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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THE ARCHITECTURAL PRESS
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★ 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.

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 75, Eaton Place, S.W.1.	Sloane 3158/1601
IIBD	Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb.	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S	Sloane 7128
IWA	Inland Waterways Association. 14, Great James' Street, W.C	Chancery 7718
LIDC	Lead Industries Development Council. Eagle House, Jermyn S[illegible] W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MARS	Modern Architectural Research Group (English Branch of CIAM) Secretary: Gontran Goulden, Building Centre, 26, Store Street, W.C.1.	Museum 5400
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Saville Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 37, Onslow Gardens, S.W.7.	Kensington 8161
NCBMP	National Council of Building Material Producers, 10, Princes Street, S.W.1.	Abbey5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives, Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 14, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Whitehall 9936
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Edinburgh 20396
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House. Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House, 3921
SIA	Structural Insulation Association. 14, Moorgate, London, E.C.2.	Central 4444
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. Devonshire House, Mayfair Place, Piccadilly, W.1.	Mayfair 8866
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988

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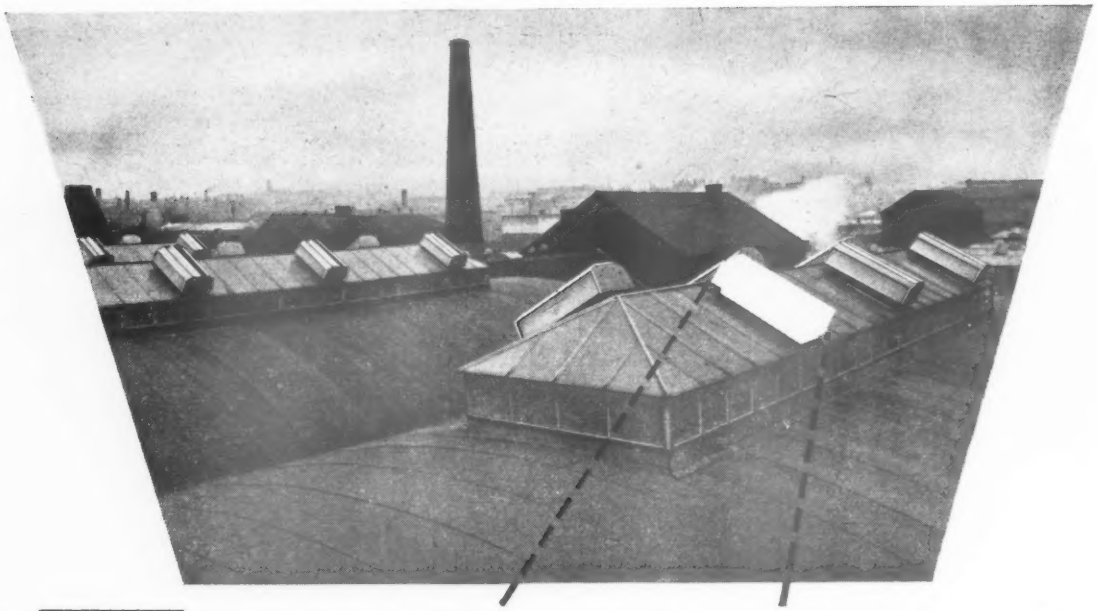
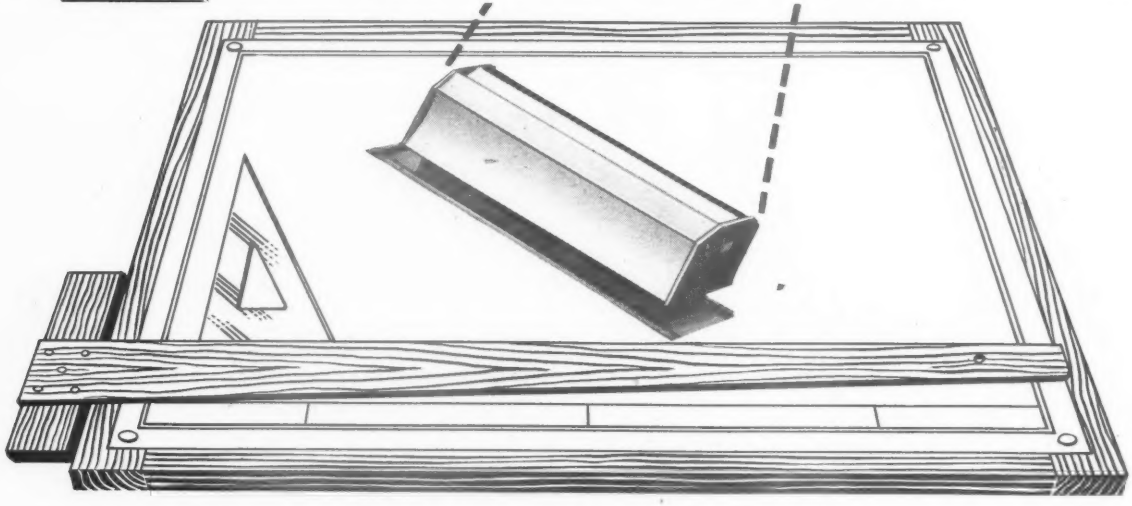


Put COLT in the picture . . . at the drawing board stage



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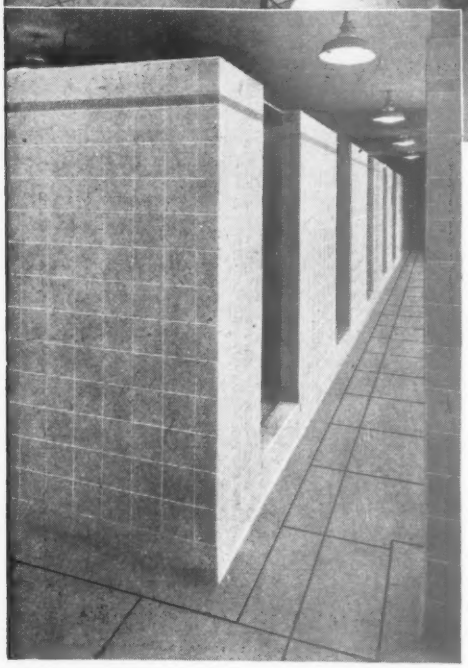
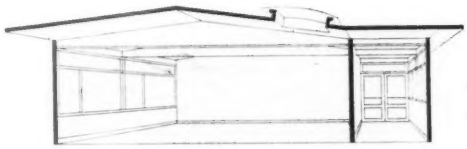


Architects : L. J. Couves & Partners,
Consulting Engineers: Merz & McLellan
Contractors : Sir Robert McAlpine & Sons

TILES and TERRAZZO

Another excellent example of the combination of tiling and terrazzo carried out by the Carter Group is shown in these photographs of the Men's Lavatories at Poole Generating Station of the British Electricity Authority (Southern Division). The tiles were made by Carter & Co. Ltd. Poole, and fixed by Carter & Co. London Ltd., the terrazzo was prepared and laid by Art Pavements & Decorations Ltd. The wall tiling is carried out in 6″ x 6″ Light Mottles with a 2″ border tile in Brown Mottles and the floor in closely jointed 12″ x 12″ precast terrazzo tiles with ebonite strips at 2 ft. intervals. In the North of England and Scotland, Commercial Marble & Tiles Ltd., Newcastle-on-Tyne, carry out work in both materials.



Classroom and corridor, using units of 24 ft. span (pitched roof) and 6 ft. span (flat roof) respectively.

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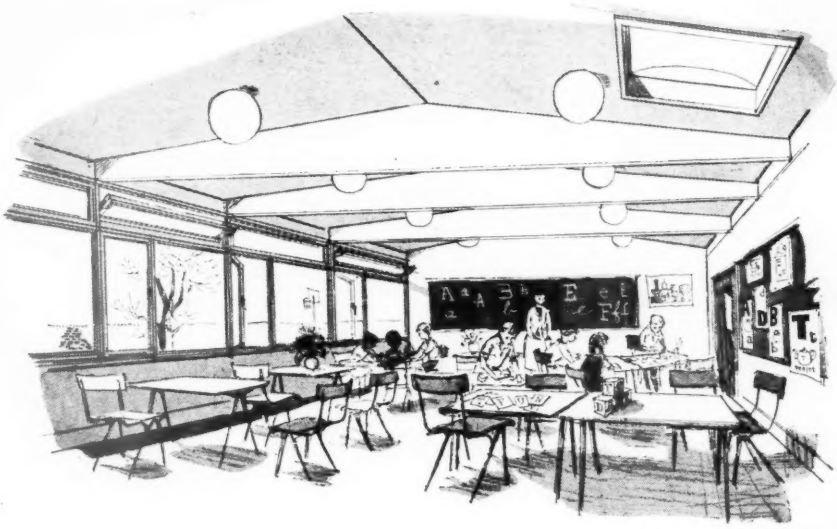

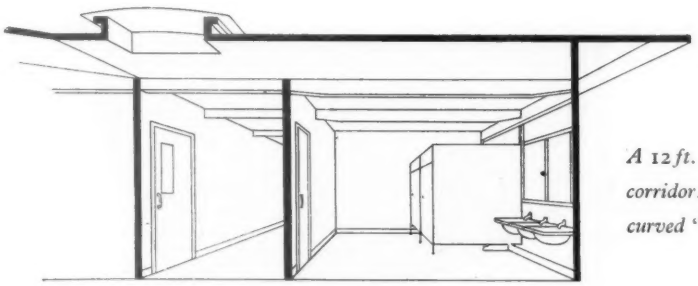

A 12 ft. span (flat roof) addition to the 6 ft. access corridor. In this case the corridor is provided with curved "Perspex" ventilated roof light.

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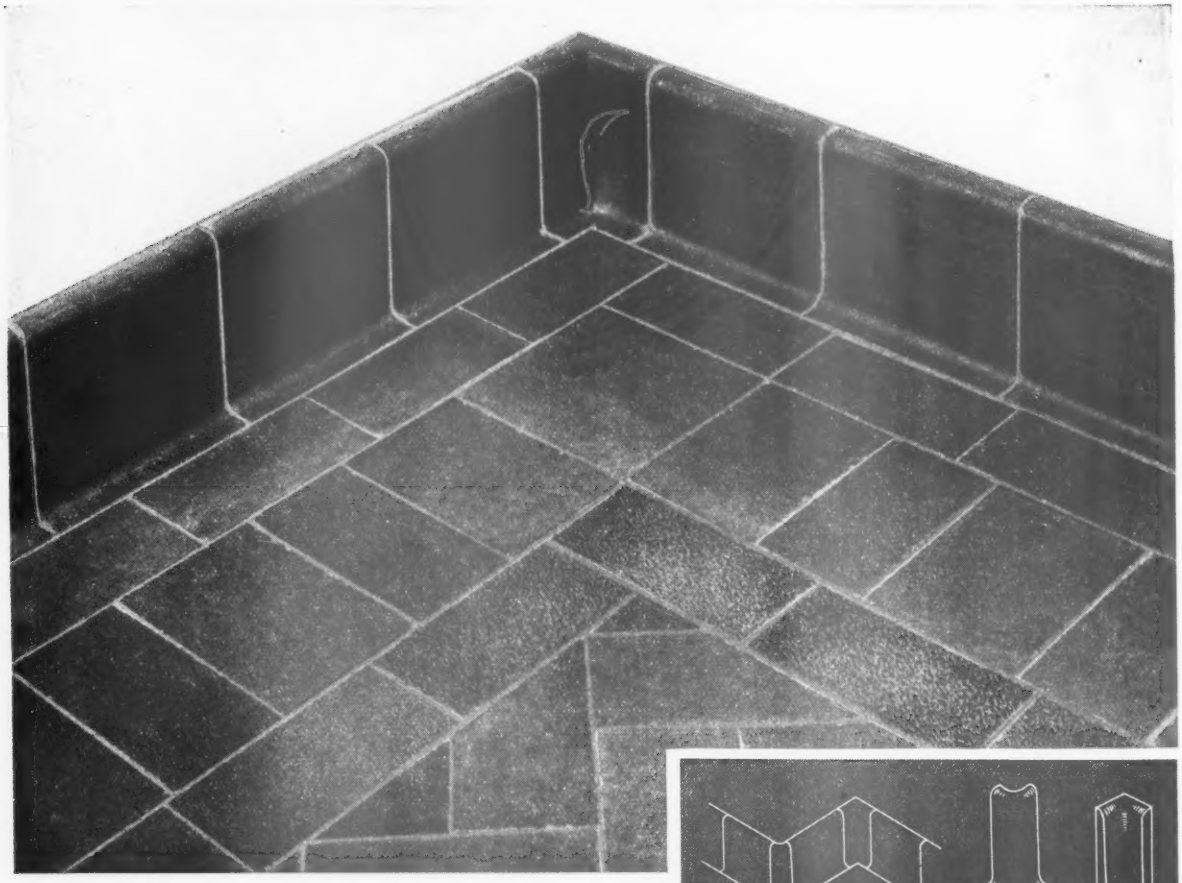

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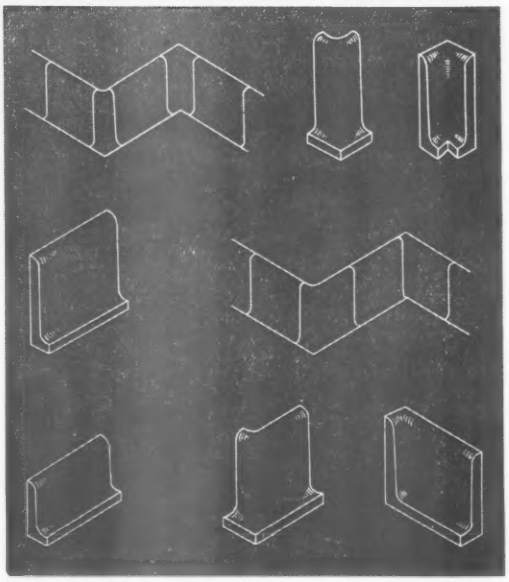
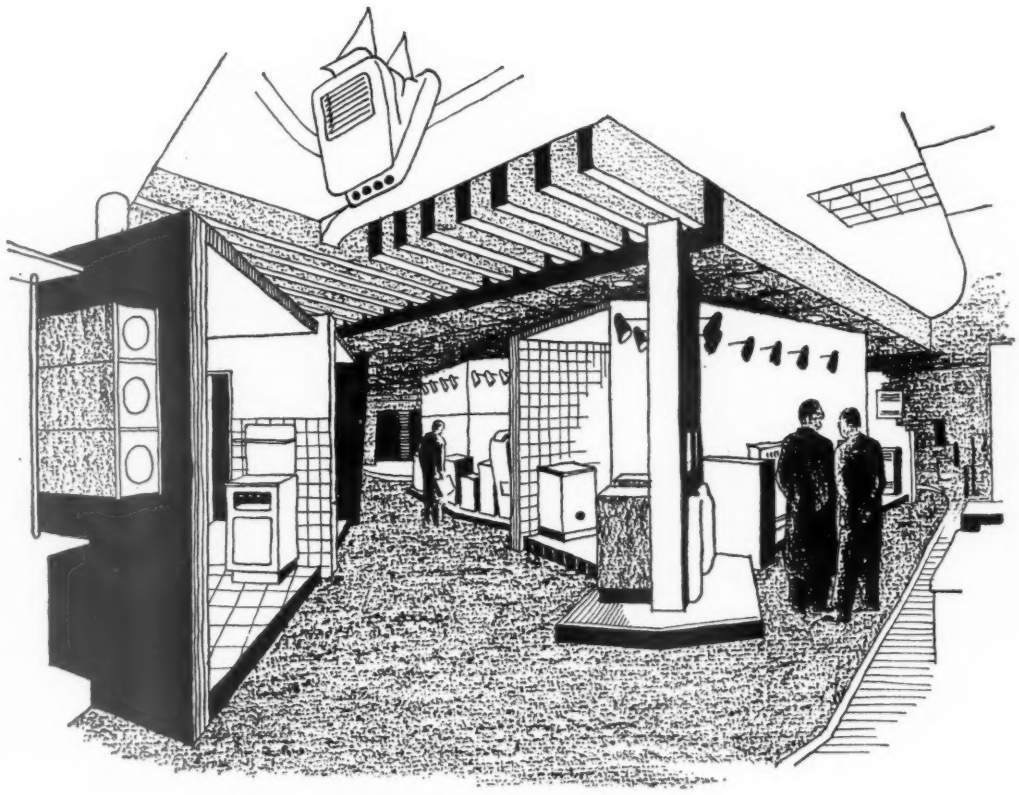


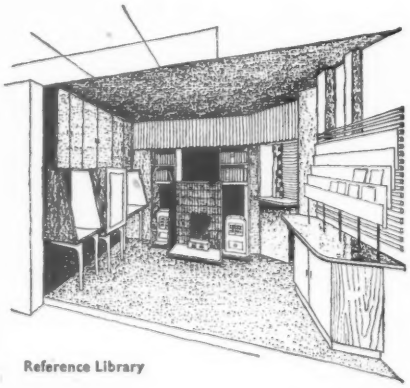
A few of the fittings available for use with Clay Floor Quarries

Clay Floor Quarries

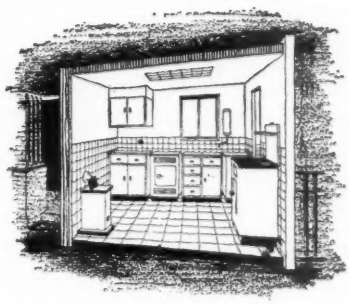


Gas in the design for living

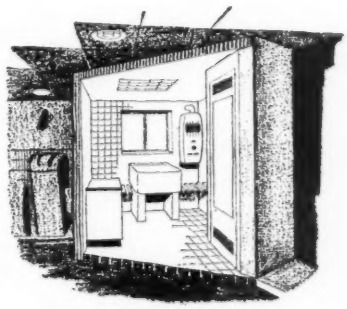
The new enlarged gas and coke exhibit at the London Building Centre is now open. In it visitors will find the latest information on the use of gas and coke, mainly for domestic, but also for commercial purposes. Also shown are approved methods of gas and coke installation in contemporary housing. There is a sectional display of the latest gas and coke equipment, together with examples of commercial appliances. A technical representative is available to answer queries and there is a comprehensive reference library. Visits from individuals or parties are welcomed, (prior notice of a visit from an organised party will be appreciated).



Reference Library



Gas & Coke kitchen



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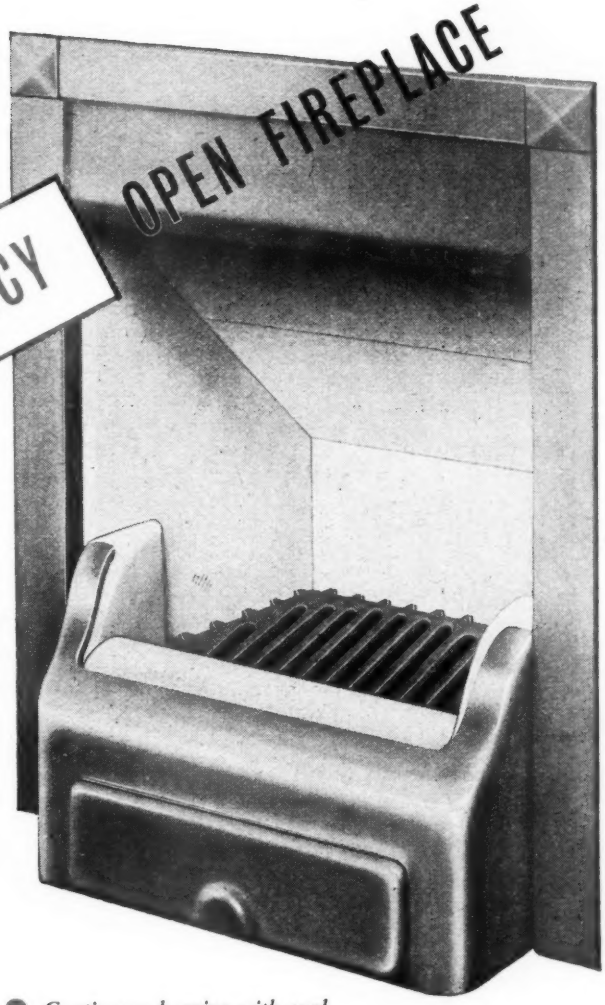

The 'Calesto' (2) presents a fundamental improvement in domestic space heating—a continuous burning *open* fireplace designed to project approximately twice as much heat into the room from the same weight of fuel. Features of the design (patent applied for) include the sloping fireback brick, which is set at a carefully calculated angle to provide maximum radiant heat at a low level. In addition, the 'Calesto' (2) has a low front, again increasing the amount of heat near the floor. Heat losses to the chimney are yet further reduced by the scientifically restricted throat, controlled by an adjustable canopy which can be set to suit any chimney.

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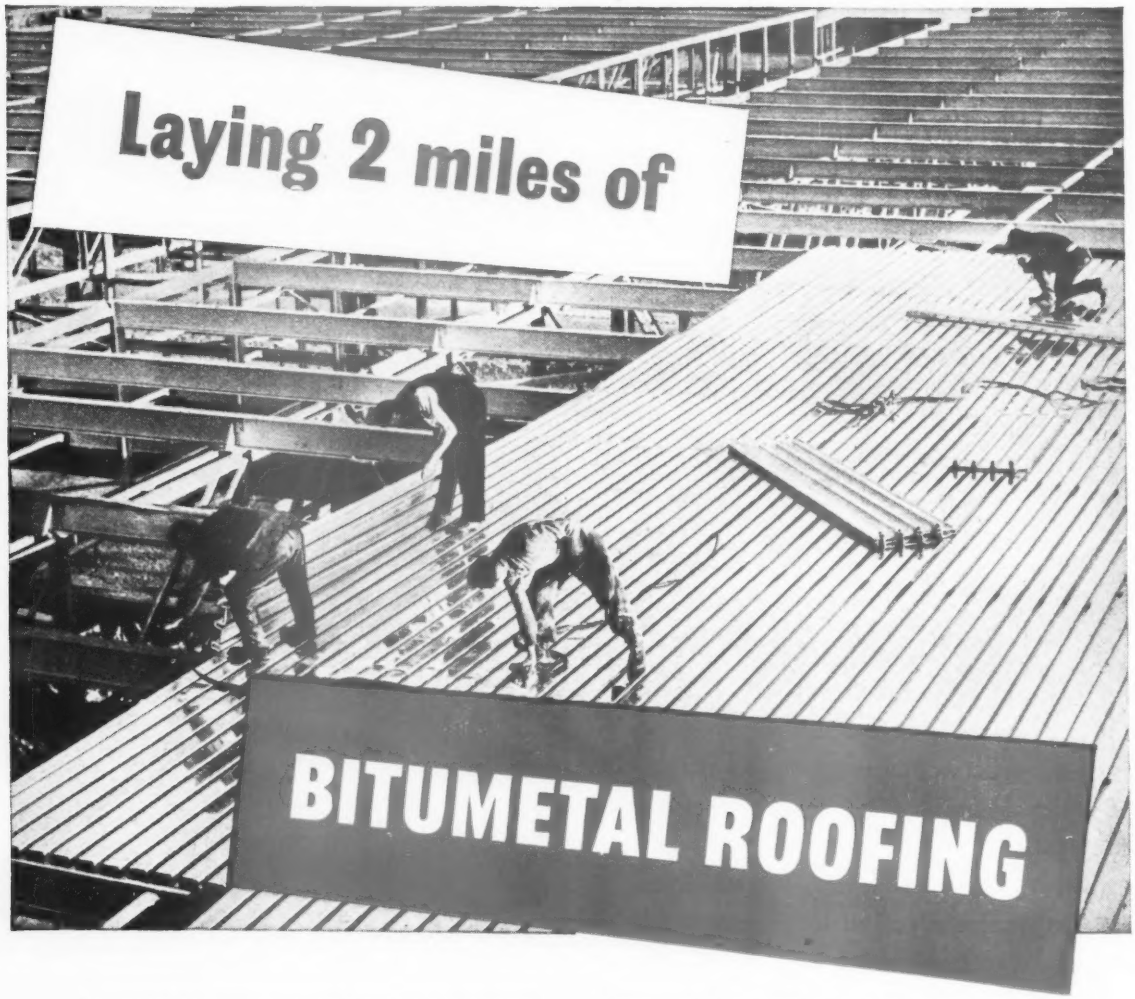

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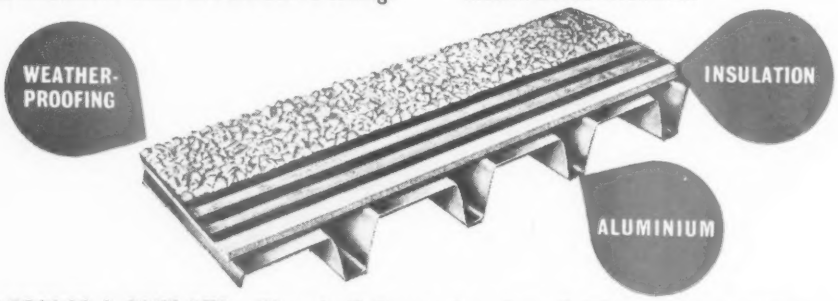

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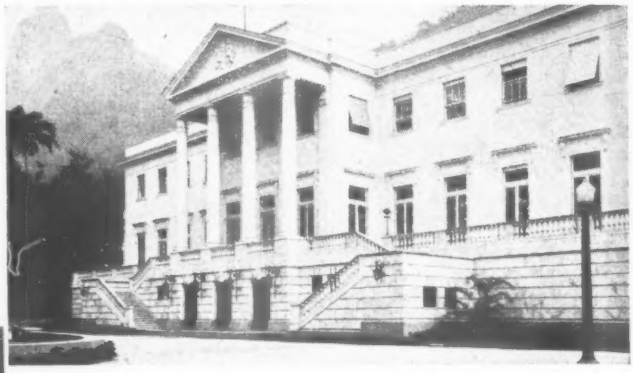

H.B.M. Embassy, Rio de Janeiro.
Architect: R. R. Prentice, in collaboration with the Ministry of Works.
Arens gear supplied by Senlac Metal Casements, Ltd., of Battle, Sussex.
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An H.H./M.H. Type 3 control fitted to a 16 ft. long top-hung window in the Canteen of the G.P.O. Stores at Brimsdown.
Architect: Eric H. Firmin, A.R.I.B.A.
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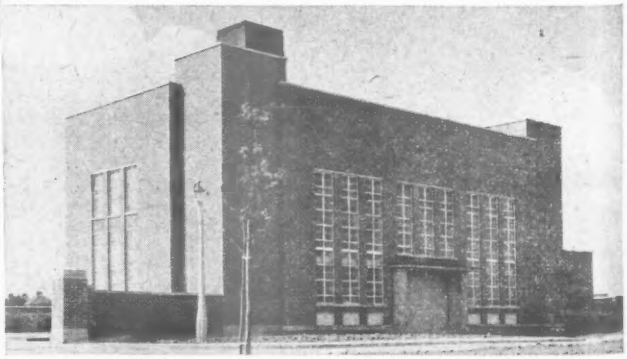

One of the new buildings of the Ministry of National Insurance, Newcastle-on-Tyne, which is fitted with Arens gear.
Architects: Ministry of Works.
Arens controls supplied by the Rustproof Metal Window Company, Limited, of Chester.
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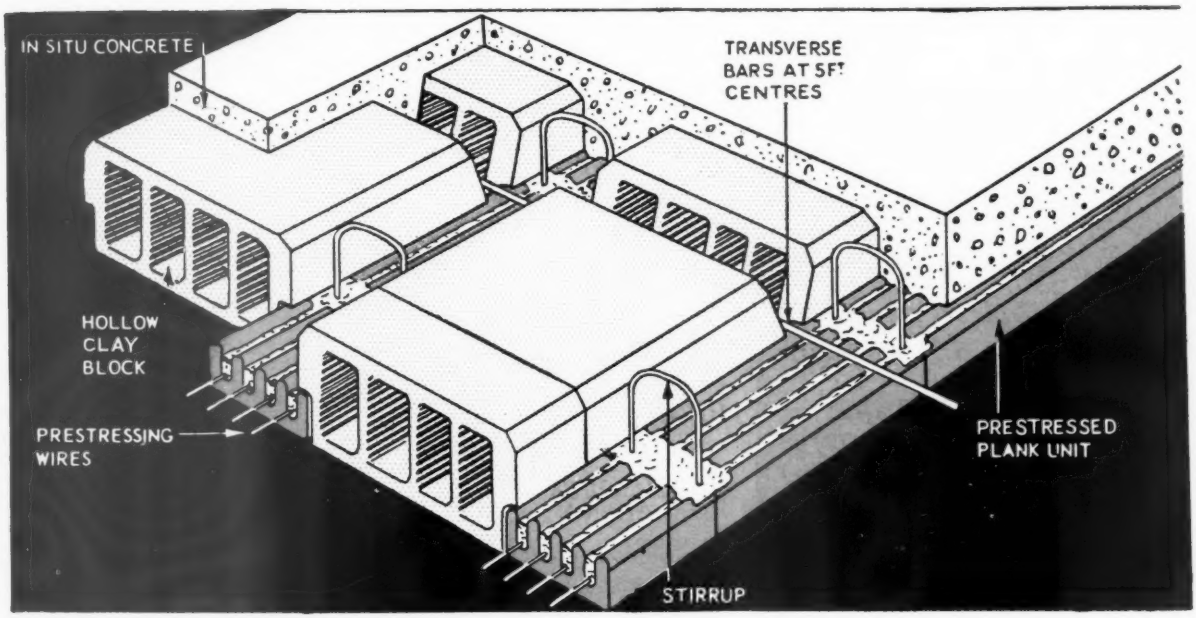

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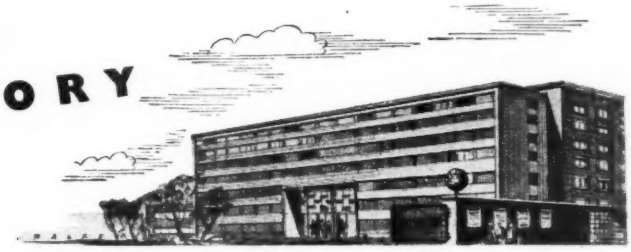

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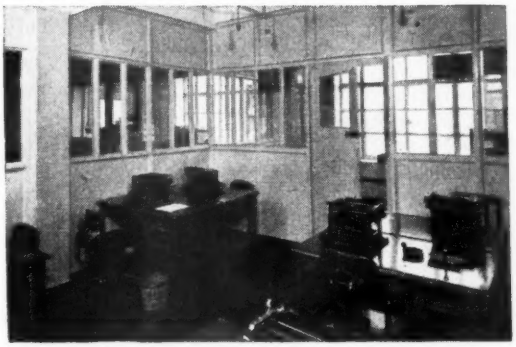

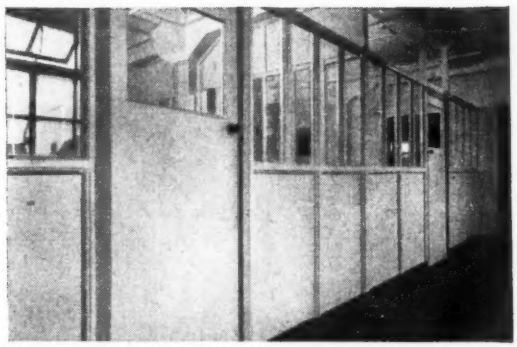

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A Christmas Message

from THE PRESIDENT of the National Federation of Building Trades Employers

I EXTEND to all in the Building Industry my very best wishes for a happy Christmas and a peaceful and prosperous New Year.

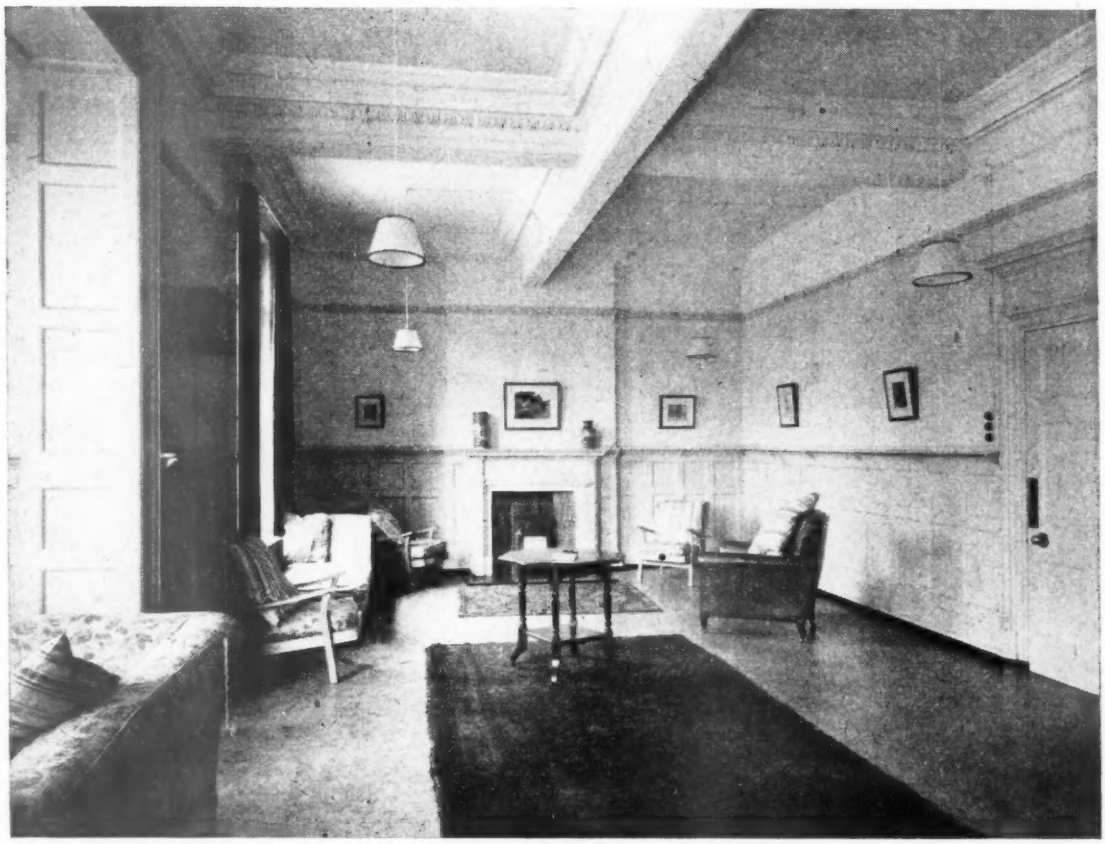
The past year has been one of considerable achievement. With a slightly smaller labour force we have used more materials than in 1951 and may, therefore, fairly claim to have responded well to the Government's policy of expansion for building. The Minister of Works' comment that "The Building Industry is doing well" and the thanks expressed by the Minister of Housing and Local Government for our part in speeding the housing programme were most encouraging and, I feel, well earned.

I am confident that we shall do even better next year, provided that supplies of materials continue to increase, But we must do more. We must go all out to build at lower costs. This will not be easy owing to the expected increase in wages due to the rise in the cost-of-living, but it should not be impossible if all in the industry from top to bottom work as a team and give of their best.

THE NATIONAL FEDERATION, which represents builders of all types and sizes and is the only Federation with established machinery for liaison with the Professional Institutions, Government Departments and the Trade Unions, will continue to use its powerful influence to these ends. That influence would be even more powerful if those builders still outside the National Federation would join us. I ask for their valuable support.

PRESIDENT

82, New Cavendish Street, London, W.1.



THE LONDON HOSPITAL, E.1, MAIDS' HOME . . . The walls of this sitting room and all corridors are covered with "Lion" Brand Lancaster Washable Wallcovering. Architects: The London Hospital Surveyors Department.

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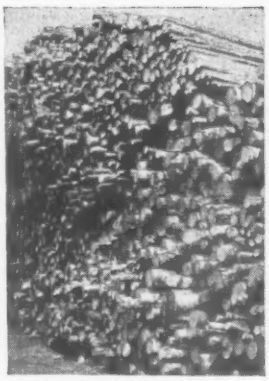
Logs arrive at the Sundeala factory.



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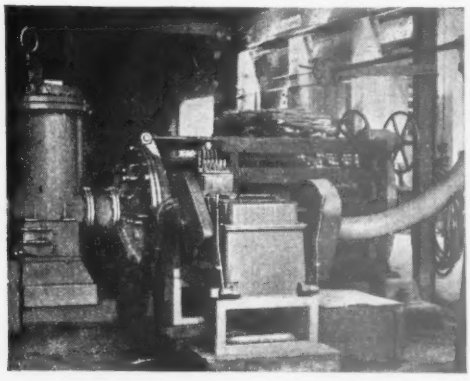
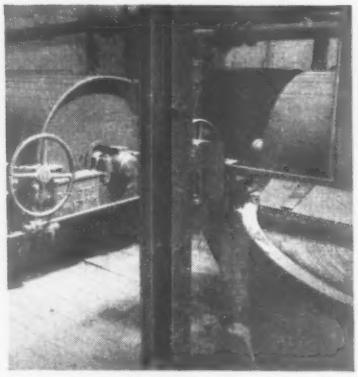
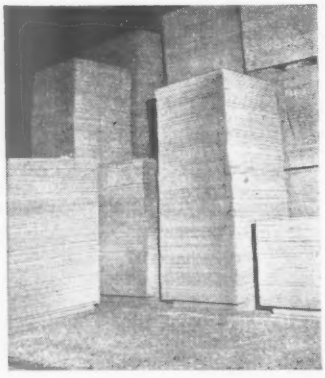
Converting wood chips to wood pulp.

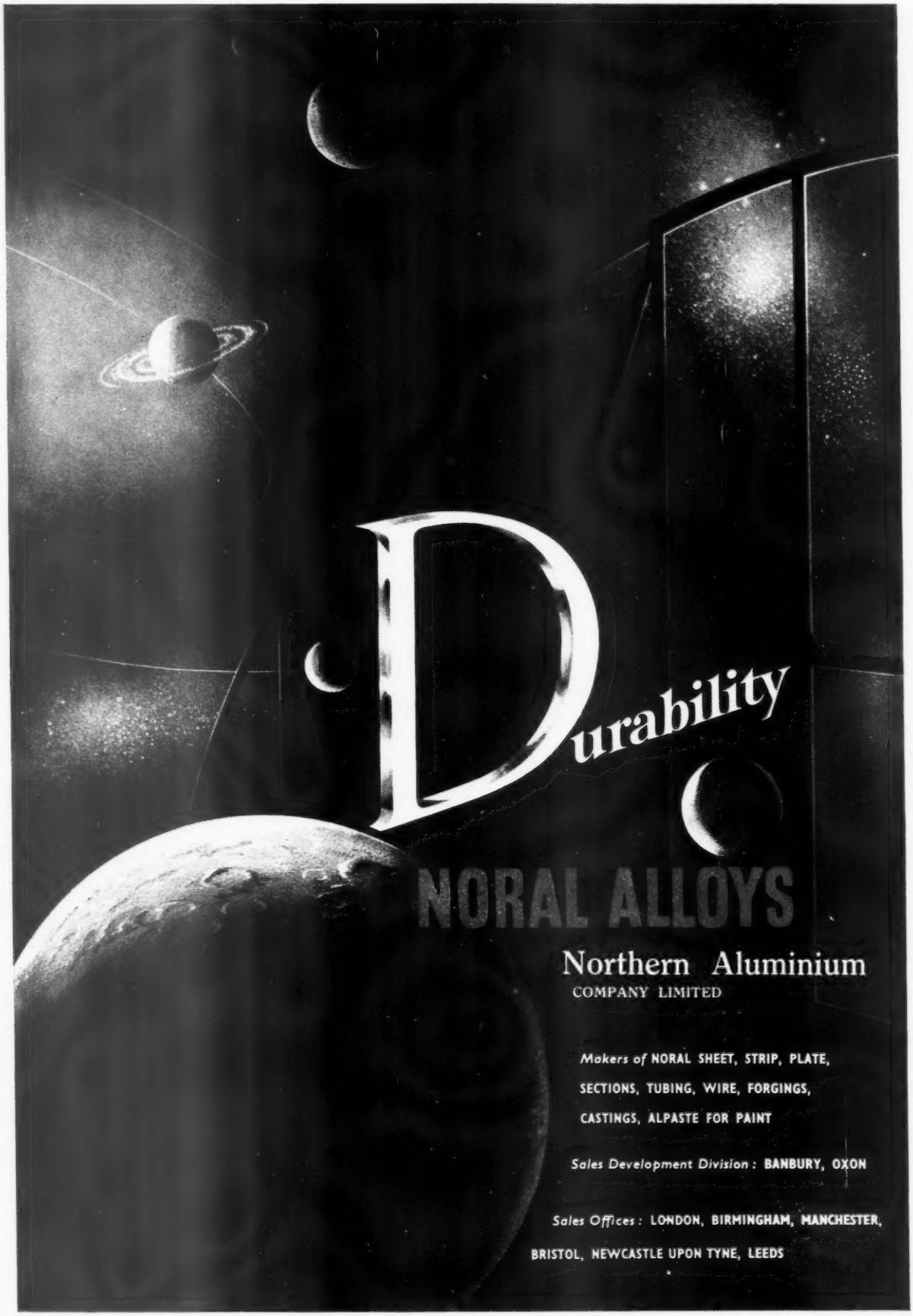


Beating the wood pulp.



Boards ready for despatch.

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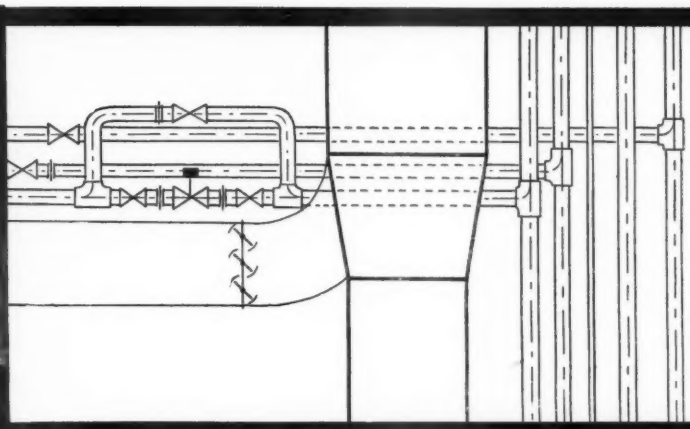

it's warming

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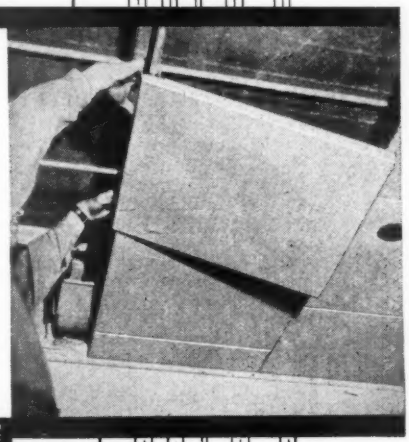
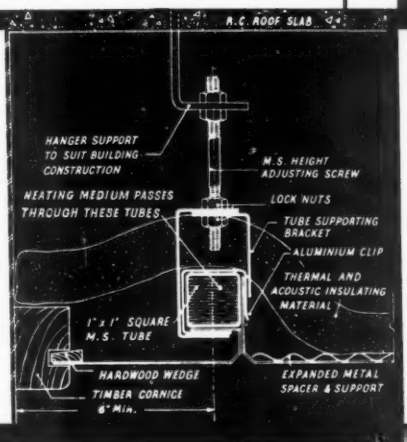


it's acoustic

Second: the entire ceiling area is a sound absorbing surface with a high efficiency. The panels can be cut to fit any shape of room and take in pillars, projections and lighting and ventilation systems. So it can be fitted in existing buildings with little trouble and no major structural alterations.



it's concealing

Third: as it is suspended a Frenger can conceal all the piping, wiring, ducts and other unsightly services behind a most attractive exterior—*and yet leave them completely accessible.* The aluminium panels clip into the pipe grid and can be taken out with ease. The whole ceiling, including water in the pipes, only weighs 2.5 lb. per sq. ft.

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AJ

THE ARCHITECTS' JOURNAL

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

No. 3016 December 18, 1952 VOL 116

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CHEAPER AND QUICKER HOUSING

ASTRAGAL has just been looking at some information and photographs of a housing estate near Norwich, where the use of a mobile tower crane is thought to be saving about £50 a house and speeding up the work so that, when the job is running, a house reaches the roofed-in stage every four days. The technical side of it is none of my business, but I know that BRS has been asking local authorities to try out these cranes on real sites so that it can be discovered whether theory works out right in practice. This being so it's perhaps not very complimentary to the building industry to find that the first offer of help came from a city which builds up direct labour, and where housing is the responsibility of the city engineer.

NO BONES ABOUT IT

There would appear to be a growing uneasiness—or should I say grave concern?—about the vast amount of land which is needed for cemeteries. You may remember that in the recent JOURNAL article on Portsmouth it was pointed out that with the cemeteries nearly in the geographical centre of this tightly-packed town—on an island, children had to go daily to the outskirts for their horse-play, while for their final journey over the Styx they had only the shortest of trips.

*

The Rev. G. R. Dunston, writing in the *Oxford Mail*, proposes the Swiss method of saving the annual increase in size of burial grounds by a system of rotation. Cemeteries are divided into two or three sections and each section is used for twenty-five to thirty years. When all the sections have been filled, notice of clearance of the first section is given to the relatives of those buried there who might remove the headstone if they wish—though few, apparently, do. They might also have the bones exhumed and reburied in family graves or cremated. The remaining headstones are sold, or crushed for roads and paths (a very good end for most of them). The section thus cleared is then redesigned, planted and turfed until required again.

*

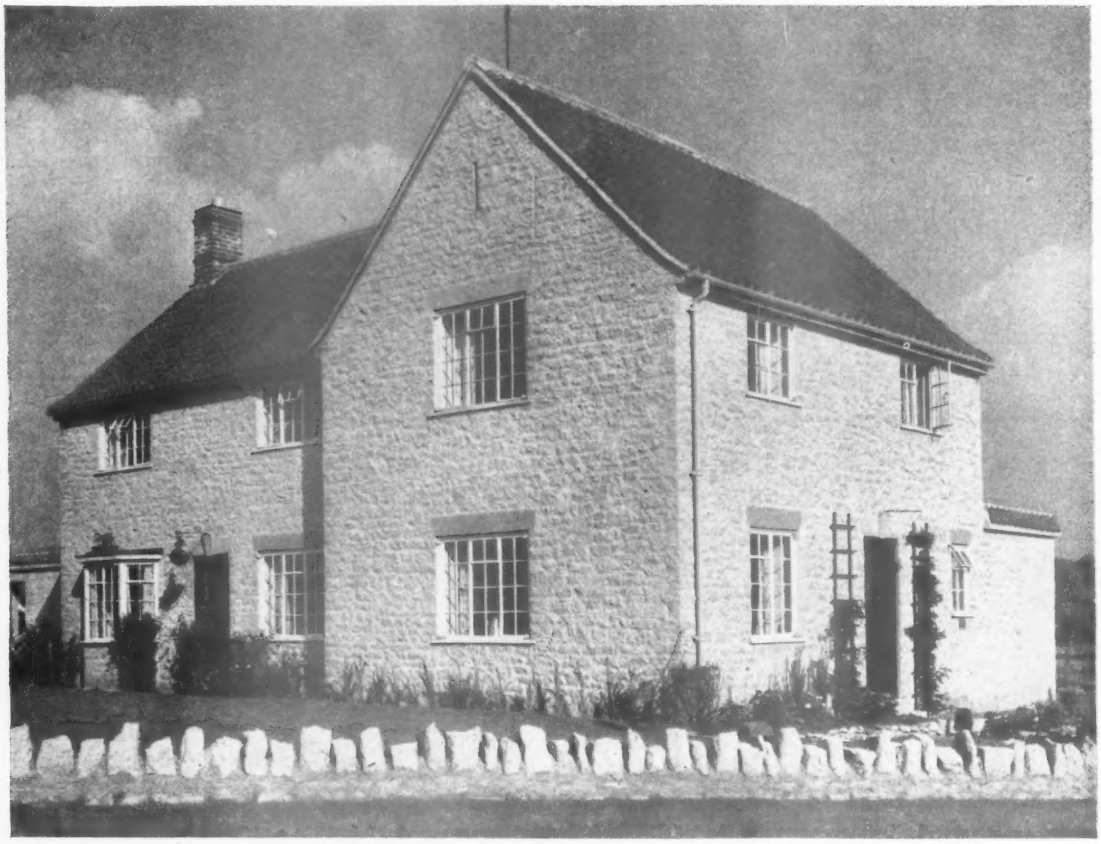
It is interesting to note that burials in this country outnumber cremations by about five to one—so the demand for more burial grounds will grow greater unless we adopt the Swiss system. There is, surely, something pathetic, but absurd, in our desire to perpetuate our final place of rest—and perhaps selfish, too, if we deprive our descendants of valuable land. As a grave-digger once said to me, "a waste of wood and brass, and laid too deep to feed the sheep."

CRITICS ON AND OFF THE HEARTH

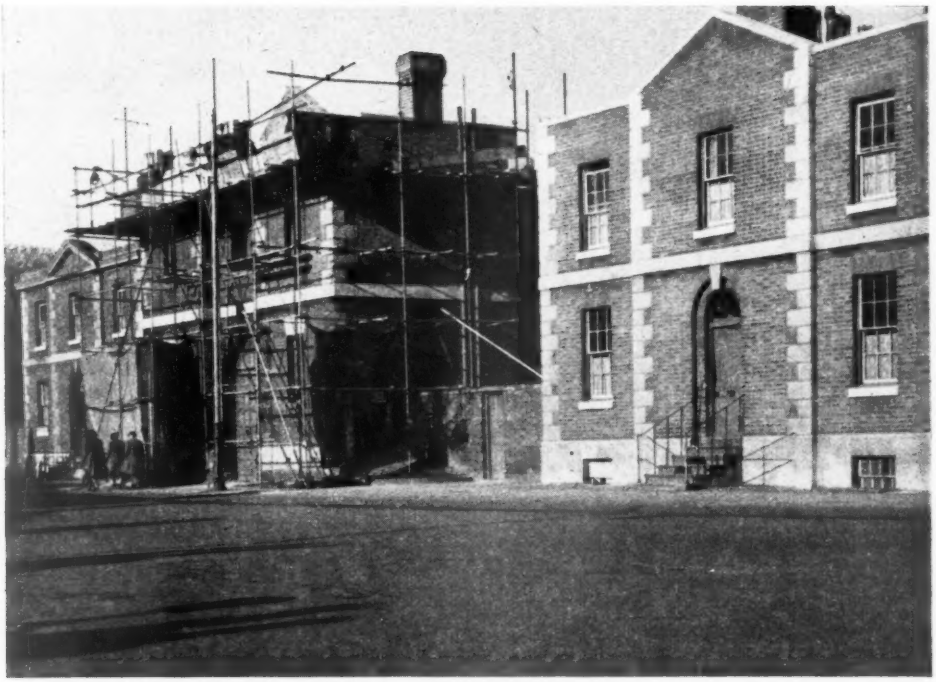
Nobody could say that our New Towns are not getting their fair share of architectural criticism—most of it as sensible as it is serious. Occasionally, however, ASTRAGAL, reading between the lines, or even along them, strikes with his tiny hammer a wheel that seems a little cracked. What exactly for instance does Mr. Banham mean when, in criticising Hemel Hempstead domestic architecture (p. 371, current issue *Architectural Review*), he says ". . the projecting fire wall has been generally misunderstood, and is never used in its true sense to frame a panel of a different colour or texture"? What is this new dogma about the use of a fire wall? Surely a fire wall—like Humpty Dumpty's words—can be used to do anything an architect wants it to do. The main point is to show who is master. Again, in last week's comments upon Welwyn the critic writes that "The Shredded Wheat factory is still the most sophisticated piece of architecture in Welwyn." More so than Mr. Aslin's schools or the Roche Products factory? Surely not.

LIGHT CHATTER

A Dr. Ballin, of Thorn Electrical Industries, has thought up the engaging idea of holding bi-monthly meetings of architects, designers and lighting experts in order to discuss current lighting problems and knock hell (perhaps inadvertently and certainly incidentally) out of their own designs. This does everyone a lot of good—only the stupid get rattled. Good ideas are slung around and no doubt a certain firm gets some publicity. (Thank you, sir.)



HELMSLEY RURAL DISTRICT HOUSING *at* HELMSLEY, YORKS
Needham, Thorp & White, Chartered Architects



Consternation has been caused in Bedford by the treatment being given to the old buildings of the prison. Their original state can be seen on the far left of this picture. The cornices and pediments had become unsafe, but instead of being renewed they are simply being removed with the result shown on the right. Protests have now however obtained from the Prison Commissioners a promise that the classical detail will be reinstated as soon as possible.

Last week Dr. Ballin invited comments on two ranges of light fittings and persuaded the indefatigable William Allen, the architect-expert *par excellence*, to let loose some hares amongst the light-standards. For example, why not more flexibility, by means, for instance, of ceiling plugs to enable a greater variety of lighting effects in living rooms? Why not smaller, neater and a greater standardization of light plugs? Why not cheaper and better light fittings for lighting gardens (an admirable idea just coming into favour in America)? And when will someone produce a circular-section flex which hangs well?

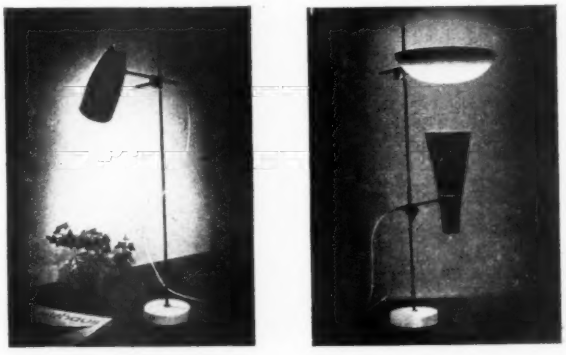
*

One of the light fittings under discussion was the new, very flexible, adaptable, interchangeable, series of lamps designed by John Reid for George Forrest. These elegant pieces—the merest touch gets them quivering and shaking with high-bred rigor—are the latest sign of our return to Italy for design inspiration. No harm in that, of course, but in the process of recreating, cannot improvements be introduced? The curving lines of bowl and cone reflectors could do with some refining, and flex—always a menace when lying around the floor—can cause less havoc if it is attached to the base of a fitting, rather than direct to the business end. But then, I have an aversion for being hit by the back-lash of five feet of light-alloy.

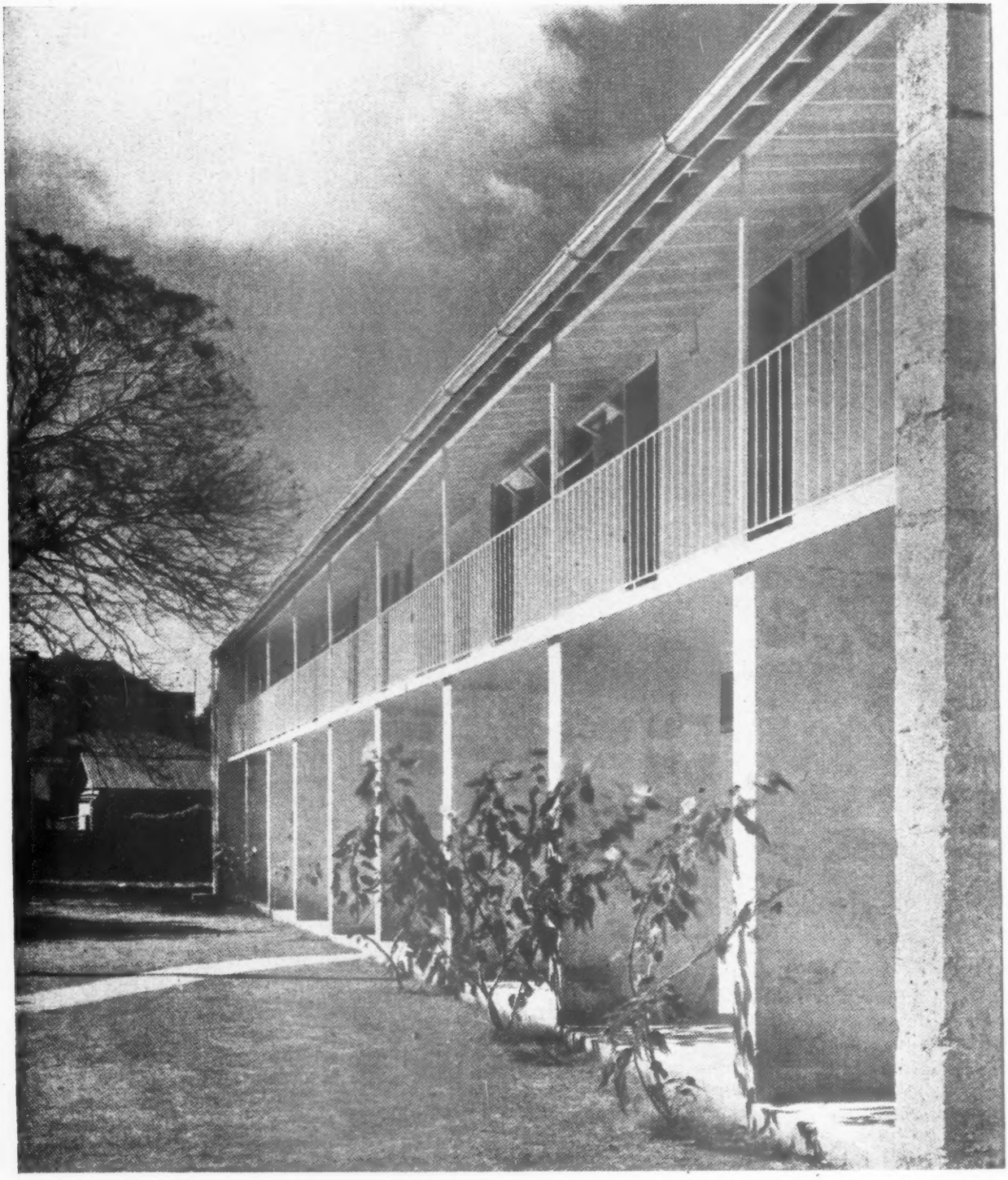
OUTCOME OF INIGO JONES

ASTRAGAL must record his disappointment at last week's RIBA lecture, by Dr. Wittkower, on Inigo Jones. The RIBA is, as we are often told, a learned society and it does us all good occasionally to have our Wittkowers about us. As John Summerson put it so charmingly "Professor Wittkower in half a dozen or so brief papers tucked away for the most part in the journals of learned societies has done more for English Architecture than has been achieved by all the glossy tomes which have rolled off the printing presses in the last ten years."

It is a tribute to his reputation that there was standing-room only for his lecture. Nevertheless ASTRAGAL expected—perhaps wrongly—something quite different from his talk, and being unmathematically minded found this too closely packed and relentlessly presented scholarship a bit heavy on the stomach. For what in the end did it all add up to?—surely no more than the fact that modular design will usually prevent the worst blunders but can still cause a few minor visual disasters and certainly will not of itself produce a Masterpiece unless there is a Master wielding the dividers.



Two of the light fittings referred to by Astragal in his note "Light Chatter."



Our Far-Flung Profession

"Exported by RIBA," reads the Ministry of Food label on a tin of Yugoslavian sardines, thus sending a ripple of bitter smirks through the architectural profession. "Is the profession so overcrowded?" asks a correspondent, laboriously emphasizing this joke with the signature, "a poor fish." When readers have finished splitting their sides at this parochial joke they may care to know that the export of architects' designs is now carried on in such a big way that someone has had the foresight to organize a conference of tropical architecture. The conference, which will be held on March 23 to 27, at University College, London, is the result of "a growing consciousness of the need for a more intensive study of the problems connected with architecture in tropical countries." It is receiving the support of the Colonial Office and the RIBA. Further details appear on page 729. (The above example of tropical architecture is the dormitory block of a post-graduate training college at Barbados, West Indies, by Leo de Syllas.)

Now that Inigo is safely tucked up with that oddly assorted collection of bedfellows, the English immortals, ASTRAGAL feels he must say there is one thing which has not been sufficiently emphasised in this year of acclamation. Granted the boy introduced correct architecture and knew enough about the module to be enshrined for ever in the halls of Bedford Square and Hertfordshire County, but he did much more. He gave English architecture a new scale and did for London what Bramante and his pals did for Rome. One only has to look at contemporary prints to see how the Banqueting Hall (now dwarfed by the colossal edifices of government) towered above its mediæval contemporaries both as a whole and, unlike its newest neighbours, in its parts. The much maligned West Front to old St. Pauls also possessed this new scale, while no enclosed open space of the like of the Covent Garden Piazza existed in the Kingdom. The impression made by such schemes must have been as overwhelming as that given by the bridges and railway termini of the 19th century engineers or Chicago's first skyscrapers. Wren had it easy when he came to rebuild the City.

FIRST FOLIAGE EDITION

Ever since the special *Architectural Review* issue on Indoor Plants went out of print, Queen Ann's Gate has been invaded, it is said, by hordes of anxious enquirers as insidious, predatory and needing of care as the plants upon which they sought knowledge. Let it now be known their search is at an end, for the Book is now out.*

Nearly one hundred species of plant are described in detail—most of them lovingly drawn also with the usual Cullenary skill—and you will find all the practical information you need here on soil requirements, maintenance and propagation. There are some 40 pages of photographs showing ways and means in the form of tables, containers, brackets, boxes and the like—some especially done for the book—and with all the facts at your elbow even the least green-thumbed of you should have no reason for fear withering and turning yellow, round brown spots on the leaves, drooping and pests. As there are only however many it is shopping days left till Christmas need I say more?

ASTRAGAL

* Architectural Press. 18s.

POINTS FROM THIS ISSUE

The Editors

CONTROL OF ELEVATIONS BY THE IGNORANT

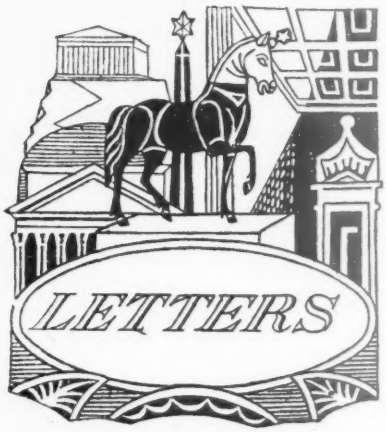
DOES the town planner's control of building elevations hamper the production of good design? There is a growing feeling amongst architects that it does and for this reason the whole question is tackled in an article by the JOURNAL's Guest Editors on page 726 of this issue. It is, of course, a question which mainly concerns the private architect. The public architect is better placed to get his own way over the appearance of a building.

The crux of the matter is this. Should a design be criticized by an architect not responsible for it, or even worse, should a design which has been accepted by a client have its elevations criticized by a planning officer who may have had no training in architectural design and may be a surveyor, an engineer or plain town planner? To the architect whose primary concern is to produce a work of art there must seem little reason for such interference. He has, of course, come to accept the dictates of his client. And he accepts, however reluctantly, the dictates of the building contractor and the manufacturer of building materials because he is forced to. But he does not easily accept the dictates of that newcomer, the town planner, although the town planner was largely created by the architect himself in his anxiety to ensure good quality in post-war designs. His reluctance to recognize the omnipotence of the planner is due to his notion that the architect is responsible only to himself for the production of a masterpiece.

However, although the work of other artists—the poet, the musician and the painter—is brought before only a limited public (a public which pays for what it wants) the work of the architect is, for better or worse, something the public cannot avoid. It is reasonable enough, then, that the public should appoint, through its elected representatives, someone to look after its interests. It was inevitable that there should be a reaction against the Victorian hey-day of architectural individualism, and that not every architect should now be regarded as a man who can be trusted to know what is the right building to put in a certain area.

This does not mean that the present system of town planning deserves no criticism. The Guest Editors have several criticisms to offer this week, and we must repeat here the one which is most frequently heard today. This is that the man who has control of building design is often inadequately trained for his job. But it should be remembered that an architect whose design is rejected can always appeal against the planner's decision. Thus, it cannot truly be said that elevational control prevents the creation of a masterpiece. And certainly the above criticism is no argument for the withdrawal of control of building elevations.

During the year the JOURNAL's Guest Editors have been concerned solely with formulating a policy for the JOURNAL on their subject, the problems of public architecture ; and with editing a series of articles in which they have endeavoured to show how better working conditions, and better architecture, can be achieved in public offices. They are now reaching the end of their series of articles. Their next contribution will consist of their replies to letters which they have received commenting on the views they have expressed. They will conclude their term of office with a short article summarizing the main points of their policy.



Kenneth Jack, Student R.I.B.A.

P. E. A. Johnson-Marshall, A.R.I.B.A., A.M.T.P.I.

A. Barbara Coates, A.R.I.B.A.

Housing Standards

SIR,—The motives which compel 58 Local Government architects to object with such vehemence to a reduction in minimum standards in housing are no doubt laudable, but it does seem that muddled thinking has confused the issue. A professional right to criticize standards is not the same thing as a professional duty to refuse to accept them, as is suggested. Few people would deny the former, but likewise few would admit the sovereignty of architects' over those for whom they exercise their skill. If we were to be ruled by our doctors we would all be permanently engaged in Mediterranean cruises.

Secondly, the whole policy of minimum standards in terms of square feet seems dubious. How can a house which is smaller be as direct consequence "inevitably" worse? Surely the proper course is the one advocated by you elsewhere in the JOURNAL —the establishment of standards of performance. It would seem that this is a more valid criticism of the "official plans" handouts.

KENNETH JACK.

London.

Planning without Laughter

SIR,—The argument between Mr. Jordan and Mr. Purdom in the correspondence columns of *The Listener* reflects one of the most important controversies of the day among architects and urban planners, and is one which has been alive ever since Le Corbusier and others first began to expound the possibilities of the "Vertical" City instead of the "Horizontal" or "Garden" City. The argument is largely confined to residential areas, for both sides are in agreement on the fundamental need for physical planning, for the provision of full community facilities, and on most of the other ideas which have now become accepted planning principles. The trouble is that both appear to be uncompromising and intolerant over an issue which is too complex to be solved by any one panacea.

Briefly, the "Horizontal" City enthusiasts take the easy course of saying, because there is a widespread desire among the public generally for a house and garden, that nearly all residential development should take the form of low density houses with large gardens. What is more, they have over the years created two Garden Cities to illustrate their theories. As pioneers they should receive full credit for their achievements, and the fact that the majority of residential estates in the country have not followed their precepts is not their fault. Where many consider they are wrong is in their wholehearted pro-house-and-garden and anti-flat battle cry, because houses and gardens use up a great deal of land, and any agricultural expert will tell you (as Mr. Jordan pointed out) that this country just has not the land available to be used in this way.

On the other hand, the "Vertical" City protagonists argue that now, with new structural techniques available, it is possible to house nearly all the people in multi-storey flats at a high density, and to use much of the land so saved for green spaces and public gardens. What they criticize as the wasteful and un-urban sprawl of the "Horizontal" City may thus be changed into a new space conception of airy sky-scrapers surrounded with elegantly landscaped parks. Not only do they say it is possible, but they propose that this is *the* solution for our time. Let us give them credit for bold imagination. Unfortunately they are not only narrow in their approach, like the others, but they are unrealistic too. They tend to suffer from a too rigid concept of a complete "radiant city," which could only be a technical dream. They often show too little understanding of real family needs, and of the complexity of the society, for which they are planning.

Fortunately, a new and perhaps more mature trend has appeared since the war. Its supporters agree that, although the man in the street says he would like a house with a garden, high densities are essential in this small and densely populated island. On the other hand, the majority of people do not wish to be elevated skywards in so far as living goes. It is argued that social studies show a great variety of family structure, and that this requires physical expression in many different building forms. They point to the need for many more experiments in mixed development at fairly high densities (*e.g.*, 75 to 100 net), of building some multi-storey blocks of small flats, some maisonnettes, some three-storey and two-storey houses, with small as well as large gardens. In fact, reasonably compact and essentially urban communities, but with adequate open space and all the other community facilities near at hand.

Only thus, they say, can we hope to meet all the aspects of a difficult and complex problem, for it is not just a question of housing a typical family, or of a particular form of architectural expression, but is concerned in addition with building for the needs of many different types of families, of meeting their expressed requirements and desires as nearly as possible, of creating an environment which continues the best urban traditions of the past as well as creating new ones, and at the same time with conserving every acre of our precious agricultural land for its rightful, and perhaps, vital purpose.

P. JOHNSON-MARSHALL.

London.

Kitchen Planning

SIR,—No one can get more irritable than I when those well-meaning friends gush—"a woman architect? How sensible! I always think it takes a woman to plan a house." But I do sometimes catch myself wishing men —though leaders in their own speciality— would refrain from designing standard ideal labour saving kitchens, with a maximum of gadgets and a minimum of movement required. The almost inevitable result is that working space is cut down to little more than the draining boards and dresser top. If our lives could be planned to run on ideal lines to suit our ideal kitchens, all would be well, but given the human factor as it is I say that the space is not sufficient. No man who spends his life designing furniture or anything else—however well—can have sufficient experience of domestic life to appreciate the crises that can occur, even in the best regulated families. Ideally everything should be prepared in advance and the cooking utensils washed and put away before the meals begin. How right! But perfection cannot always be maintained. Tradesmen forget to deliver, children have tantrums and refuse to go to bed, or—as in my case—I get held up at my office and arrive home breathless with little more than an hour to change, lay the table and prepare a three-course dinner for family and two, or perhaps four, visitors. The result, in the type of kitchen being designed by some people who ought to know better, would be chaos.

Soup, vegetables, sauce, all require separate saucepans and two more (or at least one and a percolator) will be required later for coffee. With the cooking utensils stacked on the draining board, the dirty first-course plates in the sink, the second on the dresser and the third on the window cill, the tray of coffee cups will by now have reached the floor by the door. If things are really going badly the laundry man will probably make a surprise appearance and deliver the weekly wash.

I know there is every excuse for space cutting and economy with the present-day limitation on expenditure on houses, but please don't regard it as the "ideal solution." Extra working space in kitchens for the housewife to use at her own discretion should be regarded in the same light as that contingency sum that all architects try and make as large as possible within their licence figure.

No one quite knows what it's for in the beginning, but it always gets used in the end.

A. BARBARA COATES.

London.

The last major article by this year's Guest Editors is on the vitally important issue of Town Planning, a subject now often unjustly maligned. This series of articles will be concluded in two subsequent issues by comments which the Guest Editors have received over the year from readers and by a final article summarizing the Guest Editors' view points on the fundamental problems they have discussed during the year. In the following article the Guest Editors describe and refute some of the criticisms of town planning made today, and point out how essential it is that the architect should equip himself to be an architect-planner and the co-ordinator of the planning team.*

The Guest Editors

THE PUBLIC ARCHITECT AND TOWN PLANNING

IN our first article on the scope of the work we referred to Town and Country Planning as follows:—"In spite of its zealous advocates, the need for town and country planning dawned slowly on the country as a whole. A new and complex planning service has recently been established. It began as an extension of housing, and hence became an advisory duty of the Ministry of Health, who followed existing procedure by producing a set of model clauses, rather like model building by-laws, and by demanding that plans should be submitted to them for examination.

"The whole system was comparatively ineffective for a number of reasons, which need not be mentioned here, but the impact on our cities of wartime bombing hastened overdue legislation. The new Ministry of Town and Country Planning was established in 1943. It was given both advisory and executive powers from the outset. Its recent legislation (principally the Town and Country Planning Act, 1947) created a completely new planning system, backed by much larger financial and legal powers.

"The Act enables local planning authorities to deal comprehensively with large urban areas. This is an opportunity which has been denied to the urban designer since the 18th century. It would take too long to describe all the responsibilities either of the Ministry or of the local planning authorities, but as their activities impinge so much on public architecture, it is inevitable that we shall refer to some of them in due course."

In our second article, when describing the scope of the work in different types of local authorities, we said:—"The architectural department of a county borough council may be in charge of the overall planning, of the housing, schools, and of all other building work which the council is obliged or wishes to undertake. The chief architect may also be the technical officer responsible for briefing private architects on work which is given out to them. This type of office is most favourably placed for developing the architect as a town designer—since he can be responsible for, or can have a say in, nearly all the design elements which go to make the urban environment, from the overall planning to the smallest details of townscaping. The work is helped by the fact that the average county borough area is reasonably compact, and, while not being too large and unwieldy, is yet large enough to maintain a fair-sized and varied building programme."

Elsewhere we argued that the local authorities were now effectively taking the place of the great building owners and developers of the past, whose 18th century activities left us some of the finest achievements of British Town Planning.

MAJOR CONTRIBUTION FROM ARCHITECT-PLANNERS

Looking back, it is possible to see some of the reasons for the collapse of our Town Planning tradition in the 19th century. The noble art of town or civic design, in which the whole added up to something so much greater than the sum of the parts, decayed and was forgotten by the profession which created it, chiefly because it was out of tune with the philosophy of industrial capitalism. "Where there's muck there's money" was a typical slogan which might almost be on the coat-of-arms of many of our industrial cities. But the resulting evil went far deeper than visual ugliness—it affected the whole life of the inhabitants of the new and expanded cities of the 19th century.

As we pointed out in previous articles, the local authority technical services largely grew out of the repeated attempts to deal with the worst aspect of the industrial city—its menace to health.

And so town planning was reborn, a new and almost unrecognizable offspring of the municipal health services. It has now grown into a complex synthesis of science and art, presenting a new challenge to the Public Architect as a team leader rather than as a solo designer. For modern town planning has to solve a hundred problems before it can approach the final problem of civic design—yet civic design is inherent in every one of the others. It would be possible to develop a town with the correct zoning, with well laid out communications and services, with every health requirement met, even with good individual buildings, and yet it could fail as civic design, and remain an ignoble and inert mass.

For these reasons, if for no other, it is essential that the officer in charge of *town* planning should be an architect-planner, and that the major (but by no

* During the preparation of this article one of the Guest Editors, S. A. W. Johnson-Marshall, chief architect to the MOE, was absent.

means the only) contribution shall be made by architect planners.

Let us face one difficulty: we have already said that there are few enough really good public architects today, although their number is increasing rapidly, and there are few enough really good public architect-planners, for in the past the work involved in municipal planning did not attract the best brains.

But during the war, and since, much has happened—a completely new framework of planning legislation, a new technique of planning, and a host of new opportunities. The largely negative content of pre-war planning is giving way to a positive concept, stimulated on the one hand by the ability to approach the overall job in a broad scientific way, and on the other by the setting up of Comprehensive Development Areas in existing cities, and the complementary new towns, in which the local authority is the landlord and developer. The general public (for whom, let us remind ourselves, architects and planners exist to build and plan, and not for themselves) is developing a critical faculty in looking at what they once accepted as inevitable. Not only do you find a general agreement that factories should not be intermixed with houses, or that social facilities should be so distributed in neighbourhoods for the greatest convenience of the dwellers therein, but more and more they want certain parts of their cities to have civic dignity, others to have gaiety and bustle, and yet others to have a genuine re-creative feeling in contrast to that dull word "recreation."

JUSTIFIABLE CRITICISM?

We can see clearly enough the new and great possibilities for the architect-planners of today and tomorrow as the public conscience and awareness develops. Unfortunately town planning, owing largely to the negative character of its past, has a somewhat tarnished name with a considerable number of private architects. Who has not heard stories of architects with an experimental turn of mind who have had designs turned down, on apparently ridiculous grounds, by the local planning officer, or even by one of his assistants? This often justifiable criticism crystallizes into a rejection of town planning itself, which, of course, comes very ill from the very profession which has practised it for centuries, and claims, through every form of publicity, to be the principal exponent of the art! This particular problem arises from the legal right of the planning authority—that is, the elected representative of the people—to have a say in the external appearance of buildings, a right on which it is advised by its planning officer.

This right, like many others, achieved statutory force through the widespread dissatisfaction (the architectural profession being the most vocal) with the chaotic and ugly appearance of so many of our newer cities and towns. A few (and we hope, very few) people believe that we should continue to let developers build how and where they like, more or less as they did in the 19th century. Others think control would be sufficient if it was made statutorily necessary to employ an architect for every building. We wholeheartedly agree that every building should be designed by an architect, but unfortunately too many lightly qualified architects still see *only* their own building, and often as a matter of pride will not see that nearly every building has two jobs to do so far as external appearance is concerned—it must look well itself, and it must improve the environment in which it is sited.

If all buildings were designed by architects, even if they were all designed by the limited number of brilliant architects, we still think that town or civic design is an essential civic duty. Anti-planners may refer us to our delightful heritage of unplanned villages and *small* towns, but many of these were not so unplanned as may appear at first glance. We share their nostalgic pleasure, but as historically-minded architects and planners we must point out that the conditions under which they came about are completely different from those of today, particularly when we see what the chain stores and multiples have done to the character of many a beautiful town.

There appear to be two current fallacies—first, that if every building is well designed, then the aggregation of such buildings will automatically produce a beautiful town. An architect has only to ponder over this for a few minutes to realize that it is not necessarily true. The second fallacy is that any kind of planning officer can, by means of elevational control, produce good town design. We maintain that this final three-dimensional planning job cannot be merely negative, and also that one of the main troubles today is that planners with a basic training of other than architecture are trying to undertake it. It is a job demanding all the skill of our best architect-planners; it needs, as we said of public architecture, a new type of man, who, slowly but surely, is arriving on the scene.

THE PLANNING OFFICE: A COLLABORATIVE VENTURE

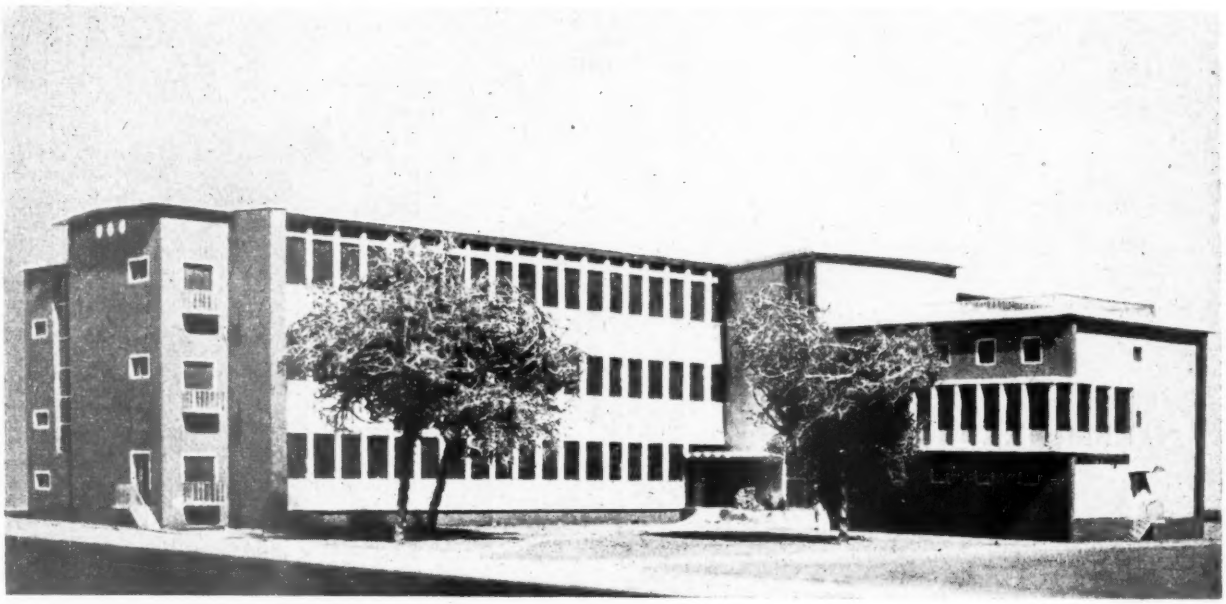
How are these various planning needs to be expressed in the department of our public architect and planning officer? First, we must say that we are here concerned only with towns and cities, which we consider are the places where the architect-planner should make the major contribution. In the important field of regional planning we recognize that other professions may take the lead. But even in towns and cities we readily welcome the concept of the planning office as a collaborative venture of a number of skills. It is obvious that for the collection and analysis of survey one needs someone with an analytical type of mind, that the complex social problems of urban areas need study by the trained sociologist, that traffic problems are best studied by a traffic expert, and so on. But the vital thing about the town or city is that it is a design based on an aggregation of buildings:—a co-ordinating job (with a parallel in building) which is essentially that of the architect-planner.

In large towns and small cities, therefore, we would expect to find a group of various experts working under the co-ordination of an architect-planner. In the larger cities we would expect to find a nucleus group responsible for city-wide planning problems coming directly under the supervision of the chief, and the city divided into a number of areas, each the responsibility of a senior architect-planner, who would have a planning group in addition to his building groups.

CONCLUSIONS

To sum up, we think that city and town planning is a most important part of the local authority's technical functions, and like building, it is both a science and an art. At its broadest it should interlock with the planning of the surrounding region in respect of industrial location, population density, etc., and if most detailed it is intimately concerned with every aspect of the visual scene. It is inevitable, therefore, that everything which is, or should be, designed by architects, should be considered as a design element in the complete physical environment, but it is also essential that those who are dealing with this aspect should, both as chiefs and more junior members, be architect-planners, and that all aspects of urban planning should be under the co-ordination of the public architect as planning officer.

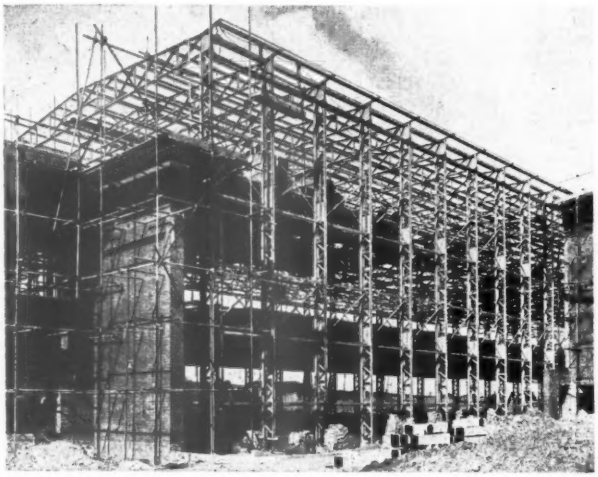
The architectural profession, in the past, laid the foundations of town-planning. Recently we have seen a tendency for architects to withdraw from the responsibilities of putting planning theories into practice in local authority offices. And then, finding men who do not understand civic design in charge of the job, some architects have been inclined to decry the whole planning process. At the same time others have insisted that only the architect is capable of town planning. Both these opinions have done harm. Fortunately in many parts of the world, in the planning of new towns and in the redevelopment of central areas, the architect-planner has proved his worth as the co-ordinator of the planning team, and his place is becoming more and more recognized by the public and their representatives. But if this is to become an established tradition, it is vitally important that the architect should equip himself much more thoroughly for the task.



BUILDINGS IN THE NEWS

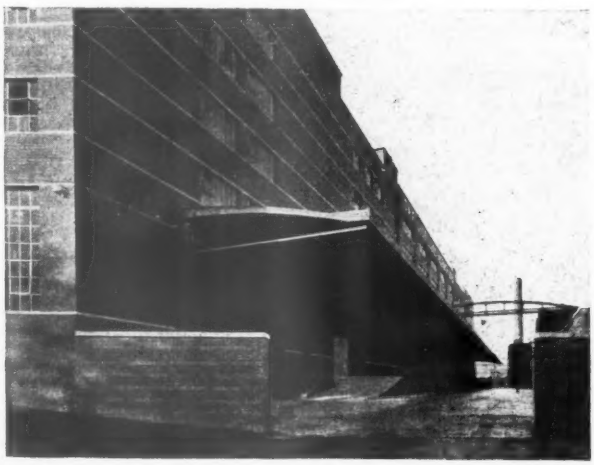
ICI Laboratories at Welwyn, Herts.

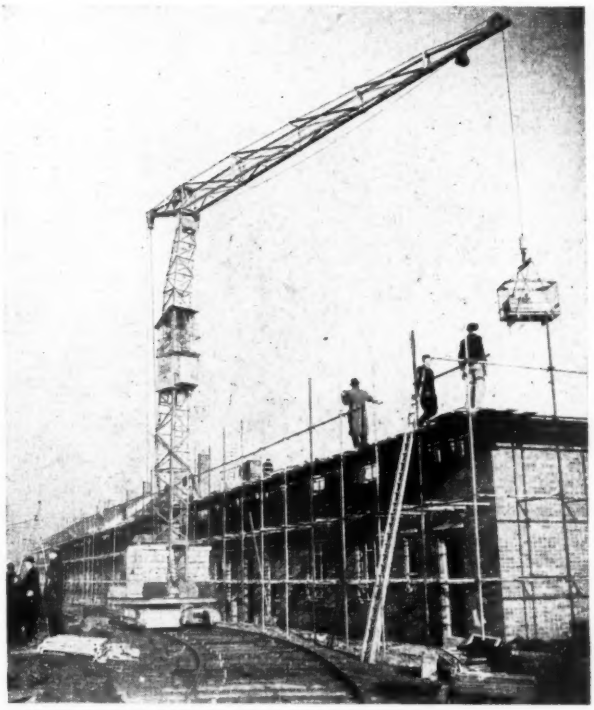
The photo. left shows the steelwork for the laboratory block, later to be clad with glass-fibre filled plastic panels. Deep lattice beams and light stanchions have been used with nearly a 50 per cent. saving in steel requirements as compared with ordinary R.S.J. construction. A model of the complete building is shown above. (Architects, J. Douglas Matthews and Partners; consulting engineer, F. J. Samuely.)



Whisky Bottling Building at South Queensferry

The building, below, replaces a former bottling store destroyed by fire. The canopy over the 340-ft. loading bay cantilevers out 23 ft. 3 in. (Designed by engineering dept., the Distillers Co. Ltd.)





Housing at Norwich, Built with Aid of Tower Crane

The use of this German rail-mounted tower crane and ancillary equipment designed at BRS has nearly halved the number of man-hours required for house shells on a housing site at Norwich. Direct labour was employed. A recent demonstration was attended by Ernest Marples. *(Full account on page 749).*

DSIR

Research Staff Warned of Dismissal

Redundancy notices were received last week by twenty-two people employed by the Department of Scientific and Industrial Research at its Building Research Station. The number includes thirteen members of the staff of the building operations research unit. The notices contained a warning that four weeks' notice of dismissal might follow in one month's time.

The following is a statement issued by the Institution of Professional Civil Servants:—

"The Press recently gave appreciative reports of Mr. Marples' speech when he visited an experiment organized by the Building Research Station of the Department of Scientific and Industrial Research near Norwich.

"What was not said was that as a result of Treasury-enforced economies DSIR are having to dismiss, as redundant, some of the officers engaged on this experimental work and to reduce sharply the work that they are doing. So far as the tower crane itself is concerned, the efficiency of the machine depends to a large extent on a well-planned site organization. It is the work of DSIR that has provided this particular type of site organization and on which thorough education of building foremen is an essential element if the fullest possible use is to be made of the tower crane. It is the technical officers of DSIR who are being declared redundant and whom the Department have threatened will receive their redundancy notices in the course of the next few days, who must undertake this educational work if it is to be done at all.

"An aspect of the work of DSIR which is being stopped by these so-called economy measures is that of the survey into the factors affecting man-hours and productivity in the house building industry. The sample survey has been completed and is in course of analysis but the results of the analysis are not yet available. If the teams which undertook this work are broken up, as is threatened by these economy measures, it follows that it will not be possible to do the follow-up work, at any rate on the same lines as that of the original survey. Having regard to the importance of this issue of house building, it seems incredible that an "economy" of this kind should be imposed when the building of houses bulks so largely on the list of public necessities.

"There is also the very valuable work that has been done by the Building Research Station on hoists, mechanical barrows and other mechanical plant likely to be of special value to the relatively small builder. It needs to be remembered that the small builder accounts for by far the largest proportion of the building force of the country. This work is being stopped. The staff engaged on this work realize that much of what they have already done is merely the elementary stage of the work that could be done.

"The Institution of Professional Civil Servants is much concerned at the imposing of alleged economies of this type. The staff side of the Departmental Whitley Council of the Department of Scientific and Industrial Research have asked the Lord President of the Council to receive a deputation so that they may ask him to reverse these decisions."

RENTS

Lord's Views on Control

Last week the Lord Chancellor spoke of the main themes on which agreement over the rent control in the House seemed general.

One was that any increase of rent in favour of the landlord should be linked with an obligation to repair. Another was that it would probably be a pity to expend building resources on obsolescent houses. But there remained houses falling into disrepair which the landlords could not save unless, it was suggested, they were helped by some increase in rent, by grant, or possibly by loan. Unless such houses were to decay, steps must be taken to help the landlords to preserve them by an increase of rent.

The labour government kept their eyes only on the tenant. It was dangerous to stop there, ignoring the unfortunate landlord, and it was a course which the government would not pursue. They would look at both sides of the question. The need to discriminate between those houses which were subject to the old type of control and those subject to the later control would have to be carefully considered when legislation became necessary.

COID

British Designs to Tour USA

The Smithsonian Institution of Washington has invited the COID through the Dollar Exports Council, to select 150 examples of well designed home furnishings for exhibition first in Washington and later in a dozen other American cities. This British display, which will open in Washington in April, 1953, will be followed by similar exhibitions from other countries.

The Smithsonian Institution is one of the foremost cultural bodies in the USA. Its many services to the public include a number of museums and galleries, among them the National Collection of Fine Arts. It was founded over a century ago with money bequeathed by an Englishman, James Smithson, to foster "an increased diffusion of knowledge among men."

RSA

A Modular Society ?

M. Hartland Thomas's proposal that a Modular Society should be formed (he made it at the end of his lecture on Modular Co-ordination to the RSA last week—see pages 741-747 and JOURNAL for Dec. 11, p. 697) received an enthusiastic response from an audience of architects, engineers and manufacturers.

James Riley, a manufacturer, said that it could bring together the results of all the research which had been carried out by different bodies, enable the industry to pool its ideas and help achieve the primary objective—cheaper building.

W. A. Balmain said that no manufacturer of prefabricated buildings could carry on his business without working on the modular principle.

H. J. Manzoni (chairman of the Building Materials Division, BSI) said that there was no immediate advantage for one particular building in planning to a grid; if it were used for *all* buildings, then the advantages would appear. He thought the main problem was how to get modular co-ordination adopted. Like other speakers, Mr. Manzoni thought that a modular society could play an important part; its main object, he said, should be propaganda amongst the public and the architectural profession, particularly the latter, but that it should make representations to the government as well. Modular co-ordination had to be "put across" by the government and local authorities, as they were the only bodies with large enough building programmes to persuade manufacturers to make the change over to modular sizes.

Richard Llewelyn Davies said that the crux of the matter was how to bridge the gap between non-traditional and traditional building. So far as the latter was concerned, he thought that, more important than grid planning, was the need to work to a series of related dimensions.

F. W. L. Heathcote, a manufacturer, quoted, as an example of the advantages of dimensional co-ordination, the household grate. Manufacturers of firegrates were able to offer the public a wide variety of designs and shapes because the 16-in. fireplace had been standardized for a long time.

Bruce Martin, of Herts. County Council architect's dept., quoted the example of navigation, which had been very difficult until an agreed, if arbitrary, system of placing lines over the world had been established. The building industry, he said, needed a similar reference system; but it did not follow that every component would be put on the grid lines. If we had a reference system, we could then decide which components should go on the lines and which not.

The chairman, Howard Robertson, president of the RIBA, called for a show of hands to indicate potential support for a modular society; the majority of the audience indicated its support.

THE TROPICS

Architectural Conference

A committee has been set up to organize a conference on tropical architecture, and the project is receiving the support of the Colonial Office and the RIBA. The conference will be held at University College, London, from March 23 to 27, 1953.

There will be an opportunity for members to contribute to the discussions following each lecture. In addition an exhibition of drawings, models and photographs of work executed in the tropics will be held.

Those interested in the study of tropical architecture are invited to complete an application form available from The Bartlett School of Architecture, London University, Gower Street, W.C.1. The membership fee is thirty shillings. Applications should reach the hon. secretary not later than December 31.

The conference's organizing committee includes Alister MacDonald, chairman; Professor H. O. Corfiato and Arthur M. Foyle, of University College; Professor G. P. Crowden and Dr. O. H. Koenigsberger, of London School of Hygiene and Tropical Medicine; Frank Rutter and Percy Johnson-Marshall, as well as J. R. Williams of the Colonial Office. The hon. secretary is A. Adedokun Adeyemi.

In the fourth of his articles on the future of house property, Ernest Watkins puts forward a scheme by which house property could be adequately repaired and maintained.

ERNEST WATKINS

The Future of House Property (4)

OVER the next half century, the ownership of house property will probably be divided among three groups: (1) The individual owner-occupier, a small minority, perhaps 15 per cent. of the population, made up of those who are able, and have the inclination, to indulge in what will be considered the luxury of providing the full cost of the purchase and maintenance of their own homes. (2) The housing societies, a variety of organizations, not primarily profit-making, providing houses for special needs or in special circumstances, but, again, numerically only a small proportion. (3) The public authority, local council or development corporation, providing the bulk of housing accommodation and almost certainly subsidized to do so.

The day of the individual owner of house property, let at a controlled rent to others, is over. Rents have now been controlled for over thirty years, and the prospects of decontrol are remote. Save for the unscrupulous, the ownership of rent-controlled property is a burden, not a benefit. The private landlord has served his time, but he has outlived his welcome and it would be foolish for him to attempt to linger on the scene any longer than he must.

TWO MAIN PROBLEMS

In the future, two main problems will be created by controlled dwelling houses. Their adequate repair and maintenance must be provided for. And means must be found of transferring from private into public ownership those houses that are let on a basis that is fair to both sides. It would be an advantage if the solutions to each problem could be linked. For political reasons it may be essential that this is done, for it is unlikely that the majority of the electors will accept an increase in their rents, however much that increase is justified by the rise in the cost of repair, unless that increase is part of a scheme under which the community becomes the ultimate owner of the houses it occupies.

The first requirement of any scheme is that the disparities in the standard rents of equivalent properties, due to the chances of earlier lettings, should be removed. That will not be easy, now that the Inland Revenue valuations for rating are to be postponed, but, in principle, rating value should provide a convenient yard-stick and the suggestions that follow are made on the basis that the gross inequalities between standard rents have been removed.

Subject to that, any plan must cover these two essential points:—(1) It must be ensured that the money from any increase in rents based on the increase in the cost of repairs is, in fact, spent on repairs. At its lowest, this is a political necessity. (2) A start should be made in the provision of a self-accumulating fund to provide the purchase price, or compensation, payable to the existing owners of these properties. This must be a gradual process, for no Chancellor could face the inflationary effects of any plan that involved the creation of a large amount of compensation stock, readily saleable at the one time. The arguments used in support of the proposal to dissolve the £300 million Compensation Fund set up by the 1947 Act would have the same force here as well.

Broadly, then, it is suggested that the answer must be to tie both the repair and the acquisition of controlled property together, under the ægis of the local authority. There is every practical justification for doing so. Local authorities are now committed to the business of house management and repair, and have experience and staff available for it. They are also intended to be the eventual owners of all land which is to be re-developed as opportunity offers, and this must include a great bulk of controlled property. They also have rating departments which have records of all occupied properties, and of their owners, and which collect money in respect of those properties each half year.

A VOLUNTARY SCHEME

It is suggested that the government should sponsor a voluntary scheme with the following features for those property owners who decided to bring their properties within it:—(*a*) The rent of the property coming within the scheme could be increased by an agreed proportion, to cover the increased cost of repairs. (*b*) This additional rent, plus the proportion of the existing rent deemed to be spent on repairs, should be collected by the local authority as a special rate, but paid into a separate repair fund in the hands of the authority. (*c*) The authority would undertake to keep the property up to a minimum standard of tenantable repair, and the owner would be relieved from liability for repair. (*d*) At the end of, say, forty years the ownership of the property would pass automatically without the authority having to provide any capital sum for compensation, but (*e*) during the forty-year period, the owner, from his rent, and the government, from public money, would each contribute an equal sum each year sufficient to provide, when accumulated on a sinking fund basis for the forty years, a sum equal to twenty years' purchase of the present Schedule A assessment of the property (in the alternative, the sinking fund payments could provide a terminable annuity at the end of the forty years instead of a capital sum). (*f*) The owner's contribution should be treated as a charge against his income and so not be subject to tax. (*g*) The sinking fund for each property would be transferable, on sale or death, only with the property itself, so that, as the value of the owner's remaining interest in the property diminished, the value of his interest in the sinking fund accumulation would rise.

COMPENSATION FUND

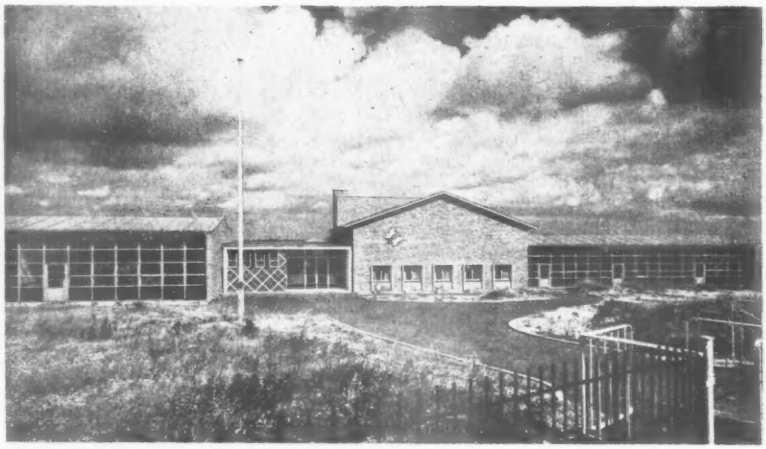
The provision of a compensation fund of the size required to take over any appreciable proportion of the 8,000,000 or so controlled houses is a financial problem larger than any yet undertaken in peacetime, but it underlies all plans for the eventual re-development of our cities and towns. The total of the Schedule A assessments of all houses is some £491 million, and if twenty years' purchase is taken as a fair capitalization the sum to be raised, some day, is of the order of nearly £10,000 million, ten times the amount paid on the nationalization of the railways. But if the problem is approached, first, on the basis of a voluntary scheme and then on the basis that the money is first to be accumulated before it is disbursed, it becomes a good deal more manageable. Assuming that one-third of the existing owners decided to remain outside the scheme, for one reason or another, the capital sum required falls to £6,000 million, and, to accumulate £6,000 million in forty years, no more than 2 per cent. need be set aside each year to accumulate at compound interest.

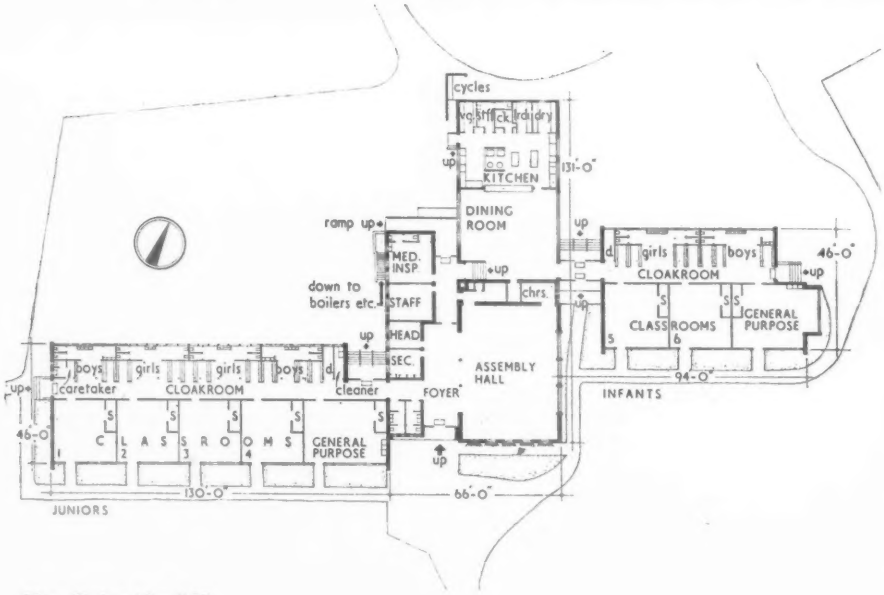
Two per cent. of £6,000 million is £120 million a year. If the state contributed half and allowed the owner to treat his half as a deduction from income tax liability, the state would be contributing some £80 million a year and the owners some £40 million a year, about 13 per cent. of their assessment. Yet, large as these figures are, the public contribution needed to bring two-thirds of all controlled houses into public ownership would be not very much more than the amount now being paid in subsidies for a much smaller total of new houses.

The practical value of these two proposals, for repairs and for compensation, depends on how they would assist each other. They would provide a fund controlled by local authorities available

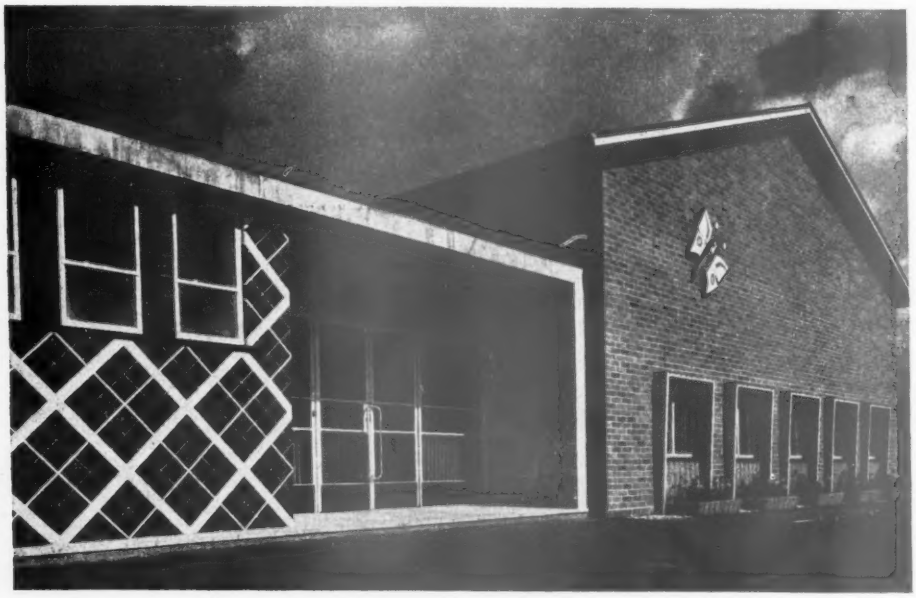
COUNTY PRIMARY SCHOOL, ORPINGTON—

"The Highway" County Primary School at Orpington was designed for the Kent Education Committee by Oliver E. Steer, in collaboration with S. H. Loweth, county architect. The architect was asked to use prefabricated aluminium construction for the classroom wings, seen left and right in the photograph right, and in the top and centre photographs opposite, and three of the classrooms had to be built in advance. The chief problem was to integrate the aluminium blocks and the central block, containing the assembly and dining halls, kitchen and administration rooms. Below is a view of the main entrance and the south-east wall of the assembly hall, and bottom, opposite is part of the infants' classroom wing and the tank tower beyond the north-east facade of the assembly hall. A local red facing brick has been used on the centre block and for classroom gable ends. An effort has been made to "scale down" the design where possible, in contrast



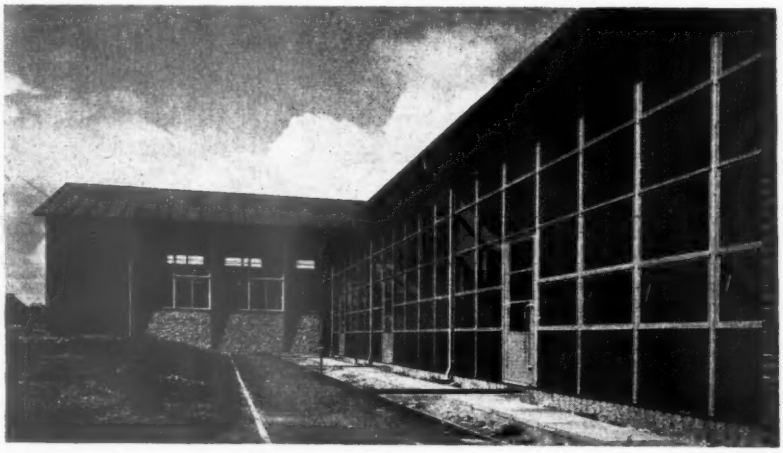


Plan [Scale : $\frac{1}{16}$" = 1' 0"]



to the rather high aluminium classrooms, which are 12 ft. to the eaves. The small windows in the assembly hall gable end, the vitreous enamel butterfly and the coloured tartan faience (view on the left) have proved very popular with the children, according to comments collected by the head teacher. The assembly hall is constructed of portal frames built up from 6-in. by 3-in. channels scaled with $\frac{1}{4}$-in. shaped plates. The exposed legs were galva-

CHELSFIELD, KENT



nized after fabrication. The dining hall and kitchen have load bearing walls. The school is centrally heated by radiators from two boilers below the M. I. room. The school, which is for 360 pupils, forms part of the 1950 building programme, when the cost per place limit was £170. The total cost on tender (dated April, 1950) of building and site works was £62,424, which shows a nett cost per place of £171 2s., and there are 52 sq. ft. per place. The consulting structural engineers were Malcolm Glover and Partners : consultants for services, J. Stinton Jones and Partners : quantity surveyors, F. C. Harris and Partners. The general contractors were Gilbert-Ash, Ltd. For sub-contractors, *see page 750.*

for repair, a fund probably greater than the total now being spent on all repairs. In addition, since the compensation plan would result in the ownership of these houses passing automatically to the local authority without payment from local funds, the authority would have an interest in improvement as well as in bare repair. It would be financially sound for the authority to spend on property which it thought had a useful life of more than forty years something in excess of the proceeds of its special "repairs rate." It could improve and modernize. And the normal repair and maintenance problem would be put on a wide basis equivalent to a National Health Service for house repair, but on a fully contributory basis. Spread over the country, the receipts from the "repairs rate" should be sufficient to cover the minimum repairs needed.

MARRIAGE OF CONVENIENCE

However the problem of the repair of our existing stock of houses is approached, repair and ownership are inseparably linked. The public cannot be expected to allow public money to go on the repair of property it does not own, yet it cannot buy all that property outright at a stroke of the pen—it cannot, that is, if a fair compensation is to be paid. Yet too many private owners cannot afford to do otherwise than watch their houses decay still further. The scheme outlined above may be a species of marriage of convenience, but, were it at least that, it would be justified.

DIARY

Dampness in Buildings. A. G. Day. (Sponsor: MOW.) Caxton Hall, S.W.1 6.30 p.m.
DECEMBER 18

AA Carnival. (For members only.) At 34-36, Bedford Square, W.C.1 7.30 a.m.
DECEMBER 19

Winter Flower Decoration. Designer, Betty Massingham. At Craftsman's Market, Heal & Son, 196, Tottenham Court Road, W.1.
UNTIL DECEMBER 24

Huts, Houses and Building Stories. Christmas holiday lectures by Hope Bagenal. At 66, Portland Place, W.1. (Sponsor: RIBA.) 3 p.m.
DECEMBER 31 AND JANUARY 2

Inigo Jones Exhibition. At 66, Portland Place, W.1. 10 a.m. to 7 p.m.; Saturdays, 10 a.m. to 5 p.m. (Sponsor: RIBA.)
UNTIL JANUARY 3

Domestic Light Fittings Exhibition. At The Building Centre, Store Street, Tottenham Court Road, W.C.1. 9.30 a.m. to 5 p.m.; Saturdays, 9.30 a.m. to 1 p.m.
UNTIL JANUARY 10

Victorian and Edwardian Decorative Arts: Exhibition. At V and A Museum, Kensington. 10 a.m. to 6 p.m. Sundays: 2.30 p.m.
UNTIL JANUARY 18

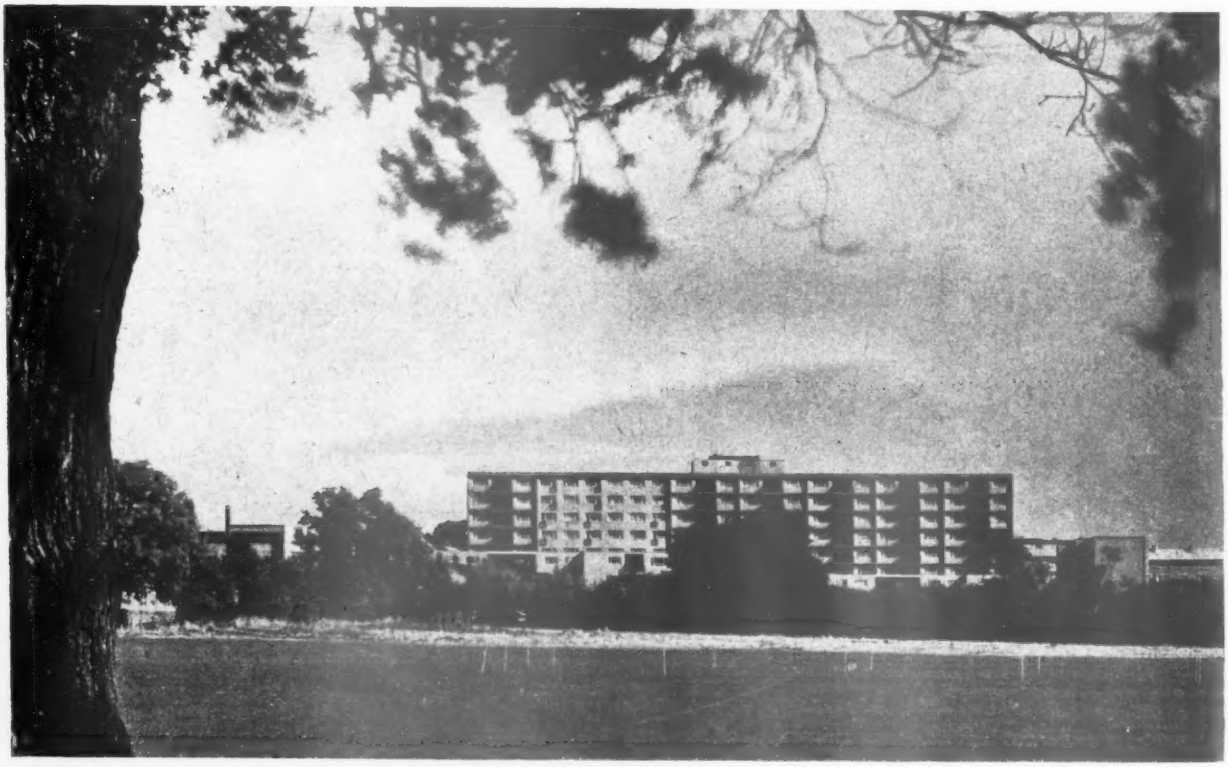
FLATS

in SISH LANE, STEVENAGE, HERTFORDSHIRE

designed by F. R. S. YORKE, E. ROSENBERG, and C. S. MARDALL; associate architect, J. R. B. S-PENOYRE; chief assistant, D. R. HICKMAN; in collaboration with C. S. HOLLIDAY lately Chief Architect of the STEVENAGE DEVELOPMENT CORPORATION; structural engineers, OVE ARUP and PARTNERS; heating engineers, OSCAR FABER and PARTNERS; sanitary engineer; DANIEL LONGDEN; quantity surveyors, DAVIS, BELFIELD and EVEREST

This group of flats at Stevenage New Town consists of 5 blocks varying in height from two to seven storeys. There are in all 110 flats of which 54 are contained in the seven storey block. By placing this number of flats in one tall block it has been possible to create a large open space in the centre of the site.

The site from the west. In the foreground, type A blocks; in the background, the seven-storey type C block.

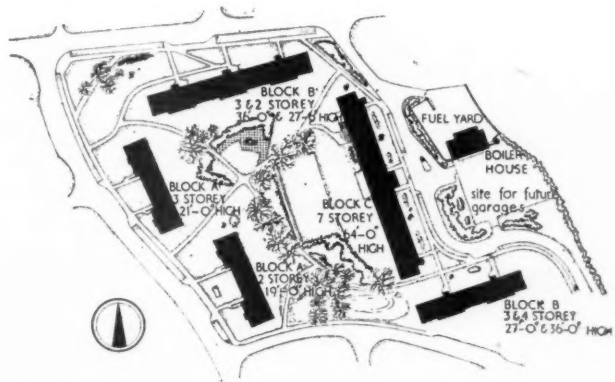


A close-up of the view on the opposite page. In the foreground the three-storey type A blocks.

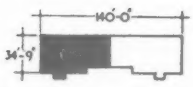
SITE.—The site of this group of flats slopes evenly to the west. There are fine views of the countryside to the west and south.

PLAN.—The buildings are arranged informally around three sides of a square; on the southern boundary a heap of redundant soil from the excavations has been shaped into a grass-planted mound. A feeling of spatial enclosure has thus been achieved, to which the openings between the blocks give sufficient relief. The square has been laid out as a garden with children's playground; it is in full view of every living room in the surrounding blocks. Most of the blocks run parallel with the contours to reduce the amount of cut. The seven-storey block runs along the highest contour, while the two type B blocks running across the contours have an extra storey at the lower end. The boiler house, which supplies hot water and heating to all the flats, as well as to a hostel, shops and maisonettes not included in this scheme, has been sited across the entrance road from the flats, down-wind and on the highest corner of the site. It was felt essential to separate this from the residential area because of the noise and dust. The original layout, density and distribution of flat types was drastically altered by a late decision to reduce the size of the scheme by over 50 per cent. A somewhat arbitrary line was then drawn on the site plan, and only the section north of this line has been built. The whole of the ground floor of the high block and a large proportion of the ground floors of the low blocks have been allocated to general-purpose stores, pram stores, laundries, a workshop and an assembly room for the tenants' use. Generally throughout the scheme every living-room has a large balcony. As an exception to this rule, the living-rooms of the eighteen single-bedroom flats are grouped to punctuate the west elevation of the high block; they have french windows. Room areas are the maximum recommended in the Housing Manual, or somewhat above the maximum. Much attention has been given to the reduction of noise transmission, especially in the planning stage, and kitchens and living-rooms are placed next to party walls; bedrooms are planned over bedrooms, and plumbing ducts are placed where they will give least trouble.

CONSTRUCTION.—The high block has a reinforced concrete box frame with no projecting beams or columns. This simplified the shuttering and made for flexibility in the choice of infilling



Site plan



Key plan

Typical upper floor plan

Type A block ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]

FLATS

in SISH LANE, STEVENAGE, HERTFORDSHIRE

designed by F. R. S. YORKE, E. ROSENBERG and C. S. MARDALL

Type A blocks from the north-west.

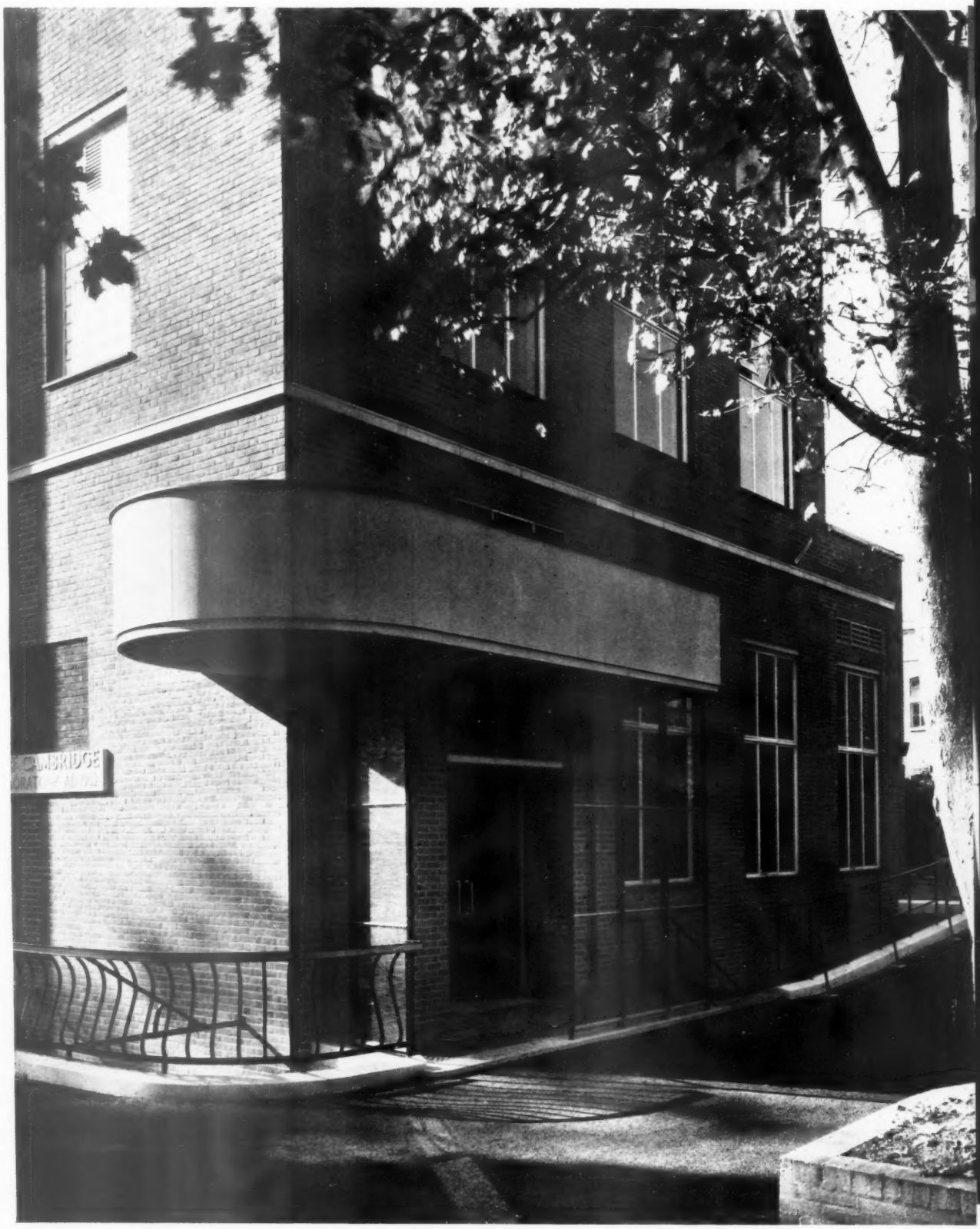
materials. The panel walls are of 11-in. cavity brickwork connected to the frame with butterfly wire ties cast into the concrete. On part of the west elevation cross walls and floor slabs project beyond the main building face. On the other side of the building the lift and central staircase tower is isolated from the main structure to reduce the transmission of noise and vibration. The flank walls are finished inside with a permanent shuttering of clinker concrete blocks for heat insulation, and are clad outside with panels of 4½-in. brick in flemish bond supported on steel angles bolted to the concrete. All headers here are snapped with their snapped ends facing outwards and allowed to project to random lengths. The low blocks are of load-bearing brickwork, the top two storeys having 11-in. cavity brick walls, with 13½-in. solid walls below. Snapped headers in the cavity work enable flemish bond to be maintained throughout. Floor slabs are

WORKING DETAIL

BALCONIES: 3

BALCONY OVER ENTRANCE: UNIVERSITY LABORATORIES AT CAMBRIDGE

Easton and Robertson, architects



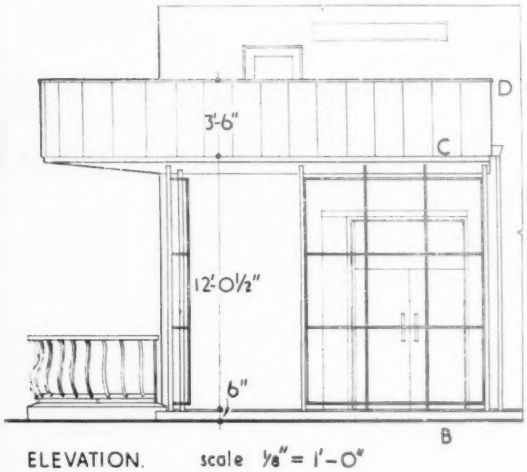
The reinforced concrete balcony is faced with Portland stone and has a lead-lined flower box running round the top

WORKING DETAIL

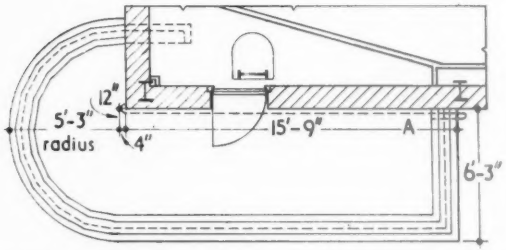
BALCONIES: 8

BALCONY OVER ENTRANCE: UNIVERSITY LABORATORIES AT CAMBRIDGE

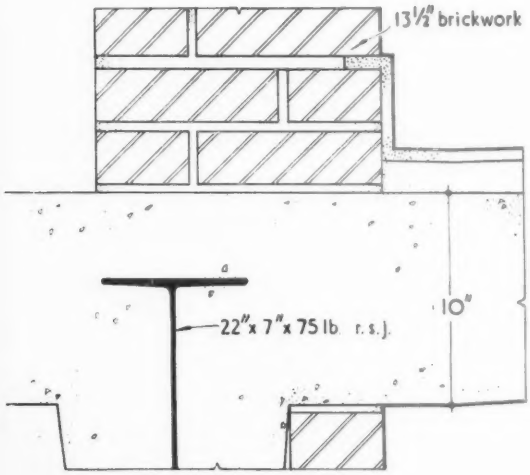
Easton and Robertson, architects

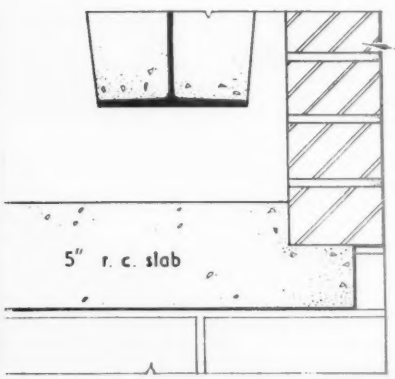


ELEVATION. scale ⅛" = 1'-0"

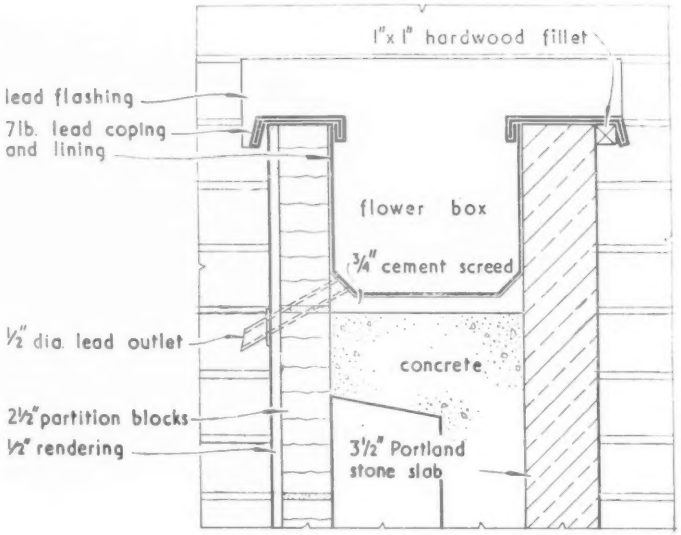


PLAN. scale ⅛" = 1'-0"

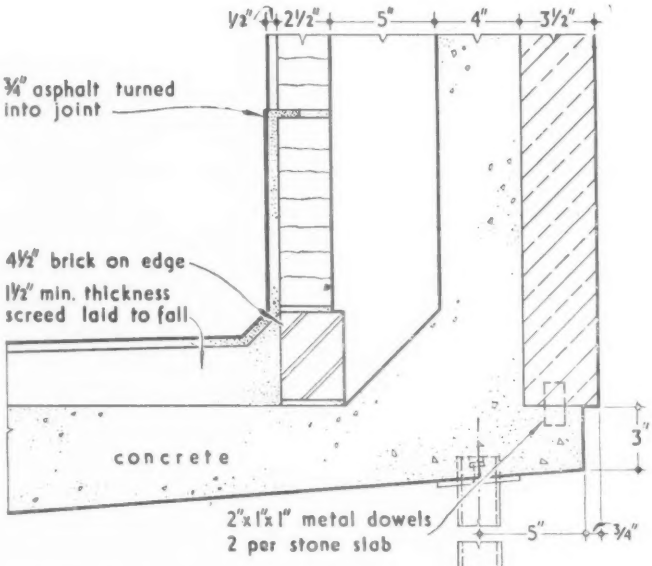




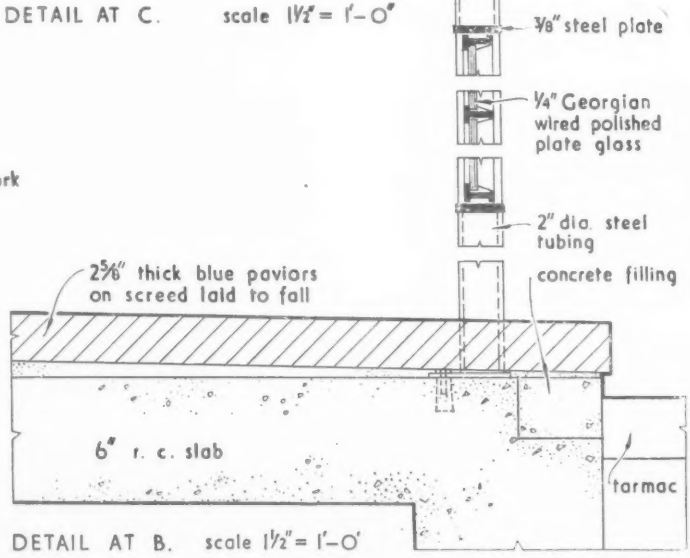
DETAIL AT A. scale 1½" = 1'-0"



DETAIL AT D. scale 1½" = 1'-0"



DETAIL AT C. scale 1½" = 1'-0"



DETAIL AT B. scale 1½" = 1'-0"

WORKING DETAIL

SANITATION : 1

WATER CLOSETS: WELFARE CENTRE AT BECKTON

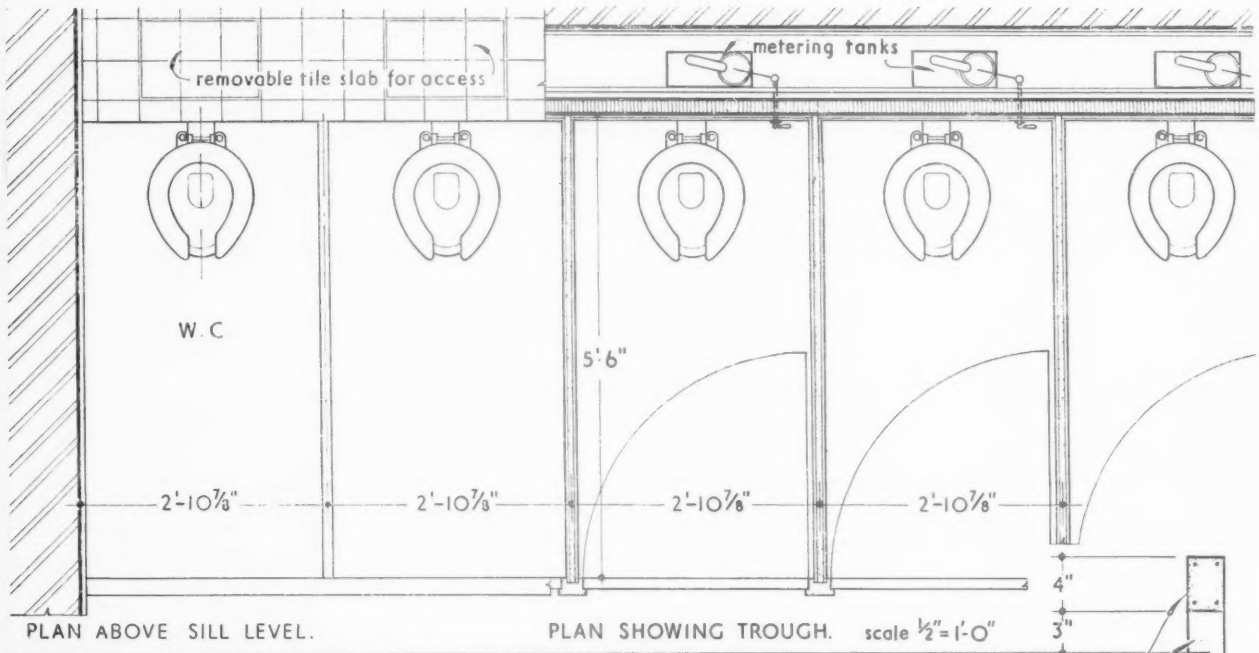
A. H. Shearing, architect (Brian Colquhoun and Partners)

The concealed flushing troughs are accessible by means of removable tile panels

WORKING DETAIL **SANITATION : 1**

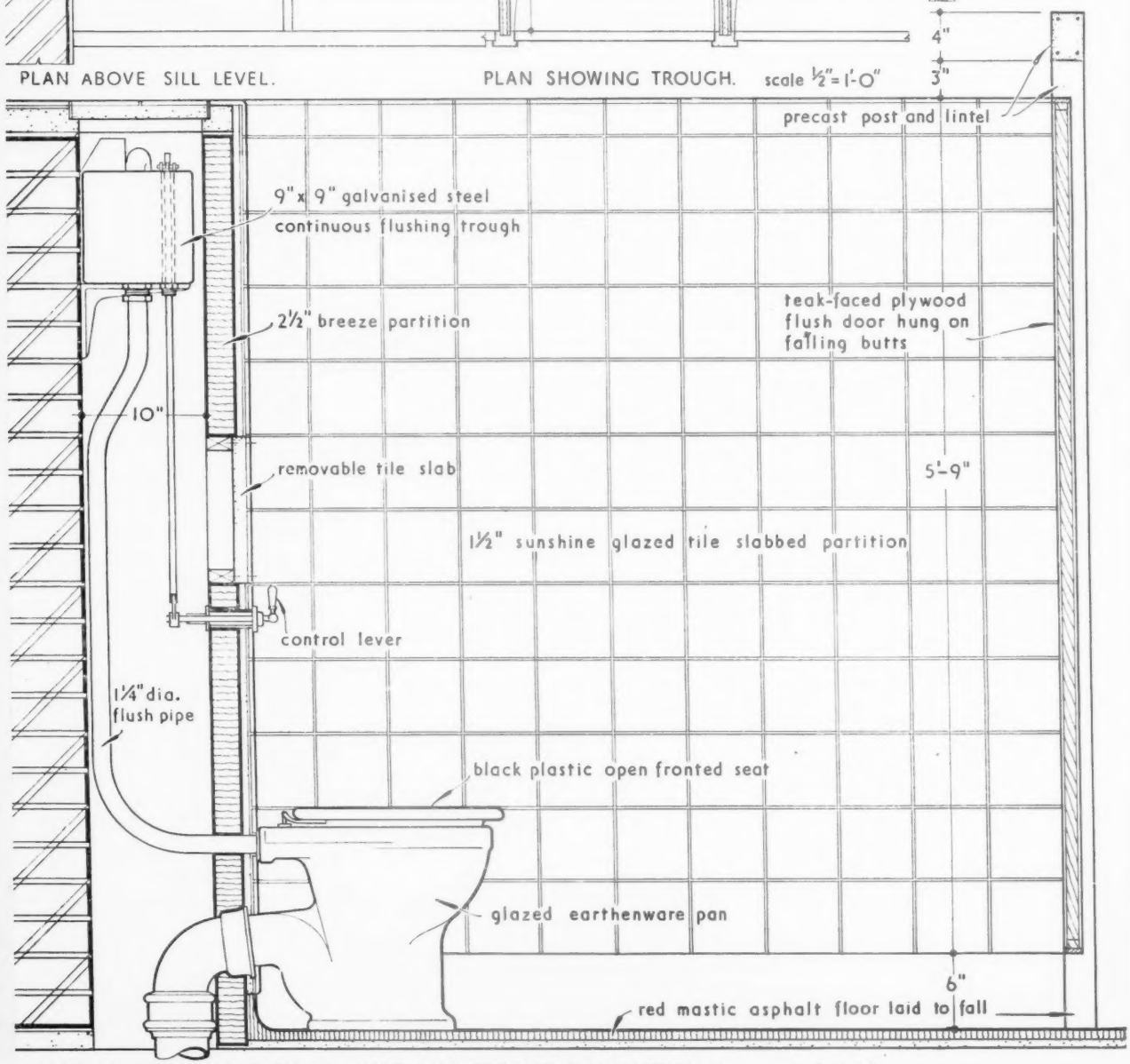
WATER CLOSETS: WELFARE CENTRE AT BECKTON

A. H. Shearing, architect (Brian Colquhoun and Partners)



PLAN ABOVE SILL LEVEL.

PLAN SHOWING TROUGH. scale ½" = 1'-0"



SECTION SHOWING SERVICE DUCT AND PRECAST TILE PARTITION. scale 1" = 1'-0"

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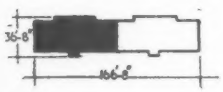
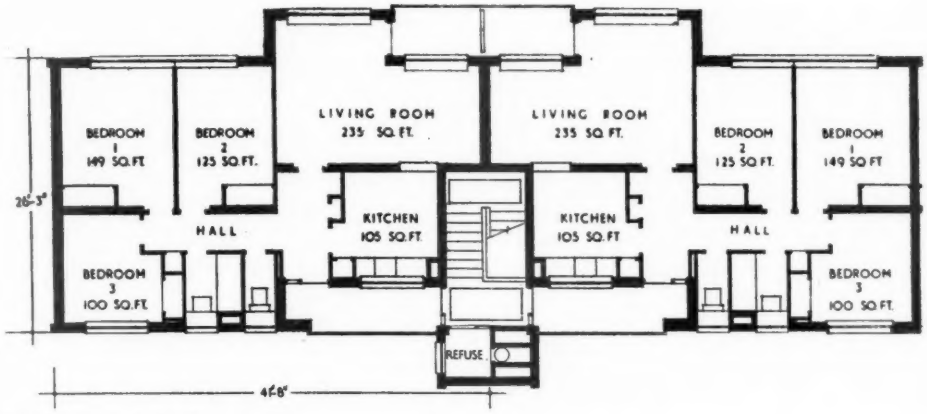
of *in-situ* reinforced concrete. Noise nuisance has been reduced by the use of cavity party walls, and glass silk quilt beneath floor screeds.

FINISHES.—Blocks running north and south are in yellow stock bricks, while blocks having a long north elevation are faced with a warmer coloured Leicestershire "straw ruff." Staircase towers and the ends of the low blocks are faced with either lilac flint lime bricks in soldier courses or white or grey tyrolean rendering. Staircases are faced internally with cream-coloured flint lime bricks and panels of coloured glazed tiles, or are painted. Projecting cross walls and floor slabs on the west elevation of the tall block are clad with blue-grey frostproof eggshell glazed tiling. Floors throughout the flats are in red or brown pitchmastic with the exception

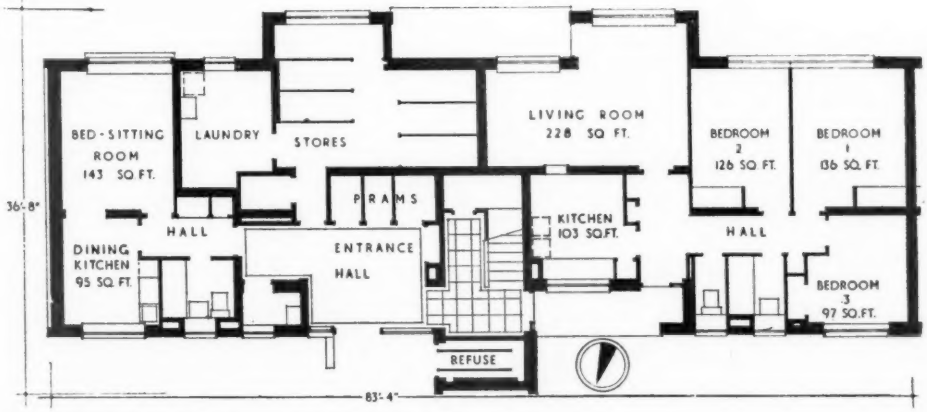
Type B block from the east.



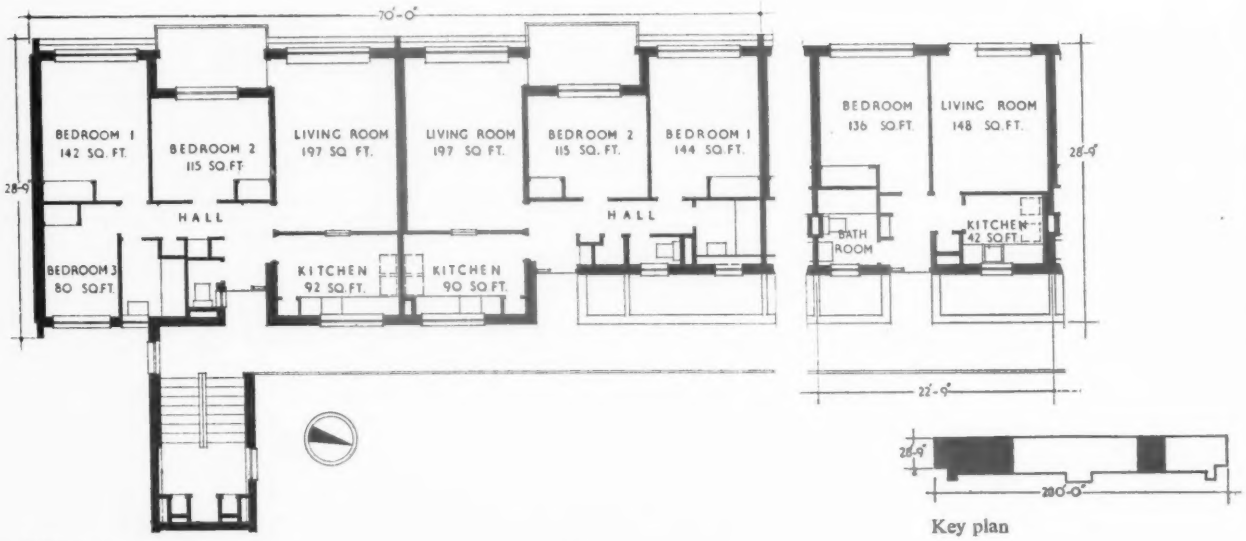
Key plan



Typical upper floor plan



Type B block, ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]



Key plan

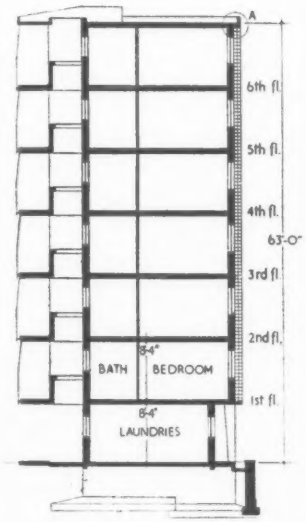
C block
Typical floor plan. Rubbish chutes are located in the staircase tower [Scale : $\frac{1}{16}$" = 1' 0"]

C block from the south-east, showing the access balconies and the staircase (at either end) and lift (in the centre) towers.

FLATS

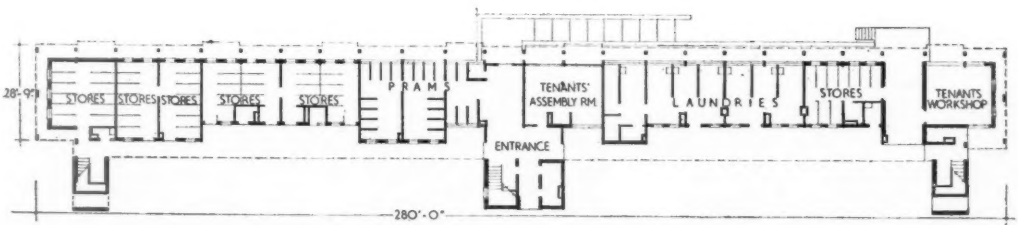
in SISH LANE, STEVENAGE, HERTFORDSHIRE
designed by F. R. S. YORKE, E. ROSENBERG and C. S. MARDALL

of all living rooms which have plastic tile floors. Curtain-track battens are fixed to window openings window cills in the flats are of precast terrazzo, linoleum or tiles. Colour schemes have been chosen to create a clean quiet background inside the flats as a foil to whatever furnishings the tenants may bring in, and to provide strong stimulating, contrasting colours in public spaces, especially on balconies and staircases, where the back walls of half landings are tiled in a series of alternating colours such as pale blue and dark brown, pale grey and mushroom, or royal blue and signal red.

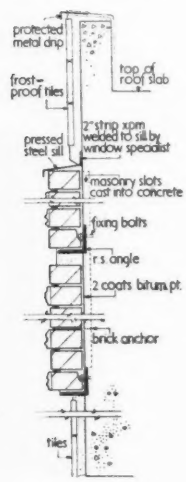


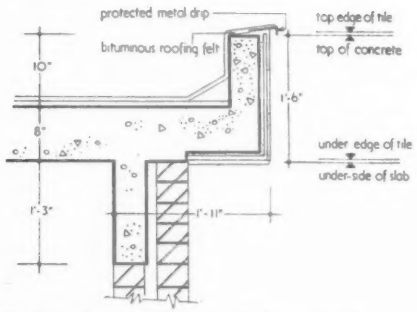
C block. Typical section. The balconies are cantilevered
[Scale : $\frac{1}{16}$" = 1' 0"]

An upward view of the south end of C block. A section on the following page shows how the flank walls are clad outside with panels of 4½-in. brick in flemish bond, supported on steel angles bolted to the concrete. The headers are snapped with the snapped ends facing outwards.



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





Section of roof of C block [Scale : ½" = 1' 0"]
(Detail A, typical section on page 739)

Section of end wall of C block

SERVICES.—The flats in the high block are approached from access balconies served by a fast-moving passenger lift and a slower lift for prams. The building face behind these balconies is set back in parts to give more privacy. In the lower blocks, staircases serve two flats on each floor level. Refuse is disposed of by vertical chutes, to which all flats have balcony or staircase access. The chutes are ventilated above roof level, and discharge at ground level into sealed containers in locked chambers.

The general contractors were Gilbert-Ash, Ltd. A list of sub-contractors appears on page 750.

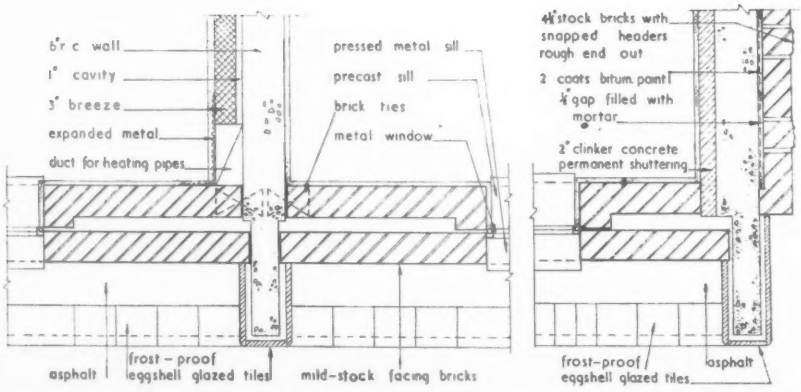
FLATS

in SISH LANE, STEVENAGE, HERTFORDSHIRE

designed by F. R. S. YORKE, E. ROSENBERG and C. S. MARDALL

C block from the south-west. The balconies have access to the living rooms.

Part of C block from the west.



External wall details of west side of C block, cross wall and end wall [Scale : ½" = 1' 0"]

TECHNICAL SECTION

An enlarged Technical Section is this week devoted to the subject of Modular Co-ordination. We publish below a slightly shortened version of the paper presented last week by M. Hartland Thomas (chief industrial officer, COID) to the Royal Society of Arts.

The paper, this year's Alfred Bossom Lecture, includes comments by architects and manufacturers of prefabricated buildings. A report of the discussion which followed the paper can be found on page 730.

Mr. Hartland Thomas concluded his paper with a practical proposal ; he suggested the founding of a private society—The Modular Society—in close association with BSI, which would enable architects, engineers, builders and manufacturers to get together in order to develop the " human-scale module." This, he suggested, would complement the work of the official architectural unit for practical research, the setting up of which was recommended by the BSI committee on Modular Co-ordination over a year ago, but which has yet to be formed.

This week's special feature

9 DESIGN : GENERAL
modular co-ordination

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 his paper on Modular Co-ordination, printed almost in full below, Mr. Hartland Thomas explains how and why the 4o-in. module has come to be so widely accepted. He gives a number of examples of how it has been used (for buildings, most of which have been described and illustrated in earlier issues of the JOURNAL) *and how various designers and manufacturers have tackled the problem of " thickness."*

Fifty years ago the ready-made elements in a building were few and small: they were easily absorbed in the mass of hand-made construction on the site. Now they are so many and so large that they have begun to jostle one another. There is not enough dimensionally fluid site-work intervening as a cushion between them, so that fitting them together on the site has become proportionally expensive. The case for dimensional co-ordination, as one of the chief opportunities at the present time to lower the cost of building, is that the economies that one has reason to expect from standardization and quantity production of the parts are at present being dissipated in the drawing office and on the site in efforts to fit them together into whole constructions. This difficulty has, since the war, been aggravated rather than eased by the very

great increase in standardization within the different branches of manufacture, without co-ordination between one branch and another: now that there are fewer standard windows to choose from, it is even harder to find one to agree with a choice of door-frames and sheeting materials, themselves offered in fewer alternatives.

In February, 1946, the MOW Standards Committee issued its second report and went into recess. The co-ordination of standard dimensions appears to have been attempted by the process of collecting all the existing dimensions laid down in British Standards and of studying them to find the highest common factor. When this proved a failure, they recommended the adoption of 3 in. "as a convenient multiple," but expressly laid down that it should not be applied as a rigid system for co-ordinating dimensions. In effect, this report declared the problem to be insoluble and left it to natural selection.

DEVELOPMENTS IN GERMANY

At the same time other research was providing a way round the *impasse*. At the end of 1945 the MOW despatched a team to Germany to survey German building and civil engineering and to select those subjects that were likely to repay further study. One of the subjects that the team recommended for further study was the German wartime system of dimensional co-ordination. This had been laid down by a Professor Ernst Neufert, and given the force of an official regulation by the government. Its interest lay in the way it cut through the welter of uncoordinated standards and customary sizes by prescribing a large-scale planning grid for the design of wartime buildings—2·50 m. for industrial buildings and half this, 1·25 m., for hutments, cantonments and other living accommodation. Neufert intended that the imposition of this single broad dimensional grid would achieve significant economies, by simplifying design and erection, and by acting as a magnet to influence the dimensions of all subsidiary components to fall into phase with the grid. The team found in Germany, even after the fall of the Nazis and the consequential release from compulsion to apply the system, sufficient evidence of its effect upon architects, engineers, builders and manufacturers to justify its study as a possible lever to get British research moving again.

STUDY IN GREAT BRITAIN

The MOW suggested that this subject be allotted to the RIBA for further development, and an ASB study group was formed in January, 1947. The work of this study group was amplified late in the same year by a BSI committee under the chairmanship of S. Rowland Pierce. The two bodies worked so closely together that their findings can be reported as one. The former has now been wound up, after publishing its report in the *RIBA Journal* (April, 1951); the BSI committee continues, having published its first report last year (B.S. 1708 : 1951).

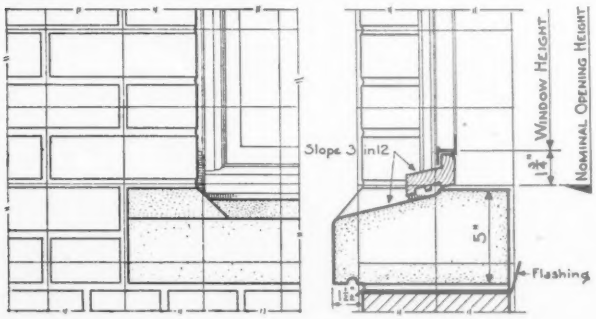
Neufert certainly had the right idea in plunging for a definite large planning module, instead of trying to tinker with the multiplicity of existing standards, but in his choice of module he went to too high a figure (nearly 4 ft. 1 in.). This figure (1·25 m.) seems to have been arrived at arithmetically by progressive halving from 10, instead of being related to custom or human requirements. Also, it is characteristic of German building for everything to be rather overscaled in comparison with British practice. The RIBA study group examined British and foreign examples in considerable detail and came to the conclusion that some figure rather over 3 ft. would be the best one for a centre-line planning module. This opinion was based upon the shoulder-width of a human being, plus tolerance for movement, plus constructional thickness on either side to centres of support. This gives a basic planning unit for the smallest compartments and recesses—doorway, staircase, passage, bathroom, bed recess. Twice this module 6 ft. 8 in. gives a door-height, including frame, or room for the length of a bed or bath. This concept, it was argued, was fundamentally right because it was securely founded upon human scale, the most enduring factor in architecture, rather than upon the temporary convenience of manufacture at any particular time or place. But human scale has its importance in manufacture as well, and more still in assembly, for it controls what a man can lift and handle.

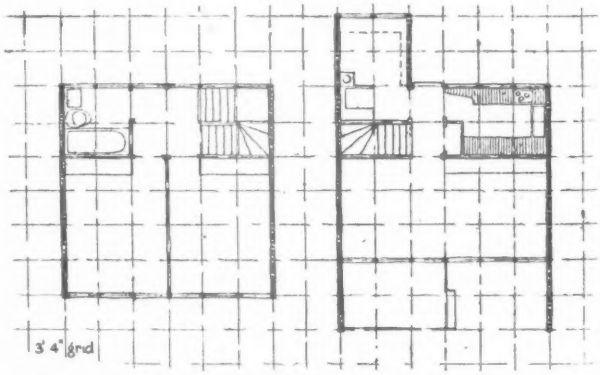
The economy of machine-production, with ever larger and more powerful machines, demands the production of larger pieces; limitation to human scale ensures that they are economical to handle on the job.

3 FT. 4 IN. CHOSEN

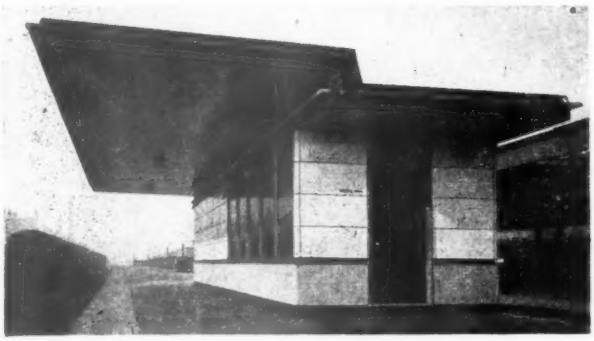
The exact figure of 3 ft. 4 in. was chosen, out of several of this order which would have maintained the essential characteristic of human scale, partly because it is near to a metre (3 ft. 4 in. equals 1·0160 m.) but chiefly to agree with the American 4-in. cube system, which although it has its limitations is the only established modular system as yet in operation. In this I submit that the team was right. People in Britain have too long regarded building as a sheltered home industry. Our export trade in building components and entire ready-made buildings is already substantial; so is our importation of components. In this matter of dimensions we would neglect the international aspect at our peril. A parochial solution, based solely on the English yard is to be avoided; though the 3-ft. size is likely to appear as a preferred dimension

Below, Fig. 1, diagrams from Project A62 of the American Standards Association, illustrating the application of the 4-in. modular increment in practice. (Reproduced from Dex Harrison's book Standards in Building. *Says Mr. Harrison, "The modular size . . . is the nominal or fixed dimension of the product and includes all allowances for jointing. All the products included in these diagrams, excepting the sills, are now [1947] actually being produced to modular sizes in the USA.")*

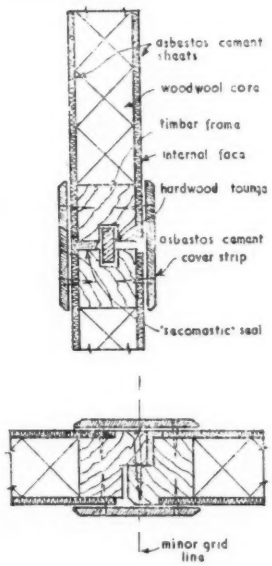


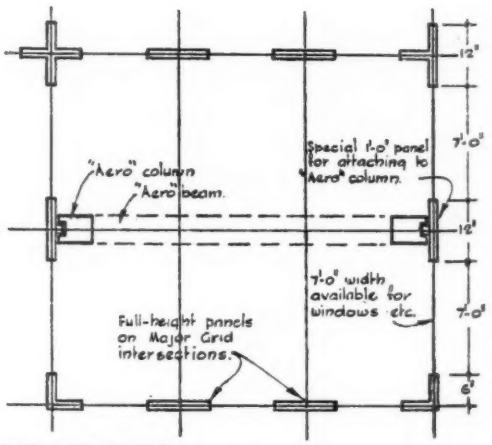


Above, Fig. 2, house plan by Walter Gropius on 40-in. modular grid. (Reproduced from Dex Harrison's book Standards in Building [*E. & F. N. Spon, Ltd., 1947*]. *Says Mr. Harrison, "Modular planning implies the avoidance of complicated shapes and niggling detailing. Economy is not achieved by scraping a couple of inches off the plan; to do so, on the contrary, puts the cost up, in that it involves the use of 'specials' . . ."*)

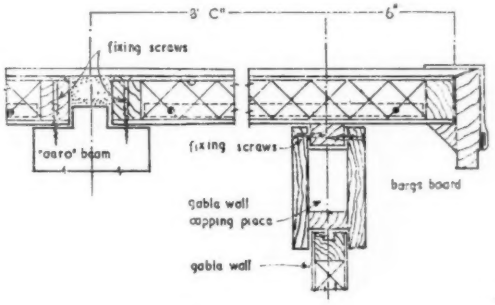


Above, Fig. 3, LMS unit station (prototype erected at Queen's Park Station)—a 40-in. module development, by W. H. Hamlyn, Dr. J. L. Martin, and Richard Llewelyn Davies, since abandoned. (Photo by courtesy of British Railways.)





The "Seco" unit construction system, a semi-modular system by Firm A. Above, Fig 4, the grid system—major grid, 8 ft. Left, Fig. 5, horizontal joint between wall panels. Below left, Fig. 6, vertical joint. Below, Fig. 7, section through length of roof units and gable end.



in stock material based upon a centre-line module of 3 ft. 4 in.

A milestone in development was the report of the MOE Technical Working Party on School Construction, which re-affirmed the general conclusions of the Wood Report as to the need for modular planning in school construction, but took note of the difficulties that had arisen from the 8-ft. 3-in. module, which does not divide easily and leads to rather coarse planning, and recommended a bay spacing of 10 ft. which can be divided into three times 3 ft. 4 in. This was adopted and now forms the framework of the Ministry's current work of development.

Before coming to practice, there is one important point of theory that must be mentioned: the question of thickness. This question arises as soon as anything beyond a straight run of walling is proposed. If the module is located on the centre-line, the external units at a corner will be greater than the module, and the internal less, by an amount equal to half the thickness of the wall. This is the condition at a salient angle on plan; at a re-entrant angle it is reversed. In elevation or vertical section a similar problem occurs, but less frequently, because changes in floor and roof level are more rare than variations in the compartmentation of the plan. There is no complete theoretical solution and we shall see how the different designers are coping with it in practice.

AMERICAN DEVELOPMENTS

The American modular system, Project A62 of the American Standards Association, derived its 4-in. cubic module from what was considered to be a convenient partition thickness, thus seeking to solve the problem by making it the common denominator for all sizes. The Architectural Science Board adopted this concept of the 4-in. thickness and added it to that of the 40-in. planning module, which now appeared as a 4-in. strip in both directions at 40-in. centres. This was circulated privately in March, 1948, for experiment. Such an arrangement assumes the manufacture of stock material in dimensions conforming to 3 ft., 3 ft. 4 in. and 3 ft. 8 in. This, I think, might be extended by another 4 in. either way to add 2 ft. 8 in. and 4 ft. to the vocabulary. At the same time 8-in. vertical increments were suggested. This being $\frac{1}{5}$ of 40 in. would enable proportions other than square and double square to occur; in particular, 1 : $1\frac{3}{5}$, which is close to the Golden Section.

The maintenance of the larger concept of the human-scale planning grid was, and continues to be, of prime importance and should never take second place to schemes for solving the problem of thickness. The American system which took this latter course is making very slow progress through the mass of detail, having hardly got beyond clay products and windows, though there are over 600 manufacturers producing modular products in these categories. There are signs now of the use of a larger planning grid—usually one of 4 ft., which in my opinion is rather too large for economy.

But there is other American work more in line with developments here. The

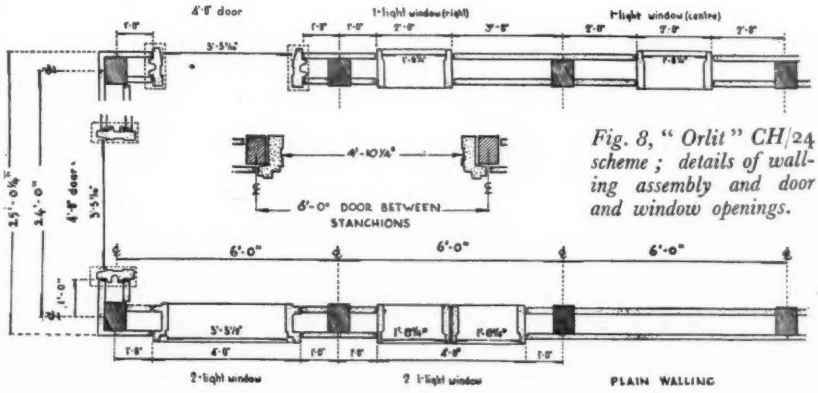
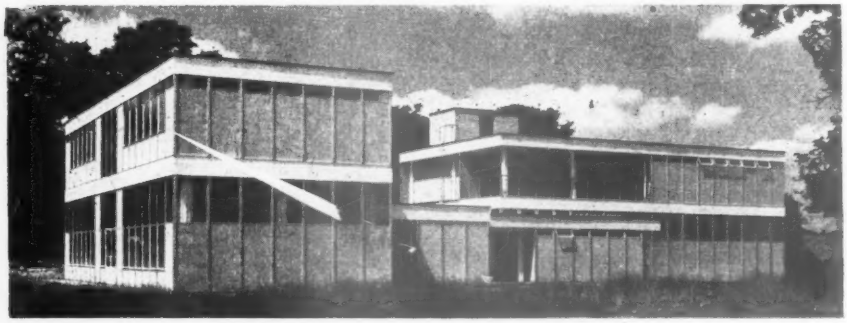
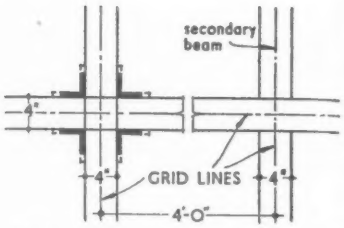


Fig. 8, "Orlit" CH/24 scheme; details of walling assembly and door and window openings.





Herts. County Council "Clarendon" prototype; 40-in. module, with columns on grid lines. Left, Fig. 9, general view; above, Fig. 10, diagram showing principle of using cruciform columns.

system developed by Walter Gropius and Konrad Wachsmann for the General Panel Corporation is based upon a 40-in. centre-line module and exhibits the pure milk of theory in its treatment of the thickness-problem. All panel-joints in floors and ceilings, as well as in walls and partitions, divide on a 45-deg. mitre within the panel-thickness, thus providing complete flexibility in plan and elevation on the grid lines, the panels bearing the load without the assistance of a framework. I have made this the first example because it illustrates the theory so well, but I believe it to be too perfect for our present stage of development.

LMS UNIT STATION

The LMS Unit Station (architects W. H. Hamlyn, Dr. J. L Martin and Richard Llewellyn Davies) was the beginning of a building programme which later became a casualty of nationalization. Like the previous example, it was planned on the 40-in. module and it makes provision for partition-junctions at every intersection of the grid internally by means of a hollow post of panel thickness. But, unlike the Gropius system, this is not done externally, where the concrete dado panels and the enamelled iron upper panels conform to the full 40-in. width. It is dissimilar, also, in that the columns are placed off the main lines. This device we shall meet again; it is claimed by many to be an essential simplification of the problem at the present stage of development, but none, I think, would claim that it provides a satisfactory permanent solution for general adoption. In this particular case the continuous platform canopy, separately supported, allows the inclusion of non-modular constructions and even of rooms already existing.

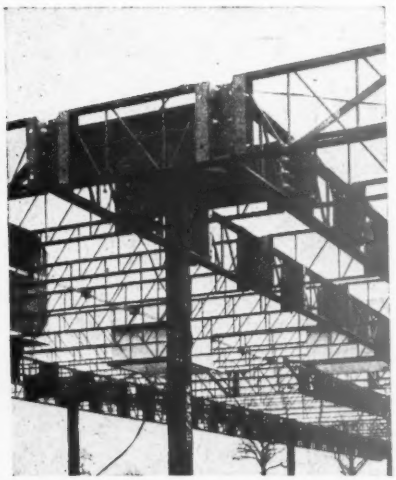
Evidence next comes from Firm A,* a firm that supplied, during the war, no less than 6,000,000 sq. ft. of buildings for Service requirements in over 500 different plans, ranging in size from telephone kiosks to canteens seating 3,000 people. After the war, they were contributing standard bungalows to the housing programme at the rate of 400 houses per week. Until 1944 the firm did not attempt fully modular planning, but flexible planning of a wide variety of buildings was based on its load-bearing panel, 3 ft. 2⅛ in. wide, of asbestos-cement sandwich construction, incorporating a timber frame. Preliminary plans for buildings were laid out on a square grid of this dimension and at the detailing stage a variety of standard panels was utilised which added up to the grid dimensions without conforming to every intersection. That this was the basis of the firm's immense wartime output is weighty evidence in support of my thesis; the adoption of a human-scale planning module, without waiting to solve the detailed problems of dimensional increments, got production under way rapidly and proved to be a reliable tool throughout an enormous programme of construction.

A CENTRE-LINE GRID

In order to maintain flexibility the firm made both external and internal walls the same thickness. For plans divided up into small rooms these walls carried the roof; for larger spans plywood box-girders and columns were added, externally or internally, to abut against the walling. This placing of columns off the grid-intersection is still maintained in the firm's latest model.

The firm decided as early as 1944 that little help could be obtained in the choice of the actual module from existing British Standards and customary sizes, and a 40-in. centre-line grid was adopted, with panel widths varying from 10-in. to 40 in., in 10 in. increments. This was developed in two systems, a modular steel frame having wood inserts to which any form of cladding could be applied on the site; and the continuation of the structural panel system, now on a modular basis. The frame system soon had to go into cold storage because of shortage of steel. In both systems the constant wall-thickness was maintained and junction-boxes equal to thickness occurred between each frame, as for the LMS Unit Station. This panel system is still in use for export housing but the firm has been forced off it for home use because, they say, architects cannot think in 10-in. multiples. To assist architectural arithmetic, they have now standardized their Mark VII on an 8-ft. major grid, with a 6-in. minor grid for detailed planning (See Figs. 4-7). An innova-

* For names of firms referred to in the paper. See list on page 760.



Herts. County Council Summerswood School at Boreham Wood; 40-in. module, with free-standing columns (see photo left, Fig. 11). Below, Fig. 12, general view.

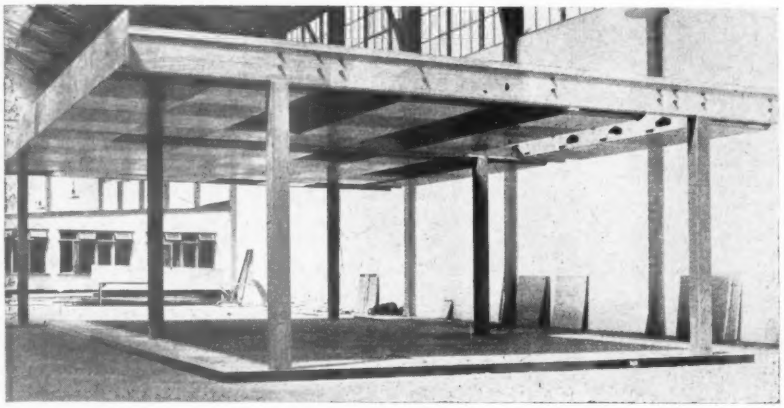


Fig. 13, prototype timber frame (by Firm C) on 40-in. module, designed by Ove Arup & Partners for use by Herts. County Council as an alternative to the steel framing now used by the County Architect's Department for some of its school buildings.

tion in this model is the provision of preformed corner, tee and cruciform units for wall junctions. The panel is still the original structural panel, complete with in-filling and of constant thickness; columns are applied to the panel-face, off the grid-intersections.

W. A. BALMAIN (joint managing director of Firm A): *If there was a concerted move to adopt the 40-in. module generally, our firm could easily go back to it, especially if there were a prospect of conformity with other systems and consequent interchangeability. Our roof panels, for example, are already sold separately for use with any method of construction. We are at a compromise: we do not attempt to carry strictly modular design right through. We design and tender on the modular basis, but having got a job, we proceed on the basis of job-standardization. Drawing office and estimating time is saved by modular planning, and job standardization afterwards reduces the number of different wall-units by some 25 per cent., which pays for any special units required. A modular system needs, in the last analysis, something you can cut, like a plank, to make the final adjustments, otherwise provisions for every contingency become too expensive.*

This was one opinion among many that agreed in condemning the cult of perfection in modular design and in emphasizing the need for a combination of site-work and manufacture.

THE HERTFORDSHIRE SCHOOLS

Under the County Architect, C. H. Aslin, Hertfordshire County Council built more than 40 schools between 1946 and 1951 on the 8-ft. 3-in. module; this is still in operation for the majority, but 6 new schools are on a 3-ft. 4-in. module. The latest Hertfordshire design can be seen at Summerswood School, Boreham Wood. (See JOURNAL for Aug. 7 and Figs. 11 and 12.) In changing from the 8-ft. 3-in. to the 3-ft. 4-in. module, the chief difference is the removal of columns from the line of the walls to a free-standing position in the centre of a square module. This is considered essential, as the column is seen as a bar to progress in developing the modular screen itself. The basic unit of the screen is a hollow plastic panel in an extruded aluminium frame, with provision for a four-way junction at every grid-intersection.

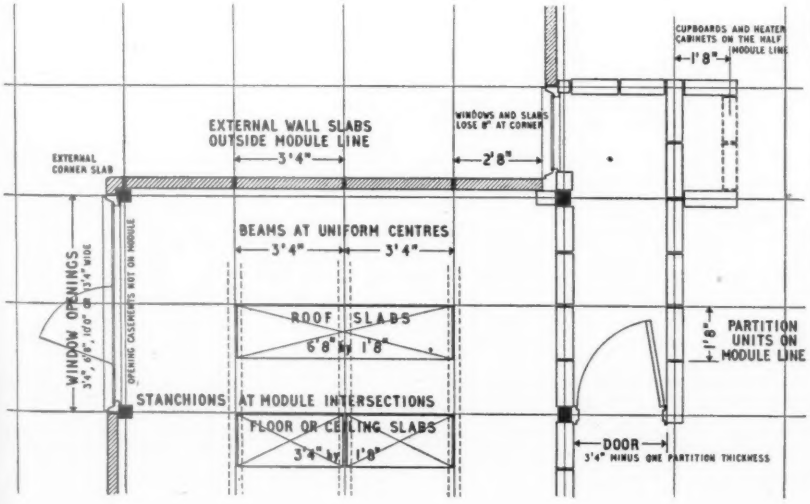
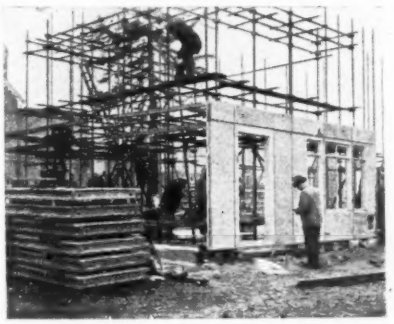


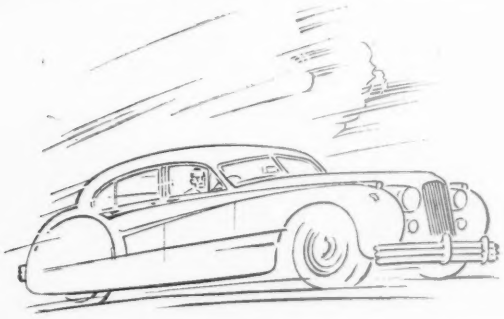
Fig. 14, Wokingham School—diagram showing relationship between the components and the horizontal module. (Reproduced from Building Bulletin No. 8 [*HMSO, Oct.*, 1952.])

WILLIAM TATTON BROWN (deputy county architect, Herts. County Council) and BRUCE MARTIN (of the county architect's department): *The 3ft. 4in. human scale planning module is indispensable, but we are not so sure about completely interchangeable details for screens, owing to considerations of cost and availability of materials. Debate on the exact width and thickness of panels rests on an insecure hypothesis, because the ideal panel can be hardly said to exist as yet. In current work, therefore, we are using different panels straight from the manufacturer, with a tongue-and-groove joint, running straight ahead regardless of the grid and cutting them at a grid line where an intersection occurs. For the future, if manufacturers wish to produce units in conformity with the module, we suggest that two kinds should be made—full-size panels 40 in. wide, less only manufacturing and erection tolerance, and end-units of module width less half the thickness of the thickest possible partition or wall, which would involve using a filler-piece for abutting against thinner walls.*

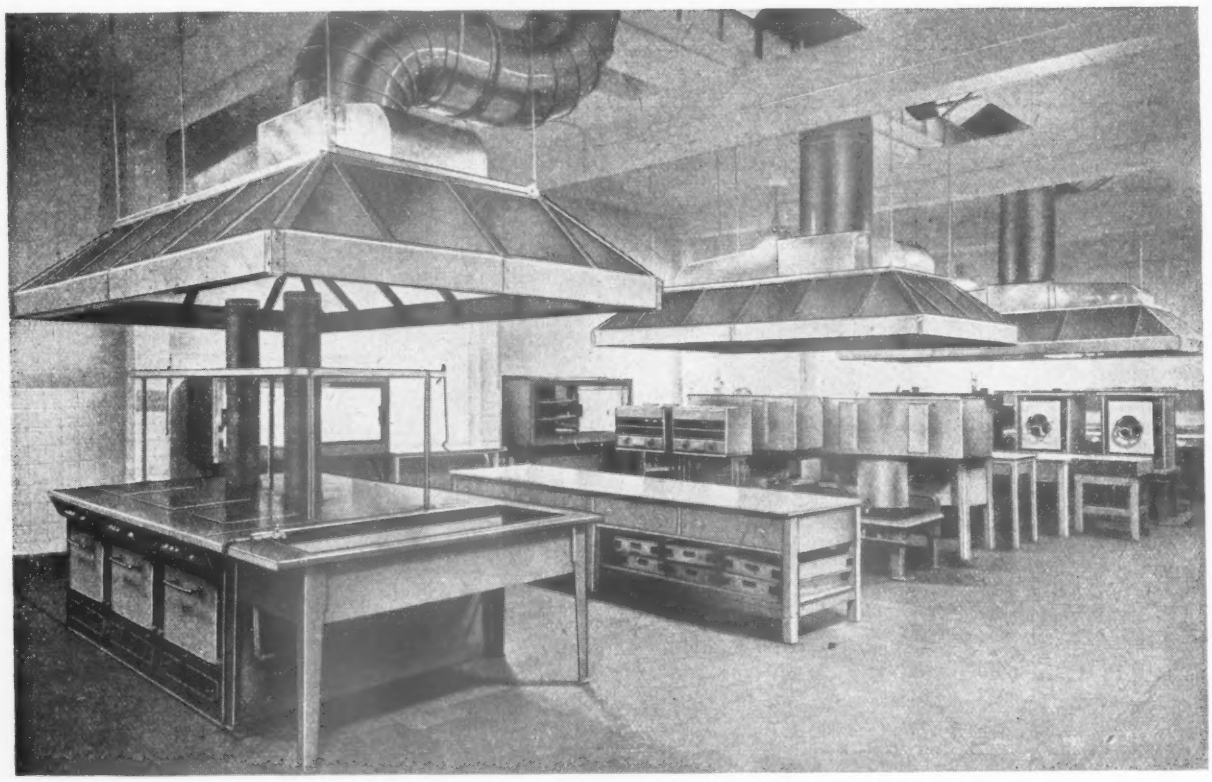
Here one is reminded of the compromise of Firm A and their demand for a "plank" which one can cut. Beside their current production using



"Wates" house (1945 version); above, Fig. 15, under construction; below, Fig. 16, completed. Non-modular planning; precast concrete external units related to standard metal windows.



Speed and Efficiency . . .



New Canteen recently installed for Jaguar Cars Ltd., Coventry. Architects: W. S. Hattrell & Partners

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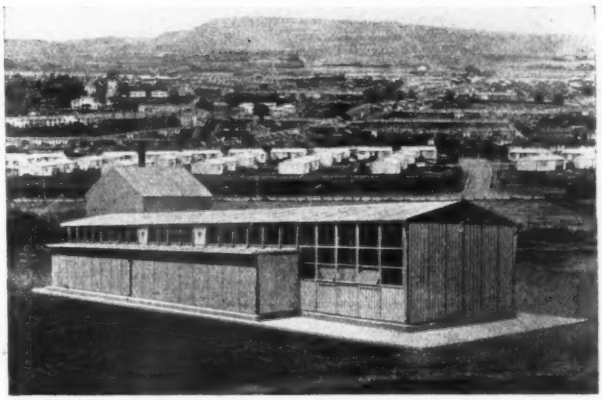
steel frames, the Hertfordshire architects are developing other steel, concrete and timber frames, including a version in hardwood framing and plywood, with Ove Arup and Partners as consulting engineers, (see Fig. 13). Although it is intended as an alternative and is on the same 40-in. module, the parts are not yet interchangeable with those of the steel-aluminium-plastic version, thought it is hoped to achieve this later. At present there are wooden posts off the grid-line and a deep roof slab of plywood "punts." The panels (3 in. external; 2 in. internal) are a sandwich of hardboard or plywood faces over a softboard honeycomb core, with a solid timber frame and a brilliantly simple joint. These panels are already in production and the firm that makes them (Firm C) plans to generalize the system for house construction on the 40-in. module.

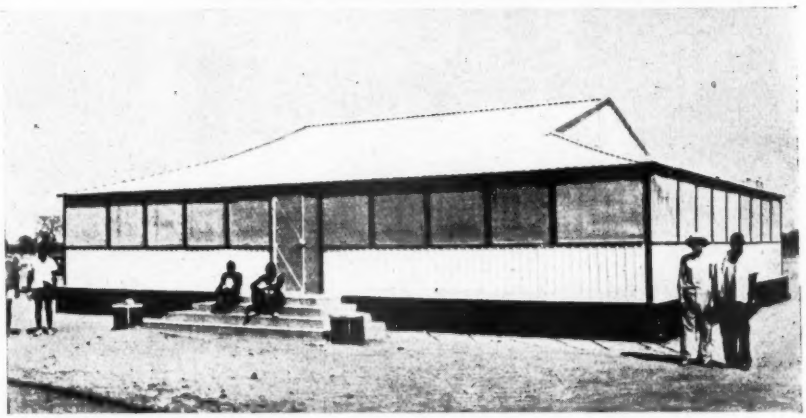
MOE DEVELOPMENT WORK

The development work at the MOE, under S. A. W. Johnson-Marshall, chief architect, consists in user research in conjunction with educationists, technical development of a number of modular systems with different manufacturers and contractors, (among these is Firm G, with a well established system on a 4 ft. module, see Fig. 18) and the building of actual schools for local education authorities as the "first off" in each particular system. The decision, taken on grounds of cost and educational convenience, to raise the main classroom block to three or four storeys increased the technical difficulties, at the same time as broadening the relevance of the experiments to the needs of the building industry in general.

Mr. Johnson-Marshall said that their's was an empirical approach to modular theory; the first job was to get a flexible closed system from each manufacturer working with the Ministry; later, it was hoped, they will come to terms with each other upon interchangeability of parts between the systems. Their method of cost analysis was related to the modular system and was therefore readily available at the design stage of components.



Right, Fig. 18, a prefabricated aluminium pit-head bath building, by Firm G, which was dismantled, removed to, and re-erected at another site 50 miles away. Module: 4 ft.; roof units span 24ft.

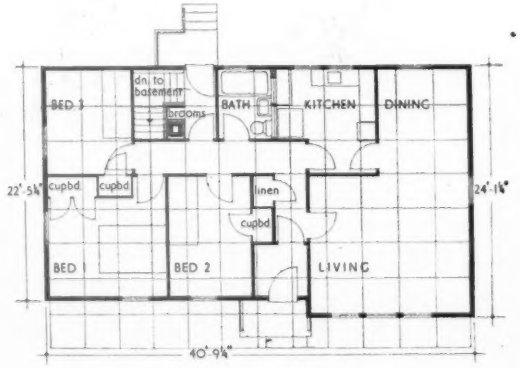


Above, Fig. 17. "Alframe" transportable bungalow, (Firm E) designed for tropical climates—an example of "job Standardization." Construction: aluminium framing, cladding and roofing; glass-silk insulation.

At the Wokingham School (see JOURNAL for Oct. 16, Dec. 4, and subsequent articles in J. Stillman and J. Eastwick-Field series) considerable care has been devoted to the vertical module, which is based upon the 2-ft. high external slab. A full 2 ft. has been allowed for the constructional depth of floors and roofs. This is a telling example of the importance and economy of standardizing upon a generous size, instead of raising a host of problems by cheeseparing. (See Fig.14).

David Medd (one of the MOE architects) said that the way forward seemed to lie in modular design on the 40-in. grid, tempered by job standardization, though each job would contribute something to the general pool of ideas and of units available generally. He was anxious that many other authorities and private firms should undertake development work so as to broaden experience and increase the vocabulary.

F. W. L. HEATHCOTE (of Firm D, one of the manufacturers working with the MOE): *As a manufacturer, the modular idea holds out considerable promise to me. It is already helping me to launch a new type of steelwork, cold rolled sections, as it introduces sufficient standardization to make factory production practicable, avoiding the lack of continuity in the*



Figs. 19 and 20, Riley-Newsum House (Firm F) as exported to Canada. Designed on a 40-in. module, but not a centre-line module. Most panels, 3 ft 4 in. wide; some, 3 ft 0⅞ in. wide. Faced with vertical weatherboarding, an additional weatherboard where necessary solves the "thickness" problem.

traditional practices of structural steel contractors generally. In the last 10 *years I have been developing structural steel for schools and other buildings, but have found so many alternatives that it is difficult to get on to a production basis. Modular planning may provide the solution. While we are very willing to work intensively on one system and I think it well worth while, I hope it will not be too far ahead when it is possible to supply interchangeable elements for general building. No specialist manufacturer can study the building as a whole and I feel the need for some centrally placed authority to co-ordinate development between the different systems.*

The diagrammatic plan for the Brockhouse system is interesting to compare with that for Wokingham. Stanchions are kept to the grid-intersections, except at re-entrant angles where they are doubled, and they are lost in the thickness of partitions and external walls, which follow the grid lines, with additional thickness to the outer walls. This avoids awkward junctions, horizontally and vertically, between partitions and external walls in the same line, which occur at Wokingham.

K. W. BLAND (architect of the "Wates" house): *We began development in* 1944 *on a* 12*-in. modular system, but found that the adaptability afforded by modular planning was unnecessary for coping with two or three standard plans and, as we were concerned chiefly with concrete external units, it was cheaper to relate these to standard windows and to let the internal dimensions take care of themselves.* (Figs. 15 and 16.)

This is typical of experience in house production within closed systems in face of the diversity of existing British Standards. It says nothing against the substantial savings that a universally adopted modular system might provide. Indeed, Mr. Bland has said that he would be very glad to use modular components if they became generally available.

A. F. HARE (consultant architect to Firm E; he has been concerned with a number of export houses designed for different parts of the world): *Our firm's designs are invariably prepared on a modular basis, because this is economical of drawing office time. The module is frequently one of* 4 *ft. for economy of the wallboard lining; frequently, too, when the tender has been accepted, production is detailed on a basis of job-standardization, departing from the module where this is advantageous. Our prototype transportable bungalow is designed on this basis and variations on the same theme are designed in response to particular demands. A scheme for houses in India was designed on a* 3*-ft.* 2*-in. module for adaptability to half a dozen different arrangements of plan. The walls and partitions were of load-bearing cellular concrete panels with aluminium frames, located on the grid lines, with a very simple joint.*

JAMES RILEY (director of Firm F, a firm that has, since the end of 1949, built up a very substantial export business in the face of strong and established competition from overseas, particularly from Scandinavia): *To sell British houses in Canada under the noses of American competitors demands a very sound basis in design to provide a more attractive product. That basis is the* 40*-in. module. By means of a modular system that standardizes components without standardizing the structures made from them, we are able to reproduce closely the basic plans submitted by potential purchasing authorities and even to achieve economy in overall areas and minimum sizes of individual rooms. Such close planning is not afforded simply by working to a module; it has to be the right one—*40 *in. A* 4*-ft. module might waste space in passages; a* 3*-ft. one might pinch too tightly and demand the doubling of it to* 6 *ft. in places where* 3 *ft.* 4 *in. is sufficient.*

The grid-lines of this firm's single-storey house (see Figs. 19 and 20) lie on the internal face of outside walls and on whichever face of the partitions is convenient. It is not, therefore, a centre-line module. The panels are of timber and take the load without framework. Panel-widths are generally 3 ft. 4 in., with a make-up panel of 3 ft. $0\frac{7}{8}$ in. Ceiling and floor panels carry straight through over and under the partitions. The thickness-problem is easily mastered in this material; for example, a make-up piece in the external wall is added unnoticeably as an additional vertical weatherboard. An instance of the effect of modular planning in bringing manufactured materials into phase with it was mentioned by Mr. Riley: plasterboard is now available 40 in. wide, less $\frac{1}{8}$-in. tolerance. There are several other examples in th schools programme.

Like Mr. Johnson-Marshall **(says Mr. Riley)** *I attach great importance to the speed afforded by modular planning. This obtains right from the drawing board, through all stages of production, to the setting out and erection on the site. This is appreciated by* realtors *in North America. Speed is money; development of land is sometimes accelerated twofold. We could similarly speed up the turnover of capital in the building industry at home.*
I looked forward to the achievement of interchangeability of parts between the different systems now current; even the small housebuilder who lays down his plans on a modular grid should be able to shop around for ready-made parts that suit his business and combine them with brickwork and other in situ *methods to the best economy. To achieve this we need a clear lead from a central authority.*

Might I make an appeal to the Minister of Housing to give such a lead? It could take a permissive rather than a mandatory form, by an announcement that areas of houses may be calculated in so many square modules as an alternative to a total rendered in sq. ft. This would at once give a sense of direction to development. The area of a house of 900 sq. ft. might be expressed as 104 square modules of 3 ft., or as 84 square modules of 3 ft. 4 in., giving an advantage of some 35 additional sq. ft. to the two alternative modular versions. Standardized building, like ready-made clothes, must be allowed to fit a little loosely; we have for too long been trying to get tailor-made architecture off the hook.

Announcements

The British Aluminium Co. Ltd., announces the opening of a Southampton branch office, to handle sales of unwrought and fabricated aluminium and aluminium alloy in Sussex and Hampshire. W. H. Marston has been appointed area representative, and the address of the new branch is 20, Brunswick Place, Southampton. (Tel.: Southampton 76780.)

THE INDUSTRY

From the Industry this week, Brian Grant reports on the use of a tower crane for house-building in Norwich (see photo on page 730) and the installation of an interesting vertical rising main wiring system.

QUICKER HOUSE-BUILDING

For some time the staff of BRS has been investigating the possibility of speeding up house building by the use of rail-mounted tower cranes, which can pick up materials and deposit them on the scaffolding exactly where they are needed. Readers will perhaps remember the display at last year's Building Exhibition, where the procedure at a typical site was analysed and a programme worked out for keeping the crane fully employed.

Since then, further site experiments have been carried out. Norwich City Council was persuaded to co-operate by their City Engineer, H. C. Rowley, and a pilot trial was arranged in which 14 house-shells were built in nine weeks to a programme prepared by BRS. The main object of this pilot run was to see whether a major piece of mechanical equipment could be used with a carefully timed progress schedule, but it was also necessary to try out the various types of crane equipment, such as skips, slings, stillages and other units for handling bricks, mortar, lintels, etc. It was also essential to find out whether the operatives were prepared to give a method such as this a fair trial. As a result of this pilot scheme some of the handling equipment was re-designed, and a further scheme for 32 houses is now about half completed, on the North Park Avenue Estate, Norwich.

On the new site the houses are in two terraces of twelve each, and two of four, set out approximately in a rectangle with the crane working round a track on the inside. This involved two 90-degree turns, which were negotiated with turntables, and a further turn of 120 degrees in the track, but the turntables did not disturb the working plan. The crane used, incidentally, is an imported German type which was for some time in use experimentally at the Thatched Barn, and which has been hired to the Norwich Corporation by MOW.

Even a brief visit to the site shows that a lot of thought has been put into the design of the crane's ancillary equipment, and also into the methods of using it. In particular, there is an interesting skip, used for concrete or mortar, which rolls over and lies flat so that it can be filled from a standard concrete mixer working at normal level, not packed up to give the extra height so often necessary with concrete hoppers. During a brief visit I also noticed one or two other interesting details: Mortar, for instance, is provided at scaffold level in 3½-cu. ft. hoppers, filled from the skip mentioned above, and fitted with a shifting board so that the bricklayer can control the amount he has ready for immediate use. The chimney stacks, too, were being built at ground level in sections, each starting with a timber jig tray for setting out the first course and fixing the position of the flue, the stacks then being lifted into position by the crane in sections about ten courses high.

Not until the scheme is completed will it be possible to tell how great the savings may be. At the moment it has been shown that the man hours for each house to the roofed-in stage have been reduced from about 1,300 to 600, and the city engineer believes that there will be a saving of about £50 per house even allowing for crane hire, depreciation and repairs. It is to be hoped that a thorough analysis of the final cost figures will be published, but in the meantime much credit is due to the Norwich authorities and to Messrs. Pippard and Eden of BRS, who have put a lot of thought into the design of the crane equipment and the site organization.

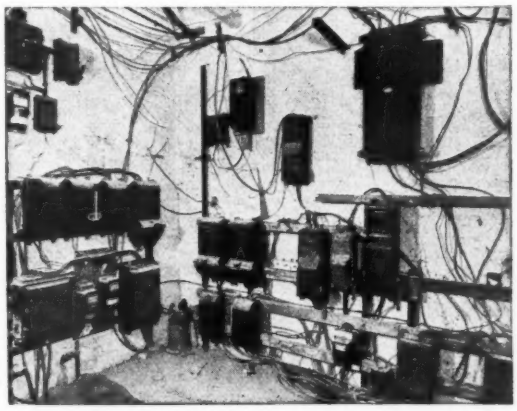
WIRING METHODS

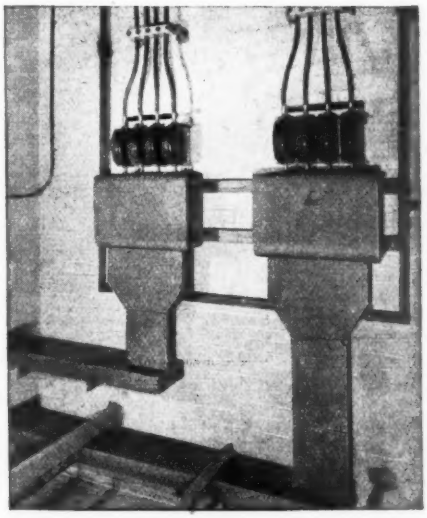
The photograph below shows the state of affairs which can easily be reached when an electrical installation is added to in the course of years. The photograph below it (bottom right) shows what can be done when an owner takes the sensible, but somewhat drastic, step of starting afresh and doing the job properly.

The building concerned is in St. Martins-le-Grand, and was originally served by a D.C. 3-wire 400-V. main. It had three separate single-phase supplies, as well as an independent 3-phase supply, and armoured cables existed all over the building in perplexing numbers. Until 1949 the building consisted mainly of private offices but it was found that extensions would have to be made to the installation, since much of the office accommodation was to be taken over by the Post Office for use as a teleprinter training establishment. It was realized that if further armoured cable runs were added to those already in existence, it would be impossible to maintain a trouble-free service, especially during winter months. Furthermore, as the teleprinter training establishment would be subject to future development, it had to be possible for the floor-to-floor distribution of the load to be constantly varied. With an extension to the original installation system this would make for a further mass of switchgear and traversing cables. It was decided, therefore, that a flexible method of distribution, eliminating the necessity to run separate lighting cables, would be most economical and efficient.

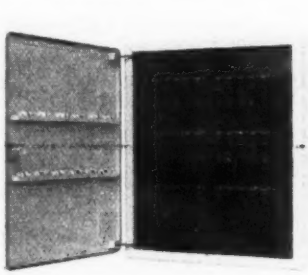
A totally enclosed vertical rising main system has now been installed. The rising main consists of vertical copper bars mounted in porcelain insulators, steel encased throughout the entire length of run. The copper conductors are of sufficient size to carry 300-amp. per phase and, as this capacity is available throughout the entire riser, a considerable degree of flexibility is provided. This enables individual loadings to be changed from floor to floor as and when required within a comparatively short period of time, without causing any serious inconvenience to consumers. Another important feature of the system is that the riser can be installed in stages to coincide with the erection progress of the building, so that tenants occupying the lower floors can be supplied with power before the building is completed. In this installation the initial risers were completed up to the fifth floor, and at a later date were lengthened as the 6th floor was completed, to provide the necessary power for the newly installed lifts.

With any rising main it is essential that some safety provision be made in the rising duct to prevent the spread of fire between the floors of a building. This has been achieved with fire-resisting barriers, manufactured from "Silumnite," at each floor





Right, part of electrical installation in office building in St. Martins-le-Grand. Bottom right, part of installation in same building after re-wiring on the vertical rising main system. Below, one of the new range of "Superform" fuseboards (English Electric Co., Ltd.), *made in all sizes up to 12 ways, for loadings up to 60 amps. and for all wiring systems up to 3-phase and neutral. Spare H.R.C. cartridge fuses are carried on shelf inside door. Flush or surface mounting. The opening handle can if desired be fitted with cylinder lock. The fuseboard shown is a 15-amp. double-pole model.*



level through which the riser passes.

Although at first the contractors, hitherto accustomed to the use of conduit or cable trunking, thought the installation of the rising main, in view of its greater size and weight, a forbidding prospect, in practice they found it easily manœuvrable and very adaptable. The rising main also appeared expensive in comparison with conduit and cable trunking systems, but it was found that this factor was so far compensated by reduced labour costs that the final result showed a saving over alternative systems. In fact, there was an estimated saving in time, and consequent cost, of from half to two-thirds of that which would have been required for a cable installation. *(The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.)*

Buildings Illustrated

"The Highway," County Primary School, Orpington, Kent, for the Kent Education Committee. (Pages 732-733.) Architect: Oliver E. Steer, A.R.I.B.A., A.M.T.P.I., in collaboration with S. H. Loweth, F.S.A., F.R.I.B.A., County Architect. Consultants: Electrical and mechanical services, J. Stinton Jones & Partners; structure, Malcolm Glover & Partners. Quantity surveyors: E. C. Harris & Partners. General Contractor: Gilbert-Ash Ltd. Sub-contractors: Aluminium classrooms, Bristol Aeroplane Co. Ltd.; steelwork, Smith Walker Ltd.; copper roof, Broderick Insulated Structures Ltd.; asphalting, Kent Asphalte Co.; windows, Crittall Manufacturing Co. Ltd.; heating, Hopes Heating & Engineering Ltd.; lighting, Phoenix Electrical Co. Ltd.; tiling (walls and floor), Summers & Co.; thermo-plastic tiles, Armstrong Cork Co. Ltd.; oak parquet, On-Site Flooring Co.; sanitary goods, Roberts Adlard & Co. Ltd.; cloakroom fittings and ironmongery, Comyn Ching & Co. (London) Ltd.; fencing and balustrading, S. W. Farmer & Son Ltd., T. Bibby & Co., J. Salway & Sons Ltd., Penfold Fencing & Engineering Ltd.; decorative "butterfly" in vitreous enamel, Thomas & Vines Ltd.; bricks, Thos. Pascall & Sons Ltd.

Flats, at Sish Lane, Stevenage, Hertfordshire. (Pages 734-740.) Architects: F. R. S. Yorke, E. Rosenberg and C. S. Mardall, F./F./A.R.I.B.A. Associate architect: J. R. B. S Penoyre. Chief assistant. D. R. Hickman, A.R.I.B.A. Structural engineer: Ove Arup & Partners. Heating engineer: Oscar Faber & Partners. Sanitary engineer: Daniel Longden. Quantity surveyor: Davis, Belfield & Everest. General contractors: Gilbert-Ash Ltd. Sub-contractors and suppliers: cupboard and kitchen fittings, Austins of East Ham Ltd.; glazing, Aygee Ltd.; false ceilings, Bracketing, Centering & Lathing Ltd.; joinery, P. H. Barker & Son; felt tanking, William Briggs & Sons; linoleum cills, Cellulin Flooring Co.; reinforced concrete chimney, Chimneys Ltd.; access balconies, balustrading, etc., Clark, Hunt & Co.; painting, C. & T. Painters Ltd.; gas services and installations, Eastern Gas Board; lifts, Express Lift Co.; heating and hot water supply, Matthew Hall & Co.; rolling shutters, Haskins Roller Shutters; letters and numerals, The Lettering Centre; scaffolding, Mills Scaffold Co.; quarry tile paving and wall tilings, Parkinsons (Wall Tiling) Ltd.; plastering and paving, Pollock Bros. (London) Ltd.; felt roofing, Permanite Ltd.; pitchmastic flooring, Ragusa Asphalte Paving Co.; macadam paving, Tarpaving & Tarmacadam Ltd.; glazed wall tiling, A. J. Tatham Ltd.; electrical installation, Troughton & Young Ltd.; thermo-plastic flooring, V. G. (London) Ltd.; metal windows and aluminium cills, Williams & Williams Ltd.; plumbing, J. S. Wright & Co.; permanent shuttering, Atlas Stone Co.; insulation to floors, Fibreglass Ltd.; metal door trims, Henry Hope & Sons; paint Imperial Chemical Industries Ltd.; concrete floor tiles, Langley London Ltd.; bricks, E. H. Smith (London) Ltd. (flettons), London Brick Co., London & Sussex Merchants Ltd. (facing); patent flue blocks, Marley Tile Co.; moler bricks, Moler Products Ltd.; terrazzo cills, Mosaic & Terrazzo (Staines) Ltd.; internal doors, H. Newsum & Sons; ironmongery, Rennis Ltd.; refuse containers, Shelvoke & Drewry Ltd.; sanitary fittings, Stitsons Sanitary Fittings Ltd.; main balcony railings, H. Teale & Sons; external landings, John Thompson Beacon Windows Ltd.; waterproof paint, Tretol Ltd.; ducting, Trollope & Colls Ltd.; precast concrete, Wettern Bros.

Modular Co-ordination. (Pages 739-746.) Firms whose products are mentioned: Firm A, Uni-Seco Ltd.; Firm B, Orlit Ltd.; Firm C, C.D. Productions Limited; Firm D, John Brockhouse & Co.; Firm E, Structural & Mechanical Development Engineers; Firm F, H. Newsum Sons & Co. Ltd; Firm G, The Bristol Aeroplane Co. Ltd. (contractors for the job illustrated, Gilbert Ash Ltd.). The "Wates" house is manufactured by Wates Ltd. The general contractors for the school at Oxhey were Gee, Walker & Slater (subcontractors, JOURNAL for Nov. 23, 1950, p. 438); for the school at Boreham Wood, The Hale Construction Co. (subcontractors, Aug. 7, 1952, p. 180); for the Wokingham School, Gilbert Ash Ltd.

Correction

In our issue for November 27, we published photographs bearing the caption "An administrative centre for Ibadan University College, Nigeria, is under construction to the design of Fry, Drew and Partners." The architects have asked us to point out that they have designed all the University buildings, not just the "administrative centre," and that the building we described as a gymnasium is, in fact, a dining hall.

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.

BRACKNELL DEVELOPMENT CORPORATION (BRACKNELL, BUCKS).

Applications are invited for the following appointments:—

1. SENIOR ARCHITECT. Salary: £985-£1,050-£1,100.
2. ARCHITECT. Salary: £835×£50—£985.
3. ARCHITECT. Salary: £635×£40—£835.
4. JUNIOR ASSISTANT ARCHITECT. Salary: £505×£20—£605.
5. TWO QUANTITY SURVEYORS. Salary: £635×£40—£835.
6. THREE JUNIOR ASSISTANT QUANTITY SURVEYORS. Salary: £505×£20—£605.
7. DRAUGHTSMAN. Salary: £310-£460.

Posts 1, 2 and 3:

Applicants should be Corporate Members of the R.I.B.A., with, for Post 1, considerable experience in the design and supervision of large housing contracts, and for Posts 2 and 3 good general experience, preferably in commercial and industrial building.

Post 4:

Applicants should be at least Students R.I.B.A. and have good general experience.

Post 5:

Applicants should be Corporate Members of the R.I.C.S. and experienced in taking off for various types of building contracts.

Post 6:

Applicants should have passed the Intermediate Examination of the R.I.C.S., and must be experienced in abstracting and billing for all classes of buildings.

The posts will be superannuable under the Local Government Superannuation Act, 1937, and the successful candidates will be required to pass a medical examination.

The Corporation cannot at present offer housing accommodation, but in approved cases subsistence allowance may be paid to married men until accommodation has been obtained locally, for a maximum period of six months.

Candidates are required to state if they are, to their knowledge, related to any member of the Corporation or staff.

Successful applicants will work under the direction of E. A. Ferriby, B.Arch. A.R.I.B.A., A.M.T.P.I., Chief Architect to the Corporation.

Applications, giving full particulars of the candidate's age, qualifications and experience, together with the names of three persons to whom reference can be made, must reach the General Manager, Bracknell Development Corporation, Farley Hall, Binfield, Bracknell, Berks., on or before 23rd December, 1952, in envelopes suitably endorsed to indicate the post to which the application refers. 7834

COUNTY BOROUGH OF SWANSEA.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the post of SENIOR ARCHITECTURAL ASSISTANT (Grade A.P.T., VII). Salary: £710 to £785 per annum.

Applicants must be Associates of the Royal Institute of British Architects. Considerable experience in the design and construction of new school buildings is essential, together with the organisation and supervision of new building contracts.

Candidates must be under 45 years of age, unless in Local Government Service. The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

The appointment may be terminated by one month's notice on either side.

Forms of application may be obtained from the Borough Architect, Mr. H. T. Wykes, F.R.I.B.A., The Guildhall, Swansea, and are to be returned, accompanied by three recent testimonials, to the undersigned, not later than 3rd January 1953.

Canvassing, directly or indirectly, will disqualify.

T. B. BOWEN,
Town Clerk.

The Guildhall, Swansea. 7850

SOUTHAMPTON COUNTY BOROUGH COUNCIL.

Appointment of ASSISTANT PLANNING OFFICER, Grade V (£595-£645 p.a.); PLANNING ASSISTANT, Grade I (£465-£510 p.a.); ASSISTANT QUANTITY SURVEYOR, Grade II (£495-£540 p.a.). Application forms from Borough Architect, Civic Centre, Southampton, to be returned by 31st December, 1952. 7879

RURAL DISTRICT COUNCIL OF ELY.
ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Engineer and Surveyor's Department, at a salary within the National Joint Council Scheme, A.P.T., Grades IV (£555-£600), or V (£595-£645), according to qualifications and experience.

General architectural and housing experience and a sound knowledge of building construction is required, and candidates should have passed the Intermediate examination of the R.I.B.A. or its equivalent.

The post is superannuable, and housing accommodation will, if required, be made available as soon as practicable.

Applications, endorsed "Architectural Assistant," stating age and experience, together with the names and addresses of two referees, must reach the undersigned not later than 29th December, 1952.

C. WICKENS,
Clerk of the Council.

Rural Council Offices, Ely, Cambs. 7844

Applications are invited by the HARLOW DEVELOPMENT CORPORATION for the following positions:—

(*a*) ARCHITECT. Salary: £837 10s. × £52 10s. to £1,100 per annum. Candidates should have had considerable experience in construction of factories, supervision of works, and control of staff.

(*b*) ASSISTANT ARCHITECT. Salary: £725×£25 to £825 per annum. Candidates should have had experience in preparation of working drawings and details for factory buildings.

(*c*) ASSISTANT ARCHITECTS (THREE). Salary: £625×£25 to £725 per annum. Candidates should have had experience either in the preparation of working drawings and details for housing works, including flats and Municipal buildings or in the preparation of development plans and general planning work. Town Planning qualifications are required for the latter post.

(*d*) JUNIOR ASSISTANT ARCHITECTS (FOUR). Salary: £525×£52 to £625 per annum. Candidates should have had experience in the preparation of working drawings and details for factory buildings or housing works, including flats and Municipal buildings or in general planning work. For the latter appointment applicants should be studying for a Town Planning qualification.

Candidates for appointments (*a*), (*b*) and (*c*) should be A.R.I.B.A. or equivalent, and for appointment (*d*) should have passed the Intermediate Examination of the A.R.I.B.A. or equivalent and be working for the Final Examination. Superannuation. Housing. Detailed applications to General Manager, at Terlings, Gilston, Harlow, Essex, by 31st December, 1952, in envelope endorsed with the position for which candidate is applying. 7873

SURREY COUNTY COUNCIL EDUCATION COMMITTEE
EWELL TECHNICAL COLLEGE.

Applications are invited for the post of HEAD OF THE BUILDING DEPARTMENT of this new Technical College to be opened in September, 1953.

Applicants should have graduate or equivalent qualifications, together with suitable teaching, industrial and/or research experience.

Salary in accordance with Burnham Scale for Grade III Dept.:—

Men, £1,190×£25—£1,340.

The successful applicant will be expected to take up the appointment in April, 1953.

Application form and conditions of appointment from the Chief Education Officer, County Hall, Kingston-upon-Thames, on receipt of stamped addressed envelope. 7872

THE LONDON HOSPITAL Whitechapel, E.1, requires JUNIOR ARCHITECTURAL ASSISTANT. Salary: £415×£15—£505 p.a., plus London weighting. Apply, giving age, present salary, and particulars of experience to the surveyor. 7881

CITY OF MANCHESTER EDUCATION COMMITTEE.
REGIONAL COLLEGE OF ART, MANCHESTER.
APPOINTMENT OF PRINCIPAL.

Applications are invited from persons with high qualifications in art for the post of Principal, which will become vacant in September, 1953. Candidates should have had wide experience in art education, and should be able to relate their knowledge to the needs of industry.

Salary in accordance with the provisions of the Burnham Further Education Report, 1951, at present £1,440×£40—£1,640.

Application forms and further particulars may be obtained (stamped, addressed foolscap envelope) from the Chief Education Officer, Education Offices, Deansgate, Manchester, 3, to whom completed applications should be returned by 10th January, 1953. 7884

FIFE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for appointment as ARCHITECTURAL DRAUGHTSMAN. Salary scale: £480, rising by £20 to £500 per annum. Candidates must have had experience in an Architectural drawing office, and be quick and accurate draughtsmen. Applications, stating age, experience, etc., and enclosing copies of recent testimonials, to be lodged with the undersigned not later than 27th December, 1952.

J. M. MITCHELL,
County Clerk.

County Buildings, Cupar-Fife.
2nd December, 1952. 7863

COUNTY BOROUGH OF BLACKPOOL.

Applications are invited for the following established posts in the Borough Surveyor's Department:—

SENIOR ARCHITECTURAL ASSISTANT. Grade A.P.T., VII-VIII, £710,£835.

CHIEF BUILDING INSPECTOR. Grade A.P.T., VI-VII, £670-£785.

TECHNICAL ASSISTANT (QUANTITY SURVEYOR). Grade A.P.T., II-III, £495-£570.

The grade and starting salary will be in accordance with the candidate's experience and qualifications.

Form of application and further particulars obtainable from the Borough Surveyor (Arthur Hamilton, B.Sc.), Municipal Buildings, Blackpool.

The closing date for the receipt of applications is Saturday, 3rd January, 1953.

The Council are unable to assist the successful candidates in the provision of housing accommodation.

TREVOR T. JONES,
Town Clerk.

7862

CITY ARCHITECT'S DEPARTMENT, MANCHESTER.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT. Salary: A.P.T., Grade III, £525 to £570 per annum.

Candidates should have passed the Intermediate Examination of the R.I.B.A. or its equivalent.

Further particulars and form of application may be obtained from the City Architect, Town Hall, Manchester, 2. The form to be returned to the same address by 3rd January, 1953. Canvassing is prohibited. 7878

LINDSEY COUNTY COUNCIL.
PLANNING DEPARTMENT.

SENIOR PLANNING ASSISTANT wanted, on Grade A.P.T., VII (commencing £710×£25—£785). Duties mainly in connection with additions to the county development plan. A.M.T.P.I. essential and other qualifications an advantage. Applicants must have had substantial experience in the making and written analysis of surveys and preparation of Town Maps, and be willing to provide and maintain car, for which N.J.C. allowance payable. Subsistence allowance as "travelling" officer. Special allowance of 25s. per week and return fare home bi-monthly may be paid for up to six months to married man until able to find house.

Applications, stating age, qualifications and previous experience, together with names and addresses of two referees, must be forwarded to R. L. Stirling, County Planning Officer, The Castle, Lincoln, not later than 29th December, 1952.

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

H. COPLAND,
Clerk of the County Council.

County Offices, Newland, Lincoln.
6th December, 1952. 7865

BOROUGH OF LOWESTOFT.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR ARCHITECTURAL ASSISTANT on the permanent staff of the Borough Engineer and Surveyor, in accordance with Grade IV of the Administrative Professional and Technical Division of the National Scale, commencing at £565-£600 per annum.

Applicants should possess a recognised technical qualification, and should have had considerable local government or other experience.

Applications, in plain sealed envelopes, suitably endorsed, stating present and past appointments, age and qualifications and details of experience, together with copies of two recent testimonials, should reach the undersigned not later than Monday, 29th December, 1952.

Candidates for the appointment shall, when making application, disclose whether they are related to any member of, or the holder of any senior office under the Council.

Canvassing in any form will disqualify.

F. B. NUNNEY,
Town Clerk.

Town Hall, Lowestoft.
4th December, 1952. 7864

CITY OF ST. ALBANS.
ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant in the Department of the City Engineer and Surveyor, at a salary in accordance with Grade A.P.T., II (£495×£15—£540 per annum).

Applicants must be suitably trained, good draughtsmen, and have had experience in the design and layout of Housing Contracts.

Consideration will be given to the provision of housing accommodation.

The appointment, which is terminable by one month's notice, and is for a period of not less than two years, will be subject to the National Scheme of Conditions of Service, the Local Government Superannuation Act, 1937, and medical examination.

Applications, stating age, qualifications, present and past positions and experience, together with names of two persons to whom reference can be made, should be sent to the undersigned, to arrive not later than Monday, 29th December, 1952.

W. B. MURGATROYD,
Town Clerk.

38, St. Peter's Street, St. Albans. 7867

Tenders for Contracts

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

Tenders are invited for the purchase of the following PLAN PRINTING equipment, which owing to reorganisation will become available for disposal towards the end of January, 1953:—1 Mason's double feed 40 in. Arclight Continuous Photo Copying Machine, 2 extra 10 amp. lamps complete—single phase, a.c.; 1 Mason's double feed 40 in. Arclight Continuous Photo Machine and certain sundries.

The apparatus may be inspected during normal office hours, and tender forms obtained on application to the County Supplies Officer, County Supplies Department, Sandling Road, Maidstone, Kent. 7871

METROPOLITAN BOROUGH OF PADDINGTON.

ERECTION OF MULTI-STOREY FLATS—JOHN AIRD COURT (STAGE II), FULHAM PLACE, W.2.

Applications (to be received by the undersigned on or before 31st December, 1952) are invited from Builders and Contractors who wish to be considered by the Borough Council for inclusion in the list of those to be invited to submit a tender for the above works.

The contract embraces the cladding and completion of four eight-storey blocks, the erection and completion of one five-storey and two four-storey blocks of flats. The scheme is virtually a repeat of Stage I already erected.

The seven blocks comprise 113 flats of various types. The contract will include the completion of the four eight-storey blocks, for which piled foundations have been completed, and for which a structural steel framework will have been erected. The three other blocks are of brick load-bearing wall construction, the foundations for which will be of the raft type, and included in this contract. Site works and levelling site roads and paths, drains, retaining walls and other external services will be included in the proposed contract. The area of the site is approximately 2¼ acres.

The Council require to be satisfied that Contractors wishing to tender have had previous experience of substantial works of this nature.

Applicants are required to submit particulars of similar works which they have executed, and of the local authorities and/or architects under whose supervision they have carried them out, with details of the nature and scope of the contract in each case and the date it was completed.

Bills of Quantities will be available in January, 1953, and applicants should state what permanent site staff and labour force they anticipate will be available for this work should they be appointed as Contractors.

Contractors included in the list of those invited to submit tenders will be required to make a payment of a deposit of £5 5s., on receipt of which the Bills of Quantities will be sent to them. This deposit will be refunded on receipt of a *bona fide* tender. Instructions with regard to tenders, including the date on which they are to be returned to the Council, will be notified when the documents are issued to those Contractors invited to tender.

The Council do not bind themselves to accept the lowest or any tender.

W. H. BENTLEY,
Town Clerk.

Town Hall, Paddington, W.2.
28th November, 1952. 7818

Architectural Appointments Vacant

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

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

REQUIRED new year for live private medium sized contemporary Midland office, ASSISTANT ARCHITECT, abounding with initiative, to work without supervision. Neat, quick draughtsman, with minimum 4 years' office experience. Salary £500-£750, according to ability. State age, qualifications, experience, salary expected. Box 7848.

ARCHITECTURAL ASSISTANT, Intermediate standard, required. Write, stating age, experience and salary required, to Kitching & Co., A./L.R.I.B.A., 21, Albert Road, Middlesbrough. 7840

CAPABLE ASSISTANT and JUNIOR required for school-work. Good draughtsmen essential. Apply in writing, stating age, experience and salary required. E. B. Musman & Partners, 12, Upper Berkeley Street, W.1. 7861

ARCHITECT, young, qualified, 2 to 3 years' practical experience, required in London head office of large mineral water company. Apply, stating age, experience, salary, to Box 7874.

ARCHITECTURAL ASSISTANTS of Intermediate standard required immediately on large contracts involving master planning, site surveys, sketch plans and costing for Airfield construction programmes. Applicants should be adaptable and essentially good draughtsmen. Salary: £250 to £400. Apply, stating full details of experience, to Box 7875.

ARCHITECTURAL ASSISTANT required by firm of Doncaster Architects. Final R.I.B.A. standard, preferably with experience of housing. State age, experience and salary required. Box 7876.

GOLLINS, MELVIN, WARD & PARTNERS require JUNIOR STAFF, with office experience, capable working drawings. Salary: £350/£500 per annum. 5-day week. Telephone: Welbeck 9991. 7877

TO be appointed early 1953, by Ashmore, Benson, Pease & Co., Stockton-on-Tees, ARCHITECTURAL DESIGNER DRAUGHTSMAN (age 25-30), experienced in preparation and layout work for industrial buildings, etc. Apply, stating age, experience, etc., quoting reference "H." 7868

BRIAN PEAKE, F.R.I.B.A., wants experienced JUNIOR ASSISTANT. REGent 4914. 7882

ASSISTANT of Intermediate standard required for general private practice. Must be good draughtsman, with office experience and knowledge of construction. Apply, giving full particulars, to Alleyn & Mansel, Staple Inn Buildings, High Holborn, W.C.1. 7870

LONDON Company, associated with manufacturers of prefabricated timber buildings require services of an ARCHITECT or SENIOR ASSISTANT, with considerable experience of timber construction. Duties will include drawing up of specifications, responsibility for constructional details and discussions with official architects. Knowledge of German an advantage. Send full details, including age, experience and salary required, to Box 7830.

A FURTHER vacancy occurs for ASSISTANT in contemporary practice, with group working. Salary: £450-£600, according to experience. Applicants must be capable of accepting responsibility. S. Morrison, A.R.I.B.A., Derwent House, Full Street, Derby. 7885

Architectural Appointments Wanted

LADY ARCHITECTURAL ASSISTANT, Intermediate standard, 3 years' office experience, requires post, preferably with chance of visiting sites. Car driver. Box 616.

ARCHITECTURAL ASSISTANT (31), 7 years' experience in domestic work, seeks part-time appointment (4 to 4½ days a week) in London. Studying for Final. Box 7785.

A.R.I.B.A. (30) seeks position with private or commercial firm; Newcastle-upon-Tyne area. Part-time assistance also considered. Box 7886.

Other Appointments Vacant

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

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

STRAMIT BOARDS, LTD., are considering the appointment of a person (male or female), with a university degree and/or an architectural or other professional qualification. The duties envisaged are the collation of information on the uses—and abuses—of Stramit, from reports by representatives, letters from architects, etc.; and the preparation of technical literature, summaries and so on as a result of this work. A certain amount of public speaking will also be involved, as it will be necessary to give occasional lectures on behalf of organisations interested in thermal insulation, fire protection, etc.

The successful candidate will have to be prepared to live within reasonable travelling distance of Uxbridge. Apply in own handwriting, giving full particulars and salary required, to Manager, Packet Boat Dock, Cowley Peachey, near Uxbridge, Middx. 7883

DESIGN DRAUGHTSMAN required in January by leading manufacturers of prefabricated timber buildings. London drawing office is concerned with development of projects for home and overseas. Experience in the design and detailing of prefabricated structures is essential, preferably in timber. Write, giving age, education, and full details of career and experience, with present salary, to Box 7804.

Partnerships

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

CONSULTING CIVIL ENGINEER, with good class clientele, experienced in most modern methods of construction, requires Partnership with Architect. Box 7838.

Services Offered

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

DUPLICATING AND TYPEWRITING, Bills of Quantities, Specifications, etc. All grades of Office Staff supplied. Trinity Bureau, 50, Bedford Street, Strand, W.C.2. TEM. 3002. 7606

A.R.I.B.A., with good all round experience, requires part-time or free lance work to help his growing practice. MUSeum 9106. 7205

CHARTERED ARCHITECT (not practising) offers part-time Assistance in Sussex area. Own car/office space if helpful. Box 7836.

TYPEWRITING AND DUPLICATING efficiently and promptly executed, also Translations. Work collected and delivered. Willerson & Partner, 38, Bow Lane, E.C.4. CITy 3940 7821

SURVEYING and Levelling of Building Sites and Measured Drawings undertaken by experienced Surveyor at moderate charges. Box 6583.

SENIOR EXECUTIVE seeks responsible sales and administrative position in progressive company. Extensive personal connections with architects, Government Departments, and local authorities. Excellent references. Box 7880.

For Sale or Wanted

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

RECONDITIONED EX-ARMY HUTS, and manufactured buildings. Timber, Asbestos, Nissen type, Hall type, etc. All sizes and prices. Write, call, or telephone, Universal Supplies (Belvedere), Ltd., Dept. 25, Crabtree Manorway, Belvedere, Kent. Tel.: Erith 2948. 6803

WANTED.—Antiquarian size Plan File, nest of 8 drawers. Box 7866.

PROFESSIONAL AND INSTITUTIONAL OFFICE BUILDINGS, W.1, NOW AVAILABLE FOR SALE. Floor areas from 2/10,000 sq. ft. Dignified buildings, in eminent positions, newly reinstated in excellent decorative and structural conditions, with living accommodation for executives. Principals apply. Box 7869.

Miscellaneous

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

A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment. Harvest Works, 96/107, St. Paul's Road, N.1. Canonbury 2061.

Educational Announcements

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

R.I.C.S., I.A.A.S., and I.Q.S. Exams.—Postal Courses conducted by the Ellis School (Principal: A. R. Waters, M.B.E., G.M., F.R.I.B.A.), 103B, Old Brompton Road, S.W.7. KEN. 4477/8/9. Descriptive Booklet on request. 7020

R.I.B.A. and T.P.I. EXAMS.—Stuart Stanley (Tutor Sch. of Arch., Lon. Univ.) and G. A. Crockett, M.A./B.A., F./A.R.I.B.A., M./A.M.T.P.I. (Prof. Sir Patrick Abercrombie in assn.), prepare Students by correspondence tuition. 10, Adelaide Street, Strand, W.C.2. TEM. 1603/4.

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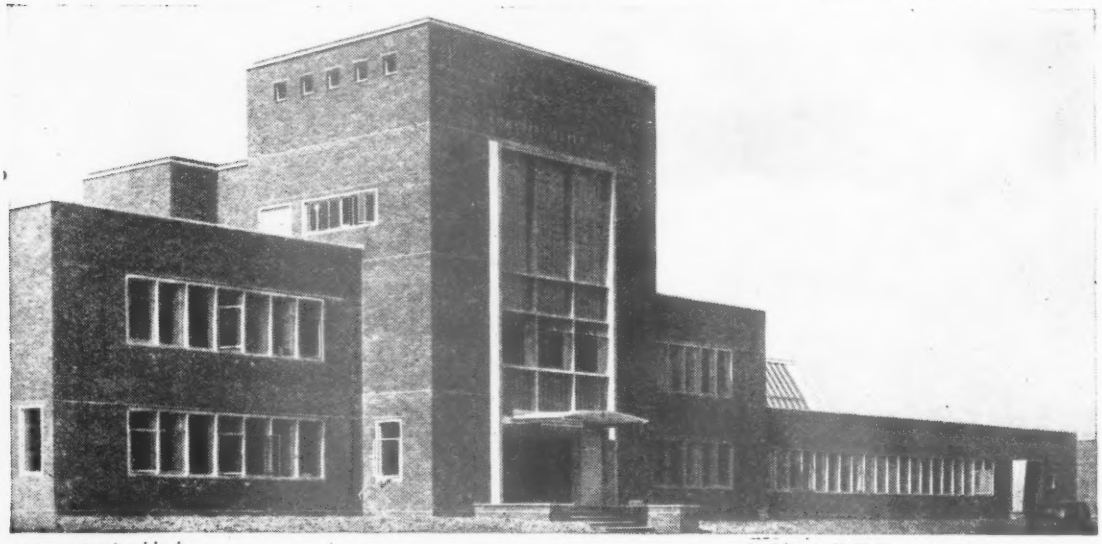

Administration block

Architect: E. F. Peat, A.R.I.B.A.

Roof construction showing precast reinforced concrete trusses, purlins and main beams

Entrance Hall panelled in Australian Walnut

Main staircase of reinforced concrete cantilevered from main frame

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