

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

Astragal's Notes and Topics

Letters

News

Diary

Societies and Institutions

TECHNICAL SECTION

Information Sheets

Information Centre

Current Technique

Working Details

Questions and Answers

Prices

The Industry

CURRENT BUILDINGS

Major Buildings described:

*Details of Planning, Construction,
Finishes and Costs*

Buildings in the News

Building Costs Analysed

*Architectural Appointments
Wanted and Vacant*

★ 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.

IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square. Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100 Park Street, Grosvenor Square, W.1. Mayfair 7086
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1. Museum 1783
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand W.C.2. Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1. Museum 7197
IQS	Institute of Quantity Surveyors, 98, Gloucester Place, W.1. Welbeck 1859
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	Institute of Structural Engineers. 11, Upper Belgrave Street, S.W.1. Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1. Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1. Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1. Whitehall 7264/4175
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, A.R.I.B.A., 71, Blandford Street, W.1. Welbeck 4713
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1. Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1. Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1. Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1. Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2. 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. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1. Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2. Trafalgar 3927
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. 12, Suffolk St., S.W.1. Whitehall 1693
NHBRIC	National House Builders Registration Council. 82, New Cavendish Street, W.1. Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington. Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3. Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1. Trafalgar 6838
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. Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh. Fountainbridge 7631
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. 5, Old Palace Yard, 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
RSH	Royal Society of Health. 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
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	Society of Industrial Artists. 7, Woburn Square, London, W.C.1. Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1. Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen. 55, Great Ormond Street, W.C.1. Holborn 2646
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
TPI	Town Planning Institute. 18, Ashley Place, S.W.1. Victoria 8815
TTF	Timber Trades Federation. 75 Cannon Street, E.C.4. City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1. Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1. Grosvenor 6636

No. 3192]

[Vol. 123

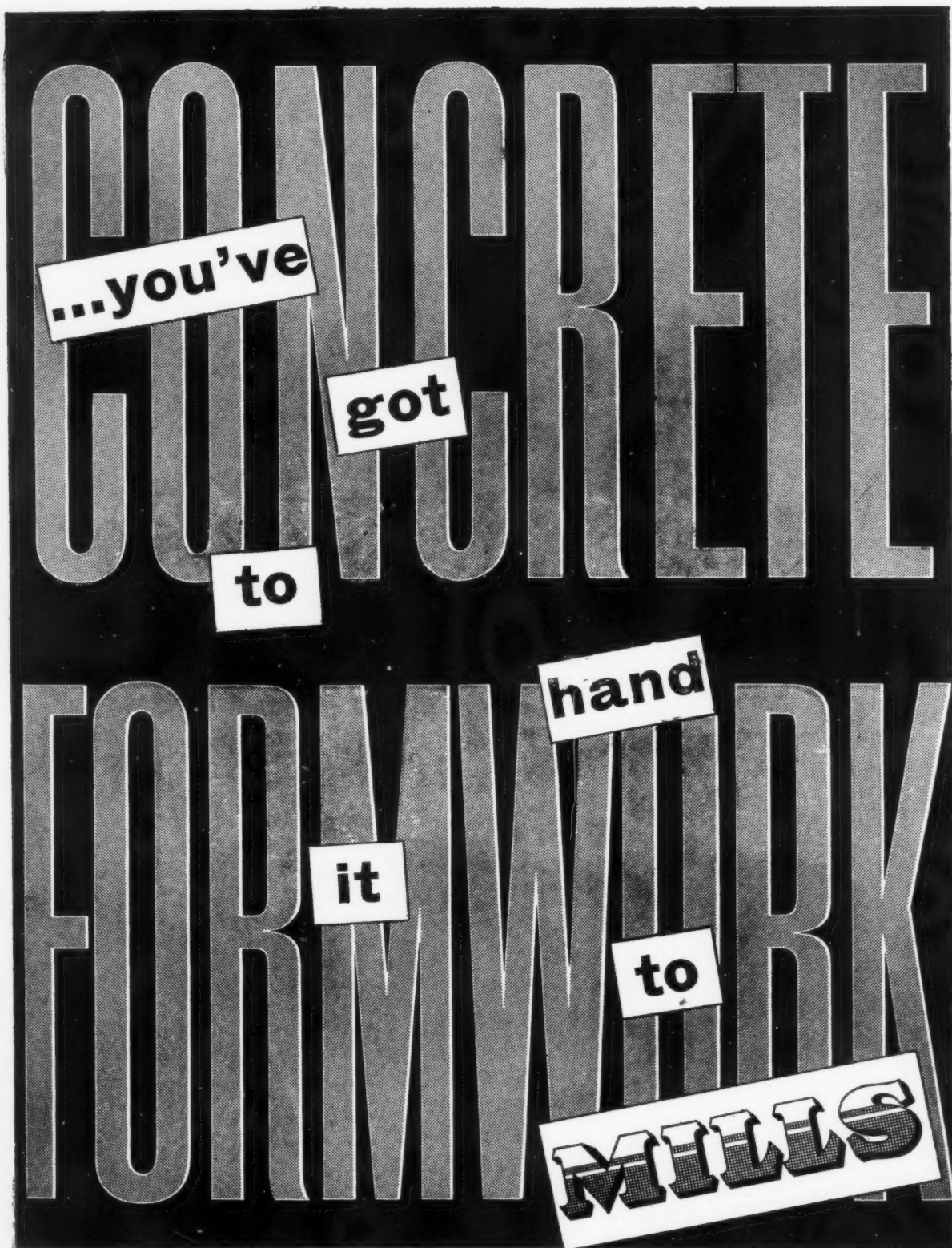
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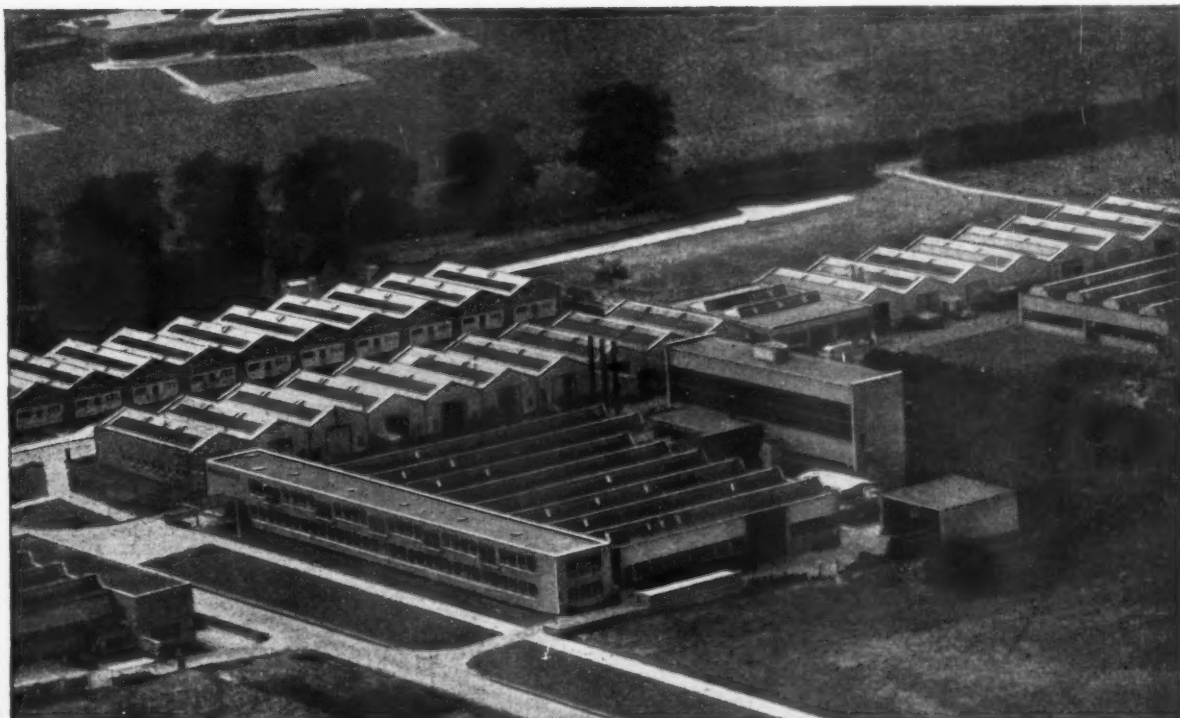
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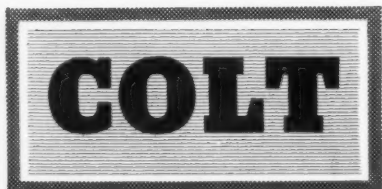
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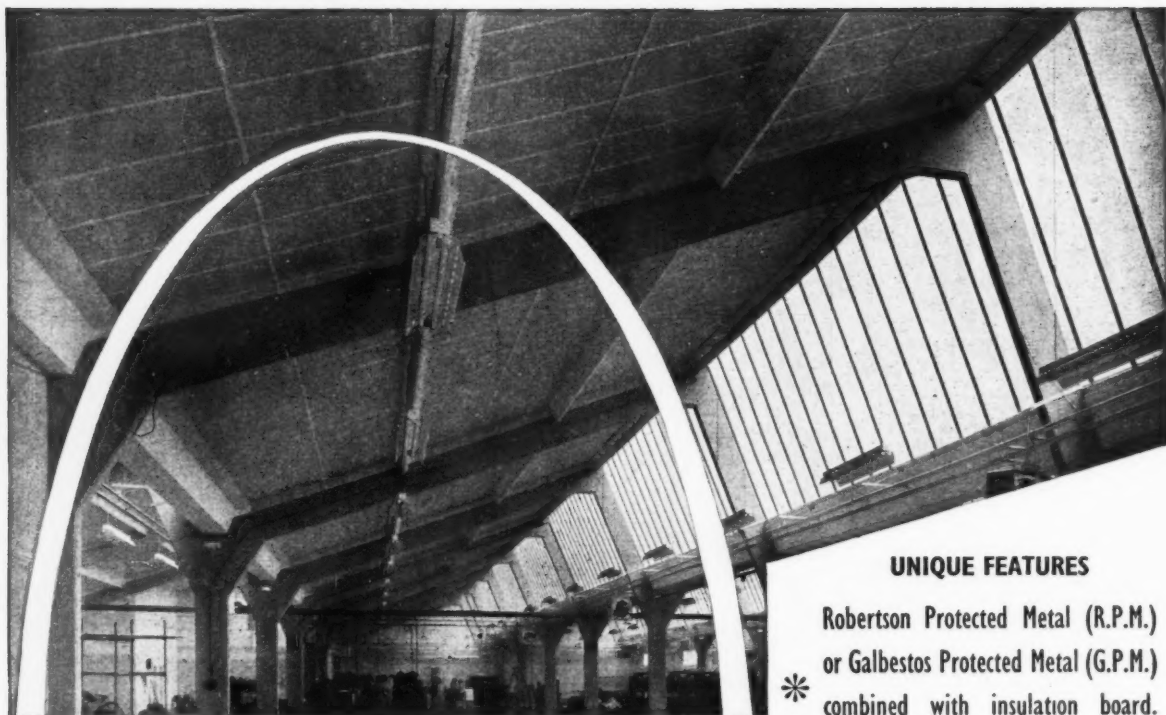


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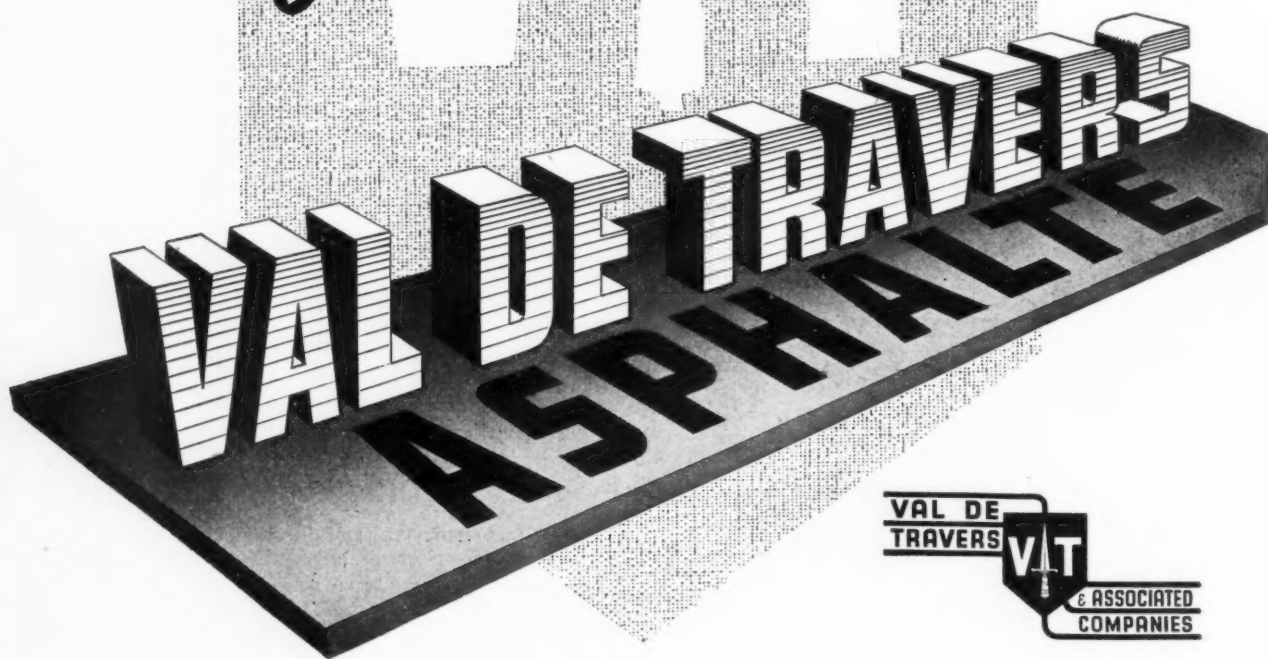


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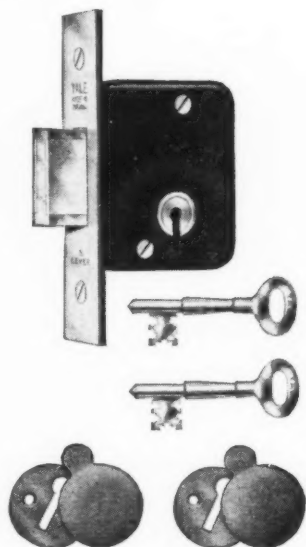
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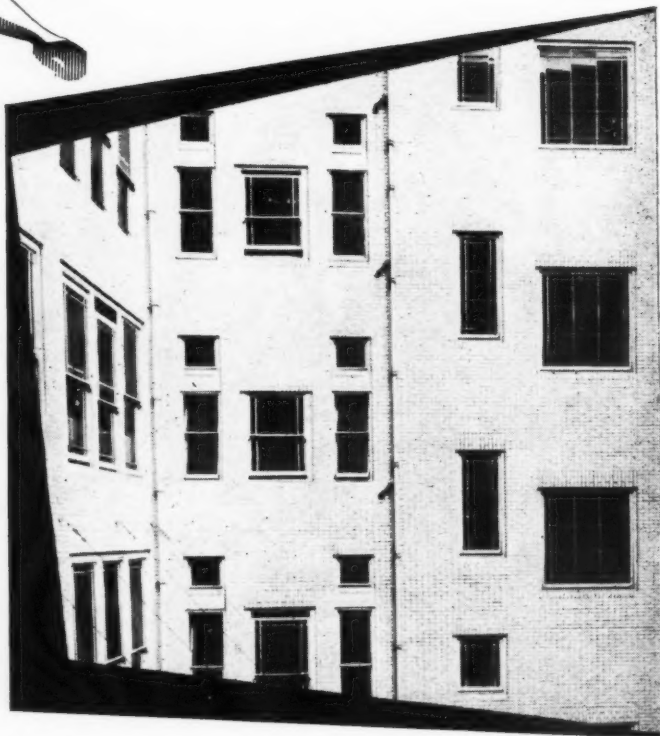
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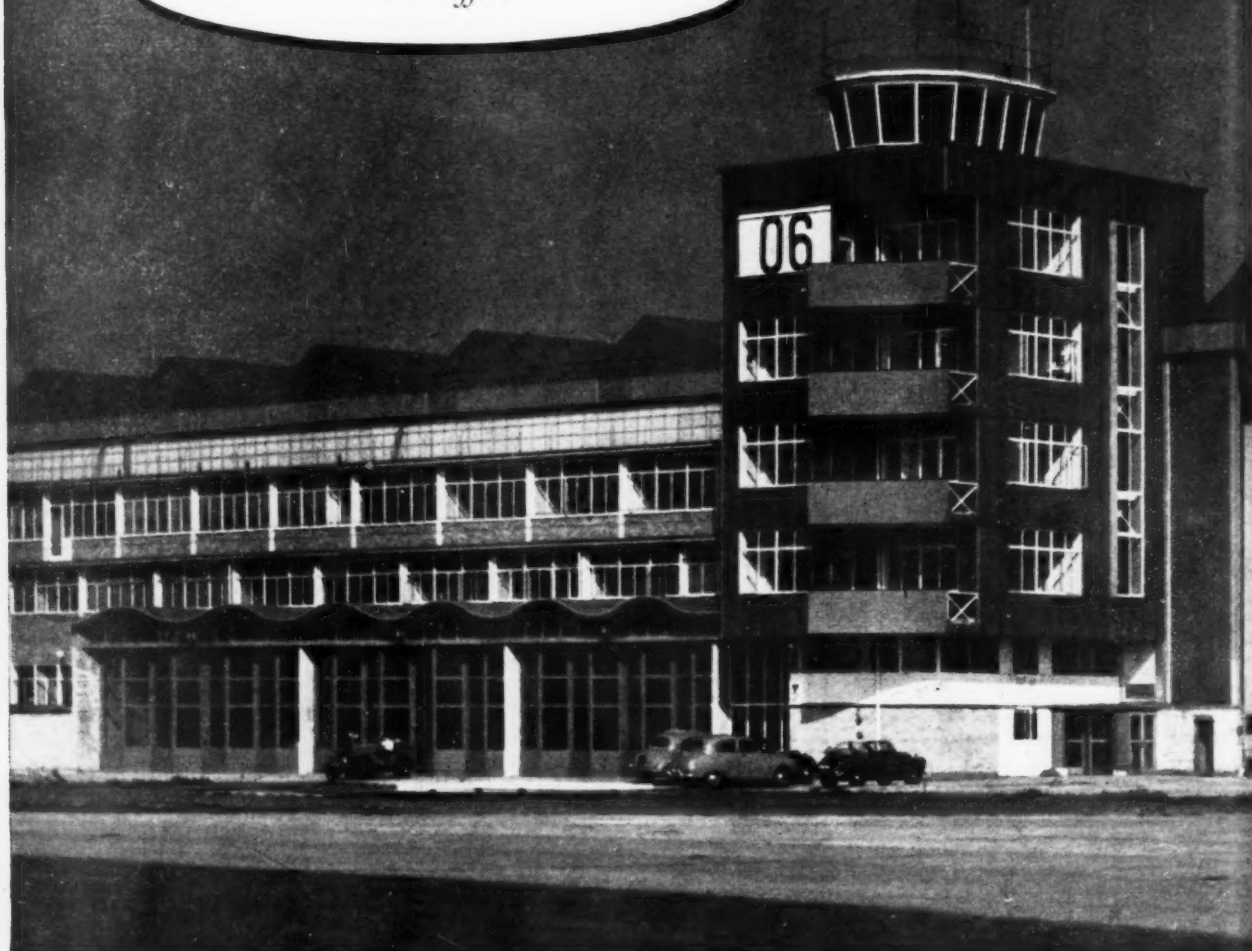
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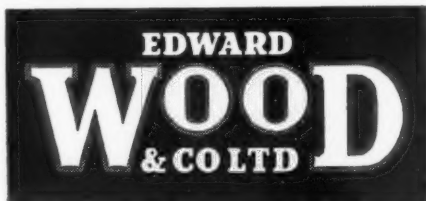
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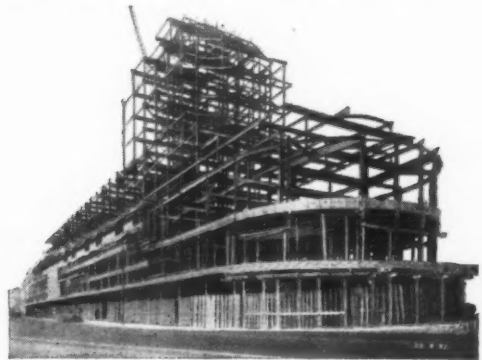


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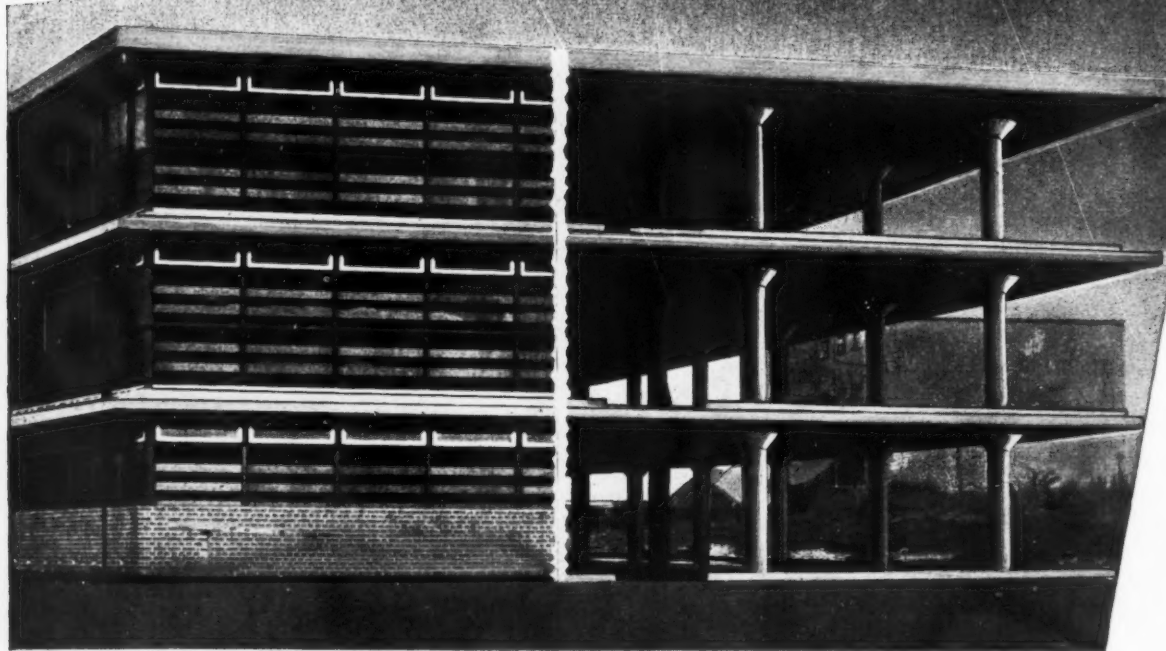
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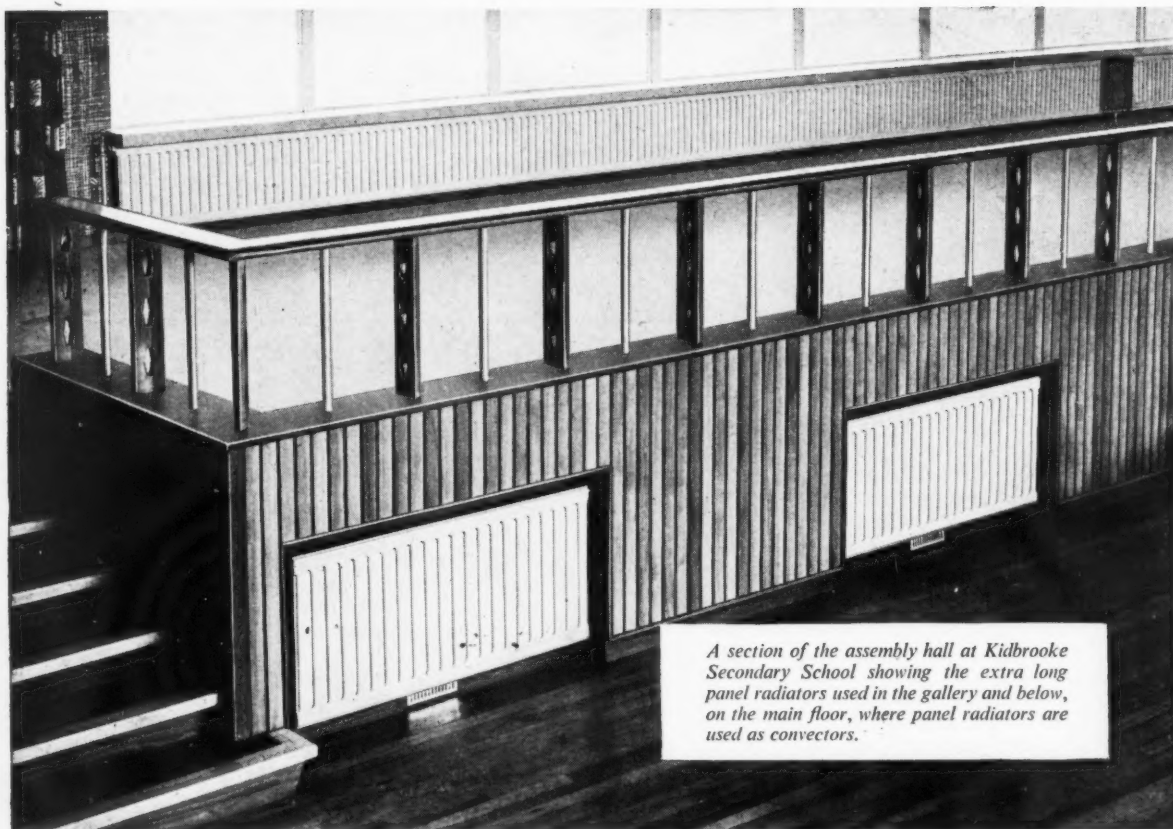
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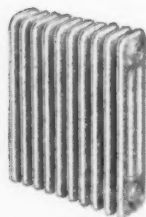
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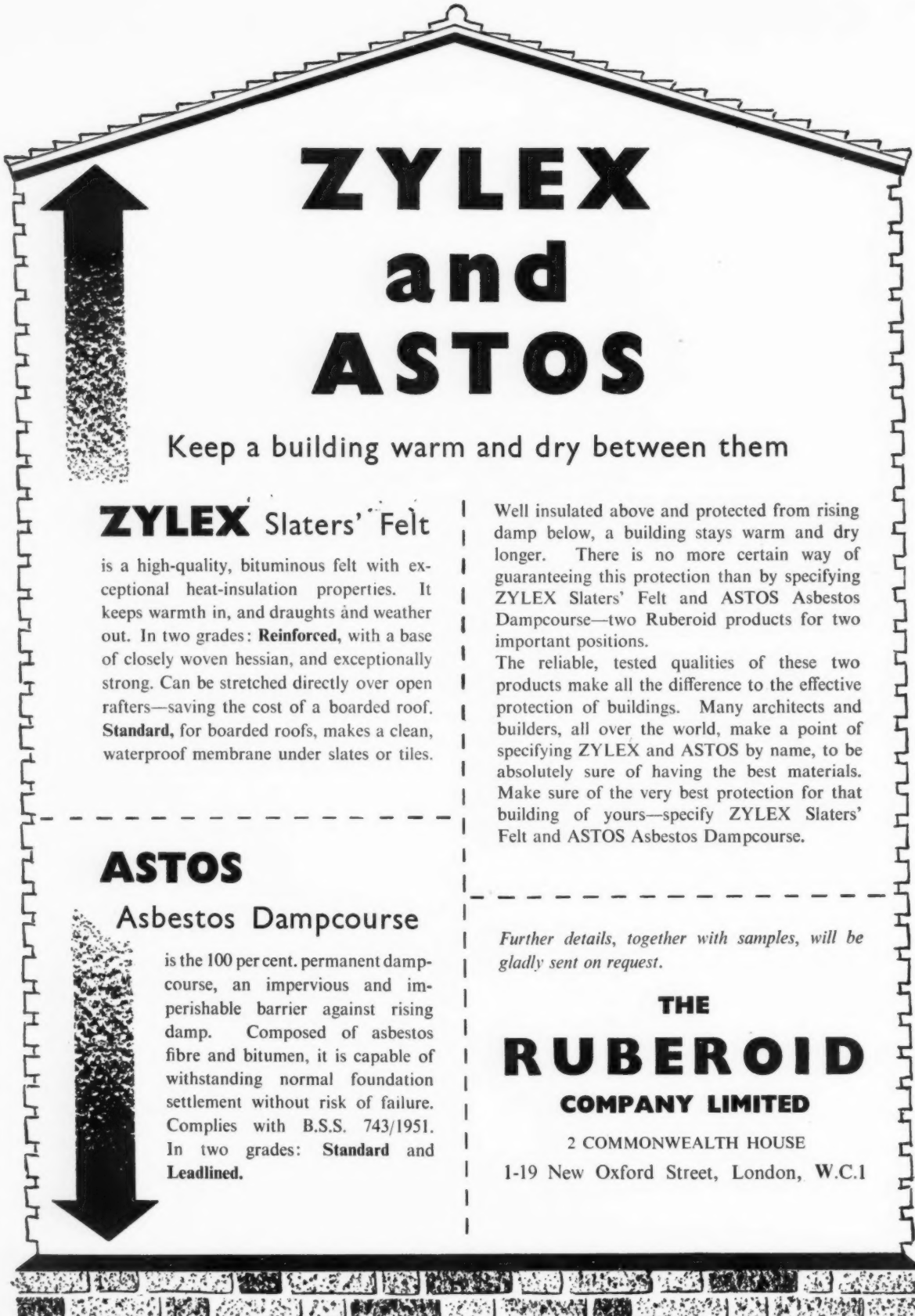
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Cascalite Cuts Down Heat.—The thousands of tiny glass fibres in Cascalite diffuse the heat of the sun's rays, and consequently reduce the heat under its surface. Working conditions are made more pleasant because of this restriction of sun heat. There is no need for roofs to be whitewashed or fitted with blinds as in transparent roofing.

Try this test. Write for a sample of Cascalite, hold it in the rays of the sun. The area underneath is cool compared with direct sun temperature.

Cascalite Diffuses Light.—Just as the pearl electric lamp has superseded the plain glass lamp, so Cascalite, with its translucent, even lighting, is the natural successor to transparent roof lighting.

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Standard Profiles.—Cascalite is produced in all standard corrugated profiles; also in reeded, and flat sheets; and is supplied in 3 ft. to 8 ft. lengths.

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Cascalite Uses.—Cascalite can be used for roof lights, vertical glazing, partitioning, wall cladding, door panels, illuminated facias; it is lightweight and decorative.

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Domelights in 'Perspex' Acrylic Sheet

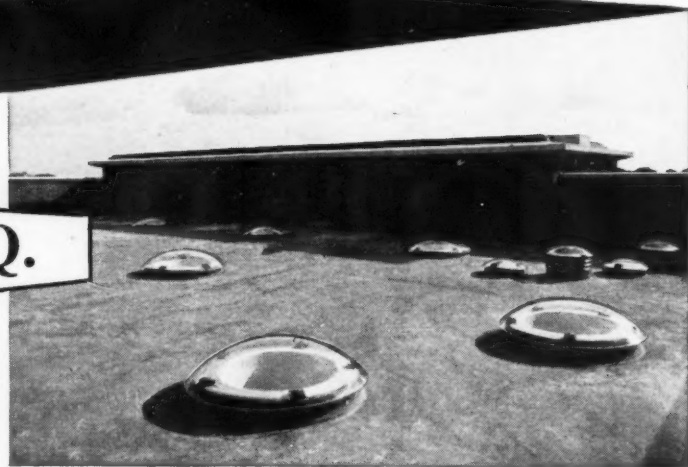


for Infant School

Loughton, Debden, The Hereward County Infants' School, showing the lighting effect of domelights in 'Perspex'. Their light transmission is 92%. Domelights by W. J. Cox Ltd., Architect: H. Conolly, F.R.I.B.A. County Architect of Essex.

and Industrial H.Q.

Non-corrodable, weather-resistant domelights in 'Perspex' on the roof of the 'Terylene' Council Headquarters, Harrogate. Domelights by W. J. Cox Ltd., 559 Holloway Road, N.19.



The headquarters of the 'Terylene' Council at Harrogate and an Infant School in Essex both have roof-lights fabricated by W. J. Cox Ltd. from 'Perspex' Acrylic Sheet. More and more architects and authorities are specifying 'Perspex' for top-lighting flat-roofed buildings. These are some of the reasons why....

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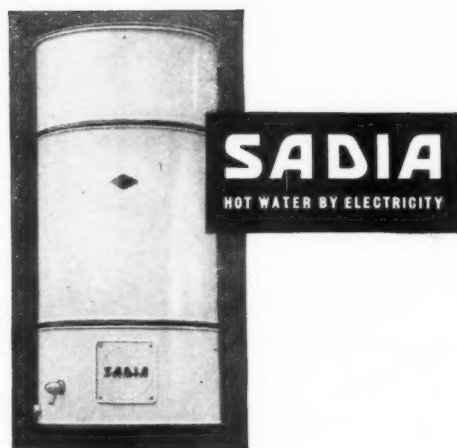
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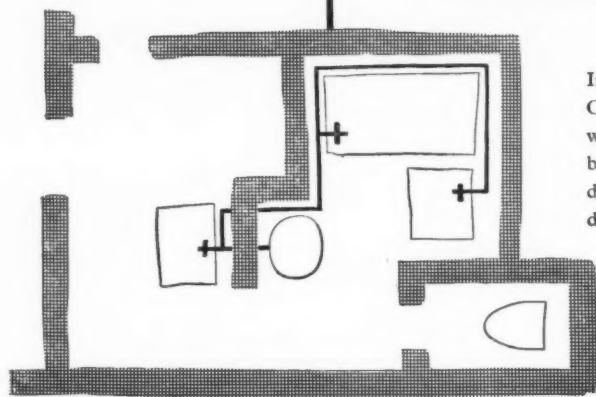
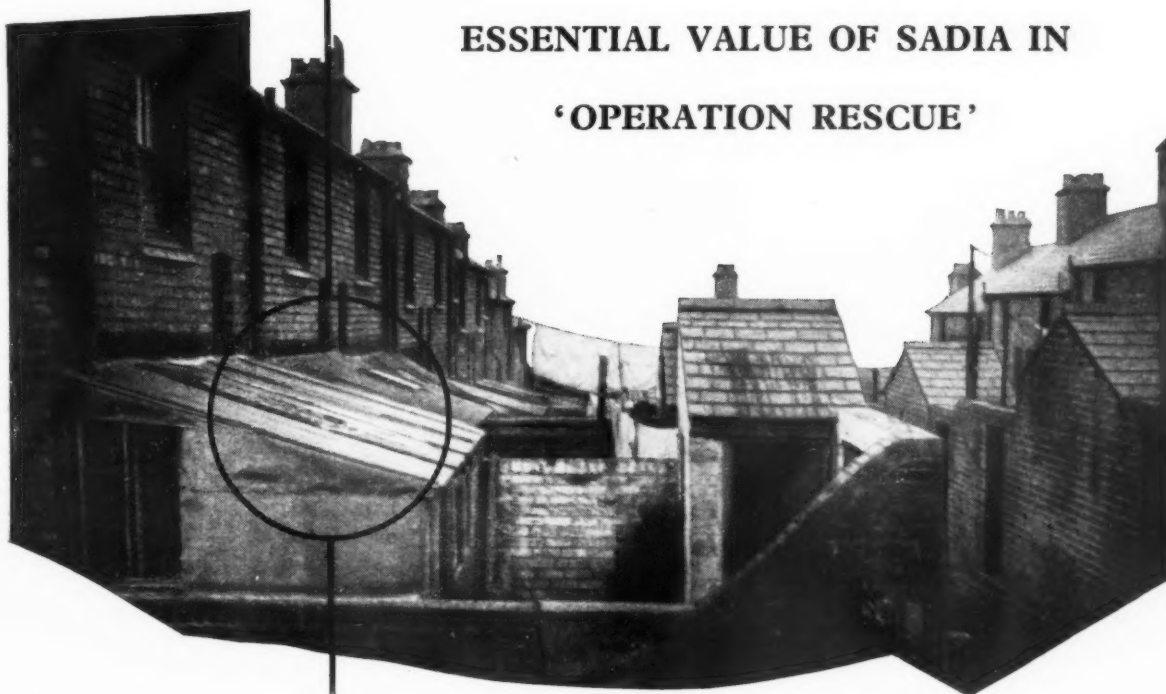
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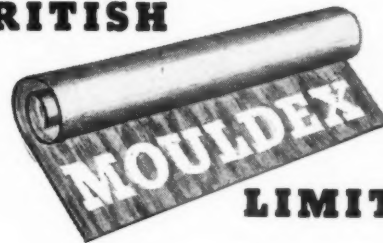
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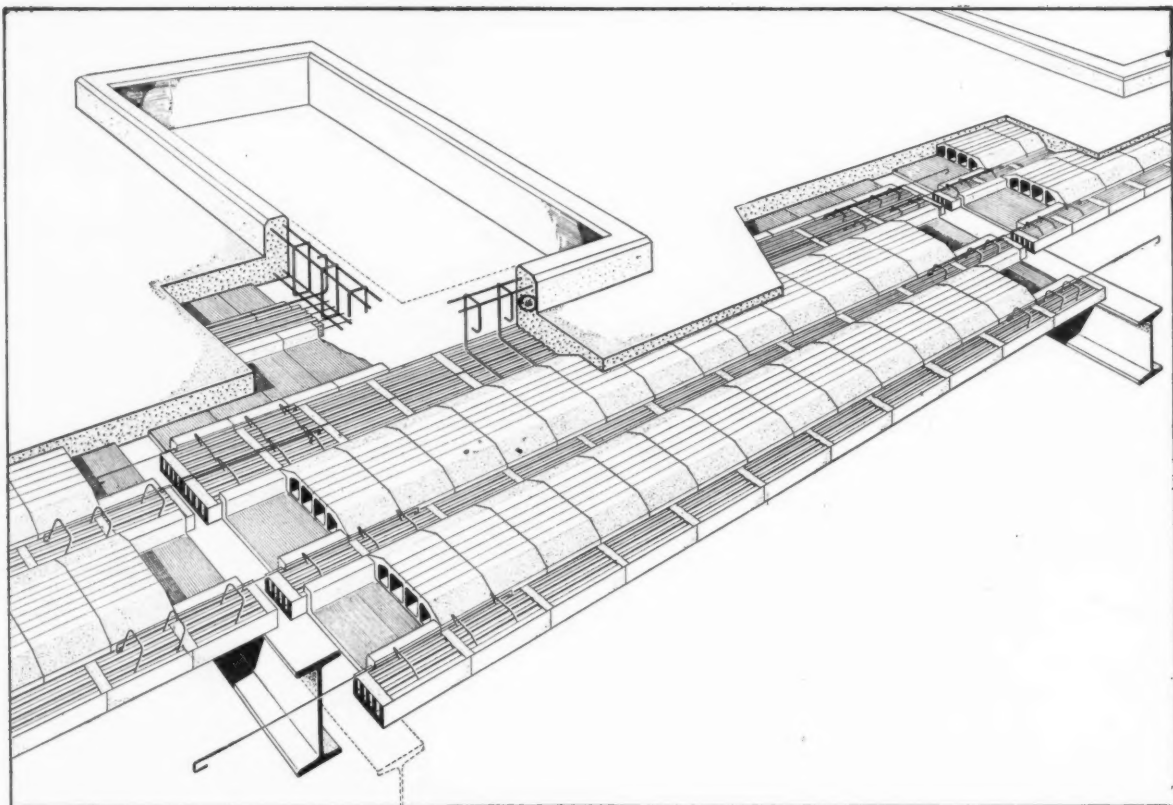
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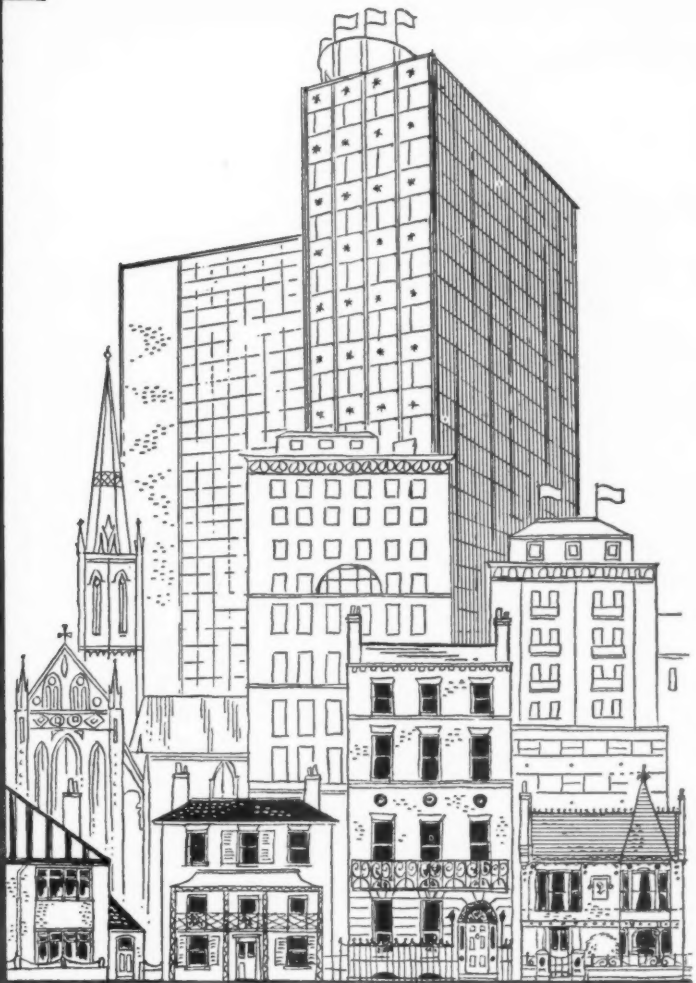
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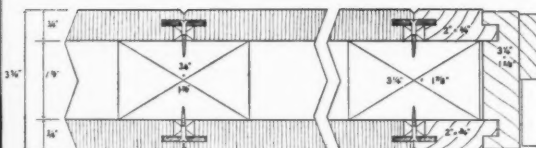
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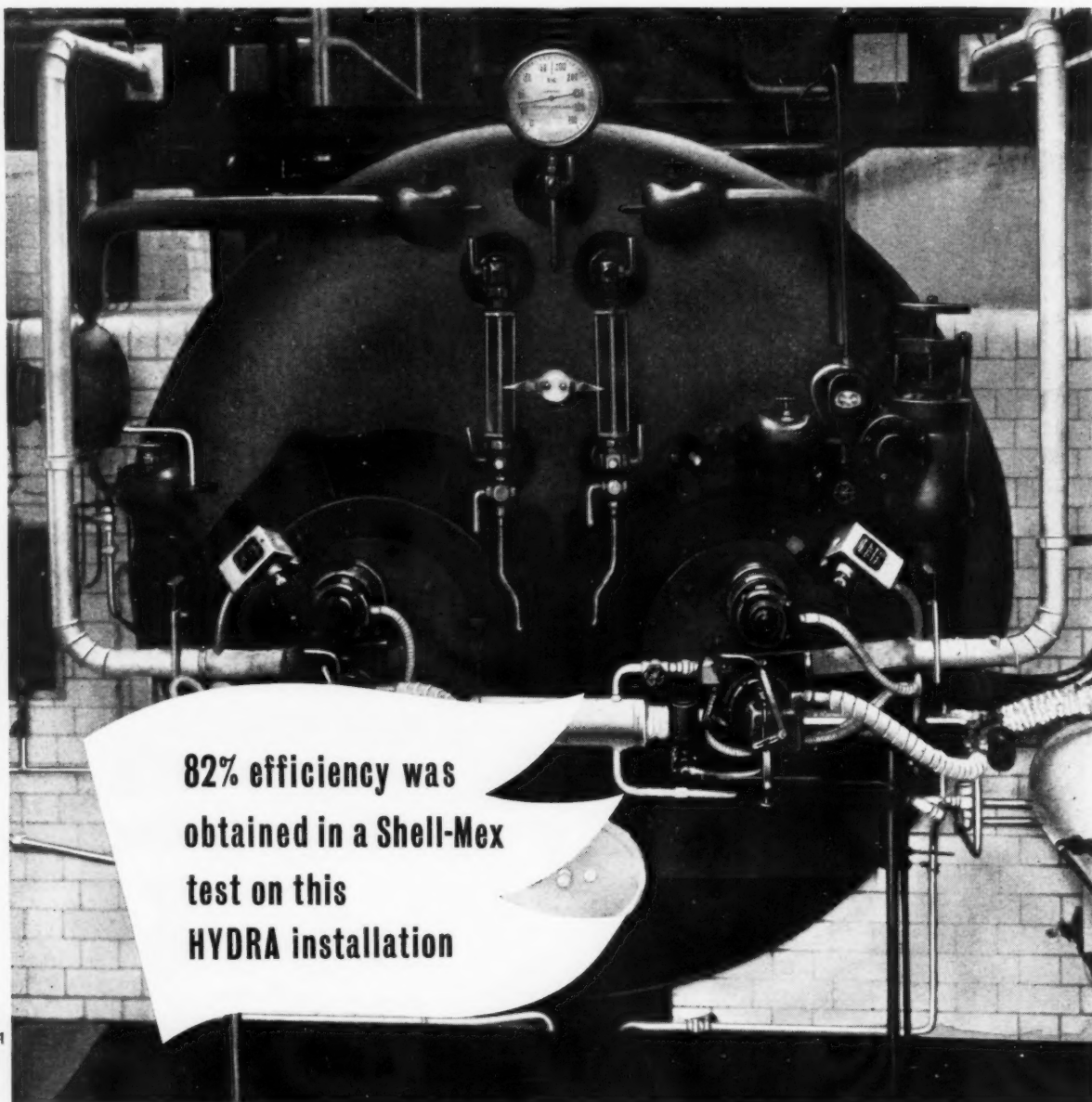
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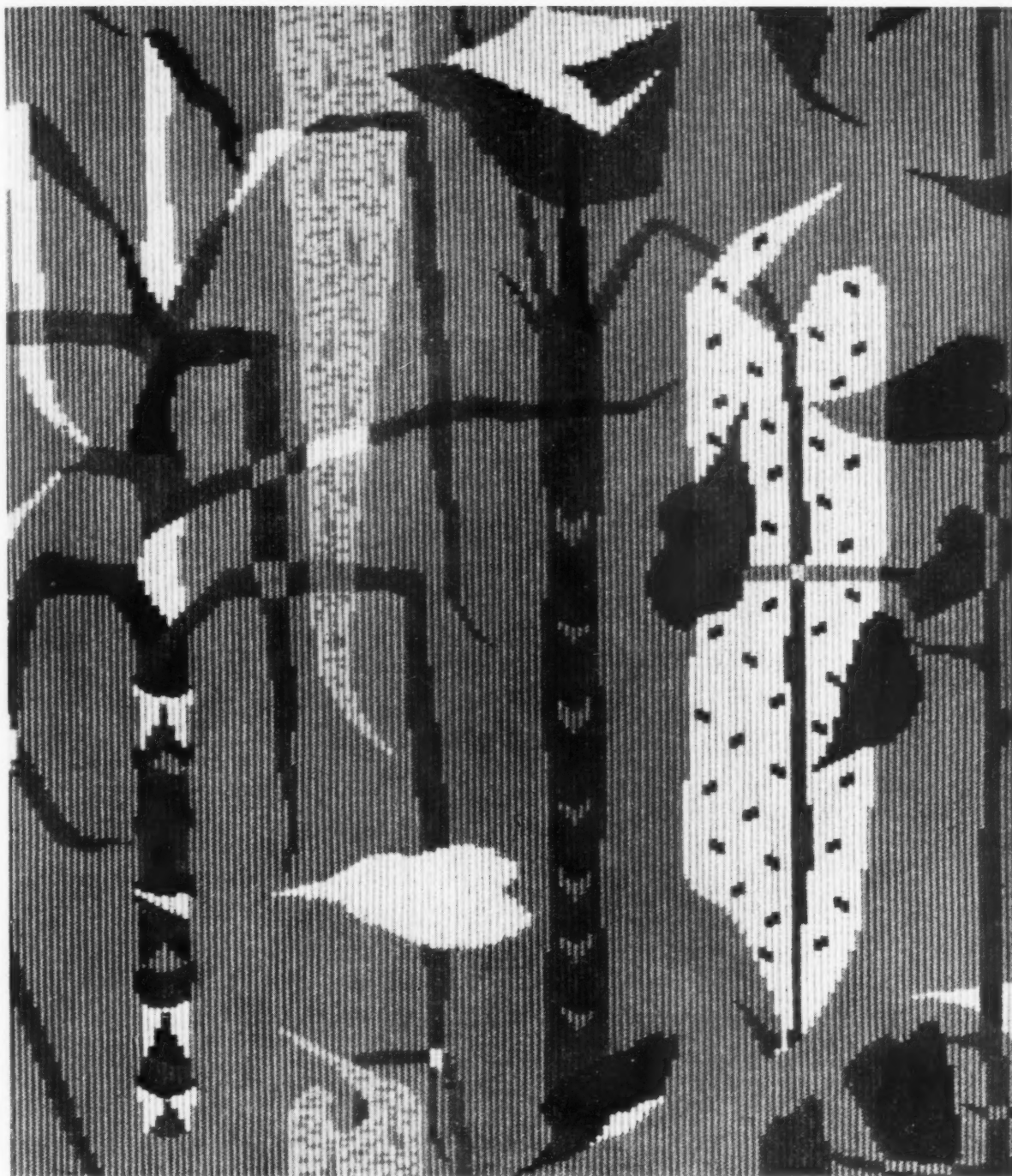
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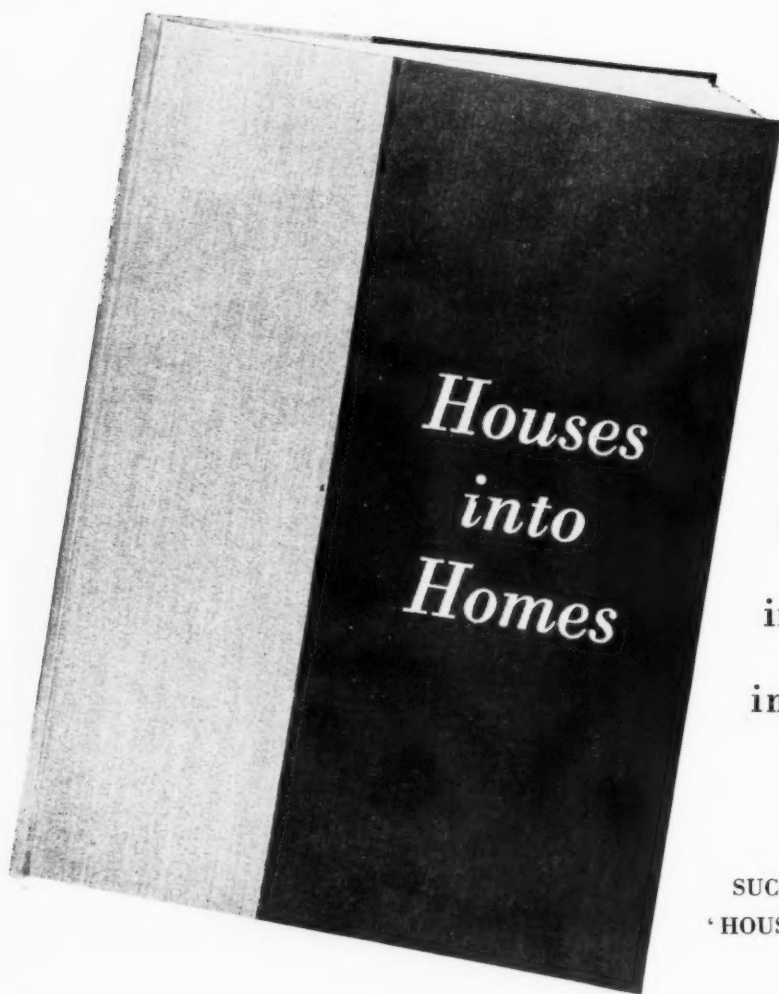
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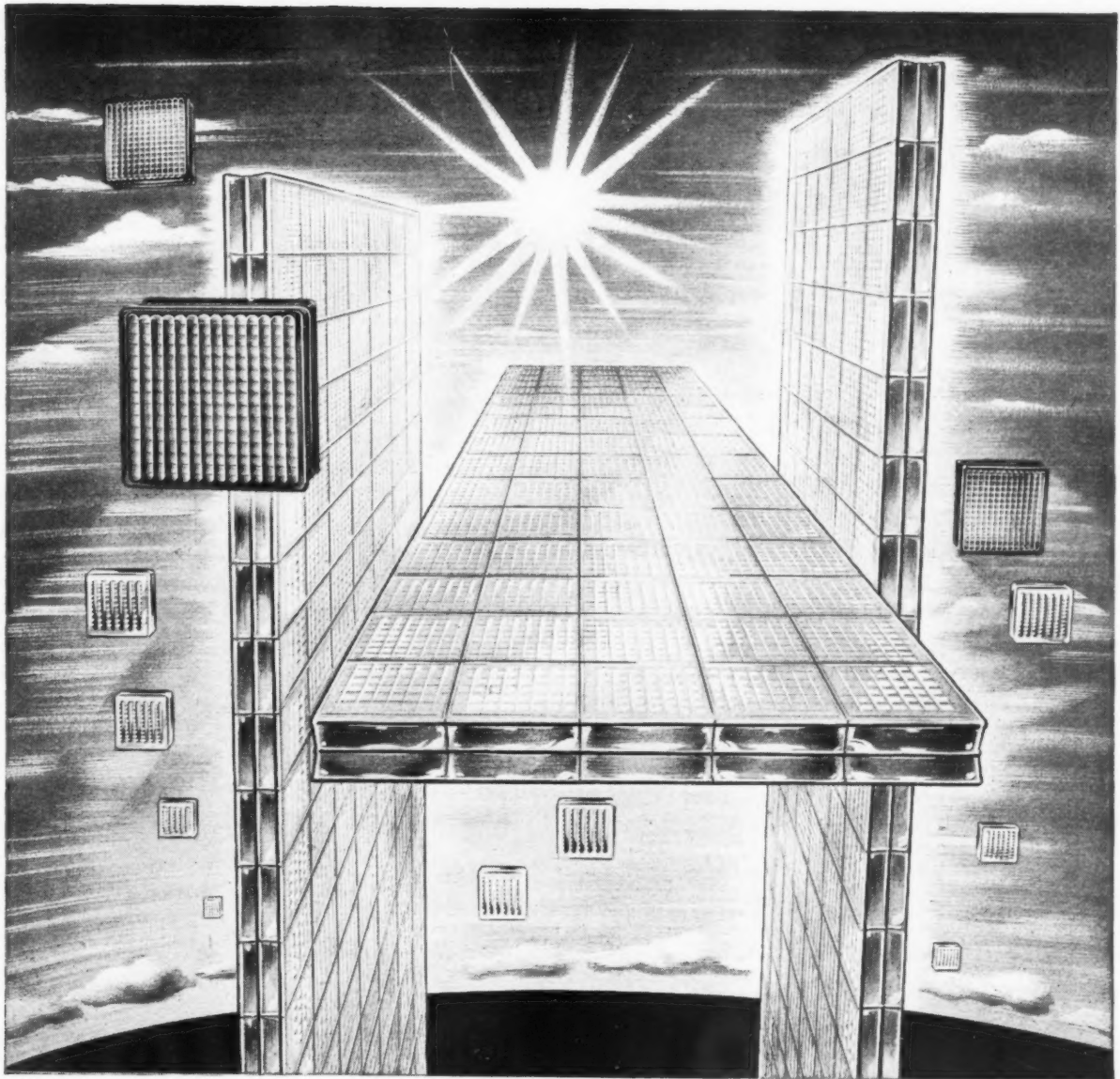
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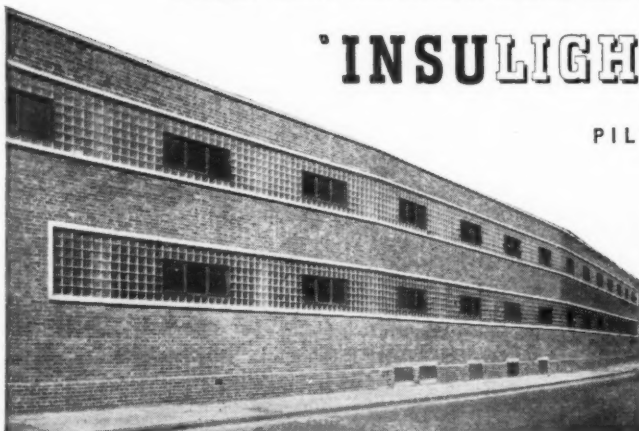


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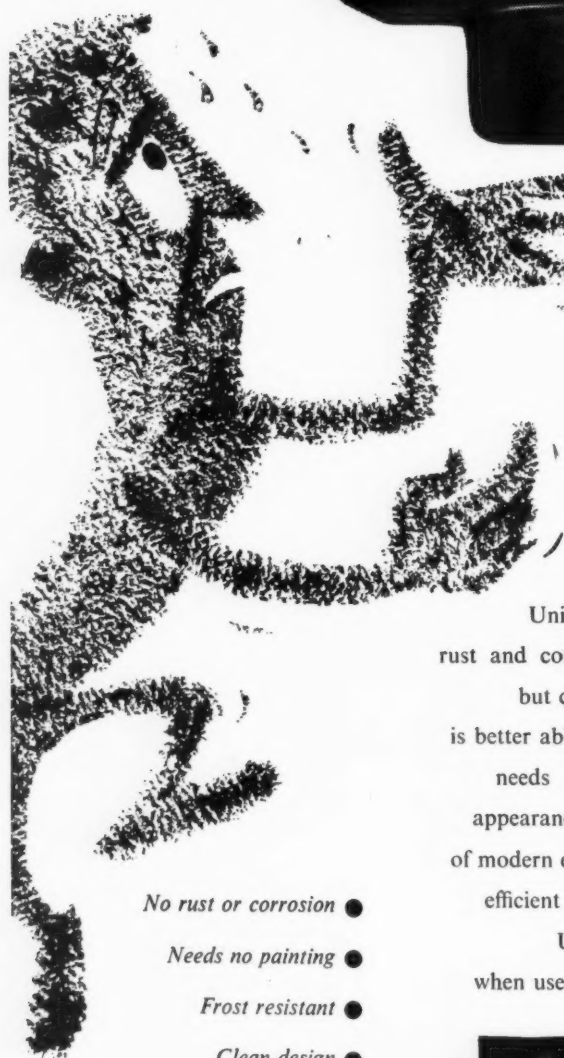
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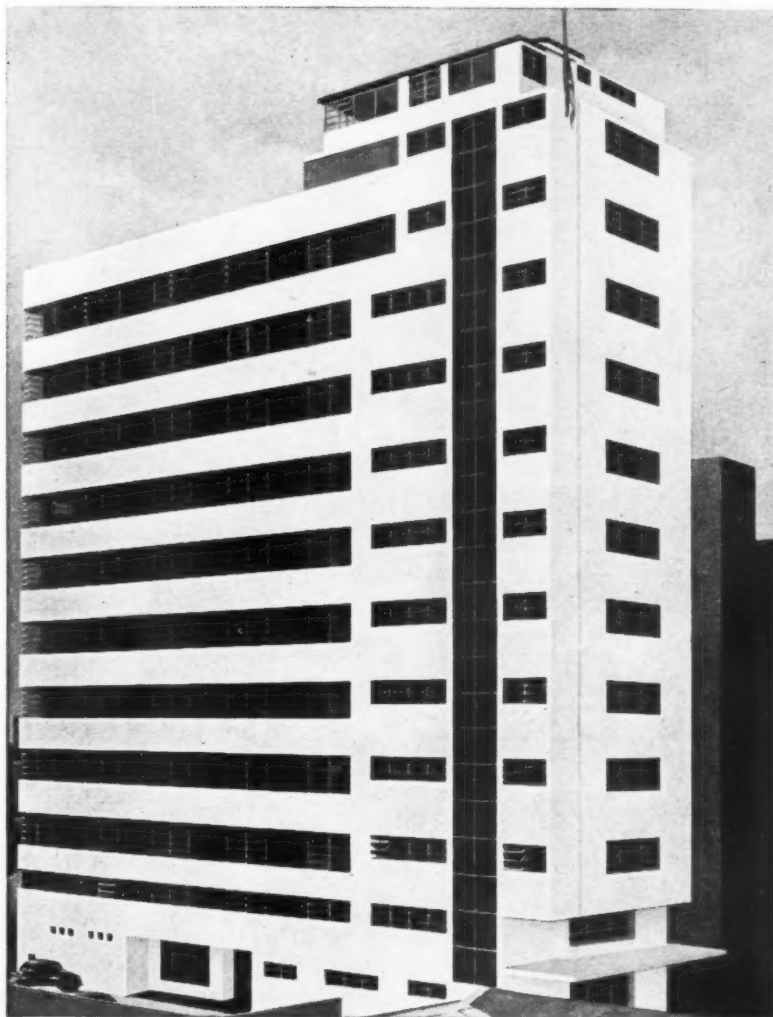
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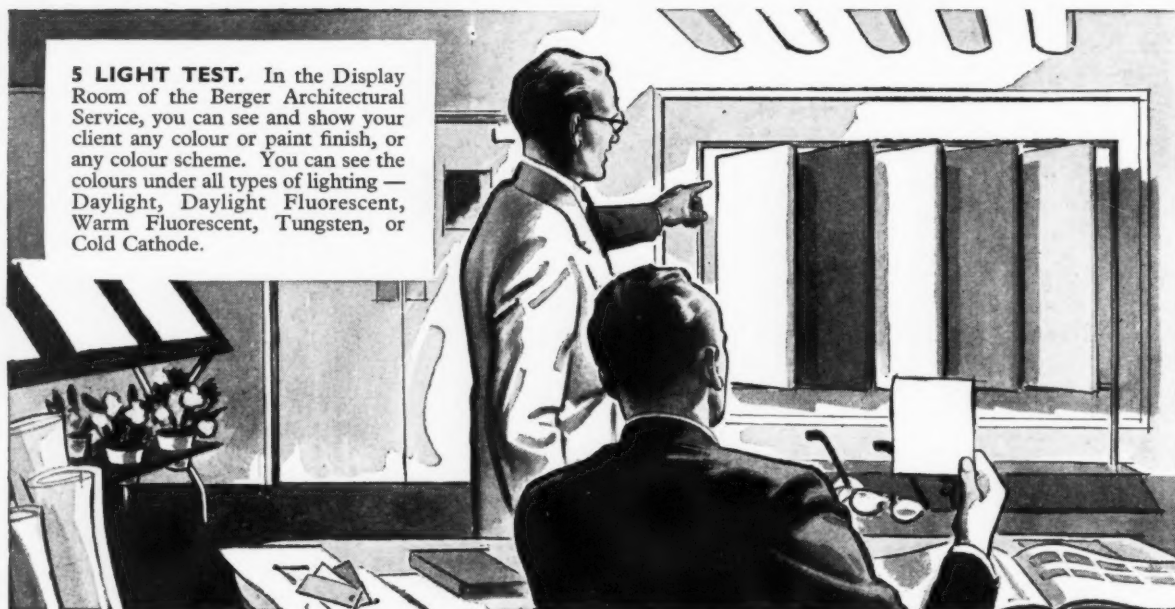
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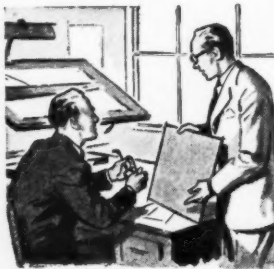
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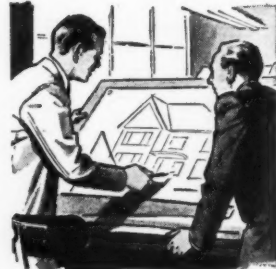
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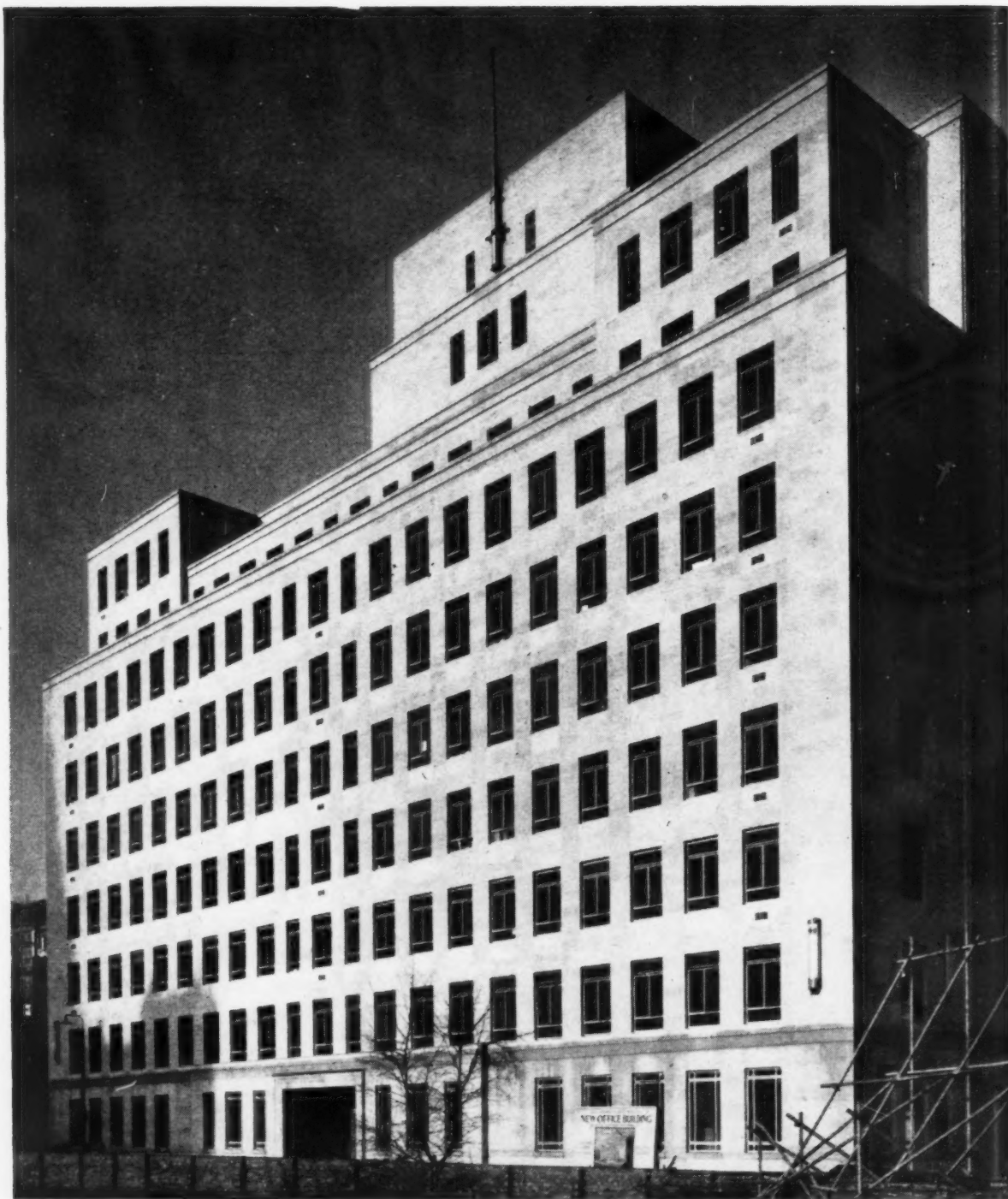
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Illustration shows the Reception Hall, National Coal Board Laboratories, Cheltenham.

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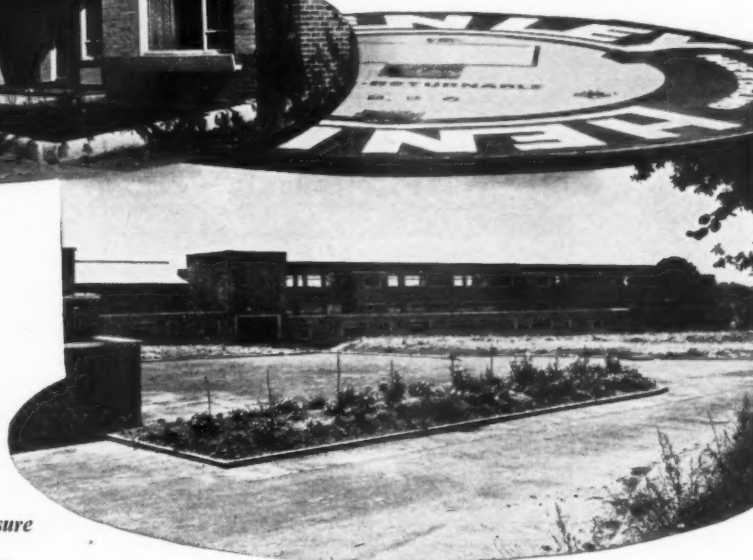
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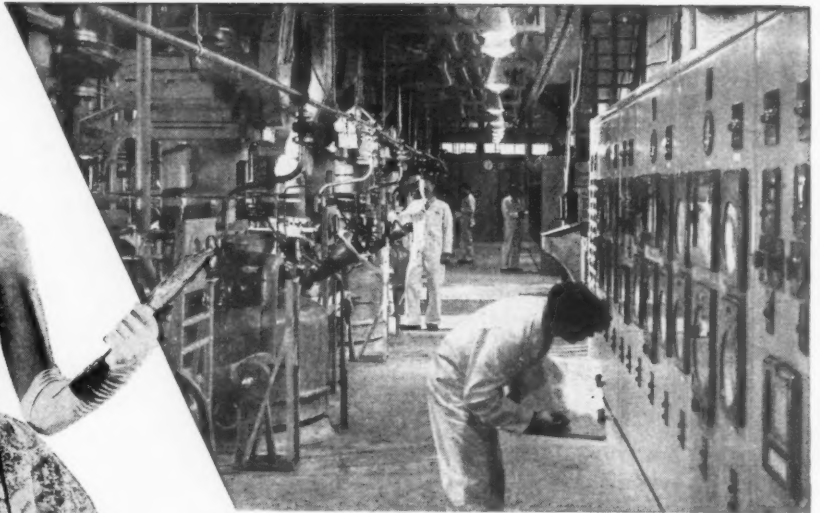
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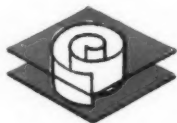
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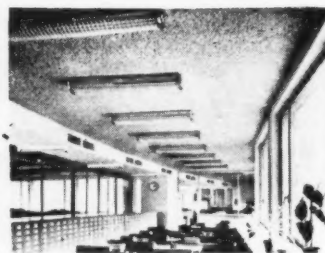
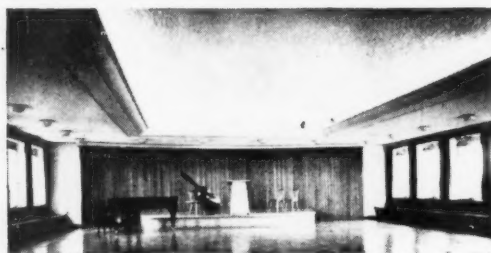
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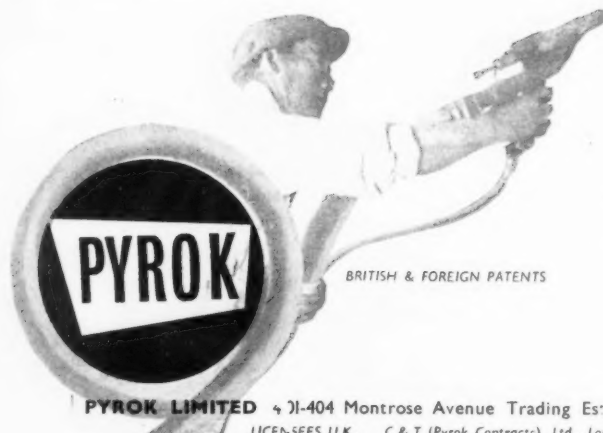
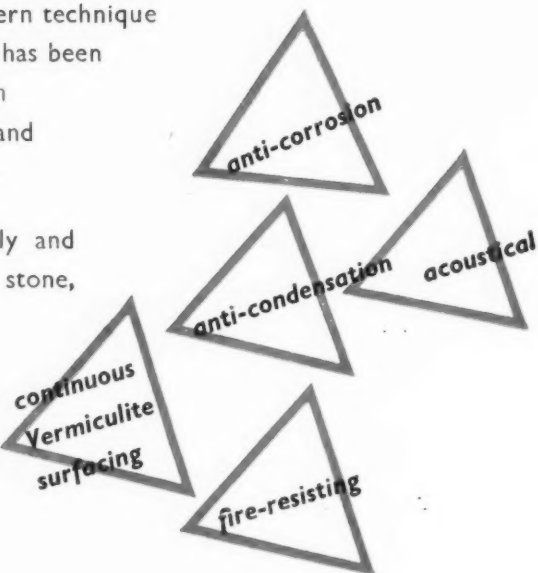


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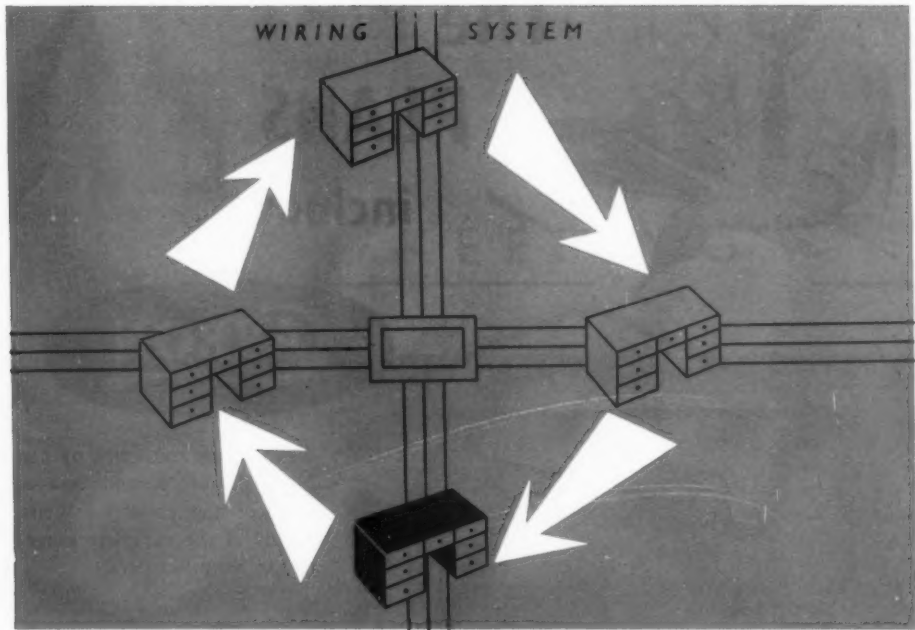
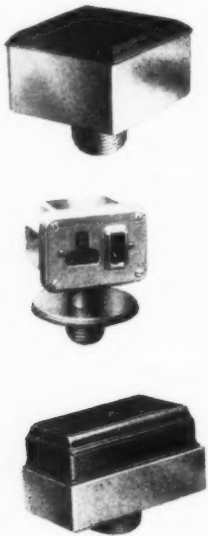
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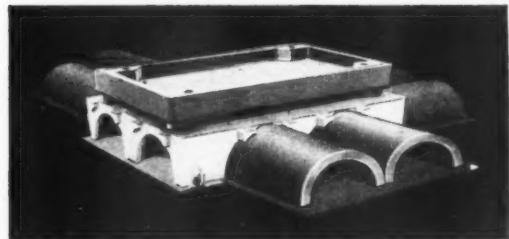


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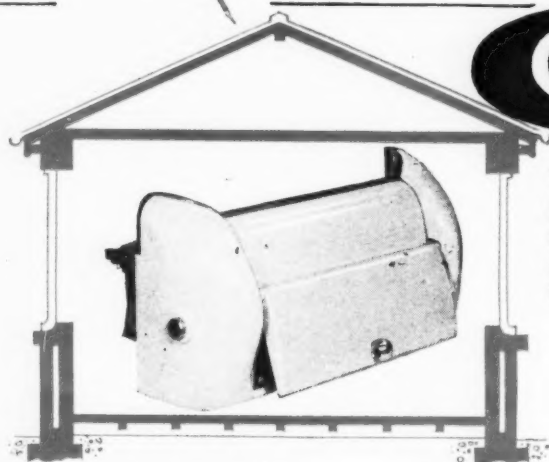


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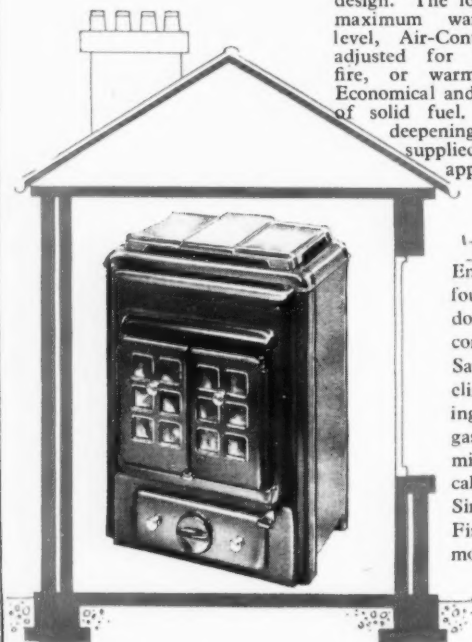
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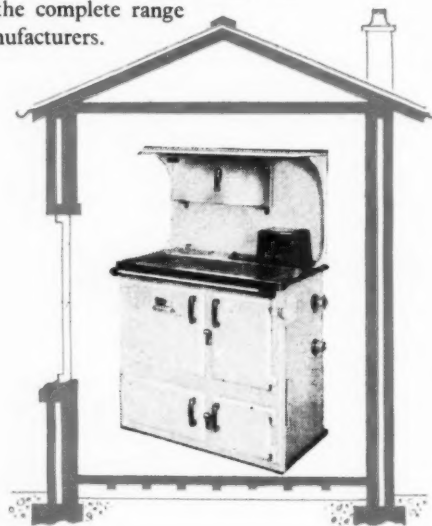
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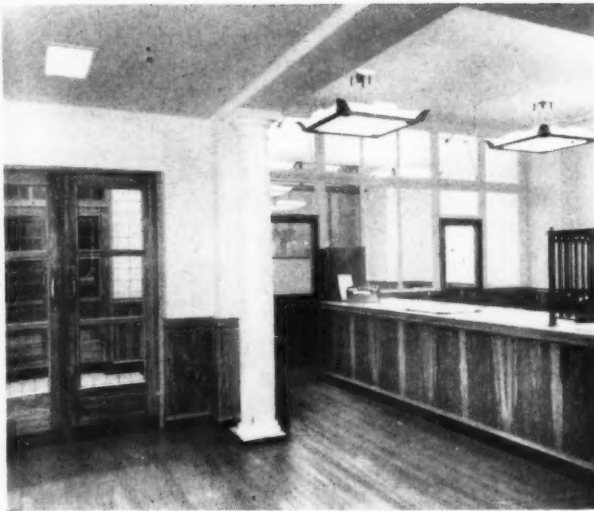
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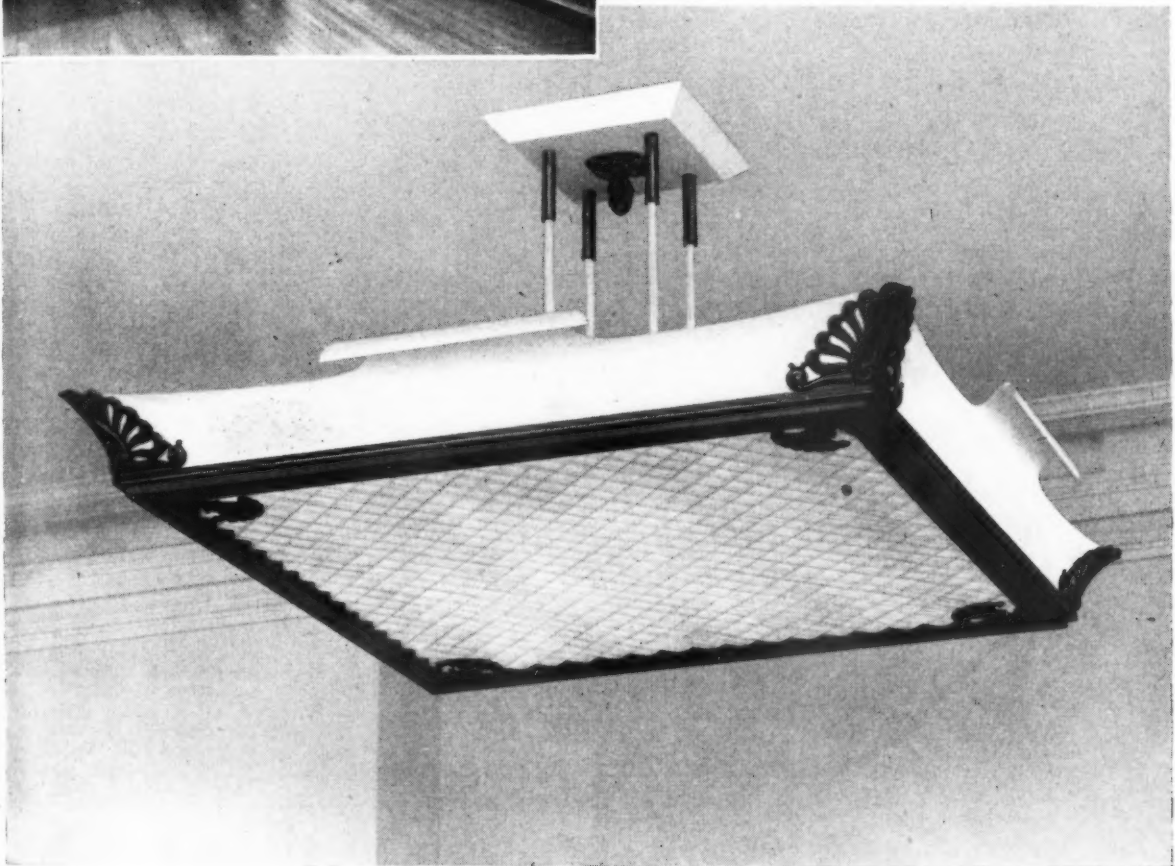
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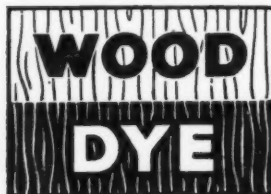
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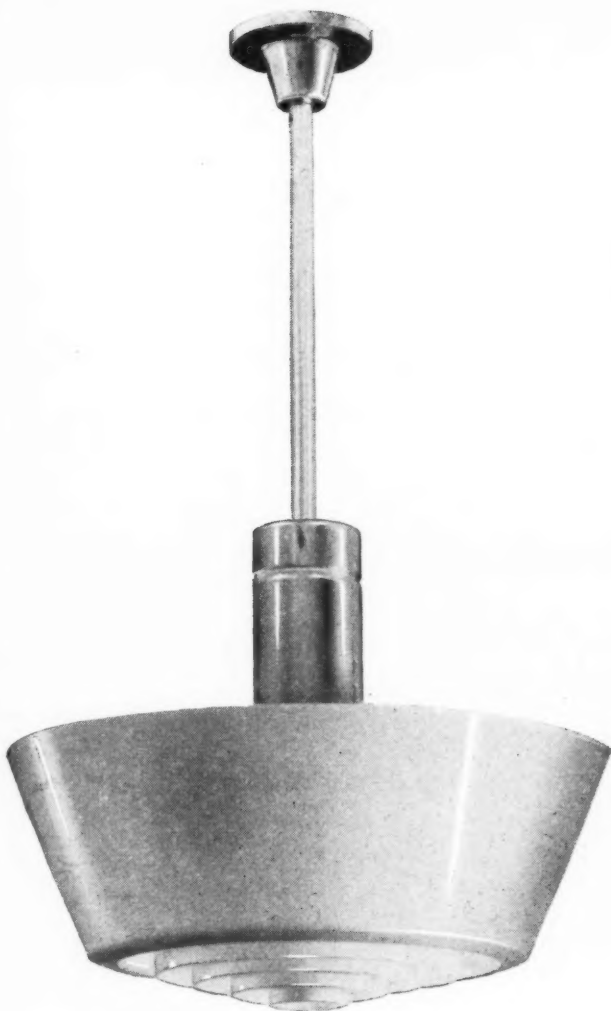
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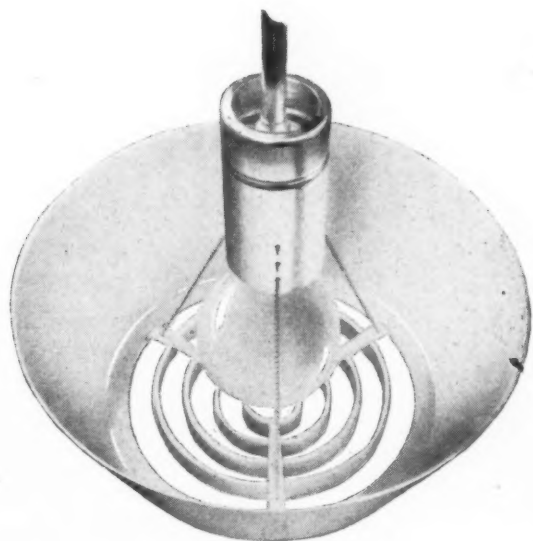
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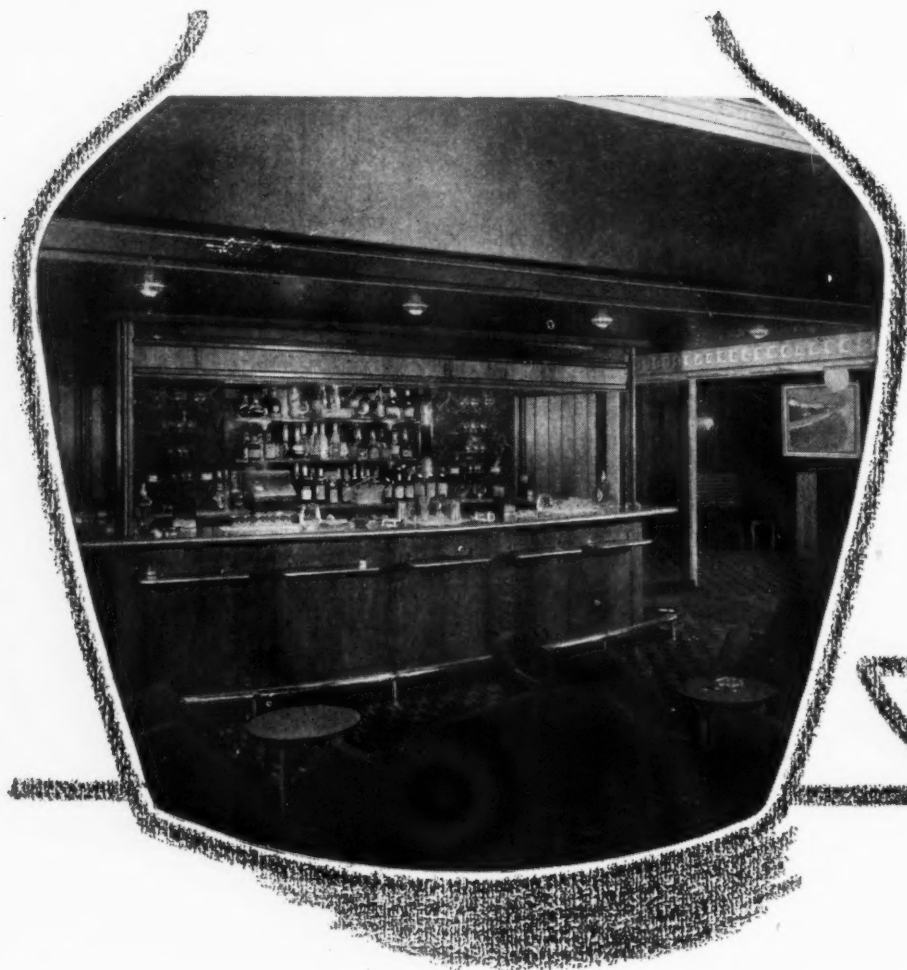


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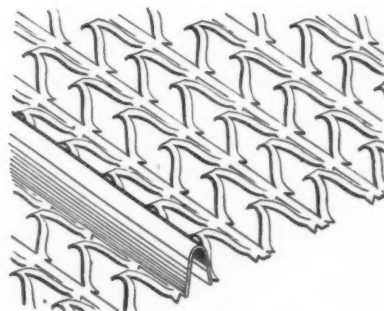
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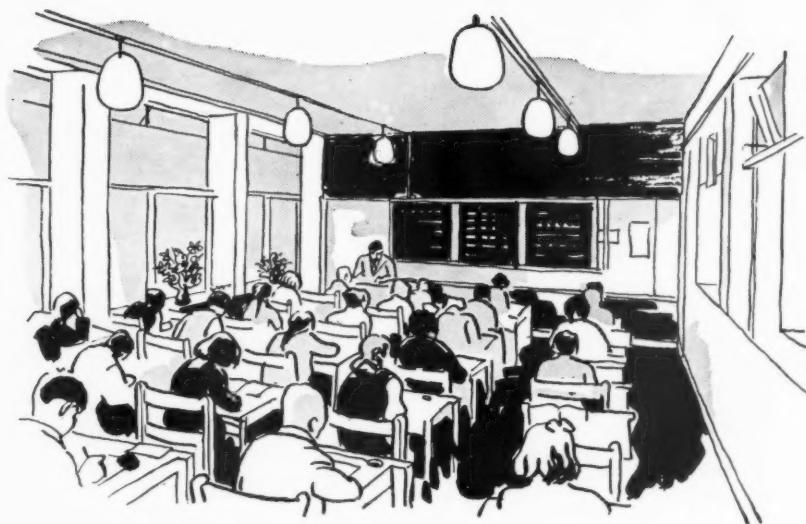
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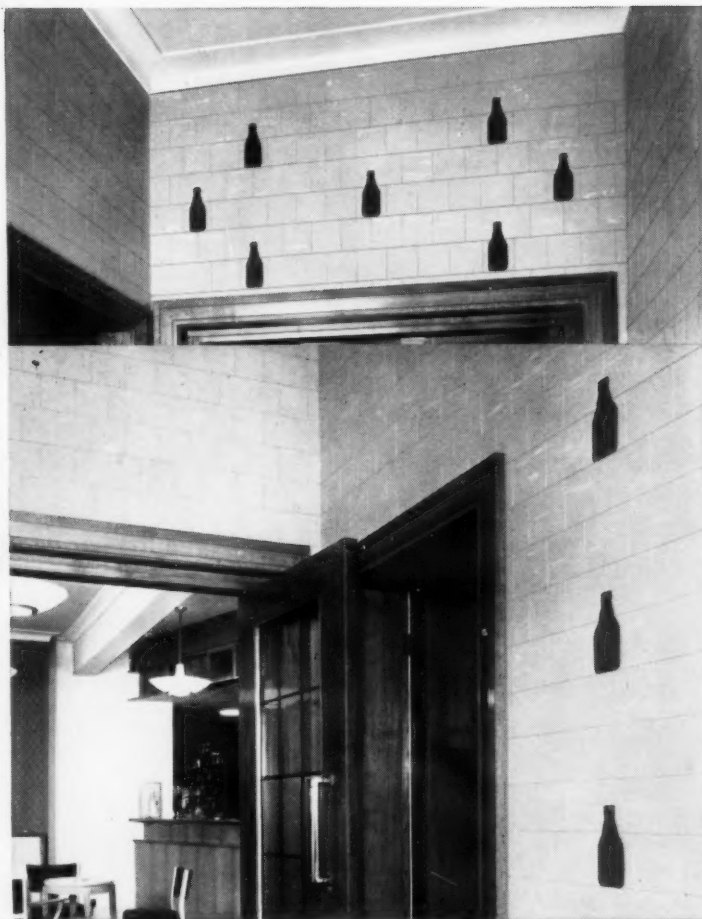


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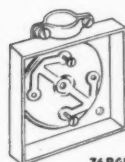
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A J

THE ARCHITECTS' JOURNAL

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GOLF NEWS:

BAGS¹ v RIBAGS²

Last week's match at the Royal Wimbledon Golf Club.

What a day at the Royal Wimbledon—an honest 9.30 at the clubhouse, good heart-of-country golfscape, private and official architects co-operating, Sir Giles smiling, gay raiment, modest side-bets and no shop.

Did the RIBAGS go down by 17 games to 11, 2 in the singles and 4 in the greensomes? No matter. Everybody loved it and if a rather slow-moving little queue of golf balls at the first tee caused gooseflesh, the sight of ball after ball being soundly whacked off, the ball often soaring to float out on a slight breeze and then drop onto the fairway like a little saccharine pill shaken from a bottle, that and a study of the players' handicaps promised golf.

*

Tough on the BAGS captain Leonard Trower getting off to a bad start against his opposing captain Felix Wilson (8 handicap a bit suspect?). Always irrepressible Trower picked up after a gallant, ditch-bestraddling chip at the 4th but not enough for Wilson's rather sombre, dead-pan efficiency. Also in the singles the conscientious RIBAGS president Sir Giles tumbled to H. Cunis,

1. The Building Alliance Golfing Society
2. The RIBA Golfing Society



Marxian Parterre



The art of Roberto Burle-Marx is an important component in contemporary Brazilian architecture—as important a component as Le Nôtre in French Baroque, or Capability Brown in English Palladian. He marshalls the flora of mountain and jungle, and the formal resources of contemporary art, to create settings as typically Brazilian and as rigorously contemporary as the buildings that they complement, and he has emerged as one of the dominant figures in the art of the mid-century. The exhibition of his work, which is currently at the Institute of Contemporary Arts, shows as much of his achievement as can be reduced to black and white photography—for example, Odette Monteiro park, above, and the Fontoura garden, left—and to coloured plans. But his achievement, it should be remembered, is a coloured, textured, three-dimensional, man-sized, perambulatory one—a series of outdoor environments, not pretty views or elegant abstract patterns—and those who might wish to re-do Burle-Marx in England, on the evidence of these partial prospects and diagrammatic schemes, would do well to heed the warnings given on page 437.

and the county architect for Surrey to Charles Willmott. But a triumph for the RIBAGS was H. St. John Harrison's defeat of the wee trophy-happy doyen Mathew Tait, Harrison being 5 up at the 8th, dormie 1 up at the 17th and winning with, of all things, a six!

*

E. H. Firmin too struck for the RIBAGS with a 2 & 1 defeat of R. B. Parton, whose handicap of 2 made him perhaps the strongest golfer on either side. On the other hand the BAGS captain-designate John Mathews trounced Robin Fisher by 4 holes—good stuff this because Fisher, though out of practice, only just missed a golf Blue at Oxford in the days when Tolley and Wethered were up there.

*

In the greensomes after lunch the RIBAGS wilted. Tait and Trower had a combined revenge on Wilson and St. John Harrison on the very last stroke, Tait, at the 7th, having triumphantly chipped into the hole from a ditch and shrieked in delirium, "Where's that A.J. pressman?" Other RIBAGS stalwarts fell—Alan Briggs and A. V. Farrier, Sir Giles and John Grey, W. W. Fisk and W. J. Adam—and the only victors were K. H. Bole and Howard Sadler over A. Parker and D. Jack (5 & 4); and Firmin and H. J. Stribling over Parton and Mathew (2 & 1).

Among the amusements were an air-shot by Alan Briggs (no laughter, just a hush); John Mathews laying a 9-inch putt dead; a quantity surveyor's ideal of impartial service realizing itself when K. H. Bole played and won for both sides; and the county architect for Surrey asking for an 18-inch putt to be given him, being refused by J. A. Bell and then missing it. But did God punish J. A. Bell too? Off the next tee he drove into a wood.

Yes, a good day. But sadly having to withdraw from the BAGS side (though not from the clubhouse) was the A.P.'s Vernon Tatlock, an ex-BAGS captain, the inaugurator of this annual match in 1951, and very possibly Tatters to you. This was a shame. He is recuperating after illness and will soon be back in the BAGS side with a reduced handicap, he says. He means it all right, and good luck to him. He could be seen practising his chipping and approaching later in the afternoon.

ROBIN MUDIE.

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* To preserve freedom of criticism these editors, as leaders in their respective fields, remain anonymous

The Editors

ACTION ON OUTRAGE

WHAT is to be done about Subtopia? asked Sir Hugh Casson at the Spring Meeting of the TPI last week.

His answer was to "know our ground, define our aims, recognize our enemies and friends" and "counter-attack upon a national scale." The enemy he defined as "not each other, but ugliness, which is only another word for disorder, and therefore inefficiency."

He quoted from an RIBA committee report the "notable weaknesses on the visual side of the existing planning machine." These make such effective and alarming reading that we quote them in full:

(a) The Ministry of Housing and Local Government, originally visualized as constructive in aim, and staffed to undertake planning research and the gradual evolution of a national plan, has gradually been reduced to the role of administering the Planning and Housing Acts. Other departments, such as the Board of Trade, and the Ministries of Works, Transport, and Fuel and Power, have tended to dictate the location of major public and private investments such as motorways, steam and atomic power stations, oil refineries and other key industries. As a result of this loss of status, the Ministry of Housing and Local Government has ceased to attract creative architects and planners.

(b) The Regional Physical Planning machinery, which after the war performed most valuable service, both in the general field of regional development, and in particular cases by informal arbitration and technical advice to the smaller planning authorities, has in the general process of reducing government staffs been progressively cut, and can no longer be said to exist. This has led to such relatively "abstract" matters as decentralization, industrial distribution and special research being thrust upon local planning authorities, many of which are either not large or not experienced enough to handle them.

(c) The Local Planning Authorities have in many cases delegated their powers of creative planning and development control to urban and rural councils. In a great majority of cases the officers appointed to deal with both these aspects, and to advise the Committees upon them, are without the appropriate qualifications.

(d) None of the following activities, whose decisive effect on the future of our landscape is apparent, are subject to planning control: Agriculture, including all structures connected with it; Public Utilities, including railways, power stations, gas plants, atomic energy establishments; Services Departments; Forestry; street furniture, road design and road-side planting and felling.

(e) The lack of popular understanding of the purposes of town and country planning has been reflected in the membership of the typical local planning committees, some of which are indifferent and even hostile to the whole conception of physical planning.

(f) As a consequence of these factors, combined with the low salaries and uncreative work offered to them, architects are increasingly reluctant to enter local planning offices, with the result that the quality and usefulness of aesthetic control are progressively reduced.

(g) In a typical year, only 29 out of 145 planning authorities have made use of advisory panels of architects, often in order to give sanction to the rejection of an original or unusual design.

To this list Sir George Pepler, speaking to the RSA last week on the same subject, specified in detail the following list of forms of development over which the Ministry relinquished control—many of the manifestations of which are pillared in *Outrage*: buildings under 12 ft. high "for a purpose incidental to the enjoyment of the dwellinghouse as such," including the keeping of pets and livestock; all fences, gates or walls under four feet, if abutting on a road, or seven feet elsewhere; all house-painting; small ancillary buildings and equipment for local authorities; and, lamp standards,

information kiosks, shelters, telephone boxes, drinking fountains, horse-troughs and refuse bins; and installations for the supply of electricity. This Order (S.I.1950 No. 728) was made by Hugh Dalton who called it "an experiment in freedom."

Sir Hugh Casson's suggestions for eradicating Subtopia are, in brief, as follows. First, the setting up of a group at the MOHLG (on the lines of the MOE's architectural development group) to disseminate to local authorities by means of bulletins good examples of design and landscaping. Small areas would be intensively worked on to serve as models to the rest of the country. Second, better qualified planning advice for boroughs, urban districts, and other smaller local authorities to whom County Planning Officers often delegate their powers. Third, flying Design Squads, organized by the MOHLG to provide special planning advice in support of planning officers—a supplement, in fact, to the RFAC. Fourth, vigilance by individuals through existing amenity organizations.

There is no doubt that some positive action on these lines must be taken if the problem is to be solved. As Sir Hugh says in words which will appeal to everyone: "This island is small, industrial and overcrowded. There is no room to move about. We are by tradition a maritime nation, and every sailor knows that his comfort—and indeed his personal safety—depends upon everything being put tidily in its place and thrown away when it is no longer wanted. He knows, too, the value to morale of smart appearance. Let this principal aim then in our battle of Subtopia be to restore the nautical tradition and keep Great Britain as trim and gay as a well-kept boat."



COVENTRY LOOKS AHEAD

Arthur Ling's description, plentifully

illustrated with coloured slides, of his plans for Coventry provided an extremely enjoyable and stimulating evening at the AA last week. The evening was organized by, but not markedly patronized by, the students. It was their absence, no doubt, that resulted in the lack of criticism of the Coventry plan. The Coventry rebuilding is without doubt the best in the country. The credit should go to Donald Gibson, with Percy Johnson-Marshall and many others, and now Arthur Ling, for this achievement; but few contemporary-minded architects would call the *architecture* itself great by international standards. The importance of the work surely lies in the example they have set of how to guide and direct the re-creating and re-building activities of a large city along civilized, cultured channels.

It was fascinating to hear Ling—quite unconsciously—explaining how by persuasion, argument, rapid appraisal of a situation, and fast action, as much

as by pure planning, a lively city architect and planner can turn events to his city's aesthetic advantage, gain friends for visual as well as efficient design, and influence people to take a pride in their environment.

*

It would seem that Ling has found in Coventry a man-sized task, rather than the gargantuan one he has been harnessed to for so long at the LCC. In consequence he is getting equally good, or even better, results at a much faster rate—a good argument for architectural and planning offices being small and localized.

*

Ling is introducing several interesting ideas into the extension of the partly-built pedestrian shopping precinct. He is planning parks for about 1,800 cars within the area, as a start, and hopes to extend the pedestrian way up to the old and new cathedrals (this will mean that Broadgate will no longer be a mere traffic roundabout), and he visualizes subtle enclosed effects, utilizing the old County Hall building and the existing Georgian houses, in the vicinity of, and on the approach to, the cathedral.

*

He also made the extremely sensible suggestion, which will delight *Outrage vigilantes*, for a competition, to be arranged by the RIBA and the Institution of Electrical Engineers, for new methods of street lighting. So many people concentrate, he pointed out, on the question of improving the design of individual lamp-posts, instead of tackling the whole problem of road and street lighting in the broad sense.

*

After such an evening—typical of the AA's high standards—ASTRAGAL left hoping that the Ministry will ensure that the credit squeeze does not affect Coventry. A great deal of money will be saved, in the long run, if one town—preferably a town rebuilding on progressive contemporary lines, like Coventry—is allowed to race ahead and prove its ideas, so that other towns can profit from its successes and learn from its failures.

BUILDING FOR CHILDREN

What books would an architect, or a builder, give to a child whom he wanted to interest in building? The

question occurred to ASTRAGAL when he visited last week the National Book League's travelling exhibition of good books recommended for school libraries. Apart from noting that children, at least in their elder's opinion, are as conservative as ever in their literary taste (Barchester Towers, Rob Roy, Wuthering Heights, Black Beauty—they are all included), ASTRAGAL confined his attention strictly to the thirty or so books on architecture—otherwise he would still be there—and noted that there were no books for builders, only two for planners and very little which would encourage a child to become an architect. Clough Williams-Ellis's book *The Adventure of Building** seemed about the best. The rest were largely rather dreary guides, illustrated with scratchy pen drawings of gothic details, matters of deadly dull history—and a few books primarily written for adults. Compared with other subjects, architecture—or building—does not seem to be very well covered for children. Perhaps its just as well, if the profession is overcrowded.

THE DESIGN CENTRE

The opening of the COID's Design Centre at 28, Haymarket is an event of considerable importance. Here, at last, is a permanent exhibition—where space cannot be bought if exhibits are not up to standard—of the best in British industrial design, from taps to TV. The success of the Design Centre as a selling agency, both for the home and export markets, is assured and this success will surely encourage industry and the Government to see the value of using top-grade designers. The COID team, under Sir Gordon Russell, are to be congratulated for this realization of the ideals behind the Council's 1951 catalogue.

It was interesting to see that among the very first visitors to the Centre were the owner of one of America's largest department stores and a group of visiting Russian architects. The architectural profession will no doubt find the Centre useful and time-saving: who has not spent many a tedious and often fruitless day looking for just such products?

The opening of the Centre by the Duke of Edinburgh went off admirably. It is not the first time in recent months that architects have felt how refresh-

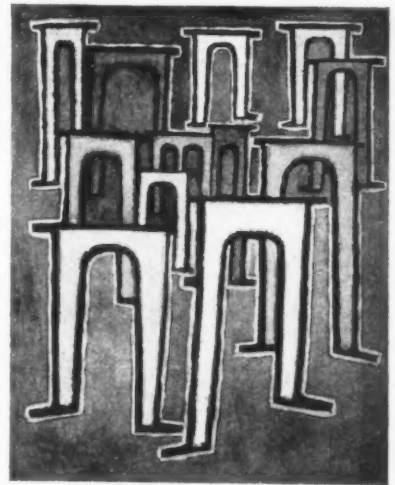
ing it is that Britain now has a royal personage who cares about design and takes the trouble to understand its problems. The Duke's speech at the opening showed this once again. He gave the Design Centre a splendid send-off; it now remains for the public and the manufacturers to carry on the good work.

ANOTHER FEAT OF KLEE

For the exhibition-fancier, this week offers rather an oddity. At the Tate is the *Hundred Years of German Art*, large and panoramic, typical of the giant prestige shows that have been circulating since the war. ASTRAGAL found top-rank art-men complaining about what they considered serious omissions—the *Neu Sachlichkeit* realists, the dadaists and surrealists—but speaking personally was glad to find Bauhaus painters well shown; Kandinsky, Feininger, Baumeister, Schlemmer and Paul Klee. And a strong—that's the word for it, strong—showing of the big expressionists like Beckmann, Kokoschka, Nolde and Kirchner.

I don't imagine many English visitors are going to like these expressionist pictures very much, some are real eye-blackers, but they are worth a thoughtful look, and will probably confirm any prejudices you already have about

Below right: Vincent Harris's preliminary sketch and site plan for a new central library, foreground, town hall and concert halls, beyond, planned for Kensington. The site is just to the north of the High Street. ASTRAGAL comments: "The library is typical of Vincent Harris's restrained eclectic manner, and is no doubt evocative of an aristocratic past to his clients, the Royal Borough. It is hard to believe, however, that the same polished hand designed the coarse, squat, tower block behind (shown in detail, left) reminiscent of the skyscraper blocks of New York or Chicago in the 'twenties."

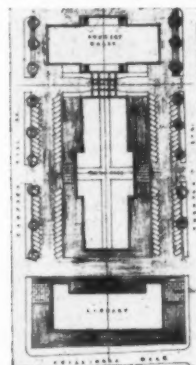


The Revolt of the Viaducts, by Paul Klee. (Note on this page).

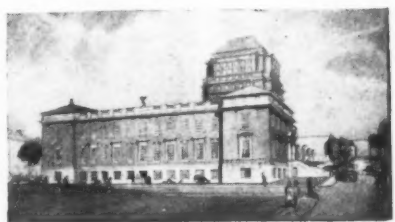
the German national character. But look at the rest of the exhibition as well, and some of the pictures will give your prejudices a bit of a knock. Germans, it is clear, come in all flavours, hard and soft-centred.

But if you are the rare kind of architect who is never troubled by bad dreams, have a look at No. 89, *The Revolt of the Viaducts* by Paul Klee, and see if this gay nightmare vision of a lot of brick arches, pulling up their foundations and marching straight at you, doesn't give you something to worry about.

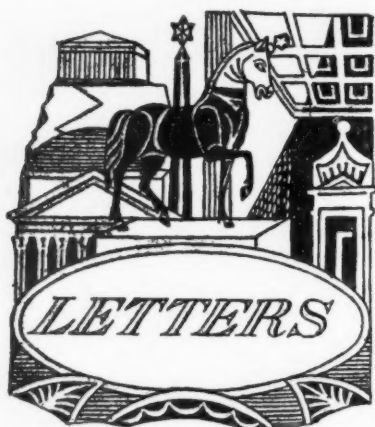
ASTRAGAL



It is hard to believe, however, that the same polished hand designed the coarse, squat, tower block behind (shown in detail, left) reminiscent of the skyscraper blocks of New York or Chicago in the 'twenties."



*The Architectural Press 10s. 6d. (1947)



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Anthony New, A.R.I.B.A.

Hubert Clist, F.R.I.B.A.

D. Cooper, Student R.I.B.A.

S. F. Mill, F.R.I.C.S.,

of Davis, Belfield & Everest

Bruce Allsopp, F.R.I.B.A.

Praise For New-Style AJ

SIR,—May I congratulate you on the new format of the JOURNAL. One appreciates the amount of time and thought that has been put into this work. Filing will now be much easier while binding can still be effected without incorporating too many advertisements. I am convinced that efficient filing requires a combination of binding, together with separate files under specific headings with sheets abstracted from a second copy of the JOURNAL. The problem is, sir, that 95 per cent. of our profession can hardly afford one copy per week, let alone two.

D. TENNYSON WATERS.

London.

How To Tear It Up

SIR,—Don't tear off the back cover and ruin penknives by prising out staples (page 337, April 12).

Just grip the front wad of advertisements near the top in the left hand and the rest of the book in the right, and give a smart tug, which will drag out all the staples in a fraction of the time.

ANTHONY NEW.

Herts.

[Mr. New's method can work fairly well, but the position he has chosen—after the front wad of advertisements—applies only to the old-style JOURNAL. If this position is chosen now, which is the middle of a sixteen-page sheet, ragged edges will result. The best position for this technique now is eight advertising pages nearer the front. The position of a sheet is always indicated by a letter of the alphabet printed in the extreme bottom right-hand corner of a right-hand page.—Eds.]

Builders and Students

SIR,—My younger son, who is a Student RIBA, has finished three months on a building site working as an apprentice bricklayer.

The builder started him at 5s. per week and at the end he was earning 2s. per hour. He learnt a great deal and enjoyed himself, and the builder has just told me that he would be glad to have him back at any time, as he did far more work than other apprentices and set a good example in time-keeping and conduct. He would not have learnt as much if he had been assistant foreman or Clerk of Works, and, in addition, would have been bored stiff.

HUBERT CLIST.

Kidderminster.

The Unqualified Architect

SIR,—The letters from Messrs. Giddens and Gregory (AJ, April 19) will make most architectural assistants very angry indeed. There are large numbers of unqualified assistants with plenty of varied experience who are doing valuable work in all types of offices. Many of them had their careers interrupted by war service and would undoubtedly have qualified long before now. I see no reason why they should be penalized in the matter of salary. In any event, the fact that an assistant has no intention of qualifying is no reason why he should be exploited.

There is no doubt that the unqualified, but experienced, assistant is in great demand. The "Appointments Vacant" columns in the AJ prove it. To suggest that salaries for such men should be kept down to make them qualify is monstrous. When Mr. Giddens eventually has a practice of his own (I assume that he intends to qualify). I hope he will be able to afford to pay qualified assistants. I wonder who will detail the manholes?

Perhaps I ought to add that I am over the age of 30, and have 10 years' office experience, but do not find the figure of £750 in the least bit "enticing."

D. COOPER.

New Barnet.

Cost Analysis of Admission Unit Wallingford

SIR,—We are seriously disturbed to note that the cost analysis of the Admission Unit at Wallingford designed by Powell & Moya, printed in your issue of April 19, 1956, is inaccurate in a number of respects and does not agree with the data which we provided.

The following corrections are required:

	cost per sq. ft.	s	d
work below ground floor level	5	9	65
external walls and facings	2	6	21
windows and external doors	5	1	69
floor finishes	3	0	33
heating h.w. c.w. and gas	13	11	50
drainage	4	5	19
electrical installation	5	11	67
external works	6	9	91

If anyone totals the costs for the different elements as printed, they will find that they add up to 75s. 8.85d. or an error of 4s. 8.40d.

Further we are unable to understand the reference on Page 397 to hot water storage being "included under drainage" (which, of course, is not the case) whilst we must also point out that there is no reference to cold water or gas installations, which are, in fact, included in the analysis price for "heating installation boiler type and water heating type."

We think you will agree that if cost analyses are to be of any value to your readers it is absolutely essential that they should be correctly printed.

S. F. MILL.

London.

[We are grateful to Mr. Mill for drawing attention to these omissions, and errors in elemental costs which we very much regret, and which are entirely due to errors on our part, and are in no way the responsibility of the Quantity Surveyors, Davis, Belfield and Everest. We have printed above the correct figures in the same type that we use for analyses, so that readers may cut and paste them into their (filed) JOURNALS. It should be noted that the total cost per square foot of floor area was shown correctly.—Eds.]

A Matter Of History

SIR,—In reply to my suggestion that by quoting phrases out of their context he gave a misleading impression of my *General History of Architecture*, ASTRAGAL remarks that "the Thorpes and Smythsons" did well as architects out of the dissolution of the monasteries, says my factual evidence applies not to architect's but to masons, and invites me to name "any other Tudor subjects so closely resembling architects, who suffered by the Dissolution." In using the word *other* he seems to be contradicting himself but let that pass. In talking of "the Thorpes and Smythsons" in connection with the Dissolution it is by no means clear whom he means. I thought Mr. Summerson had finally disposed of the Thorpe myth (*Architectural Review* 1949), and Robert Smythson did not begin to flourish as a designer until forty years after the Dissolution—quite a long time, but let that pass too. The important point is that ASTRAGAL insists on a distinction between master-mason and architect. This is not a distinction which anyone who writes a history of architecture nowadays can accept as valid. As I have explained at length (p. 114) an architect is a man who designs and sees to the erection of buildings which can properly be called architecture. As L. F. Salzman says (*Building in England down to 1540*), the mediaeval master-masons were architects, and John Harvey has very properly called his biographical dictionary *English Mediaeval Architects*. By the same standards one must call Ictinus, Anthemius, Vitruvius, Alberti, and Professor Nervi architects though none of them qualify in the narrow professional sense. Surely ASTRAGAL knows this perfectly well. Why then pretend to justify his incorrect assertion by quibbling over the meaning of a word?

Thanks to the work of Mr. Harvey it is as easy for me as it would have been for ASTRAGAL to give the names of other Tudor architects. Nicholas Craven and Thomas Pokyll are two who flourished with promise up to the Dissolution and are not heard of later. John Molton and Thomas Berty are two who remained in practice but might have done very much better. In the nature of things history does not record the opportunities which never came, but I think ASTRAGAL must agree, if he cares to take up the references I have given, that my statements are absolutely justified by factual evidence. It was a bad time for architects and calling them masons does not alter the fact.

About the Baroque, ASTRAGAL says my text on p. 149 "would not appear to say anything about the Baroque movement failing to produce any creative descendants." I wrote that it was sterile which, in one word, says precisely that it failed to produce any creative descendants.

It was charmingly modest of ASTRAGAL to say he was not an historical expert. Perhaps it would be best to leave it at that, but if he wants to cut and come again I shall be glad to pursue the argument for as long as you, sir, can allow me fair space to reply adequately.

BRUCE ALLSOPP.

Stockfield.



RIBA

Plans for 66 and 68

The rebuilding of 68, Portland Place as an extension to the Institute's headquarters will begin in July. The architects, Playne and Lacey, have been asked to prepare plans for the completion of the two top storeys of No. 66.

Appointments

RIBA Architecture Bronze Medal, the Western Australian Chapter, RAIA: RIBA. Representative to serve on the Jury: K. C. Duncan, F.R.I.B.A., President of the Western Australian Chapter, RAIA.

BSI Committee: PLC/21: PVC Flooring. RIBA representative: R. A. Cooksey, F.R.I.B.A.

Annual Meeting of the General Council of Registered Plumbers' Association. RIBA representative: C. H. Murray, F.R.I.B.A.

BROADCASTS

St. Paul's Precinct and American Design

The scheme by Sir William Holford for St. Paul's Precinct will be discussed by Dr. Nikolaus Pevsner on the Home Service next Sunday. In his talk (at 10.25 p.m.) Dr. Pevsner will examine the scheme against the background of English architectural tradition.

On Saturday, Dr. Walter Gropius will be heard on the Third Programme in a recorded interview with J. M. Richards. In this programme, at 9.5 p.m., Dr. Gropius will talk about current trends in building and design in America—particularly industrialized building techniques.

HAVANA

City Within a City

Ian McCallum, one of the *Architectural Review* editors, writes from New York that Philip Johnson Associates and Miguel Gaston are designing a hotel in Havana which will be a completely walled "city" within a city. Glass walls in the public areas will look out to two "rain forest" gardens, and orchids will hang from all the trees. "Picture windows" will be cut through the garden wall to look out over the sea. Because of the high storms, these holes in the wall will be glazed.

The structure of the 360-room Monaco Hotel will be a concrete box frame and will be designed by Luis Saenz, the engineer who recently built the tallest concrete building in the world in Havana.

FUEL INSTITUTE

Seven Competition Winners

Each of the following competitors in the Institute of Fuel's competition for free-standing fireplaces was awarded 50 guineas.

Section 1: for new low-cost dwellings. C. R. Cheetham, of Essex; A. E. Aikman, of Lincoln; B. Dewhurst, of London. Section 2: for new medium-cost dwellings. R. D. Whiteside, of London; Mrs. Jane Penoyre, of London. Section 3: for conversion of old-fashioned type fireplaces. R. A. E. Gibson, of London; J. Roy McKee, F.R.I.B.A., of Edinburgh.

The assessors reserved their right to withhold the 200 guineas originally offered for the best design in each section, as they did not consider any one design to be without defect.

Correction

The plan printed on page 877 in our issue of December 29, 1955, of the Regents Park Area "C" flats by Davies & Arnold indicates that, upon the top storey, two bed-sitting room flats and two single-bedroom flats were constructed with w.c. apartments opening on to habitable rooms. The flats have not in fact been constructed in this way. In accordance with the requirements of the St. Pancras Borough Council, suitable partitions have been erected to form a lobby through which the w.c. apartment is approached.

READ THIS WEEK

The Burle Marx Exhibition... page 432
Action on Outrage .. page 433
Coventry's building plans .. page 434
Correction to Wallingford
Hospital cost analysis .. page 436



FILE THIS WEEK

Information Centre. The items reviewed this week are articles on precast concrete and floor heating, a report on immersion heaters and a BSCP on domestic sewage treatment page 441

Timber Article. No. 8 in a series on "Design and Practice of Joinery" deals with plywoods, boards and veneers .. page 442

Building Illustrated. The planning and cost of the first phase of a livestock and fruit market for Gloucester County Borough Council .. page 449

Information Sheets. One sheet this week shows diffused roof lighting of gal glass; the other shows six designs for moulded hardboards.

Working Detail. This is a double-action cattle gate at the Gloucester market which was illustrated in last week's AJ.

BURLE MARX

Exhibition at ICA

No one is having a greater influence on contemporary landscape design than the Brazilian landscape architect Roberto Burle Marx. An exhibition of his work is on view at the ICA, 17, Dover Street, London, until May 26 which, while lacking in technical information, is nevertheless a great visual stimulus. The exhibition is reviewed below by the landscape architect and town planner G. P. Youngman. See also this week's frontispiece, page 432.

Burle Marx's reputation as the world's most lively and original garden designer of today is firmly and rightly established. An exhibition solely devoted to his work ought therefore to catch every architect's attention. Here is an art in which this country has so great a tradition but so little contemporary achievement and which is the closest allied to architecture of all the arts (and yet by virtue of its medium—and it is one of the significances of Burle Marx's work to demonstrate this—so different from building and so unfamiliar to most architects) shown in sympathetic relationship to some of the best architecture of our time. The exhibition is not large (some forty photographs and fifteen plans), has little to offer to close scrutiny or thorough analysis and can quickly be seen. And it should be seen; if only that it may urge the English architect to find the way to our achieving the equivalent (not the same: for innumerable reasons our English gardens cannot look like, and should not try to do so, these Brazilian ones) in this country.

It would be an impertinence to attempt a critique of Burle Marx's art merely from a study of these exhibits. Gardens, which are primarily space, are, of all the forms of art, the least susceptible to revelation by photography, which can only provide isolated views. The plans, exciting though they are to see—and this is the first occasion on which in this country we have been able to study them—eyecatching though they are with their bright colours, are disappointingly incomprehensible. There is no legend which might explain the letters and figures that do appear on some of them; there is no scale; there is nothing to suggest changes of level, contours, massing; nothing to suggest heights, shapes and textures of the planting. The photographs show that Marx himself, of course, does not neglect all these things. It is merely that his plans, the obvious product of his painter's delight in abstract colour patterns, do not reveal his full intentions; a point which may perhaps restrain the thoughtless enthusiast with a



*Horse's head
from the Parthenon sculptures
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"Ah, the architect's favourite and the builder's cert . . ."

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flair for making the same sort of patterns on paper but without the knowledge of the materials to embody them in reality. The plans and photos therefore can only partially reveal what Marx has achieved; only if one had the chance to see his gardens in reality, in their environment, could one comment on them fairly.

Nevertheless one cannot escape being influenced by what one sees here; and the value of this exhibition lies in the stimulus that it may give to our work in this country. What therefore may be useful is to try and assess its relevance to our own problems and practice. Many things might be said; but perhaps most important is that what one sees is in fact largely irrelevant. Obviously it has nothing to do with our problems of the countryside, with the landscaping of power stations, factories, quarries, roads nor with any means we may devise for reducing all the squalor of Subtopia; but neither has it much to do with our problems of urban open space. It is true that there are plans showing a neighbourhood housing scheme, a recreation beach and a public square (but being equally incomprehensible, any one might be another); and that some of the photos show public gardens. But these are all decorative landscapes and, by our standards, they are luxury landscapes. Only perhaps the English spa and seaside resort, where holiday crowds with money to spend and on good behaviour stroll admiringly, and therefore respectfully, through the gorgeous but hideous public gardens, only they might afford to do the like. Elsewhere our main concern is with space rather than decoration; with the functional organization of space for people's use and misuse and for economy of upkeep; and with the visual design of space as a sequence of scenes or a sequence of architectonic volumes. None of these exhibits help with any of that.

The relevance then of these photographs is to the limited part of our present practice that deals with gardens; and here, though there is much garden layout, heaven knows, that cries out for even a modicum of decent designing, yet much of our effort needs to be spent in trying to keep the garden in its proper place. So it is particularly significant that what seem the best views of these Burle Marx gardens are those where the garden is enclosed, where the plain surfaces of boundary walls or buildings provide a background throwing into sharp relief the dramatic shapes, the vivid hues, the rough textures of his plants and where their rigid lines give significance to the sculptural groupings and curving ground shapes. Just as the pseudo-natural artifice of the Japanese garden (an obvious source of inspiration for the extremely sensitive naturalistic detailing of some of Marx's schemes) takes meaning from the frame of fence or wall that invariably surrounds it, just as the abstract painting (which is Marx's chief source of inspiration) only makes sense when isolated from its environment by the rigid boundary of the picture frame, so too these gardens need bounding, need isolating. One suspects some photographic deceit here. Only one view gives any glimpse of what lies beyond the garden scene; yet the plans (though admittedly—and irritatingly—none refer to the



There is a considerable difference of approach between the curving lines of Burle Marx's completed gardens and the largely rectilinear shapes of his more recent proposals, shown at the ICA exhibition of his work as simple plans (see overleaf) with flat areas of colour with

no heights or contours shown. Above is a view of the Odette Monteiro Park (see also page 432) and below, a garden for the Santos Dumont airport, Rio de Janeiro (architects: M. M. M. Roberts).



same garden as the photos) show apparently no attempt to deal with this, for us one of the most important visual problems. There is little to be learned here of how to cope with the problem of the boundary. The plans look very nice in their rectangle of pale grey; but what chaos, squalor or at best mere disharmony does this grey represent in reality?

It is unfortunate that all the photos are in black and white. Apart from the fact that they thus appear to have nothing to do with the plans, they do not reveal what the plans show to be Marx's main pre-occupation. In the photos the plants have shape and texture; in reality they have also brilli-

ant colours. Here is yet another reason why in this country we cannot work in the same manner. These, so many of them the native plants of Brazil (there lies the significance for us, with different plants leading to different designing), are of the same type as and often identical with those used in our Victorian gardens. In fact Marx's schemes, in one aspect, are the contemporary equivalent of 19th century bedding out; except that for him, and this is vital, the plantings are permanent. They are the contemporary equivalent also of the embroidered parterre; which, as the 17th century designers knew so well, needed to be looked down on to be properly seen. Many of Marx's patterns are,

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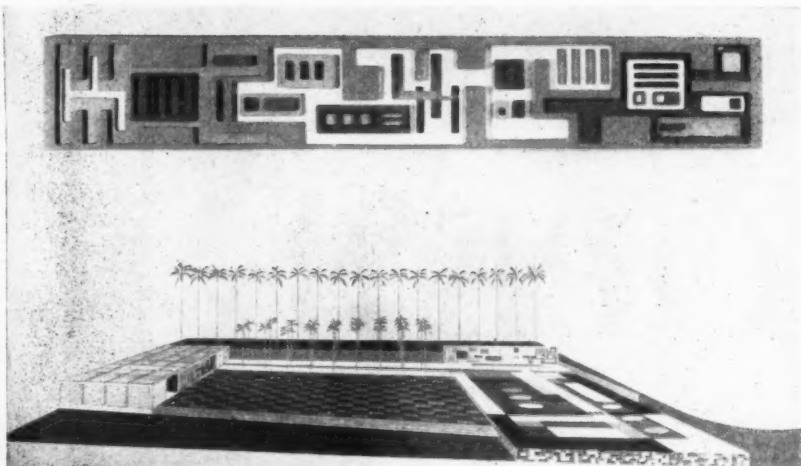
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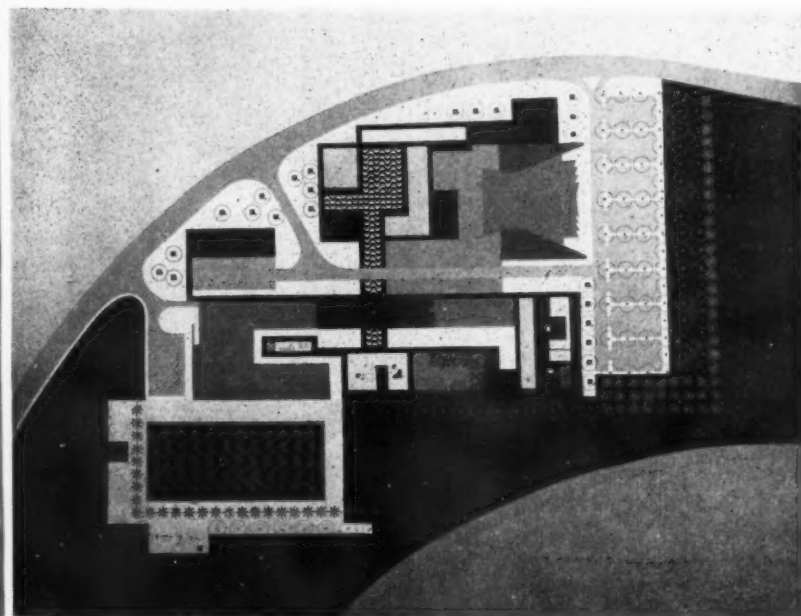
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Above, Burle Marx's landscape plan for Rio de Janeiro's Museum of Modern Art (architect: Affonso E. Reidy). The lawns are sown with two-toned grass in wave design, a pattern repeated in the stone paving. Pools, pebbles and plant clusters complete the effect. Below, the Francisco Pignatari Park, Morambi, Sao

Paulo. At the top is an enlargement of the three-dimensional mural shown on the right of the perspective below. The perspective indicates the three slight changes of level, the formal water garden, and the two-tone grass sown in chequerboard pattern.



of course, intended to be seen from the heights of the buildings which they surround; and that they show best thus the view of the roof garden on the famous Ministry of Education building in Rio makes clear.

The other important general point is that just as the plans read only as flat patterns, so, in fact, most of the photos show sites which are level enough to appear flat. There is little to be learned here of how to cope with those problems of landscaping which are the most difficult to visualize and which the flatness of the drawing board so easily obscures; the shaping of the ground, whether for its own sake or, the concern of architects particularly, for the re-adjusting of the natural lie of the land to the new levels created by building. The least satisfactory of the views on show are in fact the

three which show sloping sites; particularly the setting to Niemeyer's casino at Pamulha where the building appears to sit awkwardly on the crest of the steep drop down to the lake, and the paths and beds of plants appear arbitrarily imposed on the shape of the ground.

All this is partly a reminder that landscaping, though by no means unsympathetic to the ideas and achievements of other countries and not refusing to learn from them, is the least international of the arts; is the most closely bound down, by the very nature of its medium, by place, time and people: A platitude of history, perhaps; but as Burle Marx's strongly marked style, rousing enthusiasm, can so easily lend itself to superficial imitation, it is a platitude that needs remembering. It may thus seem that this exhibition has little to offer. But this is not

so. For the garden designer there is the invaluable, even though unfortunately so remote, contact with an original mind and fresh ideas which, properly assimilated, cannot help but enlarge his sensitivity and powers of imagination: and in detail there is much to be learnt of plant grouping, even though our English garden flora has, appropriately for our climate, more sober hues and simpler shapes; of the interplay of plant shapes and textures, of scale in planting (the wide sweeping masses of ground cover), of the richness of effect in ground completely carpeted (none of the bare earth patchiness which is the bane of English beds and borders) and so on. For the architect there is a revelation of what can be achieved by planting carried out by someone with the artist's eye; by planting unconfined in brick boxes, concrete flower tubs or whatever else is the fashionable cliché by which the architect tries to obtain some sort of order in a medium he cannot otherwise control; by landscaping, in fact, which is as non-architectural as it could be and therefore the better foil to the buildings which it sets off; by landscaping which is the product of sympathetic collaboration. The skill is that of Burle Marx, the artist-gardener. Nevertheless some of the credit for the result must go to Niemeyer, Reidy, Costa and the rest, the architects who have enlisted his collaboration and provided so many of his opportunities.

ANNOUNCEMENTS

Professional

E. D. Knight, F.R.I.C.S., and W. A. Benwell, A.R.I.C.S., practising as chartered and corporate quantity surveyors as E. Denis Knight, announce that the name of the firm has been changed to Knight & Benwell, and they will continue to practice from Queen's House, 12, Queen Square, Brighton, 1.

W. B. Hepburn, A.R.I.C.S., has retired from the firm of Stanley Griffith & Partners, Chartered Surveyors, of Greycoat Chambers, 29, Greycoat Street, Westminster, S.W.1. This practice will be carried on as before by Robert Cairns, F.I.A.S., and E. A. Ramagge, A.R.I.C.S., in partnership. W. B. Hepburn has opened his own practice at Ridgeway, Burnt Lodge Lane, Wallcrough, Wadhurst, Sussex.

DIARY

Burle Marx: Brazilian landscape architect. Exhibition at the ICA, 17, Dover Street, W.1. Monday to Friday 10 a.m.—6 p.m. Saturday 10 a.m.—1 p.m. UNTIL MAY 26

Drawing-office Conditions in London. Symposium sponsored by the ABT at the Building Centre, Store Street, W.C.1. Speakers from private practice and from public authorities. 7 p.m. MAY 4

Bridges Are Beautiful. Exhibition of American steel bridges. At the Building Centre, Store Street, W.C.1. Daily, 9.30 a.m.—5 p.m. Saturdays, 9.30 a.m.—1 p.m. (Not open May 19 and 21). MAY 10—26

Week-end visit to Rotterdam and Arnhem. AA excursion. Applications to Secretary, AA, 34, Bedford Square, W.C.1.

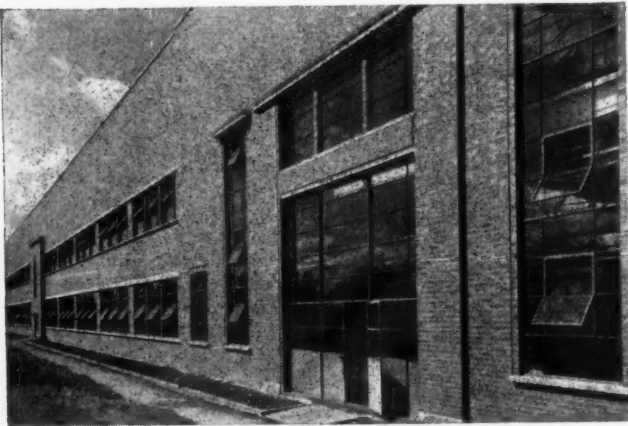
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FILE THIS WEEK



From this page onwards items are arranged so they may be easily extracted and filed once the JOURNAL has been unpinned. Information Centre backs on to an advertisement so that the notes may be cut out without damage being done to the technical article of the week, which is number 8 in a series on the design and practice of joinery. The building of the week, on page 449, is so placed that it can be removed as a self-contained 16-page booklet.

technical section

INFORMATION CENTRE

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

14.81 materials: concrete PRECAST CONCRETE

Precast Concrete in Framed Structures. Eric S. Benson. (RIBA Journal. Feb. 1956.)

An article discussing in what circumstances precasting of concrete is likely to prove economic. Though there is seldom any advantage in precasting vertical members, the precasting of horizontal members results in the majority of cases in a cheaper frame than concrete encased steelwork. Precast concrete is not a cheap facing material and cannot compete with 11-in. brickwork. Timber moulds, even when carefully cleaned, cannot be used more than 25 to 30 times and cost between £2 and £4 per casting. Metal moulds cost nearly twice as much as timber moulds but can be used up to 200 times. Where precast concrete is used as a facing material it is not possible to get a sufficiently good finish with site casting.

23.217 heating and ventilation UNDER FLOOR HEATING

Heated Floors and Comfort by F. A. Chrenko, A.M.I.H.V.E. (IHVE Journal. Jan. 1956.)

Describes a series of experiments carried out by the author for the Medical Research Council recording the reactions of three women and five men to different floor temperatures. Each test lasted one hour. An incidence of discomfort of 10 per cent. was recorded at the following temperatures:

- subjects sitting: women 79 deg. F.
- subjects sitting: men 84 deg. F.
- subjects walking: men and women 80 deg. F.

The author recalls Bruce's evidence to the effect that in a floor heated hospital where people were on their feet continuously for a long time, a surface temperature of 78 deg. F. was found very trying and concludes that floor surface temperatures "should be limited to 77 deg. F. or, better still, to 75 deg. F. if the occupants of the room are likely to be walking about for long periods."

23.218 heating and ventilation IMMERSION HEATERS

Immersion Heaters. (Electrical Review. 25.10.55.)

Tabulated data on types, names, dimensions, loading and other details with prices. Useful reference.

25.121 water supply and sanitation DOMESTIC SEWAGE TREATMENT

Small Domestic Sewage Treatment Works. BSCP.302.100 (1956). (BSI. 5s.)

This code deals with sewage plants for up to 300 people, and thus covers those which come, more or less, within the architect's capacity to design. There are seven sections. I gives definitions and lists information required for design. II lists all the British Standards and Codes of Practice involved. III is headed "Design Considerations" and contains the first surprise—that the septic tank capacity should allow for 30 gallons per person per day *plus* 400! It goes on to describe various kinds of tank, inlet, outlet, scum boards and so forth, giving recommended dimensions. The filter is similarly described and the section concludes with a discussion of what to do with the effluent. Sections IV, V and VI are headed "Work off Site," "Work on Site" and "Inspection," and say, in effect, that everything should be of the best. The last section, "Maintenance," discusses de-sludging of the septic tank (every six months) and "de-clogging" of the filter, lubrication of the distributor and so forth. Next come dimensions and annotated drawings of tanks and filters (eight pages of them), for various numbers of people.

This Code is sufficiently unambiguous to offer fairly comprehensive guidance to the architect who already has experience of these problems, and will enable the inexperienced to perceive the principles underlying

the "recommended septic tank and filter" drawing that most local authority sanitary inspectors hand out to byelaw applicants.

There are one or two blank spots: septic tank inlet velocity is recommended to be 3 ft. per second at peak flow—but no formula is given by which the recommendation may be ensured. It is suggested that filter effluent should be passed through a humus tank only if there are 100 people or more (and you clean it out once a week!), but what you do for less than 100 people is not given. Some sanitary inspectors require humus tanks for single house plants. The problem of what to do when you have no downhill towards the most convenient site for the plant is not mentioned at all.

Lastly, as with so many Codes of Practice, the economy-conscious architect will wonder uneasily what safety factor is concealed in these recommendations.

INFORMATION CENTRE

INDEX FOR 1955

An alphabetical index covering Information Centre items and special articles published in the Technical Section during the twelve months ended December 31, 1955, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor, THE ARCHITECTS' JOURNAL, not later than May 14, 1956. This form will not be acknowledged.

Please send me the Information Centre Index for 1955:

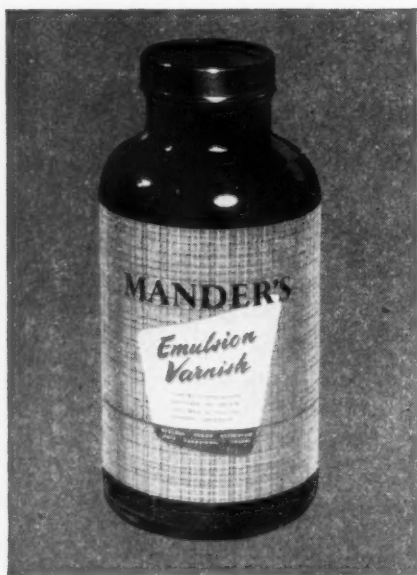
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technical section

13 MATERIALS: TIMBER

DESIGN AND PRACTICE OF JOINERY
by John Eastwick-Field and John Stillman

8 PLYWOODS, BOARDS AND VENEERS

In the last article which appeared in this series (AJ, December 15, 1955)* John Eastwick-Field and John Stillman discussed the various transparent finishes which can be applied to woodwork. In this and in their next articles they give their attention to joinery practice as it relates to plywood, to all the various kinds of composite board, and to veneering; and, since it is customary in the trade for joiners to handle metal and plastic sheets when these are stuck to a wood ply or board, and plastic sheets when they are thick enough to be used instead of wood ply or board, these have likewise been included.

* Previous articles in this series appeared September 30, 1954, November 28, 1954, January 13, 1955, March 24, 1955, July 21, 1955, August 25, 1955 and September 1, 1955

Everybody knows what plywood looks like, and most people recognize blockboard and hardboard, but it is difficult to acquire a knowledge of the multitude of types, grades and sizes even of these boards let alone of all the other boards of various kinds available today. One stock list, for instance, shows six thicknesses, three grades and 12 different areas of sheet for each thickness of Finnish birch plywood. Yet, plywoods, blockboards, laminboards, hardboards, chipboards, composite boards, veneered boards and plastic and metal surfaced boards are nowadays used in profusion in all kinds of fittings. They are usually fixed by joiners and whilst the trade has readily absorbed such changes in technique as have been occasioned by the use of plywoods and blockboards, not all joiners are yet accustomed to some of the more unusual boards, especially those which are plastic- and metal-faced. Those who deal in joinery will have to be increasingly versatile to manage all the varieties of board nowadays commonly used.

One must ask oneself how much an architect needs to know about their characteristics, and their qualities and prices and where they can be used to advantage. Since there are so many boards and so many factors to be taken into account he cannot know about them all and we do not propose to attempt more than to sort out some of the information which he would find useful in his day-to-day practice. For the rest, reliance must be placed on the advice of suppliers and manufacturers and on the data contained in B.S.S. and other literature. He will, however, want to know in general

terms what kinds of board are available and to what uses they are most often put.

One can at once make certain distinctions: many of the boards may be used in relatively thin sheets as coverings to framing, or in thicker sheets either of the same material or in combination with other materials (e.g., plastic sheets glued to thick plywood) as structural materials, which are rigid in themselves and in which it is possible to make suitable joints to form carcasses: further, plywoods, blockboards and hardboards may be used in the state in which they are produced to receive some such finish as varnish or paint, or they may be used specifically as cores for veneers of one kind or another.

Apart from other considerations it is often a debatable matter as to whether it is more economical to construct a frame and to cover it with ply sheeting or whether to use a thicker ply or blockboard without the framing. To some extent this will depend on the preference of the joinery manufacturer chosen for the work: but it will also depend very largely on the amount of work being done. Firms who make mass-produced fittings find it cheaper to make the framework because they can set up their machines for long runs, and reduce the cost of labour to an extent which enables them to take full advantage of the less expensive material. Other firms, however, given the choice of making the framing for, say, a wardrobe door and covering it both sides with ply or of producing the same door in lipped blockboard of equivalent thickness, would prefer the latter, and would produce the door at no greater cost.

We refer again later to veneering but it is interesting to note that because plywoods and blockboards are so often veneered, and because veneers are best applied when there are suitable presses available which not every manufacturer possesses, there has grown up a distinct branch of the trade known as "panel makers." A joinery manufacturer making, for instance, veneered cupboards and drawers may well send a carefully documented list of all the component parts to such a firm who in turn will send back a series of panels, veneered, lipped and of the correct dimensions which will subsequently be jointed, moulded if required, assembled and polished by the manufacturer.

Plywoods

Plywood boards are built up from a number of veneers glued together, with the grain of each veneer at right angles to the next. They come from Scandinavia, Canada, Europe, Russia and Great Britain, but the sheet sizes follow a general pattern and the table below shows by way of example the standard sheet sizes provided by one British manufacturer.

Three-ply and multi-ply.

Lengths: 120 in., 108 in., 96 in., 84 in., 72 in., 60 in.

Widths: 60 in., 54 in., 48 in., 42 in., 36 in.

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Thicknesses normally available are:

Thickness in mm.	4	5	6	8	9	12	15	18	22	25
Thickness in ins.	$\frac{3}{16}$ in.	$\frac{5}{16}$ in.	$\frac{1}{4}$ in.	$\frac{5}{8}$ in.	$\frac{3}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.	$\frac{1}{2}$ in.
Number of plies	3	3	3	3 or 5	3 or 5	5	5 or 7	7	7 or 9	9





The White Hart & Ibstock Golden Brown

*White Hart Hotel
Newmarket*

*Architects: Cautley &
Barefoot A/A A.R.I.B.A.*

*Contractors: H. Holland
Ltd.*

The rebuilding of this 400-year old Newmarket Hotel, known to Nell Gwynne, is in keeping with the architectural tone of the buildings in this widely-known High Street. The use of three Ibstock facings with stone and hand-carved woodwork shows the attention given to providing a fine and durable appearance. The main elevation is in hand-made Ibstock Golden Brown bricks with plinth and arches to windows and doors in a contrasting purple. Ibstock Buff-Multi rustics are used at the rear and for part of the side elevation.

Owing to the heavy demand, supplies of facing bricks of most types are booked for a long time ahead and reservations for 1956/7 are now being made.

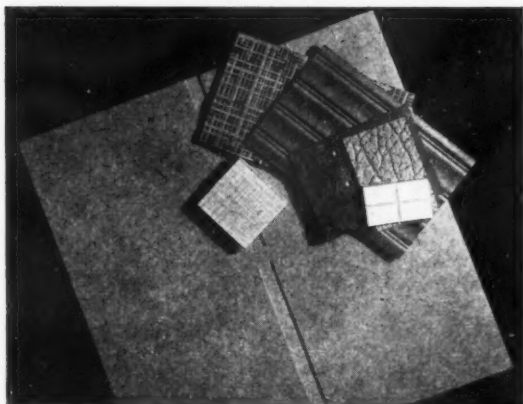
Ibstock

FACING BRICKS

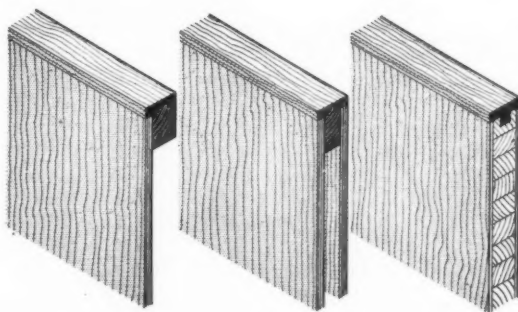
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technical section



Top: face view of some of the boards now available: squared hardboard (at bottom of pile), perforated hardboard, leather faced hardboard and enamelled hardboard (at the top of the pile), textured plywood, reeded hardboard and plastic veneered chipboard. Above: edge view of the boards discussed in these two articles, from left to right: plywood, blockboard, laminboard, hardboard, chipboard, plastic veneer, plastic panel. Below: Three methods of edging a door to obtain a similar external effect.



When ordering plywood in the United Kingdom, it is important to remember that the first dimension quoted is taken to denote the length of the board, that is, the measurement parallel with the grain of the face veneer. 72 in. by 36 in. is a LONG GRAIN board with the face grain in the 72-in. direction. The reverse size 36 in. by 72 in. is a CROSS GRAIN board. In boards which are either to be bent and veneered, the distinction is essential: for bending, the direction of the outer

veneers should be in the direction of the bend, and for veneering it should be at right angles to the grain of the veneer, as discussed later. It will be noticed that the number of plies for a given thickness varies. Generally, the greater the number the stronger the ply and the more expensive.

The quality of plywood is governed by the quality of the face veneers used and by the type of glue. Grading varies as between one country and another, and, since it is not a simple matter to grasp, probably the most practical course is to specify a grade with which one is familiar and add "or equivalent." Reference could be made to the gradings in British Standard No. 1455, which are in brief:

Grade 1: Both faces free from dead knots, overlaps, patches, and all open defects. Edge joints in veneers shall be well made. Isolated pin-worm holes permitted provided they do not run along the plane of the veneer. Both faces suitably smooth for painting.

Grade 2: Face as Grade 1. Back may contain knot-holes up to $\frac{1}{4}$ in. diameter or open defects up to $\frac{1}{24}$ in. wide, any defect exceeding these dimensions to be properly repaired. Occasional pin-worm permitted if not in the plane of the veneer.

Grade 3: Face as Grade 1. Back may contain knot-holes up to $\frac{1}{2}$ in. diameter or open defects up to $\frac{1}{8}$ in. wide. Dote and worm holes permitted.

From a practical point of view an architect will usually be concerned with the thickness and the quality of the face veneer, that is to say, whether it is to be painted or polished. He will also be concerned with the resistance of the board to different conditions of exposure, and for this at least there is a readily understandable grading. Loosely, plywood is nowadays thought of as "interior" or "exterior" grade and it is commonly supposed that plywoods glued with any resin glue are exterior quality and are all equally waterproof. This, however, is not so, as may be seen by the following extract from the BS, which even for the "exterior" grades makes a distinction between "weather resistant" and "weatherproof." It will also be seen that plywood of "interior" grade may well be made with urea resins. Imported plywoods more often than not are bonded with casein and blood albumen and animal glues. The three grades are:

Type A15 (Interior): This refers to one of the tests (A15) laid down by the BSI whereby plywood has to withstand immersion in cold water at 15° C. for twenty-four hours without effect on the adhesion of the plies. Such plywood is, of course, quite adequate for all "interior" uses, e.g., furniture, but should not be used for "exterior" work.

Type A70 (Weather Resistant): (Test—3 hours' immersion in warm water at 70° C.) Is supplied for exterior work which has to stand up indirectly to weather conditions, e.g., vehicle linings, shed interiors, etc. This type will not delaminate when exposed to high humidity and occasional wetting.

For jobs where the plywood will be permanently exposed directly to the weather, such as outer walls, it is essential to specify Type AX100, described below.

Type AX100 (Weatherproof): (Test—6 hours' immer-



Modern paints containing Titanium Oxide are renowned for outstanding durability. **In all weathers** they can be relied on not to flake or crack and they are not discoloured by the atmospheric pollution of industrial areas. Titanium Oxide gives paints of greater hiding power with fewer coats and, when eventually repainting is required, no burning off is necessary. It pays to remember that paints based on Titanium Oxide stay brighter longer.



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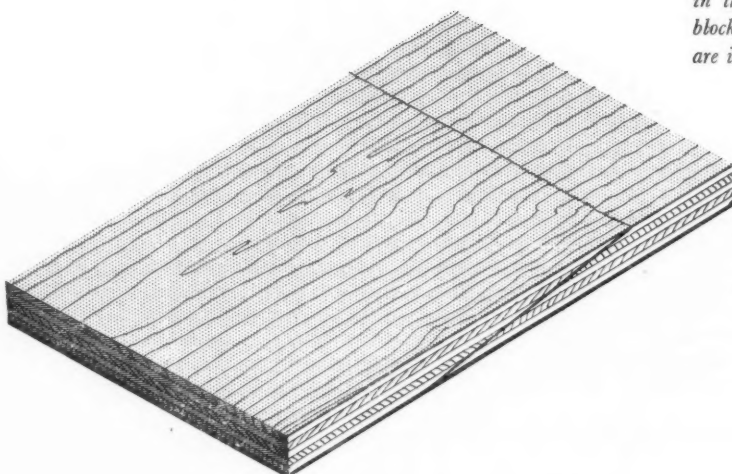
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technical section

sion in boiling water at 100° C.) In practice this type should be glued with phenol. Phenol is the only resin which has been proved—by over ten years' continual exposure to all weathers—to remain completely unaffected. Certain other resins (e.g., some fortified Ureas) will pass the AX100 laboratory test of six hours' boiling, but will not last anything like as long as phenol in actual external uses.

This grading is designed to ensure that the three layers of ply do not come apart under various conditions.

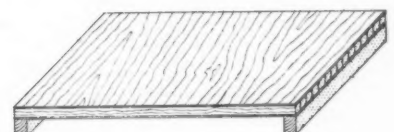


It has no bearing on the durability of the exposed face which will weather in the same way as the solid timber from which the veneer is cut. Unless, therefore, the face veneer is of teak or other very durable wood, it will require a protective finish. There are, however, specially manufactured plywoods in which each veneer is impregnated with wood preservatives which makes them resistant to fungal and insect attack and produces a board which will withstand extreme conditions of exposure.

Very often plywood is used in situations where a decorative wood finish is required, and in order to obtain it a special veneer may have to be applied as a separate process. This, of course, adds to the expense, and it should be borne in mind that there are plywoods on the market which are ready faced on one side with decorative woods. The choice is limited, but amongst them are hardwoods such as Japanese oak, Australian silky oak, sapele and maple. Plywoods are otherwise commonly made of the following:

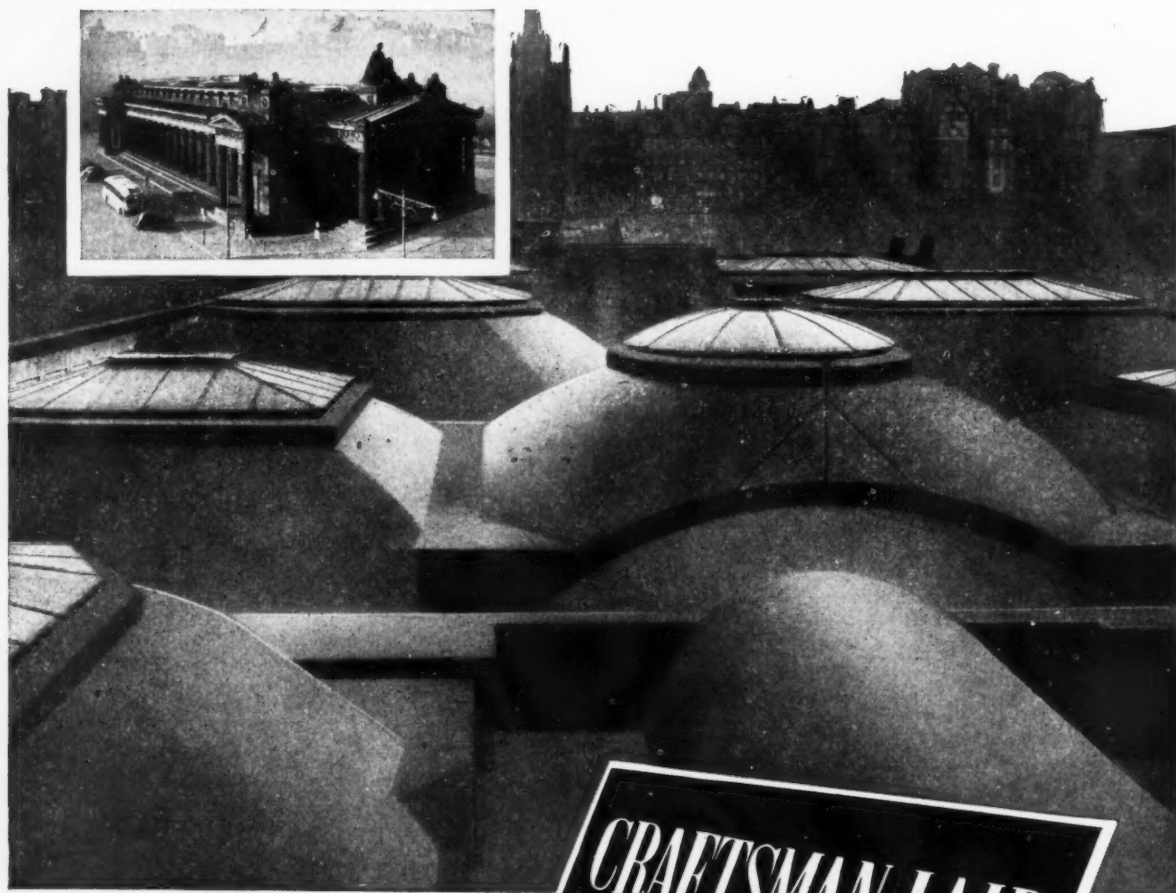
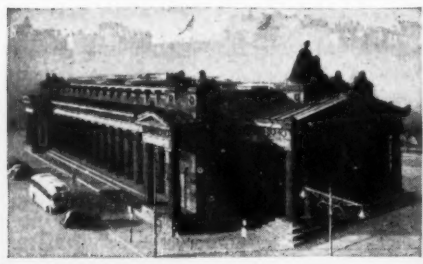
ALDER Ply made from Alder is mainly imported from Poland and Russia. Light reddish brown with darker brown flecks. Grain varies from straight to very wild. Texture even. Takes stain and paint very well.

Above left and left: a comparison to emphasize that plywood which is usually thought of as thin three-ply, can be readily obtained and is widely used up to 1 in. thick and occasionally even up to 2 in. The number of plies in the thicker sizes varies and the greater the number the stronger the board. In the thin ply the centre ply is sometimes twice as thick as the outer plies. Below left: the joint used in manufacture to produce exceptionally large plywood boards. When glued up under pressure the joint is hardly distinguishable and has great strength. Below: these diagrams show plywood and blockboard used to take a load between bearers: the point to notice is that the direction of the grain of the outer veneers in the plywood should be in the direction of the span, whereas in single veneered blockboard it should be the opposite, so that the core blocks are in the direction of the span.



On this famous public building

THE ROYAL SCOTTISH ACADEMY



Photograph by courtesy of H.M. Ministry of Works and The Royal Scottish Academy.

The roof of this famous building in Edinburgh was laid by the Neuchatel Asphalte Co. Ltd., with Natural Rock Asphalte Mastic to B.S.S. 1162.

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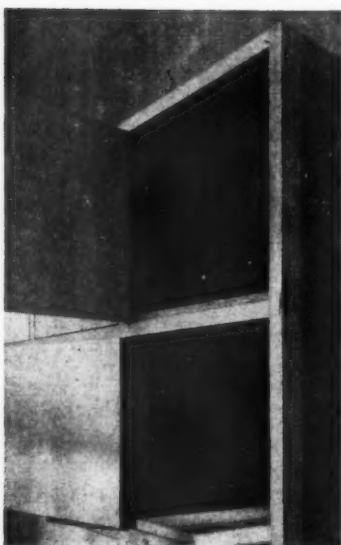
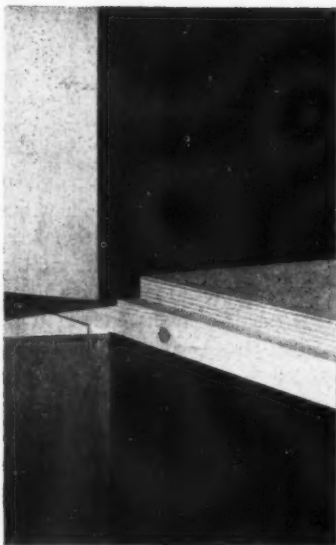
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technical section



Top and above: two examples of the use of thick plywood with the edges left candidly exposed. Note the routed out handles and the fixing of the hinges into the edge of the ply. The pictures above show also how thin ply is used to form the covering to the framework of the fitment.

BEECH

Beech plywood is imported from Central Europe.

Logs steamed for peeling give a brown wood known as Red Beech.

Unsteamed veneers are known as White Beech—a light brown colour, straight grain, showing "silver grain" flecks.

Takes stain and polish well.

More liable to moisture movement than most other woods used for plywood.

Should not be chosen, therefore, where stability is particularly required (e.g., large sheets in panelling with butt joints).

BIRCH

Very commonly used.

Manufactured in Finland, Poland and Russia.

White to pale brown in colour.

Fine but irregular grain.

An excellent base for veneered work.

Takes paint, varnish and polish well.

DOUGLAS
FIR

Well-known durable Canadian softwood which makes a strong plywood.

Colour yellow to red brown.

Rotary cutting shows strong grain with pronounced difference between summer and winter wood.

Grain apt to show through paintwork and even through veneers.

GABOON

Colour—pale red. The best plywood timber.

Straight grain, even texture, smooth finish. Excellent for veneering, painting, polishing and all general purposes.

GUAREA

Varies from creamy-white to brown.

Fine grain, hard smooth surface, good for all finishes.

LIMBA

(British

Standard

name:

AFARA)

Colour similar to light oak, useful for matching solid oak. Occasional black heart. Smooth surface good for stain, wax or polish.

Interlocked grain of pleasing appearance, variable density.

MAKORE

Usually warm red colour. A very fine grain hardwood, giving exceptionally good sanded finish.

OBECHÉ

Pale yellow. Firm texture but grain softer and more open than other species.

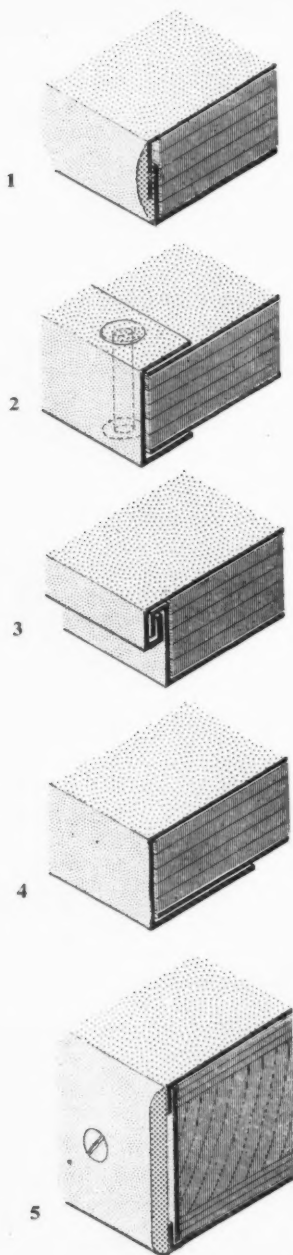
SAPELE

and other Mahoganies. Red-brown of various densities, texture less uniform but harder than Gaboon.

By the nature of its manufacture, plywood is uniformly strong and dimensionally much more stable than natural wood; also, when unrestrained, it is less inclined to warp than solid timber, though it is not wholly free from this trouble, especially if the outside veneers are not of equal strength and their grain is not in the same direction. This matter is referred to again later. It can be used in sheet form in sizes much greater than would be possible with solid timber, and it can be moulded during, or bent after, manufacture.

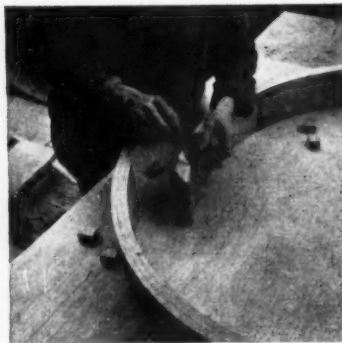
As has already been suggested, in its smaller thicknesses it forms a most useful material as a covering

technical section



Left: some typical edge treatments to double sided metal faced plywood, as recommended by one of the principal manufacturers:

1. Common method where the metal covering is galvanised steel. The edges are turned over and soldered, and the whole joint covered with solder to improve its appearance and to seal it against moisture.
2. A method used exclusively for heavy industrial doors covered with steel sheet. The edge is protected by a sheet metal channel riveted through the panel.
3. Very extensively used in steel or aluminium faced ply, particularly partitions for cubicles. The fold is made mechanically.
4. A cheap and satisfactory joint for steel or aluminium faced ply where only one face is seen, e.g. for duct covers.
5. The principal method for finishing doors faced in steel, aluminium or zinc. The edging consists of $\frac{1}{8}$ in. flat zinc strip fixed with wood screws. For double swing doors a rounded aluminium extrusion can be used instead of the zinc strip.



for framing, whilst in its greater thicknesses it is often used structurally, as in work tops, stair risers, cupboard doors, and occasionally to form the carcass of cabinets without any additional framing. Its use in this way can, of course, only be justified when its strength and stability or the large sizes in which it is produced are made full use of, since it is, on the whole, more expensive than solid timber of equivalent thickness and type.

In furniture design advantage has been taken of the possibility of bending and even moulding it. Its properties are properly exploited to provide both form and structure, as can be seen, for example, in many chairs with moulded plywood seats, backs and arms.

Plywood can be faced on one or both sides with a veneer of steel or aluminium, and is sold in this form as a stock item (or if specially required in copper, bronze, stainless steel, zinc and other metals). Having greater strength and resistance to mechanical damage, metal-faced plywood is useful for partitions and doors, removable panels, counter fronts, column casings and so forth. There are also special plywoods with a sheet lead core which are used to give protection against X-rays. Plywoods with embossed or etched surfaces are available to give particular "decorative" effects.

Technique of Plywood.

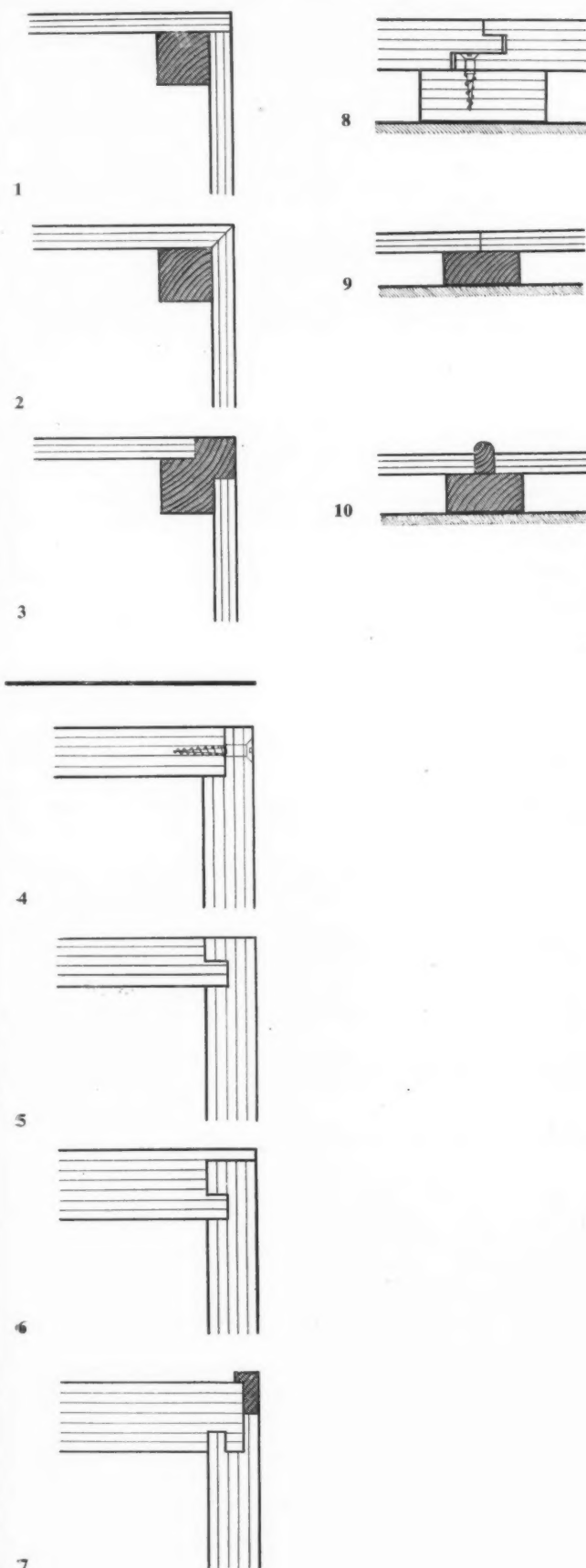
Plywood is produced, as is evident from what we have already said about it, as a sheet material and it is mainly as such that it is used in joinery, though, of course, the sheet may be bent. Obvious examples are panelling, carcassing, column casings (which may be circular) and bent chairbacks and seats. By contrast with solid timber it is rarely used in narrow widths to form legs or rails or such other parts of joinery as are associated with morticing and tenoning.

We must again refer to the distinction between covering a framework with thin sheets and using the inherent strength of thicker sheets to form the structure. In the former, no joints will be made in the plywood itself, whereas in the latter the joints must be made in the thickness of the ply.

When used as a covering the plywood may be glued and pinned or screwed to the framework. The junction of the corners of the ply will need consideration since mitreing with very thin ply would be difficult, and the edges will show unless the whole is to be painted, and even then it is usually possible to discern the edge. This is not to suggest that the appearance of the edges is necessarily undesirable but to point out that they need thought. It is important, too, to have adequate framing at the back to prevent bellying, which may well cause the frames to show through, as can be witnessed in many flush doors. Honeycomb cores have become a part of the door manufacturers' repertoire for this reason.

Above left: plywood manufactured to a curve. The two half circles are to be joined to form the rail to a circular table. The joiner is making a scarf joint. Left: examples of moulded plywood used in the construction of chairs, to give form and structural strength.

technical section



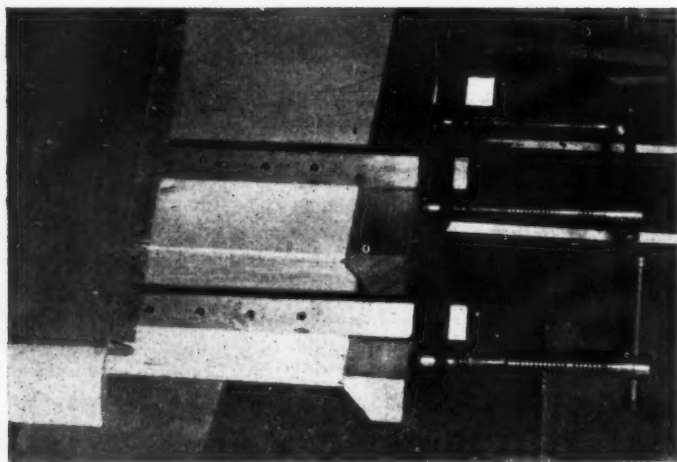
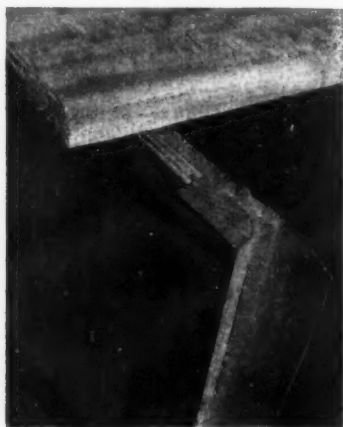
With panels of thicknesses over, say, $\frac{1}{8}$ in., it is possible to use the material structurally and to form joints at corners in the ply itself. This is often done in the manufacture of boxes and painted carcassing; typical joints are shown facing, 4-7. The same remarks apply as we have already made about the edges. It should be noted that it is quite possible to make dovetails and even to screw into the edges of thick ply, provided the screws are thick enough to bite into two or three plies.

It will be realized that we have so far been thinking of boards without any lipping, and indeed in panelling, which is one of the most important ways of using ply, the boards are rarely lipped since here the edges will not show. Because of its relative stability plywood can be used in large areas in panelling with a straight butt joint. The panelling is fixed to grounds, and to this extent the ply might be said to be used as a covering rather than structurally, but, since it will quite probably have to withstand impacts, and in order for the grounds not to show through, the sheets must be thick. The grounds should be of well-seasoned timber securely fixed to the wall. They should occur wherever a joint in the panelling occurs and also at intervals between, their distance apart depending on the thickness and rigidity of the sheets applied to them. To give some indication of the spacing required, it is suggested that $\frac{7}{8}$ in. and $\frac{1}{4}$ in. panels should have supports at intervals of 18 to 20 in. across the grain of the face veneer and 30 to 36 in. in the opposite direction. Boards of $\frac{3}{8}$ in. would be adequately supported if the

Figures 1 to 3 : thin plywood fixed to wrot framework (also suitable for hardboard or thin chipboard). 1. A simple and cheap solution whose disadvantage is that the edge grain of the ply is exposed. It would be suitable for backs of fittings. The ply would be pinned and glued. 2. This is again a simple joint but requires more care in manufacture. The edges of the plywood are concealed. 3. This requires more machining and cleaning off, but the actual corner will be less likely to get damaged, especially if the frame is in hardwood. Figures 4 to 7 : joints formed within the thickness of stout plywood. (Joints 4 and 5 would also be suitable for blockboard and chipboard). 4. A rough and cheap joint, which could be screwed, without glueing for removable panels; the rebate helps to locate one board in relation to the other. 5. A common rebated joint relying mainly on glue. The edge grain of one board is however exposed. 6. A modification of 5 designed to conceal the edge grain. 7. The same joint now between the side and front of a drawer and finished with a decorative hardwood cover slip. This is illustrated to show that where the additional expense is warranted quite intricate joints can be and are made.

Left: A few joints for panelling: 8. A secret fixing to grounds, with a butt joint. Since plywood, chip-boards and blockboards are relatively stabler by comparison with solid timber this joint is possible. 9. A simpler method of achieving the same appearance as 1 especially with thinner boards. Fixing would be by pins punched home and stopped. 10. A joint which makes a feature of the joint.

technical section



grounds were up to 30 in. apart across the grain.

Plywood is often veneered and used in polished furniture and fitments where the appearance of the edge would be objectionable, and in such circumstances it is "lipped" with an edging of solid timber, of the same kind as the veneer, unless a wood of contrasting tone or colour is specially required. The veneer may be taken over the lipping or stopped short of it, a matter to which we refer when discussing veneering. We also refer there to the necessity for putting a similar veneer on the back of the plywood in order to prevent the distortion which may otherwise take place.

The lipping now assumes two functions: it presents a suitable appearance and it provides a solid edging in which to make joints. It may even be extended in size to allow for moulding or shaping—which in turn may be left in the solid or subsequently veneered. The photograph above shows a fitment in course of construction, and the enlarged lipping can be seen at two stages, the first immediately after fixing a square section lipping and the second after it has been curved to receive a veneer. When it has been veneered it will leave the panel-maker, unless the works are themselves equipped as panel-makers, and go to the joiner for jointing, assembling and polishing. The diagrams on page 447 show the methods of jointing used: the choice

Above left: a detail from part of a fitment showing the lipped plywood with the veneer which is to cover the curved lipping applied to the board and left ready for glueing to the lipping. This part of the operation is done in the vacuum press described below. The result after glueing and sanding can also be seen in the photograph. Left: parts of a veneered fitment in which the lippings are designed to show in contrast to the veneer and to be rounded. The photograph shows them being cramped on in square section and below after veneering and rounding of the lipping. Above: a vacuum press extended to allow insertion of the mould and the veneers to be bent. The mould is placed in position, the veneers with glue applied laid over them, a rubber sheet is lowered over the mould and the veneers, and air is extracted through the "floor" of the machine. Heat is applied from above, and after the appropriate period the "moulded" panel is extracted.

will depend upon the design of the fitment, and on the practice of the individual manufacturer, unless any one kind of joint is specifically ordered by the architect. One of the fascinating characteristics of plywood is that it can be bent. Very often the results of doing so are, in the opinion of the authors, aesthetically very unpleasant, but it can nevertheless be made good use of and is perhaps most satisfactory when the structural property of the material is exhibited at the same time, as in a bent ply chair.

There are several ways of producing a bend: the sections may be moulded during manufacture at the time of pressing by employing a special vacuum press. (See above.) These presses are usually able to produce bends in sheets 10 ft. long and 4 ft. measured over the curve. It is possible to produce a curve with as small a radius (internal) as $\frac{1}{4}$ in. with $\frac{1}{4}$ in. ply.

Flat panels may be steamed and then bent to shape. This should be done across the grain of the outer veneers and thicker plys (6-mm. and up) may need saw kerfs (i.e., a series of saw cuts cut in the concave side of a panel which is to be bent) in the back to relieve the resistance. By comparison with the first method a radius of about 1 ft. 6 in. with $\frac{1}{4}$ -in. ply can be provided by this means. Finally the curve may be built up by bending thin ply round and fixing to a solid wood framing.

FILE THIS WEEK



Another building type not previously described and cost-analysed is illustrated this week: a market building. It should therefore be filed for future reference. This week the process of filing is particularly easy. The article is contained in a sixteen-page unit, so that once the JOURNAL has been unpinned the complete article can be easily extracted.

building illustrated

Cattle market at Gloucester

CATTLE MARKET

at ST. OSWALDS ROAD, GLOUCESTER

for the GLOUCESTER COUNTY BOROUGH COUNCIL

designed by J. V. WALL, city architect; T. W. GREGORY, deputy city architect

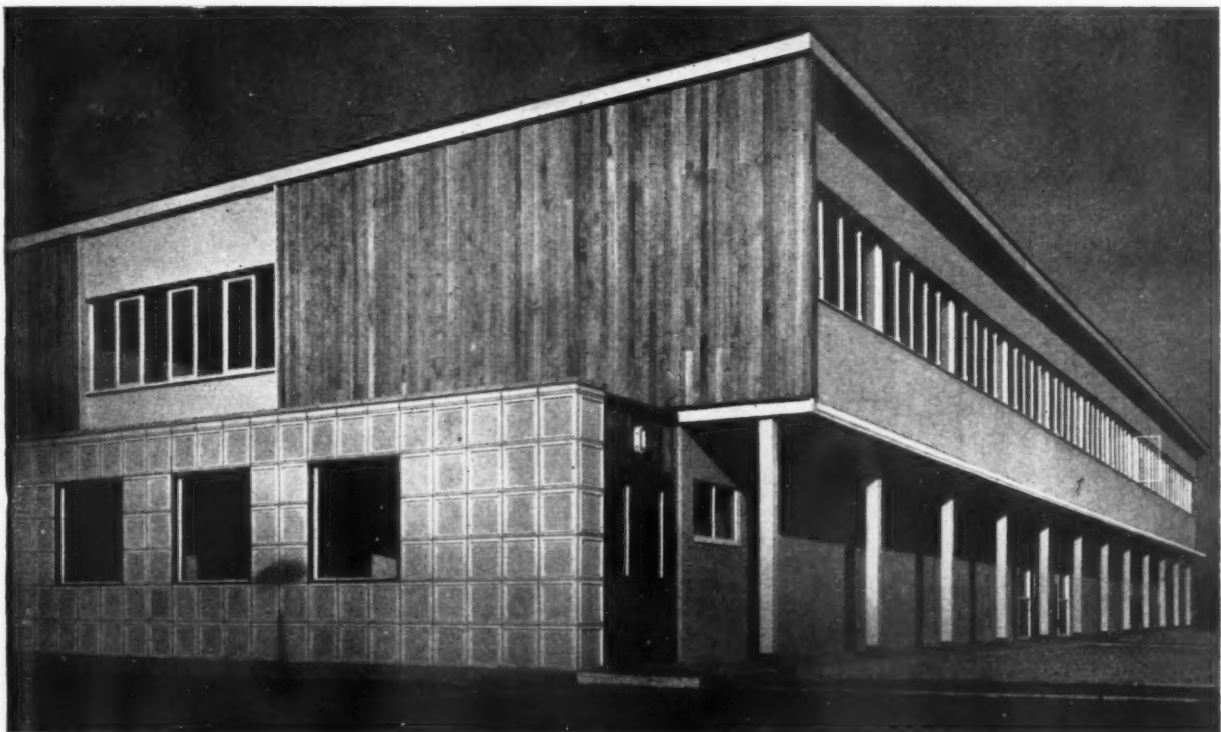
architect in charge, A. J. AULT, in succession to J. H. PROSSER

assistant architect, R. D. FITZSIMMONS

quantity surveyors, VALE and KINGSFORD

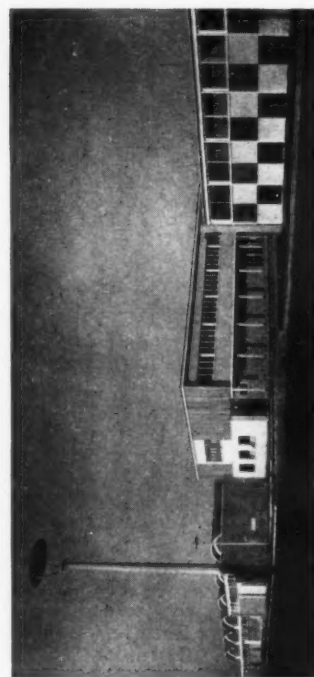
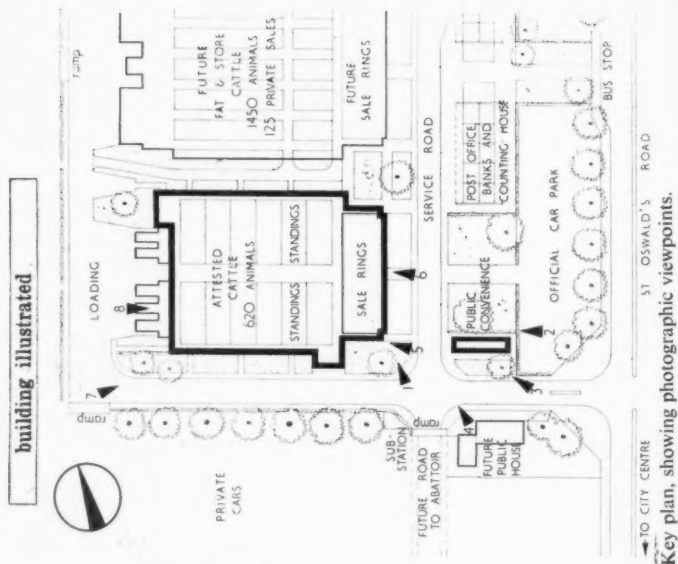
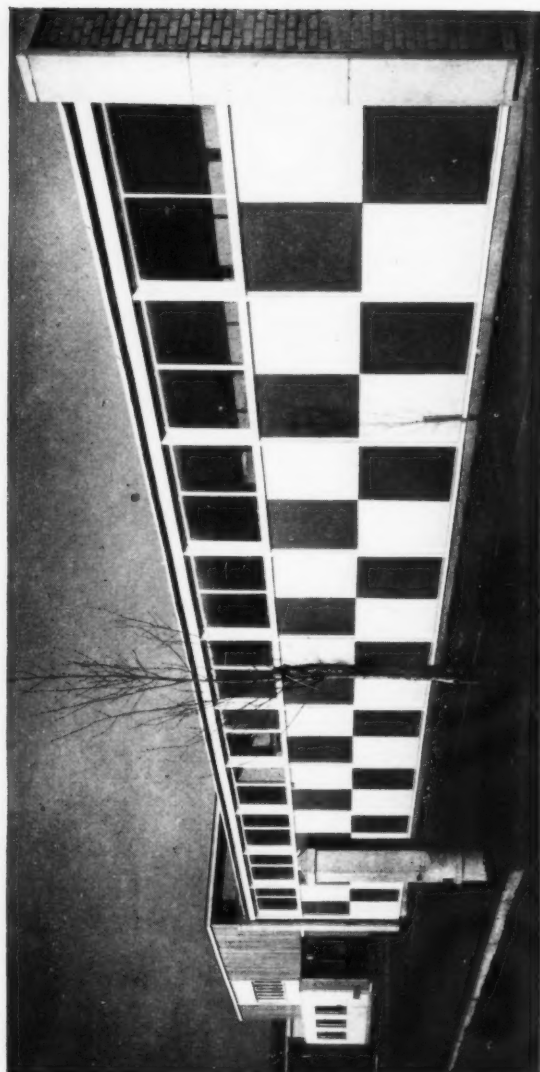
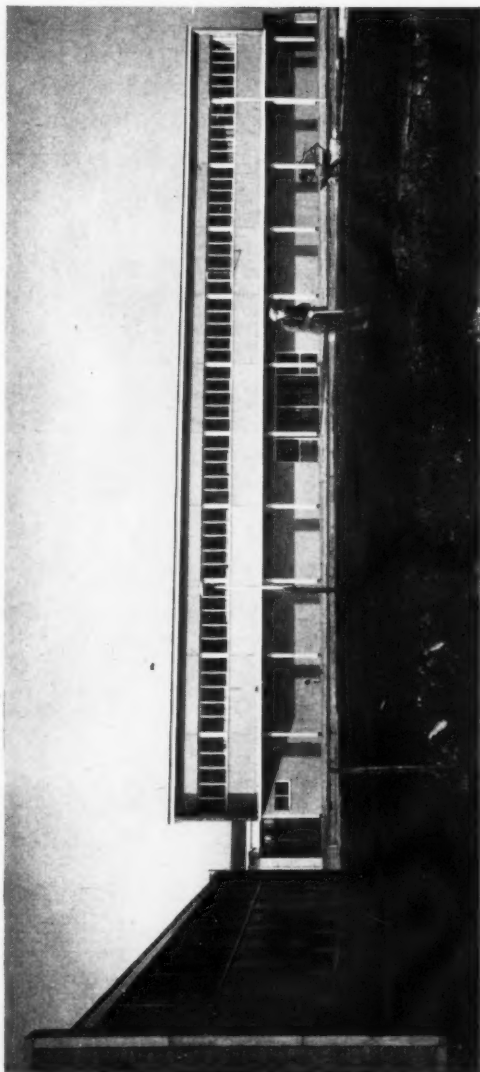
The first phase of a livestock and fruit market, designed by the City Architect's Department of Gloucester, consists of covered accommodation for 650 attested dairy and store cattle together with two sale halls. The site, reclaimed from flooding by tipping, was allocated in the City Development Plan and is located approximately one mile from the city centre adjacent to the Gloucester by-pass. The market has been in operation since August 1955.

Viewpoint 1: the market from the south.

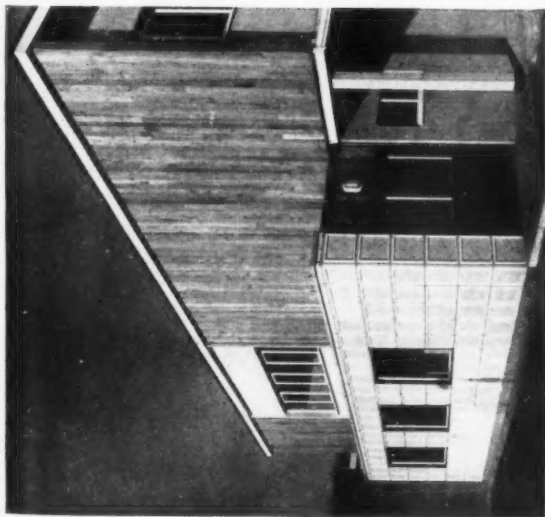


block are built in softwood framing supporting 9-in. deep lattice beams at 6 ft. o in. centres. Metal windows are inserted at high level and panels of exterior quality plywood backed with wood-wool are face-fixed below. Brick-faced 11-in. cavity walls form the gable ends in which the respective entrances are located. Colour: windows, sills, and fascia, white. Chequer pattern, grey and yellow.

Below (viewpoint 2): east elevation of the sale ring block as seen from the main road. A grassed area is being laid in front of this block together with a car parking strip, thus ensuring that an unrestricted view of this elevation is maintained when the whole development is completed. Bottom (viewpoint 3): single-storey public male and female lavatory block. The shorter two sides of this rectangular

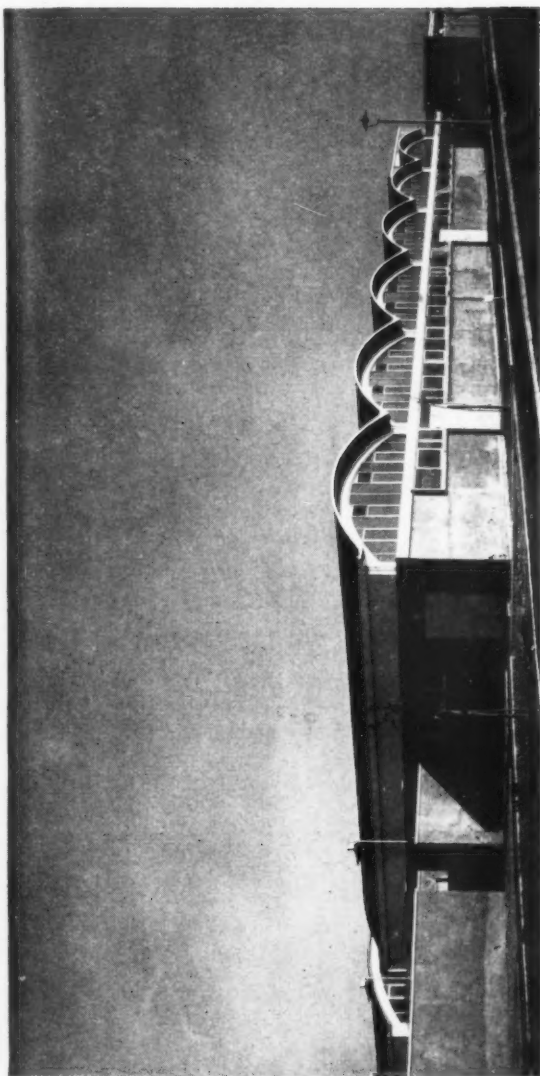
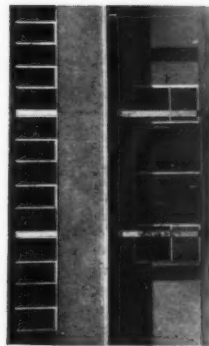


Above, from viewpoint 4, a general view taken from the site entrance road leading from the by-pass, with the new public lavatory block on the right, sale rings in the centre and vaulted cattle standings with dairy and fodder store adjacent to the left.



Above (viewpoint 5): entrance to south vestibule from which access to sale rings above may be gained. Finishes: Purpose-made precast concrete facing blocks. Untreated vertical cedar boarding. Tyrolese rendering above and below glazing to upper storey.

Fairfaced concrete at ground floor level. Colour: mahogany doors and window frames to three fixed light windows to vestibule, natural oiled. Columns, fascias, metal windows, metal sills painted white. Tyrolese rendering above and below window strip set within cedar board cladding painted yellow. Soffit of roof overhang on right painted red. Soffit of first storey overhang on right painted yellow. Remaining wall surfaces natural grey cement colouring. Above (viewpoint 6): entrance doors, leading to main central vestibule to sale rings above and cattle standings beyond. The line of windows to the upper storey define the continuous gallery at the rear of the two sale rings. Rendered wood-wool slabs occur above the windows and rendered hollow clay blocks below. Expansion joints in the rendering are formed to coincide with the centre lines of columns.



Although the architects have anticipated and planned for settlement, due to the extremely poor nature of the ground, cracks have appeared across the rendered infilling seen in this photograph. The contractors have made good within the maintenance period. The wall beneath the first-storey overhang is fairfaced in situ concrete. Colour: Walls grey, there being no applied colour. Metal windows, entrance doors surround, columns and fascia painted white. Concrete soffit to first-storey overhang painted yellow. Above right (viewpoint 7): from the south-west corner of the main access road showing the vaulted cattle standings fronted by a low perimeter corridor and to the left in situ concrete screen walls to the unloading bays. Colour: The soffits to the projected ends of the barrel vaults are painted blue. Remaining wall areas are grey with the exception of the east wall to the vaulted standings and the R.C. frame around the gable windows to the barrel vaults which are white. Eaves fascias, gutter upstands and windows are also white whilst the timber doors within the low corridor building are alternately blue, yellow and red. Right (viewpoint 8): looking along an off-loading bay towards the holding pens left and right and on through sliding door openings to the corridor leading to the main cattle standings. Concrete walls as from shuttering are untreated.

The in situ concrete floor is grooved as an anti-skid measure and, as elsewhere in cattle circulation areas, is laid to fall to mud intercepting gullies.

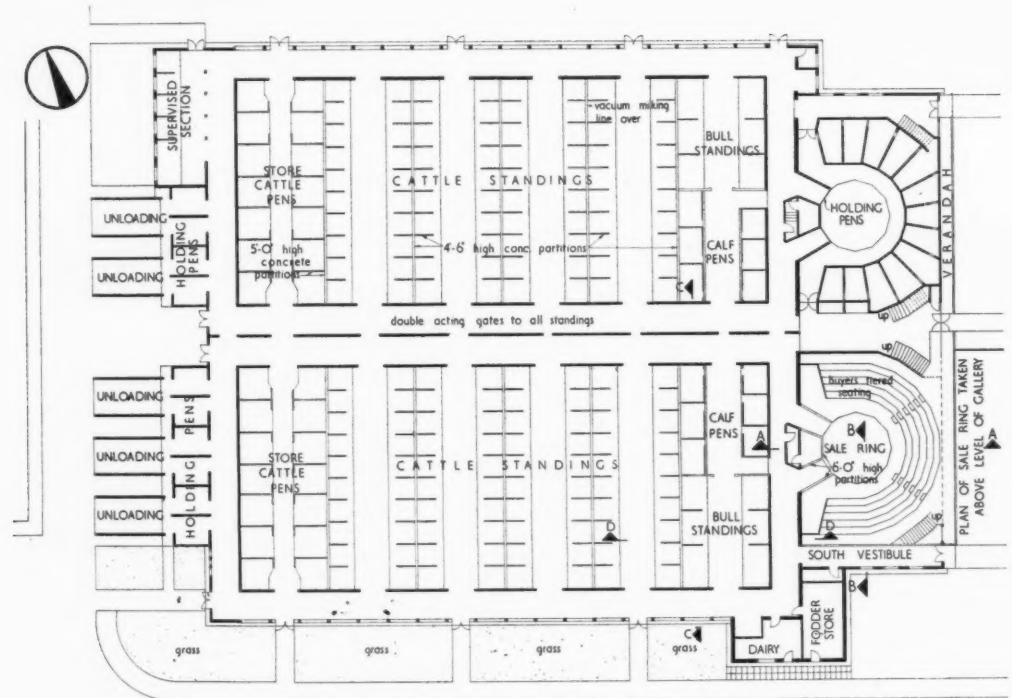


CATTLE MARKET

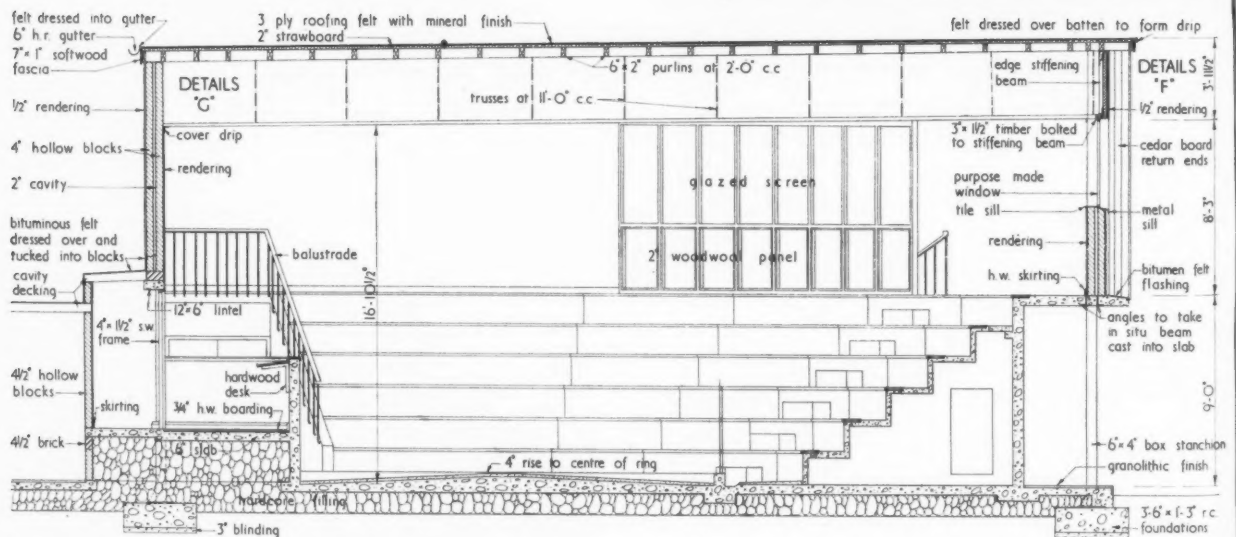
at GLOUCESTER

designed by J. V. WALL, city architect

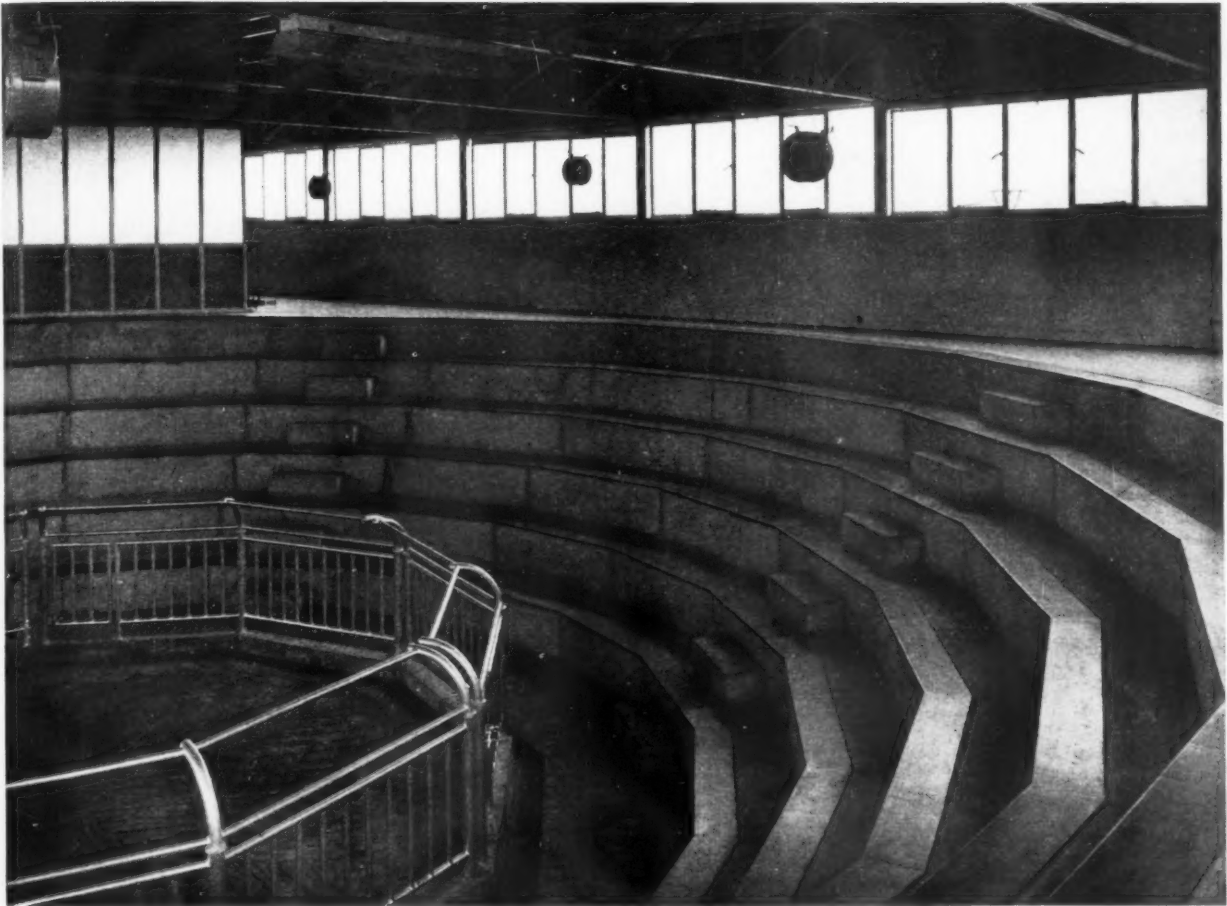
building illustrated

Ground floor plan and upper level of south sales ring [Scale: $\frac{1}{4}$ " = 1' 0"]

Right and opposite page: two views occurring within one of the sale rings. Precast concrete units capped with hardwood planks form the tiered bidding ring beneath which are located a number of small stores divided by reinforced concrete spine walls on which the tier units are supported. The structure enclosing the sale rings is a steel frame comprising welded channel box stanchions supporting lattice girder beams at 11-ft. centres on which span 6 in. by 2 in. softwood purlins carrying 2-in. strawboard slabs, 2-layer 3-ply roofing felt finished with white spar chippings. The external walls vary in composition but are generally finished internally with $\frac{5}{8}$ -in. plaster. Colour: generally grey and white paint with a blue ceiling, light blue purlins and balusters.

Section A-A [Scale: $\frac{1}{4}$ " = 1' 0"]

building illustrated

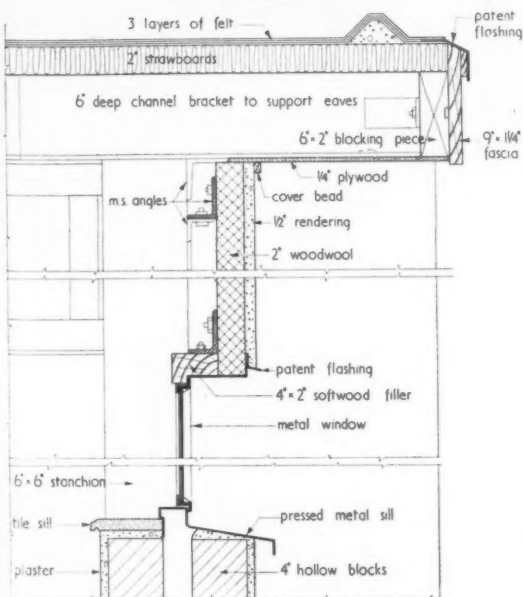


Above the windows in this area a lattice perimeter beam is concealed by 1½-in. woodwool slabs which are unrendered and provide a useful area of sound absorption together with similar units in the half-glazed screens and the straw-board ceiling slabs.

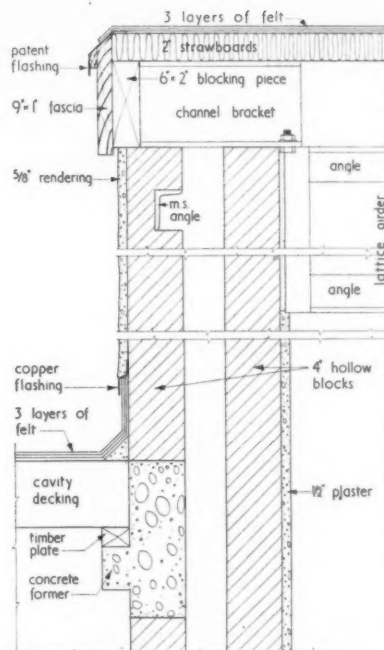
CATTLE MARKET

at GLOUCESTER

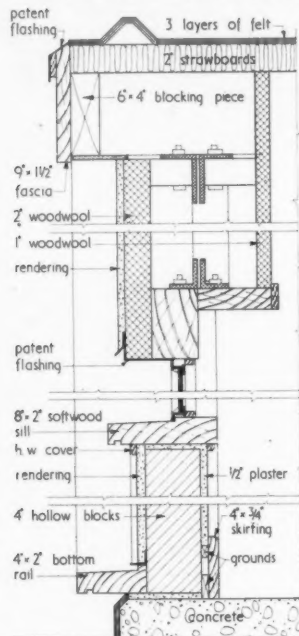
designed by J. V. WALL, city architect



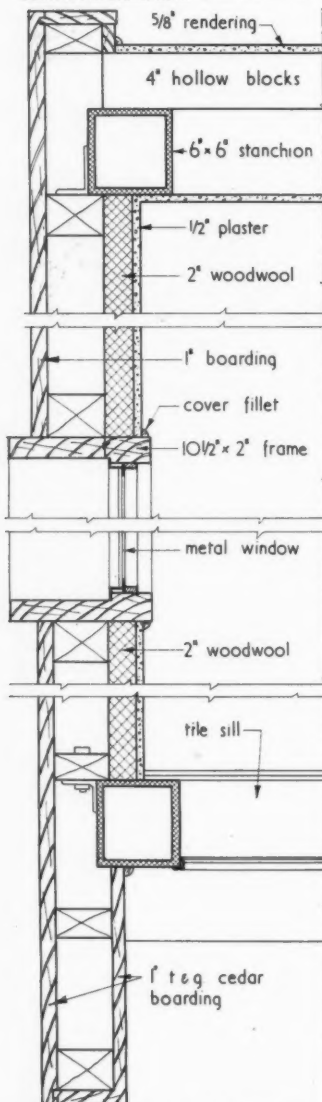
Details at F [Scale: 1" = 1' 0"]



Details at G [Scale: 1" = 1' 0"]

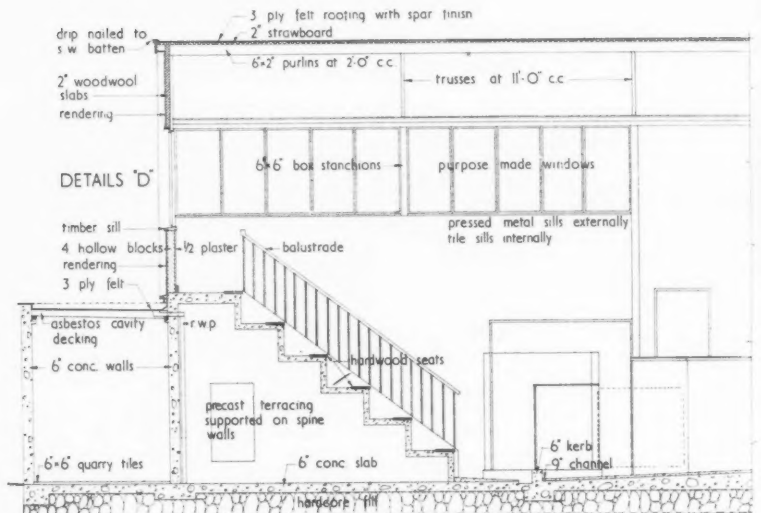


Above: Details at D (Scale: 1" = 1' 0")



Below: Plan of studding to side wall of south ring

building illustrated



Section B-B through 1/2 south sales ring A (Scale: 1/4" = 1' 0")

Below: looking towards the main entrance doors from the centre vestibule with single-flight staircases leading to the upper gallery connecting the two sale rings. The floor is finished with 6 in. by 6 in. buff quarry tiles, the staircases are reinforced concrete with wrought-iron balusters and polished hardwood handrails on flat mild-steel cores. Colour: all surfaces are grey with the exception of the metal windows and soffit to the gallery, which are white, and the strawboard ceiling slabs, woodwool panels within the screen at the top of the staircases and balusters, which are red.



Above: looking from the main entrance doors to the central vestibule through entrances with tall bollards towards the top-lit centre corridors serving identical cattle standings to left and right. Staircases to left and right in the foreground lead to the sale rings above. Show cases within each of the flanking walls display manufacturers' equipment and are leased by the Corporation. Colour: generally grey. Red ceiling panels, balusters and handrail cores; yellow area beneath windows above bollarded entrance and white framing to show-cases and windows.

building illustrated



Above: looking from the cattle standing corridor towards the central vestibule with staircase leading to sale rings above. The small gates fixed in front of the cast-iron bollards are to prevent the unsupervised wandering of calves. The smooth faced hollow clay block partition with brick quoins is painted grey as are all corridor walls within the cattle standing area. Above right: an internal top-lit corridor serving one of the two cattle standing areas. Floors and walls are fairfaced in situ concrete whilst the corridor

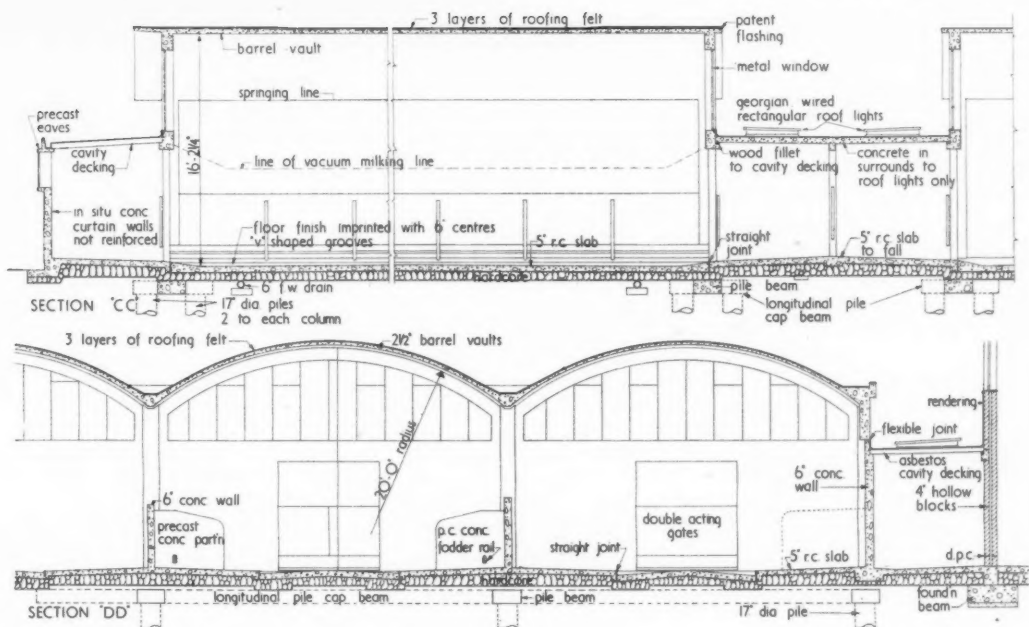


roof is asbestos trough decking finished with two layers of 3-ply bituminous felt with exposed soffit. Roof lights are fixed mono-pitch and glazed with georgian wired glass. Roof lights are set within a r.c. in situ slab spanning between adjacent walls of vaulted cattle standings. The tubular gates to the individual bays on the right are double acting, that is, they can be hinged at either side or fully closed and locked as photographed. A typical gate is illustrated as a Working Detail in this issue. Colour: walls only painted grey. Left: a typical bay within the cattle standing areas. Access is gained from corridors at each end of a bay through double acting gates. Permanent ventilation is maintained by incorporating fixed glass louvres within the aluminium glazing spider to each end of a vault. Surfaces are generally fairfaced in situ concrete as from the shuttering, with concrete floors grooved to prevent slipping. Fluorescent strip lighting is fixed directly to the underside of the vaults with loudspeakers to each bay relaying bidding, etc., from the sale ring concerned. Colour: generally grey or natural concrete with soffit of vaults and window frames painted white. Gates, bollards and other iron fittings finished with an aluminium paint. Internal faces of timber double doors in perimeter corridors dark red.

CATTLE MARKET

at GLOUCESTER

designed by J. V. WALL, city architect



Sections through cattle standings [Scale: 1/4" = 1' 0"]

analysis

CATTLE MARKET

at GLOUCESTER

designed by J. V. WALL
city architect

CLIENT'S BRIEF:

his stated requirements

A live stock and fruit market with ancillary buildings to be erected in three phases. The first section to accommodate under cover approximately 650 attested dairy and store cattle and to be served by two sale halls suited for operation concurrently by separate auctioneers. Planning of roads and parking areas, unloading bays, standings and sale rings must encourage rapid circulation in movement of cars, lorries and beasts, and avoid congestion as experienced at the existing market in the centre of the city, which will in due course be required for other purposes. Consultations were held with the Market Auctioneers, the National Farmers' Union, the Transport Commission, the Livestock Commission and officers of the Ministry of Agriculture and Fisheries regarding design aspects of the project, prior to the preparation of sketch plans. Some existing post war markets were visited, and difficulties therein analysed, and due regard was paid to operational and maintenance problems in the existing City Cattle Market. In assessing accommodation requirements the cattle throughput of the existing market and general trends were investigated.

SITE: topography, surroundings, access, planting

The 35 acre level site as allocated in the City Development Plan is situated on the west side of St. Oswald's Road, one mile from the city centre. The completed attested section covers

1.6 acres and has 2.3 acres parking area. The land was originally subject to regular flooding and has been reclaimed by controlled tipping (average depth 11 feet). The main South Wales railway line bounds the south side of the site, railway sidings to serve the market may be installed later. Not more than two vehicular entrances and one pedestrian entrance are to be allowed by the Ministry of Transport. Forest trees and common thorn hedging have been planted to relieve the monotonous expanse of tipped land, reduce the scale and provide a wind break.

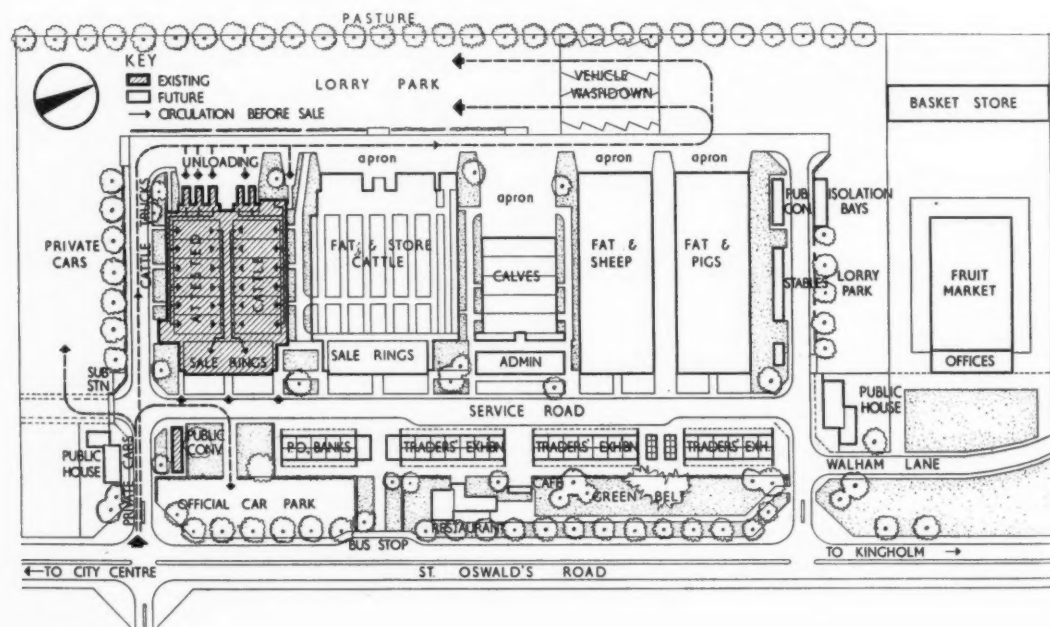
PLAN: general appreciation and relation of units

The layout provides for three major functions—(a) Display of livestock, (b) Administration and commercial activities, (c) Catering and social amenities for market patrons. A site has been reserved to the south of the market adjoining the railway for a future abattoir. The whole market has been planned to provide all loading and off loading for animals on the west side adjacent to the lorry parks and washdowns or future railway sidings. The commercial and administration buildings have been sited on the service road on the east side parallel to the main road. Car parks and licensed premises have been sited adjacent to the vehicular entrances from the ring road. The attested section (the first instalment is sited adjacent to the south vehicular entrance) to give some degree of isolation from the other sections. The attested section was planned to fulfil three functions: 1. Loading and off loading, 2. Cattle standing and penna, 3. Display and sale. All vehicular borne animals enter or leave the market through elevated loading bays provided with twin holding pens. To ensure rapid movement from the holding pens there is one way circulation to the cattle standings, thereafter to the side hall and return is by a similar separate route. The twin cattle standing areas provide covered accommodation

totalling 35,000 square feet for the following attested animals—320 dairy cattle, 108 calves, 168 store cattle, 24 bulls and 20 supervised animals. The plan is divided into two similar parts suited for operation by separate auctioneers, and for large sales by either auctioneer cattle may overflow into duplicate standing. Double-acting gates have been provided at both ends of each bay of standings, and these may also seal off the adjoining corridor. Bull and calf standings adjoin the sale halls and have separate direct access to the rings. Some standings are fitted with drinking bowls and a milking line for cattle which have to be accommodated overnight, and a dairy and fodder store are provided. The standings for supervised cattle are isolated at the north west corner of the building. The covered sale halls each accommodate 500 persons on tiered seating, planned to give an uninterrupted view of the ring and the auctioneers rostrum. Regard has been paid to acoustics for bidding, ventilation, and natural daylighting for the display of animals.

MAIN CONSTRUCTION: general appreciation

The twin standings are roofed by reinforced concrete barrel vaults supported on columns and give in each case a clear floor area of 158 ft. by 63 ft. The shells provide a smooth hygienic surface, good light reflection, and permit natural cross ventilation. The columns rest on a pile and beam foundation with 56 r.c. pneumatic caisson piles transmitting a total load of approximately 1,360 tons on to a blue boulder clay of depths varying from 32 ft. to 52 ft. below floor level. The sale hall block is steel framed with stanchions supported on r.c. strip footings and with the concrete tiered seating independently supported on r.c. walls with r.c. raft foundations. The whole structure is lightly clad. The unloading bays and external corridors have mass concrete walls generally with reinforced slab foundations.



Site plan

analysis

CATTLE STANDINGS

STRUCTURAL ELEMENTS

Work below ground floor level, foundation type, basement	Location	Materials	Finish	Reasons and comments		
Reinforced concrete pneumatic caisson piles	Under columns r.c. barrel vaults	Sulphate resisting r.c. 1 : 2 : 4 mix		Made up ground requires piling for heavy structures	work below ground floor level	6 3½
External walls and facings	Location	Materials	Finish	Reasons and comments		
Concrete (unreinforced)	Cattle standings, corridors	1 : 2 : 4 in-situ concrete	Externally as from shuttering; internally chlorinated rubber paint, part exterior exposed aggregate slabs	Applied renderings avoided because of animal acids; shock resistant to animals; joints avoided for hygiene	external walls and facings	1 1
Frame or load bearing element	Location	Materials	Beam spans	Column grid	Reasons and comments	
R.c. columns supporting barrel vault shell roof	Cattle standings	1 : 2 : 4 in-situ m.s.[r.c.	Barrel vaults 63 ft.	25 ft. wide	Clear floor areas without obstruction by columns	frame or load bearing element 1 7½
Roof construction	Location	Materials	Finish	Reasons and comments		
Barrel vaults	Cattle standings	R.c.	3-ply felt, green mineral finish	Low maintenance costs of r.c. foundation; light weight on to slab foundation	roof construction	8 7
Flat	Corridors	Asbestos cavity deck	3-ply felt, white spar finish			
Roof lights	Location	Materials	Finish	Reasons and comments		
Slight pitch	Central corridors	Georgian wired rough cast glass on concrete surround	Internal reveals painted	To give punctuated lighting effect seen from main hall	roof lights	4½
Windows	Location	Materials	Finish	Reasons and comments		
Purpose made	End frames to barrel vaults	Aluminium	Painted	Fixed specialist to barrel vault curves	windows	11½
Purpose made	Generally	Steel	Galvanised and painted			
External doors	Location	Materials	Finish	Reasons and comments		
Cattle entrances	Holding pens	Hardwood sliding	Painted	Good control, swing into corridor avoided	external doors	5½
Emergency exits	Side corridors	Softwood folding	Painted	Rapid escape from cattle corridors		
Glazing	Location	Materials	Finish	Reasons and comments		
	Barrel vaults	32 oz.	Obscured	Fixed louvres for permanent cross ventilation	glazing	2½

PARTITIONING

<i>Internal partitions</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Non load bearing	Cattle corridors	1 : 2 : 4 in-situ concrete	As from shuttering, corridors chlorinated rubber paint	Shock resistant to animals, suitable for cleansing, maximum separation of animals, easily cleaned	3	6½
internal partitions						

analysis

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<i>Internal doors</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Double acting gates	Cattle corridors	Tubular steel	Galvanised	To control cattle movement to and from standings

internal doors

9

<i>Ironmongery to internal doors</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
	Cattle corridors	Steel	Black iron	Cattle areas

ironmongery

0½

FINISHINGS

<i>Floor finishes</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
	Cattle areas	Concrete	Grooved	Low cost, non skid for cattle, suitable for washing down
	Unloading bays	Concrete	Squared pattern	

<i>Wall finishes</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
	Cattle standings	Concrete	As from shuttering	Chlorinated rubber paint
	Cattle corridors	Concrete	Chlorinated rubber paint	

<i>Ceiling finishes</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Barrel vaults	Cattle standings	Concrete as from shuttering	Painted	Light reflection and hygienic surface

<i>Decorations</i>	<i>Location</i>	<i>Paint types</i>	<i>Colour scheme and comments</i>
External: Barrel vault end frames and end valley beams	Chlorinated rubber	Protection of exposed heavily reinforced r.c. members and colours to contrast with natural concrete surfaces elsewhere	
Internal: Cattle circulation areas	Chlorinated rubber	Protection against grease and fouling on concrete walls	

decorations

1

5½

FITTINGS

<i>General fittings</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Automatic drinking bowls	Cattle standings	Steel	Galvanised	Operation by animals, left overnight
Milking line	Cattle standings	Steel	Galvanised	For animals, left overnight

fittings

4½

SERVICES

<i>Rain water disposal</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Barrel vault alleys	Central corridor end, outer end	Lead chute, asbestos r.w.p.		Emergency overflow only on to outer corridor roof
Outer corridor roof	Concrete curtain wall and columns	Copper r.w.p. cast in situ		

rainwater disposal

2½

<i>Plumbing internal: waste disposal</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Gulleys	Cattle areas	Glazed stoneware		Fitted mud bucket and rodding eye

<i>Cold water storage</i>	<i>Location</i>	<i>Materials</i>	<i>Capacity</i>	<i>Reasons and comments</i>
High level cold water cisterns	Cattle standings	Galvanised steel	10, 20, 30 gallons	Reduced pressure required for cattle drinking bowls

<i>Plumbing: sanitary fittings</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Bucket washes	Cattle circulation	Fireclay trough	White glazed	For washing animals prior to display

analysis

<i>Drainage: type of system</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Separate	Foul to public sewer, storm to River Twyver adjoining site	12 ft., 15 ft. and 18 ft. sulphate resisting concrete sewer		Bedded and haunched in sulphate resisting cement in made up ground included under drain types

<i>Drain types</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Storm and foul	Adjacent buildings	Stoneware	Salt glazed	As above drainage system and drain types

<i>Electrical installation: source and fitting type</i>	<i>Location</i>	<i>Illumination level</i>	<i>Quality</i>	<i>Reasons and comments</i>
Tungsten	Generally		Diecast aluminium or galvanised	Maximum resistance to condensation
Fluorescent	Barrel vaults		Steel chlorinate rubber painted and then stove enamelled	Fluorescent tubes fitted to soffit of vaults give good light reflection included under wiring and switching types

<i>Wiring and switching types</i>	<i>Location</i>	<i>Materials</i>	<i>Reasons and comments</i>
Screwed conduit	Throughout	Galvanised	Surface fixing source and fitting type and wiring and switching types

<i>Paved areas</i>	<i>Location</i>	<i>Materials</i>	<i>Reasons and comments</i>
Roads and paths	Service roads, vehicle standings and footpaths	Two course tarmac on ballast	
Pedestrian forecourt	Front of sale halls	Gravel	
Car and lorry parks		Temporary ashes	
Foot paths	In grassed areas	Granolithic flags	

REFUSE DISPOSAL

<i>Method</i>	<i>Type of refuse</i>	<i>Waste recovery</i>	<i>Materials and installation</i>	<i>Reasons and comments</i>
Refuse disposal unit to be provided in next phase	Animal manures		Livestock truck washdowns and incinerator	All market refuse must be burnt

analysis

SALES RING

STRUCTURAL ELEMENTS

<i>Work below ground floor level, foundation type</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
R.c. strip foundation	Under sale hall box stanchions	Sulphate resisting r.c. 1 : 2 : 4 mix		A raft for light structures with a load not exceeding $\frac{1}{2}$ ton per sq. ft.
R.c. raft	Sale rings, corridors, ancillary buildings	As above		

work below ground floor level 4 6

<i>External walls and facings</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Cavity walls, infill panels over windows	Sale halls	Hollow clay block, wood-wool cedar boarding	Rendered, externally as from shuttering, internally chlorinated rubber paint, part exterior exposed aggregate slabs; oiled	Light loading on r.c. raft foundations external walls and facings

external walls and facings 3 11½

<i>Frame or load bearing element</i>	<i>Location</i>	<i>Materials</i>	<i>Beam span</i>	<i>Column grid</i>	<i>Reasons and comments</i>
Box stanchions supporting lattice girder trusses	Sale halls	Welded box rolled steel sections	Steel trusses 45 ft.	11 ft. wide	Light frame to reduce weight frame or load bearing element

frame or load bearing element 2 10½

analysis

					s	d
<i>Upper floor construction</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Balcony	Sale halls	In situ r.c.	Granolithic	To span on top box steel stanchions and form front covered terrace		
Tiered seating	Sale halls	Precast r.c. with iroko hardwood insert seats	Stained and wax polished	Uninterrupted vision of sale ring and auctioneer		
upper floor construction					3	10
<i>Staircases</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Public access to balcony	Sale halls	Precast r.c.	Chemical hardener			
Height: floor to floor 9 ft.						
staircase					1	5
<i>Roof construction</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Flat	Sale rings	Strawboard slabs on softwood purlins	3-ply felt, white spar finish	Light weight, with decorative surface and dry construction		
roof construction					3	2½
<i>Roof lights</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Slight pitch	Central corridors	Georgian wired roughcast glass on concrete surrounds	Internal reveals painted	To give punctuated lighting effect viewed from main hall		
roof lights						0½
<i>Windows</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Purpose made	Generally	Steel	Galvanised and painted			
windows					1	1½
<i>External doors</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Public entrances	Sale halls	Hardwood folding	Oiled	Complementary to external cedar boarding		
external doors						8½
<i>Glazing</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
	Corridors, sale halls	32-oz.	Clear			
	Sale ring screens	Georgian wired cast	Obscured			
	Showcases	1-in. polished plate glass	Obscured			
glazing						3½
PARTITIONING						
<i>Internal partitions</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Non load bearing	Sale rings	Hollow pot in situ concrete	Plastered			
internal partitions					3	6
<i>Screens</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Timber framed	Sale halls	Glazed wood wool or fibreboard panels	Painted	Lightweight structure, giving opportunity for a change of texture and incorporating glazing, acoustic or casing materials		
screens						3½
<i>Internal doors</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Public access	Sale halls	Hardwood	Oiled			
internal doors					1	5½

analysis

<i>Ironmongery to internal doors</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>	<i>s</i>	<i>d</i>
	Sale halls	Bronze	B.M.A.	Public areas		
ironmongery to internal doors						2

FINISHINGS

<i>Floor finishes</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
	Dairy and fodder store	Concrete	Spade finish			
	Sale hall and vestibules	6-in. quarry tiles		Easily cleaned surface for public areas		
floor finishes						7

<i>Wall finishes</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
	Sale halls, cattle areas	Concrete	Chlorinated rubber paint	Protection against grease and fouling in cattle circulation areas		
	Sale halls, generally	Plaster	Painted			
	Dairy and bucket wash	Fairfaced brick	Chlorinated rubber paint			

<i>Ceiling finishes</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Flat	Sale halls	Strawboard	Painted			

<i>Decorations</i>	<i>Location</i>	<i>Paint types</i>	<i>Colour scheme and comments</i>		
External	Softwood, steel generally	Oil paint, gloss	Generally concentrated areas of bright colour		
	Rendered panels end of sale hall	Oil paint exterior flat			
Internal	Plaster generally	Emulsion	Generally endeavoured to impart a light, hygienic and attractive atmosphere		
	Woodwool, strawboard	Emulsion			
	Steelwork generally	Oil paint, gloss			
decorations				1	5

FITTINGS

<i>General fittings</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Pens, gate, side ring	Cattle areas	Tubular steel	Galvanized	Control of animals with maximum display		
general fittings						9½

<i>Milking equipment</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Milking machine	Sales ring	Stainless steel				
milking equipment						8½

SERVICES

<i>Rain water disposal</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>		
Sale halls	External	C.i., r.w.p.	Stove enamelled			
rainwater disposal system						2

<i>Hot water storage</i>	<i>Location</i>	<i>Materials</i>	<i>Capacity</i>	<i>Reasons and comments</i>		
Hot water storage heater	Dairy	Electric	20 gallons	For use of veterinary surgeon and milking staff		
hot water storage heater						2

analysis

s d

<i>Drainage: type of system</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Separate	Foul to public sewer, storm to river Twyver adjoining site	12 ft., 15 ft. and 18 ft. sulphate-resisting concrete sewers		Bedded and haunched in sulphate-resisting cement in made-up ground

included under drain types

<i>Drain types</i>	<i>Location</i>	<i>Materials</i>	<i>Finish</i>	<i>Reasons and comments</i>
Storm and foul	Adjacent buildings	Stoneware	Salt glazed	As above

drainage system and drain types

2

<i>Electrical installation: source and fitting type</i>	<i>Location</i>	<i>Illumination level</i>	<i>Quality</i>	<i>Reasons and comments</i>
Tungsten	Generally		Diecast aluminium or galvanized steel, chlorinate rubber painted and then enamelled	Maximum resistance to condensation, fluorescent tubes fitted to soffit of vaults give good light reflection
Fluorescent	Sale halls			

included under power supply type

<i>Wiring and switching types</i>	<i>Location</i>	<i>Materials</i>	<i>Reasons and comments</i>
Screwed conduit	Throughout	Galvanized	Surface fixing

included under power supply type

<i>Power supply type</i>	<i>Location</i>	<i>How distributed</i>	<i>Reasons and comments</i>
3-phase	Dairy		To serve milking pumping motor

power supply type, wiring and switching type, source and fitting types

11

Paved areas

See cattle standings

THERMAL INSULATION

<i>Type</i>	<i>Location</i>	<i>U-value</i>	<i>Reasons and comments</i>
Strawboard roof slabs	Sale halls	0.60 B.Th.U. per 1-in. thickness per sq. ft. per hour per 1 degree	
Woodwool roof slabs	Ancillary buildings	0.58 ditto.	

SPECIAL ACOUSTICAL TREATMENT

<i>Sound absorption material</i>	<i>Location</i>	<i>Absorption coefficient</i>	<i>Reasons and comments</i>
Woodwool wall slabs	Sale ring partitions and above perimeter wall windows		To compensate for hard surfaces adjacent

REFUSE DISPOSAL

See cattle standings

TIME SCHEDULE

<i>Drawings</i>	<i>Tender date</i>	<i>Work commenced</i>	<i>Work completed</i>	<i>Type of contract</i>
September, 1952	September 26, 1953	January 15, 1954	July 18, 1955	RIBA

analysis



Above, the unloading bays on the west side of the cattle standings. Attested cattle are unloaded from lorries into these bays into holding pens and thence to the standings and eventually into the sale rings. This circulation is reversed when the cattle leave the market. Above right, lighting to the unloading bays and the west facade of the cattle standings in the background.

RATIOS

Cattle pens and unloading bays

$$\frac{\text{Area of enclosing walls}}{\text{Total floor area}} = \frac{1}{4}$$

$$\frac{\text{Area of solid wall}}{\text{Total floor area}} = \frac{1}{6.4}$$

Sale rings and ancillary buildings

$$\frac{\text{Area of enclosing walls}}{\text{Total floor area}} = \frac{1.3}{1}$$

$$\frac{\text{Area of solid wall}}{\text{Total floor area}} = \frac{1.2}{1}$$

$$\frac{\text{Area of windows (including external doors)}}{\text{Total floor area}} = \frac{1}{11}$$

$$\frac{\text{Total roof area}}{\text{Total floor area}} = \frac{1}{1.03}$$

$$\frac{\text{Area of window (including external doors)}}{\text{Total floor area}} = \frac{1}{75}^*$$

$$\frac{\text{Total roof area}}{\text{Total floor area}} = \frac{1}{1}$$

For the purpose of this calculation the rear wall (internal) of the sale ring block has been treated as an enclosing wall and the openings therein as external doors

COST ANALYSIS

	Cattle standings	Sales rings		
Ground floor area	29,405 sq. ft.	6,001 sq. ft.	Public convenience	£3,155 17s. 6d
Total floor area		9,003 sq. ft.	Roads, paths, grassed areas, fencing, water, electricity	£14,823 9s. 1d.
Tender cost of superstructure, installations and finishings	£32,741 15s. 11d.	£13,092 19s. 7d.	Paved area under veranda	£77 10s. 3d.
Tender cost of foundations	£9,506 2s. 7d.	£1,663 14s. 3d.	Soil sewers (abnormal works)	£7,286 18s. 11d.
Cost per sq. ft. of floor area	28s. 8½d.	32s. 9½d.	Preliminaries, insurances, contingencies	£8,968 10s. 9d.
Cost per cube foot	2s. 1½d.	2s. 3½d.	Grand total for Stage I as illustrated	£91,316 18s. 10d.
Total of above figures (tender cost of superstructure, installations, finishings, foundations)	£57,004 12s. 4d.			

analysis

COST COMMENT

The cost analysis clearly reflects the nature of the project, which has necessitated the use of easily cleaned wall and floor surfaces. This has meant the simplest of construction with minimum finishing to the cattle standings and to a lesser extent to the sale rings. The exten-

sive use of concrete left fair and chlorinated rubber paint has resulted in an extremely low cost for the carcass of the building. The absence of the usual heating and plumbing services should also be noted. The analysis is interesting as it shows what can be achieved by

reducing finishes to an absolute minimum. It should therefore be used only for record purposes and not for general comparisons except possibly in a very limited way.

SITE ORGANIZATION

Since it is thought that architects are generally not sufficiently well informed about site organization and job management, the JOURNAL is now asking general contractors, whose work is being fully illustrated, to answer questions on these subjects. Below are the first replies to certain of these questions to be published.

SITE LABOUR AND EQUIPMENT: overall site supervision by Site Agent, assisted by two chargehands and two gangers, each having charge of approximately 12 men throughout the duration of contract. Allocation as follows:

No. 1 gang—excavation, drainage and concreting.

No. 2 gang—fixing reinforcement, tubular gates and railings, and all precast work.

No. 3 gang—formwork, carpentry and joinery.

No. 4 gang—drainage, pavings, brickwork and ancillary works.

Plant used: (a) Strip site and reduce levels: No. 2 Crawler tractors and 9 cu.yd. scrapers. Tip

adjacent to site average 600 yard level haul (work 7 weeks duration).

(b) Owing to the bad state of the ground which had been made up by tipping since 1939, and the summer water level at 7 ft. 0 in., the following methods were adopted for excavation below ground level: shallow drains and foundations, trenches by hand, deep sewer trenches by small dragline excavator, making an "open cut" eliminating close planking and strutting and facilitating the laying of 15 in.-21 in. diameter pipes (duration of drainage work 26 weeks).

(c) Piling by sub-contractors.

(d) Concrete mixed at central plant using 14/10 mixer, mechanical weighbatcher (double swing) and transported for floors, bases, etc., by $\frac{1}{2}$ cu.yd. dumpers, and to columns, beams and shell roofs by small mobile crane and skip. Vibration by petrol-driven poker vibrator with attachments for cleaning off, rubbing down and drilling concrete. All cement collected in bulk by own vehicles in special containers.

(e) Formwork: timber for columns, walls, beams, etc., steel sheeting for barrel vault roofs. Duration of concreting to Cattle Pens, including the erection and dismantling of formwork: Walls and columns—22 weeks. Shells and beams—20 weeks. Suspended roofs—4 weeks. Internal walls and pens—12 weeks.

JOB MANAGEMENT: job preplanned as far as possible for duration of 70 weeks. Actual duration 77 weeks. Delays caused by (a) inclement weather during early spring and summer 1954; (b) investigation of area of poor bearing in made-up ground under Sale Ring foundations. Site meetings held monthly when progress was reviewed and work programme altered if necessary to suit conditions.

Site agent had assistance of clerk, the remaining administrative work done at Head Office. Surveyor in charge visited site about three times each week.

CONTRACTORS

Clerk of Works: F. G. Hogg. **General contractors:** Holborow & Sons Ltd. **Sub-contractors (structure):** Foundations: Piling & Construction Co. Ltd. Reinforced concrete: B.R.C. Engineering Co. Ltd. Bricks: Star Brick & Tile Co. Ltd. Roofing felt: D. Anderson & Son Ltd. Strawboard slabs: Stramit Boards Ltd. Wood-wool slabs: Thermacoust Ltd. Glazing: Bristol Glaziers Ltd. Pre-cast concrete blocks: Cotswold Dale Stone Co. Ltd. Structural steel: Banister, Walton & Co. Ltd. Prefabricated beams: Benfix Steel Co. Ltd. Tarmac pavings: Western Trinidad Lake Asphalt Co. Ltd. Sub-con-

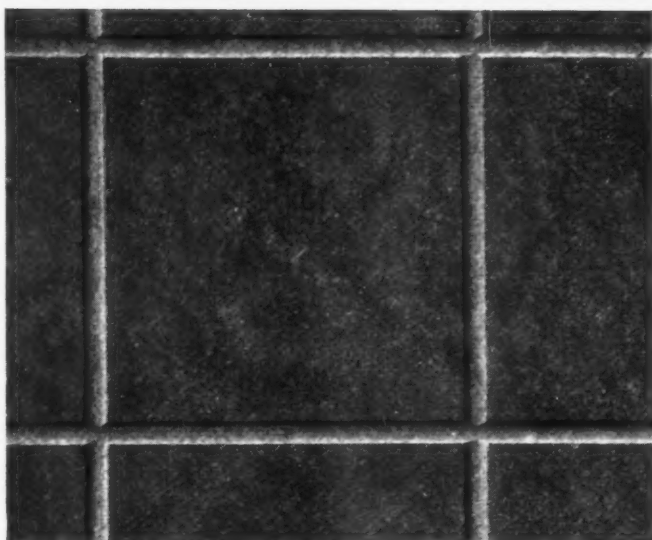
tractors (equipment): Electric wiring and public address system: L. C. Mitchell & Co. Metal staircases, balustrades: Parker, Winder & Achurch Ltd. Milking equipment: West Midlands Farmers Association Ltd. Door furniture: Parker, Winder & Achurch Ltd. and James Gibbons Ltd. Casements and window furniture: Williams & Williams Ltd. Sanitary fittings: Sessions & Sons Ltd. P.c. partitions: Bryco Buildings Products Ltd. Gates, Railings and bollards: M. A. C. Engineering (Bristol) Sub-contractors (decorations and specialities): Plaster: Hitchin Brothers Ltd. Stonework, foundation

stone: Art Memorial Co. Ltd. Tiling: Carter & Sons Ltd. Sunblinds: Smith & Sons (Gloucester). Shrubs and trees: Walter C. Slocock Ltd. Clocks: Baume & Co. Ltd. Paint: Hadfields (Merton) Ltd. Priestley (Contracts) Ltd. (painting). Lights to unloading bays: General Electrical Co. Ltd. Barrel vault form work: Scaffolding (Great Britain) Ltd. Bronze plaque: Gardiner Sons & Co. Ltd. Street lighting—lanterns: Revo Electric Co. Ltd. Street lighting—columns: Anglian Building Products Ltd.

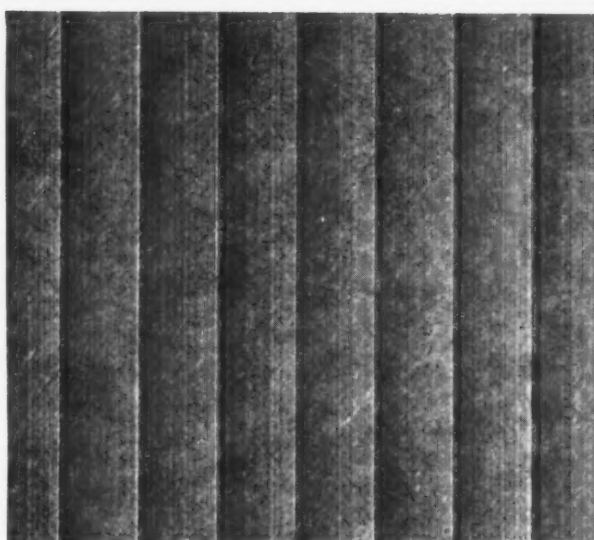
BUILDING BOARD | GENERAL DATA

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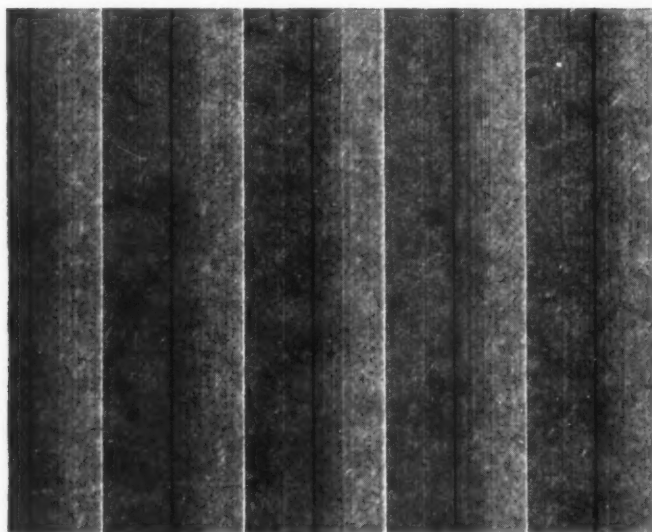
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15.B5



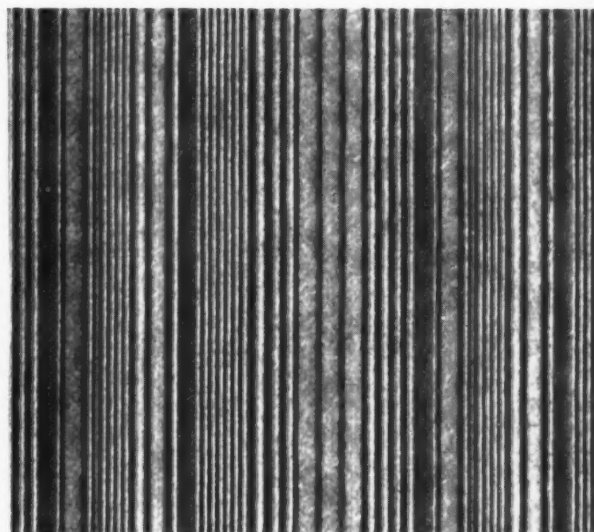
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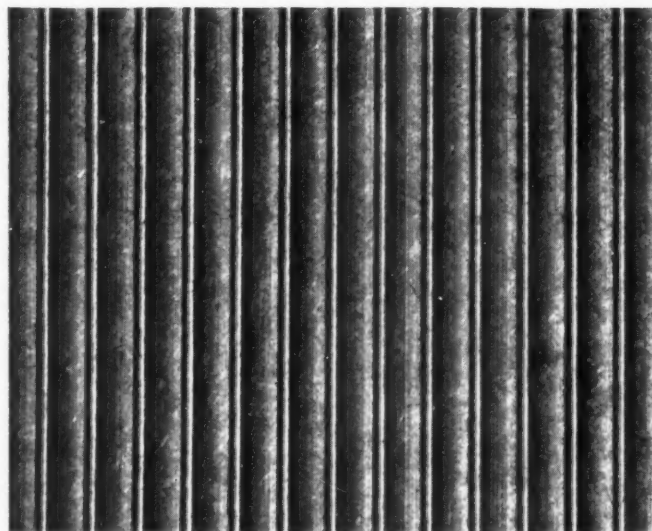
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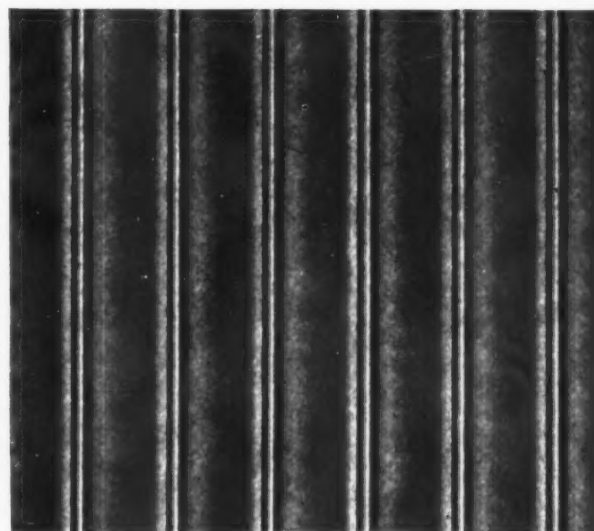
Type C



Type D



Type E



Type F

Photographs approx. half full size

L. W. MOULDED HARDBOARDS

15.B5 ·L.W.· MOULDED HARDBOARDS

This Sheet deals with L.W. moulded hardboards which are primarily for interior decorative work. The photographs on the face show the range that is available and the following notes give general data.

General

The moulding of the hardboard takes place during manufacture and six patterns are obtainable as shown in the photographs on the face of the Sheet. It is available in standard or oil-tempered quality, the latter being suitable for exterior use. One great advantage of these boards for interior work is that the joints can be completely "lost" in the mouldings: cover strips are not necessary in most cases, neither are they recommended.

Sizes

The boards are 4 ft. 0 in. wide by 9 ft. 0 in. long by $\frac{1}{8}$ in. thick.

Cutting

The boards should be cut from the face side with a fine-toothed saw or the equivalent. The back edge of the cut should be wiped with fine glass-paper. All tools used (e.g. chisels, drills, planes) should be as sharp as possible. Where possible the continuity of the pattern should be observed when cutting.

Conditioning of Boards Before Use

As with other types of hardboard, L.W. moulded boards should be conditioned before use. The boards should be laid in a clean space, free from dust. The first board is placed face downwards and water applied with a stiff brush or sponge at the rate of two pints approximately to each 4 ft. 0 in. by 9 ft. 0 in. panel. Succeeding boards should be similarly treated and piled back-to-back in pairs. They should be left for 48 hours after which they are ready for use at any time up to one week: after this period they may need remoistening.

Fixing

There are two methods of invisible fixing which may be employed. Panel pins may be "lost" in the

mouldings or the boards may be fixed with adhesive.

Nailing: The boards are fixed on timber frames which may be plugged to the wall or free-standing. Vertical battens should be at 1 ft. 4 in. maximum centres and horizontal battens at 4 ft. 0 in. maximum centres. Main battens should be not less than 2 in. wide and intermediate battens $1\frac{1}{4}$ to $1\frac{1}{2}$ in. Where boards are to be fixed to existing wall surfaces it is recommended that the timber frame be prefabricated in convenient sections so that plugging to the wall is reduced to a minimum. All edges of boards must be supported and additional horizontal supports may be provided if necessary, e.g. at "dado" height. Copper-coated or sherardized pins should be used, $\frac{3}{4}$ in. by 18 gauge, with small trumpet heads, and they should be driven with a light panel hammer. Nails should be spaced at 4-in. centres on all edges and at 6-in. centres on intermediate battens. They should be placed $\frac{3}{4}$ in. from the edge of the board and opposite those on the adjacent board. Alternate nails should be driven at opposing angles and the heads "lost" in the moulding or set just below the surface with a punch. Adjacent boards should be butt-jointed in moderate contact: the edges should never be forced together.

Fixing with adhesive: The boards may be fixed to timber framework or other suitable grounds with adhesive. A number of specially-prepared contact adhesives are obtainable for this type of work and they should be applied in every case in accordance with the manufacturer's instructions.

Compiled from information supplied by:

Martin Olsson and Sons Ltd. for Ljusne-Woxna AB.

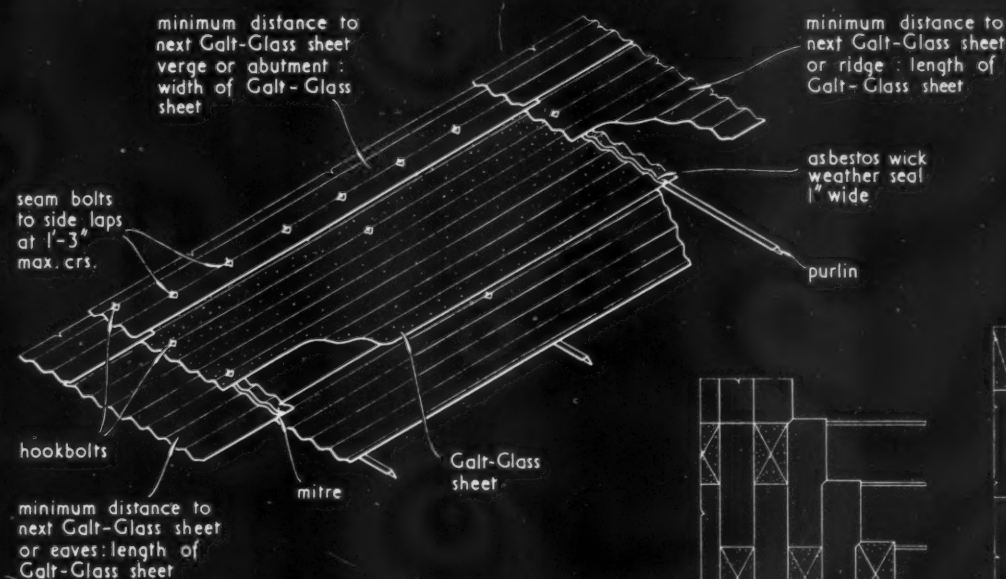
Address: Melbourne House, Aldwych, London, W.C.2.

Telephone: Temple Bar 9644/4757

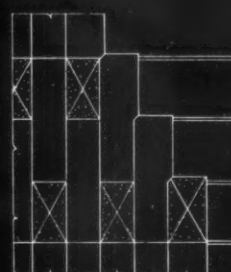
SHEET MATERIALS RESIN-BONDED GLASS FIBRES

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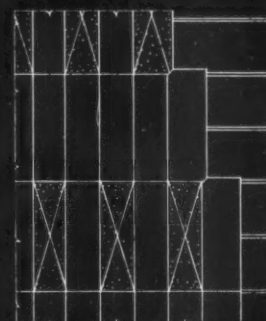
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ISOMETRIC SKETCH OF FRX SHEET FIXED IN ACCORDANCE WITH L.C.C. REQUIREMENTS.



Galt-Glass spanning 2 purlins



Galt-Glass spanning 3 purlins

RECOMMENDED ARRANGEMENTS AS ALTERNATIVES TO STRAIGHT RUNS. (for optimum economy and light diffusion)

type no.	nominal width	no. of corrugations	type of proprietary roofing sheet with which Galt-Glass to be used
GG.1,2	29½", 30½"	10½, 11	all makes of standard 3" (nominal) asbestos-cement, 2½" pitch
GG.3,4	41½", 42¾"	7½, 8	Everite·Big-Six (old and new types) Universal·Standard-Six, Atlas·Major-Six
GG.5	43"	8	Super-Six asbestos-cement (Universal Asbestos Manufacturing Co. Ltd.)
GG.6,9	40½", 37½"	8, 5½	5" and 7"·Eternit·asbestos-cement (G.R.Speaker Ltd., distributors)
GG.7,8	44" 48"	4	13½" and 15" mansard type asbestos-cement: Trafford Tile Watford Tile
GG.10	48"	5	Turnall combined sheet (Turners Asbestos Cement Co. Ltd.)
GG.11, 11A, 12	27½", 32", 28½"	10½, 12½, 11	R.P.M.·Galbestos: protected metal, 2½" pitch (Robertson Thain Ltd.)
GG.13, 14	27", 32"	8/9, 10/11	3" (actual) profiles, galvanised iron, aluminium and protected metals
GG.15, 15A	24", 30¼"	5	Robertson·V beam Galbestos: protected metal (Robertson Thain Ltd.)
GG.16	48"	15½	Corroplast· (Holoplast Ltd.)
GG.17	32¾"	4	Rogerstone· building sheet (Northern Aluminium Co. Ltd.)
GG.18, 19, 20	26¾", 31¾", 36¾"	5, 6, 7	Industrial· 5, 6 and 7 (Northern Aluminium Co. Ltd.)
GG.21	44"	14	New Noral· sheet (Northern Aluminium Co. Ltd.)
GG.22, 23, 24	25¾", 31¾", 37¾"	5, 6, 7	Noral· mansards 5, 6 and 7 (Northern Aluminium Co. Ltd.)
GG.25, 26	48"	3½	Universal Trofsec· and·Troughing· (Universal Asbestos Manufacturing Co. Ltd.)
GG.27, 27A	41"	4	Double-Six· [27A extra thick] (Turners Asbestos Cement Co. Ltd.)
GG.28	32"	4	Ayrshire Strongrib· (Ayrshire Dockyard Co. Ltd.)
GG.29, 30, 31	26", 32", 38"	5, 6, 7	Rigidal· mansards 5, 6 and 7 (British Aluminium Co. Ltd.)
GG. 32, 33, 34	23", 28", 33"	4, 5, 6	Rigidal· Trough 4T, 5T and 6T (British Aluminium Co. Ltd.)
flat sheets	36"	with plain or reeded surface for suspended ceilings and interior uses	

SUMMARY OF RANGE OF GALT-GLASS STANDARD PROFILES.

note: for complete list, the supplier should be consulted

GALT-GLASS TRANSLUCENT GLASS-FIBRE LAMINATED SHEET.

Supplier: Allan Blunn Ltd. (Manufacturer: Durasteel Ltd.)

15.U1 · GALT-GLASS · TRANSLUCENT RESIN-BONDED GLASS-FIBRE SHEET

This Sheet describes Galt-Glass which is available in corrugated translucent sheets for roof lighting and in flat or reeded sheets for interior use. The corrugated sheets are available in a wide range of profiles for use with all standard types of roof sheeting.

Material

Galt-Glass is a tough, lightweight, translucent sheeting composed of glass fibres bonded by low-pressure unsaturated polyester resins. It will not shatter and does not become brittle with age. It is unaffected by temperatures ranging from minus 40° to plus 120°C., and is immune to chemical attack through fumes or smoke. The material can be cut, drilled and fixed by conventional methods.

Types

A wide range of corrugated sheets is available for use with various standard types of asbestos-cement, corrugated iron, aluminium-alloy and protected metal roof sheeting; the distributors should be consulted for details. Other profiles may also be matched to order. Curved sheets are also available to special order in certain profiles. Flat and reeded sheets may be obtained in standard-size panels for suspended ceilings and interior decorative work.

Standard Sizes

The material is $\frac{1}{16}$ in. (nominal) in thickness, the corrugated sheets being available in lengths from 3 ft. 0 in. to 10 ft. 0 in. in 6-in. increments and the flat or reeded sheets in lengths of 3 ft. 0 in. to 8 ft. 0 in. by a maximum width of 3 ft. 0 in.

Weight

The weight of Galt-Glass sheeting is approximately 8 oz. per sq. ft.: the standard weight of Fibreglass reinforcement is 2 oz. per sq. ft. Sheets are also available to order with 1½-oz. Fibreglass core or with woven glass reinforcement.

Light Transmission

The specification of Galt-Glass has been evolved to produce the maximum efficiency in diffused interior illumination consistent with a light-transmission value exceeding 90 per cent. Tests prove that this glare-reducing factor, coupled with low light-transmission loss, produces shadowless illumination under the strongest direct sunlight. It has proved its efficiency for south-facing roof lighting installations in industrial premises.

Fire Resistance

Galt-Glass has been tested by the J.F.R.O. (official report ref. F.R.O.S.I. No. 456, Feb., 1954) and found to be slow to ignite, and, owing to its incombustible core and non-thermoplastic bonding, it will not

spread flame by dripping. This test showed that fire was prevented from penetrating to the inside of the roof. The manufacturer produces the sheet labelled F.R.X. in addition to standard quality sheets in order to meet the requirements of areas where Local Authorities have special conditions. Sheets bearing the mark F.R.X. are guaranteed to be made in accordance with a specification lodged with the London County Council and the Joint Fire Research Organisation. Provided that the fixing conditions illustrated on the face of the Sheet are observed, permission for the use of branded F.R.X. quality Galt-Glass for roof lighting can be obtained on specific application to the L.C.C. or appropriate Local Authority.

Fixing

The sheets may be trimmed with a fine-toothed hacksaw. Holes should be drilled rather than punched. To obtain the best results it is recommended that, where practicable, the sheets be fitted singly in the roof, separated horizontally by their width and vertically by their length; typical arrangements are shown in the diagrams on the face of the Sheet. Side laps should have seam-bolts spaced at not more than 1 ft. 3 in. centres; soft washers are recommended. Horizontal laps should be sealed with a soft asbestos wick weather seal, 1-in. wide, to take up any discrepancy of thickness between the Galt-Glass and roof sheeting material.

Purlins: Galt-Glass sheets of standard weight are designed to span the same purlin spacing as the type of roofing sheet to which they are matched.

Colours

In addition to the standard neutral translucent sheet, a range is available including both translucent tints and opaque colours.

Cleaning

Galt-Glass roof lights may be cleaned by washing with water and detergents.

Compiled from information supplied by the manufacturer.

Sole distributors in the United Kingdom:

Allan Blunn, Ltd.

Address : 29, Craven Street, London, W.C.2.

Telephone : Whitehall 8801-3

Manufacturer :

Durasteel, Ltd.

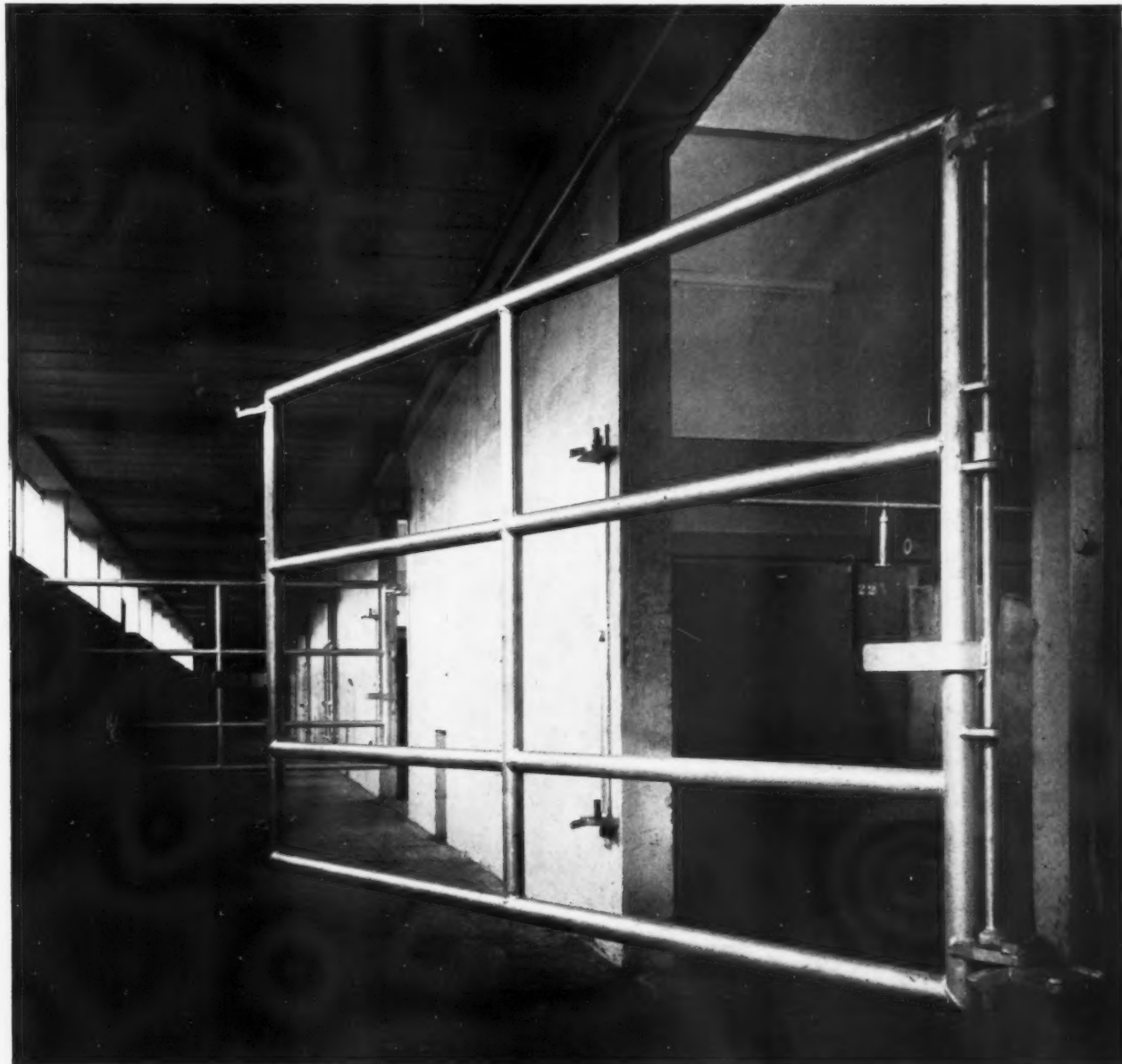
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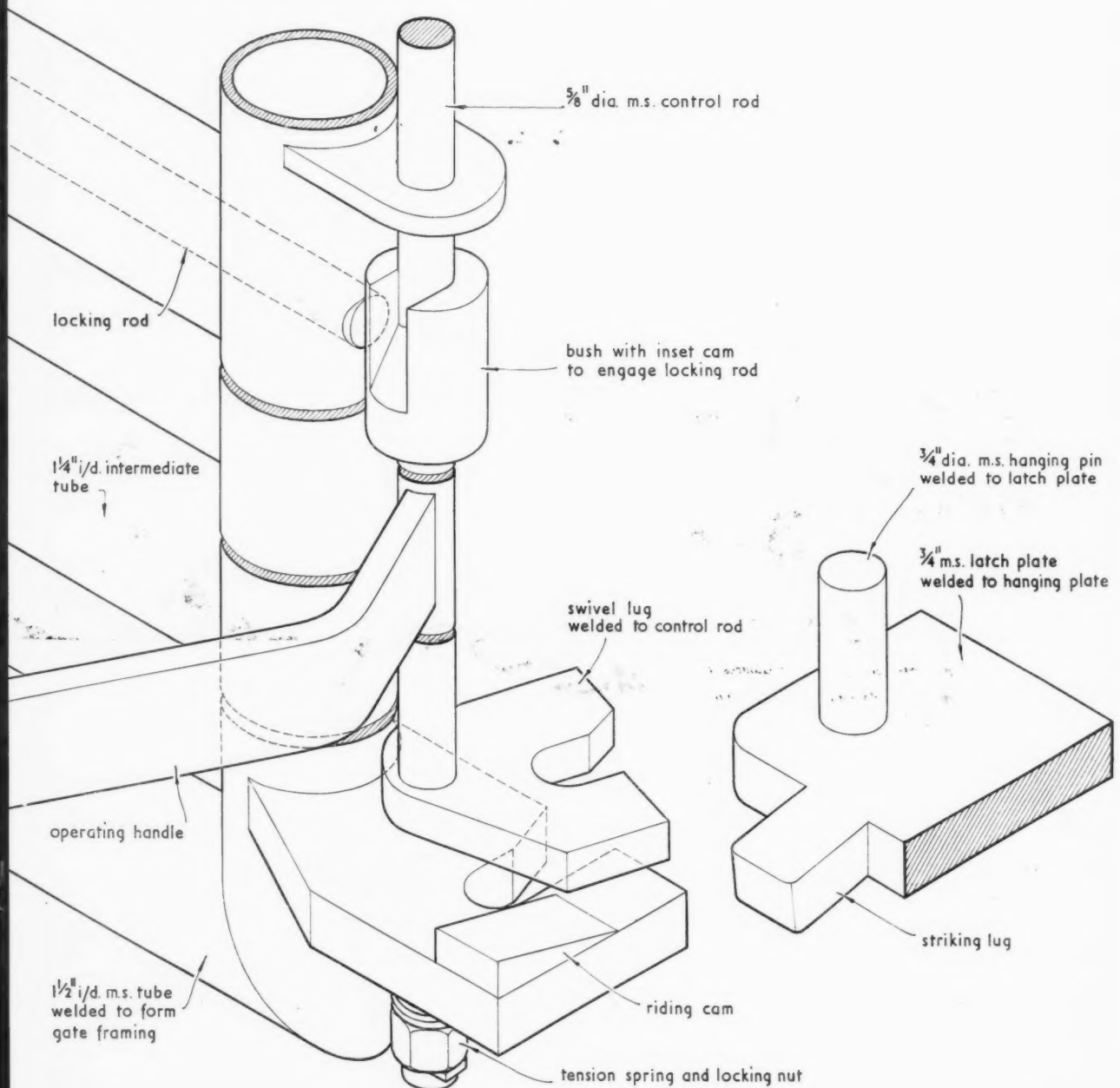
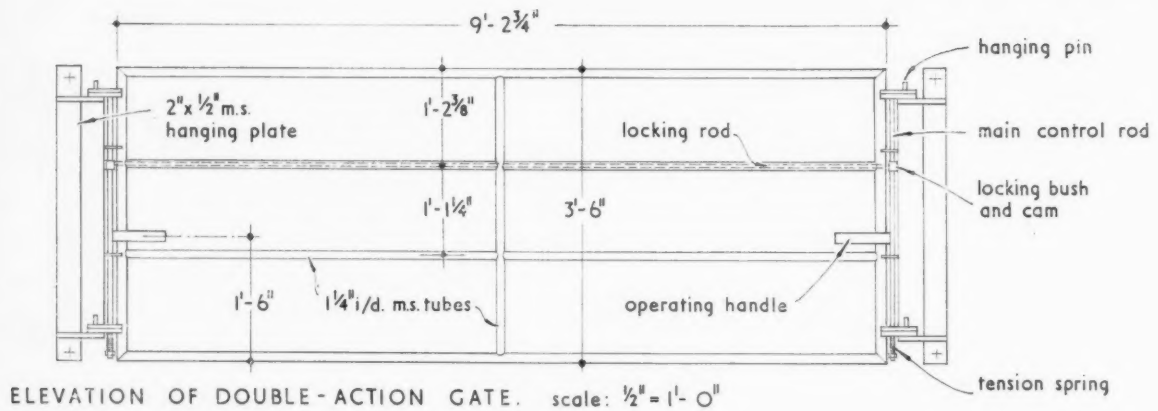
DOUBLE-ACTION GATE: CATTLE MARKET AT GLOUCESTER

J. V. Wall, Architect to the City of Gloucester

This double-action gate was developed by the Gloucester City Architect's Department to close an opening giving on to a passage and to close the passage on either side of the opening. Hinges are provided on both sides of the opening and handles at both sides of the gate enable the operator to disengage the gate from either pair of hinges. In the course of development it was found necessary to add a special device which makes it impossible to lift the gate off both hinges at once.

DOUBLE-ACTION GATE: CATTLE MARKET AT GLOUCESTER

J. V. Wall, Architect to the City of Gloucester



ISOMETRIC VIEW OF HINGE MECHANISM. scale: half full size.



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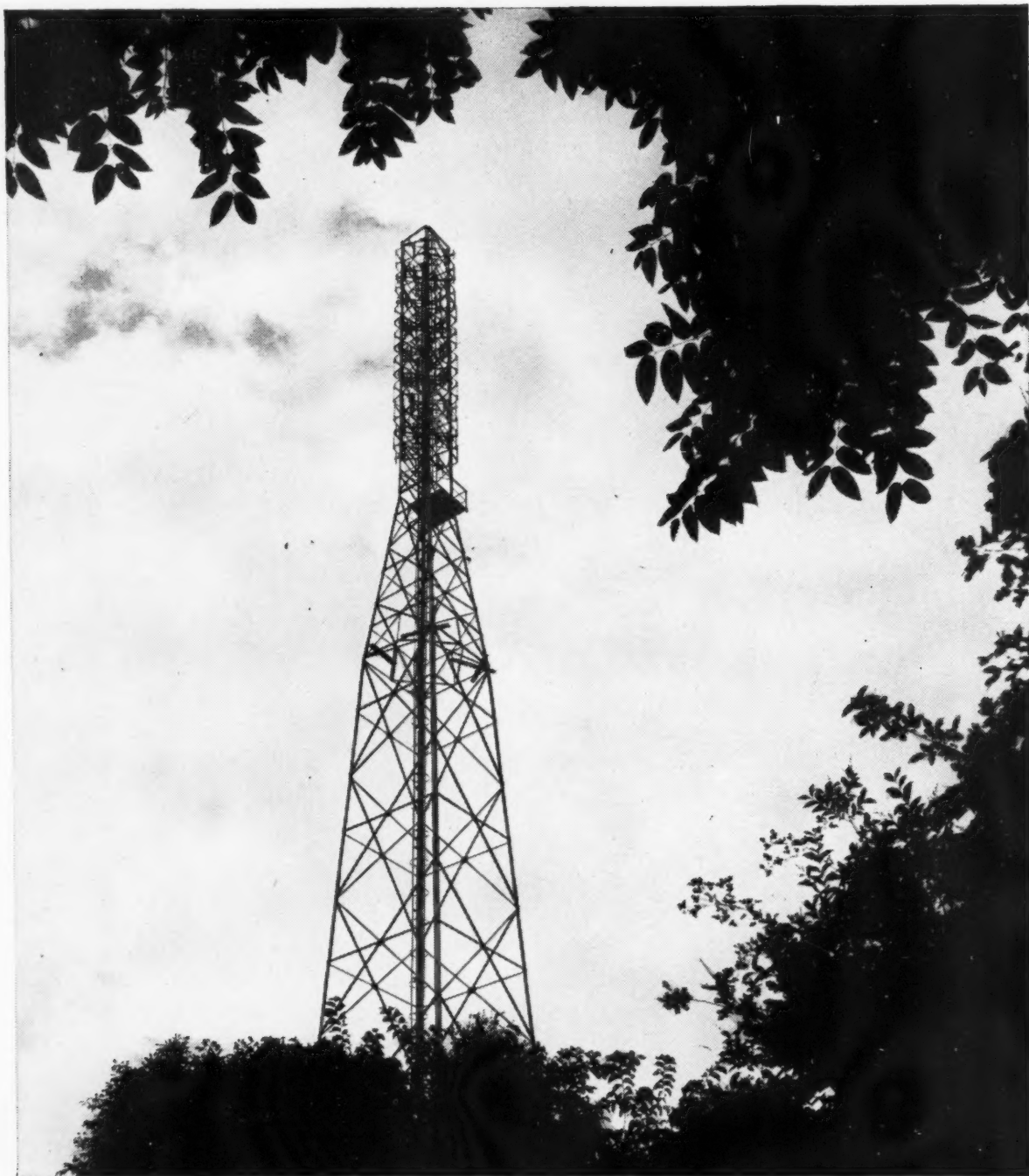
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**Conversion architect: Peter Moro F.R.I.B.A.*

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Spans & Loads



FLOORS & ROOFS

Depth	TYPICAL CROSS SECTIONS	Self Wt. per sq.ft.	Type	Superimp'd load lb./ft.2	30 lb.	40 lb.	50 lb.	60 lb.	80 lb.	100 lb.	150 lb.	200 lb.
5"		36 lb	C5 Incl. 2" Structural Screed on 3" Wood Wool Slab	Case 1	12' 6"	12' 0"	11' 6"	11' 3"	10' 3"	10' 0"	—	—
5"		38 lb.		Case 2	13' 9"	13' 6"	13' 0"	12' 6"	11' 9"	11' 0"	—	—
5"		40 lb		Case 3	—	—	—	13' 9"	13' 0"	12' 3"	—	—
5"		42 lb		Case 4	—	—	—	—	—	13' 0"	—	—
7"		35 lb	X7	Case 1	20' 6"	19' 6"	18' 8"	17' 9"	16' 5"	15' 3"	13' 3"	11' 11"
7"		36 lb.	do.	Case 2	23' 8"	22' 5"	21' 8"	20' 5"	18' 11"	17' 8"	15' 4"	13' 9"
7"		40 lb.	do.	Case 3	25' 5"	24' 1"	23' 1"	22' 1"	20' 6"	19' 2"	16' 9"	15' 0"
7"		42 lb.	do.	Case 4	—	26' 9"	25' 7"	24' 6"	22' 9"	21' 4"	18' 8"	16' 9"
7"		60 lb	do.	Case 5	—	—	—	—	—	—	25' 5"	23' 0"
9"		47 lb	X9	Case 1	30' 5"	28' 10"	27' 10"	26' 6"	24' 9"	23' 2"	20' 4"	18' 4"
9"		53 lb.	do.	Case 2	35' 4"	33' 8"	32' 4"	31' 0"	29' 1"	27' 3"	24' 5"	21' 8"
10"		55 lb	I10	Case 1	36' 9"	35' 2"	33' 10"	32' 7"	30' 5"	28' 8"	25' 2"	23' 0"
10"		60 lb.	do.	Case 2	41' 6"	39' 10"	38' 4"	37' 0"	34' 8"	32' 10"	29' 0"	26' 4"

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Look twice at the Bilston! Because this amazing new boiler not only provides a constant supply of piping hot water all the year round (plus a radiator or towel rail if required) but keeps kitchens warm and cosy in winter—cool and fresh in summer.

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The unique secret of the Bilston is Controllable Convection*, which means that, by a simple regulating device, kitchen heat can be easily controlled all the year round. Other features of the Bilston Boiler are smart vitreous enamel finish, small fuel consumption, dust-free riddling—and above all, its easy installation and incredibly low price.

For full details of this truly *modern* boiler, write to Dept. AJ/DP/2, Bilston Foundries Ltd., Bilston, Staffs.

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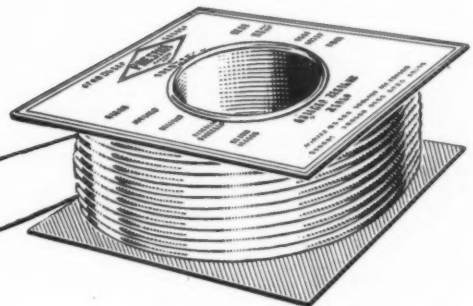
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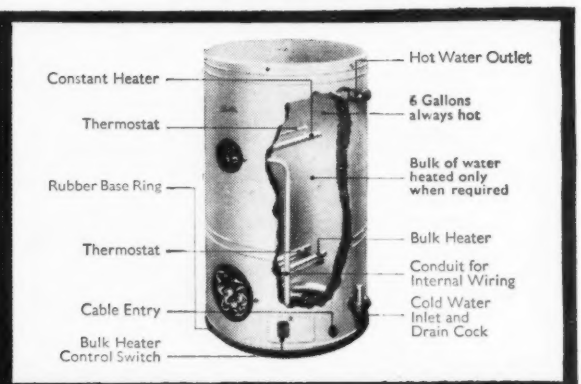
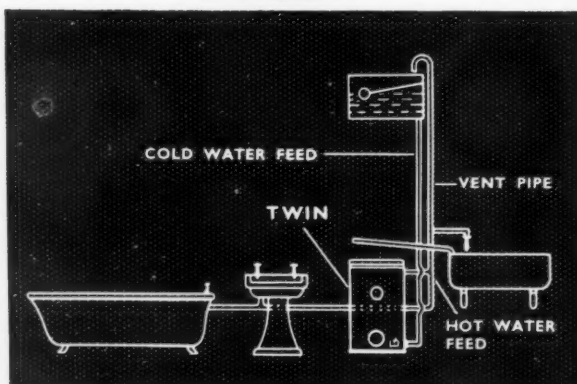
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LOWER RUNNING COSTS

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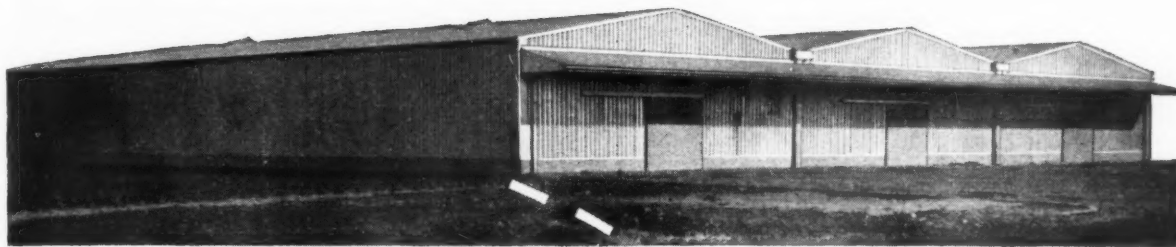


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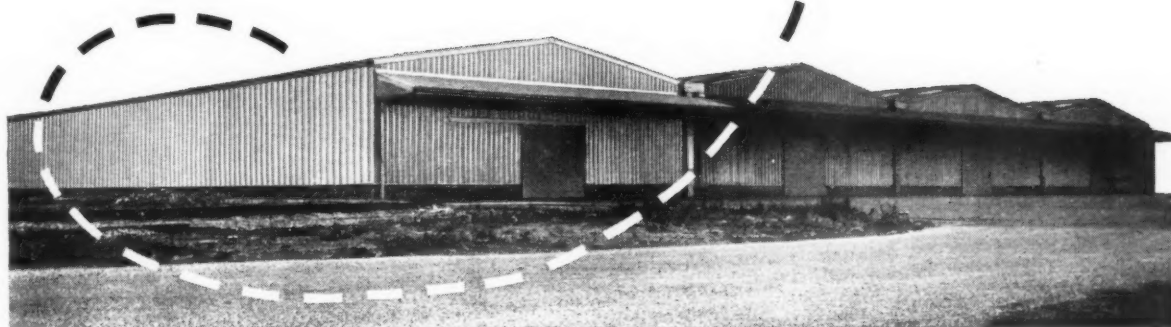
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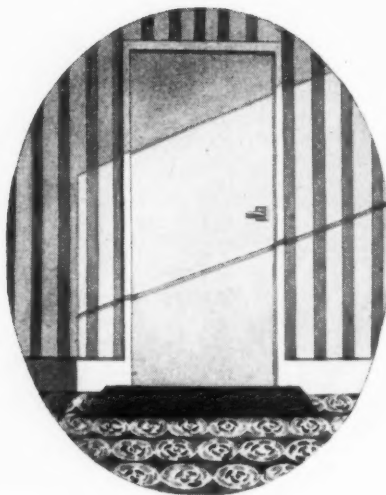
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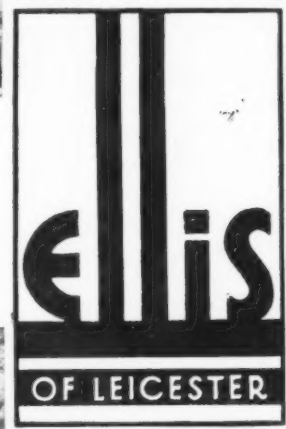
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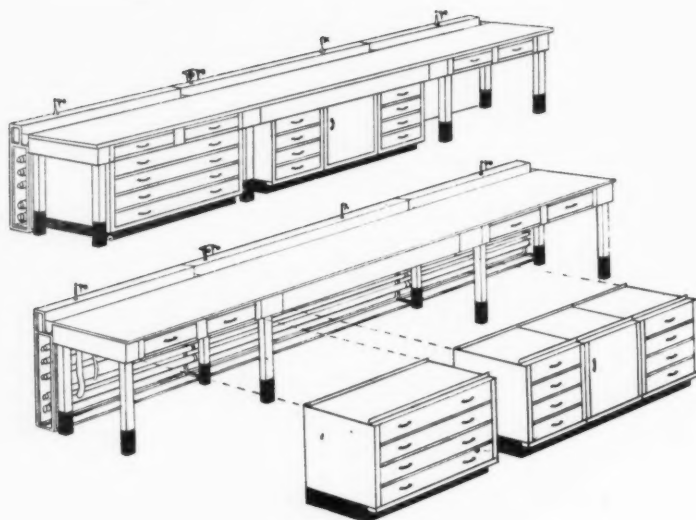
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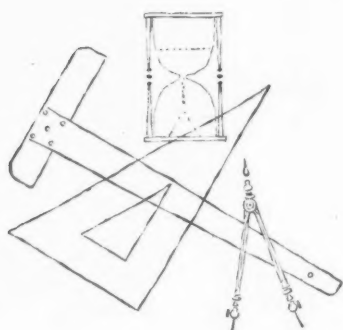
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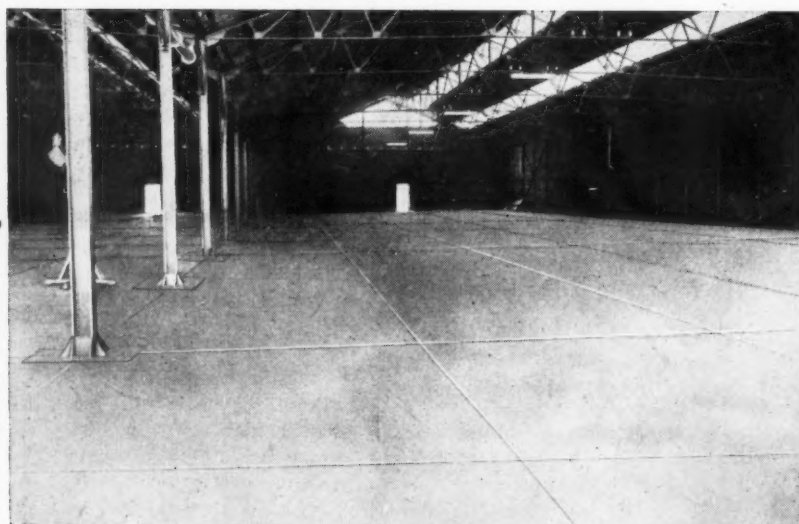
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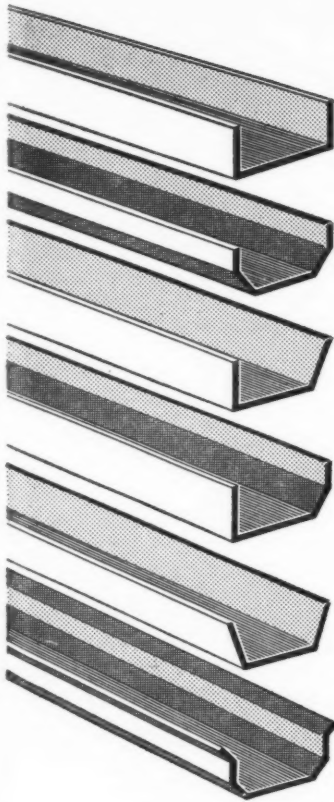
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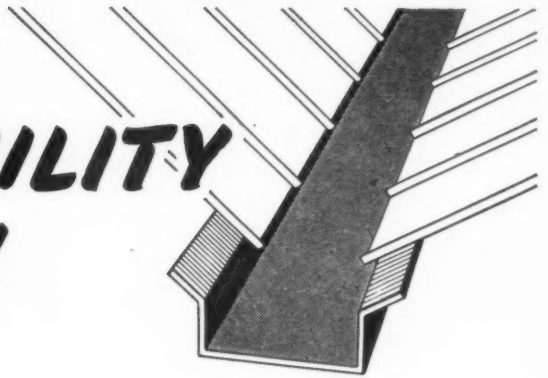
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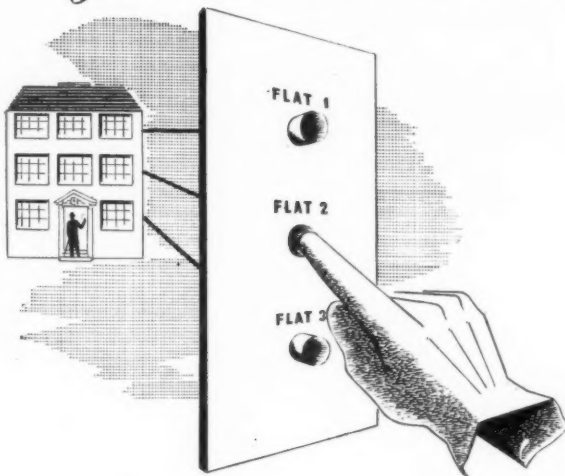


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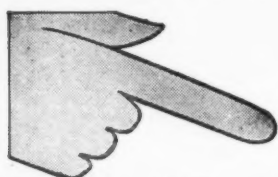
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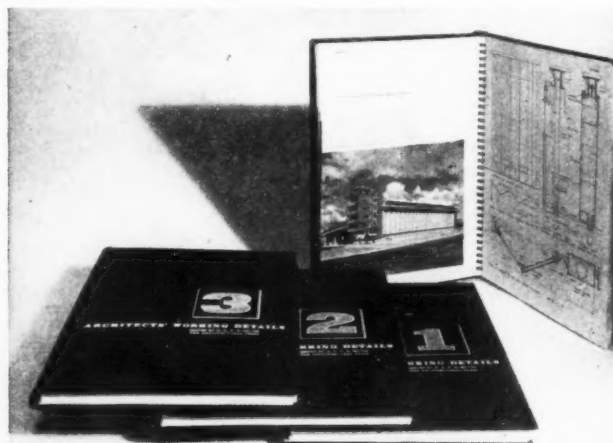
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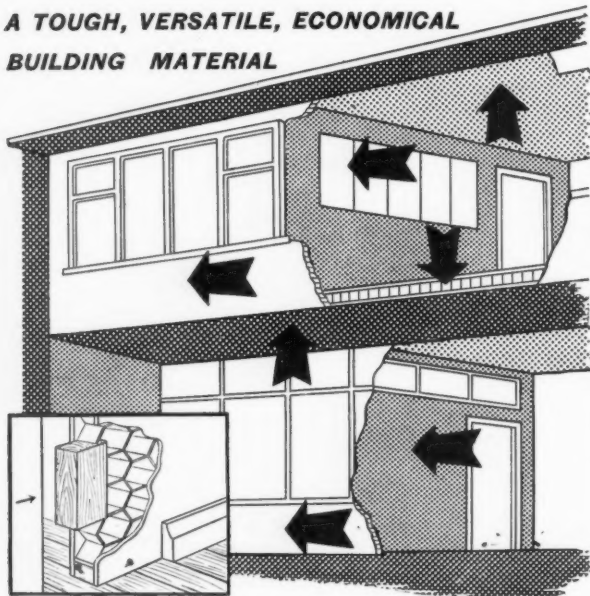
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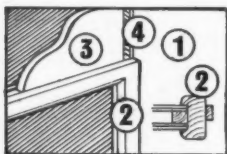
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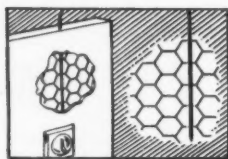
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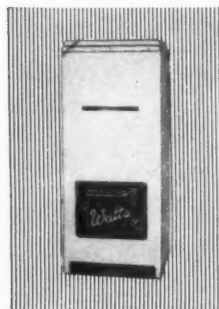
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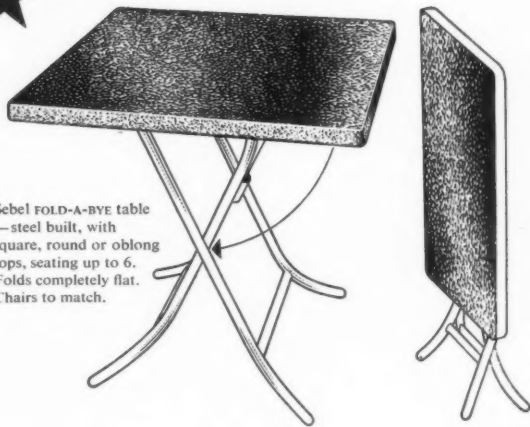


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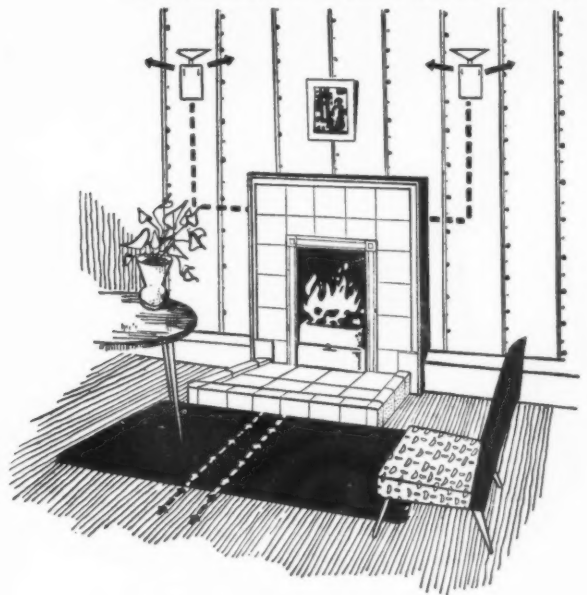


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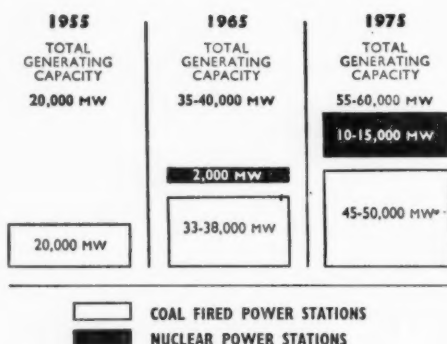
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Work will start on the first two nuclear power stations in 1957. These will each have two gas-cooled reactors and the stations will be in operation by 1960/61. Two further gas-cooled reactor stations—each housing two reactors of improved type—to be begun in 1958/9 will come into service by 1963. The output of these four stations will be between 400,000 and 800,000 kilowatts.

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By 1975, it is anticipated that nuclear reactor power stations in Britain will have an aggregate installed capacity of between 10,000,000 and 15,000,000 kilowatts; and about half the national consumption of electricity will be derived from nuclear energy.



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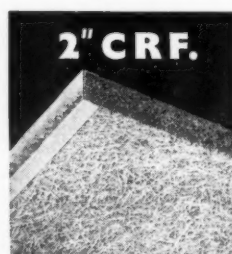
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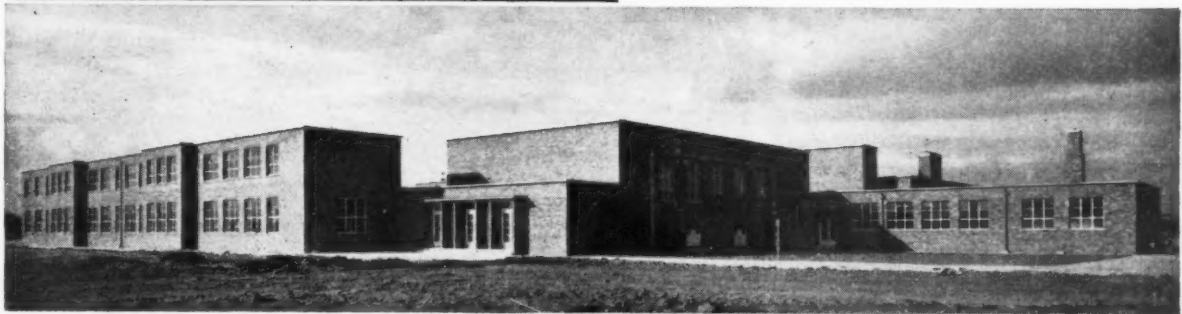
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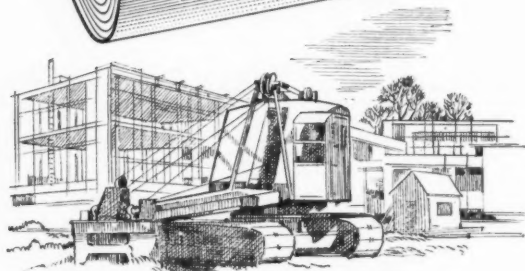
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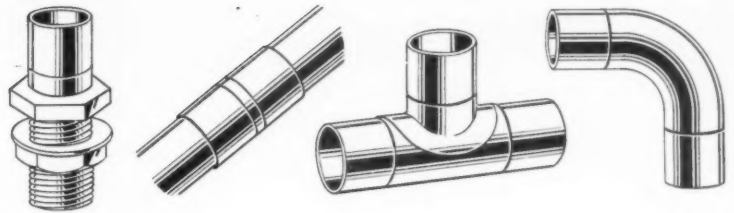
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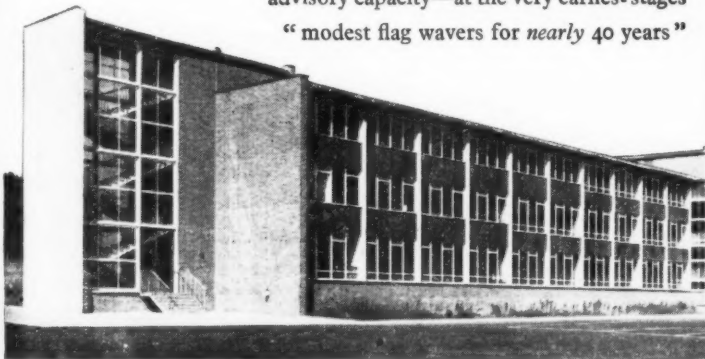


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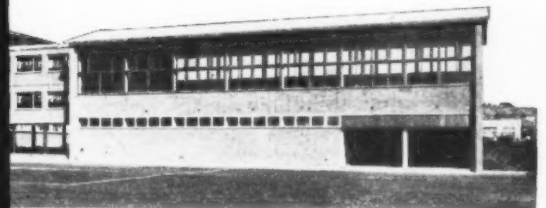
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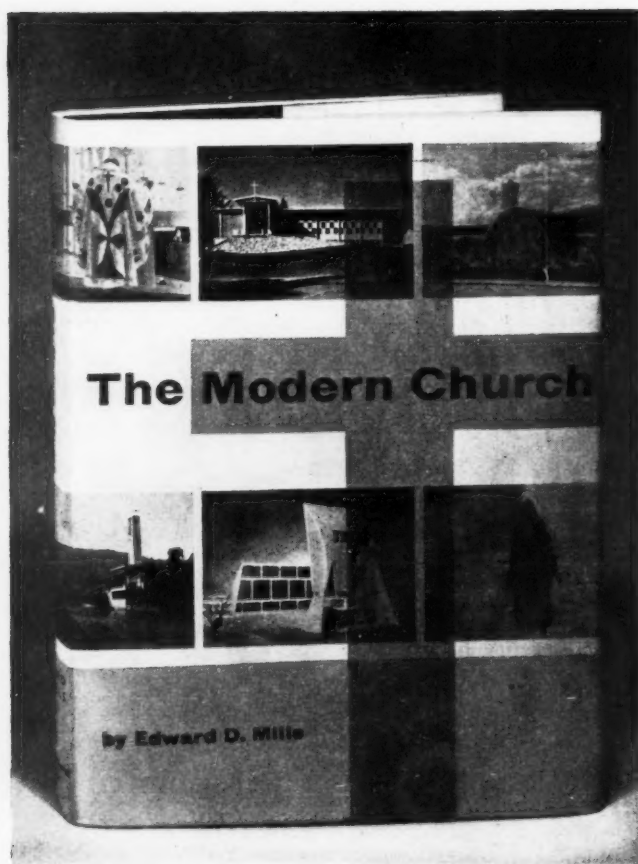
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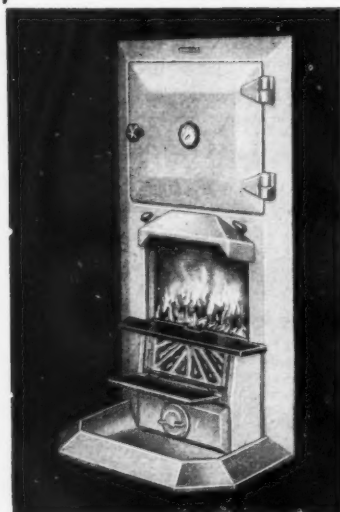
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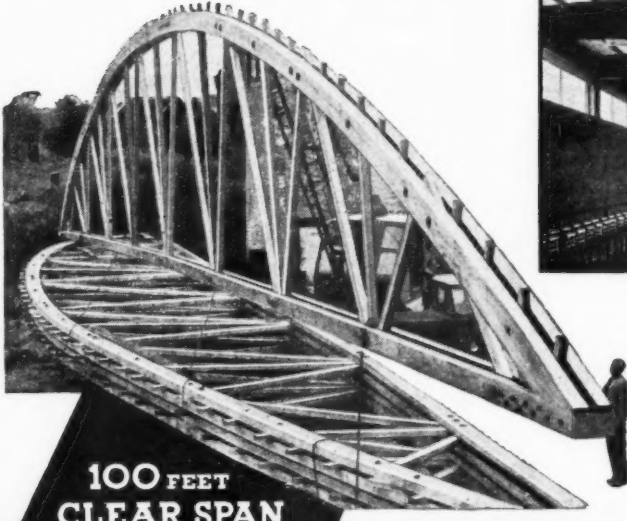
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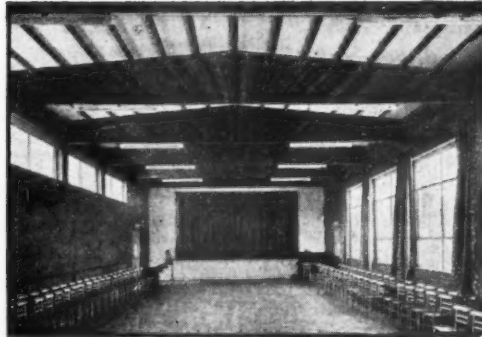
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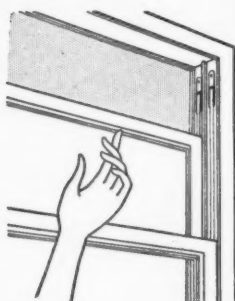
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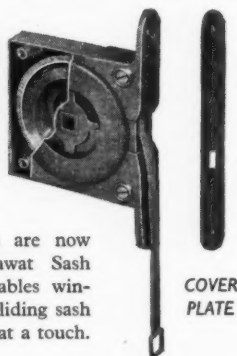
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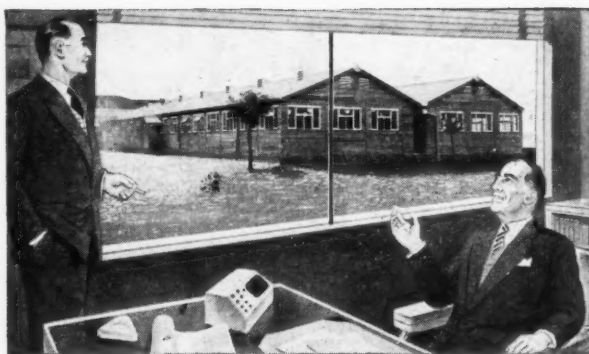
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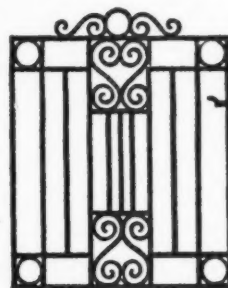
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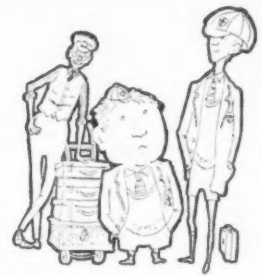
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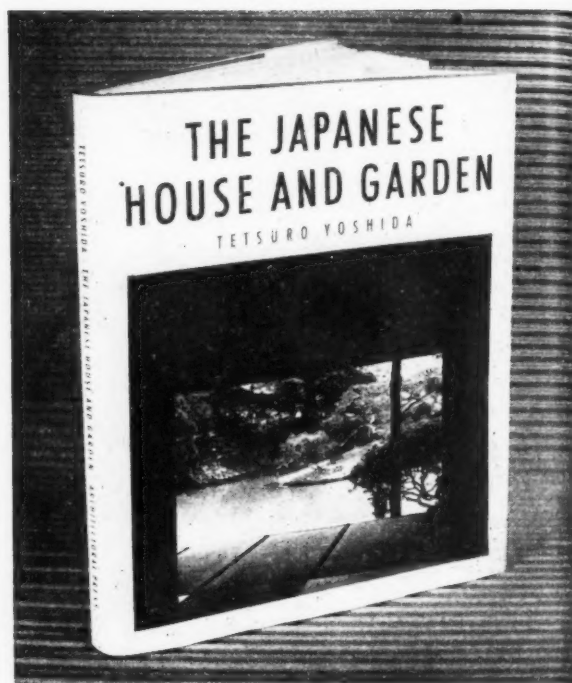
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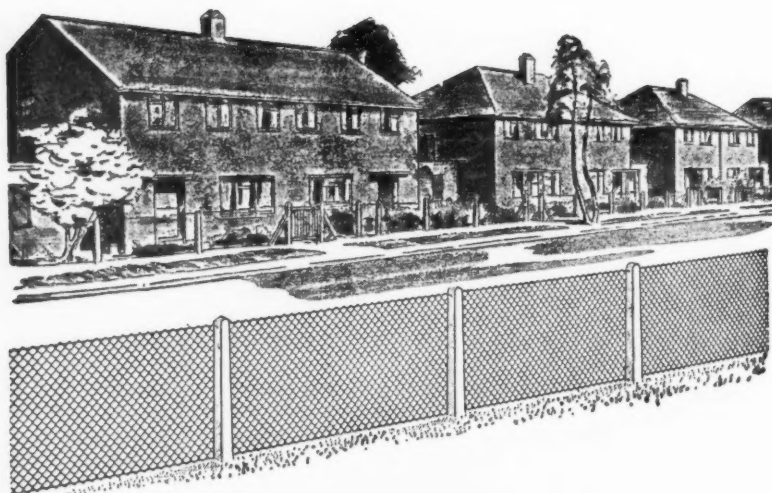
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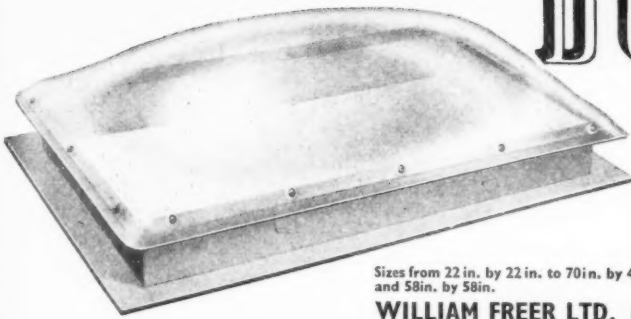
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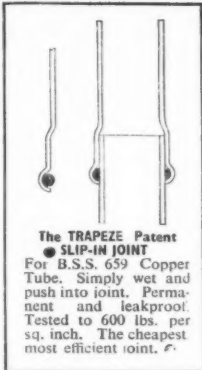
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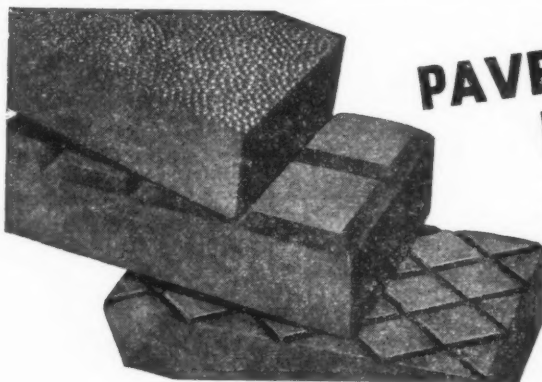
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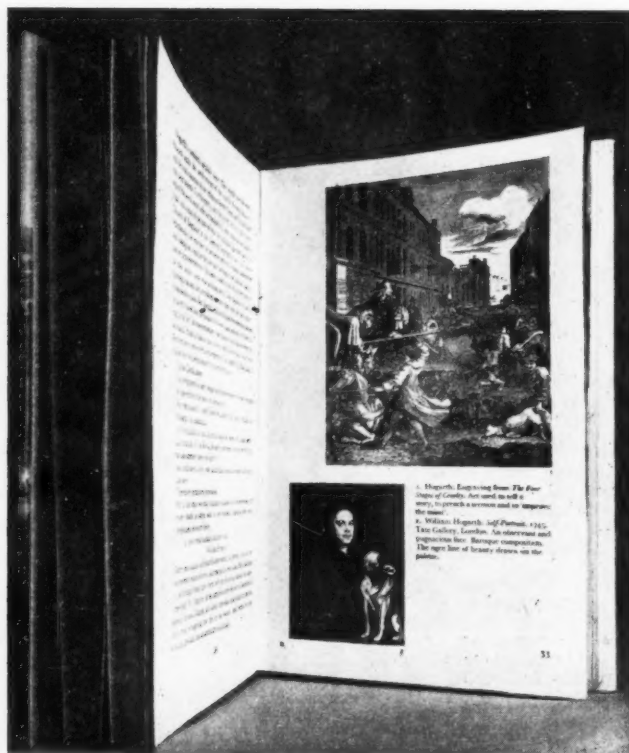
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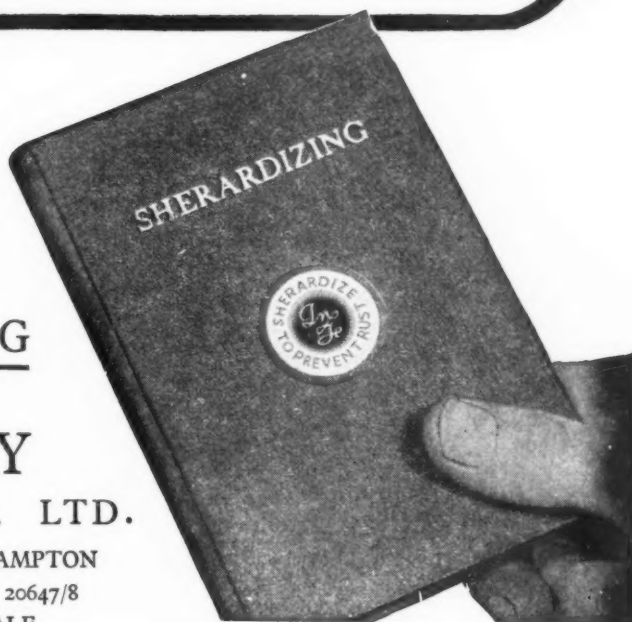
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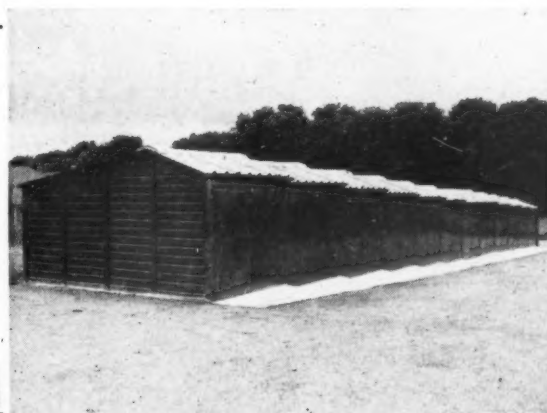
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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is exempted from the provisions of the Notification of Vacancies Order, 1962.

GOVERNMENT OF NORTHERN IRELAND

Applications are invited for the permanent and pensionable post of ASSISTANT (STRUCTURAL) ENGINEER, Class II, in the Directorate of Works, Ministry of Finance.

Salary scale, £675 x £25-£750 x £30-£960 x £40-£1,000, plus Pay Supplement of amounts between £55 and £95 a year. Minimum of scale linked to age 25 with increase of one increment for each year above that age subject to maximum entry point of £900. Officers of age 25 enter at £650; those under age 25 are paid according to qualifications and experience.

Candidates must be Corporate Members of the Institution of Civil Engineers or (by examination) the Institution of Structural Engineers and have had experience of steel and reinforced concrete design applied to building structures.

Preference will be given to candidates who served in H.M. Forces during the 1914-18 or 1939-45 wars, provided that such candidates are, or within a reasonable time will be, able to discharge the duties efficiently.

Application forms may be obtained from the Secretary, Civil Service Commission, Stormont, Belfast, to whom they should be returned, together with copies of two recent testimonials.

9266

HAYES AND HARLINGTON URBAN DISTRICT COUNCIL

Applications are invited for:—
(a) ARCHITECTURAL ASSISTANT (PERMANENT), Grade A.P.T. II, i.e., £595-£675 p.a.;
(b) SENIOR ARCHITECTURAL ASSISTANT (TEMPORARY), Grade A.P.T. IV, i.e., £710-£885 p.a., plus London weighting in both cases, 21-25 years £20 p.a., 26 years and over £30 p.a. Candidates for (a) must have passed the R.I.B.A. Inter. Exam., good experience of housing work with a local authority; (b) must be a Registered Architect, have good general experience in design and construction in relation to municipal housing and other works, and capable of supervising large building contracts. The Council is unable to provide housing accommodation for either of these appointments. Further particulars and form of application available from the undersigned, which when completed must be returned as soon as possible.

GEORGE HOOPER,

Clerk and Solicitor.

Town Hall, Hayes, Middx. 3712

CARDIGANSHIRE COUNTY COUNCIL

Applications are invited for the following vacancies in the County Architect's Department, County Hall, Abergavenny.
(a) SENIOR QUANTITY SURVEYOR (A.P.T. Grade VI-VII, £880-£1,200).
(b) ARCHITECTURAL ASSISTANT (A.P.T. Grade II-III, £595-£765).
(c) ARCHITECTURAL ASSISTANT (A.P.T. Grade I-II, £530-£675).

Candidates for (a) must be Associate Members of the R.I.C.S. (Quantities), and (b) and (c) have passed the Intermediate Examination of the R.I.B.A.

Commencing salary according to qualifications and experience.

Application forms, obtainable from the County Architect, must be returned to the undersigned by not later than 14th May, 1956.

J. E. R. CARSON,

Clerk of the Cardiganshire County Council, Stryddfa'r Sir, Marine Terrace, Abergavenny, 18th April, 1956. 9798

BOROUGH OF SOLIHULL

QUANTITY SURVEYING ASSISTANT
A.P.T. GRADE II (£595 x £20 - £675)
Applications are invited for the above-mentioned post in the Borough Engineer & Surveyor's Department.

No Application Forms are being issued, but the Borough Engineer will be pleased to answer specific questions regarding the position.

Commencing salary may be fixed at an appropriate stage within the grade, according to qualifications and experience.

The appointment is subject to the Local Government Superannuation Acts, the National Scheme of Conditions of Service and one month's notice.

Where applicable, housing accommodation may be made available as soon as possible.

Applications, giving the names of two referees, to Mr. C. R. Hutchinson, B.Sc., A.M.I.C.E., Borough Engineer & Surveyor, 90, Station Road, Solihull, not later than 18th May, 1956.

W. MAURICE MELL,

Town Clerk. 9779

BOROUGH OF BARNES

Applications are invited for the following appointments:—

(a) TEMPORARY SENIOR ARCHITECTURAL ASSISTANT, A.P.T. Grade IV (£740×£25-£915). Candidates should preferably have passed the R.I.B.A. Final Examination and have had some architectural experience.

(b) TEMPORARY ARCHITECTURAL ASSISTANT, A.P.T. Grade III (£670×£25-£795). Candidates should have passed the Intermediate Examination of the R.I.B.A. and have had experience in the preparation of plans and details.

Applications, giving the names of two persons to whom reference can be made, should be sent to the undersigned not later than Friday, 11th May, 1956.

W. R. SHEPHERD, A.M.I.C.E.,

F.R.I.C.S.,

Borough Engineer and Surveyor, Municipal Offices, Sheen Lane, S.W.14. 9771

CITY OF ROCHESTER

ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of Architectural Assistant in the City Surveyor's Department, at a salary in accordance with Grade A.P.T. III (£640-£765).

Candidates should have general experience, including the preparation of drawings and specifications for Municipal housing schemes. Preference will be given to candidates who are Registered Architects.

The commencing salary will be according to qualifications and experience.

There is a varied programme of work, including the redevelopment of clearance areas, and the development of a large area added to the City.

In an appropriate case the City Council will provide the successful candidate with suitable housing accommodation, and will be prepared to refund removal expenses after 12 months' service.

The appointment will be subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts, a satisfactory medical examination, and one month's notice on either side.

Applications, stating age, qualifications and experience, together with the names and addresses of three persons to whom reference may be made, should be delivered to the City Surveyor, 66, Maidstone Road, Rochester, not later than Thursday, 17th May, 1956.

PHILIP H. BARTLETT,

Town Clerk.

Guildhall, Rochester.

19th April, 1956. 9764

METROPOLITAN BOROUGH OF

BERMONDSEY

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

ARCHITECTURAL SECTION

Applications are invited for the following appointments, from suitably qualified persons with experience of contemporary styles of architecture.

(a) ASSISTANT ARCHITECT (1) Grade III-V, £540-£370 (plus London Weighting).

(b) ARCHITECTURAL ASSISTANTS (2) Grade III, £540-£765 (plus London Weighting).

Candidates for post (a) must be Associates of the R.I.B.A., with subsequent office experience, preferably of housing projects, and must be competent designers capable of handling large building schemes from sketch design stage to completion.

Candidates for post (b) must have passed the Intermediate Examination of the R.I.B.A. and have had previous office experience, preferably of housing projects.

Commencing salary in both cases will be within the grade stated according to ability and experience.

Application form and further details may be obtained from the undersigned. Closing date 14th May, 1956.

S. E. FREEMAN,

Town Clerk.

Municipal Offices,

Spa Road, London, S.E.16. 9773

BOROUGH OF ACTON

BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT

ARCHITECTURAL ASSISTANT

Applications are invited for this appointment, A.P.T. II/III (£595-£765 plus London allowance of £10, £20 or £30 according to age).

The commencing salary will be fixed according to qualifications and experience.

Terms of appointment and forms of application may be obtained from the Borough Engineer, Town Hall, Acton, W.3, and applications must be returned to him by 28th May, 1956. 9861

COUNTY LONDON DERRERY EDUCATION

COMMITTEE

SECTION ARCHITECT

Applications are invited for the above position in the Committee's Offices in Coleraine. Applicants must be Associate of the R.I.B.A. or have equivalent qualifications. Salary scale £675×£25-£750×£30-£960×£40-£1,000, with appropriate pay supplements, point of entry according to experience and qualifications. Travelling expenses at County Council rates.

Application forms and conditions of appointment may be obtained from the Director of Education, Education Offices, New Row, Coleraine, and completed forms should be returned not later than Thursday, 17th May, 1956. 9863

COUNTY COUNCIL OF THE WEST RIDING

OF YORKSHIRE

OFFICE OF THE COUNTY ARCHITECT

Applications are invited for appointments as ASSISTANT ARCHITECTS or ARCHITECTURAL ASSISTANTS in the grades shown below, the salary ranges of which are:—

A.P.T. I (£530-£610).

A.P.T. II (£595-£675).

A.P.T. III (£640-£765).

Special (£690-£840).

A.P.T. IV (£710-£885).

Applicants for Grades A.P.T. III, Special and A.P.T. IV should be registered Architects and Associate Members of the Royal Institute of British Architects, and have had good training in the design and construction of modern buildings. Applicants for Grade A.P.T. II should have passed the Intermediate R.I.B.A. examination.

Extensive and interesting programmes of first-class architectural work, with opportunities for taking responsibility and supervising work in progress.

The appointments are subject to the provisions of the Local Government Superannuation Acts and to the successful candidates passing a medical examination.

Applications may be obtained from this office and should be returned as quickly as possible.

HUBERT BENNETT,

County Architect.

Bishopgarth, Westfield Road, Wakefield. 9716

Poplar Borough Council invite applications for the following appointments:—

(a) PRINCIPAL ASSISTANT ARCHITECT, A.P.T. VI (£880/£1,080).

(b) ASSISTANT ARCHITECT, A.P.T. V (£795/£970).

(c) ARCHITECTURAL ASSISTANT, A.P.T. II (£595/£675).

(d) ARCHITECTURAL ASSISTANT, A.P.T. IV (£710/£885).

(e) JUNIOR ARCHITECTURAL ASSISTANT, H.G.D. (£180/£640).

plus £10/£30 weighting in each case.

Appointments (a), (b) and (c) are permanent and appointments (d) and (e) are temporary.

Applicants for appointments (a), (b) and (d) should have passed the R.I.B.A. Final or equivalent and applicants for appointment (c) should have passed the R.I.B.A. Intermediate or equivalent.

Application forms obtainable from the Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, Bow, E.3, for return not later than 22nd post, 22nd May, 1956. 9674

CORPORATION OF LONDON

require an

ASSISTANT in the CIVIC DESIGN SECTION

of the

CITY PLANNING OFFICE

Salary up to £824 19s. according to qualifications and experience.

Duties will include assistance in preparing three-dimensional layouts and models, as well as general draughting work; local authority experience not necessary. Preference given to those with sensitive and contemporary approach to design.

Applications, giving experience, age, salary required and references, to City Planning Officer, 55/61, Moorgate, E.C.2, within seven days. 9855

MIDLANDS ELECTRICITY BOARD

THIRD ASSISTANT ENGINEER (ARCHITECTURAL) required at the Wolverhampton and District Sub-Area Headquarters. Applicants should have reached the final R.I.B.A. standard or hold equivalent qualifications and should preferably have a knowledge of quantities. The duties will include preparation of drawings, construction and detail of offices, service centres, stores and general building work. Salary £650/£910 per annum (N.J.B. Grade K.10). Superannuable.

Apply by letter within 14 days, stating age, experience, present position and salary, to Mr. D. Holt, Sub-Area Manager, Midlands Electricity Board, 83, Darlington Street, Wolverhampton.

A. STEPHENS,

Secretary. 9874

NORTH WEST METROPOLITAN REGIONAL

HOSPITAL BOARD

The Board are engaged on a number of new building projects including a new hospital at Weylyn, and the following staff are required to fill new posts on the establishment created to deal with the increased work.

(a) ASSISTANT ARCHITECTS. Good experience of design and construction necessary, preferably in hospital work. Salary scale £640×£25(4)×£30(4)×£35(2)-£930 plus £20-£40 London weighting.

(b) ARCHITECTURAL ASSISTANTS to give technical assistance to professional officers.

Salary scale £480 (age 21 and over)×£20(7)×£25(2)-£670 plus £20-£30 London weighting.

Applicants for (a) above must be Associate Members of the R.I.B.A., and for (b) must have Inter R.I.B.A. Commencing salary above minimum may be paid to successful candidates according to appropriate experience since qualification.

Posts are subject to Whitley Council conditions and are superannuable. Apply, stating which post and giving age, qualifications (with dates) and experience with names of two referees, to Secretary, North West Metropolitan Regional Hospital Board, 11a Portland Place, W.1, by 18th May. 9856

BOROUGH OF SCUNTHORPE ASSISTANT ARCHITECTS

Applications are invited for Assistant Architects to work under the direction of the Chief Assistant Architect in the department of the Borough Surveyors.

- (a) ASSISTANT ARCHITECT, Grade A.P.T. V (£795 × £35—£970).
- (b) ASSISTANT ARCHITECT, Special Grade (£690 × £30—£840).
- (c) ASSISTANT ARCHITECT, Grade A.P.T. II (£595 × £20—£675).

In the case of appointments (a) and (b) preference will be given to Chartered Architects, and in the case of (c) the applicants should have passed the Intermediate R.I.B.A. Examination. The commencing salary will be fixed according to qualifications and experience.

The work will be of an interesting and varied character in an extending town with a population of nearly 60,000.

Housing accommodation will be available if required.

Applications, stating particulars of training and experience, and giving the names of two referees, should reach the undersigned not later than Monday, 14th May, 1956.

W. P. ERRINGTON,

Town Clerk.

Municipal Offices, 34, High Street,
Scunthorpe.
16th April, 1956. 9749

BURGH OF KILMARNOCK BURGH ARCHITECTS' DEPARTMENT ARCHITECTURAL ASSISTANTS

Applications are invited for the following appointments:—

- (a) ARCHITECTURAL ASSISTANT, Grade V. Salary scale: £710 × £15 × £15 × £20 to £760.
 - (b) ARCHITECTURAL ASSISTANT, Grade X. Salary scale: £650 × £15 × £15 × £15 to £595.
- Salary and conditions to be in accordance with the recommendations of the Joint Industrial Council for Local Authority Services (Scotland). The posts are supernumerary, and the applicants will have to pass a medical examination satisfactorily.

Housing accommodation will be made available for successful applicant for appointment (a) only. Applications, giving full particulars of age and experience, accompanied by copies of testimonials, to be lodged with N. S. Sutherland, Burgh Architect, 64a, Bank Street, Kilmarnock, not later than the 11th May, 1956.

W. L. WALKER,

Town Clerk.

Council Chambers, Kilmarnock.
16th April, 1956. 9760

WAR OFFICE

Vacancies exist for DRAUGHTSMEN (ARCHITECTURAL) in the Directorate of Fortification and Works, Chessington, Surrey. Candidates must have at least three years' Architectural training, experience in an Architect's office, and be of Intermediate R.I.B.A. standard.

A varied programme of design is undertaken, including married quarters, barracks, hospitals, school, clubs, layouts of estates and cantonments, for home and overseas.

Applicants must be British of British parentage. Salary: £479 (at age 23) rising by annual increases subject to satisfactory service to £746, plus overtime. Starting pay according to age, qualifications and experience. Prospects of promotion and establishment. Canteen facilities. Prospect of 5-day week shortly.

State age, full details and experience to War Office (CSD), Room 553, Northumberland House, London, W.C.2. 9858

EAST SUSSEX COUNTY COUNCIL COUNTY PLANNING DEPARTMENT

Applications are invited for the appointment of a PLANNING ASSISTANT in the Headquarters Office at Lewes. The salary will be on Grade A.P.T. IV (£710 by increments of £35 to £885) commencing at a point within that grade according to experience and qualifications.

The person appointed will be engaged mainly in the Development Plan Section of the Department, and applicants should have an analytical approach to planning problems, and have had experience in the preparation of statutory town maps. Preference will be given to Corporate Members of the Town Planning Institute.

Applications on a form to be obtained from the County Planning Officer, County Hall, Lewes, must be sent to me by the 31st May, 1956.

L. S. JAY,

County Planning Officer.

County Hall,
Lewes.
25th April, 1956. 9860

NEW SOUTH WALES, AUSTRALIA Permanent appointments in the New South Wales Government Service are available to ARCHITECTS.

ARCHITECTURAL DRAUGHTSMEN
Salary: Commencing salary according to qualifications and experience between £A1,001 per annum and £A1,455, with promotion to considerably higher salaries. Superannuation.

Qualifications: University Degree, Technical College Diploma, or equivalent.

Location: Sydney or country district offices in New South Wales.

Fares to Sydney: Appointee's contribution to fare is £10 sterling per adult.

Application form and further information may be obtained from the New South Wales Government Offices, 56/57, Strand, London, W.C.2. 9841

BOROUGH OF ASHTON-UNDER-LYNE

Applications are invited for the following appointments in the Borough and Surveyor's Department within the respective grades according to experience.

- (a) SENIOR ASSISTANT (QUANTITIES), Grade IV (£710—£830). Qualifications: A.R.I.C.S. or equivalent.

- (b) SENIOR ARCHITECTURAL ASSISTANT, Special Grade (£690—£840). Qualifications: Registered Architect with good experience in the design and construction of Municipal houses, flats and public buildings.

There is a full and varied programme of building work and both positions offer opportunities for taking responsibility and supervising work in progress.

Housing accommodation will be provided if required.

Application forms may be obtained from the Borough Surveyor, Municipal Offices, Ashton-under-Lyne, and should be returned to the undersigned by 19th May, 1956.

G. A. MALONE,

Town Clerk.

Town Hall,
Ashton-under-Lyne.
20th April, 1956. 9814

CITY OF BELFAST, NORTHERN IRELAND
Owing to the large programme of architectural and engineering work envisaged for the City (population 499,000) opportunities arise for appointment to the unmentioned technical posts in the Corporation's Service. Belfast has all the amenities of a large city, added to which is its proximity to the sea and the countryside.

DEPARTMENT OF THE CITY SURVEYOR
J. W. R. Anderson, B.Sc., M.I.C.E., M.I.Mun.E.

- (a) SENIOR ENGINEER (salary £1,100 × £37 10s.—£1,250).

Requirement: Extensive Civil Engineering experience, especially on the design and construction of steel framed and reinforced concrete structures including large tanks and culverts and bridges. Qualifications: Corporate membership of the Institution of Civil Engineers or the Institution of Municipal Engineers.

- (b) SENIOR ARCHITECT (salary £1,100 × £37 10s.—£1,250).

Requirement: A person appointed should be capable of carrying through projects from sketch plans to working drawings and specifications; also giving a lead on incidental services and supervising the erection of the buildings, and have experience in, or be capable of, leading a group of Junior Assistants on large size projects if required to do so. (The work involved includes public baths, libraries, clinics, sports pavilions, welfare homes, in the form of new structures and alterations to existing buildings.) Qualifications: Registered by Examination and with not less than 10 years' post-qualification experience.

- (c) ENGINEER CLASS I (salary £855 × £35—£1,100).

Qualifications: Corporate membership of the Institution of Civil Engineers or the Institution of Municipal Engineers.

DEPARTMENT OF THE HOUSING ARCHITECT

- J. W. Adamson, A.R.I.B.A., Dip.T.P., A.M.T.P.I.
(d) ARCHITECT, Class I (salary £855 × £35—£1,100).

Requirement: Experienced in the design and planning of housing estates, particularly flats and ancillary buildings. Qualifications: Registered and qualified by examination.

DEPARTMENT OF THE EDUCATION ARCHITECT

- Donald A. Shanks, Dipl.Arch., A.R.I.B.A.
(e) ARCHITECTS CLASS I (salary £855 × £35—£1,100).

Requirement: Experience in modern school design (but previous Local Government experience not essential); enthusiasm for and ability in contemporary architectural design and construction.

Qualifications: Registered and qualified by examination.

- (f) ARCHITECT CLASS II (salary £550 × £30—£400).

Requirement: Possess enthusiasm for and ability in contemporary architectural design and construction.

Qualifications: Registered and qualified by examination.

- (g) ARCHITECTURAL ASSISTANTS, Class I (salary £480 × £25—£730).

Qualifications: Intermediate examination of R.I.B.A.

The commencing salary in each case will be fixed according to the qualifications, ability and experience of the person appointed. Reciprocal pension arrangements exist between the Corporation and other public authorities.

Favourable consideration will be given in suitable cases to the recruitment, up to a limit of 50 per cent, of the removal expenses of newly appointed officers.

Canvassing will disqualify. Application forms, and conditions of appointment, are obtainable for each of the above posts from the Establishment Officer, City Hall, Belfast. Applicants should state the posts for which they wish to apply. Completed applications must reach the undersigned by 9th May.

JOHN DUNLOP,

Town Clerk.

City Hall, Belfast.
P.O. Box 234.
18th April, 1956. 9825

URBAN DISTRICT OF FELTHAM ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT on the Council's unestablished staff at a salary within the National Scales, according to qualifications and experience, up to the maximum of Grade A.P.T. IV, plus London weighting.

Forms of application, obtainable from the undersigned, must be returned accompanied by copies of two testimonials, not later than 11th May, 1956. 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. 9838

COUNTY BOROUGH OF TYNEMOUTH BOROUGH SURVEYOR'S DEPARTMENT

Applications are invited for the following posts: CHIEF TOWN PLANNING ASSISTANT, Grade V/VI (£795—£1,080).

SENIOR ASSISTANT ARCHITECT, Grade IV or Special Grade (£690—£885 according to qualifications and experience).

Application forms, together with conditions of appointment, should be obtained from D. M. O'Herrily, Esq., O.B.E., B.Sc. (Eng.), M.I.C.E., 16, Northumberland Square, North Shields, and returned before 28th May, 1956.

The Corporation may be prepared to assist in the provision of housing accommodation.

(Signed) F. G. E.GNER,

Town Clerk. 9893

THE DEPARTMENT OF HEALTH FOR SCOTLAND

CHIEF ARCHITECT'S OFFICE

Applications are invited for a non-pensionable post of ASSISTANT ARCHITECT, Headquarters, Edinburgh. Age, 25-34. Salary range, £726—£1,140 (women £1,050). Duties include housing, health buildings and buildings for Scottish Home Department, etc.

Further particulars and application form from Establishment Officer, Department of Health for Scotland (Room 30), St. Andrew's House, Edinburgh, 1. Closing date for applications, 31st May, 1956. 9885

THE DEPARTMENT OF HEALTH FOR SCOTLAND

CHIEF ARCHITECT'S OFFICE

Applications are invited from ARCHITECTURAL DRAUGHTSMEN with considerable office experience for a non-pensionable post. Duties include assisting architects on housing projects, health buildings and schools.

Salary range £479—£746 (women £688) with placing according to age and experience. Form of application, obtainable from Establishment Officer, Department of Health for Scotland (Room 30), St. Andrew's House, Edinburgh, 1, must be returned by 31st May, 1956. 9884

BOROUGH OF HEYWOOD APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the above-mentioned appointment in the department of the Borough Engineer and Surveyor, at a salary in accordance with Grade A.P.T. III (£640—£765) of the Scale of Salaries.

Applicants must have passed the Intermediate R.I.B.A. Examination and must have had experience in housing, general architectural work, quantities and final accounts.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, to the National Joint Council's Conditions of Service and to one month's notice in writing on either side.

The successful applicant will be required to pass a medical examination.

Applications, suitably endorsed, stating age, qualifications and experience, accompanied by copies of two recent testimonials, should reach the undersigned not later than 12 noon on Monday, 28th May, 1956.

Canvassing in any form will be a disqualification.

W. R. PARKER,

Town Clerk.

Municipal Buildings,
Heywood.
19th April, 1956. 9829

CITY AND COUNTY OF BRISTOL CITY ARCHITECT'S DEPARTMENT

Applications invited for undermentioned permanent appointments on staff of City Architect's department:—

- (a) SENIOR ASSISTANT ARCHITECTS, Grade A.P.T. V (£795 × £35—£970 p.a.).
- (b) SENIOR ASSISTANT ARCHITECTS, Grade A.P.T. III (£640 × £25—£765 p.a.), or Special Scale (£690 × £30—£840 p.a.).
- (c) ASSISTANT ARCHITECTS, Grade A.P.T. II (£595 × £20—£675 p.a.).

Starting grade will be appropriate to professional experience and qualifications.

Housing accommodation available, if necessary, at an economic rent.

Further particulars and application forms obtainable from me. Applicants must state post for which they are applying. Completed application forms to be received by 11th May.

J. NELSON MEREDITH, F.R.I.B.A.,

City Architect.

The Council House,
College Green,
Bristol, 1. 9817

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointments on the permanent staff of the Regional Architect—

ASSISTANT ARCHITECT. Commencing salary (fixed by reference to experience at full professional standard as a practising Architect and to age) will be within the scale £640×£25(4)×£30(4)×£35(2) to £930, plus London allowance.

Applicants must be Associate Members of the Royal Institute of British Architects and capable of preparing working and detailed drawings and specifications and supervising work on individual projects. Experience of hospital planning and construction an advantage.

Application forms may be obtained from the Secretary (82), 11a, Portland Place, London, W.1, and must be returned by not later than 14th May. 9813

BOROUGH OF TAMWORTH ENGINEERING ASSISTANT

Applications are invited for the above appointment in the Borough Engineer and Surveyor's Department. Salary, A.P.T. Grade II. Applicants should have had a good general experience in a Municipal Engineer's office (housing experience would be an advantage) and must have passed the Intermediate Examination of the Institution of Municipal Engineers or hold an equivalent qualification. Housing accommodation available if required. Applications, stating age, qualifications and experience, together with names of two referees, should reach the undersigned not later than 14th May, 1956. Canvassing, directly or indirectly, will disqualify.

HENRY WOOD,
Town Clerk.

Municipal Offices,
Tamworth, Staffs.
24th April, 1956. 9815

THE LONDON HOSPITAL, Whitechapel, E.1, requires **JUNIOR ARCHITECTURAL ASSISTANT**, salary £440 to £650 p.a. according to experience, plus London weighting. Post superannuable. Applications, stating age, present salary and brief particulars of experience, to be sent to the House Governor. Accommodation is available in Kensington if successful candidate is a woman. 9156

COUNTY BOROUGH OF NEWPORT

Amended Advertisement

Applications are invited for the permanent appointments of **ASSISTANT ARCHITECTS**, salary Grade IV (£710-£885). Housing accommodation will be provided.

Forms of application obtainable from the Borough Architect, Civic Centre, Newport, Mon., to whom they should be returned not later than Wednesday, 16th May, 1956. 9853

CUMBERLAND COUNTY COUNCIL

Applications are invited for the appointment of a **SENIOR QUANTITY SURVEYOR** in the County Architect's Department. Salary within A.P.T. Grade III (£640-£765). N.J.C. Service conditions. Post pensionable. Subject to medical examination.

Applicants must have had considerable experience in the preparation of Bills of Quantities, Specifications, Estimates, etc., and the settlement of final accounts.

Applications, on forms obtainable from John H. Haughan, F.R.I.B.A., County Architect, 15, Portland Square, Carlisle, to be received by him not later than Thursday, 17th May, 1956.

G. N. C. SWIFT,
Clerk of the County Council. 9821

SHEFFIELD REGIONAL HOSPITAL BOARD

Applications are invited for the whole-time post of **SENIOR ASSISTANT QUANTITY SURVEYOR**. Salary scale £920×£30(5)×£25(1)-£1,095. Applicants must hold or have held Corporate membership of the Royal Institution of Chartered Surveyors. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Service (Superannuation) Regulations, and to one month's notice on either side. Applications, stating age, qualifications, and previous appointments, together with the names of three referees, should reach the Secretary to the Board, Fulwood House, Old Fulwood Road, Sheffield, 10, by 14th May, 1956. 9819

NORFOLK COUNTY COUNCIL COUNTY ARCHITECTS' DEPARTMENT Applications are invited for the post of **CHIEF ASSISTANT ARCHITECT**, A.P.T. Grade V (£795×£35-£970). Candidates must be qualified with good general experience in design, construction and all aspects of handling building contracts. The appointment is permanent and is subject to Local Government Superannuation Acts and National Joint Council Service conditions. Applications, stating age, full details of training, experience, qualifications, past and present appointments, and names of three referees, to County Architect, 27, Thorpe Road, Norwich, by 10th May, 1956. 9832

SEDFIELD RURAL DISTRICT COUNCIL ARCHITECTURAL ASSISTANT

Applications are invited for this post. Salary according to A.P.T. Grade III. Further particulars to be obtained from me. Closing date 24th May, 1956.

R. P. BURTON,
Clerk of the Council. 9886

SHEFFIELD REGIONAL HOSPITAL BOARD

Applications are invited for the post of **SURVEYOR'S CLERK** in the Architectural Department of the Board Headquarters. Applicants must have had suitable training including three years' technical experience with a Quantity Surveyor or Building Contractor. Salary scale £400 (at age 24 or over)×£15(4)×£20(5)-£560. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Service (Superannuation) Regulations, and to one month's notice on either side. Applications, stating age and experience, together with the names of three referees should reach the Secretary to the Board, Fulwood House, Old Fulwood Road, Sheffield, 10, by 14th May, 1956. 9820

AIR MINISTRY, Works Designs Branch, requires in London and Provinces **ARCHITECTURAL ASSISTANTS** experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries up to £898 p.a. (men) and £788 (women). Starting pay dependent on age, quals. and experience.

Paid overtime. Long term possibilities with promotion and pensionable prospects, 4 weeks' leave a year. Liability for overseas service. Normally natural born British subjects. Write stating age, quals., employment details, inc. type of work done, to any employment exchange, quoting Order No., B.rough 1000. 9607

GOLD COAST CIVIL SERVICE

ARCHITECTS required on contract appointments to design and supervise construction of new Government buildings—offices, hospitals, schools, etc. Two tours each of 18-24 months duration. Consolidated salary in the range £1,130-£2,020 a year according to age, qualifications and experience. A gratuity of £12 10s. for each completed month of satisfactory service will be payable. Free passages, furnished accommodation at low rental and outfit allowance. Candidates must be Associates of the Royal Institute of British Architects. Experience of Government or Local Authority work is desirable. Particulars and application form from the Secretary for Recruitment, Gold Coast Office, 13, Belgrave Square, London, S.W.1. 9833

Tenders Invited

6 lines or under, 12s. 6d.: each additional line, 2s. **COVENTRY CORPORATION** invite tenders for erection 10 Police Dwellings at Alfred Road, Coventry. Bills of Quantities, etc., from C. F. Redgrave & Partners, 6, The Quadrant, Coventry, on receipt of £2 2s. deposit, by 12th May (payable to Coventry Corporation), refundable on return of documents and completed tender by 11th June. 9849

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The Housing Management Committee of the Birmingham Corporation invites tenders for the supply and delivery of approximately 17,000 (seventeen thousand) 5-ft. 6-in. x 4-in. x 4-in. reinforced concrete fencing posts, to be supplied as required during a period of 12 months.
Forms of tender can be obtained from the undersigned at 19-29, Summer Row, Birmingham, 3, and should be returned by the 14th May, 1956.

J. P. MACEY,
Housing Manager.
9750

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.
The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

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

APPLICATIONS are invited for the following appointments:

(a) SENIOR ASSISTANT ARCHITECTS, with experience of work on commercial and industrial projects.

(Salary range £820 to £975 per annum.)
(b) ASSISTANT ARCHITECTS, capable of preparing working drawings from preliminary details.

(Salary range £550 to £820 per annum.)
There is a five-day week in operation, and both appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4.
3871

SENIOR ARCHITECTURAL ASSISTANT required by United Dairies Ltd. Applicants to state age and experience in the preparation of surveys, sketch plans and working drawings, and be able to supervise work in progress. Apply in writing, stating qualifications and salary required, to Chief Architect, United Dairies Ltd., 31 St. Petersburgh Place, W.2.
9600

ARCHITECTURAL ASSISTANT required, up to Intermediate standard, Westminster office. Pension and Bonus Schemes. Five-day week. Write, stating experience, age, and salary required, to Box 9271.

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

ASSISTANT ARCHITECTS, WORKER-UP, AND SHOP FITTING DRAUGHTSMAN.
Applications are invited from suitably qualified persons. Salary on a scale £485-£945 inclusive of L.W., with placing according to age, qualifications and experience. The posts are superannuable, subject to medical examination. Five-day week in operation. Applications, stating age, experience, qualifications and salary required, to—W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1.
2824

ARCHITECTURAL ASSISTANTS required for small West End Office. Good salaries. Write to Box 9580.

LANDSCAPE, JUNIOR LANDSCAPE ASSISTANT required in Nottingham Architects' Office. Preferably passed Inter. I.L.A. Good draughtsmanship essential.—Apply Box 9717.

ARCHITECTURAL ASSISTANTS (Senior and Junior) required for general and commercial practice.—Apply, stating age, experience, qualifications and salary required, to Duncan Clark & Beckett, F.R.I.B.A., F.F.R.I.C.S., 7, West Stockwell Street, Colchester.
9736

LONDON Consultants require immediately ASSISTANTS of both Inter. and Final R.I.B.A. standard for varied and interesting contemporary industrial projects. Responsibility given to applicants with good design sense and constructional ability. Apply, giving full particulars and salary required, to Box No. 401, Glovers Advertising Ltd., 351, Oxford Street, London, W.1.
9341

ARCHITECTURAL ASSISTANT required by Sir Alfred McAlpine & Son Ltd., in their Design Department at Horton. Permanent position with good prospects and interesting work.—Apply, stating experience, age and salary required, to Hooton, Wirral, Cheshire.
9807

ASSISTANT required in Maidstone Office.—Write stating experience and salary, Box 9809.

ARCHITECTURAL ASSISTANT required. West End. Must be first-class constructional draughtsman. Box 9413.

ARCHITECTURAL ASSISTANTS, Senior and Junior required, preferably with London practice experience, office and factory buildings. Write, giving particulars of experience, etc., to Messrs. Bates & Sinning, 89, Chancery Lane, W.C.2.
2508

W. H. WATKINS, GRAY & PARTNERS require an ASSISTANT of Intermediate standard for work on large hospital scheme.—Write or 'phone Victoria 7761, 57, Catherine Place, S.W.1.
9806

HASTIE, WINCH & KELLY require ARCHITECTURAL ASSISTANT, able to take charge of medium-sized jobs, including Churches, Hostels, Factories, etc. Telephone for an appointment, WEL 8863, or write with particulars to 1, Beutnick Street, W.1.
6043

JAMES & BYWATERS urgently require ASSISTANT of Intermediate standard or higher, for detailing various types of buildings. Salary according to experience and qualifications.—Apply in writing to 5, Bloomsbury Street, W.C.1, or telephone Museum 9952.
9557

NORMAN-BAILEY & PARTNERS require capable experienced ASSISTANTS who are able to carry out jobs from start to completion. Contemporary and varied work.—King Victoria 7088 for appointment.
9802

RAMSEY, MURRAY, WHITE & WARD have vacancies for:—

(a) QUALIFIED ARCHITECT, with at least 12 months' office experience since qualifying.

(b) ARCHITECTURAL ASSISTANT, advanced student R.I.B.A., with at least 12 months' office experience.

Salary to be agreed on the basis of qualifications and experience.
Apply 32, Wigmore Street, London, W.1, or telephone WELbeck 1409.
4625

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

APPLICATIONS are invited for the following appointments in a newly formed Branch Office. Interesting and varied commercial and industrial projects.

(a) SENIOR ASSISTANT ARCHITECT, with experience in Store and Shop Design.
(Salary range £820 to £975 per annum.)

(b) ASSISTANT ARCHITECTS, capable of preparing working drawings and details from preliminary sketches.
(Salary range £550 to £820 per annum.)

Both appointments offer prospects of upgrading. Applications, stating age, experience, qualifications, and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4.
3872

SCHERRER & HICKS, of 19, Cavendish Square, W.1 (Tel. Museum 1105), require immediately a number of ARCHITECTURAL ASSISTANTS with imagination and initiative. The work is varied and covers Research Laboratories, Offices, Housing and Schools. 5-day week. Salary by arrangement.
9621

ARCHITECTURAL ASSISTANTS required, of Intermediate R.I.B.A. standard, for work on contemporary industrial buildings. Good salary and plenty of opportunity for initiative. London office.—Write, giving details of salary, experience, to Howard, Souster & Fairbairn, 81, Piccadilly, W.1.
9613

SENIOR ARCHITECT required for work in South Wales on the design and co-ordination of industrial projects. Candidates must be qualified A.R.I.B.A.—Please write, giving details of previous experience and salary required, to Box No. 417, Glovers Advertising, Ltd., 351, Oxford Street, London, W.1.
9693

ARCHITECTURAL ASSISTANTS, Intermediate standard, required for work in Architect's office on development and construction of factory extensions, also on proposed large new factories in North-East London area. Positions offered are permanent with good opportunities, and are pensionable. Modern welfare amenities.—Apply Personnel Superintendent, The Edison Swan Electric Co., Ltd., Cosmos Works, Brimsdown, Enfield, Middlesex.
9605

"THE ARCHITECTS' JOURNAL" requires a full-time DRAUGHTSMAN to assist in the preparation of Information Sheets and Working Details. First class draughtsmanship, knowledge of building construction and a keen interest in the compilation of technical information. Write to the Editor (Information Sheets), 9, Queen Anne's Gate, S.W.1, stating age, architectural training, and experience.
913

ARCHITECTURAL ASSISTANTS required for St. Albans office for work on School, Commercial and Housing projects. Should be good draughtsman with contemporary outlook. Good Salaries. Write to Box 9579.

ARCHITECTURAL ASSISTANT required in busy London office with varied practice. Good salary and prospects for suitable applicant. 5-day week. Write, giving particulars of age, qualifications, experience, etc., to Box 775, c/o 7, Coptic Street, W.C.1.
9313

SEELY AND PAGET have two vacancies in their City office for QUALIFIED/UNQUALIFIED STAFF. The work is varied and covers Ecclesiastical, Colleges, Schools, Domestic and General Work. Salary range £330-£795.—Telephone in the first instance CENTral 0321.
9681

ARCHITECTS, SENIOR ARCHITECTURAL ASSISTANTS required immediately for a wide variety of work. Salary range £700-£975 per annum. Superannuation scheme. Application should be made in writing to Kenneth F. Masson, A.R.I.B.A., Chief Architect, S.C.W.S. Ltd., 76, Morrison Street, Glasgow, C.5.
9491

ARCHITECTURAL ASSISTANT of Intermediate standard, preferably with previous office experience, required immediately for busy general practice in Home Counties. Travelling expenses to interview paid.—Write, stating age, experience and salary required, to Box 9796.

BOISSEVAIN & OSMOND require JUNIOR ARCHITECTURAL ASSISTANTS with a contemporary outlook. They should be good draughtsmen with some office experience. Excellent opportunities for rapid advancement for the right man; it is our policy to give responsibility commensurate with ability. Please telephone HOL 3381 for appointment.
9791

ARCHITECT'S CO-PARTNERSHIP require qualified ASSISTANT with experience.—Write 44, Charlotte Street, London, W.1, or telephone LANGham 5791.
9776

ARCHITECTURAL ASSISTANT required in London by a firm of City Architects, for work on modern office buildings.—Please telephone CENTral 7748.
9772

JUNIOR ARCHITECTURAL ASSISTANT of Intermediate standard required in small, busy office with varied practice. Opportunity to show initiative and to gain varied experience by working on contracts from sketch to completion.—Apply, stating age, experience and salary required, to G. H. B. and Roy Gould, A.R.I.B.A., Hurlingham Chambers, Station Road, Clacton-on-Sea.
9745

ARCHITECTURAL ASSISTANTS urgently required for interesting and varied work on industrial, commercial and housing projects.—Please apply, giving full details of age, training and architectural experience, and stating whether or not housing accommodation would be required, to Chas W. Fox, F.R.I.B.A., 22, Parkway, Weiwyu Garden City, Herts.
9759

JUNIOR ASSISTANT required in City Office. Good draughtsman. Salary by arrangement and according to ability.—Write, stating age and experience, Box 9101.

ARCHITECTURAL ASSISTANTS required in busy office with much varied work. 5-day week. Previous office experience desirable.—Write, stating experience and salary required, to Graham Crump & Denis Crump, F.R.I.B.A., 40, George Street, Croydon.
9692

EXPERIENCED DRAUGHTSMAN required for Drawing Office dealing with design of houses, shops, factories, etc., and estate layouts. As main work at present is housing estate development on a large scale, experience in that sphere is essential. The post is permanent and pensionable.—Apply H. C. JAMES, LTD., Builders, 183, High Town Road, Luton, Beds.

ARCHITECTS' ASSISTANTS required. Opportunities for responsibility in varied general practice.—Apply Imrie, Porter & Wakefield, 35, Market Place, Warrminster, Wiltshire.
9668

J. M. AUSTIN-SMITH & PARTNERS require TANT, to organise and run varied industrial and commercial contracts. Salary will be according to age, also length and type of experience, but within the approximate range of £775 to £850.—Apply by telephone or letter to 29, Sackville Street, W.1. Regent 6183.
9669

RONALD WARD & PARTNERS require several ARCHITECTURAL ASSISTANTS with contemporary outlook and willing to use own initiative. Salary range £500 to £800. Interesting and varied work, home and abroad. Congenial working conditions.—Apply 29, Chesham Place, Belgrave Square, S.W.1. Telephone Belgrave 3361.
9189

ARCHITECTURAL ASSISTANT required in small, general office, good salary offered, summer holiday guaranteed.—Apply in writing to Booth & Booth, Leighton House, Potters Bar, Middlesex.
9514

ASSISTANT ARCHITECTS required on new system of prefabrication for school and hospital buildings, etc. Permanency. Superannuation scheme available.—Write or 'phone, stating age, experience, salary required, to J. Thorn & Sons, Ltd., Brampton Road, Bexleyheath, Kent. 'Phone 305.
9871

JUNIOR DRAUGHTSMAN required, with good knowledge of building construction. State experience and the salary required to Messrs. Winter & Pickering, L.A.R.I.B.A., Chartered Architects, 114/115, Holborn, London, W.1.
9873

SENIOR ASSISTANT ARCHITECT for varied work on transport and commercial building throughout England and Wales. 5-day week and pension scheme.—Applications to Alan A. Briggs, F.R.I.B.A., 10, Fleet Street, E.C.4.
9876

ASSISTANT required for general practice in Bedford. Salary according to experience. Good prospects.—Please reply with full details to Box 9863.

WANTED, in Architect's office in Doncaster, capable QUANTITY SURVEYOR, for works up to £40,000. Salary by arrangement.—Write to Box 9836.

ARCHITECTURAL ASSISTANTS required for large shop development programme offering wide variety of design work and prospects of promotion. Ideal conditions in Welwyn Garden City. Travelling allowance paid until resident locally. Commencing salary £700 to £850.—Box 9864.

ARCHITECTURAL ASSISTANTS required, with 3 to 5 years' office experience.—Write, giving full particulars, stating age, experience, salary required, Tripe & Wakenam, 16, Fitzhardinge Street, W.1. 9640

SHOPFITTING DRAUGHTSMEN required for large shop development programme offering wide variety of design work and prospects of promotion. Ideal conditions in Welwyn Garden City. London applicants qualify for priority in housing scheme. Travelling allowance paid until resident locally. Commencing salary £700 to £850.—Box 9865.

ARCHITECTS' ASSISTANTS required immediately. Inter./Final standard. Salary according to experience. 5-day week. Staff canteen. Pension scheme.—Applications in writing, giving full details of age, experience, and salary required, to Personnel Dept., British Home Stores, Ltd., 129, Marylebone Road, London, N.W.1. 9857

ARCHITECTURAL ASSISTANT or BUILDING SURVEYOR required in Central London office for general work on commercial buildings. Some previous experience is essential, which need not be all architectural.—Apply in writing to Percy V. Burnett & Partners, 12, Bloomsbury Square, London, W.C.1. 9842

ASSISTANT ARCHITECTS required immediately in very busy, varied, and expanding practice. Sound knowledge of building construction, first-class draughtsmanship, and several years' experience essential. Salary £600—£1,000, according to qualifications and ability.—Full details in writing to Robert H. Matthew, C.B.E., F.R.I.B.A., 31, Regent Terrace, Edinburgh, 7. 9845

ARCHITECTURAL DESIGN DRAUGHTSMAN (male) required by THE SHELL PETROLEUM COMPANY, LIMITED, for their estates department. London office. Should be able to prepare working drawings for structural alterations and layout and equipping of large and small offices. Age 25/32. Salary according to experience and qualifications. Pension scheme. Canteen facilities, social and sports club activities.—Apply in writing, with full details, to Staff Dept. (R), The Shell Petroleum Co., Ltd., St. Helens Court, Great St. Helens, London, E.C.3. 9844

ARCHITECTS' ASSISTANT required, qualified or Final standard.—Apply, stating age, experience, and salary required, A. Bracewell & Son, 10, Barnton Street, Stirling. Tel. 11.6. 9854

TWO LEADING ASSISTANT ARCHITECTS are required in the Regional Architect's Office, Euston. Applicants must be Associates of the R.I.B.A. and have several years' experience with ability to control staff. Must have a progressive outlook and a sound knowledge of modern structural technique. Salary £1,015, rising to £1,115. 5-day week. Superannuation scheme. Residential and other travelling facilities available.—Apply in writing, giving particulars of age, qualifications and experience, to the Chief Civil Engineer, Reference 25, British Railways, London Midland Region, 5a, Euston Grove, London, N.W.1. 9835

SENIOR ASSISTANT ARCHITECT for varied work on transport and commercial buildings throughout England and Wales. 5-day week and pension scheme.—Applications to Alan A. Briggs, F.R.I.B.A., 10, Fleet Street, London, E.C.4. 9847

BIRMINGHAM CO-OPERATIVE SOCIETY require **SENIOR ARCHITECTURAL ASSISTANT** in their architect's and works department. Must be Final R.I.B.A. standard, preferably with some knowledge of shop fitting; able to prepare surveys and have knowledge of construction. Salary by arrangement.—Apply to Personnel Officer, Birmingham Co-operative Society, Ltd., High Street, Birmingham, 4. 9630

ARCHITECTURAL ASSISTANT (R.I.B.A.) Intermediate or equivalent standard, interested in contemporary design, required in small West End office of Architect dealing with design of chain shops. Salary range £600 to £800, depending on experience.—Box 9836.

LONDON CONSULTANTS require **ARCHITECTURAL ASSISTANTS** for design work on Atomic Power Stations. The vacancies offer great opportunities and scope for the right applicants, who should be qualified or have reached Final Standard for A.R.I.B.A. Staff Pension Scheme. Please apply in confidence to Box 353, Gowers Advertising, Ltd., 351, Oxford Street, London, W.1. 9078

ARCHITECTURAL ASSISTANTS, all grades, required in Progressive Office. Varied and interesting work at home and abroad. Good salary and prospects for Assistants with ability and initiative.—Arthur Swift & Partners, 16, Manchester Square, W.1. Tel.: Hunter 0354. 9839

A PERMANENT career in an Oil Company exists for **CIVIL ENGINEERING DRAUGHTSMEN** (25-35 years of age), who have experience of Reinforced Concrete Structures, foundations. Applicants should have a good basic training and should be qualified up to O.N.C. level. The offices, which are situated in the West End, have a restaurant and snack bar. Employees receive 3 weeks' leave annually. Full details will be supplied to those applicants who are interviewed.—Write, quoting No. 629, to Box No. 9910, c/o Charles Barker & Sons, Ltd., 31, Budge Row, London, E.C.4. 9848

ARCHITECTURAL ASSISTANT required for young and progressive practice in Haslemere, Surrey. Should possess Intermediate R.I.B.A., with minimum 4 years' office experience. Commencing salary in region of £600 p.a. Car necessary. Mileage allowance.—Write, giving age, experience, to Box 9852.

BIRMINGHAM CO-OPERATIVE SOCIETY require a **JUNIOR ARCHITECTURAL ASSISTANT** in their architect's and works department. Must be Inter. R.I.B.A. standard, able to prepare surveys, and have knowledge of construction. Salary by arrangement.—Apply to Personnel Officer, Birmingham Co-operative Society, Ltd., High Street, Birmingham, 4. 9831

LARGE Organisation with commercial and industrial interests throughout Australia has vacancy in Sydney for qualified **ARCHITECT** to take charge building maintenance and construction. Applicants, aged 35/40, must have had experience steel and reinforced concrete construction and be prepared make career in Australia. Free passage, U.K. leave, assistance with housing. Interviews at London Head Office. Write giving age and particulars of qualifications and experience to Box 9879.

PERSONAL ASSISTANT required by General Manager of a large and well-known firm of Roofing Contractors. Applications are invited from men aged 30 to 40, possessing A.M.I.C.E., A.M.I.Struct.E., or similar qualifications, or failing this having wide practical and executive experience in the building trade. Energy, tact, and the ability to handle correspondence on a considerable scale are other important requirements. The post is situated in London, but occasional travel to any part of the British Isles may be necessary. It is pensionable, and offers excellent long-term prospects for the right man.—Applications, giving full details of education and experience to date, and salary required, should be addressed in strict confidence to Box 9887.

REQUIRED in the Architect's Department, Reckitt & Colman, Ltd., Norwich, **JUNIOR ARCHITECTURAL ASSISTANT**, age about 24, with some practical experience; large schemes and interesting work.—Please write, giving full particulars of qualifications (if any), experience, age, and salary required, to Secretary, Reckitt & Colman, Ltd., Norwich. 9650

JOSEPH EMBERTON, F.R.I.B.A., requires **ARCHITECTURAL ASSISTANT**, intermediate standard. Salary range £550—£750. 5-day week.—17, Cauntrey House, Eccleston Street, S.W.1. 9898

RETIRED DRAUGHTSMAN required by City Surveyors. Permanent position.—Details, etc., Box 9609.

ARCHITECTURAL ASSISTANT required, about intermediate standard, with office experience. Varied work and opportunity for experience in all aspects of architectural work, including site inspections.—Write, stating age, previous experience, and salary required, Bosock & Partners, Central Hall Buildings, Station Approach, Southampton, Midsex. 9634

MALE ARCHITECTURAL ASSISTANTS required, of intermediate standard. 5-day week. Luncheon vouchers.—Write full particulars, Lanchester & Lodge, 10, Woburn Square, W.C.1. 9611

LYONS, ISRAEL & ELLIS, 43, Portland Place, require **ASSISTANT**. Salary £750 to £800 per annum. Phone Langham 2791. 9690

ASSISTANT, with experience of domestic work, wanted for small, growing practice.—Write brief details to Peter Cleveland, A.R.I.B.A., 23, De Warden Street, W.1. 9846

ARCHITECTURAL ASSISTANTS, both Senior and Junior, required by private firm of Architects with well-established practice in Liverpool. First-class salaries offered to those having the right experience.—Apply Box 9820.

ARCHITECTURAL ASSISTANTS required by West End office with varied practice. Not less than Inter. standard and 3 years' office experience. 5-day week. Bonus scheme.—Write Welch & Lander, 38, Gloucester Place, Portman Square, W.1. 9822

BRITISH RAILWAYS, EASTERN REGION

MODERNISATION PLAN
VACANCIES exist in office of Architect, Eastern Region, King's Cross, for:—**TECHNICAL ASSISTANT**. Salary range, £672—£910. Considerable experience in architectural procedure and practice and possessing organising ability. Professional qualifications or degree desirable.

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	PAGE		PAGE		PAGE
A.B.C.D. (Raynes Park), Ltd.	109	Fencing & Gates, Ltd.	116	Neuchatel Asphalte Co., Ltd., The	78
Accrington Brick & Tile Co., The	107	Fibonite, Ltd.	107	Newall's Insulation Co., Ltd.	9
Adshad, Ratcliffe & Co., Ltd.	110	Freer, William, Ltd.	107	Nu-Swift, Ltd.	116
Aidas Electric, Ltd.	27	Frenger Ceilings, Ltd.	51		
Allied Guilds	116				
Allom Brothers	61				
Architectural Press, Ltd., The	92, 102, 106, 108, 115				
Ascot Gas Water Heaters, Ltd.	44	Green & Vardy, Ltd.	79	Parker, Winder & Achurch, Ltd.	102
Ashdowns, Ltd.	41	Greenwood's & Airvac Ventilating Co., Ltd.	35	Penfold Fencing & Engineering, Ltd.	106
Associated Lead Manufacturers, Ltd.	35	Griffin & George, Ltd.	119	Permanite, Ltd.	37
Association of Flooring Contractors	105	Gulf Radiators, Ltd.	88	Phillips Electrical, Ltd.	36
		Gypsum Mines, Ltd., The	16	Pierhead, Ltd.	81
				Pilkington Brothers, Ltd.	45
				Previte & Co., Ltd.	106
Batley, Ernest, Ltd.	113			Pyrok, Ltd.	58
B.B. Chemical Co., Ltd.	83				
Beckett, Laycock & Wulkinson, Ltd.	104	Hammond & Champness, Ltd.	31		
Bendz, Ltd.	107	Harvey, G. A., & Co. (London), Ltd.	91	Ranalah Gates, Ltd.	104
Berger, Lewis (Great Britain), Ltd.	50	Haskel Robertson, Ltd.	90	Rawlings Brothers, Ltd.	91
Bilston Foundries, Ltd.	82	Heatrae, Ltd.	105	Richardson & Starling, Ltd.	104
Black Sheathing Felt	46	Helical Bar & Engineering Co., Ltd.	14	Robertson Thain, Ltd.	4
Blacknell, H. & H., Ltd.	104	Henley's, W. T., Telegraph Works Co., Ltd.	53	Ronuk, Ltd.	62
Booth, John, & Sons (Bolton), Ltd.	55	Hill, Aldam, E., & Co., Ltd.	93	Ruberoid Co., Ltd., The	18
Bowater Sales Co., Ltd.	20, 21	Hills, F., & Sons, Ltd.	57		
Bowker, S. O., Ltd.	71	Holophane, Ltd.	56		
Briggs, William, & Sons, Ltd.	100	Hope, Henry, & Sons, Ltd.	74	Saniguard Appliances, Ltd.	100
British Insulated Callender's Cables, Ltd.	69	Hydran Products, Ltd.	42	Sebel Products, Ltd.	95
British Mouldex, Ltd.	29			Shearwater, Ltd.	94
British National Electrics, Ltd.	84			Small & Parkes, Ltd.	100
British Paints, Ltd.	23			Smith, Samuel, & Sons, Ltd.	102
British Plumber, Ltd.	34	Ibstock Brick & Tile Co., Ltd.	76	Sommerfelds, Ltd.	98
British Replin, Ltd.	43	Imperial Chemical Industries, Ltd.	85	Southern's Ltd.	67
British Titan Products Co., Ltd.	77	Imperial Chemical Industries, Ltd. (Plastics Division)	24	Standard Metal Window Co.	101
British Werno, Ltd.	93				
Burgess Products Co., Ltd.	40				
Cafferata & Co., Ltd.	15	Jenson & Nicholson, Ltd.	12	Thermacoust, Ltd.	96
Carlisle Plaster & Cement Co.	72	Johnson Brothers, Ltd.	89	Thermalite, Ltd.	11
Carron Company	60			Thorn, J., & Sons, Ltd.	99
Cascelloid, Ltd.	22			Thorp, J. B., Esq.	116
Catesbys Linoleum Contracts	80	Kay, William (Bolton), Ltd.	103	Toogood, Frank W., Ltd.	66
Cement Marketing Co., Ltd.	49	Key Engineering Co., Ltd., The	59	Trussed Concrete Steel Co., Ltd.	65
Central Electricity Authority	96			Tyrol Sales, Ltd.	116
Chloride Batteries, Ltd.	19				
Clarke Ellard Engineering Co., Ltd.	17	Laing, John, & Son, Ltd.	120	United Merchants, Ltd.	48
Clarke, J. H., & Co., Ltd.	47	Lawley, W. & J., Ltd.	86		
Colt Ventilation, Ltd.	3	Lead Sheet & Pipe Council	33		
Colthurst-Symons & Co., Ltd.	88	Leeds Fireclay Co., Ltd.	8	Val de Travers Asphalte, Ltd.	6
Costain Concrete Co., Ltd.	30	Logical Fuel Storage Units	98	Versatile Fittings (W.H.S.), Ltd.	25
Cox Bros. & Co. (Derby), Ltd.	28	Lyons, J., & Co., Ltd.	90		
Crittall Mfg. Co., Ltd.	39				
Dale, John, Ltd.	26	McCarthy, M., & Sons, Ltd.	116	Walpamur Co., Ltd., The	5
Denton Edwards Paints, Ltd.	97	Mallinson, William, & Sons, Ltd.	73	Ward & Company	1
Dunn, Alexander, Ltd.	95	Mander Brothers, Ltd.	75	Warerite, Ltd.	64
Duresco Products, Ltd.	66	Menger, J., & Son	92	Watts Automatic Boilers	94
Dussek Bitumen & Taroleum, Ltd.	119	Marley Tile Co., Ltd., The	70	Wheeler, F. H., & Co., Ltd.	113
		Medway Buildings & Supplies, Ltd.	38	Wood, Edward, & Co., Ltd.	13
		Mellor Bromley & Co.	103		
		Merchant Adventurers, Ltd.	63		
Econa Modern Products, Ltd.	92	Metal Sections, Ltd.	68		
Ellis, John, & Sons, Ltd.	87	Metal Window Association, The	10	Yale & Towne Manufacturing Co.	7
Ellis School of Architecture, The	116	Mills Scaffold Co., Ltd.	2		
Empire Stone Co., Ltd.	52	Mint, The	101		
Esavian, Ltd.	89	M.K. Electric, Ltd.	54		
Expanded Metal Co., Ltd., The	32	Monk, A., & Co., Ltd.	99	Zinc Alloy Rust Proofing Co., Ltd.	109

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Education, Legal Notices, Miscellaneous, Property, and Land Sales, see 109, 110, 111, 112, 113, 114, 115, 116

PAGE
..... 78 ☐
..... 9 ☐
..... 116 ☐

..... 102 ☐
..... 106 ☐
..... 37 ☐
..... 36 ☐
..... 81 ☐
..... 45 ☐
..... 106 ☐
..... 58 ☐

..... 104 ☐
..... 91 ☐
..... 104 ☐
..... 4 ☐
..... 62 ☐
..... 18 ☐

..... 100 ☐
..... 95 ☐
..... 94 ☐
..... 100 ☐
..... 102 ☐
..... 98 ☐
..... 67 ☐
..... 101 ☐

..... 96 ☐
..... 11 ☐
..... 99 ☐
..... 116 ☐
..... 66 ☐
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..... 48 ☐

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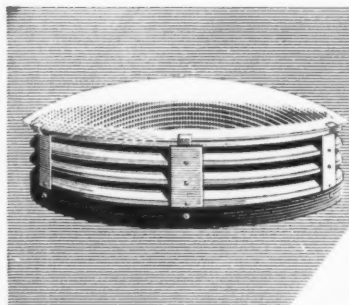
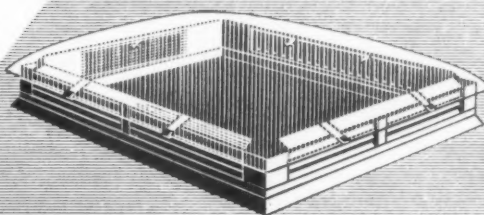
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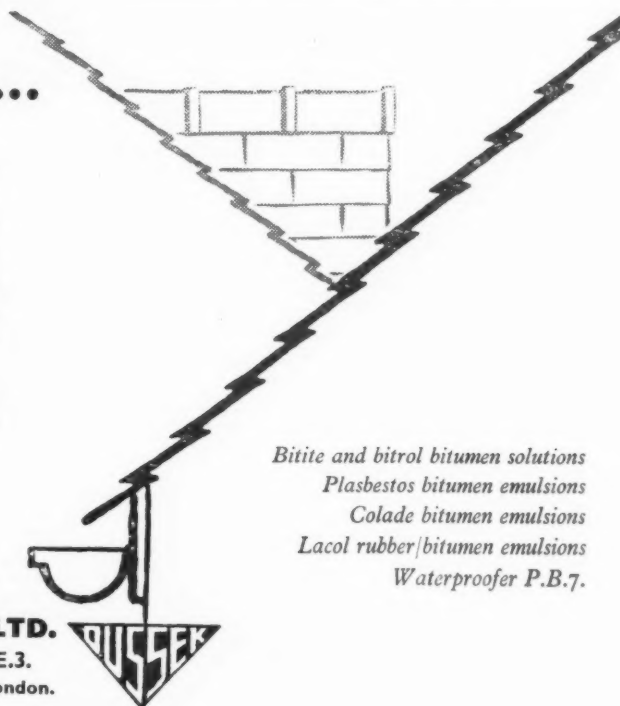
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