THE ARCHITECTS' JOURNAL

standard contents

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

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No. 3042] [VOL. 117

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Registered as a Newspaper.

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy. : W. Marlborough Whitehead, " Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
APRR	Association for Planning and Regional Reconstruction. 34, Gordon Square, W.C.1.	Euston 2158-9
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
AScW	Association of Scientific Workers. 15, Half Moon Street, Piccadilly, W.1.	Grosvenor 4761
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13.	Perivale 6869
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Euston 5385
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Millbank, S.W.1.	Whitehall 5140
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 5491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland.	
COID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Abbey 7080
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated), Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 8, Buckingham Palace Gdns., S.W.1.	Sloane 2837
FASSC	Federation of Association of Specialists and Sub-Contractors, 5, Arundel Street, Strand.	Temple Bar 6633
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4041
FS (Eng.)	Faculty of Surveyors of England. Buckingham Palace Gdns., S.W.1.	Sloane 2837
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1	Abbey 5215

5434
6052

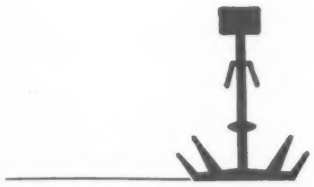
IT

P

GLAZING

DONCASTER POWER STATION

There is hardly a corner of the new Doncaster Power Station that is not flooded with natural light. It comes, in the main, through the 36,000 sq. ft. of Georgian glass that is set in Williams & Williams Aluminex Patent Glazing.



Five men fixed all Aluminex

The steel framed power station is almost completely clad in glass and aluminium sheeting clipped into Aluminex aluminium alloy bars. Aluminex is also extensively used in the ancillary buildings—yet it was all fixed and glazed to schedule by the Williams & Williams site team of only five men. Working in cradles hung from permanent cradle rails (permanent, to facilitate future servicing) they put up complete walls of glass in astonishingly short times. All the East gable Aluminex, for instance, was fixed to the structural frames and then glazed in 10 working days.

Mansard Sheeting and Opening Lights

The Aluminex system is very versatile. On the right can be seen several tiers that have been clad with Mansard ribbed aluminium sheeting. This solid in-filling is used where unsightly internal structures are immediately next to the glazing. A 175 ft. stretch of hoppers in the conveyor house and heavy internal crane rails are concealed in this way.

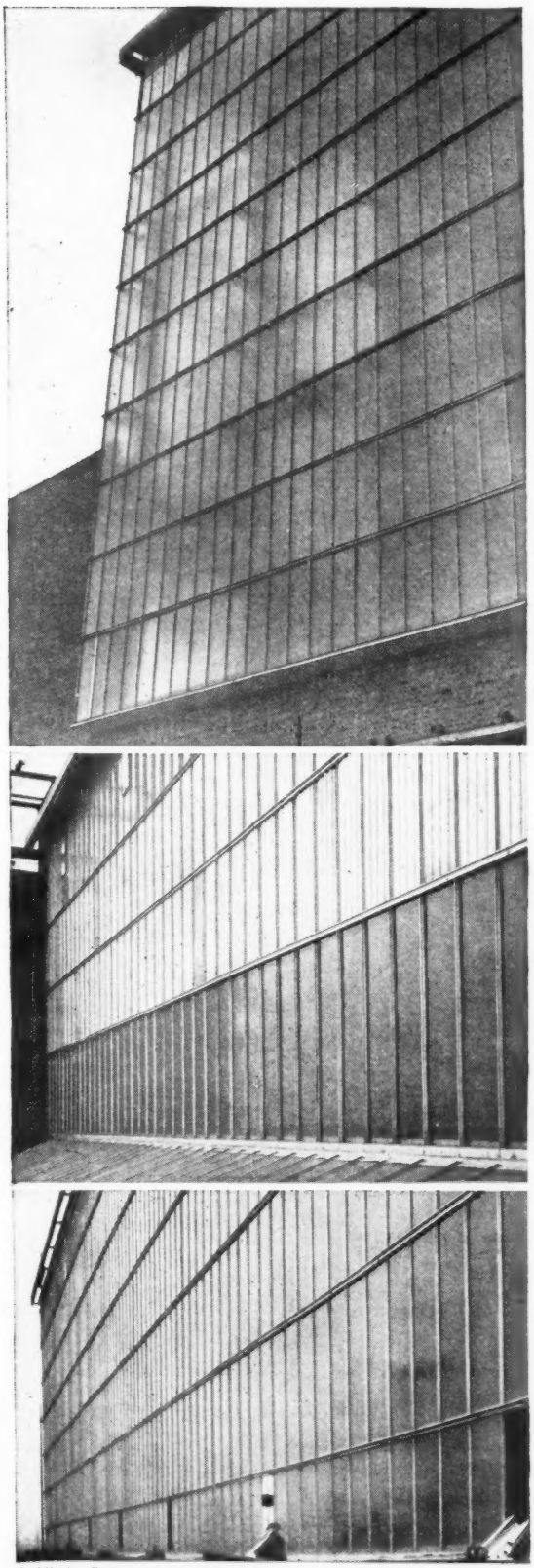
Ventilation at Doncaster is achieved by further tiers of Aluminex continuous sidewall opening lights. These are operated electrically by remote control.

Puttyless, paintless Aluminex

Aluminex maintenance costs are negligible. Painting is unnecessary, even though the air round the power station is so corrosive, since the glazing bars were extruded from special corrosion resistant aluminium alloy. This alloy rapidly oxidises to form a patina that is its own permanent protective covering. Accidental glass breakages, almost the only maintenance item, can be replaced in a few minutes.

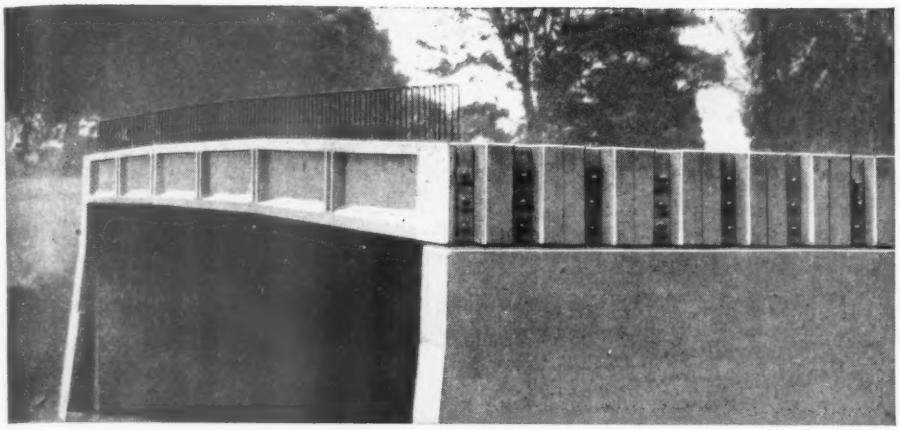
Metal windows and doors

Williams & Williams contribution to the growing power of Britain is not confined to Aluminex or to Doncaster. Their metal windows, both standard and purpose-made, and their metal doors, will be found in power houses, gas works, and hydro-electric schemes at Braehead, Stourport, Rye House, Keadby, Beckton and Loch Sloy.



Architects: Farmer & Dark, F.F.R.I.B.A.
Chief Consultant Engineers: Ewbank & Partners Ltd.
Civil Engineering Consultant: Sir William Halcrow & Partners, MM.I.C.E.

Williams & Williams Ltd., *Makers of metal windows, doors and Aluminex Patent Glazing,* **Reliance Works, Chester**



1,100 ft. Prestressed Concrete Culvert for the Lee Conservancy Catchment Board. Engineer: Marshall Nixon, M.B.E., T.D., B.Sc., A.M.I.C.E., A.M.I. Mech.E.

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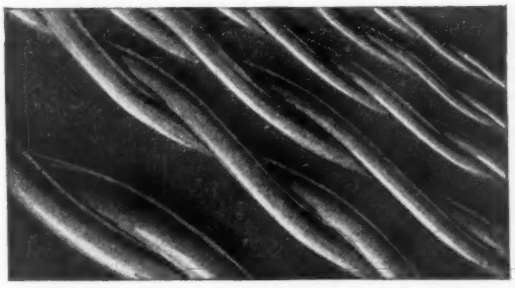

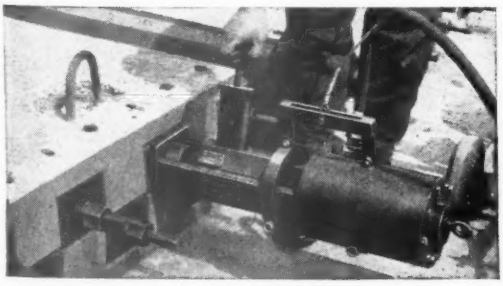

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SRB. 47

A Window in Kensington

BY EDWIN LA DELL

There are also in Kensington many modern blocks of flats, offices, and other buildings, in which Crittall Windows have more than outweighed regret for the charm of the old by what they have brought in efficiency and comfort to the new.

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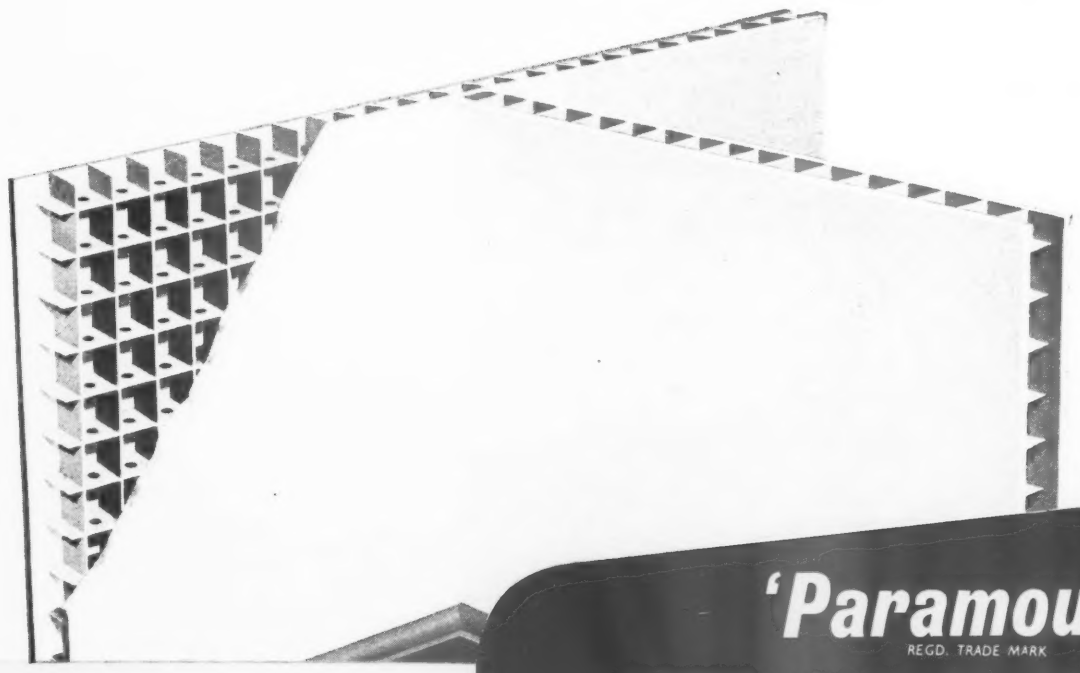

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The Partition comprises two 'Paramount' Plaster Wallboards separated by a fibrous interior in the form of square cells. This form of construction gives extraordinary strength and lightness; it entails the minimum of site-labour and is therefore economical.

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Being constructed of Gypsum materials, the Partition is exceptionally resistant to fire, both as regards flame penetration and spread. It is classified as Grade 'E' ($\frac{1}{2}$ hour) after Fire Research Station tests.

BPB THE BRITISH PLASTER BOARD LTD

SOU

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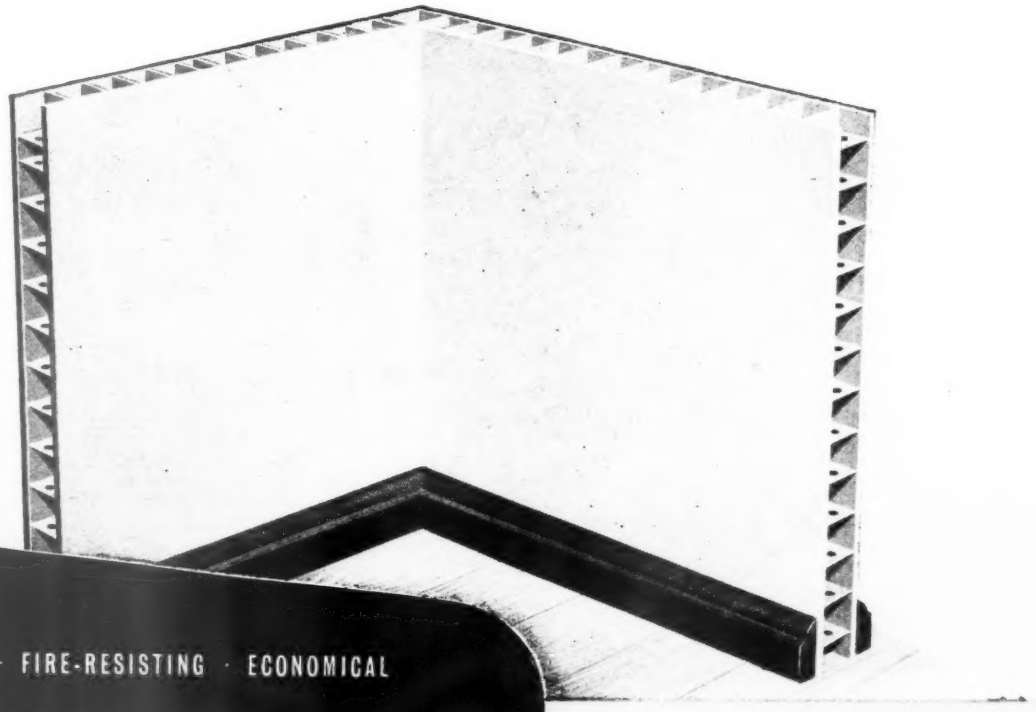
Dry Construction Technique



PERMANENT · FIRE-RESISTING · ECONOMICAL

MINIMUM OF SITE LABOUR

Economy

Paramount Dry Partition is light in weight and easy to handle. Erection is extremely simple and the Partition can be cut to size with a panel saw. Off cuts have the same qualities as the complete units and can, therefore, be utilised for smaller areas.

Decoration

Once the Partitions are erected, decoration can follow immediately without further preparation. Junctions with walls, other partitions, ceilings and floors are simple to carry out and doors, windows, serving hatches, etc., can be incorporated. Pipes, electric wiring, etc., are accommodated inside the partition.

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Paramount Dry Partition is made in two thicknesses,—2¼" and 2½",—using ⅜" and ½" facing boards respectively. Stock sizes are 7' 6" and 8' 0" long by 3' 0" wide. Other lengths from 6' 0" to 12' 0" are supplied to order and units of 4' 0" width are also available. Send for fully illustrated Brochure showing methods of construction.

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NORTHERN SALES OFFICE: 192 BIRKENHEAD ROAD, WALLASEY, CHESHIRE. Telephone: Birkenhead 4411-23

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★ **SMART APPEARANCE** because Lancaster Washable Wallcovering is so easy to keep clean and fresh. Manufacturing methods ensure even colouring and an attractive finish. No risk of unsightly cracks as in painted walls.

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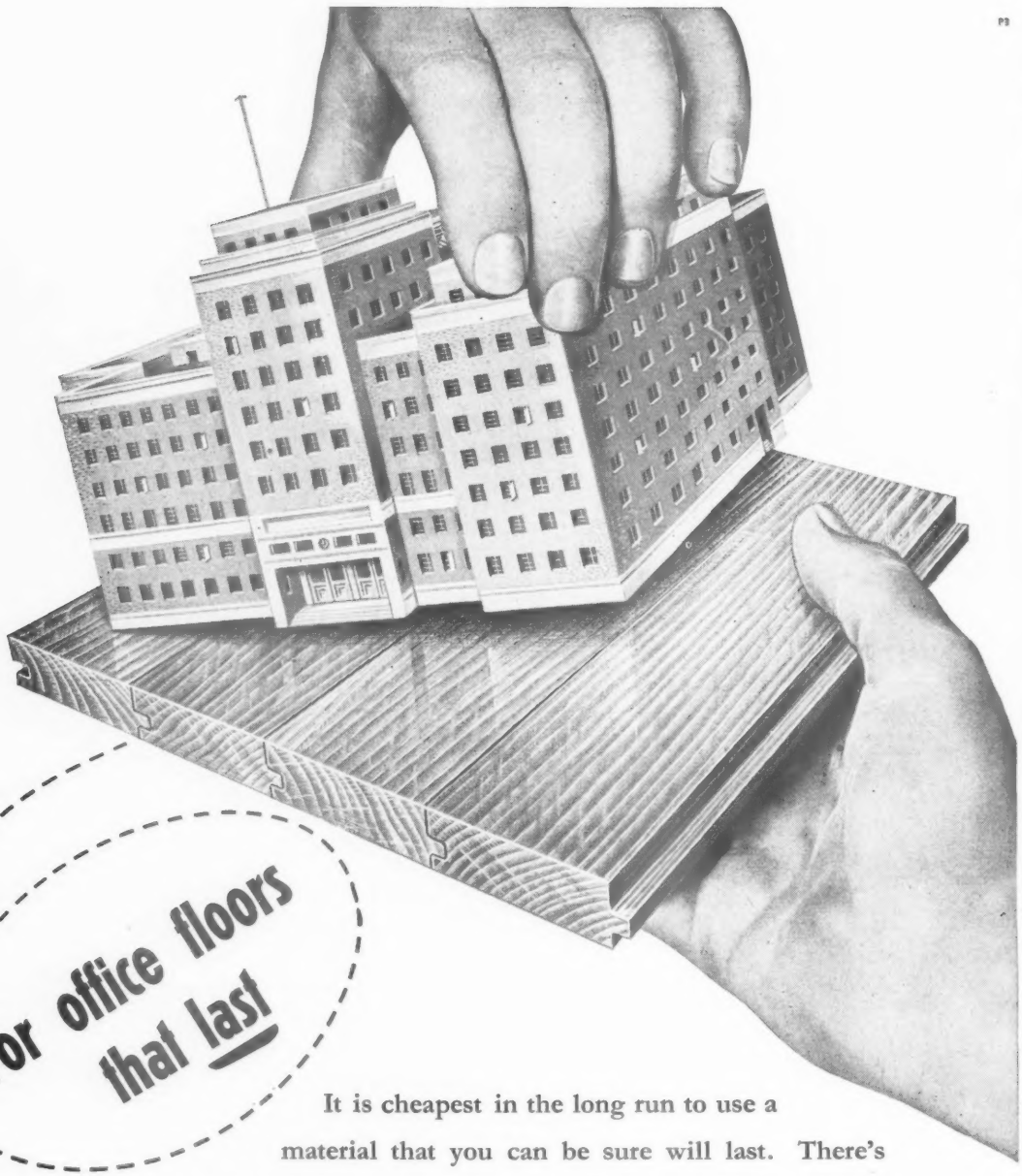
Paton & Baldwin Ltd. Canteen—Darlington
Photograph by courtesy of Paton & Baldwin Ltd. Architects: Sir Alex Gibbs & Partners, Queen Anne's Lodge, London, S.W.1.



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It is cheapest in the long run to use a material that you can be sure will last. There's nothing like wood flooring to give an office building that feeling of comfort and warmth, that appearance of quiet elegance. Hardwoods, with few exceptions, are licence-free, and technical data on the numerous species available can be obtained from the Timber Development Association.

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And that *something* adversely affects the exterior paintwork of buildings on the coast—it is salt and moisture in conjunction with strong sunshine. To resist this destructive combination, *International* offer SUNLIGHT SEA-COAST ENAMEL—an alkyd enamel which has emerged successfully from the severest tests to which paint can be subjected. It will stand up to sea air, retain its gloss for some considerable time, and so save the expense of frequent repainting.

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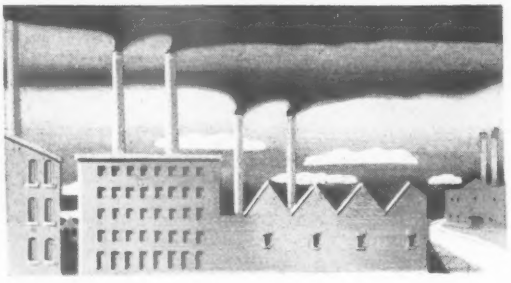

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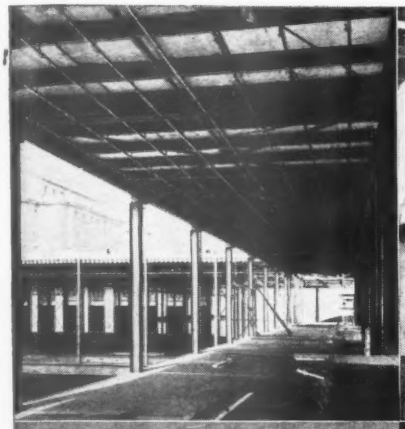
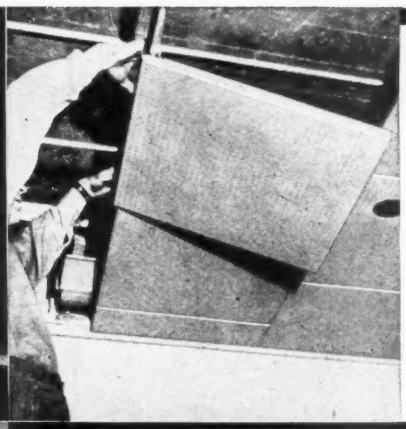
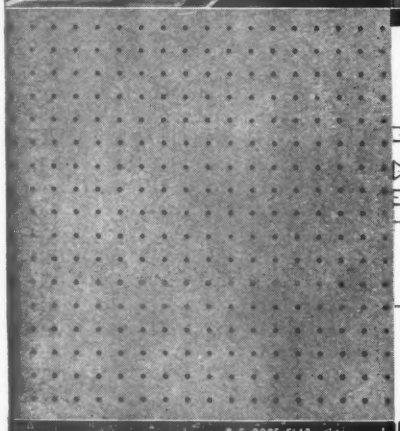
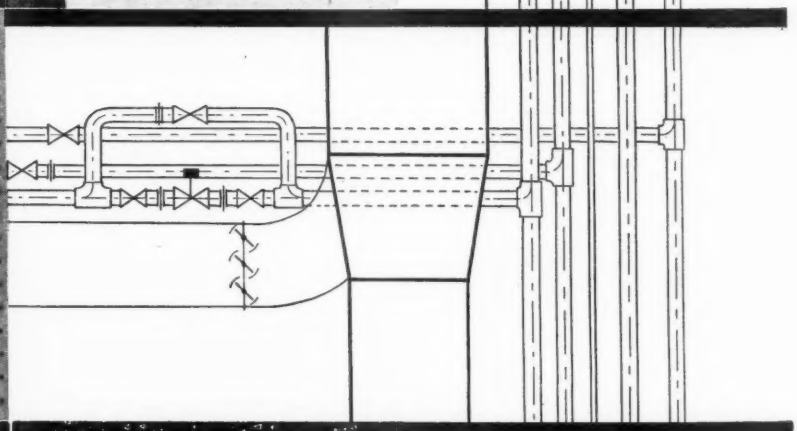
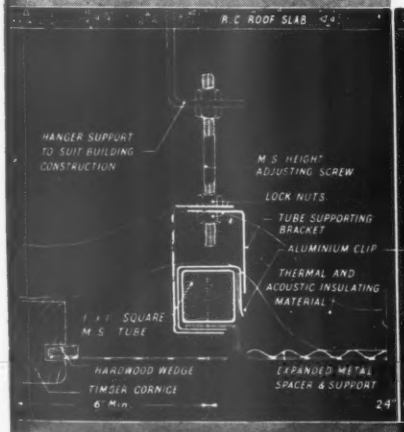
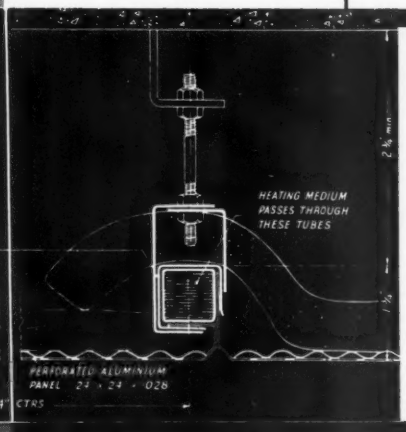












A terrace of houses.

HOUSES THAT SAVE SOFTWOOD

Ministry of Housing Demonstration Scheme, Basingstoke

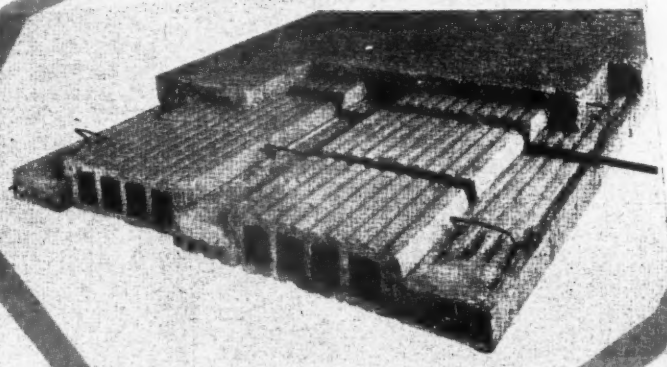
A PRACTICAL demonstration of building houses with less softwood is described in a booklet* just published. The demonstration has been undertaken on the instructions of Mr. Harold Macmillan, Minister of Housing and Local Government, and Mr. David Eccles, Minister of Works, in order to show that, if the need should arise, good houses can be built at a relatively small extra cost using less softwood.

The experiments were begun some months ago on a Ministry of Supply site at Basingstoke by a team under the leadership of Mr. Ernest Marples, Parliamentary Secretary to the Ministry of Housing and Local Government, at a time when it was doubtful whether enough foreign currency could be spared from more urgent needs to import all the softwood required for the expanding housing programme. In a joint foreword to the booklet Mr. Macmillan and Mr. Eccles say that, although at the moment the improved financial and economic condition of Great Britain and the better state of our balance of payments allow a good importation of softwood timber, they are determined that, whatever may be the situation, housing shall not be held back by lack of preparedness. They ask local authorities and builders to study the experiments and, if they will, to improve upon them.

The introduction to the booklet, which stresses that the investigation was carried out as a precautionary measure, points out that most of the timber used in Britain's housebuilding has to be imported and paid for in foreign currency, and that a large part of the softwood comes from North America.

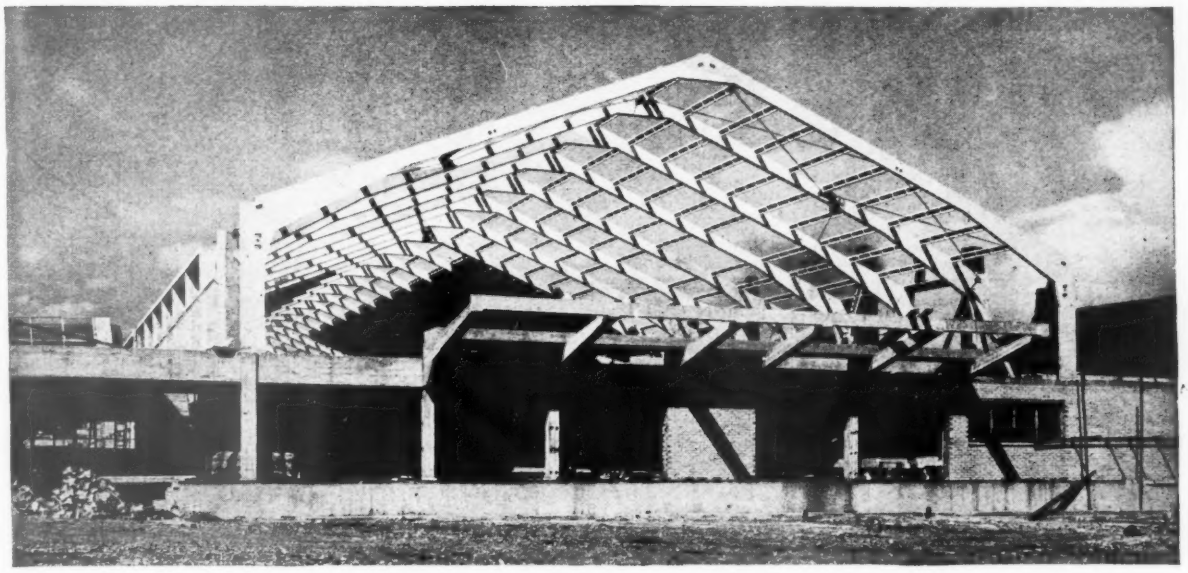
"The ability to build houses with less softwood (or with none at all), if the need should arise, would be worth a great deal to the national economy," says the booklet. "But this means new methods of housebuilding, and new methods take time to perfect and develop. Houses have to be comfortable and they have to be weatherproof; they have to be warm and they have to be strong. How far alternative materials can give these qualities can only be judged by experience. Also many people want to see the results of using new methods before accepting them.

"Accordingly the two Ministers set their technicians to work on a practical demon-



Section of floor with prestressed planks and hollow clay blocks with fine concrete topping.

* "Houses that Save Softwood." H.M. Stationery Office, price 1s. 6d.



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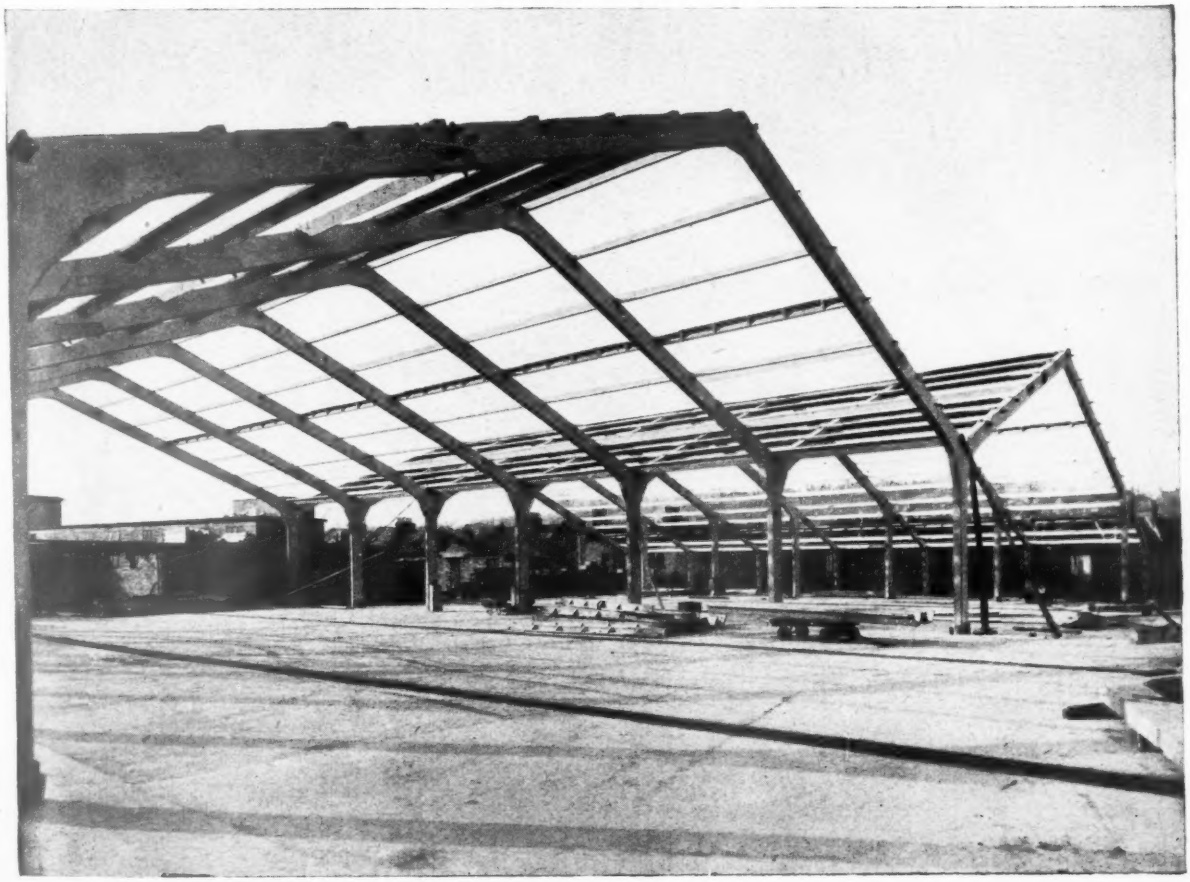

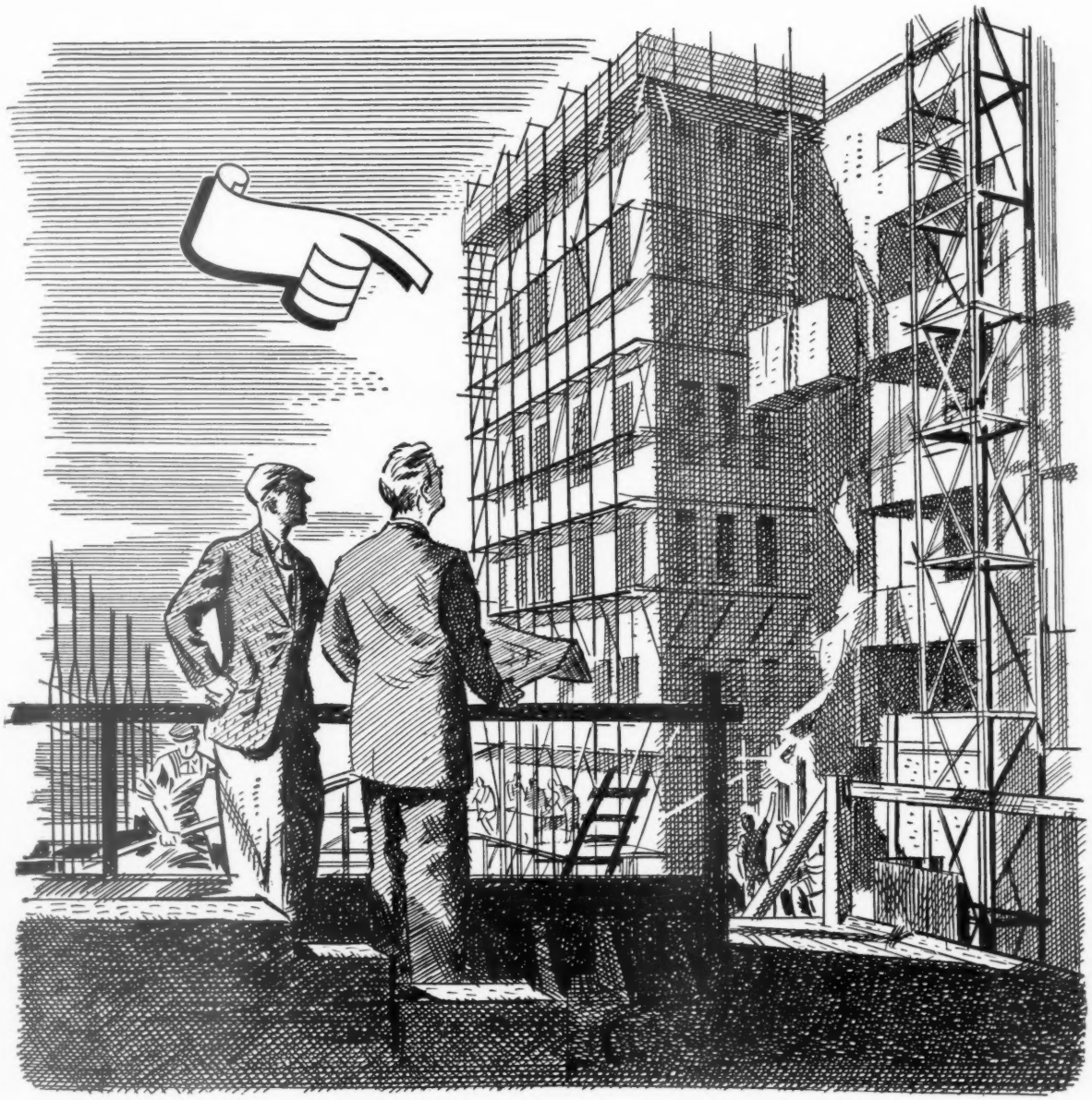

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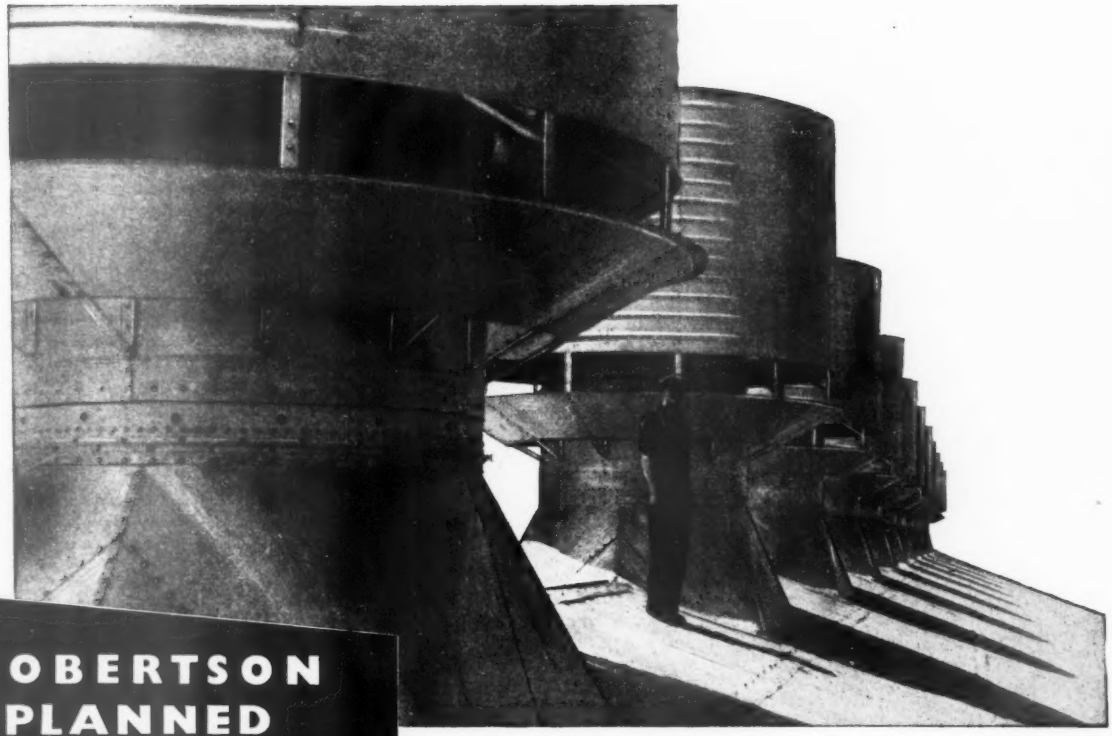

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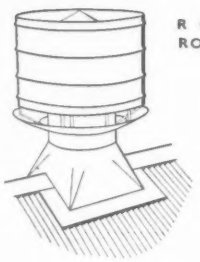

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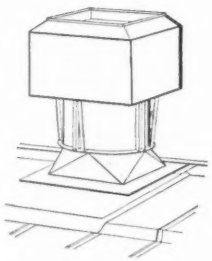

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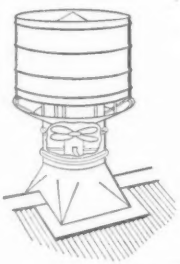

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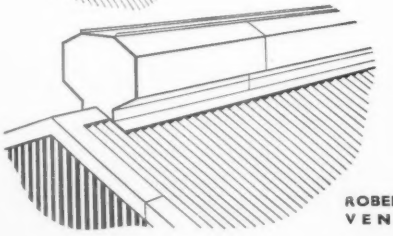

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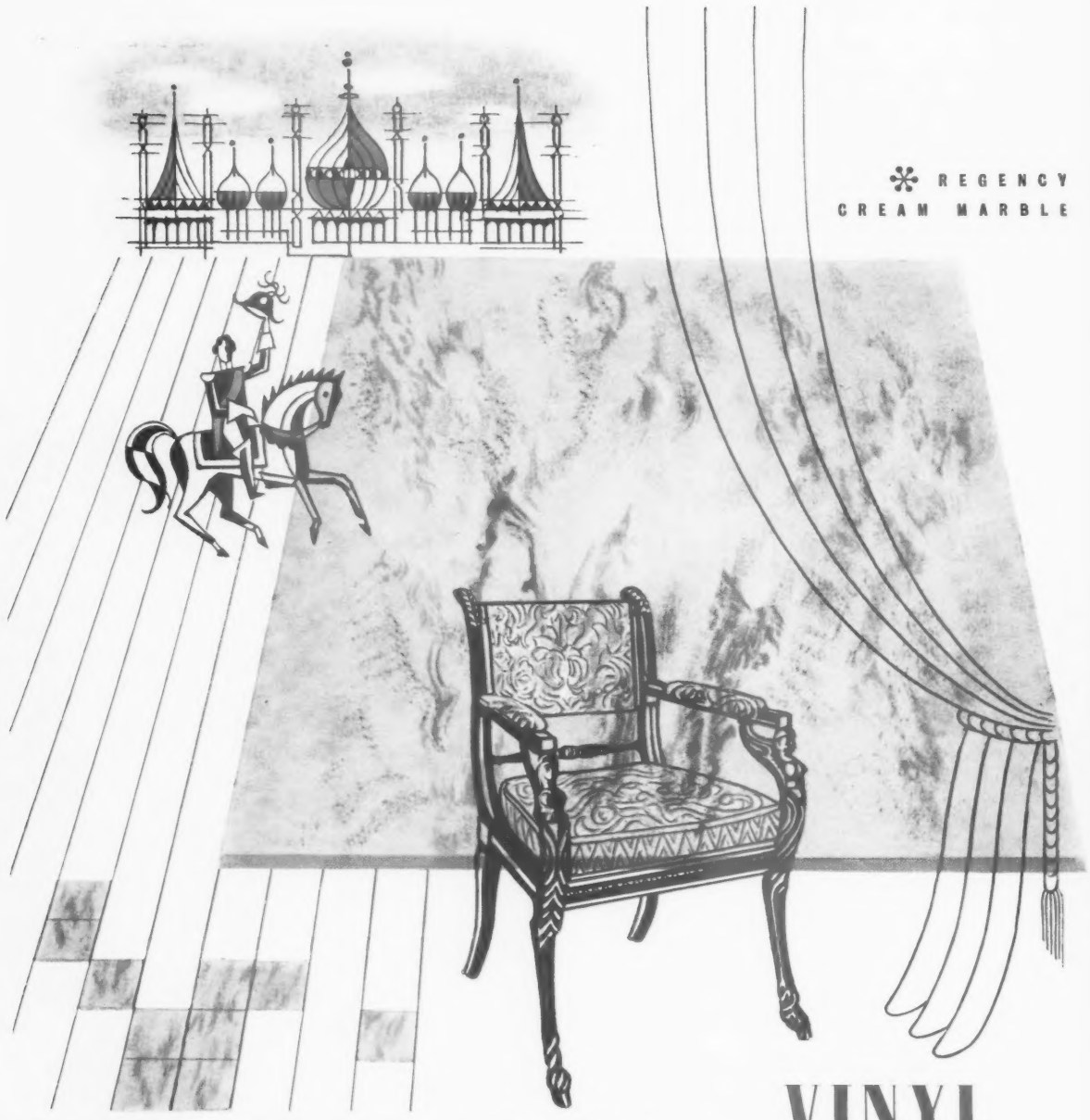

The opening years of the nineteenth century saw the beginning of mechanical invention, philosophic teaching, romantic novels, poetry and political forces that were to change the pace and face of the world. All this ferment of thought and action was reflected in the new furnishings of the time, now popularly known as English Regency, after the Prince who became Regent for George III. The colour of the Semastic Decorative Tile illustrated is a cream used in much of the Regency furnishings, now standardised by the British Colour Council who collaborated in the selection of colours for both Semtex Vinyl and Semastic Decorative Tiles. Architects will find that this dual range offers them the widest possible scope for colourful decorative schemes to satisfy both æsthetic and practical considerations.

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THE ARCHITECTS' JOURNAL

9, 11 & 13, Queen Anne's Gate, Westminster, London, S.W.1 Whitehall 0611

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ARCHITECTS CONFER

To be brutally frank, the South-Eastern Society of Architects, the organizers of this year's British Architects' Conference at Canterbury and Folkestone, failed in their attempt to introduce a more serious note in this annual outing. The fault was not entirely theirs. For those who have never attended a conference, and that must be three quarters of the profession, here are the principal events. First, an informal reception on Wednesday evening, in Folkestone, when after a Presidential how-de-do, the members and their wives drank, gossiped and, if feeling very virtuous, studied the exhibitions laid on by the hosts. Then, an inaugural meeting, on Thursday morning, with an address by the Mayor of the town (Canterbury), an address by the President, and followed by two speakers (S. A. W. Johnson-Marshall and Richard Sheppard) introducing their previously circulated papers and showing slides. A vote of thanks, proposed by Hugh Wilson and seconded by Denis Clarke Hall, and a "discussion" consisting of comments by six members before shortage of time drew the meeting to a close with replies from Johnson-Marshall and Sheppard.

*

After lunch there was a service (this is not usual) in Canterbury Cathedral and the annual garden party which, because of the rain, took place in the crypt of St. Augustine's Abbey. In the evening a reception, this time by the Mayor of Folkestone, and a dance, at the Leas Cliff Hall, Folkestone, the scene of the informal reception. This also is a regular event, when members dance, drink, gossip, etc.

*

Friday began with three more papers being introduced (by C. H. Aslin, Sidney Loweth and F. R. S. Yorke), the usual votes of thanks and a somewhat longer discussion. Those who did not want to attend could go on whole-day tours by bus of Kentish villages, with visits to country houses and castles (included were two schools). Friday afternoon, those who had attended the morning discussion went on half-day tours similar to the above. Friday night, the Conference dinner (melon, sole, chicken, ices, coffee, sherry, hock and port) and toasts proposed and responded to (apart from the Loyal Toast) by eight speakers (four architects, one member of Parliament, two mayors and the High Sheriff). Saturday morning, for those still active, consisted of further conducted tours.

*

This interminable list is a regular series of events which occurs at every conference. No wonder that the worthy organizers of this year's conference could not achieve as much as might be hoped in enlivening things. The conference proper is burdened by social events and by unnecessary speeches by those welcoming, proposing, thanking and toasting members. Tours and garden parties depend on good weather, and speeches depend on good speakers; when it rains, as it did last week, and when speeches are dull, both events become a lingering form of torture. However, the future is not entirely black. The South-Eastern Society have started a breakaway from the stultifying conference tradition, and have also revealed yet more of the faults in the present conference formula. It is up to next year's hosts —the Wessex Society—to see if they can carry the good work introduced this year by the South-Eastern Society a stage further, and it is up to the bright boys who attended and enlivened this year's conference to remain loyal to it and come again.

SEEING RED

The Federation of Painting Contractors has registered a protest at the "extravagant colour schemes" being carried out in schools and public buildings. It points to cases where 47 colours have been used, in comparatively small schools, with as many as six or more shades in a single classroom. While sympathizing somewhat with the

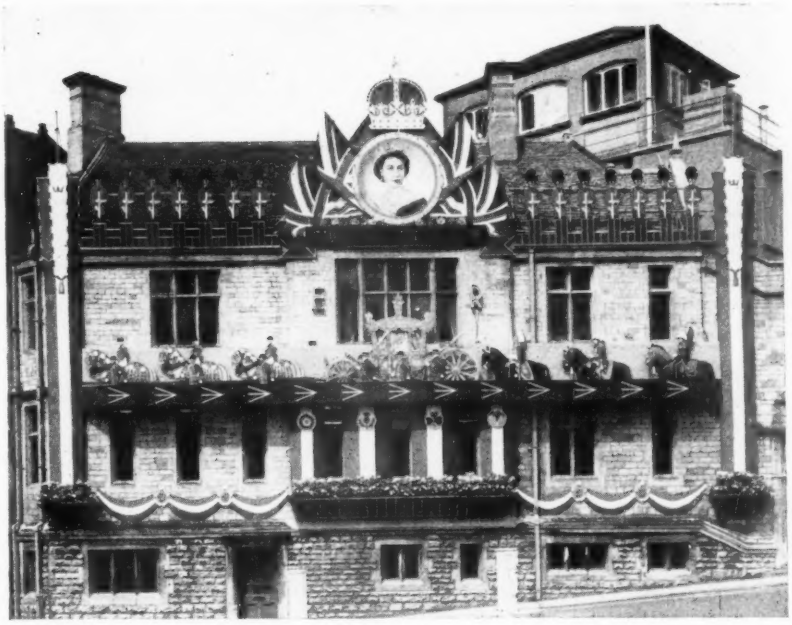
Federation's views—ASTRAGAL'S view is that the two best colours are black and white and even they should be used sparingly—a tiny *eau de nil* cloud of suspicion crosses my mind that this righteous outburst is not just in defence of the poor downtrodden taxpayer. Truly, we have rather let ourselves go in the field of colour these last few years and sometimes it has been hard to see the architecture behind the rouge; but this was all a natural reaction to war-time drabness and post-war austerity. It also helped to hide, let us face it, the poor quality of some of the substitute materials we have to use. In my experience it costs very little more to use many colours than it does to use only a few—to the quantity surveyor it's just paint, anyhow. It takes a great deal more effort on the part of both architect and contractor, and if this effort is sometimes misplaced it seems to please both teachers and pupils, and the public generally.

*

For a long time now the paint industry has had a pretty easy time of it. Now that competition is setting in, those manufacturers who have done a little pioneering and produced brighter, better and a greater variety of colours are reaping the benefits—and good luck to them.

PROPAGANDA

It is interesting to note that The American Institute of Architects has brought out a pamphlet on the profession called *Facts about Architecture & Architects*. Generally it is along similar lines to the R.I.B.A.'s *The Architect and His Work*. There are a few fascinating differences. The question of fees is put far more vaguely. No definite scale is given. Instead " the architect's fee is settled at an early conference with final arrangements stated in a formal contract or by letter countersigned by owner and architect " (how sensible and how one wishes it all was!). In spite of this curiously un-American (Senator McCarthy please note) diffidence in matters financial the pamphlet generally conveys more conviction in the idea that the architect really is worth having than *The Architect and His Work* does. " A good architect often saves the owner a sum much larger than his fee " . . . . " His contribution to the work enhances the value many times more than the amount of his charges " . . . . " The architect is a master builder who professionally plans buildings and supervises their construction. To the durability, adequacy and convenience of a building he adds that intangible ingredient—good design." Much more like this—fine stirring phrases which make one square one's shoulders, look the world in the face again and say we really are something. Especially the last section " The Architect and Better Living." If that doesn't haul in even the toughest businessman, the profession *is* doomed.



Following the JOURNAL'S *round-up of London's Coronation Decorations last week,* ASTRAGAL *illustrates an example from Stroud, above. H. R. Robinson's design for the facade of the Stroud Brewery Co.'s building at least tries to give inhabitants a chance to see what they might otherwise have missed. The coach wheels go round, the footmen's arms move and the guardsmen along the roof light up one by one.*

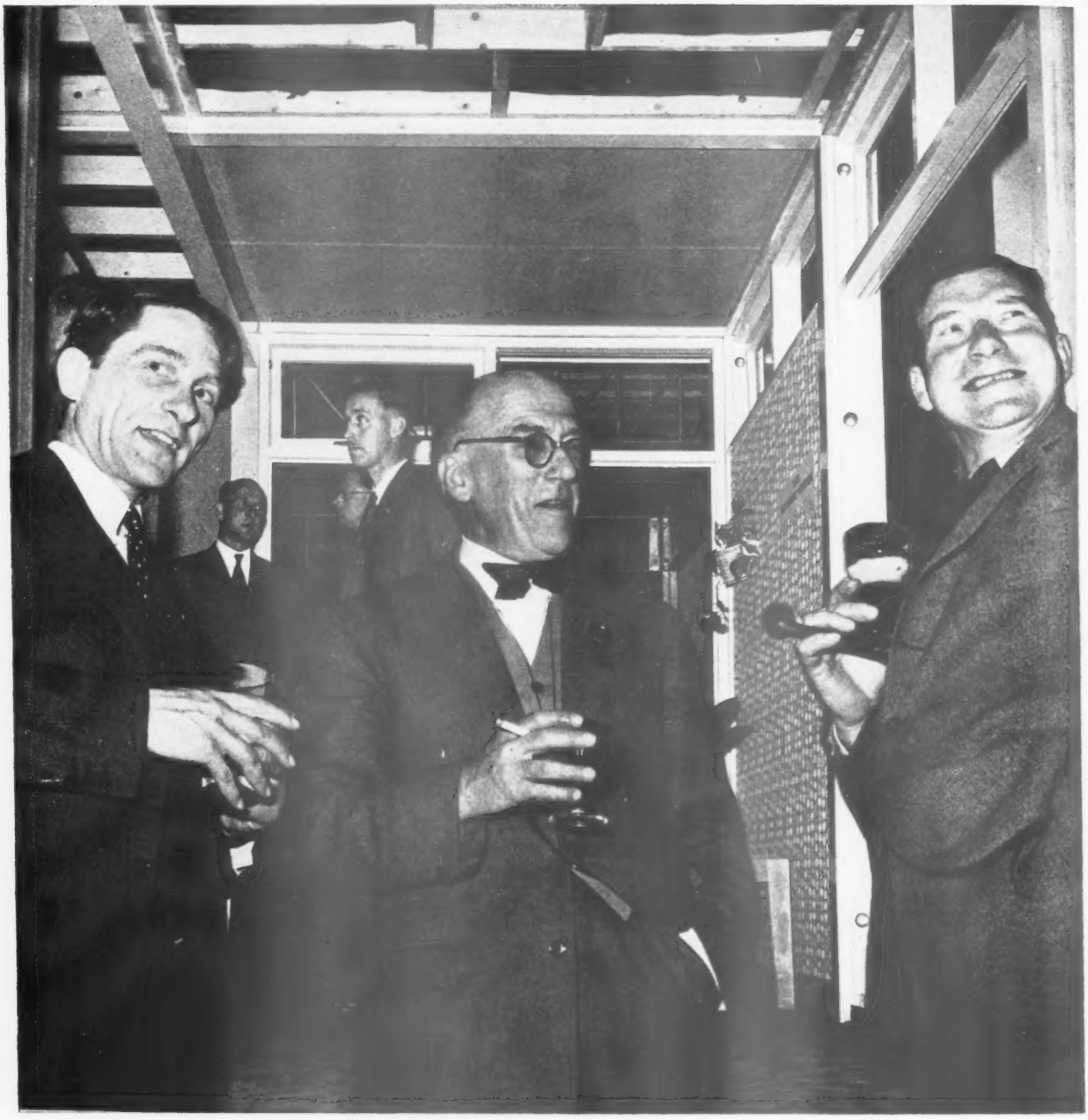
PLASTICS ON SHOW

ASTRAGAL went to the Plastics exhibition hoping to find some considerable emphasis on the building industry, but there wasn't, in fact, a great deal not seen before, except for two more of the translucent, glass-reinforced roofing sheets. The most interesting development seemed to be the car bodies and small boats made from glass-reinforced polyester resins, the technique being to mould the glass mats over a form (plaster of Paris, or some such) and then apply the resin afterwards, no heat and no pressure being necessary, a point which should help a great deal to reduce costs. A possible technique for furniture perhaps, as double curvatures are so easy. There is not much for architects in the rest of the show, but most of the stands are pretty good.

RAILWAY POSTSCRIPT

A postscript must be added to a note a couple of weeks ago about the Duke of Edinburgh's private saloon on the Royal Train. I praised it in contrast to its predecessors but described it as a little unadventurous. (See another view of it below.) Fifteen years ago it would have seemed much more adventurous, and I now learn from the designer, Brian O'Rorke, that although this and the interior of the Queen's saloon have only just been made public, they were

Another view of the Duke of Edinburgh's private saloon on the Royal Train, first illustrated in the JOURNAL *on June 4 and referred to again by* ASTRAGAL, *above.*



The Very Beginning of a Beginning

" The very beginning of a beginning," so S. A. W. Johnson-Marshall, above left, chief architect to the MOE, and one of the principal speakers at last week's British Architects' Conference at Canterbury and Folkestone, described the development work which has so far been undertaken in the design and construction of schools. And so also might be described the earnest efforts of this year's Conference hosts, the South-Eastern Society of Architects, to raise the standard of RIBA Conferences. Every obvious step—save one—had been taken to encourage members to confer: a familiar and vitally important subject—schools; a top-ranking quintet of principal speakers; and a guarantee of anonymity and censorship of reporting. The omitted precaution was to ensure that the leaders of the discussion did not introduce too many points for the large audience to be able to discuss in the time available. The five papers (excerpts from which were published in last week's JOURNAL) and the introductory speeches of the speakers covered not only a detailed study of advances in school planning, but such issues as costs, research and development, group working, salaries, public and private architect relationship and the code of professional conduct. With less than an hour for comments from the audience on the first day, and not much more than an hour on the second, it is not surprising that little resembling a discussion took place. An officially expurgated version of this discussion, together with further photographs of Conference events, will be published in next week's JOURNAL. With S. A. W. Johnson-Marshall, above, are another two of the five principal speakers: C. H. Aslin, vice-president of the RIBA, and county architect of Hertfordshire, centre, and F. R. S. Yorke. They are shown at the informal reception at the Leas Cliff Hall, Folkestone. In the background can be seen a portion of the " Derwent " system (see page 768), part of the exhibition of structural systems for schools arranged for the Conference by Hugh Wilson, city architect and planning officer for Canterbury.

in fact designed in 1938 and finished just before the war. No publicity was allowed for security reasons—necessary, no doubt, but in fairness to O'Rorke, British Railways might have explained when they released the pictures.

BUCKLERSBURY HOUSE

I would like to congratulate the Royal Fine Art Commission on making its part in the affair of Bucklersbury House absolutely clear.* Far too often lately it has been put in a false position and allowed it to be assumed that a building submitted to it has been *approved*, even when it has done nothing but make comments on matters of detail, or when the submission has come too late for the Commission to influence the project as a whole.

Such a misunderstanding over Bucklersbury House, the proposed 14-storey block of City offices, might have done a lot of harm; already it had been implied at a meeting of the City Corporation, and actually stated by the Minister of Housing and Local Government who, when answering a Parliamentary question, said the Commission had approved the design. Happily the Commission decided to come out into the open and issued at the end of last week a statement which made it quite clear that it had done exactly the opposite.

*

It has been fighting hard to prevent such a huge bulk of a building from being put up on this site, and it is good that the public should know it. The Commission has no statutory power, and the strongest card it can play, therefore, is to make the fact widely known whenever projects are being pressed forward in defiance of its recommendations.

*

It looks as though, now the Fine Art Commission's views have been made clear, it may still not be too late to prevent more accommodation being piled on to this key City site than it can stand, on planning and on visual grounds. The whole question of the principles on which the City should be rebuilt is raised by the Bucklersbury House controversy but it is such a complex one that I must return to it another time.

*The RFAC statement appears on page 764

ASTRAGAL

POINTS FROM THIS ISSUE

RFAC Statement on Bucklersbury House .. .. pages 753 and 764
Contracting Procedure: Readers views .. .. pages 759–761
RIBA Conference: President's Address .. .. page 762

The Editors

FOCUS ON YOU

WHAT has been learnt so far from Guest Editor Professor Ian Bowen's, and his research team's, investigations? Now is an appropriate moment, with nearly half a year gone by, during which articles have been appearing almost every week, to attempt, briefly, to recapitulate some of the chief discoveries made.

The investigations so far carried out have had to be based, of course, on existing evidence, most of it hitherto unpublished. But in March of this year questionnaires were sent out to architects asking for specific information. The bulk of these questionnaires have now been completed and returned, and Professor Bowen, with Martyn Webb and his team of experts, are now engaged in collating and studying the material. In a week or two they will be able to give an interim report stating the value of these returns and the degree of success of their investigation. This will be followed, as soon as the extremely complicated analysis has been completed, by a series of reports, giving the facts about the state of the architectural profession as disclosed by their survey.

However, before going on to report the results of the survey it would be as well to repeat certain facts already discovered. First: the true post-war increase in the number of architects is only in the region of ten per cent. of the true pre-war total. If the number of architects on the 1938 Register of Architects is compared with the number on the 1952 Register there is apparently an increase of nearly fifty per cent. That is to say, from nearly twelve thousand architects to just under eighteen thousand. But, as Professor Bowen explained, if all had become registered the moment they were eligible to do so the 1938 figure in the Register would have been just under sixteen thousand, and the present total would only represent an approximate ten per cent. increase. Whether such an increase is justified or not cannot, of course, as yet be judged.

Second: the architectural schools, and the external examinations have produced more qualified architects than there are on the Register. There are a thousand or more who could be registered.

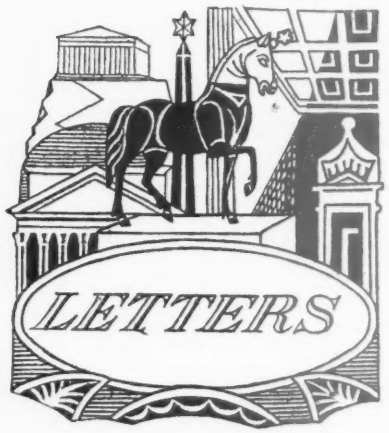
Third: of the present total of 17,600 registered architects, about one third have registered within the past seven years, with the implication that the profession is much younger, on the average, than before the war, and with less experience. Of this one third, 4,700 have qualified by examination, as compared with the figure of 1,800 for qualifications by examination in the seven years preceding the war.

Fourth: there appear to be at least 11,300 students taking either part or full-time architectural training and these will be registering at about the rate of 900 a year for at least the next four years.

Fifth: the unemployment rate of architects in the autumn of last year was more than five times the average monthly figure for the previous three years. Although the total number of unemployed was, nevertheless, under two per cent. of the number of registered architects, this sudden increase of unemployment at the end of the scholastic year, if it occurs again this, and successive, autumns, will create a real problem for full-time students.

Sixth and last: since 1951 there has been a sharply falling number of job vacancies for architects. In this connection it is worth noting that with two systems of entry into the profession, a heavy demand for architects could lead to virtually double the required number of architects being trained, the demand being more than met, first by students qualifying from whole-time recognized schools and, second, in addition, by students and architectural assistants qualifying *via* part-time studies and the RIBA's external examinations.

With these six points we can summarize the main facts disclosed by Professor Bowen in his analysis of the information to be derived from studying official records. Bearing these points in mind as a background we propose to place in front of them sufficient new facts to be able to show an accurate picture of the composition and the prospects of the profession.



Hugh Golder, Managing Director, Econa Modern Products Ltd.

L. Whitehead

James W. R. Adams, County Planning Officer, Kent.

Public Lavatories

SIR,—Barrow, Bilbow and Fry—in alphabetical order—have written the best issue of the JOURNAL since Sam Lambert's effort about London during the Festival.

I wish you would issue that number in book form—except for one thing. That is Barrow's statement (page 627) that untrapped vertical wastes (leg wastes) are not so likely to smell offensively (and they'd have to be very offensive to attract attention in their usual surroundings) as horizontal wastes with the trap at the end of the pipe.

Your own Information Sheets 33B1 and 2 show the simplest and the most complex basin waste ranges we make. The most complex fully vented are the most profitable (we work on a cost percentage) but the simplest is most often ordered and most authorities now tell us to supply a common waste pipe terminating in a trap.

It is only in badly ventilated, spasmodically used washplaces that smell from drying or dried soap, scum or (at the worst) sputum could become a danger. Even the most expensive (and, incidentally, ugly) waste range in such a case won't kill the odour of decaying soap and other things which might gather and grow old in the sub-ceramic overflow passages of basins and on the possibly unwashed surfaces of the basins themselves.

Your readers will design well ventilated, good washplaces, but the "public," as Barrow defines it in his introduction of May 14, may not use the basins enough. It is only then that decaying soap smells might give trouble. Surely the extent of that trouble is proportional to the area of soapy or scummy surfaces which have dried.

With three basins discharging into a 6-in. floor channel each through 1¼ in. leg wastes 20 in. long, the area of the possibly dried soapy surfaces of the channel and waste pipes is not less than 670 sq. in., assuming that the channel never floods. The same three basins discharging through a 1½ in. waste to a common trap cannot cover more than 350 sq. in. of surface with stuff that might dry.

The area of potentially smelly, dried soapy surfaces in an Econa waste range is about half that needed by leg wastes and a floor channel so that the nuisance value is less, even if all other things are equal. But they aren't. If the basin most often used in a row draining through a common waste pipe is at the trap end, the waste pipe at 1½ in. under the other basins becomes wetted every time a discharge takes place. This doesn't happen with a floor channel except on the frequent occasions when its outlet grating gets blocked with toffee papers, matches and cigarette packets and ends.

If I have failed to persuade anyone that a properly designed waste pipe with a trap at the end is not going to reek more than the leg waste and floor channel or the inaccessible overflow surfaces, let him enjoy the low cost and greater neatness of the Econa waste range by insisting that we turn the trap upside down and keep the waste pipe wet.

You illustrate such a range of ours under three of Adamsez' urinals on page 605. Any architect who would like to try the scheme should contact us. We can make the fittings in such a way that, if every one is not absolutely satisfied, a nominal trap can be substituted for the inverted one in a few minutes.

HUGH GOLDER.

Birmingham.

[Mr. Barrow replies: "I think that if the JOURNAL notes on untrapped wastes had been rather fuller they would have come closer to the views which Mr. Golder expresses. One recognizes that bad ventilation and poor maintenance can result in public lavatories being so offensive in smell that it may matter little what kind of waste you have, and that under such conditions other sources of smell are much more serious. However, I think it is the general opinion in the sanitary world that vertical wastes with open outlets keep themselves cleaner than horizontal ones trapped at the end—which is really all we meant to convey in our brief notes on page 627. The notes under Costs on page 611 are relevant here, I think: if you can only afford the cheaper construction it may be better to go ahead with it than to delay sanitary provision."]

Another Specialist Required

SIR,—In view of the increasing pollution of our rivers, beaches, etc., by human waste, perhaps waterborne sanitation, as such, should cease to exist. (See ASTRAGAL'S comment on page 661 in the JOURNAL of May 28.) I am pleased to read that the whole matter is being considered.

L. WHITEHEAD.

Egham.

Products of Planning

SIR,—I have read the Royal Institute of British Architects' Conference Number of the JOURNAL (June 4) with considerable enjoyment, and was particularly interested in the frontispiece on page 692.

You may be interested to know that the site of the bungalow illustrated formed part of a typical speculative developers' layout for some hundreds of houses covering about 80 acres which was approved before the war, and that the County Council has been instrumental in preventing, by revocation of permissions, all but the development of five plots closely related to the village of Kingston. The bungalow you illustrate is being erected on one of these plots.

Some improvement in the design of the bungalow was negotiated but the applicant unfortunately did not choose to use the services of an architect.

JAMES W. R. ADAMS.

Maidstone.

Below are four more letters arising from the feature on Contracting Procedure which was published in the JOURNAL *for April 23. (Other letters on this subject were published on May 14 and May 28). These letters from readers are followed by a brief editorial comment. We would welcome further letters on this subject, but ask readers to keep them short.*

Readers Views

CONTRACTING PROCEDURE

"Overhaul the Present System"

SIR,—I have read the feature on contracting procedure in your JOURNAL for April 23 and your leading article on this problem with great interest. Much stress has been laid on the desire of architects to choose their contractors and sub-contractors during the design stage. The advantages to be obtained from this procedure are perhaps somewhat overstated.

As the general contractor's work is seldom of a specialist nature, it is surely unlikely that the architect will require his services in the planning of the project. Consultation with specialist sub-contractors during the design stage is, of course, possible under the present competitive system of employing sub-contractors nominated by the architect. In the motor-car or aircraft industries it is more economical for designers and constructors to work together, but in those industries mass production is the aim and the smallest savings pay handsomely. Buildings, however, are built around factors which differ enormously in every case, and the possible advantages which might be gained by designer and builder planning together would be more than offset by the fact that control of cost is completely lost.

It is suggested that great economies would be effected if the contractor were chosen before the planning begins and that the contractor would be able to order materials well in advance. Any contract, however, that was properly prepared before tenders were received, would give the contractor ample opportunity to organize the work in a smooth and economical manner, as is evidenced by the American system. Ordering materials a long time in advance would not solve our present-day difficulties with regard to the supply of materials. The root of that trouble is surely the frequent alterations in rearmament programmes, political policies, etc.

Joint consultation with contractors would very likely lead to the architect continually working with the same contractor and finally joining with him to become a permanent team. Under these circumstances, would the building owner have the same confidence in the architect's ability to protect his (the building owner's) interests as he has today?

Some very good work is, of course, being carried out by well-known architects in consultation with contractors, but this work is often in the nature of research and in this manner new techniques are evolved. This is perhaps due to the limited amount of pure research carried out by the industry itself. These techniques once proven are soon copied and competition then begins. This may be necessary for a few important buildings, but it is a very expensive arrangement and would not be possible for the industry as a whole.

It has been suggested that a contractor should be selected by reputation rather than by competitive tendering. To choose a contractor by this method from a schedule of prices and a list of his capabilities compiled by himself, would be practically impossible, especially at the design stage. And as the practice spread, so too would the difficulty. Unknown firms would have little chance of ever making a start.

Finally, there is left the question of cost, which is perhaps the most pressing matter of all today. All that has been suggested to replace competitive tendering are the old well-tried and rejected cost reimbursement schemes. Possibly the greatest disadvantage of these is that even if conducted in a scrupulously fair manner, they can never be shown to be fair. To misquote a legal phrase, "The price must not only be right; it must also appear to be right." Even with the lesser evil, the cost plus fixed fee scheme, there is no real incentive for a contractor to buy cheaply. And even the most careful checking of invoices, etc., would not reveal discounts allowed by merchants to contractors, based on the year's trading. The greatest disadvantage of any scheme where the cost is not known before the job starts is that the contractor has absolutely no incentive to reduce waste on the site. The wastage of materials can be a very big factor if careful supervision is not applied. Again, with the contractor reimbursed for the cost of labour, there would be far less resistance to demands for wage increases than there is at present.

Perhaps the answer to the problem is to overhaul the present system, rather than throw it overboard. Acceptance of the following principles by all concerned would, I am sure, go a long way towards solving our problems:—

(i) Complete preparation of drawings, etc., before quantities are taken.

(ii) Greater use of the quantity surveyor in the design stage, to advise on costs.

(iii) Discourage variations by making the cost prohibitive.

(iv) Include a heavy penalty for contractors who accept an invitation to tender and do not produce a *bona-fide* estimate.

(v) Pay contractors a fee for tendering and thus reduce the employer's inclination for "open" tendering.

(vi) Eliminate price-rings and other non-competitive activities by Government action, as is done in America.

(vii) Teach building owners to accept their professional advisers' reports regarding very low tenders.

J. A. GREEN (A.R.I.C.S.)

"Don't Perpetuate Orthodoxy"

SIR,—Your symposium and editorial in the issue of April 23 on contractual procedure, the several letters on this subject which preceded these, and the short notice in the issue of May 7 of the debate on competitive tendering held by the junior organization of the RICS make quaint reading. There is a suspicion in all of them that the whole business is a vast doctrinal or ideological issue. I call it a suspicion because it is latent rather than overt in the attitudes of mind of the various protagonists in the argument. Consider the following:—

(*a*) The General Secretary NFBTO calls for "complete frankness between the client . . . and the contractor" in the expectation that this will eliminate "all sorts of anti-social activities"; this is the "Oxford Groupy" touch.

(*b*) The Production Consultant states, though he qualifies his remarks with the words "On the surface . . ." without revealing what happens below, that "the negotiated contract appears to be the very negation of any incentive to increased efficiency"; am I wrong in detecting here a slight sense of outrage, a threat almost of mortal sin?

(*c*) The Quantity Surveyor informs us that "the best substitute for the *orthodox*" (my italics) "fixed price contract, if there is no time for the preparation of an accurate bill of quantities or if there is uncertainty as to the exact nature or quantity of the work, is the fixed price contract based on

approximate quantities"; here is the party line (apparently, that it is better to be approximately orthodox than in any way unorthodox).

(*d*) The Contractor is unequivocal—"It is not good practice to try to dispense with the general contractor." I was not clear whether this was a veiled threat or a point of site etiquette, but it would of course amount to deviationism and would be very bad for business. Incidentally, while it is probably not very practical under the present orthodoxy to *dispense* with the general contractor, it seems to me to be an admirable practice to *try* to dispense with him if in our judgment there is any other and better way of getting a building built.

No doubt my points above are quite unfair to the Capital-Lettered, Morality-like figures in your symposium, and I do not press them. But what I found both amusing and depressing was the extraordinarily self-assured dogmatism, not so much of each individual or of their assertions, but of their common attitude of mind that the problem did admit of an Absolute answer. The game seemed to consist of describing half a dozen or so different ways of contracting for building work and then of deciding which was the Right Way, as though, if one argued enough, quoted enough, even proved enough, the Only Genuine Positively Original Orthodox Contractual Procedure would emerge. It was rather like the search for the Philosopher's Stone; the attitudes of mind of both seem to me to be historically contemporary.

It is surely one of the few signs that the building industry is not altogether comatose that it has somehow found the energy to proliferate a few different ways of setting about its own business. Since it generally does nothing out of enthusiasm, one assumes it has been compelled to do this out of necessity. A few building owners, a discontented architect or two, a rare and ruminative contractor have, at odd times in the dry story of twentieth century building, come together and established for a moment or two a different climatic environment and invented for themselves building methods and working relationships that satisfied their needs. What they invented may have been "uncompetitive," even grossly so, but what seems to me, and no doubt to them, of more importance is that they did invent, and that some of them were and still are satisfied. They helped in an evolutionary process and they showed that there might be some breath left in the old beast yet. And now, Sir, when the climatic environment is not merely local or personal, but general, when God knows everybody goes about proclaiming the magnitude of the challenge to and the opportunities of the building industry, you apparently find it worthwhile to conduct a discussion of this aspect of the general problem as anachronistic as, if you will forgive me, so many rural deans prattling about the rules of croquet while the Hawker Hunters skim the hoop tops.

I am not objecting to people discussing contractual procedure; it is a vital issue. I jib at two things, however: (*a*) discussing it as if the Best Practice was, in fact, one of the procedures we already operate, if only we could discover which; and (*b*) assuming that, having identified the Best Practice, the results will automatically be something called "economical building." I hope I have justified my objection to (*a*) in this letter; it seems to me to be a restrictive and negative approach, putting far too high a price upon orthodoxy. I doubt whether you would give me space to argue (*b*) in full, but my main contention is that the inherent "economy" ("value for money," as your Production Consultant conveniently defined it) of a building lies in the concept of the building itself and not in the ritual by which one chooses who shall build it or what his profit shall be (which is, in effect, what all the fuss of contractual procedure as at present developed is about). Moreover, the orthodoxy of (*a*) does not provide the best climatic environment in which to expect evolution of our concepts of building towards the fundamental economy of (*b*); (*a*) inhibits (*b*). I am not decrying orthodox ideas or pleading for unorthodox ideas *per se*. The point is that our institutions and organizations always tend to adopt the same pattern as our ideas. Our present orthodoxy of ideas, therefore, only serves to perpetuate the present set-up, the separation of powers, interests, talents, experience in the building industry, the fragmentation of what should be a balanced co-operative community into owners, designers, researchers, developers, administrators, manufacturers, suppliers, surveyors, estimators, contractors, workers, etc., etc. A glimpse of a possible new relationship between these parties was given by Richard Sheppard in the paper he read to the RICS on April 15.*

"HERETIC"

Wanted: Yet Another Consultant

SIR,—The building industry is probably the only industry in which designer and constructor are unable to co-operate during the formative stages of a project. While this is so, efficient building will be difficult to achieve and an attempt to adapt contract procedure to allow all the available skills to be brought together during the design stage is being only practical and realistic. The suggestion contained in your leading article of April 23, however, that "the fixed sum (contract), particularly when based upon bills of quantity, is far too haphazard a method of determining the cost of a building" and the preference for a "cost reimbursement system" is bordering on the irresponsible.

While human nature is what it is, no cost reimbursement system can be even moderately satisfactory where the client is unaware of the limit of his financial commitments and the contractor has no real incentive to efficiency in office or site organization. While it is true that the fixed price seldom becomes the final price, the client and architect are responsible for most variations and the final price *could* bear a much closer resemblance to the tender price if they avoided them. Fluctuations in the prices of materials and labour are something over which neither builder nor client has any control but, since both are prepared to share the risks of these fluctuations, this is no reason why the client should be asked to bear the risk of the final price being greatly in excess of his means. Few clients will be imprudent enough to give architect and builder *carte blanche* to erect a building the cost of which will only be known on completion. A lump sum contract, therefore, except in cases of extreme emergency, will always be required by a prudent client.

To say this does not imply automatic approval of the present system of competitive tendering (which is only one way of determining the lump sum), for there is much evidence to support the view that the present system is no longer truly competitive. Firstly, there is the operation of builders' rings; secondly, the nomination of sub-contractors from whom competitive tenders cannot be obtained. While the existence of builders' rings is often regarded as a temporary abuse of the competitive system, it may be recalled that some rings came into existence during the depression to fix prices and to avoid cut-throat competition. It would appear, therefore, that, irrespective of the economic climate of the country, builders' rings should be regarded as part of the structure of the building industry, unless they are made illegal by legislative action.

In addition to the lack of competition, the present system of tendering has further disadvantages, as your article has already pointed out, *viz.*, (i) it does not allow adequate forward planning by the builder, (ii) the builder and the specialist sub-contractors cannot assist during the design stage and (iii) it prevents the development of more efficient forms of construction and tends to perpetuate outmoded and inefficient building. It is these disadvantages that have given rise to the suggestion that the builder should be nominated during the design stage

*A brief report of this paper appeared in the JOURNAL for April 23; further extracts from it were published on April 30.

Ruling out the cost reimbursement contract (for the reasons stated above) the only alternative at present available is to negotiate a lump sum contract with the nominated builder before he starts to build. But most members of the professions are suspicious of the negotiated contract since it places them almost entirely in the hands of the builder. If the price is higher than they consider reasonable they are seldom in a position to wait until the builder repents; the client often thinks that he is paying more than he need and, so far as local authorities are concerned, the arrangement would not comply with standing orders. Moreover, the system, if it were to become common practice, would be open to more abuses than the present system and members of the professions might be suspected of having irregular arrangements with the nominated builders.

However, even under present conditions, it could be possible to obtain the benefit of the builder's advice and experience at an early stage, without resorting to the negotiated lump sum. There are many builders who, with a headquarters staff of well trained and efficient personnel, provide the necessary capital and supervision, but sublet the bulk of the work. During the early part of the design stage, such "organizing builders" could be invited to state their fee for organizing a job of a certain size and scope. The most advantageous offer could be accepted and the successful builder could then assist in the design and the choice of sub-contractors. The client would be committed to the "organizing builder's" fee in addition to the architect's fee, but all works other than the overall supervision would be the subject of competitive tendering in the usual way. As suggested in your article, there is no reason why such firms should not, in time, acquire professional standing.

It has been suggested that the present system of competitive tendering encourages the maintenance of old and inefficient methods of building, but it must be remembered that the majority of architects are compelled to use materials and methods commonly available and that relatively few architects are concerned at any one time with the introduction of new developments. While this is the case, the price of a new development can always be measured against the "fair price" of traditional building obtained by the competitive system. This, of course, would require the development of a system of comparing costs based on the elements of a building similar to that given in the MOE's *Building Bulletin No. 4*. An adequate method of analysing costs would allow the architect and the client to know how much a particular service or method of construction should cost if built traditionally and a price obtained competitively. The cost and "efficiency" of the new development could then be compared with that of the traditional method.

J. NISBET (A.R.I.C.S.)

"Define the Quality of the Work"

SIR,—You have done a service to the building industry by bringing into open discussion the greatest obstacle in these days to economical and efficient building.

The tender system is full of anomalies and as at present operated bears very hardly on the building contractor. He has, perforce, to swell his tender price by a number of sums that are in the nature of insurances against loss. He is forced to do so because he must give a definite price for work the quality of which is never specified and the amount of which is subject to addition or subtraction in any quantity and at any stage of the works. Moreover, by signing a contract, he places himself in the hands of the architect, who is given very wide powers but is not bound, to any significant extent, to provide for the builder those services which a firm-price contract ought to imply. What is more, the builder is inclined to feel, rightly or wrongly, that if any difference of opinion arises between himself and the building owner, the architect, as the owner's agent, will not necessarily be as impartial as could be desired. True, there are remedies of sorts, such as arbitration or the Courts, but, in my experience, neither of these ever satisfied either side, and they are best avoided, even if the sum at stake is considerable.

If we are to continue with the tender system, three things seem essential: First, the quality of work should be defined, at least by grades, such as "tolerable," "medium," "good" and "best." Second, variations should be subject to a 20 per cent. penalty—this would get rid of the nuisance of "extras." Third, the architect and all the other professional advisers, such as the quantity surveyor and the engineer, should cease to be the owner's agents. They should be remunerated, in equal amounts, by owner and builder, and arrangements should be made, in the contract, for their removal if they fail to provide satisfactory service (which should be defined in the contract) to either of their joint employers. Until something like this happens, the tender system will continue to be an expensive and inefficient method of obtaining buildings of any sort.

"BALBUS" (A building contractor)

It is understandable, although none the less regrettable, that there has been comparatively little correspondence on this subject. Our treatment of this vexed question may have been accepted by many readers as no more than a factual survey of things as they are, for practical use by working architects. It is with this interpretation in mind that "*Heretic*" has addressed his urbane letter to the JOURNAL, reproaching us, in a most genial manner, for being orthodox and for stressing our orthodoxy. On the other hand, our minor deviations from the established doctrine of the competitive tendering system has brought, from Mr. Nisbet, the accusation of "bordering on the irresponsible." Which only goes to show that one can never please everybody.

Our intention in this matter was to summarise the state of things as they were, in order to evoke from readers some constructive ideas for the betterment of the present system. We were prompted to do this because it is becoming widely realised that the competitive tendering system has some grievious drawbacks. Contrary to Mr. Nisbet's contention, the tender system is breaking down just because it does not control price. There are always variations, and these are often of magnitude. The introduction, therefore, of a definite price at a very early stage gives a dangerous, because it is wholly illusory, sense of security to the client. It does not prevent this illusion being shattered by the final account.

Nevertheless, in our search for something better, Mr. Nisbet is right in emphasising that blank cheques cannot be given to builders, or to architects for that matter, and "*Heretic*" is right, too, when he pleads for attempts to solve the problem outside the narrow boundary of existing forms of contract.

The correspondents have put forward a number of suggestions which, if not new, lose nothing in importance on that account. Space does not permit discussion of each suggestion, even were this necessary. But, taken as a whole, two things emerge: first, the recognition, by all the correspondents, that building is a co-operative effort, in which all parties, despite the differences of their aims and functions, have rights and duties of consultation and mutual aid at all stages of the project. It is obviously too early to expect a co-ordinated system of achieving this desirable end: the suggestions of the correspondents, although valuable in themselves, are no more than exploratory in character. This brings us to the second point, which is that this exploration seems to be in the direction of a new form of contract, in which (i) the co-operative idea would replace the existing, but outmoded, patron-architect complexus, and (ii) the duties and rights of each party in the adventure of building (as equals, not as servants or agents) would be defined in detail.

THE EDITORS

RIBA

President's Address at Conference

"Even under a very low economic ceiling architectural expression can remain both individual and appealing." This was said by Howard Robertson when referring to the British Architects' Conference theme of "School Building," at the inaugural address of the conference in Canterbury, last week.

Speaking of buildings and their environment, Mr. Robertson said "The necessity to secure work to earn a living, the multiple problems which emerge in the administration of our offices, and of our Institute, must never be allowed to cloud our perception of the fact that ours is a visual art, and by our success as artists will we finally be judged. Every architect who is guilty of an illiterate or ill-mannered building is driving a nail into the architectural coffin; and ever since science began to outstrip expression the supply of such nails has been all too plentiful. Ugly and uncouth buildings that function really well may do their authors credit, in that they furnish a large part of the satisfaction which many building clients demand. But this credit is ephemeral since achievement is not complete. Architecture is near to nature in the vital fact that it creates environment. The preservation of the character and the scale of town and countryside is largely in architectural hands. There is no guarantee for success except awareness, sensitiveness, unselfishness. We must be charitable to the neighbourhood where we build, even if it demands some sacrifice of our individual wishes and predilections; and if we are to render justice to the varied character of our landscape and climate we can realize at once that no formula is universal. Regionalism, in this scientific age, may appear as an outworn creed. But if, as architects, we are going to be kind to our country and our people, and are going to recapture their affection, we cannot afford to remain entirely blind to its appeals. And we may do well in such moments of detachment as we are able to enjoy at present to pause a moment to consider whether in architecture we are using the rudder or are merely drifting in the wake of science and engineering."

KENT

Sidney Loweth to Retire

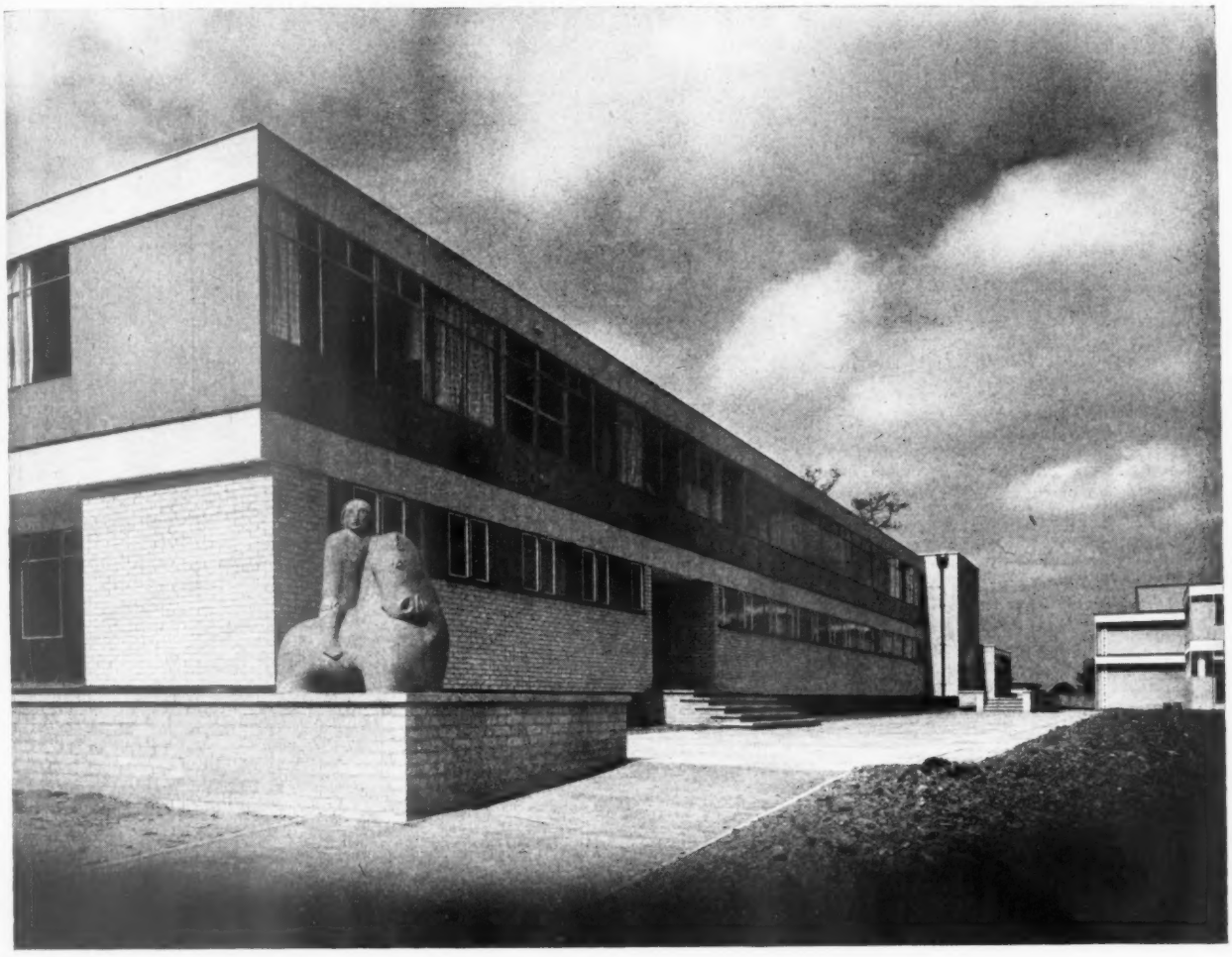
Sidney Loweth, county architect of Kent, is to retire in March, 1954. Mr. Loweth will be 60 and his retirement is voluntary. His successor is not yet known.

Flats at Great Yarmouth

Above, this block of 14 ground floor flats, with 14 maisonettes over, in Middlegate Street, Great Yarmouth, was designed by the architect's section (chief assistant: C. J. Oliver) of the borough engineer's department, Great Yarmouth. The block is 25 ft. 9 in. deep; the floor area of each flat is 390 sq. ft.; of each maisonette, 800 sq. ft. The flints used to decorate the panels over the entrances are a representation of the strong local tradition in the old Row area of the town, in which these flats are built. The cost of the block was £36,900.

Territorial Army Centre at Taunton

Above, this centre at Bishops Hull, Taunton, designed by Donati and Torrens, provides office accommodation for the HQ staff of the Royal Signals (TA) in Somerset and training accommodation for one squadron. It contains a drill hall, rifle range, lecture rooms, stores, club accommodation and a caretaker's flat. The roof which has a green mineral finish, is built upon aluminium decking. The total cost was £48,000; the cost per sq. ft. was £2 17s. 6d.



Secondary School at Oxhey

Above, the assembly and administration building of the Clarendon School at Oxhey, Hertfordshire. The county architect is C. H. Aslin : the architect-in-charge, R. A. de Yarburgh-Bateson. This is one of five buildings comprising phase II. The school now accommodates 600 pupils. The frame is designed on the 40-in. module. Ground floor level walls are of brick lined with clinker block ; at first floor level 40 in. plastic wall panels are used internally and externally ; stanchions are inset 20 in. There is 90 sq. ft. of floor area per place. The cost is £3 0s. 6d. per sq. ft. (The first phase was illustrated in the JOURNAL for November 23, 1950.) The new buildings will be fully illustrated in a future issue.

BUILDINGS IN THE NEWS

Houses at Harlow

Right, eight experimental houses, which were erected to the specification of MOHLG and MOW were opened at Long Ley, Harlow, last week. They are either 903 sq. ft. or 752 sq. ft. in area and similar to groups of experimental houses at Basingstoke, Peterlee and Cwmbran. They are designed to show that if necessary, softwood can be saved, by the use of prestressed concrete joists and hardwood internal joinery. The methods employed are described in an HMSO booklet " Houses that Save Softwood." (*See* JOURNAL *for May 7, p. 591.*)

RFAC

Views on Proposed City Buildings

The RFAC has issued the following statement about Bucklersbury House, the proposed 14-storey office building in the City, which was the subject of questions in Parliament last week.

"The advice of the RFAC on this proposal was sought by the City in July, 1951. The RFAC considered that the bulk of the building was excessive and the layout and general massing unsatisfactory. After some discussion and the submission of revised designs the commission informed the City and the LCC as planning authority that, in its opinion, no satisfactory scheme was possible without a considerable reduction in volume.

"Its advice was not accepted and the City was informed that the commission could not therefore approve of the present proposals.

"Nevertheless, although the commission have maintained and expressed to the City their disapproval of the scheme as a whole, they have felt it right to help those responsible with their advice in order to mitigate the overpowering effect that such a building was bound to have on its surroundings, by the adoption of a lighter and simpler architectural treatment, and subsequent discussion has been confined entirely to this aspect."

LCC

School to be Built in Parkland

The LCC is to build a comprehensive school for 2,000 children on a site including the gardens of Cam House, Moray Lodge and Thorpe Lodge, which adjoin the grounds of Holland House. The project has been bitterly opposed on the grounds that Londoners can ill afford to loose this parkland. A scheme to build blocks of flats on the site in 1948 was defeated.

CRICKET

Vitruvians v NFBTE

The following XI will represent the NFBTE in the annual cricket match to be played against The Vitruvians, on the Richmond Cricket Club's ground, Surrey, on Friday, June 19, at 11.30 a.m.:—

J. A. Bird (captain) (Liverpool), V. R. Blake (Eastern), A. E. Booth (Yorkshire), W. D. Bryant (National Federation), A. E. Carter (London), B. W. Gregory (Southern), C. F. Kidman (Eastern), V. Leader (Southern), P. H. P. Lovell (Southern), F. J. Munnion (Southern) and J. B. Riley (Midland); 12th man—P. J. Flitton (National Federation).

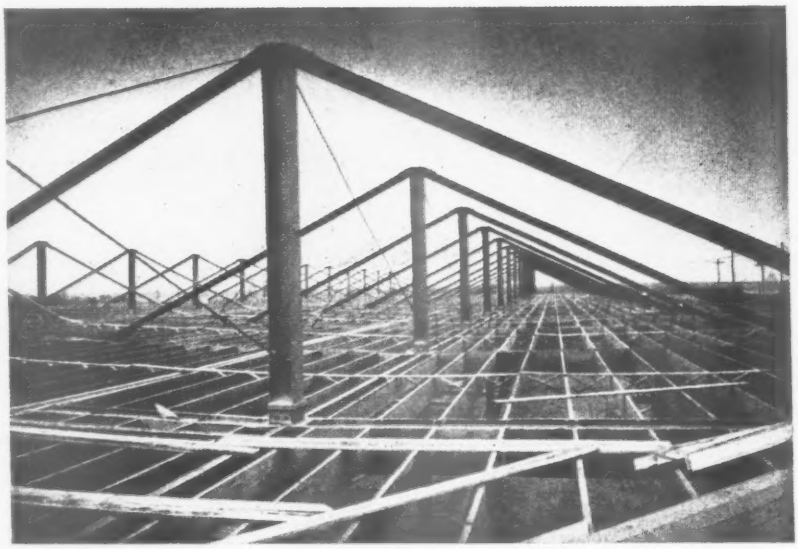
The Vitruvians' XI, drawn from the technical Press of the Building industry, will be selected from: R. Dowson (*Architect and Building News*), R. Mudie (the *Architects' Journal*), W. A. K. Faldo (*Official Architect*), A. Watts (*Illustrated Carpenter and Builder*), F. H. C. Tatham, Alastair Boyd, Eric Chamberlain, Raglan Squire, J. Kennedy Hawkes, C. A. R. Norton, J. Linley and I. M. Leslie (*The Builder*) (captain).

CONGRESS

International Union of Architects

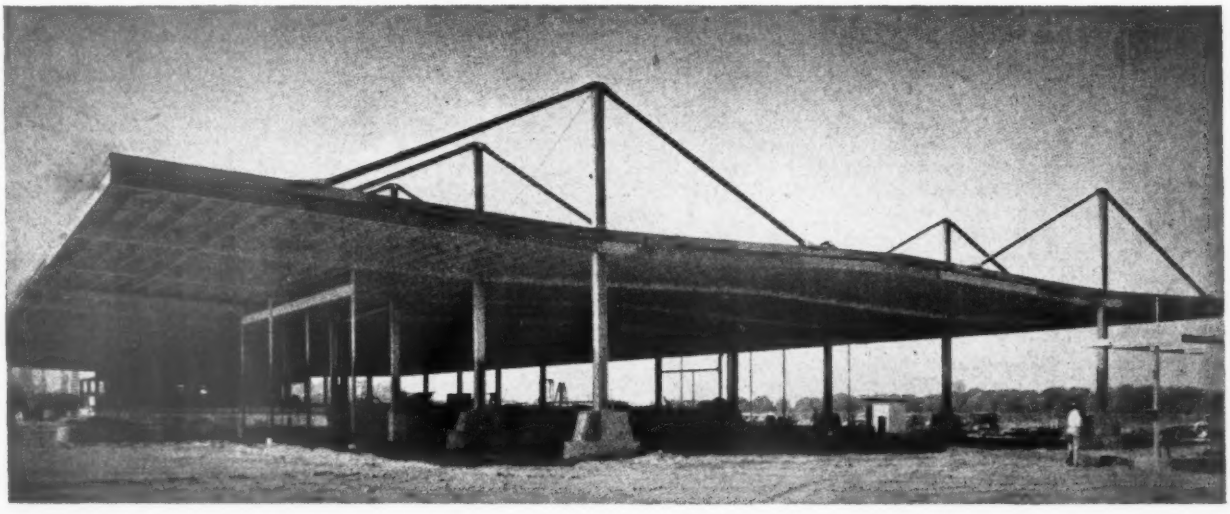
Sir Patrick Abercrombie is to be the president of the executive commission of the third International Union of Architects' Congress to be held in Lisbon from September 20-27. The honorary president is to be Auguste Perret. C. H. Aslin is to be

LOADING SHED AT LOS ANGELES, U.S.A.



This loading shed at Los Angeles, California, USA, was designed by Allison and Rible to handle freight conveyed by a maximum of 64 trailer trucks; the engineers were Ropp and Ropp. It consists of a handling and storage area flanked by sheltered loading bays, with a two-storey office at one end and parking space with a ramp leading to the loading platform at the other end. The building is 352 ft. long and 140 ft. wide; the handling and storage area, which is unobstructed by columns, is 308 ft. by 70 ft. The two inner 35-ft. cantilevered sections of roof provide the cover for this area. The most interesting feature of this building is the roof, which is suspended. The constructional system employed uses the minimum of materials. Only 1·6 lb. of steel and 2·8 bd. ft. of timber are needed per sq. ft. of area covered. Two rows of welded "H" columns at 22 ft. centres are braced longitudinally by wires and turnbuckles above roof level. "T" section steel hangers, connected by bolted steel gusset plates to the top of each "H" column, support the 35 ft. cantilever overhanging roof on each side. Each column also supports two 35-ft. roof girders consisting of eight 1-in. timbers bolted together. These in turn support 22-ft. long purlins

laterally braced with crossed struts, over which a wood deck is laid, covered with a built-up finish. Rainwater is run off by drainpipes at alternate columns. The cost per sq. ft. was £1 12s. Above, the finished roof. Below, the terminal from the back. Opposite ; top, a general view of the terminal ; centre, a view showing the general roof construction ; bottom, a close-up of one of the "H" columns. (Reproduced from *Architectural Forum*, USA, March, 1953.)



chairman of the school construction working group, Professor Stephenson is to be rapporteur of the town planning working group and Mark Hartland Thomas is to be rapporteur of the modular co-ordination working group. The Hon. Godfrey Samuel will serve on the co-ordinating committee.

The congress is to open with a lecture by Sir Patrick Abercrombie, entitled "Architecture at the Cross Roads." The remainder of the week will be mainly taken up with meetings of the eight working committees. These committees will study the following subjects:—1, Qualification of the architect; 2, Social position of the architect; 3, Relations between architects and engineers; 4, The synthesis of the plastic arts (collaboration between the architect and painters, sculptors, etc); 5 (*a*), The position of the town planner, (*b*), proposals for the standardization of symbols; 6 (*a*), Needs of a family as regards housing—the dwelling, (*b*), Needs of the family as regards housing—the *logement* (number and area of the rooms of the dwelling), (*c*), Study of the relations between the volume and the cost of the building; 7, How can the urgent needs for school buildings be satisfied?; 8 (*a*), Relations between architects, industrialists and contractors, (*b*), Proposal for the modular co-ordination of dimensions. British architects wishing to attend the congress should write to the secretary, RIBA, 66, Portland Place, W.1, for the programme and registration forms. The registration fee is £4 19s. The Bank of England is authorising a certain amount of extra foreign currency for members.

CORRECTION

Honours List

In the excerpt from Coronation honours list printed in the JOURNAL for June 11, honours conferred by the Queen on two architects mentioned were inadvertently omitted: C. E. Mee, assistant chief architect, MOW, received the OBE; S. Bryant, senior architect, MOW, received the MBE.

Coronation Decorations

The stand illustrated in the top right hand corner of page 731, in the JOURNAL for June 11 was designed by Lewis Soloman, Son and Joseph. The designs in St. James were not connected with Misha Black.

DIARY

British Plastics Exhibition. At Olympia. Weekdays, 10 a.m. to 6 p.m.
UNTIL JUNE 18

The Christian Theme in Contemporary Arts. Exhibition at Park Lane House, 45, Park Lane, W.1. (Sponsor: International Faculty of Arts.) 10 a.m. to 10 p.m. Sundays 2 p.m. to 10 p.m. UNTIL JUNE 18

Architects and International Collaboration. R. T. F. Skinner, Graeme Shankland and others. At the Royal Hotel, Woburn Place, W.C.1. 8 p.m. JUNE 19

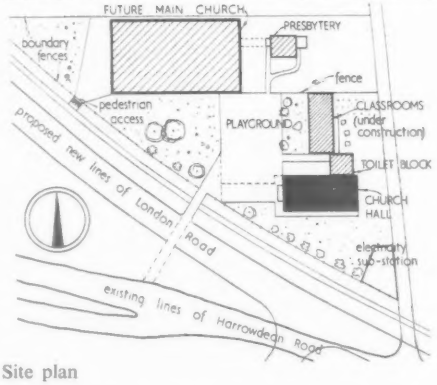
RIBA Library Group Annual General Meeting. At the RIBA, 66, Portland Place, W.1. 6 p.m.
JUNE 22

Sullivan and the Skyscraper. Professor Henry-Russell Hitchcock. At the RIBA, 66, Portland Place, W.1. 6 p.m.
JUNE 23

Presentation of Housing Medal Awards for 1953. By Harold Macmillan, Minister of Housing and Local Government. At the RIBA, 66, Portland Place, W.1. 2 p.m.
JUNE 24

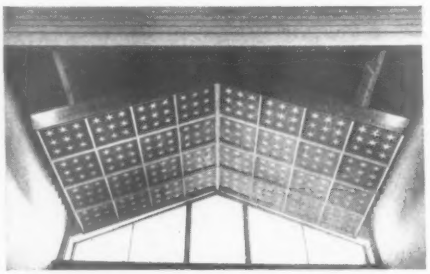
Ten Selected "News Chronicle" Coronation House Designs. At the BC, 26, Store Street, W.C.1. Weekdays, 9.30 a.m. to 5 p.m.; Saturdays, until 1 p.m.
UNTIL JUNE 30

ROMAN CATHOLIC CHURCH HALL IN LON



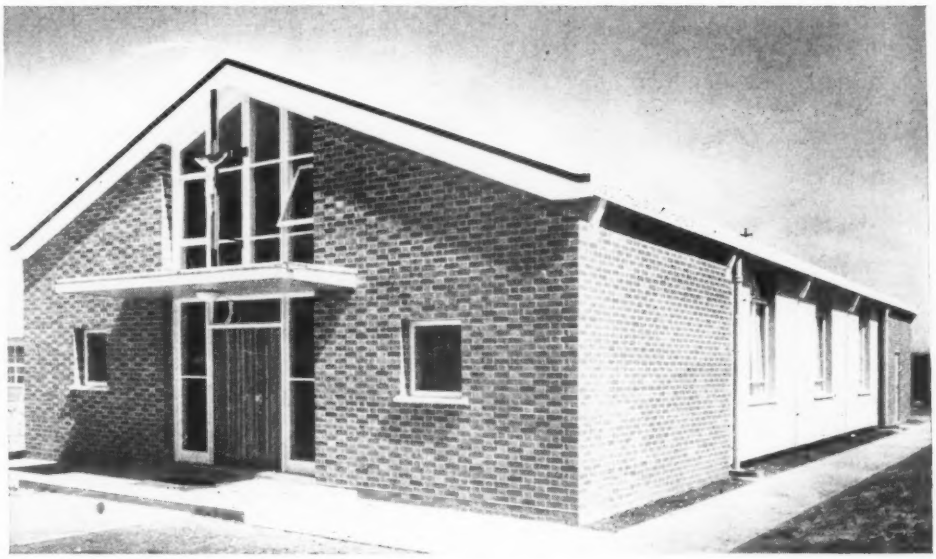
Site plan

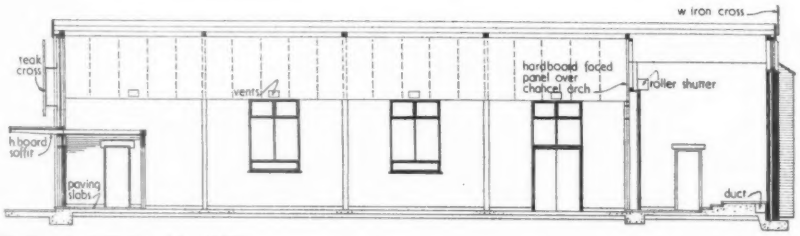
This Roman Catholic Church Hall, which is used as a temporary church and forms part of a group of buildings, see site plan left, was designed Max Lock and Associates (associate-in-charge, Gerald W. King) for the Northampton Roman Catholic Diocese. The photograph above shows the west facade and main entrance; below, left, the tester, which is decorated with stars, and the roller shutter which is used to conceal the sanctuary when the hall is being used for activities other than church services; below, a view of the hall looking towards the altar; top, opposite, view



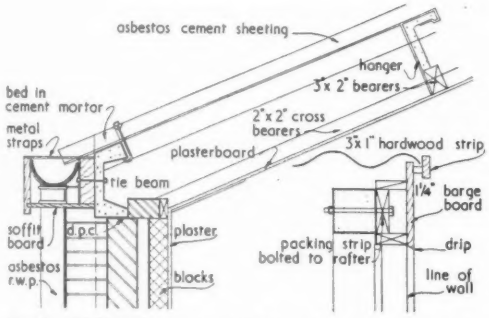
LONDON ROAD, BEDFORD, FOR THE DIOCESE OF NORTHAMPTON

from the south-west; below, right, the east end, showing the high-level window behind the altar. The hall seats 304 and serves the Catholics in the new housing estates to the south of the town. Until classrooms are built the hall is used for school functions. The precast reinforced concrete farm-type frame spans 35 ft. in bays of 15-ft. c/c. The roof is of asbestos cement and the concrete floor is covered with hardwood blocks in the nave. The nave walls are distempered pale mushroom, the roller shutter in the east wall is painted pale blue, and the doors either side are white. The architects consider that this type of building may be a solution to the public hall problem in smaller towns and villages. The contract price was £4,540. This is 2s. 5d. per ft. cub. and 35s. per ft. sq. The general contractors are Lindum (Lincoln), Ltd. Sub-contractors, page 782.

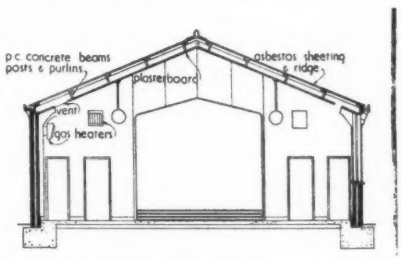




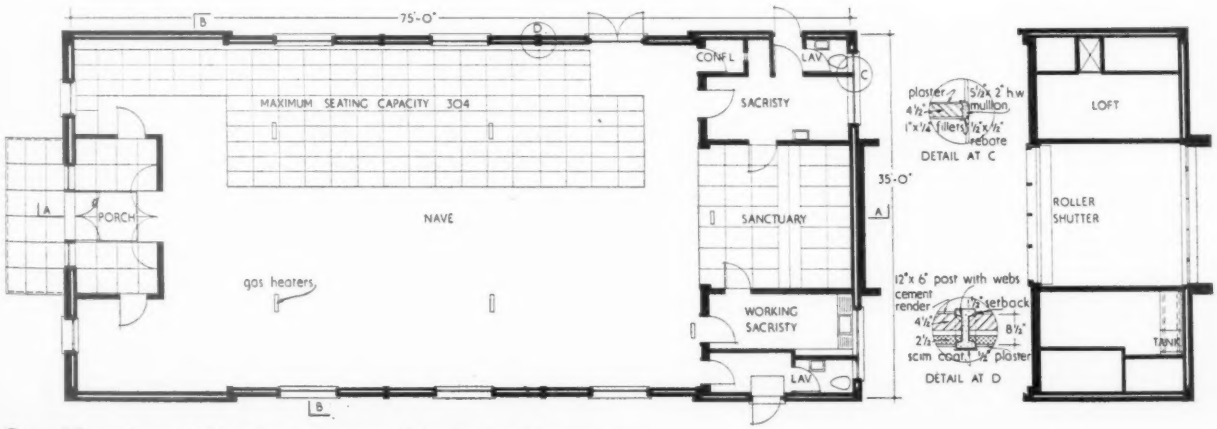
Section A-A [Scale : $\frac{1}{8}$" = 1' 0"]



Section Y-Y and cross section through eaves at east end [Scale : $\frac{1}{2}$" = 1' 0"]



Section B-B



Ground floor plan and plan above sanctuary and details [Scale $\frac{1}{16}$" and $\frac{1}{4}$" = 1' 0"]

The development of a new system of prefabrication in timber brings to light several aspects of the subject which are not always clearly recognized. Most attention is usually directed to prefabrication as a means of speedily erecting the main shell of a building but, important as this is, it is but a small part of the full significance of prefabricated as opposed to traditional methods of building. In this article, Samuel Morrison explains the "Derwent" system of timber prefabrication, for which he is Consultant Architect, and stresses the fact that the work of the designer, the job architect and the quantity surveyor are profoundly affected by prefabrication, and that to achieve to the full the advantages it offers, not only the main shell but also (as recent experience in rapid house building has shown) the interior services, fittings and site works must be rationalized.

PREFABRICATED TIMBER CONSTRUCTION FOR SCHOOLS

By Samuel Morrison

A GREAT deal of fundamental thinking about school requirements and ways of meeting them had already been done by the time that work began on the " Derwent " system. Educational authorities were well satisfied with the general character of certain prefabricated systems developed principally by a well-known local authority, and thus it was possible to accept certain basic principles as a starting point for the new development, principles relating mainly to the general design of a prefabricated building shell.

It was apparent, however, from the first that radical changes in conception were involved, both in the use of timber in place of steel and concrete, and arising also from a changing pattern of prefabrication arrived at by rationalizing further parts of the building process.

SECTION I.—PREFABRICATION

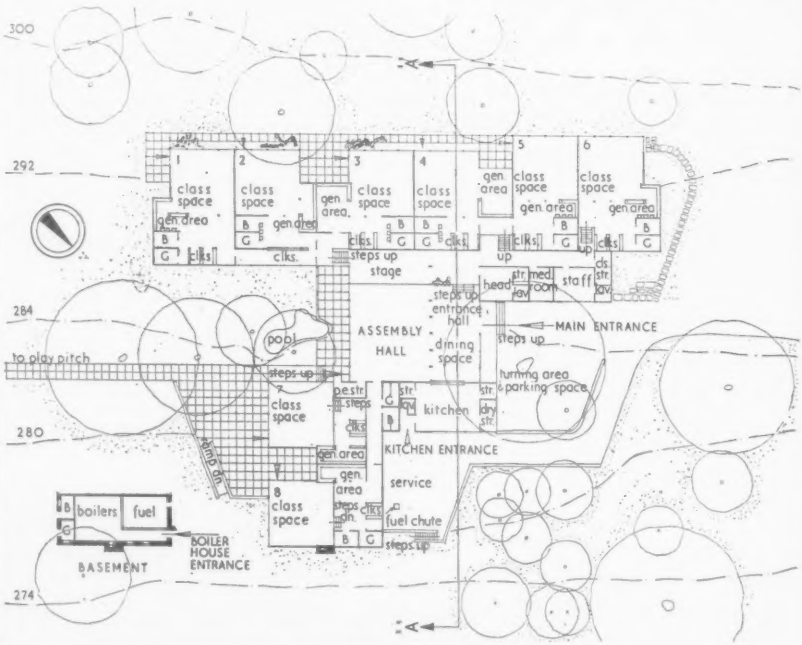
The main principles accepted for the system were that a post and beam frame structure with " Meccano " type components based on a standard dimension was desirable to allow free planning of the building with extensions in any direction. This avoids the necessity of restricted " linear " planning offered by a " hoop " or portal frame type of system with which, although extension is unlimited in extent, it can only take place in length and can only produce a very limited range of plan variations. Also, in the interest of plan flexibility, flat roofs were accepted as necessary to allow any plan shape required. To allow adaptation to almost any site conditions, components were based on a vertical co-ordinating dimension of 2 ft. and the range of post and panels thus permits stepping up and down as desired in 2-ft. increments for different floor and ceiling levels. The requirements of two-storey construction were also considered from an early stage and the components made suitable for this application as well as single-storey work.

The system as developed was extremely simple, having a module* which is also the structural grid—an approach which avoids complexities of the problem of " thickness." The module chosen was quite large (6 ft. 4 in.), and was arrived at by the addition of the dimension 4 in., allowed for " structural thickness "†, and the dimension 6 ft. which exactly accommodates two standard sized sheets of plasterboard and other available lining materials. This latter consideration which obviates any waste involved in the cutting of sheet materials is of great importance, but it is impossible to single out any particular factor as primary in determining the module. It is rather a combination of a whole complex of considerations which finally resolves the problem. In this instance the 6-ft. size was found suitable for the design of door and window panels, both as building elements (double door unit, casement windows, etc.), and as easy to handle and erect by gangs of three or four men, without mechanical equipment.

Considerations such as these are of prime importance and they do not seem to demand an exhaustive search for some theoretically " correct " module. In dimensions of this kind an inch or two is not of critical importance, and it is only in relation to standard components bought " off the peg " that the exact dimensions really matter. In fact it may be doubted if the time is

* The term module is used in this article to denote the unit chosen to control the dimensions of the larger components of the system, such as panels.

† Necessary in this case because of the coincidence of the modular and the structural grids.

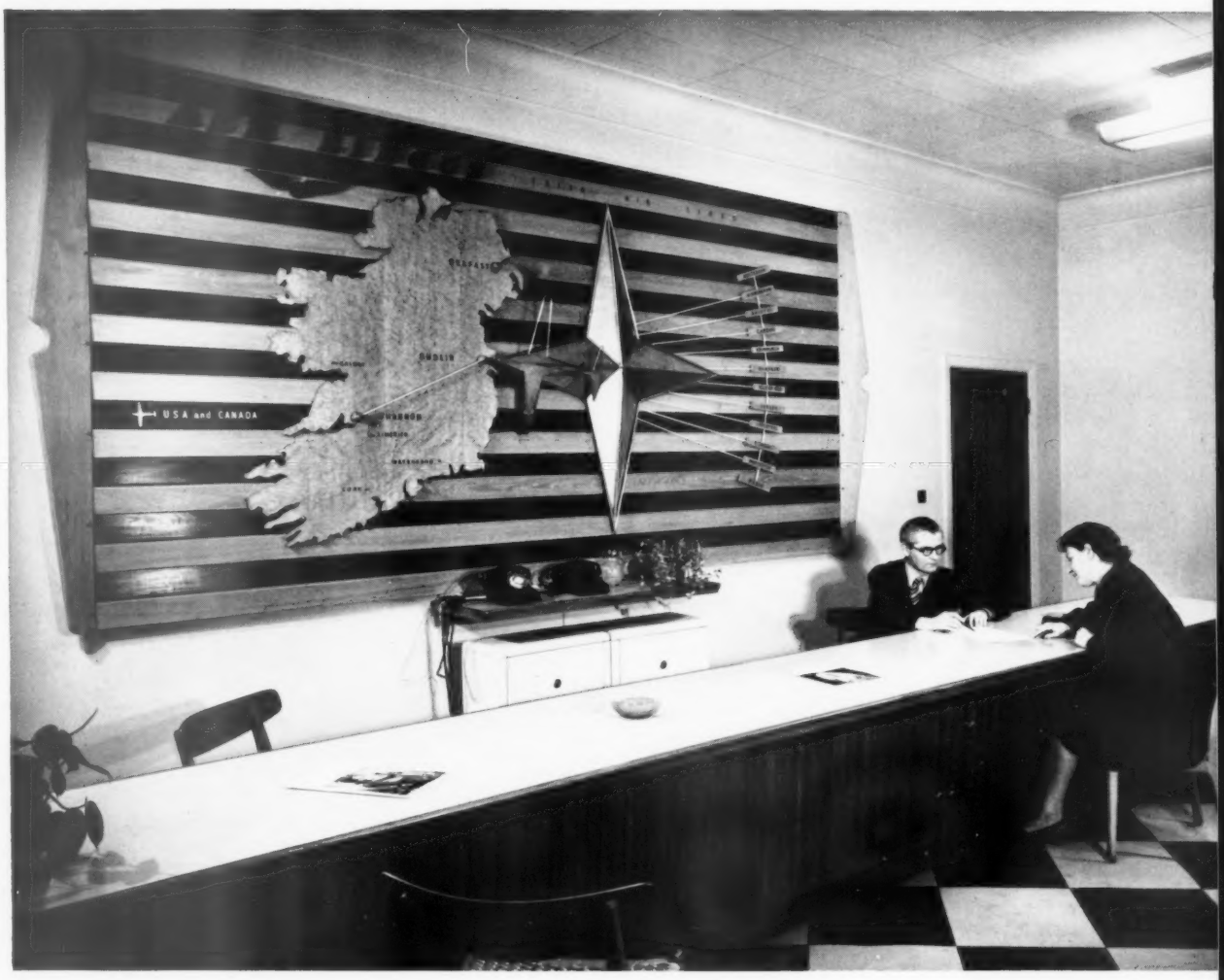


Plan of proposed Hackenthorpe Primary School [Scale : $\frac{1}{32}$" = 1' 0"]

WORKING DETAIL **FURNITURE AND FITTINGS: 36**

RECEPTION COUNTER: PUBLIC OFFICE, EMBASSY IN LONDON, S.W.1.

Raymond McGrath, Architect, Office of Public Works, Dublin; Frank DuBarry, assistant architect

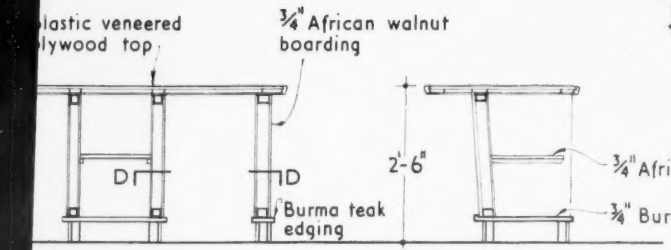


The counter top, faced with a plastic veneer, overhangs the front of the counter which is of narrow vertical boards in African walnut

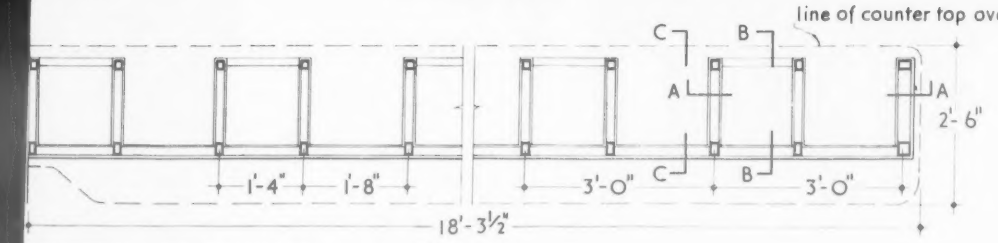
WORKING DETAIL

RECEPTION COUNTER: PUBLIC OFFICE, EMBASSY IN LONDON, S.W.1.

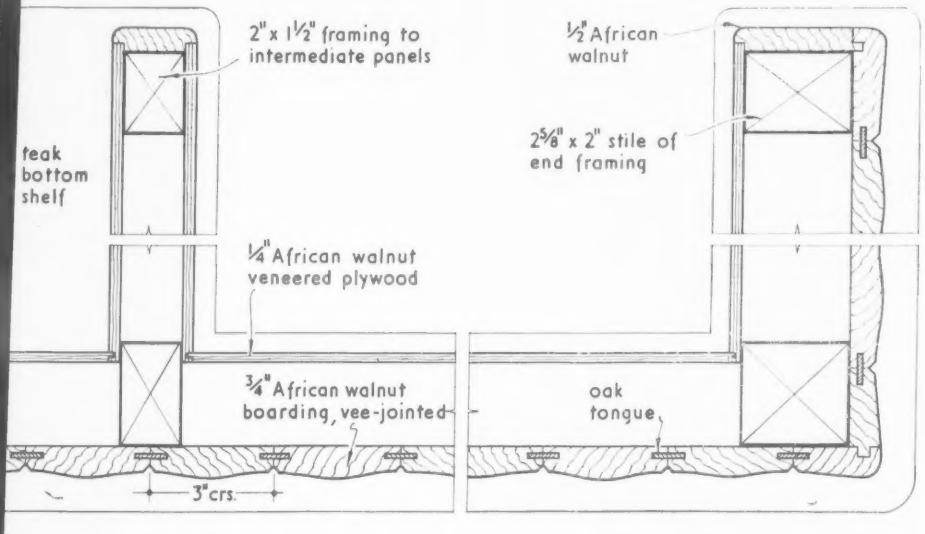
Raymond McGrath, Architect, Office of Public Works, Dublin; Frank DuBarry, assistant architect



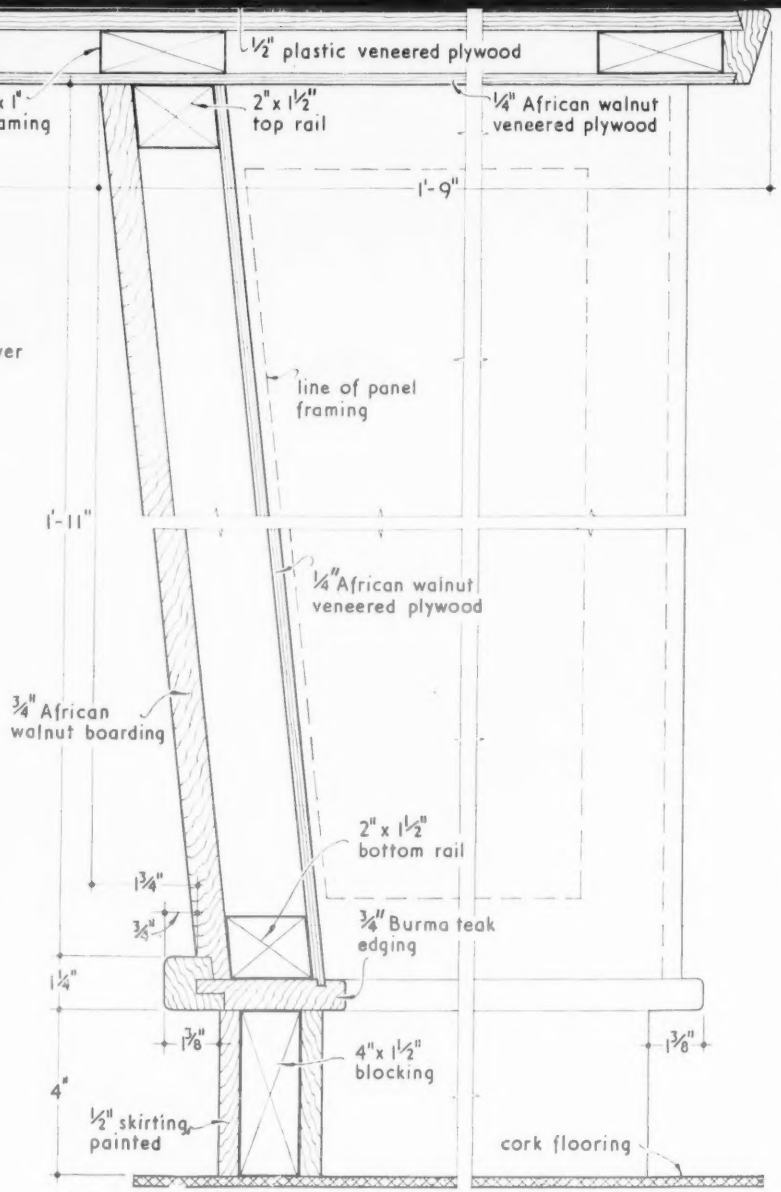
SECTION A-A. SECTION B-B.



KEY PLAN OF COUNTER. scale: ⅜"=1'-0"



¼ FULL SIZE DETAILS OF COUNTER. plan D-D.

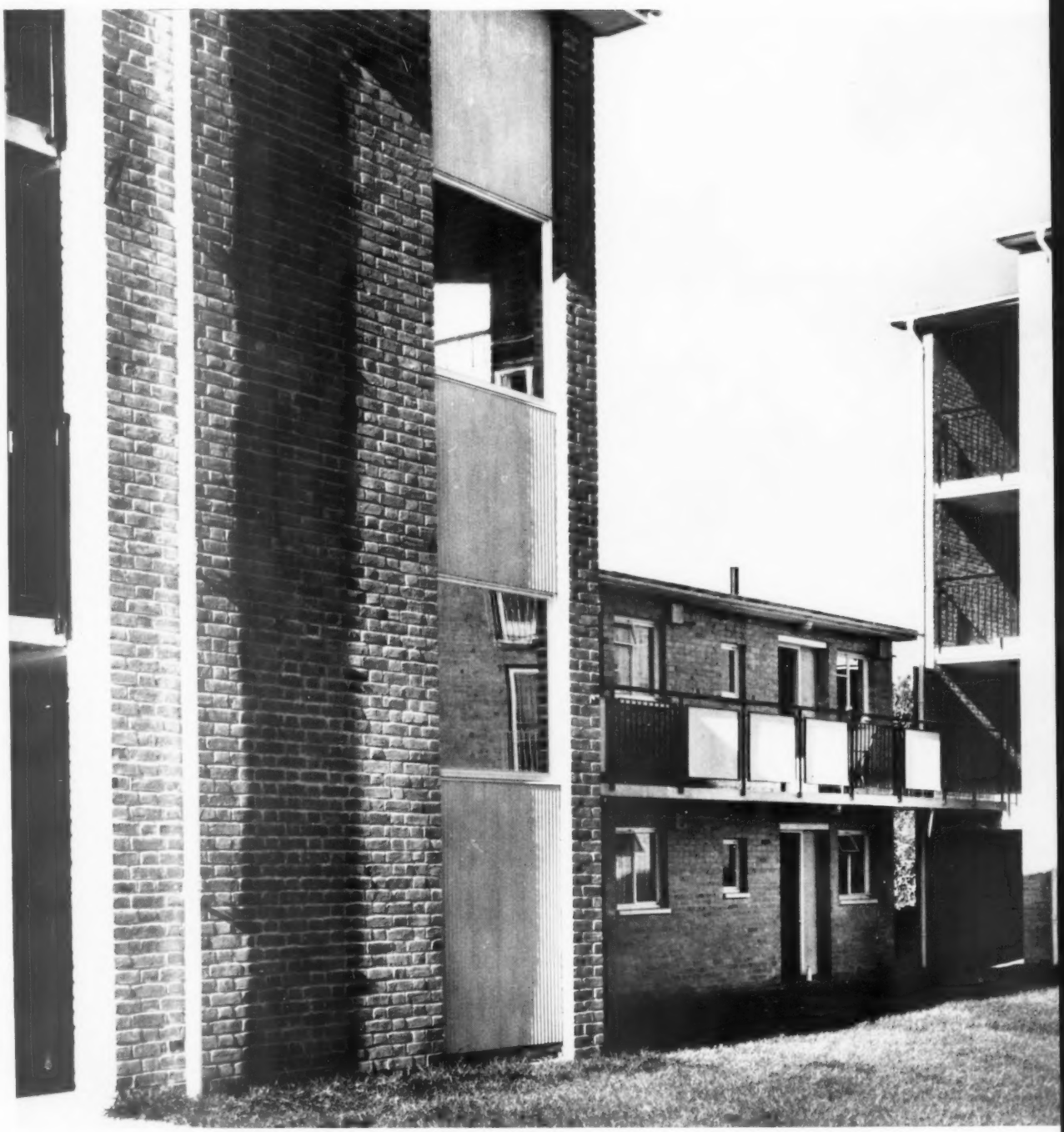


section C-C.

WORKING DETAIL

GLAZED PANEL WALL: FLATS AT HATFIELD

Lionel Brett and Kenneth Boyd, architects

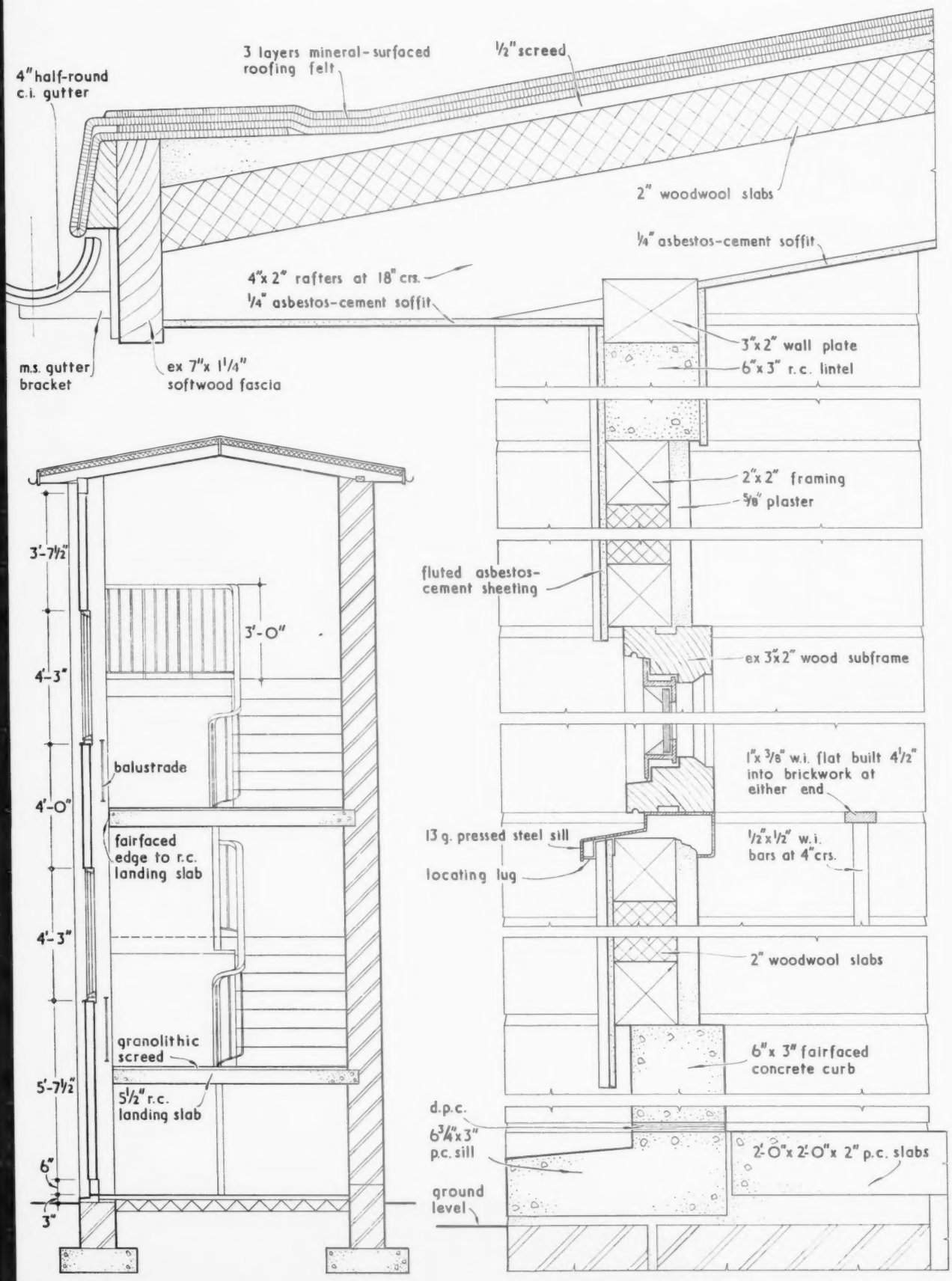


The panel wall, faced externally with fluted asbestos-cement sheeting, is of lightweight construction and has no contact with the edge of the stairs and landings

WORKING DETAIL **WALLS AND PARTITIONS : 8**

GLAZED PANEL WALL: FLATS AT HATFIELD

Lionel Brett and Kenneth Boyd, architects



SECTION THRO' PANEL WALL. scale ¼ full size

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CLERESTOR

ripe at the moment for the selection of a module; many problems of prefabrication need solution by full experience of various systems before the complexity of the problem, a problem which is as much one of connections and materials as of dimensions, can be grasped.

A further consideration bearing on the choice of 6 ft. 4 in. as suitable for the structural grid as well as the module relates to the degree of flexibility required for the main structure. In the case of school buildings, it was felt that overall planning on a 6-ft. 4-in. grid was satisfactory and that the design of a frame based on a smaller structural grid to achieve greater flexibility would lead to great complexity, making prefabrication more difficult and is in any case not necessary. It may also be observed that detail planning is not entirely determined by this dimension and to some extent is free within it.

Production methods applicable to timber are so much more flexible than in the case of steel and concrete that a change could be made to a different module, should there be considerations making this desirable. (The cost of jigging is low.)

SECTION II.—TIMBER IN RELATION TO PREFABRICATION

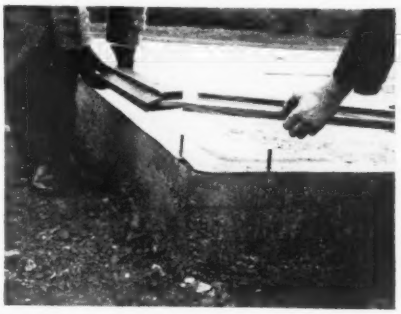
Modern Production

The production of timber articles has been affected by mass production methods no less than other industries. Operations which formerly required hours of labour by highly skilled workers are now swiftly performed by machinery, such as the double ended tenoner, and the process of assembly is also simplified by the use of jigs and modern glues so that only semi-skilled labour is needed. The same methods ensure uniformity and dimensional accuracy in the product and a highly finished result can be obtained so that components fit together easily and well on the job.

In conjunction with the production of relatively large components for building, a well organized factory can convert timber efficiently by producing ranges of smaller products, such as radio cabinets, boxes, etc., so that offcuts from the logs are fully utilized.

New Techniques

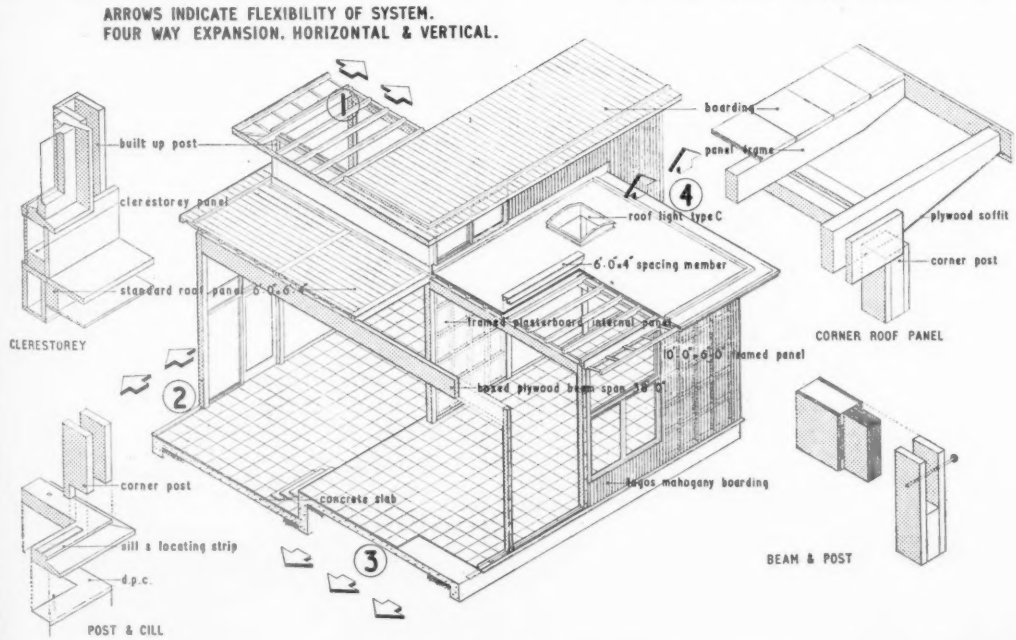
New techniques in timber are still in their infancy but have already made possible many new applications. Lamination, glues and bending processes bring about the creation of new forms in timber, forms which have the clean functional beauty of a tennis racquet or an aeroplane fuselage and which render unnecessary the practice of casing structural members. Advances in structural techniques in this field should be extremely rapid, because the processes involved are simple enough to allow an empirical approach to design. Components can be made up and tested to destruction at comparatively low cost. New applications of timber are in fact an extension of one of its long established qualities—its availability in many forms—softwoods and laminated



Above, the sill is accurately levelled as the basis of the whole structure. Hardwood strips can be seen, which guide the panels into correct position. Below, posts and panels go up simultaneously. 3 or 4 men can handle the largest sections. Panels serve to brace the frame.

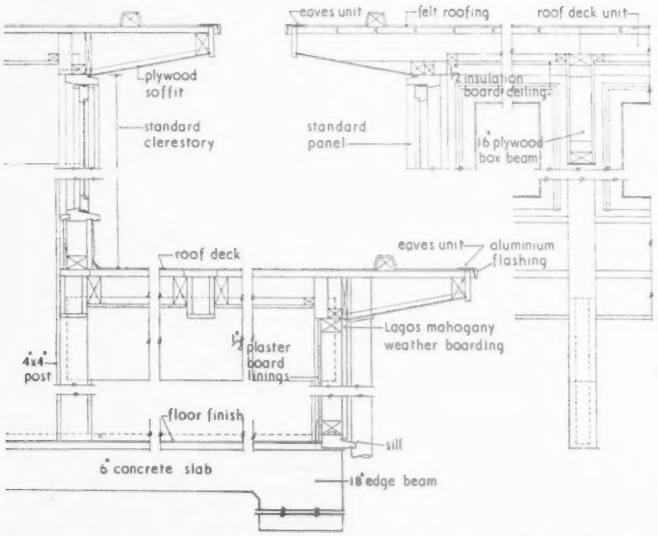
South-east elevation, Hackenthorpe School

Section A-A (see plan opposite) [Scale : $\frac{1}{16}$" = 1' 0"]



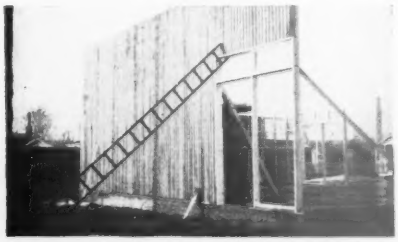
The progress photographs above and on the following pages relate to the prototype classroom unit, which does not form a part of the proposed Hackenthorpe Junior School. Photographs of the completed unit appear on page 772.

Isometric sketch of structural system [Scales $\frac{1}{2}$": and $\frac{1}{4}$" = 1 0"]



Detail sections of roof, clerestory and wall construction [Scale : ¼" = 1' 0"]

Top, panels slide into position on hardwood strip. The mahogany weather boarding is fixed in the factory. Above, adjoining panels have a cover strip between, concealing the posts. This is tongued and grooved into position. Below, walls go up in a matter of minutes. Boarding is lined with building paper.



members for the structure, hardwoods and veneers for surfacing.

The range of timbers now available for building both structural members and in-filling panels is very wide and the production of these components is simple and economical. The assembly of the laminated box beams used in the "Derwent" systems is, for example, only a matter of nailing and gluing and it may be noted that the nails are there mainly to give gluing pressure during the setting time.

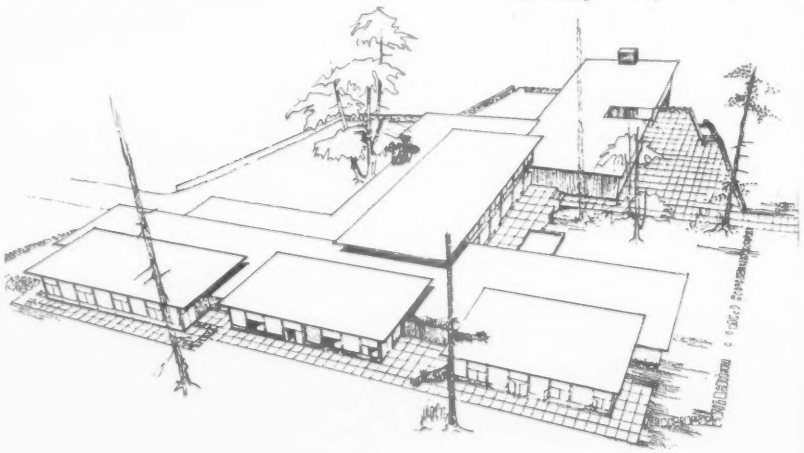
Further Advantages

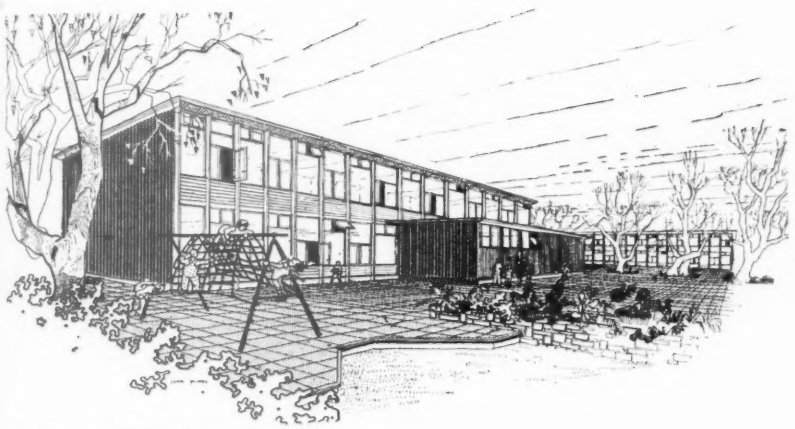
Apart from the aspects mentioned above, timber has several other important advantages of which lightness in weight is perhaps most significant in relation to building. Because it is light it is practicable to fabricate, transport (even for long distances) and erect large timber components with great savings in time and labour costs. This point also has a bearing on other aspects of prefabrication, since the rapid completion of the building shell through the use of large elements gives the right conditions for swift internal work. With the "Derwent" system an arrangement has been made with a specialist firm to waterproof the roof with one layer of felt immediately after erection to take full advantage of this opportunity. Lightness of the main structure of a building also means of course that simpler, cheaper foundations can be used. In the "Derwent" system, the loads carried by the foundations are extremely small, as the structure when assembled is not merely a frame supporting cladding but an interconnected structure with the loading distributed along the foundation, rather than concentrated at the posts, a feature of particular value on bad sites where low bearing qualities, deep filling or mining subsidence are encountered.

It has already been said that timber lends itself well to mass production methods, but at the same time it is a most flexible material capable of fabrication on the site with only simple hand tools. Thus a new design approach in relation to prefabrication becomes possible. A building may be designed so that 90 per cent. of it is made of standardized components, but the remaining 10 per cent. may be specially designed of matching components which may be fabricated on the site. It should be emphasized that components made on the site in this way can be a perfect match in colour, texture and finish with the factory-made parts, an advantage that is not readily available with some other materials.

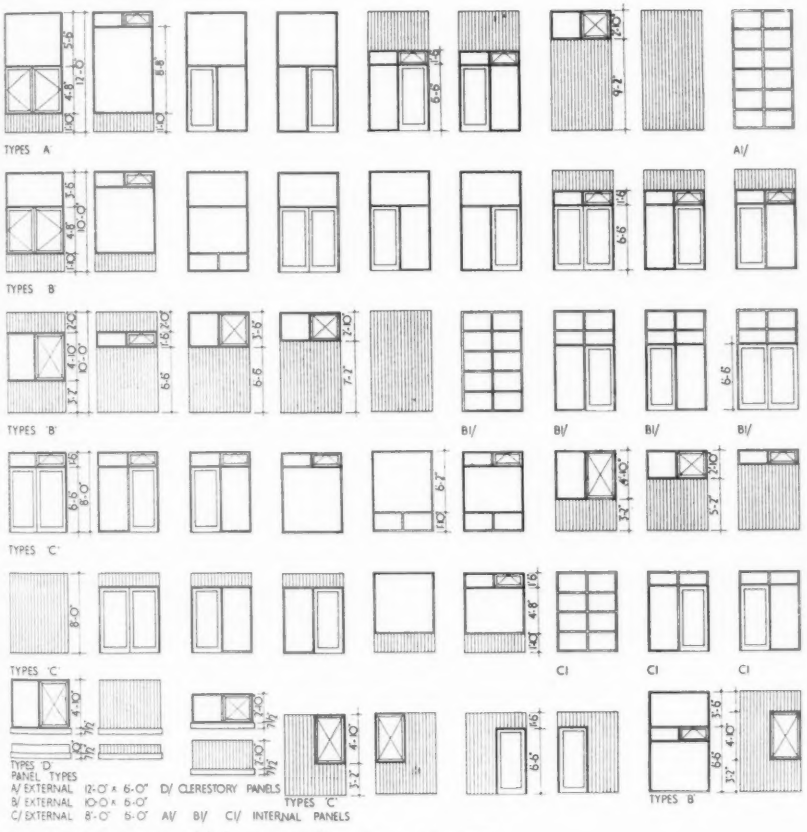
The excellent appearance of timber is widely recognized. The normal cladding used in the "Derwent" system is vertical, fluted Lagos mahogany weather-boarding which is treated with oil and has a warm rich appearance which is more sympathetic, particularly on small buildings, than the rather harsh appearance of some synthetic materials. The only maintenance required is occasional re-oiling when the windows are being re-painted. Many alternative claddings are possible, in-

Below, aerial perspective of the proposed Hackenthorpe school from the south-west.

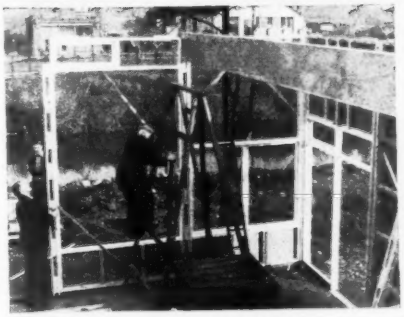




Perspective sketch of application of the system to two-storey construction.



Standard range of prefabricated panels [Scale : $\frac{1}{16}$" = 1' 0"]



From top to bottom. 1. *Beams are slotted into open type posts and are bolted through.* 2. *The temporary diagonal braces seen in this photograph are no longer used. Six men can erect the shell of an area equivalent to two classrooms in one day.* 3. *Wall panels have hardwood guide strips on the top edge to guide roof deck units.* 4. *The eaves units give an* 18-*in. overhang and have a plywood soffit.*

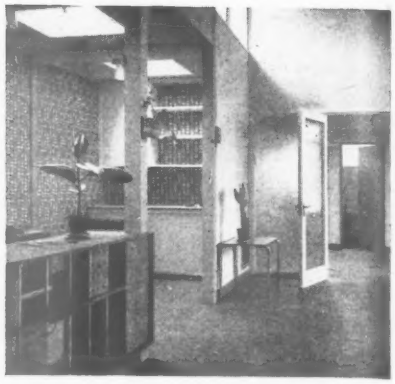
cluding plywoods, horizontal boarding, board and batten, etc. Lastly, it may be mentioned that timber is unique among building materials in that it is a crop and is continually being replaced by natural growth.

SECTION III.—IMPLICATIONS OF PREFABRICATION

Prefabrication in itself means that a large proportion of the assembly, which in traditional building would take place on the site, is instead transferred to the factory. Clearly this could be accomplished without the adoption of a system of standard components but, apart from the lack of economy in production which this entails, there seem to be great disadvantages in other ways as compared with a standardized system. The advantages of the latter are far wider than merely quick fabrication and erection of the main structure. They affect almost the whole field of building—design, costing and production of drawings, and ultimately the services, fittings and site works as well as the building shell.

Design

From the architect's point of view, new techniques and materials may be welcome as providing many gains, but unwelcome in their unfamiliarity. Within the traditional framework of building he can work on a sound basis of inherited knowledge but there is a need for something to replace this when modern methods replace the traditional. If he is offered a system of beams, posts, panels, etc., he can work on a satisfactory basis with known quantities and conditions, yet designing



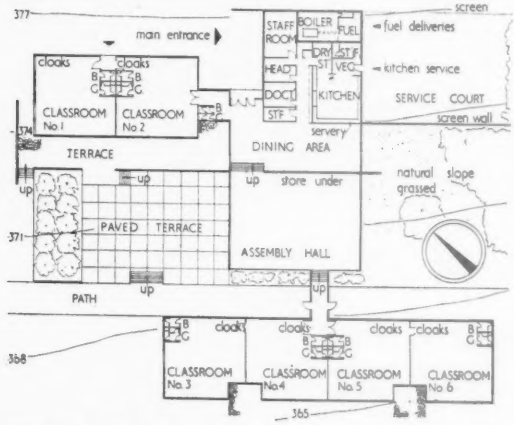
very freely. The "Derwent" system provides these known quantities without loss of freedom or variety.

Standard detail drawings are available for use in connection with all jobs and once the designer is familiar with these it is easy for him to think in terms of them as he works. It is intended that these should allow a considerable variety of treatment of all the elements of building—walls, windows, eaves, etc. Further to the freedom of design within the system, it has already been mentioned that variation from the system is economically possible by the introduction of "specials" at certain selected points provided that absolutely standard components are used for, say, 90 per cent. of the total job.

are involved, relatively little correspondence is necessary and so much time is saved for more effective purposes. Negotiation with the Ministry of Education, who encouraged the development of the system, and Local Educational Authorities (once the structural system has been accepted) are simplified and take less time.

SECTION IV.—INCONSISTENCIES IN PREFABRICATION

Rapid erection of the building shell is one of the more obvious achievements of prefabricated systems of construction. To give some idea of the speed obtained by the "Derwent" system, it can be said that a gang of five or six men not specially skilled is able to erect an



Plan of proposed Belswains Infant School, Herts. designed by Samuel Morrison and Partners in collaboration with C. H. Aslin, County Architect.
[Scale : $\frac{1}{16}$" = 1' 0"]

Above and right, four views of the prototype classroom unit. The progress photographs on the previous four pages relate to the construction of this unit.

Wider Implications

The existence of standard elements and detail drawings results in further differences from traditional methods. As the price of each component can be accurately determined in advance, the whole shell of a building can be assessed as a P.C. sum and the quantity surveyor's work normally involved is limited to the site works and certain other details. The significance and economies of this will readily be appreciated.

Further, the architect's work in the preparation of drawings is greatly reduced. Working drawings are increasingly simplified, becoming diagrams with reference to standard details. Purely administrative work is also only a fraction of that required for traditional buildings. Relatively few firms area of two classrooms in one day. Other prefabricated systems of construction have also yielded rapid erection of the shell but a wider examination of the whole building process shows that the overall reduction of the contract period achieved so far has not been as great as would be expected. The advantages of rapid completion of the shell are largely thrown away if this operation is followed by the installation of plumbing, heating and electrical services and other fittings by traditional methods. Where this occurs, the swiftly erected building is occupied for weeks by operators who are cutting holes for pipes, cables and fittings. They waste time, damage the structure and spoil the simple clean appearance. The problem of rationalizing these operations (which means, in fact, carrying them out before the assembly of the prefabricated units) is now being tackled in relation to the "Derwent" system. The main scope is in the field of services and operations are divided into two parts.

1. Those concerned with the installation of main runs, of for instance drains and heating mains.
2. Those concerned with the fixing of individual units, for instance, the plumbing fixtures and the heating cabinets or radiators.

The main runs are installed as part of the initial stage of building operations. Drains are laid up to the floor sockets cast in the slab and heating mains and cold water service mains are also cast in at this stage with upstands to connect fittings as required.

It is then possible to develop standard units which are simply fixed in pre-arranged positions with no site cutting and which can be highly prefabricated. A standard "Derwent" sanitary unit for infant school classrooms has been designed, which having a standard plan arrangement will employ a plumbing tree and prefabricated pipe runs for quick and efficient installation. And for heating, a standard "Derwent" heating cabinet is to be produced with dimensions chosen for use within the structural system. Internal finishings also tend to be unreasonably time consuming and here a great advance has been made by the introduction of plasterboard sheets having a finished face and recessed edges, so that sheets may be joined with a special filler permanently and invisibly. Any system of decoration may be applied immediately to a surface of this material. Partitions of this kind are used with the "Derwent" system, composed of two skins of recessed edge plasterboard joined by a cardboard "eggcrate."

Finishes

Inconsistencies are apparent in many prefabricated systems in relation to the cost, life and quality of materials and workmanship. Expensive and highly finished articles are sometimes mixed with crude, short lived ones, so that even after a short period there is a very marked deterioration of the total effect. A further inconsistency may be noted in structural design in many prefabricated systems consisting of "frame" and "cladding" or "skin," in that the theoretical functions of "frame" and "skin" become confused in actual application, the frame being largely redundant as far as many of the stresses are concerned, these being absorbed by the skin. In the "Derwent" system both frame and skin assist in the bearing of stresses, even fully glazed panels being assumed to absorb lateral forces. Also, each post is bolted to the adjoining panels on either side and thus vertical loads are distributed.

SECTION V.—DEVELOPMENT

Several developments at present in hand may be briefly mentioned. It is intended to introduce the trimming of beams to give greater freedom in planning as it will then be possible to space columns at wide intervals in two directions instead of only one as at present. Further structural possibilities are the development of longer span beams than the present 38-ft. maximum and the introduction of cantilever construction to provide projecting canopies and balconies in two-storey work. In conjunction with the trimming of beams, the introduction of panels less governed by the repetition of the grid dimension is possible. The use of timber may also lead to richer, warmer internal finishes as a variation from the universal plaster surfaces now used.

Two-Storey Development

In two-storey "Derwent" construction most of the elements used are exactly the same as for single-storey work. A few additional standard components are necessary.

The principal problems posed by two-storey work are in relation to fire and to sound transmission. Structural fire protection is provided by fibrous plaster casings to posts and beams and a suspended ceiling of cellular plasterboard protecting the first floor. Sound insulation is helped by a floating floor and the cellular plasterboard ceiling and is also helped by the panel construction which absorbs a certain amount of low-frequency noise.

ERECTION SCHEDULE

*"Wet" Operation**

1. Remove topsoil, dig for edge beam, drainage, trenches, etc.
2. Pour edge beam and slab, casting in pipework, drains, electric mains. Chases left in slab for heating mains which are laid, and cast in.
3. Grout in holding down bolts.

"Dry" Operation†

A.—*Superstructure*

4. Lay sill accurately on felt D.P.C.
5. Erect corner post with adjacent panels.
6. Erect wall panels to next corner and return side for completion of one bay.
7. Fix first beam.
8. Complete all walls adding beams to each bay.
9. Fix roof panels.
10. Carry out felt roofing system (one layer only may be fixed by arrangement with specialist firm for waterproofing).
11. Fix soffit and fascias.
12. Erect internal partitions.
13. Glaze windows.
14. Fix internal linings, skirtings, etc.

B. *Services*

15. Instal plumbing trees and fix sanitary fittings.
16. Fix heating units to mains outlets.
17. Fix precast wiring assemblies to mains outlets and close ductways.

C. *Finishings*

18. Flooring.
19. Fix doors, fittings, etc.

Timber

Hardwood and softwood are used. Timber licences are not required.

TECHNICAL OUTLINE

Foundation

6 in. concrete raft with 18 in. by 12 in. edge beam. Reinforced as required.

Framework

Frame of posts and beams to a 6 ft. 4 in. grid. Spans up to 38 ft. 0 in. in single storey, 25 ft. 4 in. two storey. Heights from 8 ft. 0 in. upwards in 2 ft. 0 in. increments.

Beams are hollow box section with plywood sides. Posts are bolted to panels distributing stresses.

Panels

Panels are in 6 ft. 0 in. widths, include solid wall units and various combinations of windows, doors and solids. Largest units can be handled by 3 or 4 men and fixed from normal trestles.

Cladding, $\frac{7}{8}$-in. Lagos mahogany. Lining, $\frac{1}{2}$-in. plasterboard. Bituminous building paper and aluminium foil insulation. Clerestory units are available.

Assembly is aided by hardwood guide strips. Windows and doors are integral parts of panels and require no separate fixing.

Roof

4-in. by $1\frac{1}{2}$-in. joists are framed into square deck units which rest on beams. Longer units form eaves. Insulation is by bitumen bonded glass fibre. Finish is 3 layer felt with specially developed aluminium flashing to give precise edge.

Partitions

Normally either wood framed finished with standard sheets of plasterboard without cutting, or cellular plasterboard.

Performance

Thermal Insulation :
Walls have U value of 0·23.
Roof has U value of 0·16.

Structural Design :
Loading—in accordance with C.P.3 (1952) "Loading."
Design—in accordance with C.P.(*b*) 681, "The Structural Use of Timber in Buildings."

Cost

The "Derwent" system of construction is highly economical. The cost of the erected single storey prototype superstructure including all walls, partitions, doors, windows, glazing, ironmongery and primed for painting is approximately 25s. per square foot. This price does not include siteworks, electrics, heating, sanitary fittings, etc.

The Nett Cost/square foot for complete new schools including foundations, drainage to manholes adjacent to buildings and construction and surfacing of paved playgrounds, on a normal site, would be approximately £2 14s. This figure is based on tenders recently received and conforms to the definition of Nett Cost given on Ministry of Education form S.B.16. Additional costs would be site layout and planting, roads and paths, boundary walls, main service connections and drainage.

The superstructure cost for two-storey construction is approximately 32s./square foot but economies in foundations may reduce the overall cost.

The advice of the BRS and the help of the MOE (Architects' Branch) is acknowledged. Manufacturers of the "Derwent" system, Vic Hallam Ltd., For contractors associated with the erection of the prototype classroom, see page 782.

† The terms "wet" and "dry" are not entirely satisfactory; the real distinction is between parts of the building process which are not amenable to rationalization and parts which are.

PRIMARY SCHOOL

in THORNBRIDGE AVENUE, BIRLEY, DERBYSHIRE
designed by F. HAMER CROSSLEY, County Architect
Assistant County Architect (Schools) F. K. HICKLIN, senior assistant-in-charge, D. TURNBULL, assistant architect, P. RICHARDSON, landscape architects, J. DUDDING and PARTNERS, quantity surveyor, JOHN C. BARNSLEY

This County Junior School is one of six schools planned by the Derbyshire Education Authority in an area of the county which is being developed for housing by Sheffield City Corporation. All these schools form part of the 1952-53 MOE building programme and will provide over 2,000 additional places for children in the new estates. The Birley School, which is designed for 320 juniors, was the first of these schools to be completed and exceptional methods had to be employed to bring it into use before the existing schools in the area became filled to capacity.

From the south, with the assembly hall in the centre.

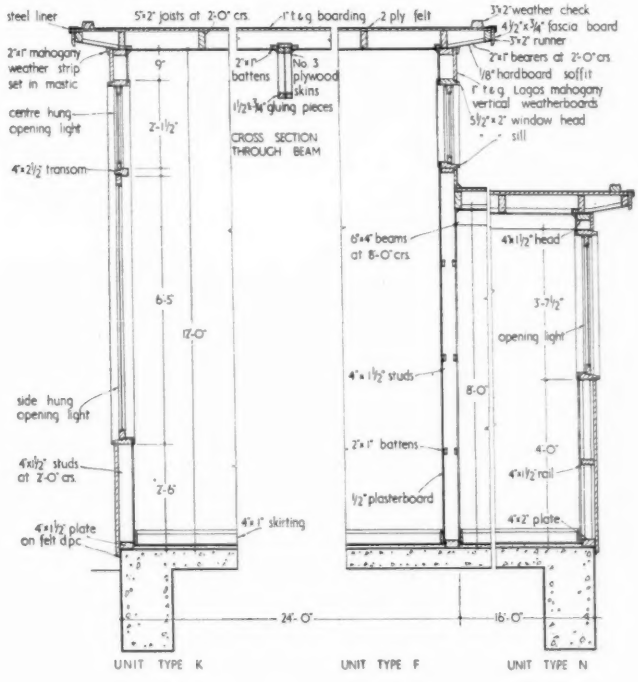
Typical classroom. On the right, window wall Unit K (see drawing below).

at present meals are brought from a nearby school. The architects consider that the arrangement of teaching space adopted gives a more domestic scale and also enables the age groups entering the school to be kept together during progress of teaching.

CONSTRUCTION.—Prefabricated timber construction was chosen for speed of erection, because of the risk of subsidence on the site and to economize in steel. The wood components are erected on a simple concrete raft with edge beams and the school is designed on an 8-ft. grid. Roofs are of timber construction and only the assembly hall has a steel frame. Work was begun on the site on September 11, 1952, the first timber components were delivered on October 31 and the work was completed on February 14, 1953. Thus the work took five months and three days in all.

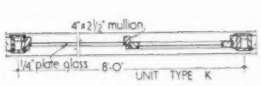
SITE.—The site, which has been undermined by old colliery workings, is on the edge of the Handsworth-Woodhouse housing estate and is large enough to accommodate an infants' school, nursery school and secondary school, which will be built later.

PLAN.—The teaching accommodation is divided into four blocks of two classrooms each, planned around a central assembly hall and dining hall, with each block containing cloakrooms and lavatories. Circulation is cut to a minimum by allowing cross circulation through the assembly hall. The present boiler house is provided temporarily until a central boiler house is built in the secondary school to serve all the schools on the site. Similarly the kitchen will be placed in the secondary school and

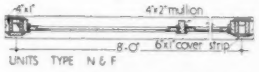


Section A-A

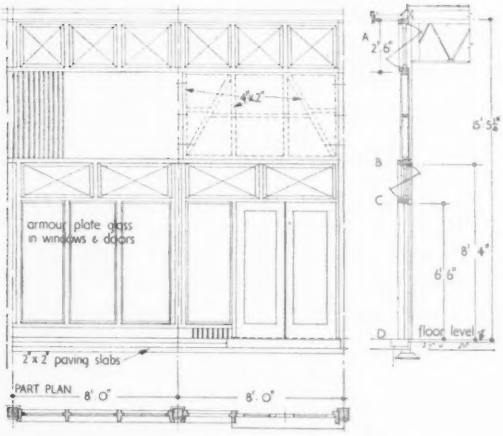
Ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]



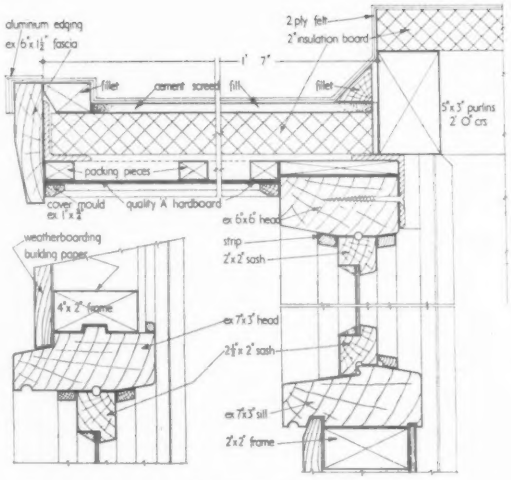
Part plan, South wall



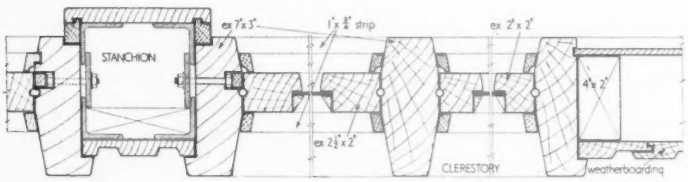
Part plan, North wall
[Scale : $\frac{1}{16}$" = 1' 0"]



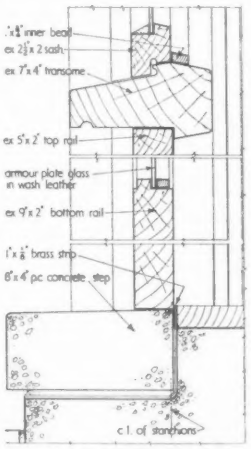
Elevation, part plan and section through south wall of assembly hall [Scale : ⅛" = 1' 0"]



Details at B and A [Scale : 1½" = 1' 0"]



Part plan of centre pivot window, clerestory and steel stanchion



Details at C and D

PRIMARY SCHOOL

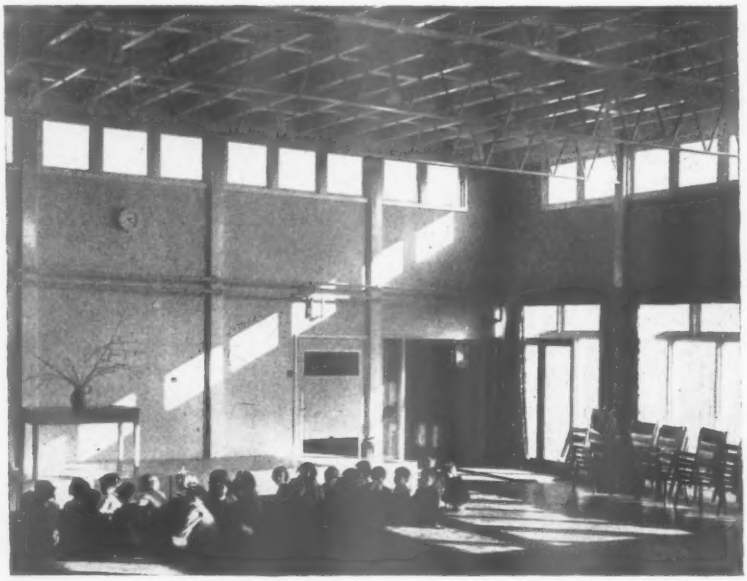
at BIRLEY, DERBYSHIRE

designed by F. HAMER CROSSLEY, County Architect

FINISHES.—Walls are faced externally with Lagos mahogany weather boarding and the internal finish is ½-in. plasterboard. Timber in-filling is also used for the assembly hall. Roofs are finished with two-layer bitumen felt and floors, except for lavatories and kitchen, are covered with wood composition blocks. The plasterboard used for the internal wall lining has flush joints and is finished with emulsion paint.

The number of sq. ft. per place is 42·4 and it is hoped, when final accounts are settled, that the cost per place will be below the MOE nett cost per place limit of £140. The total cost on tender of building and site works was £63,544, but reductions have been made to bring this figure within the figure of £56,400 approved by the MOE.

The general contractors were W. Malthouse Ltd. For sub-contractors see page 782.



Below, left, main entrance from the north-east. Bottom, left, view into the entrance hall from the dining room. Below, the assembly hall, with the south wall on the right (see drawings above).

TECHNICAL SECTION

While here in Great Britain we are busy *talking* about changes in contracting procedure (see JOURNAL feature in our issue for April 23 and readers' letters on pages 759-761 of this issue), out in Southern Rhodesia the local architects, quantity surveyors and builders are *acting*.

Several recently approved amendments to the standard form of building contract in use in Southern Rhodesia are of considerable interest. They include : the abolition of the 5 per cent. discount for the builder on P.C. items (the Q.S. will now detail the individual items and the builder will be asked to " add for attendance and profit *if required* ") ; the signing of the contract documents by the quantity surveyor, as well as the architect (thereby confirming the importance of the former's role) ; a clause whereby any variation of more than 10 per cent. becomes subject to a revision of rates, from either side ; a clause whereby the builder's undertaking to do the work for the sum of his tender becomes subject to his satisfying himself as to the financial position of the building owner.

These may not be the amendments of which we are in need in this country, but it is to be hoped that we will not indefinitely remain at the talking stage (the RIBA committee enquiring into tendering procedure is not expected to report until the autumn), and that we will not long lag behind our Southern Rhodesian colleagues in making any changes which are due—or overdue.

This week's special article

22 SOUND INSULATION & ACOUSTICS
sound transmission between flats

The number preceding the week's special article or survey indicates the appropriate subject heading of the Information Centre to which the article or survey belongs. The complete list of these headings is printed from time-to-time. To each survey is appended a list of recently-published and relevant Information Centre items. Further and earlier information can be found by referring to the index published free each year.

In a short note in the JOURNAL *for May 7 (page 591), describing the MOHLG/MOW experiments in building houses with reduced amounts of softwood, we mentioned a recent article in* Acustica *dealing with sound transmission experiments. Below, Specialist Editor No. 15 (Sound Insulation & Acoustics) reviews this article and confirms the undesirability of using timber or open-web joist floors between flats.*

A recent article in *Acustica** described tests made of the insulation of two types of floor construction used in otherwise similar load-bearing brick walled blocks of flats. One of the floors was a sand pugged joist floor (open-web joists were used, but the principle would be the same with timber joists), with floating board finish, as recommended by the BRS for a number of years, *i.e.*, boarding laid (not nailed) on 1-in. blanket of glass wool, loosely draped over the joists; the other was a solid reinforced concrete floor with a 1-in. glass wool blanket finished with boarding on battens. The testing techniques used enabled the two components of the trans-

**Indirect Sound Transmission with Joist and Solid Floors.* H. J. Purkis and P. H. Parkin, (*Acustica* [Swiss] Vol 2. No. 6).

LANGWORTHY FLATS *for the City of* SALFORD

W. Albert Walker, G.M., M.I.C.E., F.R.I.C.S., City Engineer

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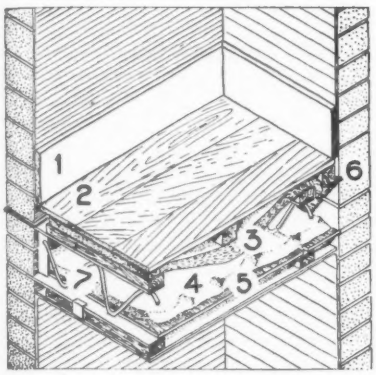


The type of joist floor used in the experiment.

KEY.

1. Skirting board attached to wall but free from floor.
2. Floating wooden raft.
3. Glass silk quilt.
4. Sand pugging.
5. Pugging boards.
6. Bituminised felt membrane.
7. Open-web steel joists.

mitted sound (*i.e.*, the direct sound radiated from the ceiling of the test floor as a result of the airborne sound impinging on it, and the indirect sound radiated from all the surfaces of the receiving room as a result of vibrations transmitted by the walls) to be measured separately.

INDIRECT TRANSMISSION—THE PRINCIPAL FACTOR

From the measurements it has been established that the insulation between the two rooms would be increased by less than 3 d.b. if there were no direct sound component, *i.e.*, if the floors were "ideal" sound insulators. In other words, it is *indirect* transmission that limits the maximum obtainable insulation to about 46 d.b. for the joist floors and to 53 d.b. for the concrete floors, when used in load-bearing brick buildings with 4½-in. partition walls. It is impossible, therefore, to achieve anything approaching the present recommended standard of sound insulation between living rooms (55 d.b.) if joist floors are used.

INACCURACY OF LABORATORY MEASUREMENTS

The measurements show that the amount of indirect transmission is much greater in the case of joist floors than in the case of concrete ones, and that the insulation value of a joist floor with floor boards floating on glass-wool blanket and with 10 lb./sq. ft. pugging of sand on plasterboard between the joists is only 44 d.b., although in the laboratory measurements as high as 57 d.b. have been recorded.

In the concrete floor the intimate connection between floor and walls, due to the floor being built into or resting on the brickwork over its entire perimeter, causes sound energy to be partially reflected back at these junctions. On the other hand, the joist floor has practically no connection with the side walls and only connects with the other walls at points where the joists enter them. This allows the sound energy to be transmitted easily past the junction of the joist floor with the walls. An attempt was made in the experiment to reduce this indirect sound transmission by incorporating a "sound insulating membrane," consisting of a layer of bitumen felt built into the walls at floor level all round the room in both joist and concrete examples. It is evident from the results that this membrane is comparatively ineffective, but the authors of the article are of the opinion that structural rigidity requirements make it unlikely that a more suitable membrane can be devised.

QUESTIONS & ANSWERS

In this feature the JOURNAL'S *Specialist Editors answer any questions connected with building confidentially and free of charge. Questions to the Technical Editor, The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1.*

3070 CONDENSATION TROUBLE

Q *An interior wall (see sketch) shows serious signs of damp from floor to ceiling, with even trickles of water running down the wall. A new slate* D.P.C. *was laid over two months ago with no sign of improvement. The damp sometimes goes completely when the windows are left open, only to return as badly as ever in two or three hours. There is no sign of it on the floor above. The weather seems to have no effect on it whatever. The wall is plastered and papered, and appears quite dry on the larder side. I do not think the cause is condensation.*

Can you please suggest the cause and a remedy?

A It is very difficult without an actual inspection to suggest what are the causes of the damp in the living room about which you are enquiring. It would help if you could answer the following questions: Was the new D.P.C. placed right through the wall between the living room and the larder; is it above or below floor level; was the wall re-plastered when the D.P.C. was put in? Is the floor of the living room below the ground level outside? The fact that the wall has been damp for a long period would probably mean that it would take more than the two months since the damp course was installed for it to dry out. You do not say where the windows of the living room are. If they are in the north wall, the damp should gradually and permanently disappear. If they are not in the north wall, possibly a ventilator grating in the north wall between the larder and the fireplace of the living room would help.

The trouble is almost certainly condensation and the fact that the larder window is probably always open prevents condensation on that side of the wall. A room with a floor of quarry tiles on concrete, in contact with the earth, is bound to be cold and likely to give rise to condensation.

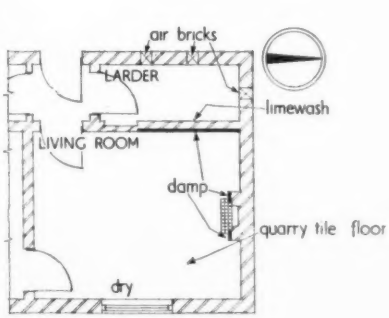
[The reader answered our Specialist Editor's questions with the following supplementary enquiry—ED.]

3070A CONDENSATION (continued)

Q *The new* D.P.C. *was placed right through the wall and is 6 in. above floor level. The ground outside is below floor level. The wall was not re-plastered when the* D.P.C. *was laid, but the builder painted the inside (living room) plaster face with lead in solution, all over. This should have made an impervious membrane to any water in the wall, but, on peeling off the paper, it can be seen to be covered with a film of water. The living room is kept well ventilated. Do you think that, in spite of this, the damp is condensation? Would stripping off the old plaster and re-plastering be likely to cure it?*

A We are still of opinion that the trouble is condensation. The larder is well ventilated on at least three sides, but the action your builder took in painting the inside of the living-room wall with a lead paint has probably added to the trouble. The substitute of a soft plaster coating for the existing wall surface would, undoubtedly, do something towards absorbing the condensation, but this does not relieve the matter and, in the long run, is not a good thing to do under your circumstances.

Whether the wall on the north and west sides is re-surfaced or not, we are of opinion that there should be a window or louvres in the north wall, west of the fireplace.



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.

11.32 materials: general

SEA-WATER FLOODING

Notes on the Repair and Renovation of Flood Damaged Buildings. (Building Research Station. 1953.)

11 pp. note dealing with damage to traditional buildings caused by recent sea-water flooding.

This is a note of considerable importance to anyone doing repair work in the recently flooded areas. It deals with cleaning and drying, renovation of interiors, structural damage, effects of sea-water and salt on materials, and the use of flooded stocks of building materials. Apart from the fairly obvious need for precautions to ensure thorough drying out and the proper removal of damp material above dampcourse level, the main value of this note is in the advice it gives on treatment for saturated walls and its warnings about the use of materials from stocks which have been flooded. The long-term effect of efflorescence is emphasised.

13.105 materials: timber

DRY ROT

Dry Rot and Other Timber Troubles. W. P. K. Findlay. (Hutchinson's Scientific and Technical Publication. 1953. 25s.)

260 pp. illustrated authoritative general work on the decay and preservation of timber.

The author of this book is well known as an expert on the subject of fungal decay of timber and, as a member of the staff of the Forest Products Research Laboratory, has had the advantage of access to a wide range of information from experiments and investigation.

Mr. Findlay first describes the nature of timber and the causes of deterioration, and he explains clearly the various fungus growths and the different types of insect attack. His chapter on wood preservatives and their use is equally clear, but he might perhaps have gone into rather more detail in describing the exact methods of application in existing buildings.

Although it is always difficult for an author to mention trade names it would have been very helpful if something of this kind could have been included, perhaps in the form of an appendix.

In other chapters the author deals with decay in buildings, farms, and gardens, ships and vehicles.

An excellent book which will undoubtedly become a standard reference.

13.106 materials: timber

FIRE PROTECTION

Timber and Fire Protection. (Timber Development Association. 1953.)

40 pp. booklet explaining how wood burns, the fire retardent processes of impregnation and painting, with a description of several of the materials that can be used. Test methods. Useful classification of timbers according to properties of fire resistance. Table of proprietary processes. Bibliography.

16.99 materials: miscellaneous

FIBRE BOARDS

Fibre Building Boards. BS 1142. 1953. (British Standards Institution. 4s.)

Revision of war-time specification. 7 categories covered. Standard sizes, mean density, strength, water absorption. Methods of test.

INTERSECTING SHELL ROOFS FOR U.S. BUILDING

The photograph below is of a model of the proposed terminal building at Lambert-St. Louis airfield, Mo., USA. This 3-storey building in reinforced concrete is to be 438 ft. long and 120 ft. wide, and it will be extended later to twice this length. The outstanding feature is the roof, composed of 3 units, each consisting of two intersecting cylindrical concrete barrels, 4½ in. thick and spanning 120 ft. with a rise of 32 ft. The main supporting members are two 170-ft. ribs which follow the diagonal intersection lines of the shells. They are 5 ft. deep at the top of the arch, where the ribs will project above the roof surface, increasing in depth towards the supports, where they will pierce the shell and terminate on top of steel columns near third floor level. The ribs are pinned at the columns and the columns are tied together by a horizontal steel band, 2 in. by 18 in. An insulating medium will be laid on the shell, topped by copper. The underside is to have acoustic plaster. The shell openings facing the airfield will be glazed on the outside and have a translucent plastic backing. The entrance to the terminal will be from the top floor level. Architects are Hellmuth, Yamaski and Leinweber; structural engineer, Becker. (*For further information see* Engineering News-Record *for Jan. 29, 1953, p. 52.*)

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

ENQUIRY FORM

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

.....

.....

.....

Please ask manufacturers to send further particulars to:—

NAME.....

PROFESSION or TRADE

.....

ADDRESS.....

.....

AJ 18.6.53

17.92 construction: general
DETAIL SHEETS

Architectural Detailing. C. Hornbostel and E. A. Bennett. (Chapman & Hall. 1952. 96s.)

Even 218 pp. of details need to be exceptionally good to attract at a price of nearly five pounds. The interest in this selection is perhaps that being American they give a close-up view of somewhat unfamiliar examples. About half the details are classified under building types and the other half building elements. Each is shown on a single page with a smallish photograph and very clear drawings. Although generally well explained, there are some examples which do not go quite far enough into details, such as fixing methods.

18.126 construction: theory
FIRE HAZARD

Combustible Linings in Dwelling Houses (Fire Protection Association Publication No. 16. 1953.)

Small booklet dealing primarily with results of full-scale house fire tests.

One house with stud partitions lined with fibre insulating board, and another house similar but with additional cover of ⅜-in. plasterboard over the fibreboard, was built. Ceiling linings were similar. Similar fires, started in the living rooms, resulted in the first house burning rapidly, making escape from the first floor impossible within 7 minutes and the roof collapsed after 19 minutes. In the second house the comparable times were 26½ and 40 minutes.

Although the danger of combustible linings has often been stressed, this full-scale experiment shows the possible serious consequence which can result from the use of such linings. Clearly, the information is applicable to other types of building. It is unfortunate that there is no mention of any decoration on the board linings. If they were undecorated the trial seems somewhat unreal, while if they were decorated surely the type of finish would be of some importance.

19.163 construction: details
DETAIL SHEETS

Architects Detail Sheets. Edited for Architect & Building News by E. D. Mills. (Iliffe & Sons Ltd. 1953. 25s.)

96 sheets selected from those appearing regularly in the *Architect & Building News.* Photographs and detail drawings. Balconies, entrances, fireplaces, stairs, wall details, windows and various other details. An interesting collection of modern details.

22.59 sound: insulation and acoustics
FAN SOUND LEVELS

Fan Sound Levels. J. E. T. Blake (The Heating and Ventilation Engineer and Journal of Air Conditioning. Vol. XXVI. No. 309. March, 1953.)

Of interest to the specialist architect, valuable mainly because the data are not easily to be found elsewhere.

After a brief introduction to the subject of noise measurement, the article goes on to describe methods of assessing probable noise levels from three main types of ventilating fan—namely the centrifugal, the axial flow and the ring mounted propeller. Data and formulæ are given relating the performance of these types of fan to noise generation. It would have been useful if more information had been provided on the overall noise levels of fans as installed with typical ductwork. It is unfortunate that small errors in references and lapses in the writing of formulæ have been allowed to reach the final printing.

22.60 sound insulation and acoustics
CONCERT HALLS

The Acoustics of the Royal Festival Hall, London. P. H. Parkin, W. A. Allen, H. J. Purkis and W. E. Scholes. (Acustica [Switzerland]. Vol. 3. No. 1. 1953.)

This paper describes in great detail the acoustic design of the hall, and would prove of interest to anyone engaged on the design of a large concert auditorium. It is to some extent an apologia, but in no sense, for there is no cause, is it abject.

23.177 heating and ventilation
CENTRAL HEATING CODE

Central Heating by Low Pressure Hot Water. BS, C of P. Draft Code 341.300. (British Standards Institution. 15s.)

Draft Code for ordinary central heating systems, including radiators, convectors and surface panels; embedded panels will be dealt with in Code 341.200 which is in preparation. The main part of the Code covers the subject in a general way, while the various sections cover components such as pipe-work, boilers, storage vessels, pumps, radiators, convectors, etc. There is also a section on thermal insulation and heat loss calculations are dealt with.

23.178 heating and ventilation
DOMESTIC HEATING

Recommended Domestic Solid Fuel Appliances. List No. 6. (Coal Utilisation Council. Jan., 1953. 6d.)

A further revision to the now well-known list of recommended appliances. Cancels list of July, 1952. Architects and builders are still advised to consult a member of the Council's panel of approved distributors for advice on the appliance most suited to their needs; for example, its size, and its suitability for fuels which may be available in the district where it is to be used.

25.94 water supply and sanitation
TEXTBOOK

Building Sanitation. L. B. Escritt. (Macdonald & Evans Ltd. 1953. 25s.)

This book deals primarily with isolated buildings, especially country houses. It covers the usual field, but deals in more detail with private water supplies than is usual. This book is comprehensive in a conservative way, but it does not seem to add much that is not already available in other books. It is a little disappointing in a book on this subject that there is no discussion of some of the controversial points which have been raised in various post-war reports. There is a section on specifying. 188 pages, numerous illustrations.

Buildings Illustrated

Roman Catholic Church Hall (temporary Church), London Road, Bedford, for the Northampton Roman Catholic Diocese Trustee. (Pages 766-767.) Architect: Gerald W. King, A.R.I.B.A., A.M.T.P.I., of Max Lock & Associates. Murals by Dame Alice Harpur School, Bedford; art teachers: Miss J. Nadin and Miss B. Wells. General Contractor: Lindum (Lincoln) Ltd.; general foreman: A. Denton. Sub-contractors: "Astos" dampcourses, roofing felt, The Ruberoid Co. Ltd.; reinforced concrete structure, Stent Precast Concrete Co. Ltd.; bricks, Eastwoods Ltd.; artificial stone, Leighton Buzzard Precast Concrete Co. Ltd.; glass, sanitary fittings, Frederic Gale Ltd.; woodblock flooring, Horsley Smith & Co.; gas fixtures, Bratt Colbran Ltd.; electric wiring, Modern Electric Co. Ltd.; door furniture, Yannedis & Co. Ltd.; casements, window furniture, Crittall Manufacturing Co. Ltd.; rolling shutters, Thornborough & Son (Manchester) Ltd.; metalwork, Dryad Metal Works Ltd.; joinery, J. T. Hobson & Co. and Frank Gray; textiles, Turners; church fittings, Francis Tuck & Co. Ltd. and Vanpoulles Ltd.

Hackenthorpe Junior School, Derby, for the Derbyshire County Council. (Pages 768-773.) Consultant Architects: Samuel Morrison & Partners, A./A.R.I.B.A. Members of architect's and manufacturers staffs associated with the "Derwent" system, G. E. Grey, W. J. Farmer, I. Jesperson, R. T. Dennis, A. B. Fuller, N. Watson, E. Johnson, R. Wilkinson, H. Smith and S. Wood, in collaboration with F. Hamer Crossley, DIPL.ARCH., F.R.I.B.A., County Architect. Consulting engineer, Alec G. Lees, A.M.I.STRUCT.E., M.I.E.T. Manufacturers of the "Derwent" system: Vic Hallam Ltd. (Manager of Timber Buildings Division, Roy Hallam). Sub-contractors associated with prototype classroom: roofing, William Briggs & Sons; heating, Weatherfoil Heating Systems Ltd.; sanitary fittings, Adamsez fittings supplied by Buxton Dawson Ltd.; lighting, Troughton & Young Ltd.; floors, Armstrong Cork Co. Ltd.; blinds, Avery & Co. Ltd.; furniture, G. M. Hammer & Co. Ltd.; paints, Joseph Mason & Co. Ltd.; ironmongery, Bennetts Ltd.; lettering, The Lettering Centre.

County Junior School, Thornbridge Avenue, Birley, Derbyshire, for the Derbyshire Education Committee. (Pages 774-776.) County Architect: F. Hamer Crossley, DIPL.ARCH. (L'POOL), F.R.I.B.A.; Assistant County Architect (New Schools): F. K. Hicklin, A.R.I.B.A.; Senior Architect in charge: D. Turnbull, A.R.I.B.A., DIP.T.P., assisted by P. Richardson, DIPL.ARCH. Quantity surveyor: John C. Barnsley, F.R.I.C.S. Landscape Architect: J. Dudding & Partners. General Contractors: W. Malthouse Ltd. Sub-contractors: wooden components, cloak fittings, Vic Hallam Ltd.; assembly hall roof, Stramit Boards Ltd.; electrical installation, County Works Department; roofing, The Ruberoid Co. Ltd.; tar paving, John Hadfields & Sons Ltd.; sanitary fittings, T. Crump & Co. Ltd.; ironmongery, Bennetts (Irongate) Ltd., Parker, Winder & Achurch Ltd.; furniture, G. M. Hammer & Co. Ltd.; heating, Weatherfoil Heating Systems Ltd.; paint, The Leyland Paint Co. Ltd.; clocks, Smiths English Clocks Ltd.; curtains, Hope & Wild; mats, Midland Blind Institute; internal linings, Northern Plasterboard; flooring, The Granwood Flooring Co. Ltd.; window blinds, J. Avery & Co.; steel frames, Hills (West Bromwich) Ltd.; landscaping, Barrons' Landscape Ltd.

The Belswains Infants' School for the Hertfordshire County Council was designed by Samuel Morrison & Partners, A./A.R.I.B.A., in collaboration with C. H. Aslin, C.B.E., F.R.I.B.A., County Architect.

Announcements

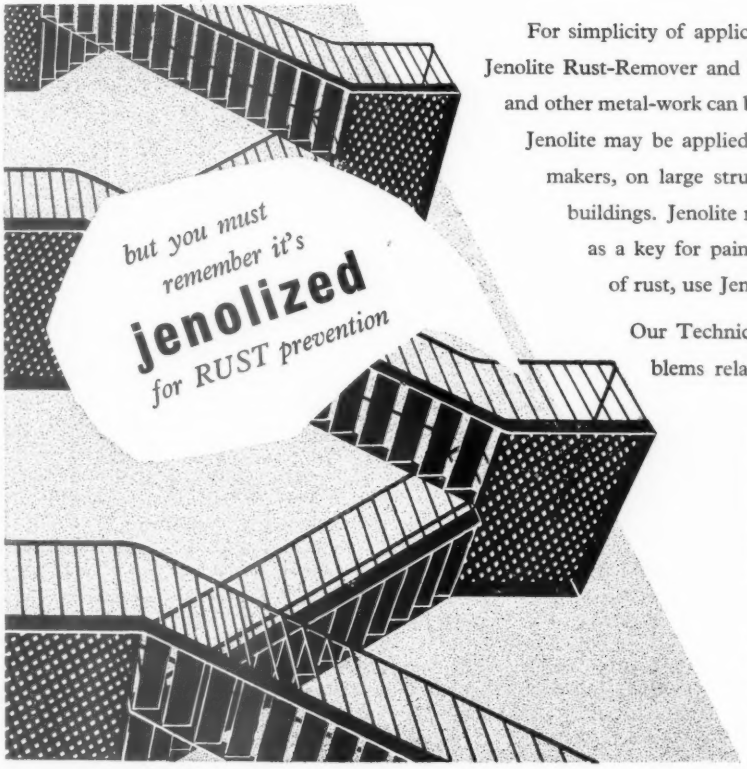
P. T. Bliss has been appointed sales director of G. A. Harvey & Co. (London) Ltd. Mr. Bliss, who is a member of the Incorporated Sales Managers' Association and the Incorporated Advertising Managers' Association, joined G. A. Harvey & Co. in 1909, and has been sales manager for a number of years.

In order to remove doubts which have arisen in certain quarters, John Hall & Sons (Bristol & London) Ltd. wish to announce that they are not connected in any way with the paint manufacturing business of John Hall & Co. (Warminster) Ltd., which was recently involved in a legal case.

Donald MacPhail has assumed the duties of sales director with the Indestructible Paint Co. Ltd., as from April 1, 1953. Mr. MacPhail has been manager in Scotland and Northern Ireland for the company since 1948, and has been deputy sales director to Captain A. E. Campbell-Harris, M.C., since September, 1952.

J. Newel Lewis, A.R.I.B.A., and Mrs. Alexandra Lewis sail for the British West Indies on June 9 to take up partnership with Colin Laird. They will practice under the style of Colin Laird and Newel Lewis A./A.R.I.B.A., chartered architects, at 9, St. Clair Avenue, St. Clair, Port-of-Spain, Trinidad, B.W.I. (Tel.: 23662). They will be pleased to receive trade catalogues.

Messrs. Aygee Ltd., of London, have now opened a Glasgow office for the administration of all Scottish contracts. H. M. Dale, who has been on their technical and sales staff for a number of years, has been appointed area manager for Scotland.



For simplicity of application and economy, there is nothing to touch Jenolite Rust-Remover and Neutralizer. Steel windows, guttering, pipes and other metal-work can be jenolized during manufacture; alternatively, Jenolite may be applied by brushing on products not treated by the makers, on large structural members or on metalwork of existing buildings. Jenolite removes rust, prevents further rusting and acts as a key for paintwork of all types. For maximum inhibition of rust, use Jenolite Chemical Sealer before painting.

Our Technical Department will gladly advise on all problems relating to the prevention and cure of rust.

Jenolite Ltd.

LONDON:
43 PIAZZA CHAMBERS, COVENT GARDEN, W.C.2
TEMPLE BAR 1745, 3058 and 3059

SCOTLAND:
JENOLITE HOUSE, 304 HIGH ST., GLASGOW, C.4
BELL 2438/9.

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London Office and Showrooms: 66 Victoria Street, S.W.1
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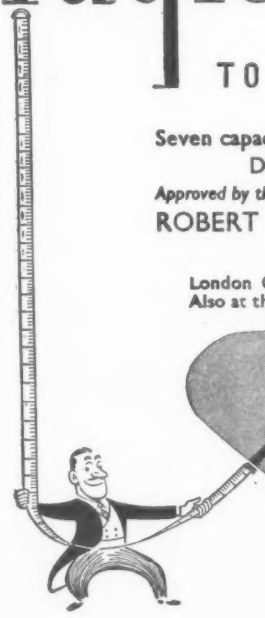

DOMESTIC
Tayco
BOILERS

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 excepted from the provisions of the Notification of Vacancies Order, 1952.

AIR MINISTRY.
WORKS DEPARTMENT.

ARCHITECTURAL ASSISTANTS required in London and Provinces in Design Branch by Air Ministry Works Department. Applicants should be experienced in planning and preparation of working drawings and details for permanent and semi-permanent buildings. Professional qualifications an advantage. Opportunities for overseas service for which allowances are payable. Salaries up to £733 p.a., starting pay dependent upon age, qualifications and experience. Overtime or extra duty allowance payable. Apply quoting Order No. Borough 3673/FB stating age, qualifications and previous appointments, giving dates and stating type of work done, to any Employment Exchange. 8906

COUNTY BOROUGH OF ROTHERHAM.
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT (GRADE VIII).
AMENDED ADVERTISEMENT.

Applications are invited for the above appointment in the Architects' Department in the office of E. J. Manson, B.Eng., A.M.I.C.E., Borough Engineer, at a salary in accordance with Grade VIII of the A.P.T. Division of Scales (£760-£835).

Applicants must be Registered Architects and Associate Members of the Royal Institute of British Architects, and have had considerable experience in design, construction and contract administration, preferably with a local authority, particularly in connection with housing schemes.

HOUSING ACCOMMODATION WILL BE AVAILABLE FOR THE SUCCESSFUL APPLICANT IF REQUIRED.

Applications, to be endorsed "Chief Assistant Architect," stating age, qualifications, architectural training and details of experience, together with copies of three recent testimonials, should be received by me not later than 6th July, 1953.

Canvassing will disqualify.

JOHN S. WALL,
Town Clerk.

Municipal Offices, Rotherham. 8976

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

DEPUTY REGIONAL ARCHITECT required to deputise when necessary for Regional Architect over whole range of his duties. Applicants must be Registered Architects and Fellows or Associate Members of the Royal Institute of British Architects. Good administrative and architectural experience essential, including intimate knowledge of design and construction of hospital buildings. Salary scale: £1,200×£50—£1,400, plus £50 London weighting. Applications, stating age, qualifications, and experience, together with the names of three referees, to be sent to The Secretary, North-West Metropolitan Regional Hospital Board, 11a, Portland Place, London, W.1, by 30th June. 8977

MIDDLESEX COUNTY COUNCIL—COUNTY ARCHITECT'S DEPT.

SUPERNUMERARY ARCHITECTURAL ASSISTANTS required. Appointments unestablished and extend for maximum of 1 year. Salaries up to £675 p.a., in accordance with qualifications and experience. Should be Final R.I.B.A. standard, and experience of educational buildings advantage. Prescribed conditions. Application forms (stamped addressed envelope foolscap) from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 29th June (quoting M.126 A.J.). Canvassing disqualifies. 8978

THE NORTH WESTERN ELECTRICITY BOARD.

APPOINTMENT OF SECOND ASSISTANT ENGINEER (ARCHITECTURE & BUILDING) SUB-AREA TECHNICAL ENGINEER'S DEPARTMENT, CASTLE GREEN, KENDAL.

Applicants should have a wide experience in the contemporary design and detailing of new building works and in the administration of building contracts including the supervision and control of a small staff including a Clerk of Works. They should also be conversant with the repair and maintenance of existing property. Professional architectural qualifications will be an advantage.

Salary Scale: £817-£852 p.a. Grade J.7. N.J.B. Conditions.

Applications to Sub-Area Manager, No. 6 Sub-Area, The North Western Electricity Board, Castle Green, Kendal, by 27th June, 1953. 9001

HERTFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

ONE SENIOR ASSISTANT QUANTITY SURVEYOR. Grade VII (£710-£785).

TWO ASSISTANT QUANTITY SURVEYORS. Grade VI (£670-£735).

TWO ASSISTANT QUANTITY SURVEYORS. Grade V (£595-£645).

Previous Local Government experience not essential. Applications, stating clearly which post is applied for, together with the names of three referees, should be addressed to the County Architect, County Hall, Hertford, Herts., not later than 30th June, 1953. 8973

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited from QUANTITY SURVEYORS for appointments on A.P.T., Grade VII (£710×£25 to £785 per annum). Applicants must have passed the Final examination of the Royal Institute of Chartered Surveyors (Quantities), and have had 5 years' experience. It is essential that applicants have a thorough knowledge of the preparation of estimates, taking off quantities for all trades, measuring up and final accounts.

The appointments are subject to the terms of the National Joint Council's Scheme of Conditions of Service, the provisions of the Local Government Superannuation Act, 1937, and the successful applicants will be required to pass a medical examination.

Applications, on forms to be obtained from this office, must be received by 30th June, 1953.

F. HAMER CROSSLEY,
County Architect.

County Offices, St. Mary's Gate, Derby. 8974

METROPOLITAN BOROUGH OF CAMBERWELL.
PERMANENT HOUSING SITE No. 38 (CROXTED ROAD/ACACIA GROVE).
ERECTION OF 108 FLATS.
PANEL OF CONTRACTORS.

The Council invite applications from contractors who wish to submit tenders for these flats. The value of the contract will be in the region of £250,000 and tender documents are in course of preparation.

A limited number of applicants will be selected and invited to submit tenders.

Applications to be sent with a statement of recent housing contracts or other work carried out and the names of referees to the Town Clerk, Town Hall, Peckham Road, S.E.5, not later than Wednesday, 1st July, 1953.

A deposit of five guineas will be required subsequently from contractors invited to tender and will be returnable on receipt of a *bona fide* tender.

Firms selected to tender will be required to state on the tender form whether they are parties to schemes such as that operated by the London Builders' Conference relating to the submission of tenders.

The Council reserve the right to make such enquiries into the *bona fides* of applicants as may be deemed necessary and do not bind themselves to invite every applicant to tender or to accept the lowest or any tender.

June, 1953. 8999

BOROUGH OF MACCLESFIELD.
APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the appointment of Assistant Architect in the Borough Architect's Department.

Applicants should have passed the Intermediate Examination of the R.I.B.A., and the position will be within the A.P.T. Grades III to IV (£525—£600) according to experience.

Form of application may be obtained from the undersigned to whom it should be returned by 30th June, 1953.

WALTER ISAAC,
Town Clerk.

Town Hall, Macclesfield.
June, 1953. 8992

EAST SUFFOLK COUNTY COUNCIL.

Applications are invited for the appointment of ASSISTANT ARCHITECT on A.P.T. Grade V (£595—£645) in the County Architect's Department. The commencing salary in this Grade will be fixed according to qualifications and experience. Applicants should be members of the R.I.B.A., quick and accurate draughtsmen, capable of carrying jobs through all stages. They should have a sound knowledge of design and building construction, and should be capable of writing specifications.

The appointment will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Act, 1937. The selected applicant will be required to pass a medical examination. Applications, stating age, qualifications and full details of previous experience, accompanied by copies of three recent testimonials, should be sent to E. J. Symcox, F.R.I.B.A., County Architect, County Hall, Ipswich, not later than the 30th June, 1953. 8993

CRAWLEY DEVELOPMENT CORPORATION require an ASSISTANT ARCHITECT, Grade IV, £630—£850 p.a. Contributory superannuation. Applicants should be fully qualified and have good general experience in design, construction and planning. Application forms from Chief Architect, (VACANCY), Broadfield, Crawley, Sussex, are returnable by 6th July, 1953.

C. A. C. TURNER,
Chief Executive. 8991

NATIONAL COAL BOARD—SCOTTISH DIVISION.

Applications are invited for vacancies which exist at Headquarters in Edinburgh for ARCHITECTS, Grade II. Salary: £600×£25 to £650×£30 to £900. Scottish Division of the N.C.B. is at present engaged on a problem of development of buildings for the mining industry on a large scale. Applicants must be Associated Members of the R.I.B.A. and have had experience in the handling of large scale contracts. The posts will be superannuable and the point of entry into the relevant salary scale will depend on the qualifications and experience of the successful applicants, who will be required to pass a medical examination. Applications, giving full details of age, qualifications, experience (in chronological order), present post and salary, should be forwarded to the Establishments Officer, 1, Eglinton Crescent, Edinburgh, 12, within 7 days. 8960

BOROUGH OF OLDBURY.
APPOINTMENT OF ARCHITECTURAL ASSISTANTS.

Applications are invited for the undermentioned appointments in the Architects' Section of the Borough Surveyor's Department:—

(*a*) ASSISTANT ARCHITECT, Grade A.P.T., V(a)—(Housing).

(*b*) ASSISTANT ARCHITECT, Grade A.P.T., V(a)—(Education).

(*c*) ARCHITECTURAL ASSISTANT, Grade A.P.T., IV—(Housing).

(*d*) ARCHITECTURAL ASSISTANT, Grade A.P.T., III.

Applicants for appointments (*a*) and (*b*) should be qualified Members of the R.I.B.A., and preferably having previous experience with a local authority. Candidates for (*a*) should be experienced in the layout of contemporary housing schemes, the design and construction of municipal houses, flats and shopping centres, and capable of administering building contracts.

For appointment (*b*) candidates should be qualified to take charge of the maintenance of education and public buildings, including the preparation of estimates, working drawings and specifications, and administration of building contracts.

Applicants for appointments (*c*) and (*d*) should possess Intermediate R.I.B.A. status or its equivalent, and have had practical experience in the preparation of working drawings, details and specifications for houses, flats and alterations to public buildings, and be able to supervise building contracts.

The appointments will be subject (*a*) to the conditions of the service of the National Joint Council for Local Authorities Administrative, Professional, Technical and Clerical Service, (*b*) to the Local Government Superannuation Act, 1937, and (*c*) to the successful candidate passing a medical examination.

Applications, giving particulars of age, experience, etc., together with the names of two referees, should be addressed to the undersigned not later than Monday, 29th June, 1953.

KENNETH PEARCE,
Town Clerk.

Municipal Buildings, Oldbury. 8959

HEREFORDSHIRE COUNTY COUNCIL.

Applications are invited for the following appointments on the permanent staff of the County Architect's Department:—

(*a*) CHIEF ASSISTANT ARCHITECT, Grade IX, A.P.T. Division (£815×£40 to £935 per annum). Candidates must be Fellows or Associates of the R.I.B.A., with previous experience in the control of staff and a sound knowledge of Local Government procedure. The person appointed will be required to provide a car, for which the appropriate allowances will be paid.

(*b*) ASSISTANT QUANTITY SURVEYOR, Grade VIII, A.P.T. Division (£760×£25 to £835 per annum). Candidates must be qualified by examination, preference being given to Associates of the R.I.C.S. (Quantities Division). Wide experience required in the preparation of Bills of Quantities and the control of large contracts.

(*c*) ARCHITECTURAL ASSISTANT, Grade IV, A.P.T. Division (£555×£15 to £600 per annum). Applicants must have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised schools of architecture, and have subsequently worked in an architectural office for a period of two years.

The appointments are subject to the Local Government Superannuation Act, 1937, and to one month's notice on either side. The successful candidates must pass a medical examination. In certain cases an allowance of 25s. per week and third class return fare to place of residence once every two months for a limited period is payable to married men.

Application forms from W. Usher, A.R.I.B.A., County Architect, Bath Street, Hereford, to be completed and returned by 4th July, 1953. 8972

LANCASHIRE COUNTY COUNCIL.
SECTIONAL PLANNING OFFICER, A.P.T., VIII (£760-£835), required in Accrington Divisional Planning Office.

Considerable experience in Town Map preparation and administration of Town and Country Planning Acts and Orders is essential.

Candidates should be qualified Architects; a planning qualification in addition would be an advantage.

Applications, giving experience, present salary, and two referees, to the County Planning Officer, East Cliff County Offices, Preston, by 8th July, 1953. 8961

BRADFORD EDUCATION COMMITTEE.
TECHNICAL COLLEGE, BRADFORD.

Applications are invited for the appointment of SENIOR LECTURER in the Department of Civil Engineering, Architecture and Building in the College.

Special qualifications are desired in Architecture and in Surveying, including the Associateships of the Royal Institute of British Architects and of the Royal Institution of Chartered Surveyors.

The salary scale for men, which is according to the Burnham Technical Award, will be from £1,040 to £1,190 per annum.

Further particulars and forms of application may be obtained from the Director of Education, Town Hall, Bradford, 1, and completed forms should be returned to the Principal of the College as soon as possible.

A. SPALDING,
Director of Education.
8975

BRITISH ELECTRICITY AUTHORITY.
EAST MIDLANDS DIVISION.

Applications are invited for the following positions within the Division:—

CIVIL ENGINEERING DRAUGHTSMEN, Construction Department. (Vacancy No. 22/53.)

Candidates should have experience in design and detail of reinforced concrete structures, piled and slab foundations for heavy plant, culverts, cable subways, etc., for general building construction, drainage, and sanitation schemes, associated with offices and administrative buildings.

The salary will be in accordance with Grade 5 (£567-£671 per annum), or Grade 6 (£433-£567 per annum) of Schedule D of the National Joint Board Agreement.

ENGINEERING DRAUGHTSMEN (ELECTRICAL), Construction Department. (Vacancy No. 61/53.)

Candidates should have experience in the preparation of layouts and diagrams for the installation of E.H.T. and L.T. switchgear, transformers, E.H.T. and L.T. cables; knowledge of protective gear systems would be an advantage.

The salary will be in accordance with Grade 5 (£567-£671 per annum), or Grade 6 (£433-£567 per annum) of Schedule D of the National Joint Board Agreement.

The above appointments will be pensionable within the provisions of the British Electricity Authority and Area Boards Superannuation Scheme.

Applications should be submitted on the official form, which may be obtained from the Divisional Establishments Officer, British Electricity Authority, Barker Gate, Nottingham, and should be returned to the undersigned. *Please quote Vacancy Number.*

L. F. JEFFREY,
Divisional Controller.
8957

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL STAFF.

Applications are invited for experienced and capable assistants within the following Salary Grades:—

Grade VI	£670 p.a.—£735 p.a.
Grade VII	£710 p.a.—£785 p.a.
Grade VIII	£760 p.a.—£835 p.a.
Grade IX	£815 p.a.—£935 p.a.

Application forms may be obtained from C. M. Coombs, F.R.I.B.A., County Architect, Martin Street, Stafford, to whom they should be returned after completion.

T. H. EVANS,
Clerk of the County Council.
County Buildings, Stafford.
8th June, 1953. 8990

THE NORTH-WESTERN ELECTRICITY BOARD.
JUNIOR ARCHITECTURAL ASSISTANT (JUNIOR ENGINEER).

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JUNIOR ARCHITECTURAL ASSISTANT.

Applicants should be competent to prepare details from working drawings.

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HOLLOWAY, LONDON, N.7.

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R. H. CURRELL,
Clerk.
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CORPORATION OF LONDON.
CITY PLANNING OFFICE.

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