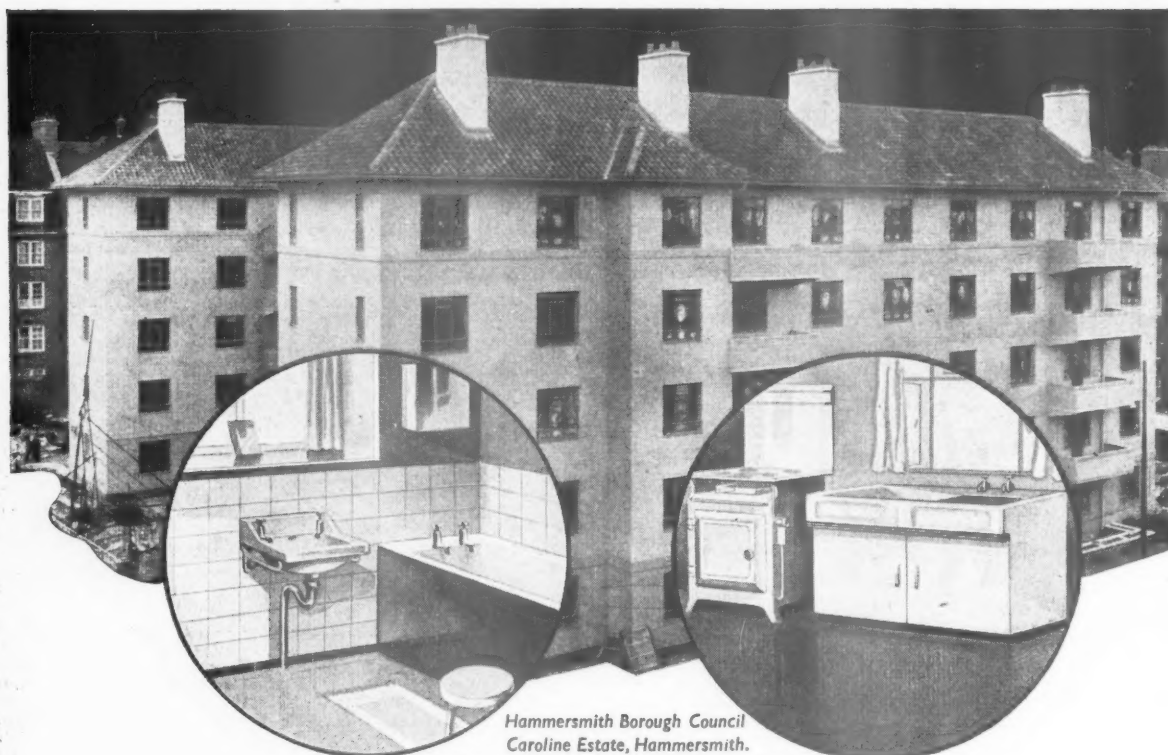
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deals with workability, density, strength, moisture movement, thermal conductivity and corrosion of metals.

Workability is usually rather poor but can be improved by using relatively rich mixes, by having a high proportion of fines, or by adding sand. Air-entraining agents have also been used recently to increase workability. Some expanded clay aggregate having smooth, round particles are better from this point of view.

Density is affected by the bulk density of the aggregate, the proportions of the mix, the grading of the aggregate and the degree of compaction. Concretes ranging from 20 lb./cu. ft. to 100 lb./cu. ft. can be obtained. Strength also can cover a wide range and, for any particular type of aggregate, the strength will depend upon the density of the concrete.

Moisture movement is apt to be troublesome—especially drying shrinkage. It will be affected by the type of aggregate, mix proportions and water/cement ratio. Adequate curing time for precast units is important, but high pressure steam curing can reduce moisture movement a great deal. Because moisture movement can have serious effects, all lightweight concrete units should be stored under cover—a precaution not usually taken on sites without proper supervision.

The increasing use of lightweight concrete is due largely to its thermal insulation value. Broadly speaking, insulation depends upon the presence of air and therefore the lighter the concrete the better its insulation value.

Corrosion depends upon the degree to which oxygen and moisture can be excluded and the presence in the aggregate of corrosive substances. Therefore, very porous, lightweight concretes cannot give good protection. Clinker is the type of aggregate most likely to contain harmful agents.

The Digest contains some brief notes on the use of lightweight concretes. Attention is called to certain important requirements regarding its use for screeds. Walling in lightweight blocks is very common and the most important points to watch are: that blocks conform to the quality requirements of the appropriate BS, and that the correct mortar is used—usually a weak mix, such as 1:2:9. Plastering lightweight concrete is not difficult, but mixes should not be too wet, as the concrete usually has poor suction. Lastly, any use of these lightweight concretes must take proper account of moisture movements and, especially, of the probable high drying shrinkage.

The Digest ends with a useful table, summarizing the properties of various types of concrete made from these lightweight aggregates. This is reproduced above.

17.79 construction: general METALLIC ARC WELDING

Arc Welded Construction. BS C of P Sub Code 113.102: 1951. (British Standards Institution. 4s.)

Code, prepared by Committee convened by the Institution of Structural Engineers and based on recommendations of Committee of the BWRA. Complementary to structural steelwork Code CP 113 and now published as a sub-code, as far as possible complete within itself.

Recommendations are given for the design, fabrication and erection of arc-welded steelwork for building structures but the Code does not deal with cases in which fatigue failure may occur due to exceptional dynamic loading. Compression members, plate girders, connections and stanchion bases are dealt with as in CP 113 and tables are given showing details of the throat thickness of fillet welds, with reference to the angle

Aggregate	Density of aggregate, lb./cu. ft.	Mix proportions normally used	Concrete density, lb./cu. ft.	Compressive strength, lb./in. ²	Modulus of rupture, lb./in. ²	Drying shrinkage per cent.	Thermal conductivity, B.Th.U. in./ft. ² hr. ° F.
Pumice	30—55	1: 6 or more	45—70	200—550	100—150	.04—.08	About 1.4
Clinker	45—65	1: 6 or more	65—95	300—2000	150—300	.04—.08	2.8 to 4.0
Foamed slag ..	30—50	$\begin{cases} 1: 6 \\ 1: 12 \end{cases}$	$\begin{cases} 80—95 \\ 60—95 \end{cases}$	$\begin{cases} 300—2000 \\ 200—800 \end{cases}$	$\begin{cases} 200—300 \\ 100—250 \end{cases}$	$\begin{cases} .04—.05 \\ .03—.05 \end{cases}$	} 1.5 to 3.0
Expanded clay ..	35—65	$\begin{cases} 1: 6 \\ 1: 12 \end{cases}$	$\begin{cases} 75 \\ 60 \end{cases}$	$\begin{cases} 2000 \\ 850 \end{cases}$	$\begin{cases} 350 \\ 200 \end{cases}$	$\begin{cases} .055 \\ .055 \end{cases}$	
Expanded vermiculite	4—12	1: 3 to 1: 9	28—50	130—500	40—75	0.28—0.35	1.0 to 1.9
Expanded perlite	5—15	1: 3 to 1: 9	24—70	70—1100	40—70	About 0.2	.75—1.5

The compressive strengths are determined on dry blocks.

The modulus of rupture is determined on wet blocks.

Properties of Concrete made with Lightweight Aggregates. (See 14.48)

between the fusion faces, and single run fillets, and the thickness of flanges of plate girders with and without stiffeners. Permissible stresses in butt welds, in tension or compression, and fillet welds in shear shall not exceed the permissible stress in the parent metal.

Readers who are familiar with BS 449: 1948 will find very little new information in this Code. The main deviations are in the proportions of bearing stiffeners and of plates forming sections of built-up compression members.

Recommendations are made for the qualification and testing of welding operators, mainly as given in BS 538: 1940. Two examples of welded beam-to-column connections which could be considered as flexible are included.

17.80 construction: general WELDED STRUCTURES

Development of Design and Fabrication in Recent British Welded Structures. W. S. Atkins and E. M. Lewis. (Paper delivered to International Welding Congress, Oxford, under section entitled, "Recent Developments in Welding in Great Britain.")

Comment on future of welding; examples taken from Abbey Works, Port Talbot, and Abington Laboratory for the British Welding Research Association.

Welding lends itself to continuous or rigid steel frame designs, and has the advantages of strength, stiffness and lightness. The use of welding allows more variety in the form and proportions of the structure. There appears to be an increasing desire amongst structural engineers to avail themselves of the benefits offered by welding and the authors of this paper suggest that in the near future riveting will become relatively unpopular. The rate of the change-over to welding will probably be controlled by the fact that much modern plant and trained personnel are now available for the riveting technique. In steel making, welding will influence both specification and manufacture. A high-strength, high-corrosion-resistant steel, with excellent weldability and no weak strata, must be developed. The range of rolled sections will be reduced and their outline changed; welding preparations will probably be rolled in the section outline. With the assistance of welding as the joining medium, the use and range of thin, cold-rolled sections and tubes will be reviewed.

The designer is concerned with economy, efficiency and the aesthetics, all of which considerations may have an important influence on framing outlines and welding progress. He must achieve standardization in the work and, at the same time, balance the demands of the workshop for simple or plain sections, jigged work and manual details.

This can be done without the loss of aesthetic value or the individual touch.

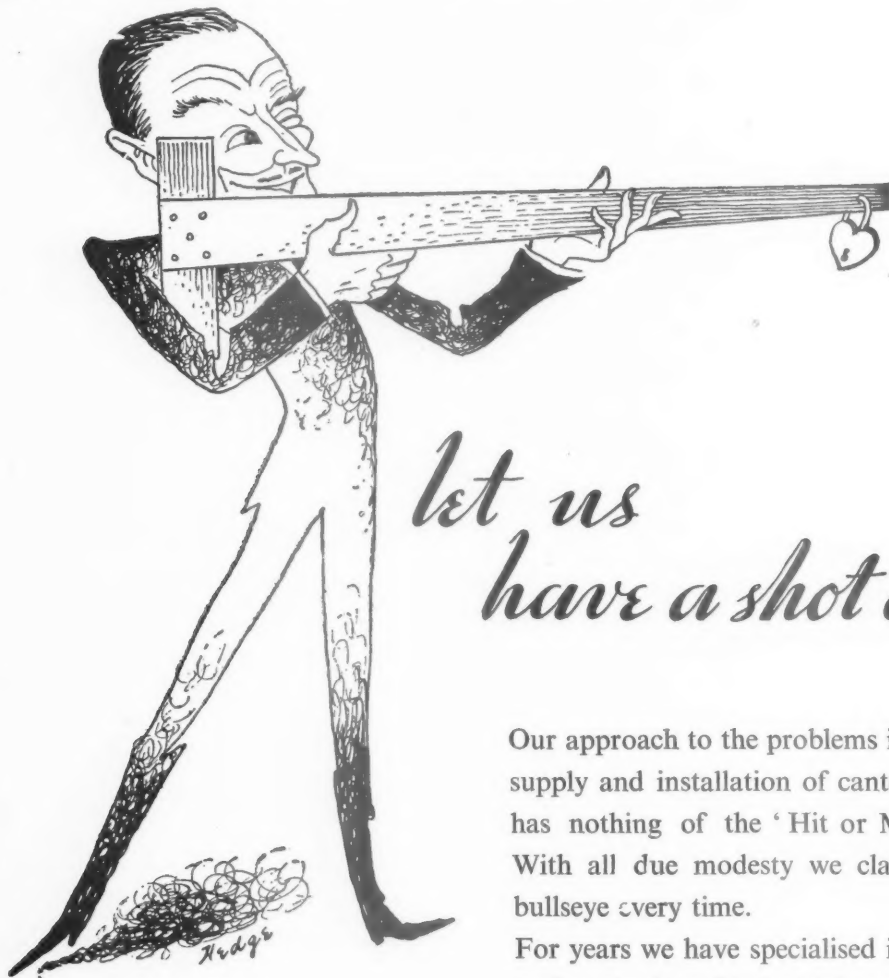
The fabricator must consider whether it is possible to simplify the fabrication of the bulk of the structural work, even at the expense of making the residue more complicated. The latter can then be resolved by help from the designer in standardizing particular and complicated details which might be made repetitive in a range of similar structures, e.g., the effect of roof slope on joint details. High-quality castings might then be employed and site welding might be standardized in method and procedure by using special, adaptable jigs.

ABBEY WORKS, PORT TALBOT

The Abbey Works, Port Talbot, are welded framed structures with a total weight of 47,000 tons of structural welded steel. The main buildings are panned in unit lengths of 40 ft. longitudinally in the hot mill and cold reduction plant, and 55 ft. in the melting shop, where the span is 110 ft. A flat roof was chosen, as it allowed rainwater to be taken off at the sides instead of by internal valleys and drains as would have been required with a pitched roof. The latter would have been more costly in view of the internal drainage. It was then decided to use the monitor type roof for the best natural lighting and this involved the use of roof purlins, cantilevering 10 ft. over the main frames, at 40 ft. centres, to keep the main frames away from the vertical glazing. This has the advantage of reducing bending moments and deflection in the 40-ft. span.

The main buildings are all crane-bearing structures and, with the crane forming a vital part of the operational plant, careful attention had to be given to the relation of the crane girder and rail to the structure. Continuity in the girder assists smooth running, and rigid transverse frames assist track alignment. One continuous length of the structure is braced longitudinally only in the centre bay, and is allowed to flex under temperature variations, moving away from or towards that centre bay. The gantry girder is the only member running continuously down the length of the building and, by inserting pin joints in the frame at crane girder level and also pinning the girder to the stanchion, the necessary freedom of movement is provided. The axes of the pins lie in the plane of the frames; thus transverse continuity of main frames is maintained, but the structure above the girder is able to move without distortion. Here each pair of frames is braced in the form of a tower, bracing is provided to the legs of the roof, between crane girder and roof level, and a triangular "space frame" braces the frames at the levels of the eaves knuckles. Simple, cross bracing, in the plane of the high roof, completes the continuity of bracing across the frame between the pin joints.

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Simple slings are provided at the ends of the plain-joist purlins to pick up the lower roof deck and also to provide framing for the vertical glazing. RSJ's span between the slings, to carry the lower roof deck, which is cross braced.

The paper describes, in some detail, the legs of the crane columns, the crane girders and the crane rails in the melting shop, where there is the heaviest steelwork. The crane girder here is a plate girder, 149 in. deep, with 36-in. x 24-in. flange plates, and 19-in. x 2 in. flitch plates. The rail for the crane was specially rolled so that it could be fixed to the girder by fillet welding. Inspection by radiography was replaced by ultrasonic flaw detection, on account of cost and the fact that it would interfere less with the speed of the work. This testing had a great influence on the workmanship, which was of very high quality throughout.

THE ABINGTON LABORATORY

The Abington, 4-member, single-storey frames contain only 17 tons of welded structural steelwork, but they are very interesting as they were designed "on the Plastic Theory." A comparison of the weight of one of the frames with one designed in accordance with BS 449:1948 shows a saving of 17 per cent. and, with a simple structure of truss and columns, a saving of 45 per cent. The gantry crane girder, built up of a channel and plates instead of the conventional RSJ with top flange channel, is used as an example of how welding allows component parts of ideal size to be united in an optimum section capable of resisting equally well stresses and service wear. It was found also that it was convenient to exploit the "torsion bar" in a case where two tanks were suspended from the frame on the arms of an inverted "T." Welding allows the fabrication of continuous closed boxes which are ideal for resisting torsional stresses, such as those which occur when only one of the two tanks is loaded. Two disadvantages are apparent in this light structure; firstly, the small stiffness value of the members, and, secondly, the combining of the brick cladding with the continuous frame. The former can be counteracted by pre-setting, as in cambered roof purlins, and the latter, by using suitable brickwork details which can be incorporated at little extra cost.

18.89 construction : theory DAMPNESS IN BUILDINGS

The Causes of Dampness in Buildings. BRS Digest No. 33. (HMSO. Aug. 1951. 3d.)

General discussion on how dampness occurs and how to trace correctly its various causes.

This paper does not contain any profound "science," but is a very good explanation of the different forms of dampness which occur in buildings, their causes, and how to recognize them. Much of the information may seem elementary but, when one remembers the difficulties which sometimes occur when the architect is called in to diagnose, it will be found that this simple, but comprehensive, survey is a useful guide. Two tables are given. One lists the types of surface on which dampness may occur and then gives the usual effect, the cause, the other substances such as salts, organic matter, etc., which may be involved and, finally, reference to relevant BRS publications. The other table starts with the location of the dampness, such as ceiling or chimney breasts, and then lists the type of distribution, timing in relation to weather conditions, probable source of moisture possible causes and again, relevant publications.

A good piece of common-sense analysis of common defects, based on the knowledge accumulated both by research and by observation of many actual examples.

19.135 construction : details REINFORCED CONCRETE CHIMNEY

Reinforced Concrete Chimney built to record height of 611 ft. (A.M. Clark. Civil Engineering [USA], Feb. 1951. pp. 24-25.)

Interesting article for architects and builders, giving proportions of design and method of construction of the world's tallest chimney.

The chimney was completed in El Paso, Texas, in October, 1950, for the American Smelting & Refining Co. Its great height was required to provide sufficient draught and also to minimize nuisance effects of gas discharge containing 0.5 per cent. sulphur dioxide.

The chimney is 611 ft. high, 44 ft. 10 in. outside diameter at the bottom and 15 ft. 6 in. at the top. The shaft is tapered from top to bottom, the increase in the outside diameter varying from 2½ in. per 10 ft. of vertical height in the upper part to 8½ in. per 10 ft. of vertical height at the bottom. Wall thicknesses at top and bottom are respectively 9 in. and 25 in. Vertical reinforcement, designed to resist the combined effect of dead load, wind load and the effect of the vertical temperature differential increases from 50 ½-in. bars at the top, to 202 1-in. bars at the bottom, of the shaft. Horizontal reinforcement consists mainly of ½-in. bars at 6-in. centres, although near the base ¾-in. and 1-in. bars have been used. The base consists of an octagonal slab, 8 ft. thick and 66 ft. 6 in. wide across the flats, of which the top 5 ft. 6 in. slopes inwards to form an octagon measuring only 46 ft. across flats.

For the lower 330 ft. of the chimney, concrete with a 28-day compressive strength of 3,500 lb./sq. in. was specified; for the remainder the figure was 3,000 lb./sq. in. The wind force allowed for was 33 lb./sq. in., uniformly on the whole of the vertical projected area. A gas temperature of 300 deg. F. and an outside temperature of 30 deg. were assumed for purposes of design, but the gas is not expected to exceed a temperature of 180 deg. F. There is no masonry lining.

24.154 lighting AUDITORIUM AND STAGE LIGHTING

Lighting the School Auditorium and Stage. Carl J. Allen. (Progressive Architecture [USA] Aug., 1951.)

Summary of design factors for visual comfort and description of lighting equipment required in halls holding up to 1,000 people. By English standards, examples are more appropriate to technical colleges and community buildings than to schools.

The size of auditoria is limited visually by the fact that at a distance of 75 feet changes in a speaker's expression cannot be distinguished. Moreover members of an audience prefer seats within an arc of 100° from the edge of the proscenium and, for cinema projection, the viewer should be within a 30° angle from the centre line of a movie screen or within a lesser angle if the screen is beaded. These visual requirements, irrespective of acoustic ones, limit satisfactory halls to a capacity of less than 1,000.

Incandescent lighting is more flexible than fluorescent; for general auditorium lighting 10 foot candles are sufficient but examination work requires 30 foot candles.

Stages are lit by the following equipment, listed in order of importance: (i) Auditorium ceiling spotlights, (ii) first border spotlights, (iii) first border striplights, and (iv) intermediate border striplights. Other equipment used includes portable spots, floods and projectors, side spotlights, cyclorama lights and footlights. Laymen will, doubtless, be

surprised to learn that in importance footlights rate lowest.

A "minimum budget" installation is described, although this is about the equivalent of normal English school practice, employing two rows of projectors over the stage and a further row on the ceiling beyond the apron stage; footlights being omitted.

All installations of this kind should be designed so that they can be built up as funds permit.

26.93 services and equipment : miscellaneous X-RAY INSTALLATION

Structural X-Ray Protection. (Carl B. Brasestrup. (Progressive Architecture [USA] June, 1951.)

Useful summary of protective measures to be considered in the design and construction of X-Ray departments. Illustrated.

This article is based on Handbook 41, published by the US National Bureau of Standards, but is complete in itself in that it translates the recommendations of that handbook into specific terms of planning and construction. After describing the physiological requirements of protection, it gives the data needed to estimate the structural measures which must be taken to meet various exposure risks. This depends on the maximum voltage of the equipment and the "milliamp-minutes" of exposure per week for fluoroscopy, radiography or therapy, on the distance between the apparatus and the occupied area, and the degree of occupancy of surrounding rooms.

Special points to observe in the construction of barriers are: lead mats to prevent scatter under lead lined doors, provision of lead glass windows, and support for heavy lead-lined doors. For radiography, the operator should be protected by a control booth shielded by a "maze." Undeveloped X-Ray films are very sensitive and dark rooms need ample protection. High voltages are used for therapy but protection costs may be lowered by siting treatment rooms at some distance from permanently occupied rooms.

A table shows the thicknesses of concrete or lead required to give protection against varying intensities of exposure.

26.94 services and equipment : miscellaneous COPPER TRAPS AND WASTES

Copper and Copper Alloy Traps and Wastes. BS 1184:1951. (British Standards Institution. 3s.)

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28.16 miscellaneous ATMOSPHERIC POLLUTION

Deposit Gauges for Atmospheric Pollution. BS 1747:1951. (British Standards Institution. 2s. 6d.)

Construction, installation and use. Of interest to technical colleges and institutions.

Though not at first sight interesting this BS has an aim beyond mere standardization of a piece of apparatus. It is hoped that by preparing a fairly simple standard apparatus, technical colleges and the like may be encouraged to obtain and use them and thus spread a wider knowledge of the evil and extent of pollution and at the same time help to build up a useful body of data.

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A.J. 8.11.51

Announcements

The Ruberoid Co. Ltd. have appointed Mr. W. J. Ball as Birmingham and District General Manager to fill the vacancy created by the recent death of Mr. F. H. Nicholls. Mr. Ball has had many years' experience of the company's products and specifications, and is already well known in Birmingham and the Midlands.

Johnson & Phillips Ltd. announce that their branch at Ipswich was being transferred on October 22 to 17, St. Nicholas Street (telephone: Ipswich 3417; telegrams: "Selbac" Ipswich).

Correction

In our issue of September 20, we stated incorrectly that the new factory at Wishaw, Lanarkshire, was designed for Smiths English Clocks Ltd. Instead, the factory was built by Scottish Industrial Estates, and only leased to Smiths English Clocks Ltd.

Buildings Illustrated

Bus Garage with shell concrete roof. (Page 552.) Architects: A. W. Jackson, A.R.I.B.A. and F. R. Greenen, A.R.I.B.A., A.M.P.T.I. Consulting Engineers: R. Travers Morgan and Partners, Main Contractors: James Drewitt and Son Ltd. Prestressed Work: Vibrated Concrete Construction Co. Ltd.

"The Builder" Low Cost Houses. (Pages 555-558.) Architects: J. L. Womersley, A.R.I.B.A., A.M.T.P.I., G. Hookinson, B.A.R.C.H., A.R.I.B.A., A.M.T.P.I. General Contractors: C. T. Wilton & Son Ltd. Sub-contractors: roofing, Wilkins & Bedford; glaziers, Daylers Ltd.; electrical installation, The East Midlands Electricity Board, Northants Sub Area;

flooring, The Marley Tile Co. Ltd.; facing bricks, New Star Brick Co.; fletton bricks, Marston Valley Brick Co. Ltd.; hollow partition blocks, London Brick Co.; precast gutters, Finlock Gutters Ltd.; precast Stone, Trent Concrete Ltd.; tiled fireplaces, Northampton Tile & Fireplace Co.; quarry floor tiles, A. Genders & Co. Ltd.; cill tiles, Raponi (Floor Tiles) Ltd.; metal windows, Henry Hope & Sons Ltd.; timber, Smiths Timber Co.; internal doors, Austins of East Ham Ltd.; ironmongery, Lockerbie Wilkinson (Birmingham) Ltd.; pantiles, William Blyth; insulation, Fibreglass Ltd.; convactor fires and radiators, Ideal Boilers & Radiators Ltd.; sanitary ware, A. R. & W. Cleaver Ltd.; paint, Smith & Walton; distemper, British Paints Ltd.; furniture, Hemmings Bros.

Primary School, Lansbury, Poplar. (Pages 559-566.) Architects: F. R. S. Yorke, F.R.I.B.A., E. Rosenberg, F.R.I.B.A., and C. S. Mardell, A.R.I.B.A. Consulting engineers: Clarke, Nicholls and Marcel. Main Contractors: Tersons Ltd. Sub-contractors: roofing, William Briggs & Sons; copper, Stitsons Sanitary Fittings; sprayed ceilings, Frederick Braby & Co., Meta Mica Ltd.; plastic flooring, Armstrong Cork Co.; ceilings, Sundeala Board Co.; venetian blinds, Tidmarsh & Sons, Gliksten Doors Ltd.; garden layout, Grassphalte Ltd.; windows, Williams & Williams Ltd.; handrails, Clarke, Hunt & Co.; joinery & fittings, Rippers Ltd.; fencing, Bayliss, Jones & Bayliss Ltd.; w.c. partitions, Mosaic & Terrazzo Precast Co.; roofs, Stramit Boards Ltd.; fibrous plaster, Dejong Granwood Flooring Co., structural steel, Hills (West Bromwich) Ltd.; ironmongery, Rennis Ltd.; tiles, Carters & Co. (London) Ltd.

The ground and first floor plans on page 560, the site plan on page 562, and the section on page 566 are reproduced from a series of articles entitled: "The New Architecture in Great Britain," by Edward D. Mills, now appearing in the monthly magazine *Architectural Design*.



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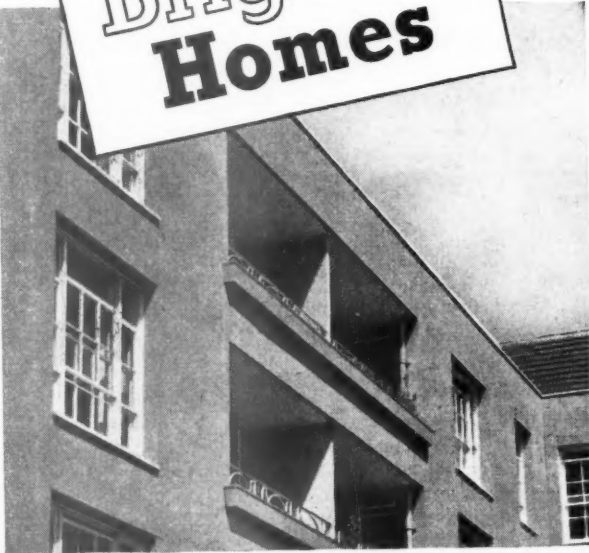
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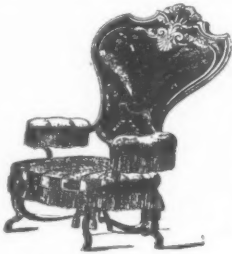
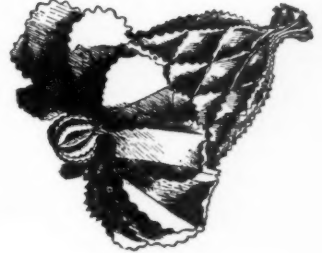
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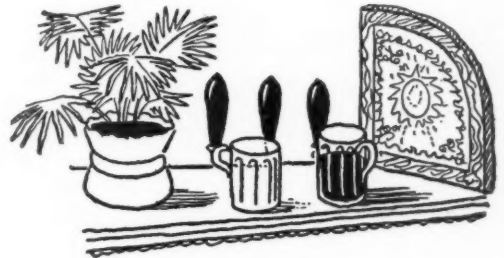


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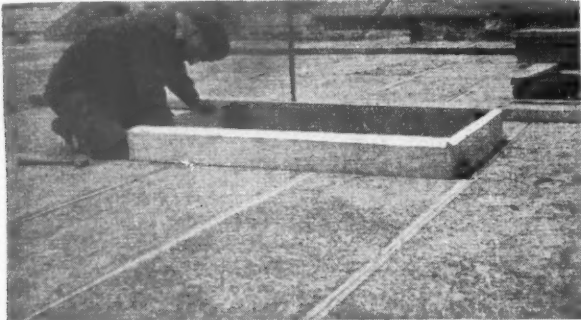
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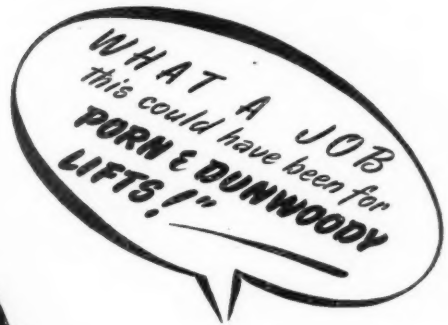
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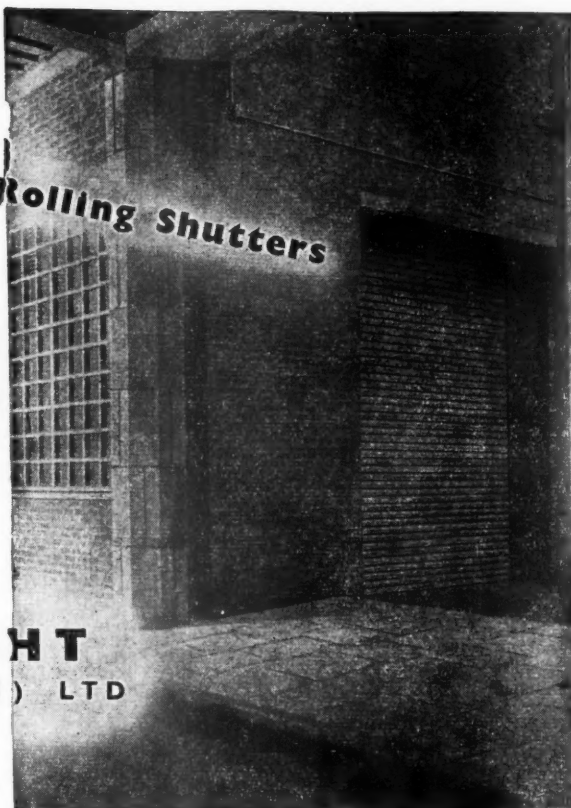
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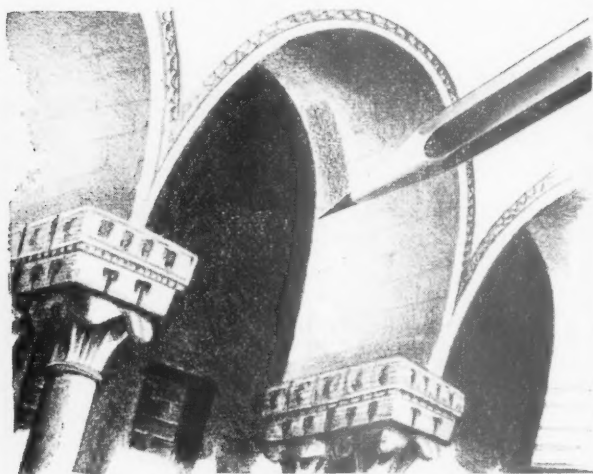
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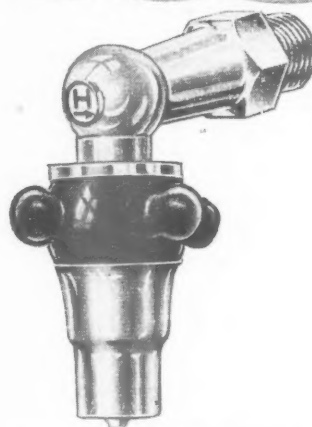
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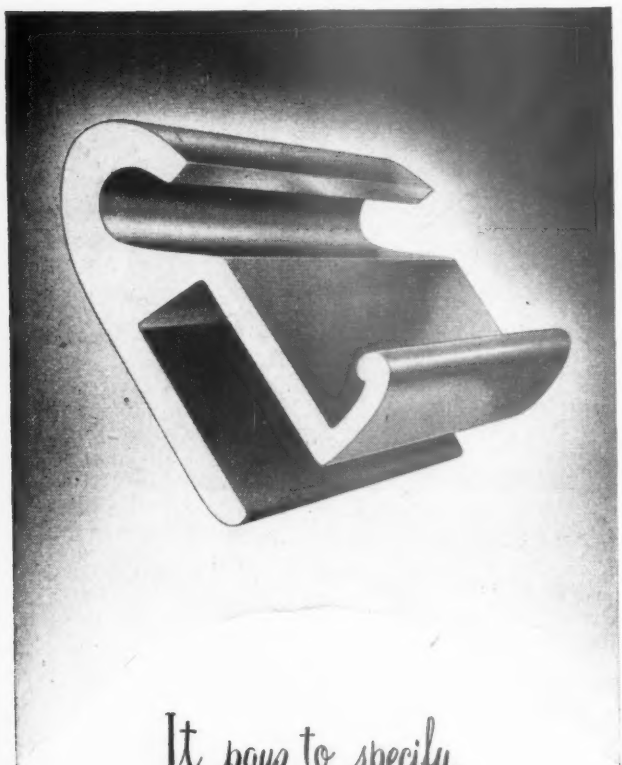


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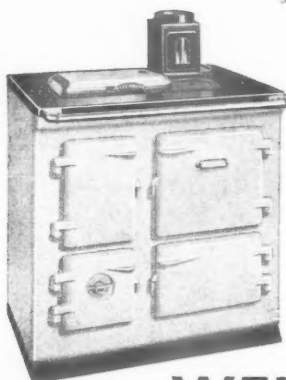
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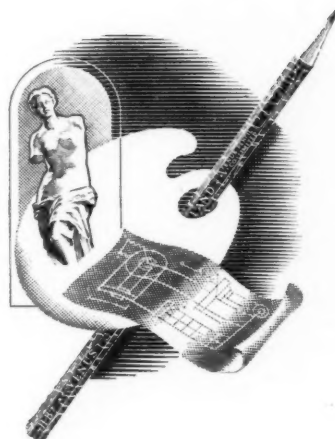
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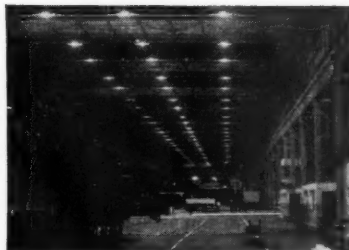


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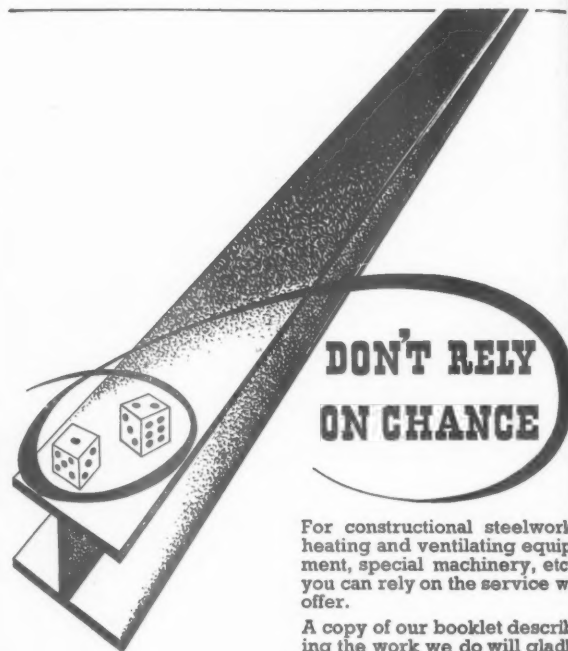
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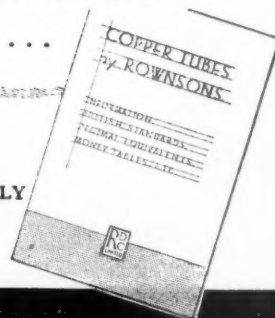
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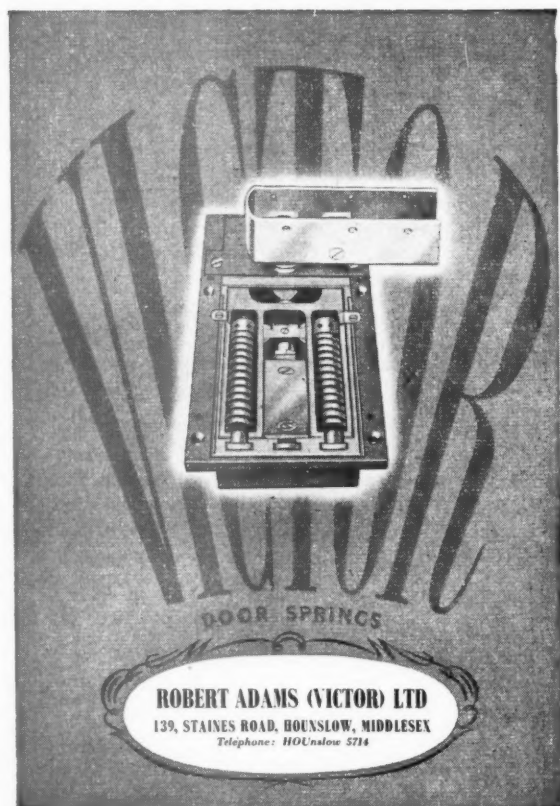
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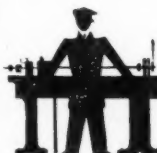
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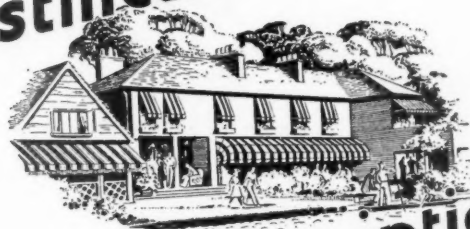
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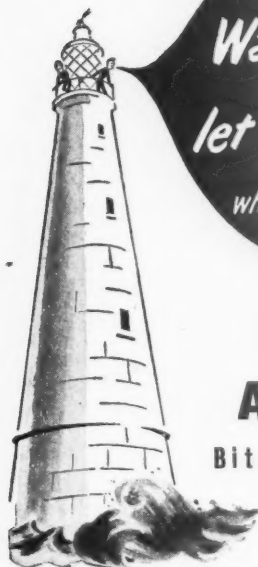
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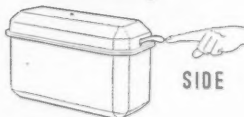
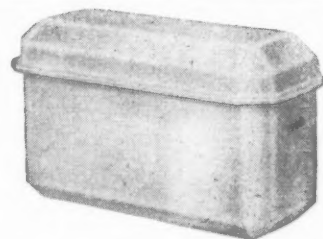
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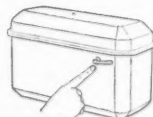
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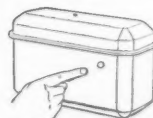
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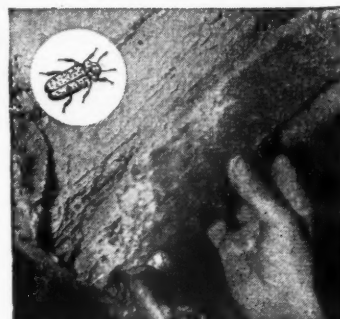
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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

25s. per inch; each additional line, 5s.

AIR MINISTRY WORKS DEPARTMENT.
HEATING AND VENTILATING DESIGNER/DRAUGHTSMEN required in Designs Branch by Air Ministry Works Department. Applicants should be capable of designing and detailing low and high pressure hot water heating installations or have had several years experience in the design of ventilation and air-conditioning installations. The appointments will normally be in London and salaries are on ranges up to £675 per annum according to age, qualifications and experience. Applications stating age, qualifications, previous appointments (with dates) should be sent to the Air Ministry Directorate General of Works (W.9), Bush House, S.E. Wing, Strand, London, W.C.2, from which address details may be obtained. 4591

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the appointment of **QUANTITY SURVEYING ASSISTANT, Grade V**, at a commencing salary of £570 per annum, rising by annual increments of £15/2/6 to a maximum of £620 per annum, plus London allowance of up to £30, according to age.

Preference will be given to applicants who are Members of the Royal Institution of Chartered Surveyors (Quantities Sub-Division), and who have an adequate experience in the preparation of Bills of Quantities, site measuring, and in settlement of final accounts.

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

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to the County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than 17th November, 1951.

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

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

T. W. W. GOODERIDGE,
Clerk of the Council.
County Hall, Kingston-upon-Thames. 4626

PETERLEE DEVELOPMENT CORPORATION.
APPOINTMENT OF PLANNING ARCHITECT.

Applications are invited, from persons having wide experience and high qualifications in planning, architecture, and the use of modern building materials, for the above-mentioned appointment, which will be of Chief Officer status. The salary to be paid will be fixed according to the qualifications and suitability of the person appointed.

The main duties of the post will be the co-ordination of planning and architecture in respect of residential, industrial and town centre areas, and opportunity will be given to the Planning Architect to carry out architectural design of important buildings in the town. Full particulars of the appointment can be obtained from the General Manager.

The appointment, which is a full time one, is superannuable, and the successful applicant will be required to pass a medical examination. The appointment will be terminable by three months' notice in writing on either side.

If required, a house can be provided for the successful applicant.

Applications, giving full particulars of age, experience and qualifications, together with the names of two referees, should be forwarded to the undersigned not later than Friday, 7th December, 1951.

A. V. WILLIAMS,
General Manager.
Shotton Hall, Castle Eden, Co. Durham. 4627

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

Salary: Architectural Assistants £340-£575 per annum; Leading Architectural Assistants, £570-£675 per annum. Starting pay will be assessed according to age, qualifications and experience. These rates are for London; a small deduction is made in the Provinces.

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

Apply in writing, stating age, nationality, full details of experience, and locality preferred, to Chief Architect, Ministry of Works, Abell House, John Islip Street, London, S.W.1, quoting reference WC10/BS. 4394

PONTYPRIDD URBAN DISTRICT COUNCIL.

APPOINTMENT OF QUANTITY SURVEYOR.
Applications are invited for the appointment of a Quantity Surveyor, at a salary in accordance with Grade VII of the A.P.T. Division of the National Scales of Salaries, namely, £685 rising by three annual increments of £25 to a maximum of £760. The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, a satisfactory medical examination, and one month's notice on either side for termination. Applicants must be Associate Members of the Royal Institution of Chartered Surveyors (Quantity Section) and have had considerable experience and be competent to take off and prepare Bills of Quantities for all types of buildings.

Form of application is obtainable from the Council's Architect, Mr. W. Cecil Evans, Municipal Buildings, Pontypridd, Glam., and should be obtained by intending applicants.

Applications must be delivered, appropriately endorsed, to the undersigned, not later than the 24th day of November, 1951.

Canvassing will be a disqualification, and candidates must disclose any relationship to Members of the Council.

JOHN HILTON,
Clerk to the Council.

Municipal Buildings,
Pontypridd.
24th October, 1951. 4632

COUNTY BOROUGH OF WEST HAM.

BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT.
Applications are invited from suitably qualified persons for the following posts on the permanent establishment of the Department, in connection with the reconstruction programme of the County Borough:—

(a) **SENIOR ASSISTANT ARCHITECT, A.P.T., Grade VII** (£685 × £25 = £760).

(b) **ASSISTANT ARCHITECT, A.P.T., Grade VI** (£645 × £20 × £20 = £710).

(c) **ARCHITECTURAL ASSISTANT, A.P.T., Grade VIII** (£440 × £15 = £485, £470 × £15 = £515, £500 × £15 = £545).

(d) **ASSISTANT PLANNING, A.P.T., Grade VI** (£645 × £20 × £20 = £710).

Applicants for post (a) should be A.R.I.B.A. having considerable experience of large Housing and Education works, and Public Buildings, and be capable of taking complete charge of Contracts. Applicants for post (b) should be A.R.I.B.A. or Registered Architects, have had experience in large Housing and Education works and be able to supervise Contracts.

Applicants for post (c) should have had at least three years' practical experience in an Architect's office, and preference given to candidates who have passed the Intermediate Examination of the R.I.B.A.

Applicants for post (d) should be A.M.T.P.I. with experience in the administrative problems and development control arising in the reconstruction of war damaged areas.

London Allowance payable in addition to salary scales, viz:—

15-20 years	£10 p.a.
21-25 years	£20 p.a.
26 years and over	£30 p.a.

Application forms (returnable by Monday, 19th November, 1951) to be obtained from the Borough Architect and Planning Officer, Thomas E. North, F.R.I.B.A., 70, West Ham Lane, Stratford E.15.

G. E. SMITH,
Town Clerk.

West Ham Town Hall,
Stratford, E.15. 4631

COUNTY BOROUGH OF HUDDERSFIELD.

BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(a) **QUANTITY SURVEYOR**, salary in accordance with Grade VII of the National Scales of Salaries, commencing at £685 and rising to £760 per annum.

(b) **ASSISTANT QUANTITY SURVEYOR**, salary in accordance with Grade IV of the National Scales of Salaries, commencing at £530 and rising to £575 per annum.

Applicants for appointment (a) should have had considerable experience in taking off, billing, measurement of works on site and settlement of final accounts, and preference will be given to Members of the R.I.C.S. (Quantities Section).

Applicants for appointment (b) should have had experience in abstracting and billing, and measurement of works on site. Preference will be given to persons who have passed the Intermediate Examination of the R.I.C.S. (Quantities Section).

Housing accommodation will be provided for the successful candidates, if required. The conditions of service are those formulated by the National Joint Council, and the appointment is subject to the provisions of the Local Government Superannuation Act, 1937. The successful candidate will be required to pass a medical examination.

Applications endorsed "Quantity Surveyor" or "Assistant Quantity Surveyor" together with the names and addresses of two persons to whom reference may be made, should be delivered to the Borough Architect & Planning Officer, High Street Buildings, Huddersfield, not later than 12th November, 1951.

HARRY BANN,
Town Clerk. 4606

Town Hall, Huddersfield.

EBBW VALE URBAN DISTRICT COUNCIL.

ARCHITECT'S DEPARTMENT.

Applications are invited for the under-mentioned appointment on the permanent staff of the Architect's Department:—

ARCHITECTURAL ASSISTANT (Grade A.P.T. III). Salary, £500 × £15 = £545 per annum. Applicants should have passed the Intermediate Examination of either the Royal Institution of British Architects or the Royal Institution of Chartered Surveyors (Building Sub-Division), and should have had good general architectural and surveying experience, not necessarily in Local Government offices. In addition some knowledge of Quantities would be an advantage.

The Architect's Department has a full programme of work covering Housing Estates, Slum Clearance and Reconstruction Schemes, layout of new parks and open spaces, Town Planning Administration and general Municipal Building work.

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

The Council cannot provide housing accommodation.

Applications, stating age, qualifications and experience, together with the names of two referees to whom reference may be made, should be delivered to the undersigned not later than Saturday, the 24th day of November, 1951.

Applicants must state in their applications whether, to their knowledge, they are related to any member of the Council or senior officer under the Council.

Canvassing, directly or indirectly, will disqualify.

R. E. HERBERT,
Clerk of the Council.

District Council Offices, The Walk,
Ebbw Vale, Mon. 4616
20th October, 1951.

HUYTON-WITH-ROBY URBAN DISTRICT COUNCIL.

ENGINEER & SURVEYOR'S DEPARTMENT.

Applications are invited for the following established posts:—

(a) **PRINCIPAL ENGINEERING ASSISTANT.** Salary in accordance with Grade A.P.T. VI-VII (£645 × £20 × £20 = £710, £685 × £25 = £760). Applicants are required to have experience in the design of a large sewage disposal works and must hold the Associate Membership of the Institution of Civil Engineers or the Testamur of the Institution of Municipal Engineers or its equivalent. The successful candidate will be required to take charge of the final design for a large sewage works, the starting date of which is fixed for the summer of 1952. The appointment will be made according to qualifications and experience and housing accommodation will be made available to the successful candidate, if required.

(b) **PUBLIC LIGHTING ASSISTANT.** Salary in accordance with Grade A.P.T. III (£500 × £15 = £545). Applicants must have experience in the design of public street lighting installations and experience in the control of staff engaged in the installation, repair and maintenance of such a section, and should hold the City and Guilds Examination for illuminating engineers and have membership of the Association of Public Lighting Engineers.

(c) **QUANTITY SURVEYOR.** Salary in accordance with Grade A.P.T. V-Va (£570 × £15 × £15 = £220-£620, £600 × £20 = £660). Applicants should be qualified quantity surveyors and have had considerable experience on housing estate construction, preferably with a local authority. In addition to experience in taking off and measuring up/building works, similar experience in civil engineering works would be an advantage.

The appointments will be subject to the following:—(1) National Scheme of Conditions of Service; (2) Provisions of the Local Government Superannuation Act; (3) the passing satisfactorily of a medical examination; (4) one month's notice on either side.

Applications stating age, whether married or single, with details of qualifications and experience, and to be accompanied by the names and addresses of two referees, should reach the undersigned not later than the 21st November, 1951. Canvassing disqualifies.

H. E. H. LAWTON,
Clerk of the Council.

Council Offices, Derby Road,
Huyton, Nr. Liverpool. 4668
29th October, 1951.

THE ROAD HAULAGE EXECUTIVE invite applications for the post of ARCHITECTURAL DRAUGHTSMAN in the Department of the Chief Surveyor and Architect in London.

Applicants should have passed the Intermediate Examination of the R.I.B.A., be capable of preparing working drawings and details, and be neat and accurate draughtsmen, with a minimum of five years' experience in drawing offices. Some school training will be an advantage. Salary within the range £520-£550 per annum. Applications in duplicate, giving date of birth, qualifications, experience, present post and salary, should reach the Chief Staff and Welfare Officer (S.219), Road Haulage Executive, 222, Marylebone Road, London, N.W.1, within seven days of the appearance of this notice. Selected candidates will be required, if eligible, to join a contributory superannuation scheme.

H. E. H. LAWTON,
Clerk of the Council.

Council Offices, Derby Road,
Huyton, Nr. Liverpool. 4668
29th October, 1951.

DEVELOPMENT BOARD OF THE GOVERNMENT OF IRAQ.

Applications are invited for service in fifteen executive posts in the Development Board of the Government of Iraq. These posts consist of five for Irrigation and Drainage Engineers, five for Roads and Bridges and five for Architects. Applicants must be holders of B.Sc. or equivalent degree for the works with some knowledge of construction and preferably with one or two years' experience and an A.R.I.B.A. for the posts of Architects. Basic salary is ID 80 to ID 120 per mensem, other conditions of service can be obtained from:—J. D. Atkinson, c/o Coode, Vaughan-Lee, Frank & Gwyther, 9, Victoria Street, London, S.W.1. ID 1 = £1 sterling. Applications to be submitted to the above address not later than 26th November, 1951. 4649

EPPING RURAL DISTRICT COUNCIL. ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Surveyor's Department at a salary within A.P.T., Grade II (£470-£515).

Candidates must have had a good general experience on Housing Work and be able to write Specifications and deal with variations on contracts.

Applications must reach Mr. A. W. R. Webb, A.M.I.C.E., at the address below not later than the 24th November, 1951.

G. BOWDEN,

Clerk of the Council.

209, High Street, Epping. 4670
October, 1951.

COUNTY COUNCIL OF INVERNESS.

COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT in the County Architect's Department, salary scale A.P.T. III (£490-£535).

Candidates should be neat and accurate draughtsmen and have had experience in the preparation of working drawings for housing and other Local Authority work.

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

Applications, stating age, qualifications and present appointment, accompanied by copies of not more than three recent testimonials, should be submitted to the undersigned not later than ten days after the date of publication of this advertisement.

R. WALLACE,

County Clerk.

County Buildings, Inverness. 4650

KINCARDINE COUNTY COUNCIL.

Applications are invited for appointment as SENIOR ARCHITECTURAL ASSISTANT on the salary scale £570 to £710 (A.P.T. V, V(a) and VI), in the office of the County Architect and Planning Officer, Stonehaven. Candidates must possess the A.R.I.B.A. qualification or other qualification approved by the Council. The post falls under the Superannuation Act, and medical examination will be required. Applications, including the names of three referees, should be lodged with the undersigned not later than 24th November, 1951.

JOHN SLEVIN,

County Clerk.

33, Evan Street, Stonehaven. 4651
26th October, 1951.

CITY OF BIRMINGHAM EDUCATION COMMITTEE.

Applications are invited for the appointment of Temporary ASSISTANT CLERKS OF WORKS in the Architect's Branch of the Birmingham Education Committee (Architect to the Committee: Mr. Alex. Steele, A.R.I.B.A.).

Salary will be in accordance with the Miscellaneous Division, Grade IV, £400-£470 per annum.

Candidates should have had a good general experience of the building industry. Previous experience as a Clerk of Works is not necessary.

Application forms, which may be obtained from the undersigned on receipt of a stamped addressed envelope, must be returned not later than three weeks after the appearance of this advertisement.

E. L. RUSSELL,

Chief Education Officer.

Education Office, General Purposes Branch, Margaret Street, Birmingham, 3. 4650

LONDON ELECTRICITY BOARD.

SENIOR DRAUGHTSMEN.

Applications are invited for two positions as Senior Draughtsmen in the Northern Sub-Area Design and Planning Branch at Aldersgate Street, E.C.1.

Candidates should have the requisite training and experience to prepare layouts of switchgear, building drawings for Substations and Transformer Chambers, together with necessary calculations for steel work and concrete, etc., for structures required in connection with Substations up to 11 kV.

The posts are graded under Schedule "D" of the National Joint Board agreement as Senior Draughtsmen Grade 5 (£574 7s. to £683 11s. per annum), inclusive of London Allowance.

Application forms obtainable from Establishment Officer, 46, New Broad Street, E.C.2, to be returned duly completed by 19th November, 1951. Please enclose addressed foolscap envelope and quote ref. V/1349/A on all correspondence. 4666

URBAN DISTRICT OF FELTHAM.

APPOINTMENT OF TECHNICAL ASSISTANT.

Applications are invited for the appointment of Temporary Technical Assistant in the Engineer and Surveyor's Department for work in connection with the Civil Defence Shelter Survey, at a salary in accordance with Grade V of the National Scales, viz., £570 per annum, rising by two annual increments of £15 and one of £20 to £620 per annum, plus London "weighting".

Preference will be given to applicants holding one of the recognised professional qualifications. The appointment will be subject to the National Scheme of Conditions of Service, the passing of a medical examination, and to one month's notice in writing on either side.

Forms of application may be obtained from the undersigned, to whom they should be returned, accompanied by copies of two recent testimonials, not later than 25th November, 1951.

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

M. W. COUPE,

Clerk of the Council.

Council Offices, Feltham, Middlesex. 4659

BOROUGH OF LUTON.

ARCHITECTURAL ASSISTANT required in Borough Engineer's Department. Salary ranging between A.P.T. I (£440-£485) and IV (£540-£575), according to qualifications and experience, e.g., for Grade III applicants must have Inter. R.I.B.A. or equivalent, and at least a year's office experience; for Grade IV, Inter. R.I.B.A. and at least 2 years' office experience; N.J.C. service conditions; post pensionable; medical examination; house available. Apply, giving age, full particulars, and two referees, to Borough Engineer, Town Hall, Luton, by 19th November. Canvassing disqualifies.

W. H. ROBINSON,

Town Clerk.

4648

COUNTY BOROUGH OF BARROW-IN-FURNESS.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

APPOINTMENT OF CHIEF ARCHITECT.

Applications are invited from qualified Architects with suitable Municipal experience for the post of Chief Architect, on Grade A.P.T. IX (£790-£910 per annum), at a commencing salary to be fixed within the grade.

A car allowance in accordance with the N.J.C. scales will be paid.

The Council has accepted the principle of providing Housing Accommodation.

Full details of the post, conditions of appointment and application forms may be obtained from the Borough Engineer and Surveyor, to whom completed forms must be returned not later than Monday, 19th November, 1951.

LAWRENCE ALLEN,

Town Clerk.

Town Hall, Barrow-in-Furness. 4652
25th October, 1951.

COUNTY BOROUGH OF GREAT YARMOUTH.

APPOINTMENT OF GENERAL ASSISTANT ARCHITECT.

Applications are invited for the appointment of a General Assistant Architect in the Borough Engineer's Department for housing, seaside and general work, at a salary in accordance with A.P.T., Grade IV (£530-£575).

Applicants should have passed the Intermediate Examination of the R.I.B.A. The appointment will be terminable by one month's notice on either side, subject to the provisions of the Local Government Superannuation Act, 1937, and to the passing of a medical examination. The Council is unable to offer housing accommodation to the successful candidate.

Applications stating age, qualifications and experience, together with the names of three persons to whom reference may be made, should be enclosed in an envelope endorsed "General Assistant Architect" and must be received by me not later than Monday, the 19th November, 1951.

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

FARRA CONWAY,

Town Clerk.

Town Hall, Great Yarmouth. 4665
29th October, 1951.

BOROUGH OF TOTTENHAM.

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the vacant post of DRAUGHTSMAN (Established) in the Town Planning and Building Surveying Section of the Borough Engineer's Department, at a salary in accordance with Grade A.P.T. I of the National Scale of Salaries, i.e., £440 to £485, plus London weighting allowance of £10 to £30, according to age.

Candidates should have had experience in the office of an Architect or Surveyor.

Form of application and conditions of appointment may be obtained from the Borough Engineer, Town Hall, Tottenham, N.15, to whom completed applications must be returned not later than 26th November, 1951.

M. LINDSAY TAYLOR,

Town Clerk.

4660

WAR DEPARTMENT.

There are vacancies in C.R.E. Office, Catterick Camp, Yorks, for ARCHITECTURAL ASSISTANTS, with recognised training and fair experience. Successful candidates will be employed on a wide variety of work, including part surveying and levelling. Starting pay will be assessed according to age, qualifications and experience. Salary £340-£420 to £575 per annum, less provincial differentiation.

Although these are not established posts, some of them have long term possibilities. Apply in writing, stating age, nationality, full details of experience, to: C.R.E., Catterick, Catterick Camp, Yorkshire. 4676

COUNTY BOROUGH OF DEWSBURY.

APPOINTMENT OF BOROUGH ARCHITECT AND BUILDINGS SURVEYOR.

Applications are invited from members of the Royal Institute of British Architects for the appointment of Borough Architect and Buildings Surveyor at a commencing salary of £1,150 per annum, rising by annual increments of £50 to £1,350 subject to satisfactory service.

Housing accommodation will be offered to the successful applicant.

Further particulars and conditions of appointment can be obtained from the undersigned to whom applications must be sent not later than the 21st November, 1951.

A. NORMAN JAMES,

Town Clerk.

Town Hall, Dewsbury.

1st November, 1951. 4669

METROPOLITAN BOROUGH OF STEPNEY.

APPOINTMENT OF TWO ARCHITECTURAL ASSISTANTS (UNESTABLISHED) IN THE BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT.

Applications are invited from persons qualified for the above-mentioned appointments.

Preference will be given to candidates having experience in the preparation of design, layout, working drawings, detailed specifications for housing schemes, etc., and who hold appropriate recognised professional qualifications.

Salary payable will be in accordance with Grade A.P.T. VI of the National Scheme of Conditions of Service (£645-£716, plus appropriate London Weighting Allowance).

The appointments will be subject to the Council's Bye-laws and Standing Orders, and to the above National Scheme as adopted by the Council and applied to its staff.

Application should be made direct to the Borough Engineer and Surveyor at these offices. Canvassing, either directly or indirectly, will disqualify.

J. E. ARNOLD JAMES,

Town Clerk.

Municipal Offices,

London Fruit Exchange,

Duval Street, E.1.

November, 1951. 4668

ORKNEY COUNTY COUNCIL.

Applications are invited for the post of TECHNICAL ASSISTANT to the County Architect and Planning Officer. Applicants should hold at least the Intermediate Certificate, A.R.I.B.A., and have had experience in an Architect's office. The salary attached to the post, which is subject to the Local Government Superannuation (Scotland) Act, 1937, is £460-£505 per annum, but it may be varied according to qualifications. Applications together with copies of three recent testimonials should be lodged with the undersigned on or before 21st November, 1951.

DOUGLAS M. WOOD,

County Clerk.

County Offices, Kirkwall.

29th October, 1951. 4679

LONDON ELECTRICITY BOARD.

ASSISTANT QUANTITY SURVEYORS.

Applications are invited for the above positions in the Construction Branch of the Chief Engineer's Department at Lesco House, Stamford Street, S.E.1.

Applicants should be experienced in the preparation of Bills of Quantities at all their stages, measurement of Variations and re-measurement of Contracts, and will work under the direction of a Chartered Quantity Surveyor.

The posts are graded under Schedule "C" of the National Joint Board agreement as Grade V. Salary range: £660 9s. to £875 14s. per annum inclusive, the commencing salary being dependent upon qualifications and experience.

Application forms obtainable from Establishment Officer, 46, New Broad Street, E.C.2, to be returned duly completed by 19th November, 1951. Please enclose addressed foolscap envelope and quote Ref. V/1216/A on all correspondence. 4682

CITY OF COVENTRY.

ARCHITECTURAL AND PLANNING DEPARTMENT.

Applications are invited for the appointment of a QUANTITY SURVEYING ASSISTANT on Grade A.P.T. III (£500-£515-£545 per annum). Preference will be given to applicants holding the Intermediate R.I.C.S. Certificate.

The successful applicant will be expected to belong to an appropriate organisation in accordance with Paragraph 44 of the Charter.

Applications, on forms to be obtained from the undersigned, by 3rd December, 1951.

D. E. GIBSON,

City Architect and Planning Officer.

Bull Yard, Off Warwick Row, Coventry.

31st October, 1951. 4869

BURGH OF ALLOA.
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.
 Applications are invited for the appointment of Senior Assistant Architect, on the staff of the Council's Architect, at a salary of £685-£760, with placing at the minimum of that grade.
 Applicants must be Registered Architects. Preference will be given to candidates who are Members of the R.I.B.A., and who have knowledge of Local Authority Housing Design. Experience in quantities is essential.
 The post will be superannuable, and the successful applicant will be required to pass a medical examination.
 A house will be made available if required.
 Applications, giving age, qualifications and experience, accompanied with the names and addresses of two persons to whom reference may be made, should be sent to Mr. W. H. Gillespie, L.R.I.B.A., Borough Architect, Municipal Buildings, Alloa, not later than 23rd November.

WILLIAM MALTMAN,
 Town Clerk.
 4873

GLOUCESTERSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
 Applications are invited for the appointment of ARCHITECTURAL ASSISTANT on A.P. and T. Grade IV (£530-£575), in the above Department. Candidates should have passed the Intermediate Examination of the R.I.B.A. and had general experience in design and construction.
 The appointment will be subject to the Local Government Superannuation Act, 1937, and will be terminable by one month's notice on either side. The selected candidate, before appointment, will be required to pass a medical examination.

Applications stating (a) name and address, (b) married or single, (c) age, (d) qualifications, (e) present position, salary and date of appointment, (f) previous positions with dates and salaries, (g) particulars of experience, together with names and addresses of two persons to whom reference may be made, should be sent to S. E. Urwin, F.R.I.B.A., County Architect, Shire Hall, Gloucester, not later than Wednesday, the 21st November, 1951.

GUY H. DAVIS,
 Clerk of the County Council.
 4872

METROPOLITAN BOROUGH OF HOLBORN.
BOROUGH ARCHITECT'S DEPARTMENT.
 (a) JUNIOR ASSISTANT (Temporary).
 (b) JUNIOR ARCHITECTURAL ASSISTANT.
 (c) DRAWING OFFICE IMPROVER (Temporary).

Technical Assistant (Temporary):
 The successful candidate will be required to prepare schemes in connection with the Civil Defence programme, e.g., Shelter Survey, Control Centre, and War Damage repairs organisation.
 The initial salary in Grade A.P.T., VII, will be £715 per annum, including London weighting.

Junior Architectural Assistant:
 The candidates should have passed the R.I.B.A. Intermediate or equivalent examination.

The initial salary, in Grade A.P.T., II, will be £500 per annum, inclusive of London weighting.

Drawing Office Improver (Temporary):
 The duties will consist mainly of tracing, colouring and general duties in the Drawing Office, and candidates should have had a good standard of general education.

The inclusive salary, which will be in the General Division, will be according to age, commencing at males £160 per annum at 16 years, and to females £130 per annum at 16 years.

Full particulars in all three cases to the Town Clerk, Town Hall, High Holborn, W.C.1, together with the names of three referees, not later than 20th November, 1951.

CITY OF CAMBRIDGE.
APPOINTMENT OF CHIEF ASSISTANT HOUSING ARCHITECT.

Applications are invited for the appointment of a Chief Assistant Housing Architect in the City Engineer and Surveyor's Office, at a salary in A.P.T. Grade VIII, of the National Scale of Salaries (£755-£810 p.a.).

Applicants must have had good experience in housing design and in the preparation and administration of housing contracts, and the commencing salary within Grade VIII will depend upon the successful candidate's qualifications and experience.

Should housing accommodation be required the Council will be prepared to consider it.
 The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and to a satisfactory medical examination, and will be terminable by one month's notice on either side.

Forms of application may be obtained from the City Engineer and Surveyor, Guildhall, Cambridge, and should be returned to him by the 26th November, 1951.

ALAN H. I. SWIFT,
 Town Clerk.
 4870

LONDON COUNTY COUNCIL.
ARCHITECTURAL ASSISTANTS required for preparation of working drawings for housing schemes (cottages and multi-storey flats) in Housing Architect's division of Housing and Valuation Department. Salaries up to £580 plus 10 per cent. according to qualifications and experience. Superannuable. Apply Director of Housing and Valuer, County Hall, S.E.1, quoting AA/56. Stamped addressed envelope required. (1250) 4667

COUNTY BOROUGH OF NORTHAMPTON.
PRINCIPAL ASSISTANT ARCHITECT (GRADE X, A.P.T., £870-£1,000).

Applications from appropriately qualified Architects, having considerable experience of Housing and Planning work, stating age, qualifications, experience, past and present appointments and salary, and names of three referees, should reach the Borough Architect and Town Planning Officer, Mr. J. L. Womersley, A.R.I.B.A., A.M.T.P.I., Guildhall, Northampton, by 20th November.

The departmental establishment does not provide for a Deputy Borough Architect, and the person appointed will be required directly to the Borough Architect for administration of the housing programme, development under the Development Plan, and control of staff connected therewith. The appointment offers considerable scope in the layout of new estates, design of dwellings of all types, including multi-storey flats and redevelopment in central area. Local Government experience not essential.

Canvassing will disqualify.
C. E. VIVIAN ROWE,
 Town Clerk.
 4882

BOROUGH OF SHREWSBURY.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant on the Permanent Staff of the Borough Surveyor. Salary: A.P.T. Grade I (£440-£485); A.P.T. Grade II (£470-£515) per annum. The grade and starting salary will be fixed according to experience and qualifications.

Candidates should possess experience of Architectural work and be good draughtsmen. Preference will be given to those who are Students or Probationers of the R.I.B.A. or who are studying for an appropriate professional examination.

Housing accommodation in a flat can, if required, be arranged.

The appointment is subject to:—
 (a) National Joint Council Conditions of Service.
 (b) Local Government Superannuation Act, 1937.
 (c) Passing a medical examination.
 (d) Termination by one month's notice on either side.

Forms of application can be obtained from the Borough Surveyor, F. R. Dinns, A.M.I.C.E., Guildhall, Shrewsbury, and should be returned to him not later than 21st November, 1951.

S. R. H. LIXTON,
 Town Clerk.
 4677

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

THE CIVIL SERVICE COMMISSIONERS invite applications for permanent appointments to the basic grades given above, in a number of Departments in England and Scotland. Applications will be accepted at any time up to and including 31st December, 1951. Selected candidates will be interviewed as soon as possible after the receipt of their application forms. Successful candidates may expect early appointments. Candidates are advised to apply as early as possible.

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

The salary on appointment will be fixed according to age. The London salary for men aged 25 is £575, rising by annual increments of £25 to £750 and by £30 to £900.

The next higher grades are:—Main Grade, £900-£930-£960-£990-£1,020; Senior Grade, £1,250-£1,450.

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

Forms of application and copies of the regulations with full details of qualifications required from the Civil Service Commission, Scientific Branch, Trinidad House, 61d Burlington Street, London, W.1, quoting No. 3405TA. Completed application forms should be returned as soon as possible. 4875

CORBY DEVELOPMENT CORPORATION.

Applications are invited from suitably qualified persons for the following appointments:—

(a) SENIOR QUANTITY SURVEYOR. Salary range, £750-£850.

(b) SENIOR ARCHITECTURAL ASSISTANT. Salary range, £750-£850.

(c) ARCHITECTURAL ASSISTANT, at a salary of £600-£700.

(d) JUNIOR ARCHITECTURAL ASSISTANTS (TWO), at a salary of £500-£525-£550.

The appointments are required in connection with large scale construction projects associated with the development of a New Town, and candidates must have had suitable experience in: for appointment (a) the preparation of bills of quantities, measuring up and dealing with interim certificates and final accounts for housing and other contracts; (b) design and execution of large scale housing and other building works, etc.; (c) drawing, construction, etc., under an Architect.

The successful candidates will be required to pass a medical examination and to contribute either to a Superannuation or an Assurance Scheme. Applications, stating age, education, training, qualifications, experience, past and present appointments and salaries, together with the names of two persons who can speak from recent personal knowledge of the applicant and to

whom the Corporation can refer, must be received by the undersigned not later than 20th November, 1951. Envelopes and applications must clearly indicate the appointment for which application is made.

R. F. BROOKS GRUNDY,
 General Manager.
 The Stone House, South Road,
 Corby, Northants. 4874

Architectural Appointments Vacant

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

ARCHITECTURAL ASSISTANT required for private Architectural practice in Norwich. Applicant must have good all round experience in all forms of contemporary construction and design and knowledge of preparing specifications. Keenly in writing giving full particulars of experience and qualifications and salary required. A. D. Cooke, A.R.I.B.A., 78, Prince of Wales Road, Norwich. 4589

SENIOR ARCHITECTURAL ASSISTANT required immediately, good salary and prospects. 5-day week. Write to Messrs. J. M. Sheppard & Partners, 38, Bedford Place, W.C.1, giving particulars of age, qualifications, experience and salary required. 4594

ARCHITECTURAL ASSISTANT, of Inter. R.I.B.A. standard, required in small private practice, Chancery Lane. Good draughtsman and capable of detailing essential. Salary, £7 10s. p.w. Write, stating age and experience. Box 4613.

SENIOR ARCHITECTURAL ASSISTANT required immediately in busy and varied practice in West Riding area of Yorkshire. Final R.I.B.A. essential, and some office experience desirable. Salary according to R.I.B.A. scales as a minimum, and to qualifications and experience. Pension scheme in operation. Apply with full particulars. Box 4610.

JUNIOR ARCHITECTURAL ASSISTANT required immediately in busy and varied practice in the West Riding area of Yorkshire. Intermediate R.I.B.A. qualification desirable and a minimum of two years' office experience. Salary in accordance with R.I.B.A. scales as a minimum and to qualifications and experience. Pension scheme in operation. Apply with full particulars. Box 4611.

ARCHITECTURAL ASSISTANT required for occasional part-time work. Box 4676.

EXPERIENCED ARCHITECTURAL ASSISTANTS required by Consulting Engineers for work on large Government contracts. Salary £500-£600 p.a. Apply Box 4673.

ASSISTANTS required in Architect's Department of large East-Midland industrial concern for varied and interesting work in connection with extensive works development programme. Applicants should have initiative in design and be capable of preparing full working drawings from Architect's sketch plans. Junior and Senior Assistants are required, and applicants should reply, giving details of age, experience and salary required, to Box 4657.

ESTABLISHED and progressive City Firm of Surveyors, Valuers and Auctioneers invite co-operation and association of a QUALIFIED ARCHITECT. Exceptional opportunity for young Architect desirous of extending his practice, especially with knowledge of Industrial property or for one about to commence in practice. Considerable scope for introduction of Professional work. Good office space and services available. References given and expected. Please write in strict confidence. Box 4663.

JUNIOR ASSISTANT in Architect's office, W.C.2. Write, giving full details. Box 4662.

ARCHITECTURAL ASSISTANT required immediately for at least three months. Apply P. M. Padmore, F.R.I.B.A., Diocesan Offices, Bangor. 4661

SENIOR ASSISTANT ARCHITECT. A vacancy has occurred in Manchester office. Applicants should be 30-40, qualified, and accustomed to site control and responsibility. Experience in Industrial, Hospital or Laboratory work desirable. Please give details of education, experience, usual information, and salary required, to: Harry S. Fairhurst & Son, Chancery Chambers, 55, Brown Street, Manchester, 2. 4664

ARCHITECTURAL ASSISTANT—Senior Assistant (A.R.I.B.A. or equivalent) required in Architect's office of large London Department Store. Good draughtsman, with experience of alterations to existing premises and war damage repairs; able to supervise small drawing office. Prospects of advancement, pension scheme. Commencing salary £650. Write Box 4663.

IMPERIAL CHEMICAL INDUSTRIES LIMITED—WILTON WORKS.

ADVERTISING REF. IC/X/92.
IMPERIAL CHEMICAL INDUSTRIES LIMITED. Wilton Works near Redcar, invites applications for appointments to the established staff in the Architectural Section of their Drawing Office. Candidates should have experience in one or more of the following categories: design of offices, canteens, laboratories, and general industrial buildings. Qualification of Inter. R.I.B.A. standard or higher is desirable. Application forms may be obtained from the Staff Officer, Imperial Chemical Industries Limited, Wilton Works, P.O. Box 54, Middlesbrough, Yorkshire, quoting advertisement reference IC/X/92/3. 4656

ASSISTANT ARCHITECTS.—Imperial Chemical Industries Limited, General Chemicals Division, require one or two Assistant Architects in the Architectural Section of their Chief Engineer's Department, Runcorn. Applicants should have had good experience in design and the preparation of working drawings. Other factors being equal, preference will be given to those who have passed the Final Examination of the R.I.B.A. Salary dependent on age and experience. Membership of pension fund. Apply in writing, quoting E/81, to Staff Manager, Imperial Chemical Industries Limited, General Chemicals Division, Cunard Building, Liverpool, 3. 4678

ARCHITECTS and ARCHITECTURAL ASSISTANTS required. Salary scale: Architectural Assistants, £500×£25—£750; Architects, £550×£25—£800; Senior Architectural Assistants, £710×£40—£950; Senior Architects, £760×£40—£1,000. Superannuation and bonus schemes in operation. Applications should be made in writing giving age and details of experience to The Scottish Orbit Company Ltd., Sighthill Industrial Estate, Edinburgh, 11. 4685

ERIC LYONS & TOWNSEND require ASSISTANT. Salary £400/£500. Apply: Mill House, Bridge Road, Hampton Court, Surrey. 4877

ARCHITECT'S required for busy country practice in Midlands. Capable Designer. Details, references, and salary required to Box 4883.

ARCHITECTURAL ASSISTANT of Intermediate standard or equivalent required immediately in busy office. Permanent progressive post. Applications giving full particulars to W. H. Saunders & Son, Architects, 47, Warwick Road, Coventry. Tel.: 64359. 4653

ARCHITECTURAL ASSISTANT required immediately for general practice. Intermediate standard, good draughtsmanship and previous experience in private practice essential. Good prospects. Write stating age, experience and salary required. Box 4878.

Architectural Appointments Wanted

MALE ARCHITECTURAL ASSISTANT (24), Inter. and Final standard, 5 years' full-time training, seeks post, 15 miles Bath or Bristol area. Box 237.

ARCHITECTURAL ASSISTANT, passed R.I.B.A. Final, wants job in busy office with prospect of advancement. Richmond-Kington district preferred. Box 4674.

ASSOCIATE, 24 years' varied experience, desires responsible position in small London office with contemporary outlook. Please Write Box 285.

SENIOR ASSISTANT, with 12 years' varied experience in design, surveying, quantities, specifications, contract supervision and general practice, requires position in Birmingham or district. Box 286.

ASSOCIATE (37) with all-round experience both in Government work and private practice, desires Partnership or appointment with prospects of same. Box 4867.

ARCHITECT'S ASSISTANT (35) desires position with firm in S.W. requiring a man with initiative, keenness and ability. Further details on application to Box 287.

KEEN, intelligent ARCHITECT'S ASSISTANT, studying for Inter., with 18 months' office experience, requires post in Bath area. Box 289.

ARCHITECTURAL ASSISTANT (28), 11 years' varied experience. Student R.I.B.A. Taking Final June, 1952. Requires post in progressive London office. Box 290.

CAPABLE ARCHITECTURAL ASSISTANT, 5th year evening student, Inter. R.I.B.A. standard, with 5 years' office experience including industrial housing and other work, seeks responsible position in London or Middx. Box 288.

ARCHITECTURAL DRAUGHTSMAN would like appointment in London area. Box 296.

CHIEF ASSISTANT (32), A.R.I.B.A., keen draughtsman and designer, with experience since 1935 in housing, industrial and agricultural buildings and hospitals, desires position of responsibility with scope for initiative. Box 295.

YOUNG A.R.I.B.A., school trained and with 13 years' experience in several private practices, seeks change, preferably in the Bath area. Accustomed to responsibility and the handling of schemes throughout. Box 4881.

KEEN, ambitious Assistant, with several years' experience, including administrative responsibilities, seeks appointment with Architect who appreciates enthusiasm and hard work. Salary by arrangement. References available. Please reply Box 294.

YOUNG LADY ASSISTANT, Student R.I.B.A., 4 years' full-time training, preparing for Finals, seeks progressive post in small office. London or N. Surrey. Box 293.

A.R.I.B.A., A.R.I.C.S., 24 years' varied exp. as Architect and Building Surveyor, excellent testimonials, disengaged, seeks senior position at about £350 with prospects. Brown, 19, Albert Road, Kingston. 292

ARCHITECT, Dip.Arch. (30), single, with 4 years' office experience, surveying and levelling, contract supervision, requires position with Architect of contemporary outlook; anywhere considered. Box 291.

A.R.I.B.A. (35), own small practice, seeks position with view to Junior Partnership in busy office, London to South Bucks. 14 years' wide experience, schools, industrial, hospitals, domestic, exhibition, agricultural. Box 4880.

Other Appointments Vacant

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

CLERK OF WORKS or RESIDENT ENGINEER required to supervise the construction of a Runway Extension. Applicants must have had experience of this work or road construction. Salary to be arranged according to previous experience. Write in reference to Staff Officer, Handley Page, Ltd., Cricklewood, London, N.W.2. 4672

QUANTITY SURVEYORS and SURVEYOR'S ASSISTANTS required. Salary scale: Surveyor's Assistants, £300×£25—£750; Surveyors, £550×£25—£800; Senior Surveyor's Assistants, £710×£40—£950; Senior Surveyors, £760×£40—£1,000. Superannuation and bonus schemes in operation. Applications should be made in writing giving age and details of experience to The Scottish Orbit Company Ltd., Sighthill Industrial Estate, Edinburgh, 11. 4686

Partnership

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

ARCHITECT in private practice, S.W. Midlands, requires Partner with some capital for growing country practice near Birmingham. Would consider combining with another practice. Box 4682.

Services Offered

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

CHARTERED ARCHITECT offers assistance at home to architects; sketch schemes, working drawings, surveys, specifications, etc. Terms by arrangement. Box 4581.

DUPICATING AND TYPEWRITING.—Speedy service for Bills of Quantities and Specifications, etc. Send all your work to: The Clarendon Service, 19, Hillcrest Road, Bromley, Kent. LEE. 6609. 4622

2 ARCHITECTS, with Foreign Diplomas and wide experience, seek spare-time work. Sketch plans, working drawings, details, surveying. Box 4624.

ARCHITECTURAL MODELS and Dioramas.—Edward J. Ashenden, A.R.C.A., 15, Chenil Studios, 183, Kings Road, S.W.3. Tel.: Flax 6103. 2566

FREE-LANCE Surveyor offers Services to Architects requiring accurate surveys of land and buildings, levelling, contouring, etc.; own car and complete equipment. 2772

SHORTHAND TYPIST, experienced in Architectural work, specifications, etc., requires evening work. Own typewriter. Box 4675.

TYPING.—Former Secretary, now undertaking work privately. Experienced in Architect's specifications and reports. Ring Brixton 1455. 4879

PERSPECTIVES

Academy Standard. Any size. Any medium. Winston Walker, F.R.I.B.A., 107, Sloane Street, S.W.1. SLOane 1410. 4430

For Sale or Wanted

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

ARCHITECT requires Office (two rooms) in Manchester Square or Wigmore Street area; or would share lease of larger office. Apply Box 4671.

DRAWING Office Equipment for Sale: Upright double-sided Hall Copier A.C. in perfect working condition. £50 or offer. Guildford Photo-Printers, St. Mary's House, Quarry Street, Guildford, Surrey. Telephone 2686. 4655

ANTIQUE DRAWING BOARD, Perspex parallel motion, excellent condition, £14. London. Box 4664.

Miscellaneous

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

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Educational Announcements

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

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

R.I.B.A. Postal Tuition in Mechanics and Simple Structural Calculations and Theory of Structures. D. A. Fowler, Dip.Arch.(Abdn.), F.R.I.B.A., Derwent House, Wressle, Selby. 4444

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Building Construction	Concrete Engineering
and Interior Work	Structural Drawing
Building Construction	Construction Draughtsmanship
and Quantities	Sanitary Engineering
Building Specifications	Air Conditioning
Quantity Surveying	Heating and Ventilation
Civil Engineering	

Special Courses for the examinations of the R.I.B.A., I.O.B., R.I.C.S., Inst.C.E., I.M.E. (Building Inspectors), Inst.Struct.E., I.Q.S., Inst. Clerk of Works, etc. Examination students are coached till successful.

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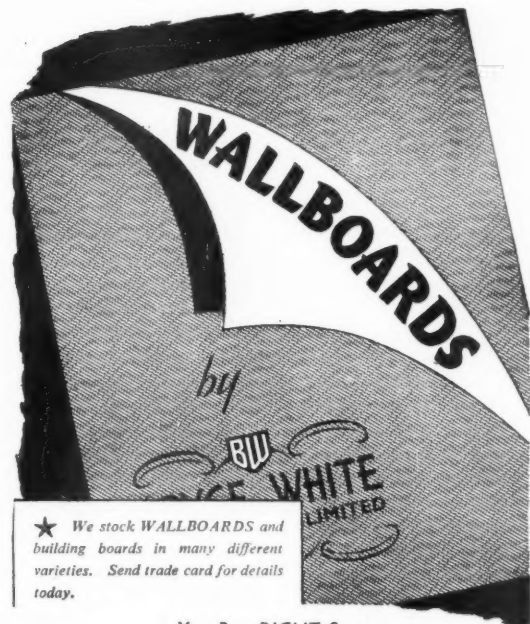
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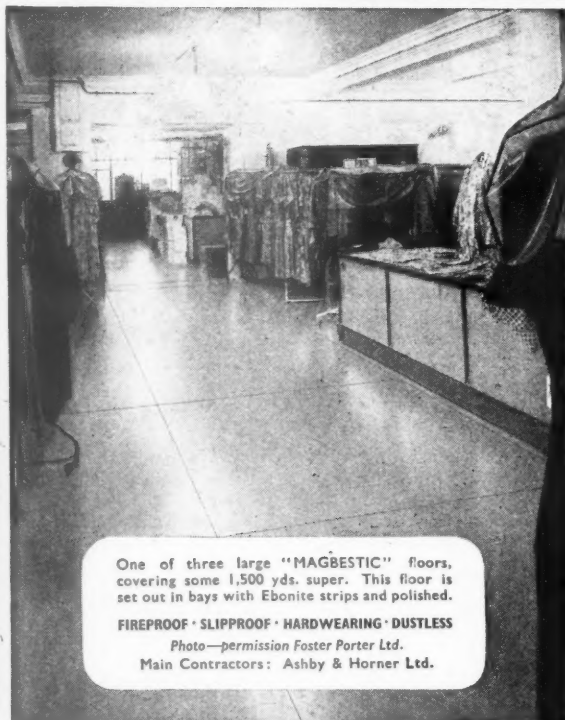
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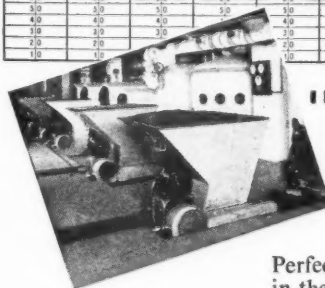
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
100	100	100	100	100	100	100
90	90	90	90	90	90	90
80	80	80	80	80	80	80
70	70	70	70	70	70	70
60	60	60	60	60	60	60
50	50	50	50	50	50	50
40	40	40	40	40	40	40
30	30	30	30	30	30	30
20	20	20	20	20	20	20
10	10	10	10	10	10	10

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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
100	100	100	100	100	100	100
90	90	90	90	90	90	90
80	80	80	80	80	80	80
70	70	70	70	70	70	70
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50	50	50	50	50	50	50
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20	20	20	20	20	20	20
10	10	10	10	10	10	10

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