The Architects' JOURNAL for March 20, 1958

THE ARCHITECTS' JOURNAL

tandard contents

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

:3290] [Vol. 127

E *ARCHITECTURAL PRESS*

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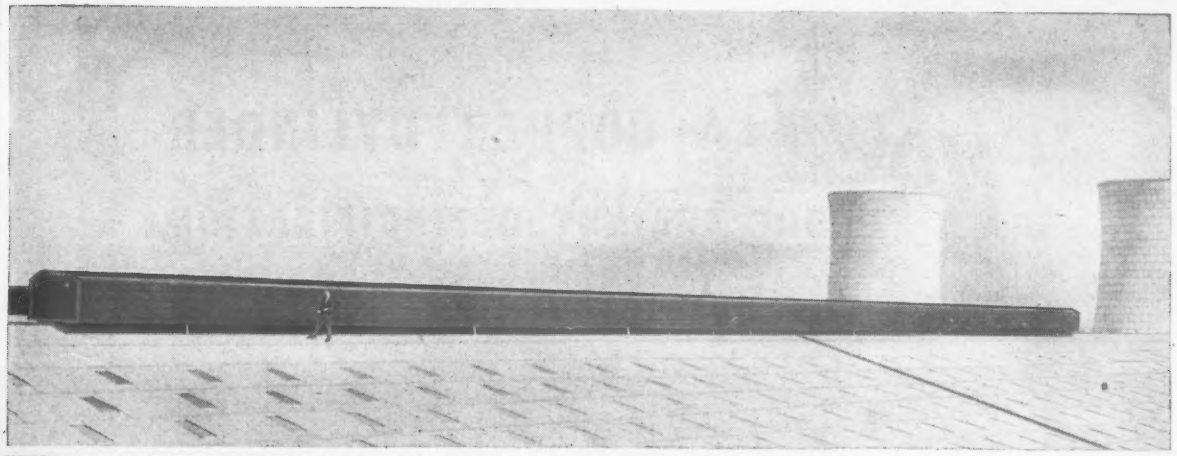
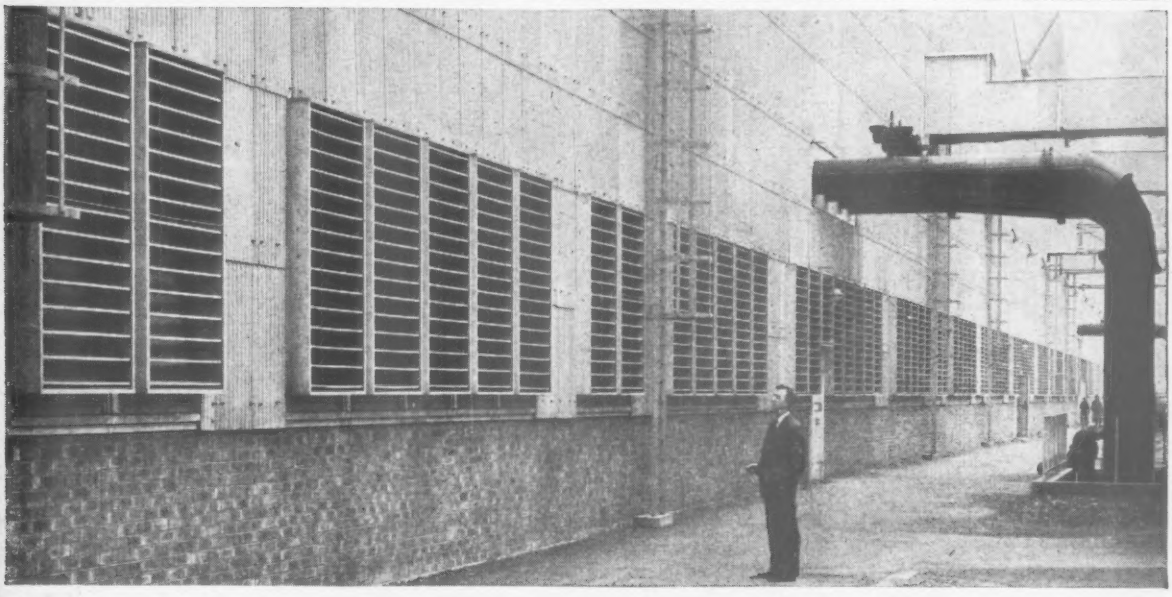
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ig one week, Ih to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1.	Mayfair 7086
ILA	Institute of Landscape Architects, 2, Guilford Place, W.C.1.	Holborn 0281
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7179
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
LDA	Lead Development Association. 18, Adam Street, W.C.2.	Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers, 10, Storey's Gate, S.W.1	Abbey5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1.	Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1.	Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, London, W.C.1.	Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen	
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.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636





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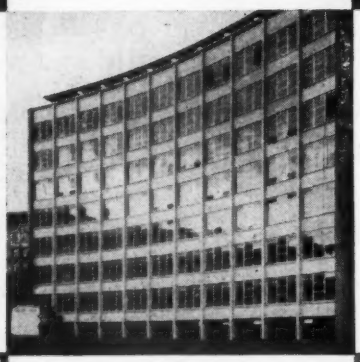

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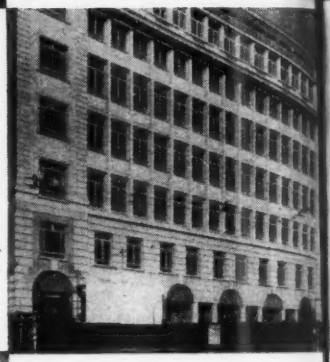

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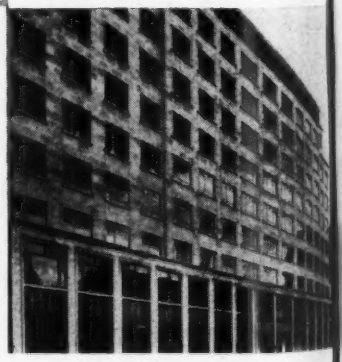

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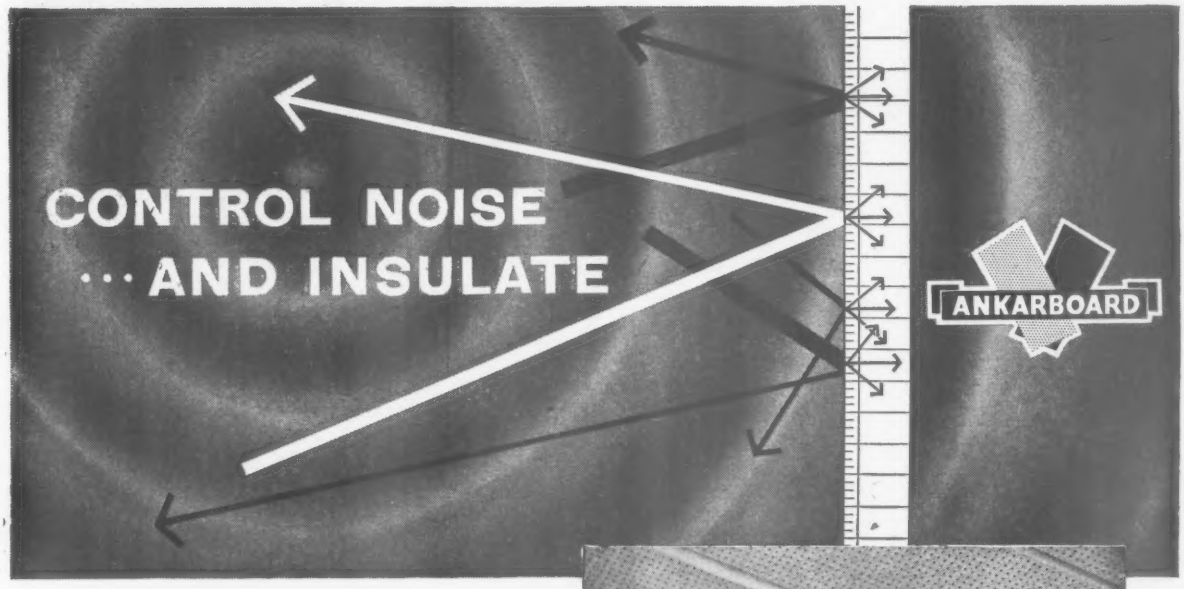

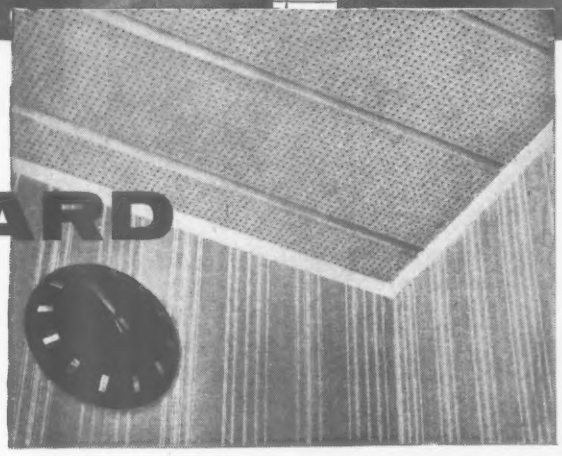

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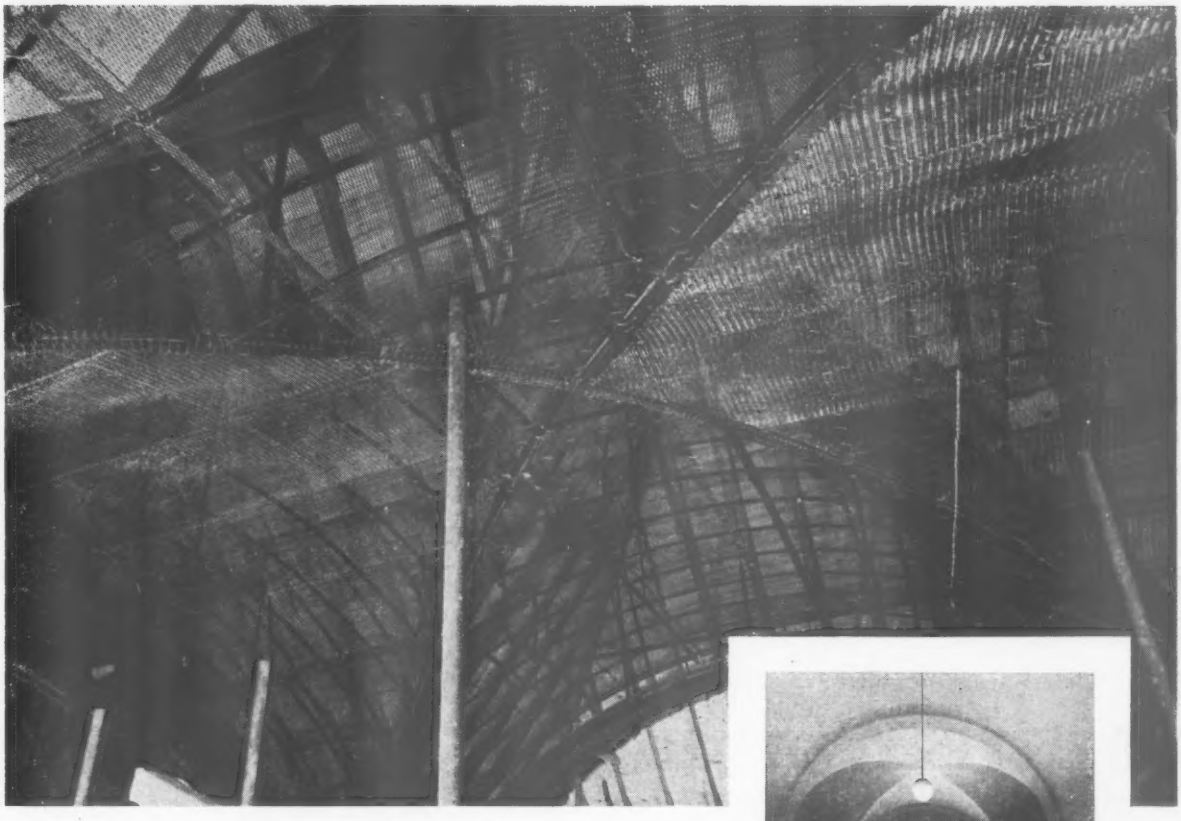

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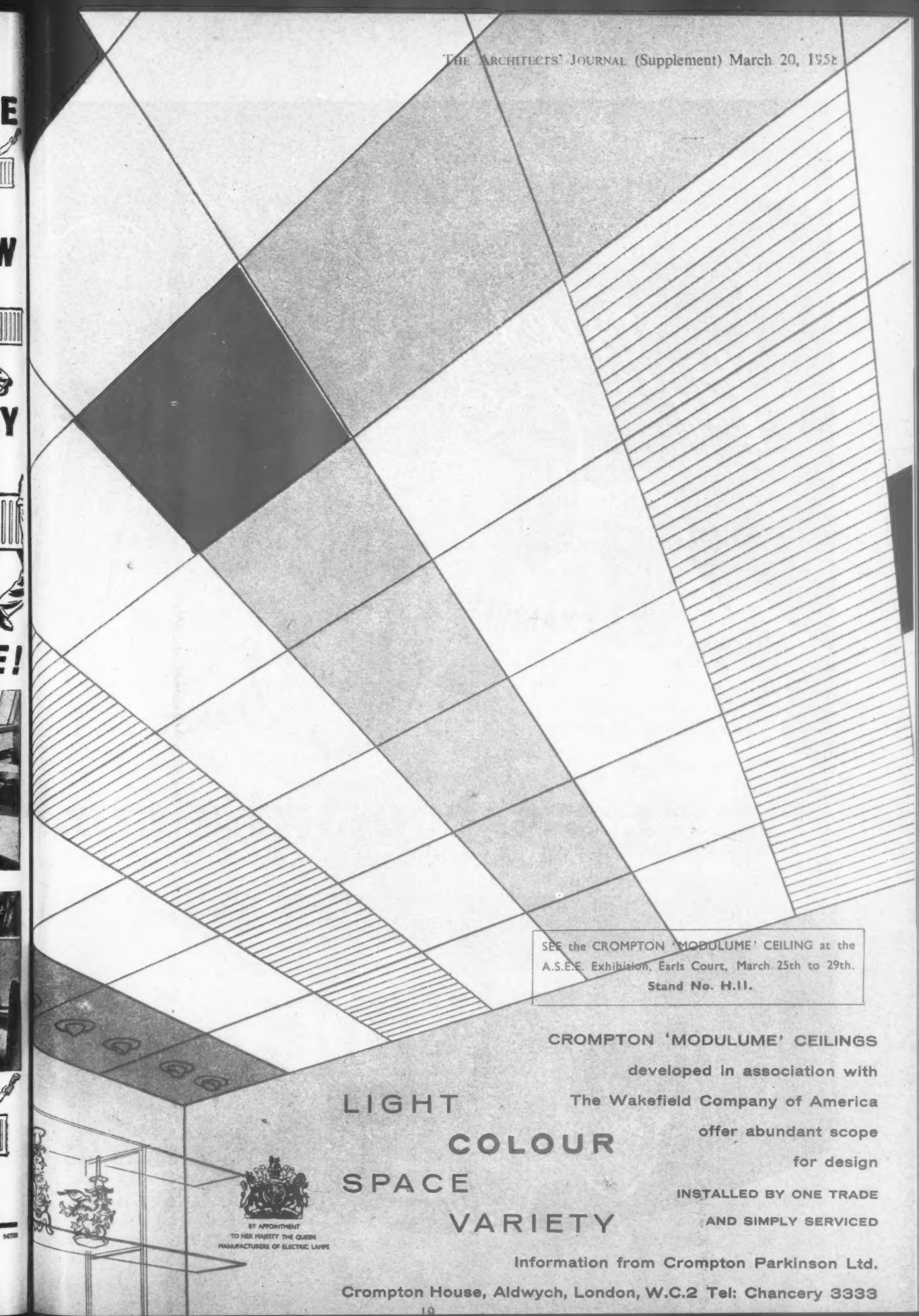

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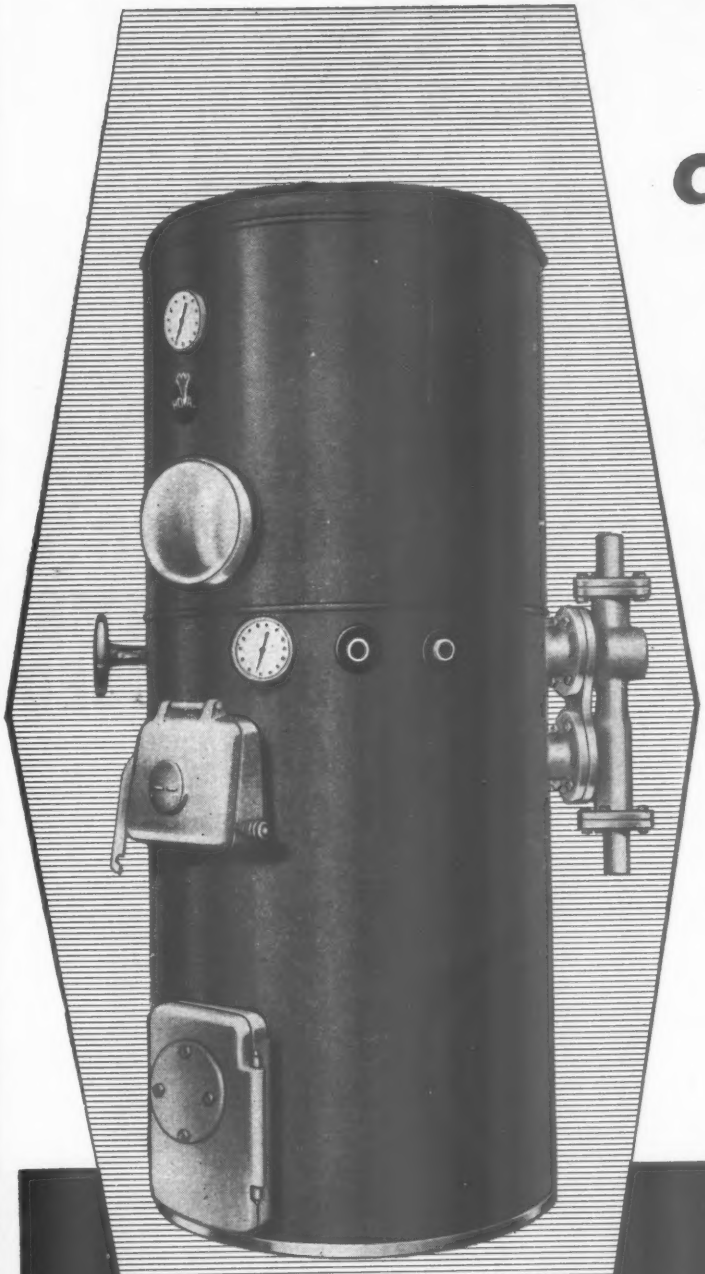

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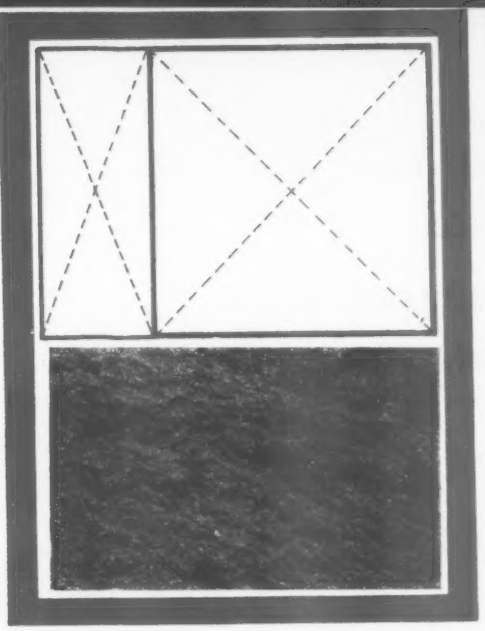

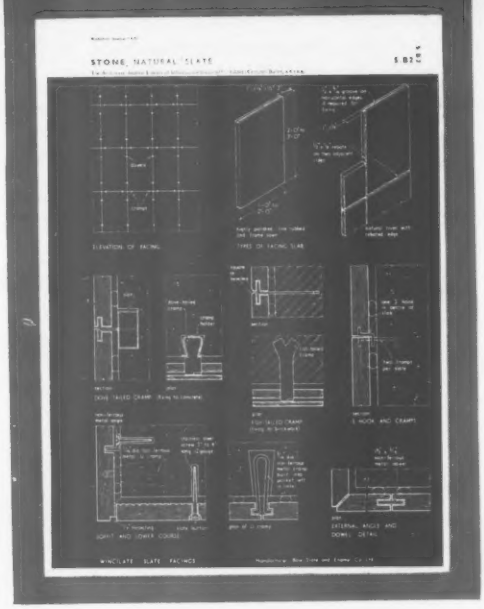

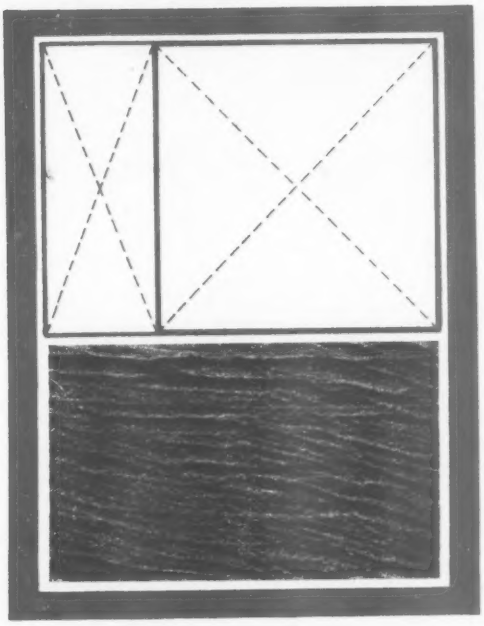

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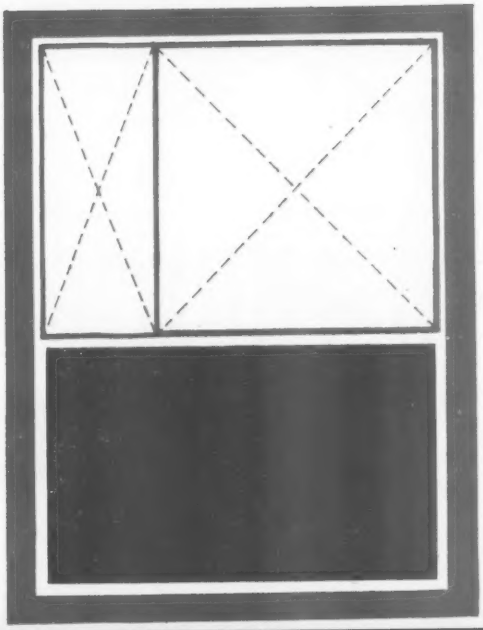

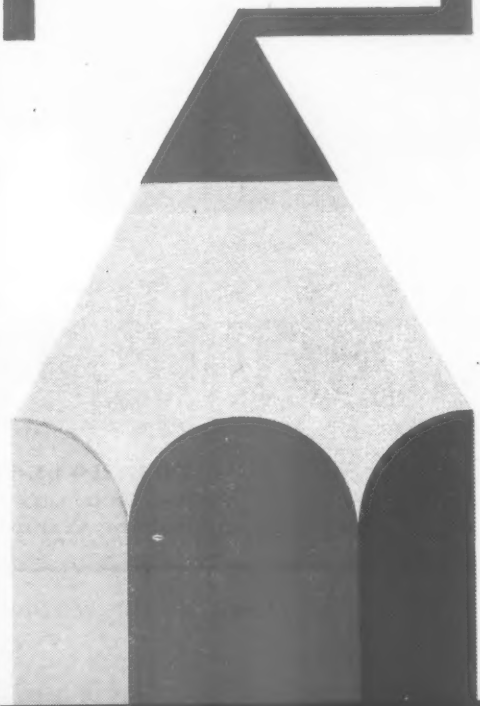

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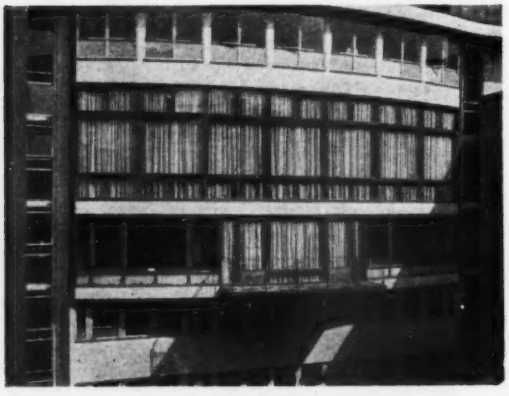

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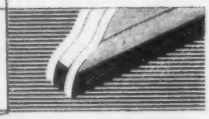

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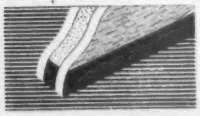
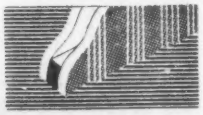


"COLOURSEAL"
Wall Cladding Units



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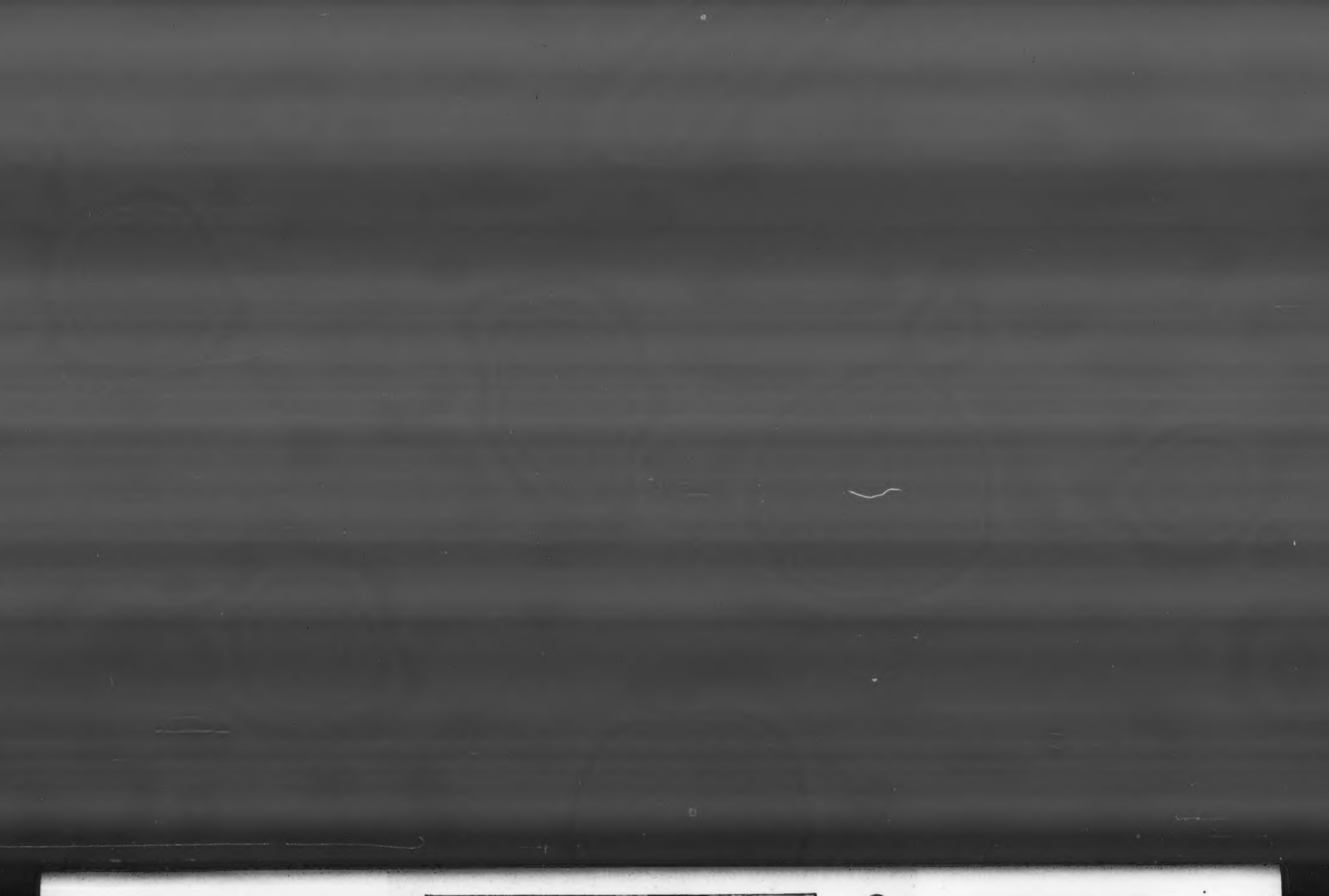

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FABRIC "Mantua". Jacquard Fotexurdrape in peacock green and pale blue interwoven with gold Lurex. This Tibor Reich design, interpreting rock plants into woven textured fabric, is a fine example of the new Fotexur process. It makes an excellent background for Tibor's deep textured upholstery fabrics. Obtainable from leading stores. Produced by Tibor Ltd., Stratford-on-Avon. CHAIR. A long-and-low easy chair; part of the suite No. 446 designed by N. K. Hislop. It is obtainable in a wide range of covering materials and the showwood legs can be polished to any shade. Produced by Gimson & Slater Ltd., Walton St., Long Eaton. CARPET "Cortina". A design created by Tibor Reich, F.S.I.A. for the Equerry (Regd.) range of Wilton filling. All-woollen pile. Mitin processed; guaranteed moth-proof for life. A product of S. J. Stockwell & Co. (Carpets) Ltd., 16 Grafton St., London, W.1.

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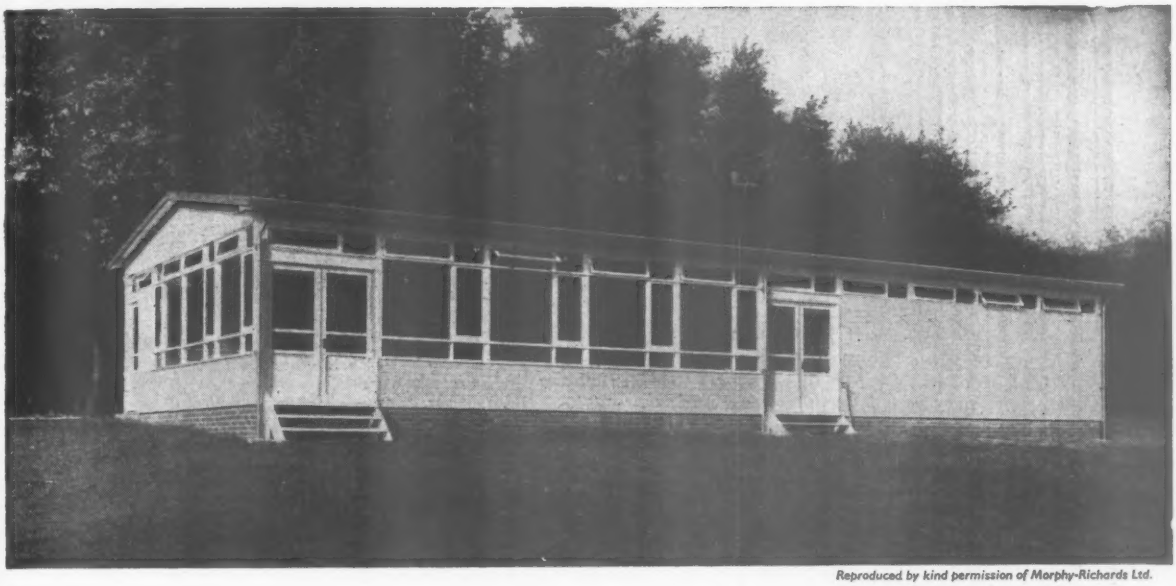

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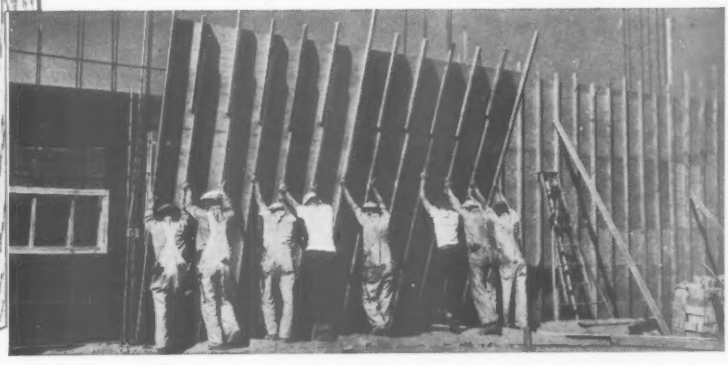

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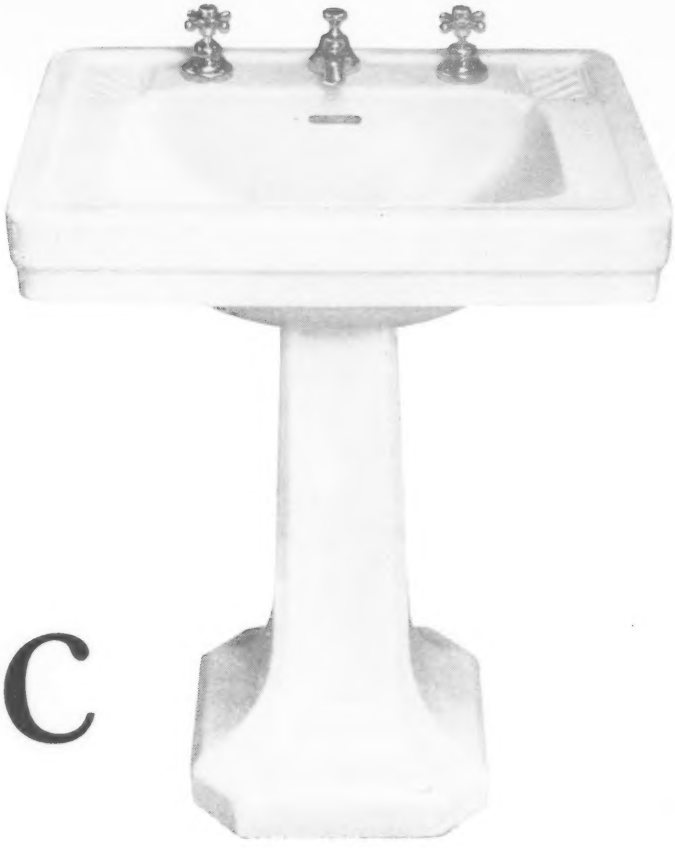

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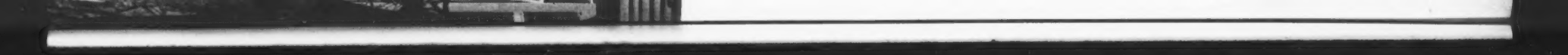

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Horizontal-pivot-hung TOMO WINDOWS are incorporated in the attractive and economical curtain-wall at the Bishop Simpson Secondary School.

Architect: Charles H. Pike, F.R.I.B.A.

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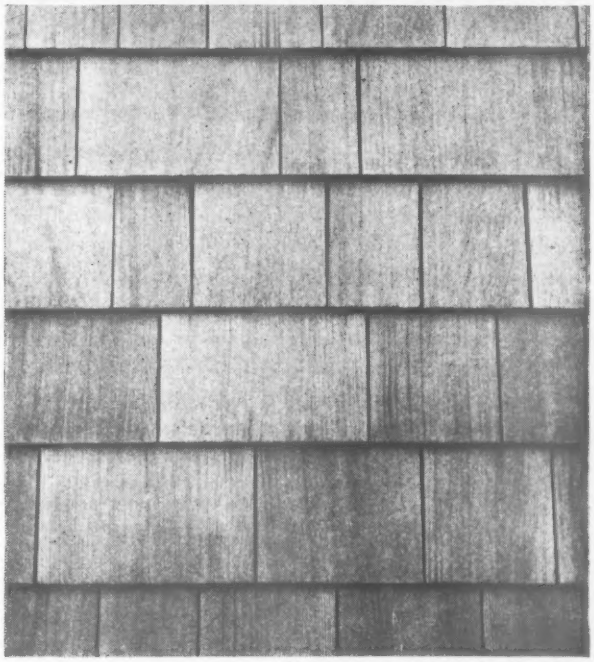

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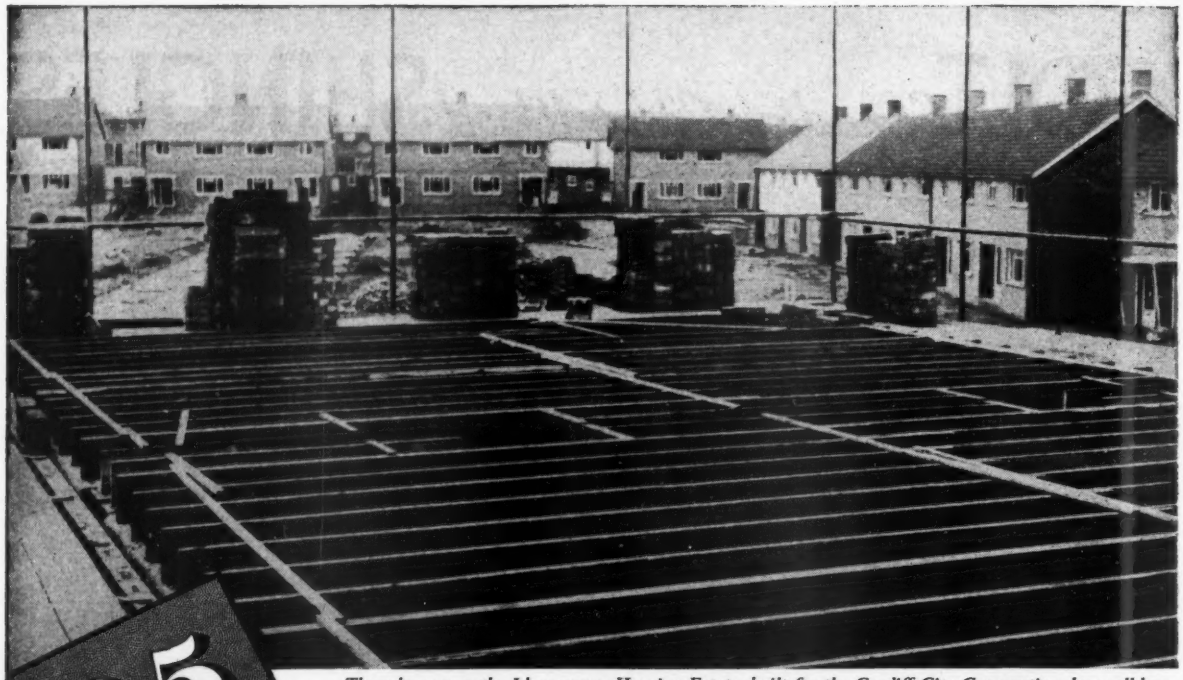

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structural steelwork

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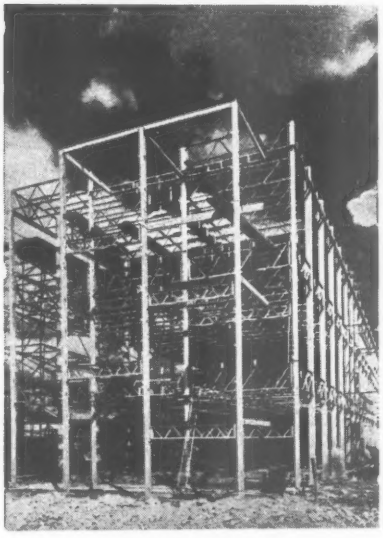
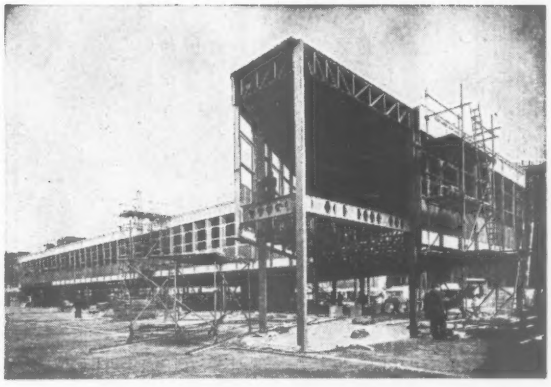
Architects: Messrs. Farmer & Dark.



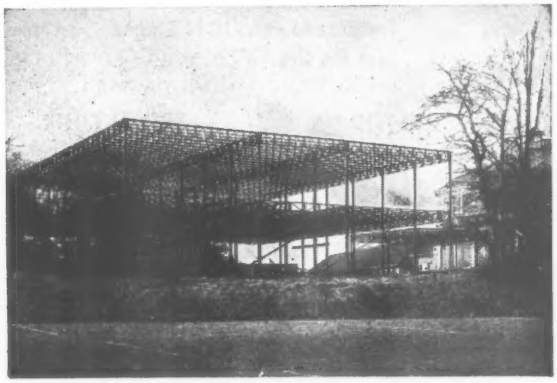


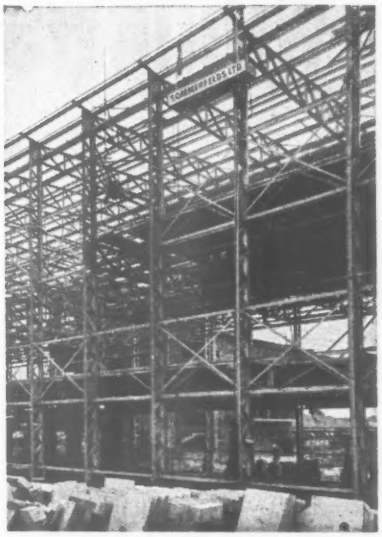
B.E.A. For this B.E.A. Building, speed was the essence of the Contract. Sommerfelds designed the Steelwork and from unloading the first lorry on site to the completion of a 250 ton steelwork erection took three weeks.

General Contractors: Messrs. Richard Costain Limited.

YORK. For the City of York a Grammar School. Sommerfelds designed the Steelwork on a 3ft. 4in. modular grid allowing complete freedom for the Architect to use curtain walling and internal arrangements.

Architect: E. Firth, F.R.I.B.A., A.M.T.P.I., City Architect.





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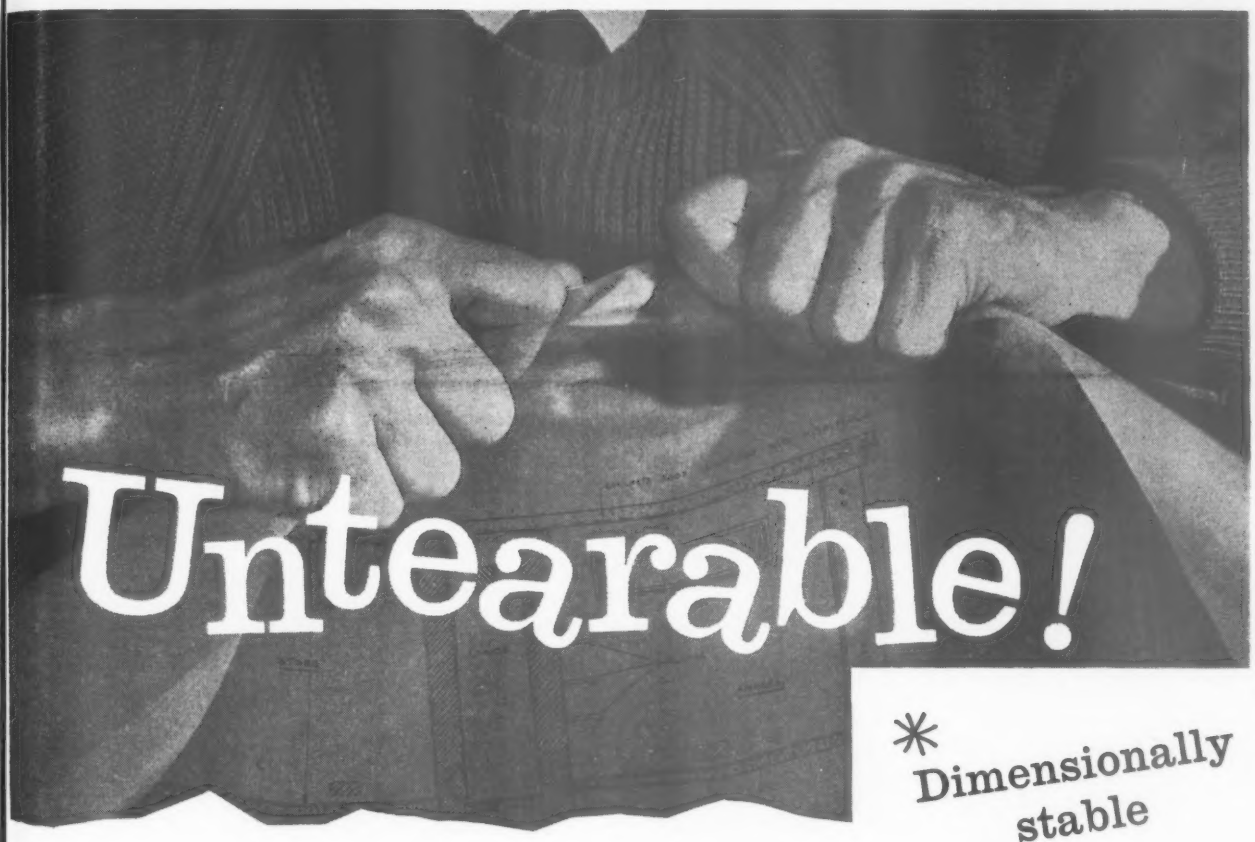

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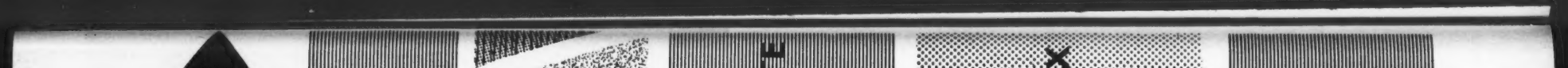

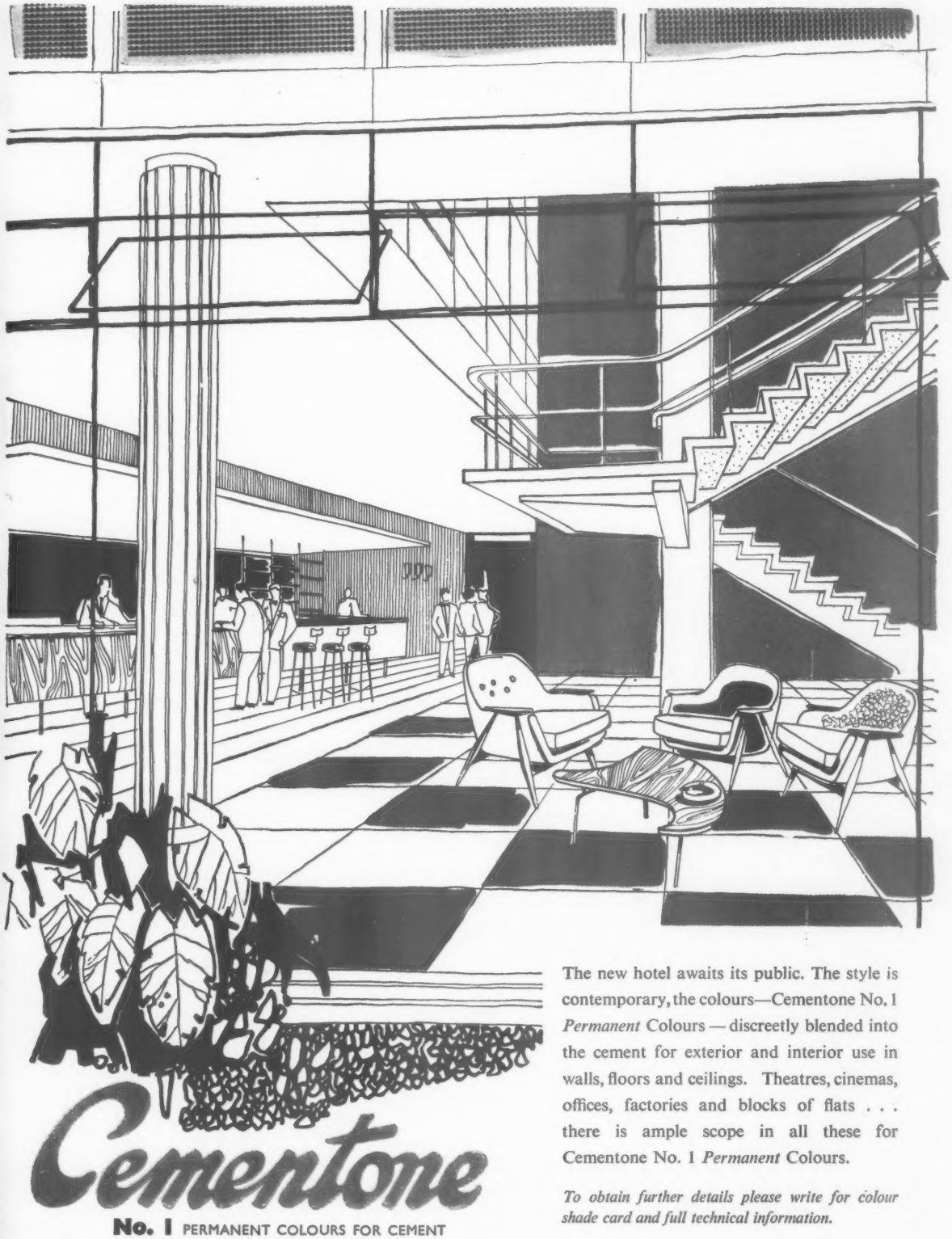

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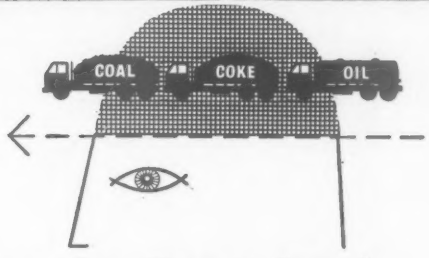

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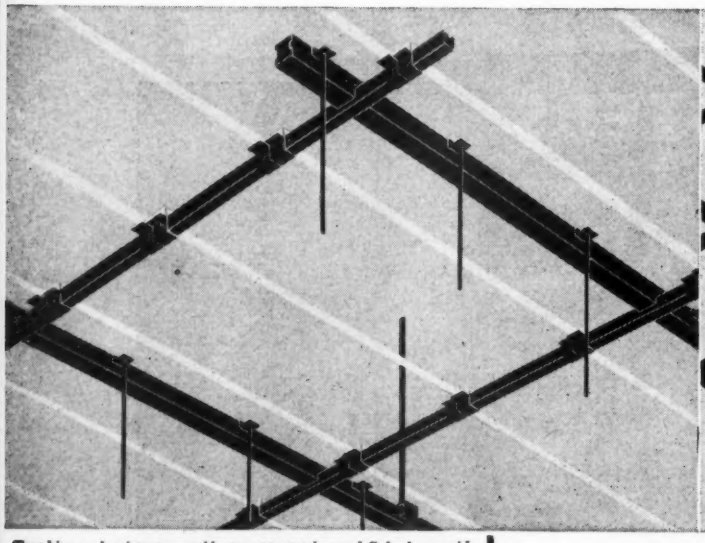
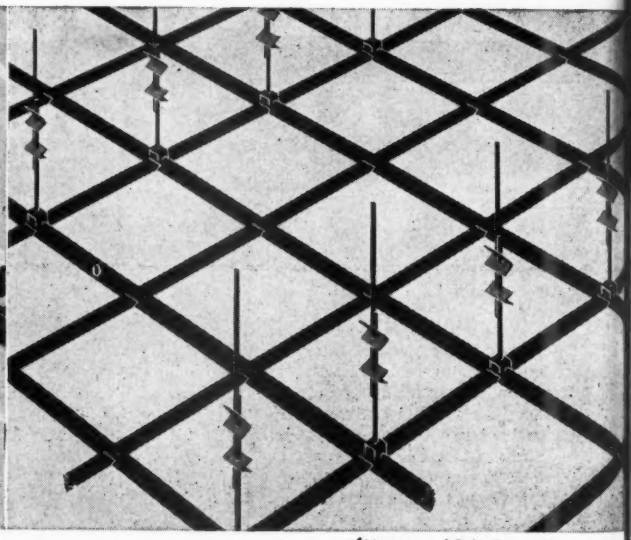


Trunking and unistrut assembly to support tubes and Sylvalume grid.



Appearance of Sylvalume grid from above

see
atlas sylvalume
on
STAND K16
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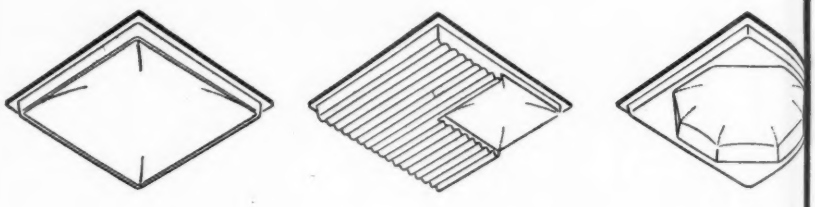

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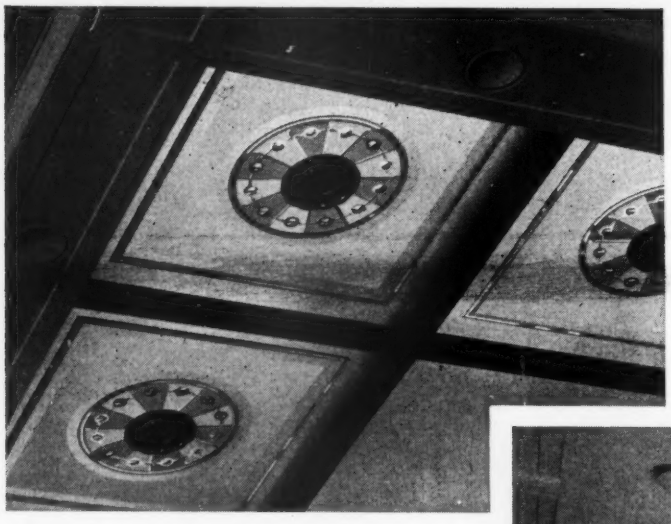

Laylight in ¾" Laminated Plate Glass, acid stippled and deep sandblasted with brilliant-cut motif.

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Below: One of the Toilets, faced with Black and White 'Vitrolite'.

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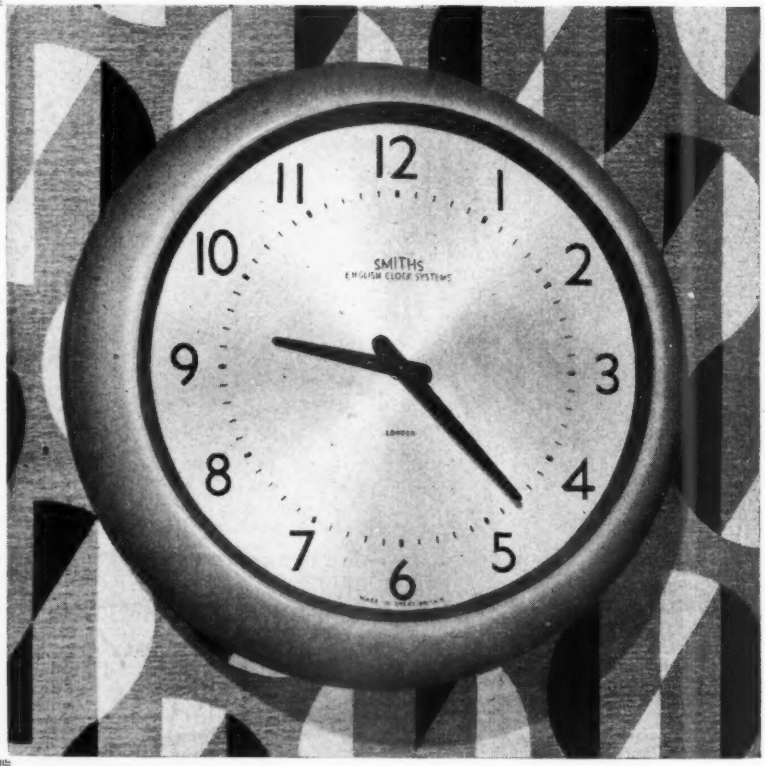

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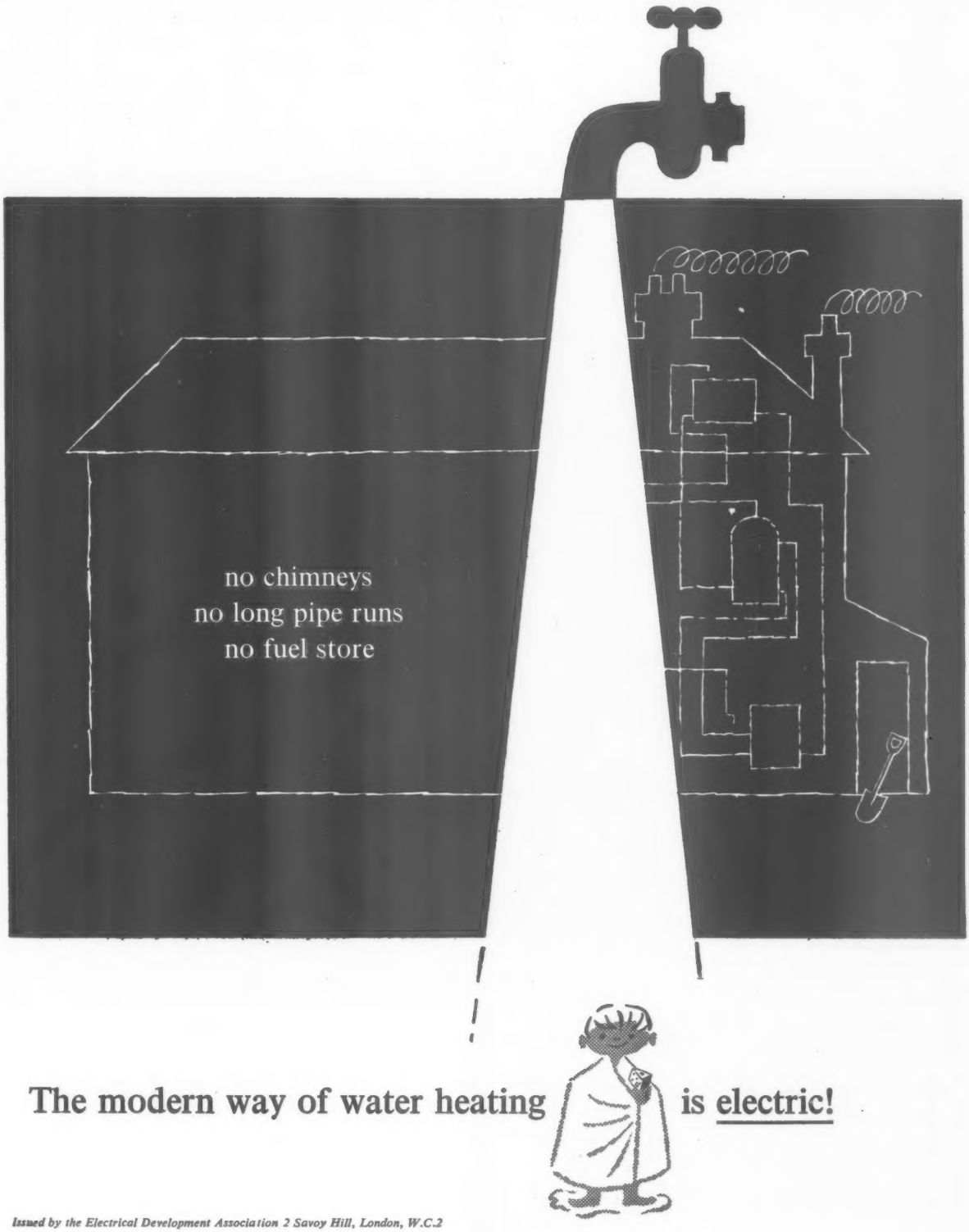

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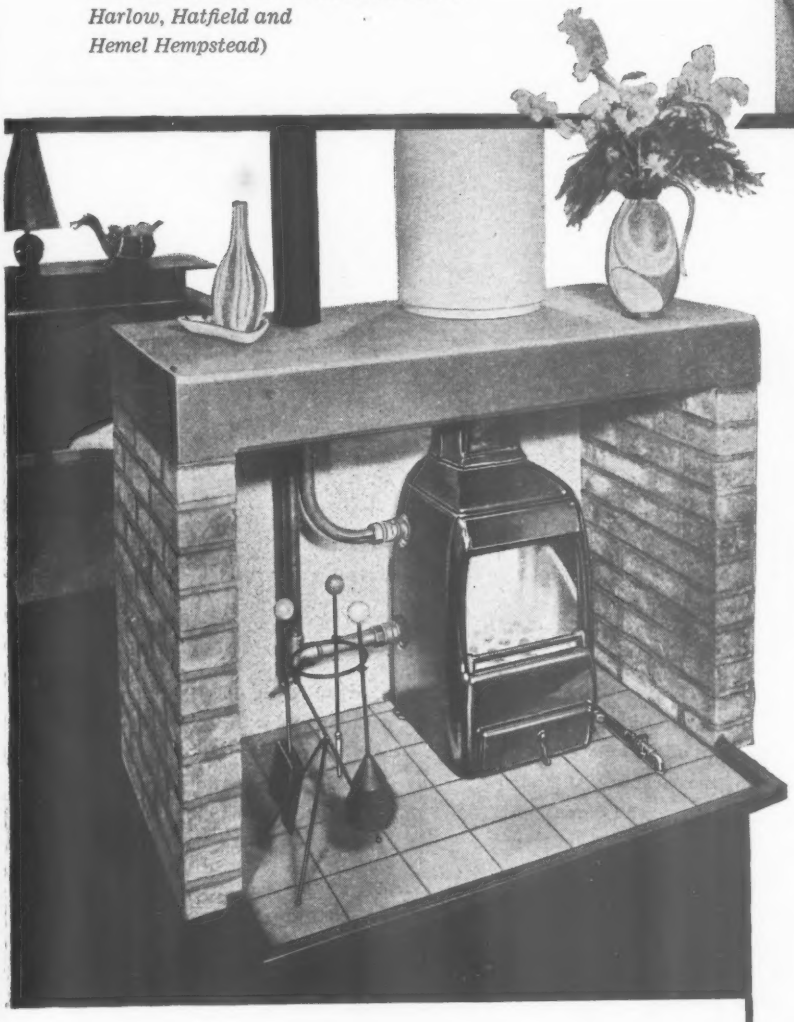

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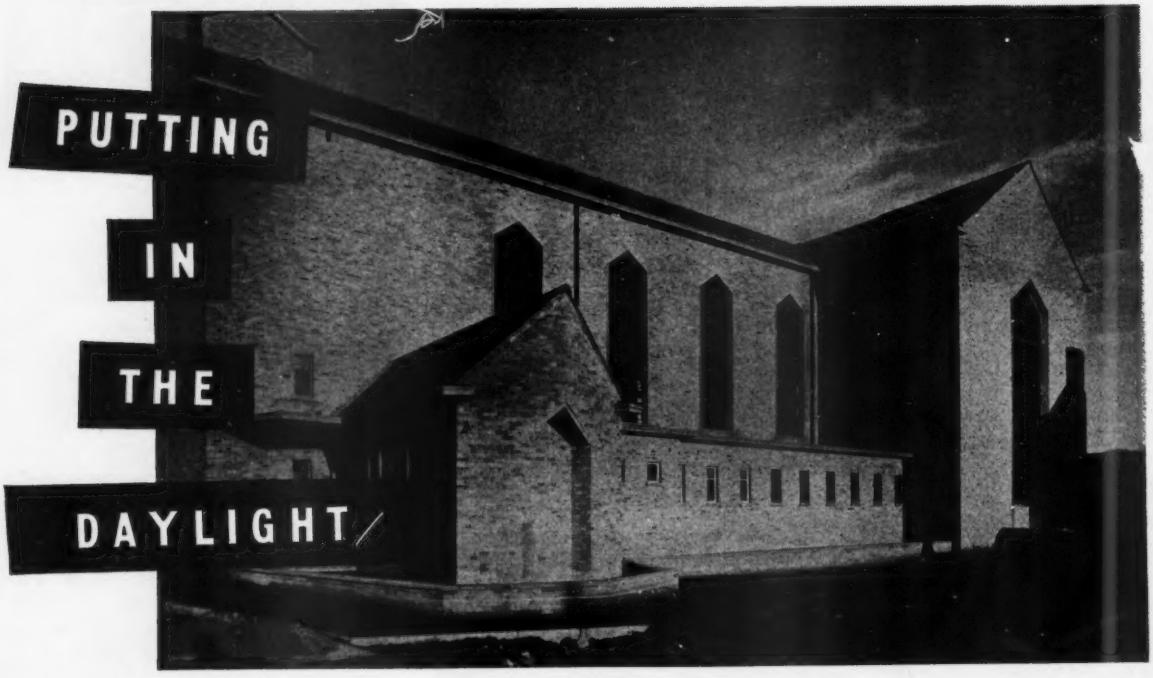

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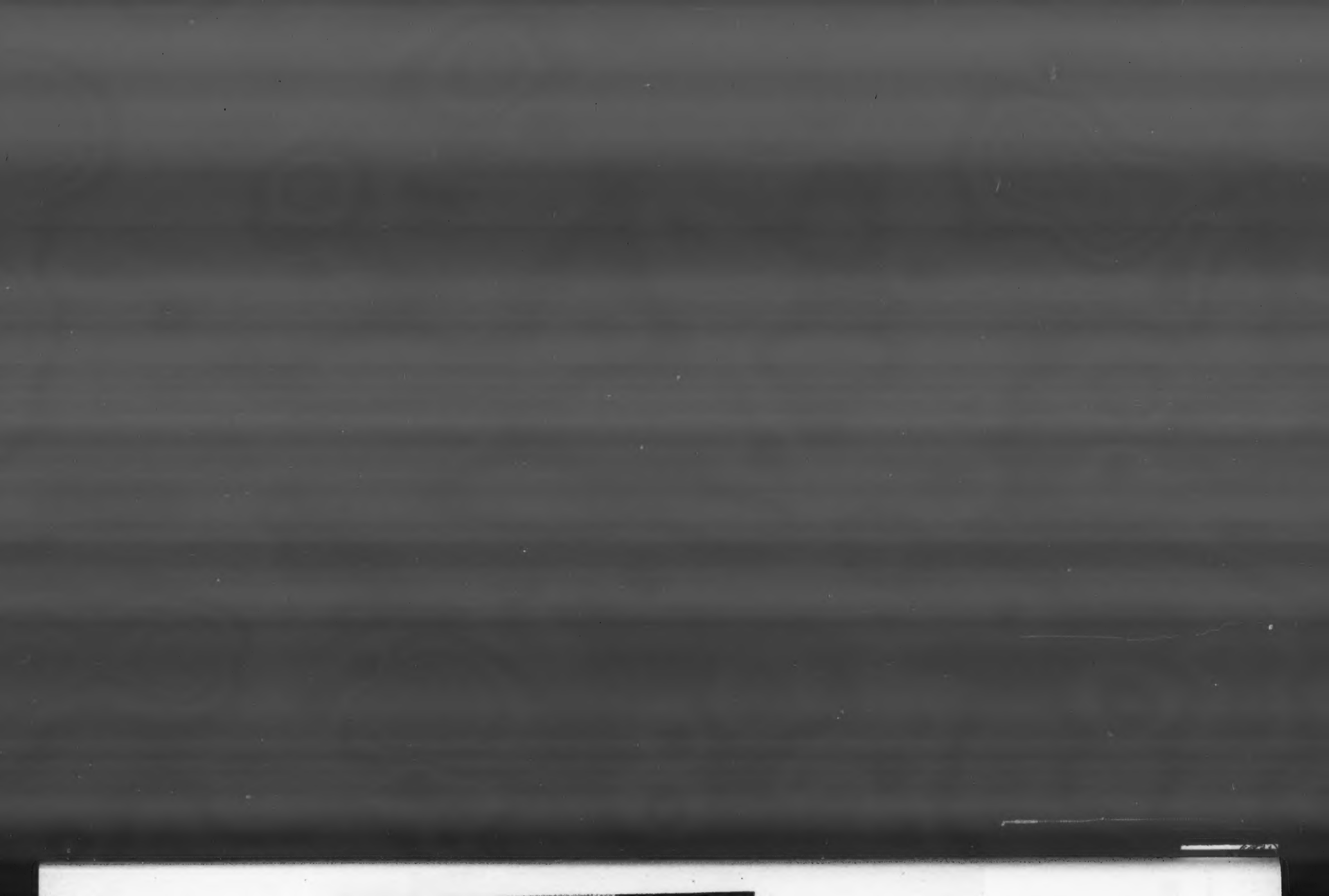

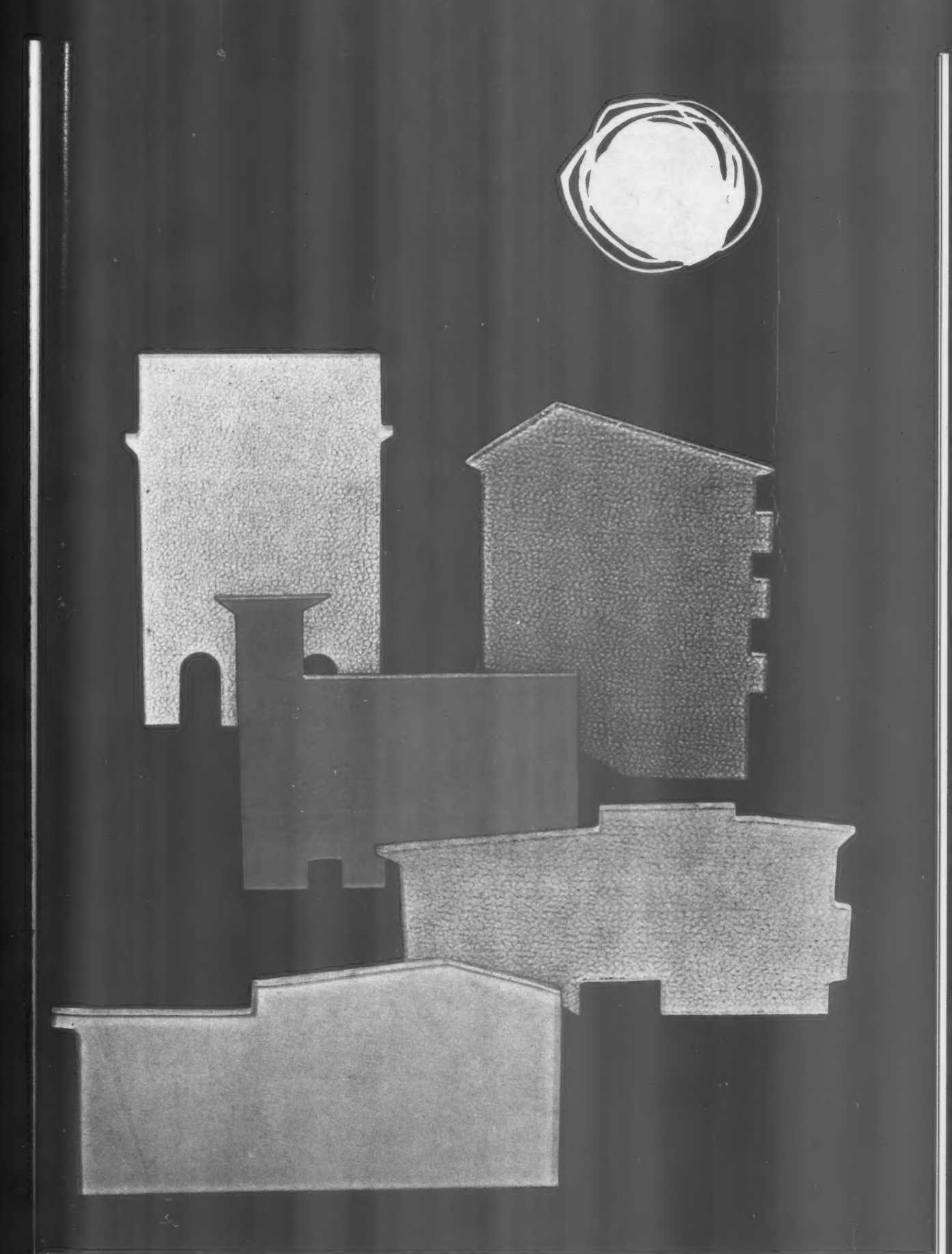

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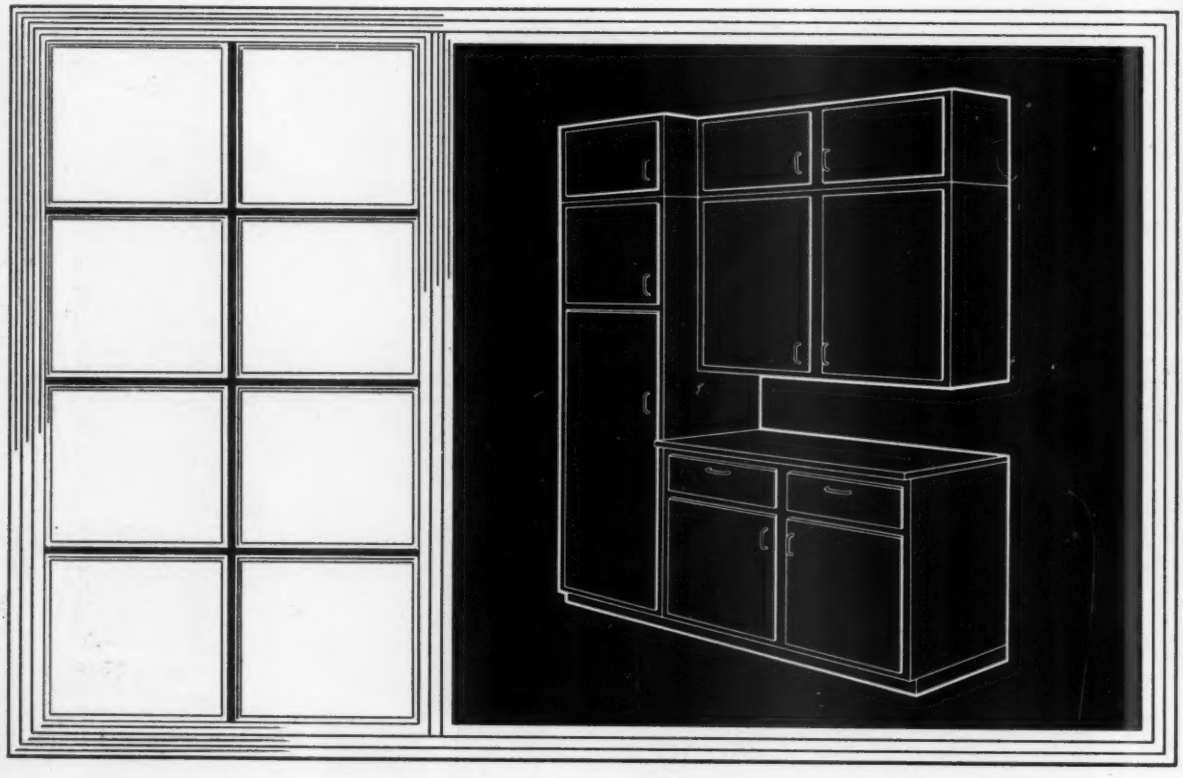

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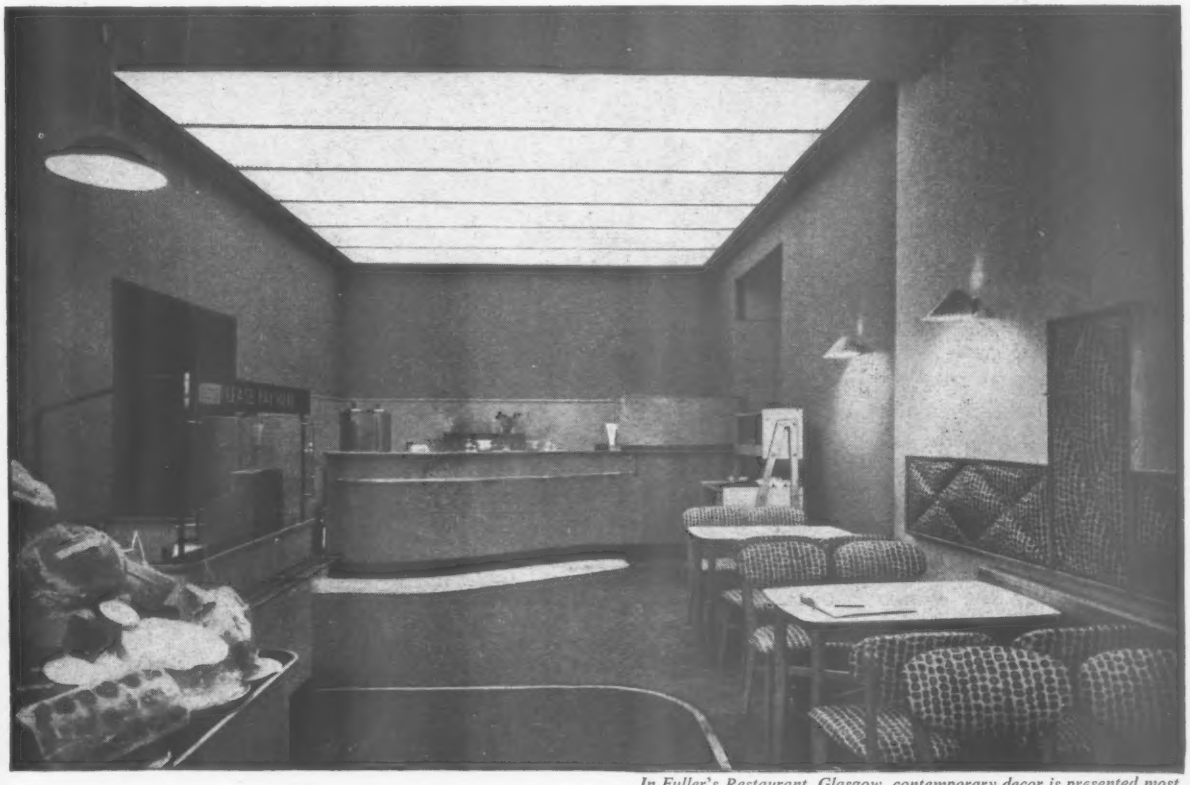

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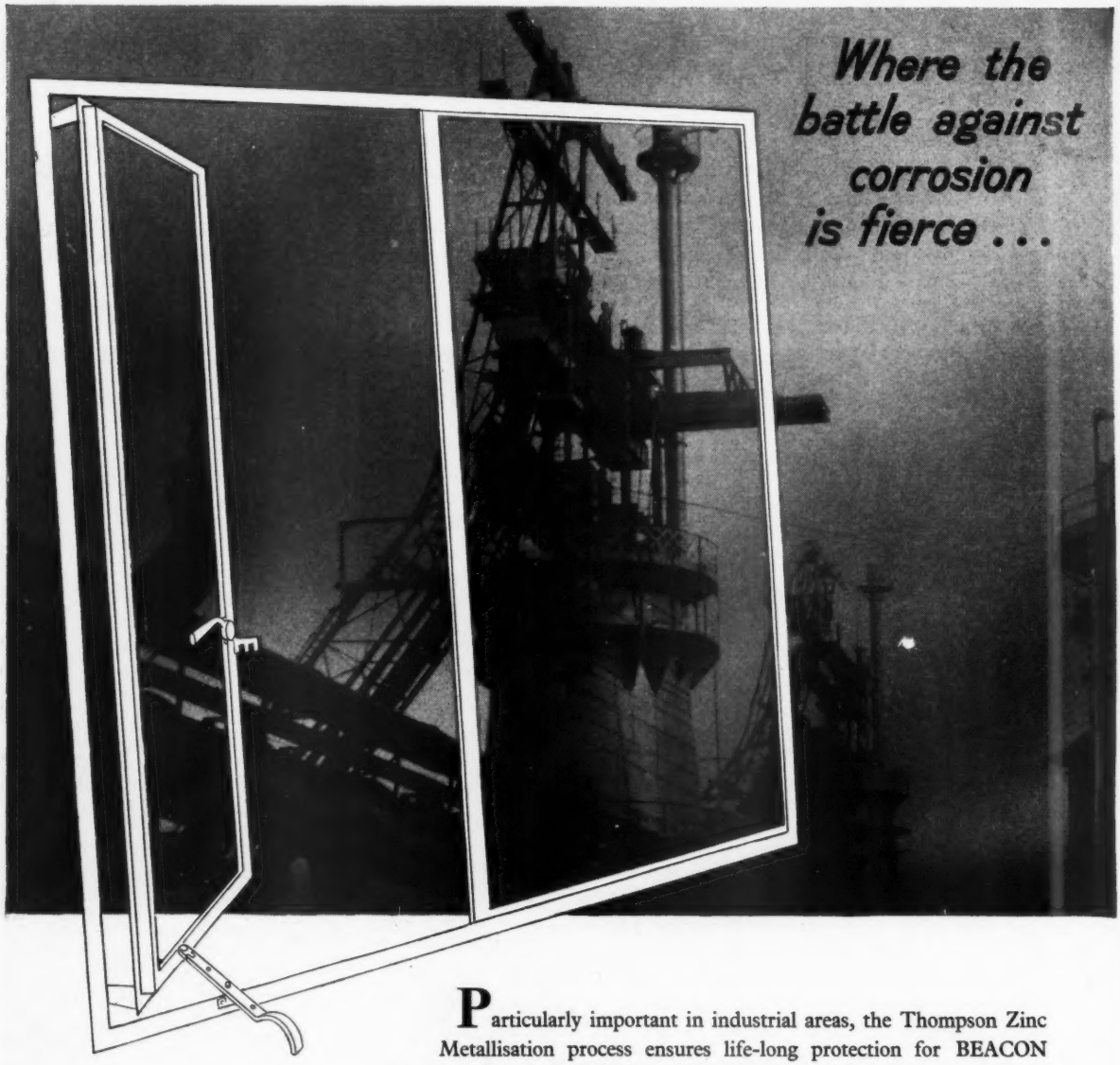

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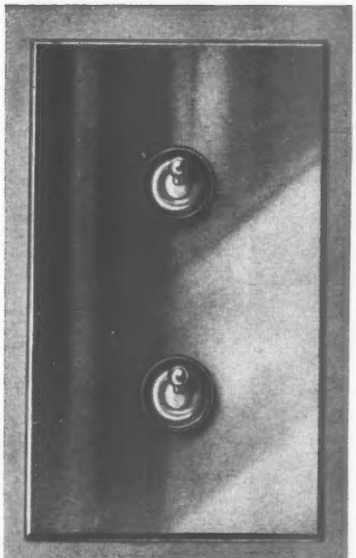

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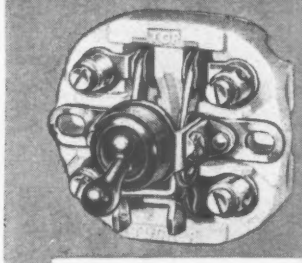

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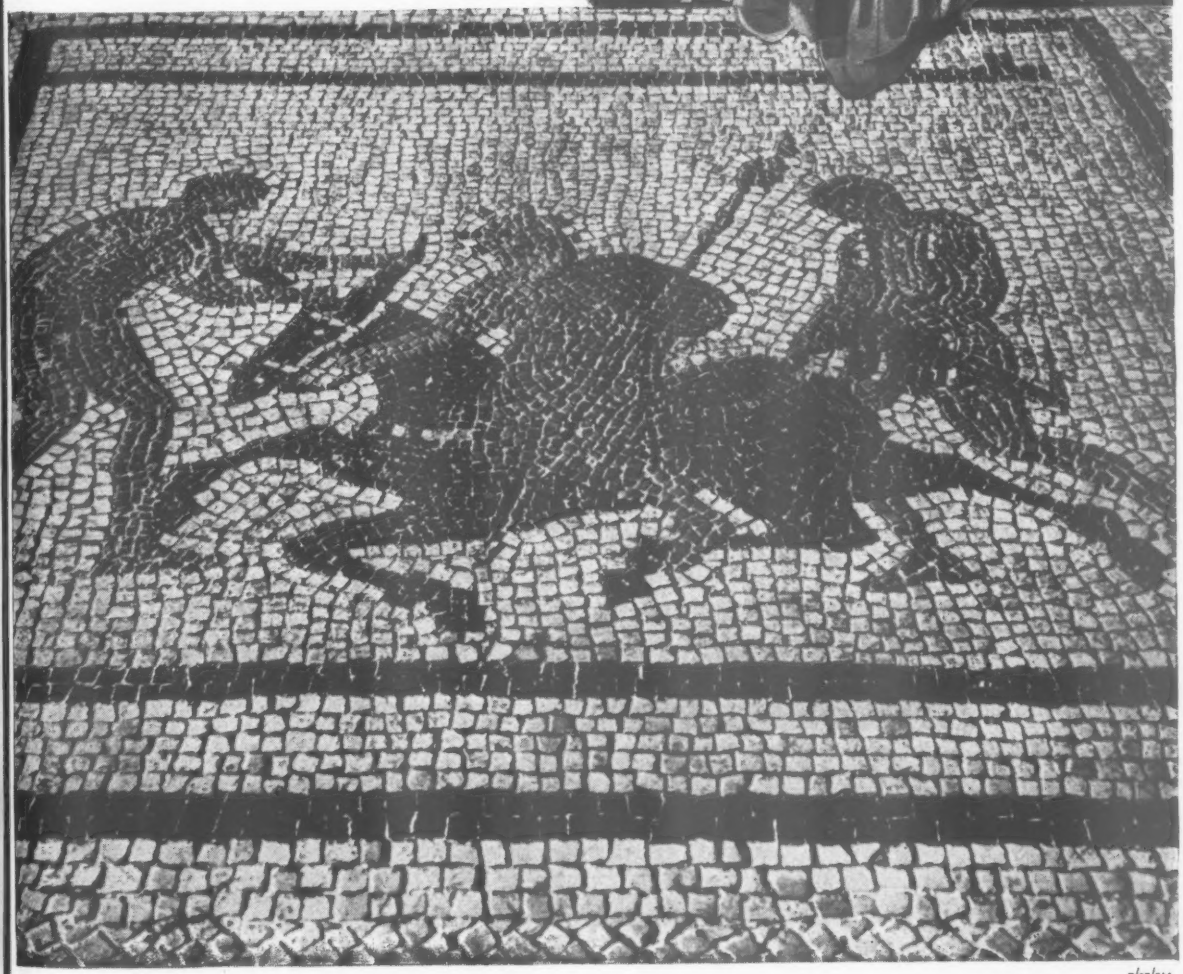
OF PROGRESS

This mosaic, now in the Museo Nazionale, Naples, originally formed part of the floor in the house of Paquius Proculus, a citizen of ancient Pompeii. It depicts Silenus, son of Pan, nurse, preceptor and attendant of Bacchus, proving too great a burden for his ass.



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THE ARCHITECTS' JOURNAL

No. 3290 Vol. 127 March 20, 1958

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NOT QUITE IDEAL

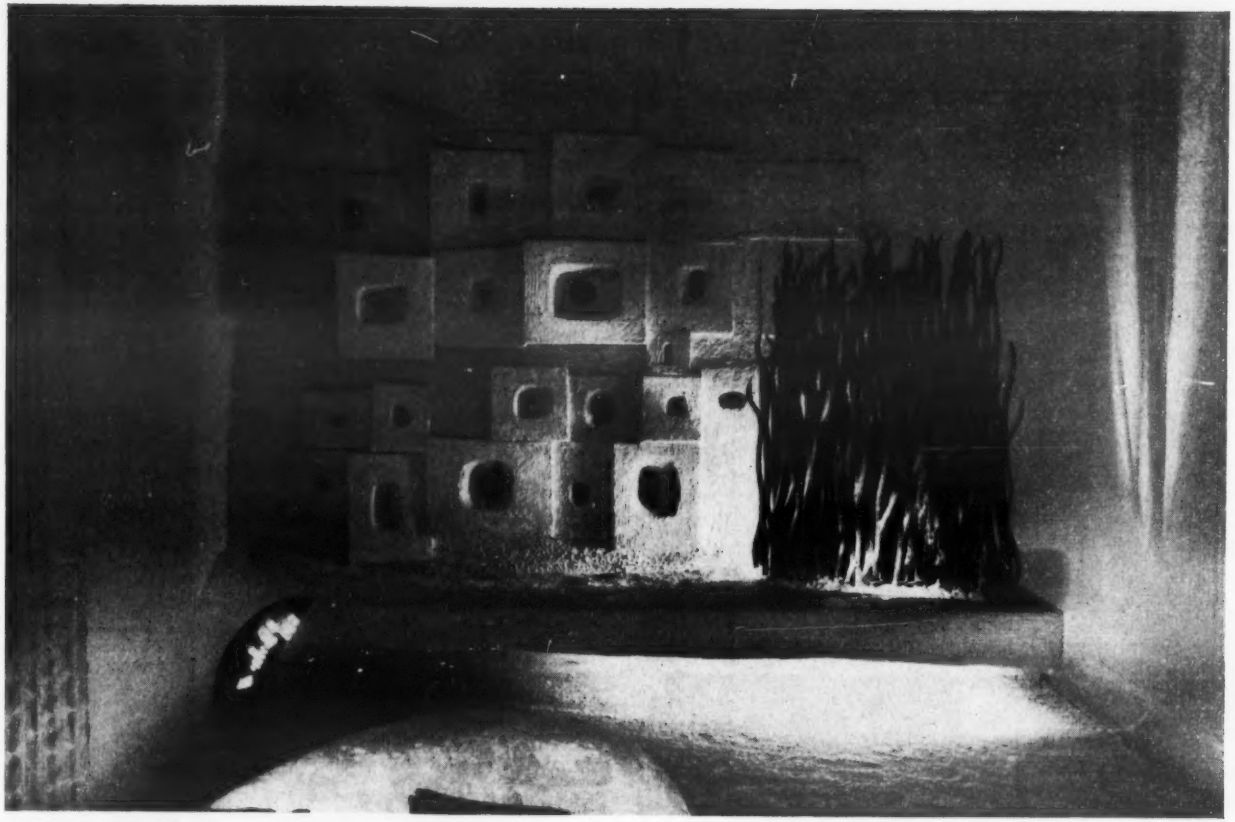
Many reasons have been suggested for the unwillingness of the Queen to open the *Daily Mail* Ideal Home Exhibition this year. Can the true one be that Her Majesty thinks it is high time the *Daily Mail* made a clean break with the past, cut off its Subtopian relations, pulled up its socks or turned over a new leaf, according to the metaphor one prefers? Lord Northcliffe, the founder of the exhibition, was nothing if not an initiator and a brilliant self-advertiser. He was simultaneously pioneering the new popular journalism, and offering big prizes to aviators, whose toys he took seriously. The Ideal Home Exhibition was a brilliantly timed idea, for its beginning coincided with first attempts to apply technology to the home.

*

One has only to contrast the kitchens of 1908 with their massive, dirty kitchen ranges, cast-iron pots and pans, scrubbed deal tables and endless heavy manual work with the kitchens of 1958 to see the extent of the domestic revolution in which the Ideal Home Exhibition can claim to have played a considerable part. Of course, the revolution that is taking the work, the dirt and the ugliness out of the home, and putting ease, cleanliness and beauty into it, would have taken place without the *Daily Mail*. But Northcliffe, or some adviser, had the foresight to see the trend and to foster it; the exhibition has become a national institution, however irritating the showmen are as they demonstrate their patent whisks and peelers, washing machines and do-it-yourself gimmicks. Millions directly or indirectly look to the Ideal Home Exhibition for guidance in buying, decorating or furnishing their homes.

*

That's the trouble. For the good that the Ideal Home may have done in lightening the housewife's burden is far outweighed by the harm that it has done in fostering Subtopia, and spreading it far and wide across the countryside. The concept of the Ideal Home, with the Englishman secure in



The Plushy and the Purposeful

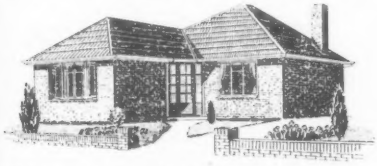
Vague, ill-formulated fears that the modern movement had gone into reverse when it abandoned the clinical tone of the Machine Aesthetic for something richer, can be checked against fact at the Ideal Home Exhibition. If Cecil Beaton's excursion into old-time plushiness, top right, and old-time purposefulness, above right, are set against Sir Hugh Casson's and Timothy Rendle's room for Hi-Fi listening, above and left, it is clear that we have preserved at least a couple of our advances. Beaton's work, both in bedroom and nursery, reveals (and accurately re-constructs) an Edwardian world of atomised clutter, furnishing conceived as the accumulation of unrelated objects, bullied into spurious unity by the occasional repetition of a decorative motif from object to object. The Casson-Rendle room, in spite of the superficial contrast between the Ronchampery of the loud-speaker wall and the almost Finnish a-formalism of the listening couch, lower left, preserves a visible unity of purpose and a planned relationship of the parts that is still somewhere near the true line of the functional tradition, even if it has gone plushy, and abandoned those mechanistic pretences with which the men of the 'Thirties had to dress up their work in order to convince themselves and their public that they were being truly functional. (See ASTRAGAL's comment on page 416).

his little suburban nest, is in fact as outdated as the Dodo. But the Ideal Home Exhibition has hardly moved from 1908.

The *Daily Mail* Book of Houses and Flats includes 29 designs, of which 15 are attributed to architects and 14 are not. Some of the designs are good, but it is notable that most of the architect-designed houses are on individual sites, while those designed by builders or estate agents are for mass production.

*

Some of these are only too typical, as the illustrations in this column show, of the



brick boxes that have been, and still are, disfiguring town and country. There can be no such thing as an Ideal Home without a site; it must be part of a design for an ideal town, or at least for a reasonably good one. The design, bought off the peg and dumped down on any site, however Ideal the purchaser may think it's going to be, is bound to turn into the opposite in real life.

*

Presumably the *Daily Mail* sells space to any builder. What it ought to do, if it really wants to bring Ideal Homes within reach of more people, is to foster good design

and good town planning, and to stop fostering the bogus Ideal Homism of the past. It should remember that there are a few good architects working for speculative builders, and that there are rather more of them building homes for local authorities. Instead of selling space to builders, it might try paying money to a group of architects and town planners to select and present what is best in housing and planning at the present time, and to draw attention also to the worst. M. M.

The Editors

THE FAMOUS VICTORY OF THE MODERN MOVEMENT

SO-CALLED " Modern " architecture as a *style* is now accepted by all save the most obtuse businessmen; and, as a recent survey of architectural schools showed, " modern " architecture is taught and, apparently, learnt in all the major schools. There are a variety of styles, of course, embraced by the phrase " modern architecture," and the eminent critic and architectural historian, R. Furneaux Jordan, listed a few of them in a recent issue of the *Sunday Observer*.

" Modern " architecture is not always cheap to build, and " really modern " architecture, the *dernier cri*, is almost invariably rather expensive The reason for the increased cost is the price of originality. " Really modern " architecture is absolutely original in form and concept (or so old that everyone is surprised at seeing it again). But not quite such original design is not quite so modern, and so on. " Modern " architecture of second and lower degrees of originality is now so universally accepted that even planning officers approve it. Indeed, in Buckinghamshire, it is rumoured, an architect's design for a small house with a correctly contemporary low-pitched roof (third-degree originality) was refused planning permission with the plea " we're modern in this county, we like houses to have a flat roof " (fifth-degree originality).

After such a rapid achievement of popularity, are there any more worthwhile battles remaining to be won by the modern movement?

Remembering that next month an unnamed, hand-picked group of architects are meeting in secret session to discuss architectural education and, presumably, forge a new educational policy for the profession, we would like to suggest an aspect of architecture in which students should be trained so that future victories are not quite so hollow and inconsequential.

One key thing which the modern architect has not been taught is the elements of the science of management. This is a fundamental subject. The architect's job is to set in motion a whole train of operations which have to be co-ordinated with each other and should therefore be begun and finished within strict limits of space and time and cost. Obviously, if he has to plan for others he must learn to plan

structs) an Edwardian world of atomised clutter, furnishing convince themselves and their public that they were being conceived as the accumulation of unrelated objects, bullied truly functional. (See ASTRAGAL's comment on page 416).

and programme his own operations, and understand the significance of the planning and programming undertaken by the builder. The architect must also learn what the design of every detail means in terms of labour, and materials, site or factory organization, which is just another way of saying that he must understand costs.

It is commonly said that it is too difficult and inhibiting to teach students about costs, at any rate until their third or fourth years, and therefore the only aspects of management they may pick up are contained in a few lectures on professional practice or through often dubious practical experience. We suggest that this present idea of the student as an uninhibited artist is sheer false romanticism. The architect will never earn public regard until his training is realistic and until he learns that real achievement in architecture today is only achieved by *complete* mastery over all the techniques of design and building. His source of inspiration is true understanding of his clients' and society's resources and requirements. His professional status depends on the ability to control building operations. It is not surprising that the student often feels frustrated or incompetent, and rebels or sulks when he leaves school to become an assistant (not to become an architect, note, he has to learn that—if ever—the hard way, in competition with his boss) because he has never learnt all the disciplines which his role, even as an assistant, demands that he should master. The schools today largely teach by lectures and by setting "design subjects." The more senior the student, the larger the building to be designed. He designs in a term what, in reality, it would be a rush to design in a year and thus enters practice with too superficial an idea of his responsibilities. But the architect's job today is not normally one of expressing his probably rather ordinary soul at the client's expense. The vast bulk of the work consists of making the full use of science, technical skills, labour, mechanization and materials to produce the best possible environment in which *all* his fellow men can live and work. The best use of resources can only be achieved when architects have the fullest possible control over them. The means of obtaining control can only properly be learnt through a sound scientific training at schools of architecture in the fundamentals of research, the design process, and of management and its corollaries, cost control and programming. The teaching of these has hardly begun anywhere, but the development of functional architecture will not progress at any speed until these subjects are commonplace at all architectural schools and therefore commonplace in practice. And it is fundamental to the success of teaching of these subjects that they be introduced, in elementary form, from the *very beginning* of every school course.

"Modern" architecture is now the accepted style, but the real meaning of functional architecture is beyond anything so ephemeral, inconsequential, and transitory as a "style." The real spirit behind the modern movement has hardly begun to be understood.

CASSON NOT QUITE BEATON

In a week packed with excitement (remember the headlines? . . . ABBOTT SUES COSTELLO . . . AMERICANS DROP H-BOMB BY MISTAKE), ASTRAGAL sought escape in a return visit to the Ideal Homes. He was lured back to the frightening vulgarity of the Golden Jubilee show after reading Press hand-outs and discovering what he had missed. "Why not share the bedtime hour with a prosperous sea captain?" asks the *Daily Mail's* publicity man. And then, realizing that we don't all have the same taste, he makes the sensational offer of "at least two new-style kitchen cabinets," gets very excited about oil fuel in the home ("visitors alight on the second floor") and reaches a peak of high-powered salesmanship with "a poacher which turns out eggs in a daisy fashion."

•

What ASTRAGAL really wanted to see was Sir Hugh Casson's room for listening in, described in the hand-out as a revelation in contrasts after the "gaiety and glamour of the Grand Hall." Eh? Oh well, functionalism *does* come before glamour in the Casson-Rendle womb without a view. Behind the screened Hi-Fi loudspeaker the wall is filled with acoustic "bottles" of varying sizes. These absorb sounds at different frequencies and enable the room to be precisely tuned. And if this valiant attempt at scientific acoustic

precision is not satisfactory, you can always cover the remaining three walls with a cushion of curtains.

*

All very ship-shape and daisy fashion. But how nice to see a monstrously unfunctional sofa in the midst of it all—a piece of furniture that owes nothing to anthropometrical data. (It was obviously poured into the cool white room in a molten state and allowed to find its own shape.) ASTRAGAL was just feeling that he could settle down nicely with all those flexible, compensating units (cushions to you) when he noticed a sinister groove round the room. Would the whole thing slide suffocatingly up to the ceiling, as in that story by who-was-it—Poe, Thurber, Wilkie Collins? Lush sofa or no lush sofa, ASTRAGAL hurried away from this glue-scented (but why?) igloo to the more familiar charms of Mr. Beaton's cooked-up nookery.

*

Well, perhaps not so familiar as all that. Much of this Edwardian bedroom is the usual abandoned-slipper-wrap-on-door-come-hither stuff; but where did Cecil Beaton get those extraordinary rich, brown glazed earthenware tables and chairs? Decorated with green *art nouveau* plant form, richly curvilinear on pedestal bases, this furniture is quite fantastic. It is earthenware, and presumably it was turned out in bulk like w.c. pans. But what happened to it all. Why did it haste away, daisy fashion, so soon?

LOOK AT IT THIS WAY . . .

Presumably you've all been reading the Cohen report on Prices, Productivity and Incomes. If so, you will have emerged, like ASTRAGAL, graph-baffled and slightly hysterical about histograms. Still, the Message is clear enough, isn't it? The villains are wages and prices which have crept ahead of production because there have been more vacancies than men to fill them. And this means . . . well, you know what it means.

*

But what puzzles me—and I'm trying to see the whole thing in the light of building economics—is the way economists approach their problems. No doubt if we asked the Cohen Committee for a remedy for high building costs, they would recommend less building. If ASTRAGAL was asked to do Lord Cohen's job all over again—and at the time of going to Press this has not happened—he would adopt a functional approach, and get to work on a cost analysis of our economy, separating the productive industries from the non-productive. Then a new cost plan could be prepared—less money spent on advertising and more on agriculture; less on women's magazines and more on building, and so on. And then, of course, the highest and lowest figures for each "element" would be investigated, to see where . . . But no, this is too simple and too obvious. ASTRAGAL must be forgetting something.

*

But it *is* curious, don't you think, that economists seem to look upon money as the only real commodity?

LAZY LIAISON

ASTRAGAL is always being surprised that architects don't take more interest in the organization behind the construction of their buildings, and even more surprised that the poor builders don't complain more vehemently. Consequently he thought it a shame that so few architects turned out last week to a meeting of the Junior Liaison Committee of architects, surveyors and builders. This meeting was addressed by two speakers who explained how tenders are worked out and how a contract is planned for work to begin on site. It all sounded very complicated and difficult. And to make it worse there were tales of architects who provided no drawings, altered the design just when the builder had worked out an exciting new way to do the shuttering, allowed quantity surveyors to describe and bill items that hadn't been designed, or failed to disclose the name of a nominated sub-contractor until just before his work was due to start. Questions ranged from "What *is* an agent?" to "Who should do the bar-bending schedule?" One speaker said he knew of a firm with a "claims department" which prepared claims before they had even got the job.

*

Look out for the next meeting of this committee. It deserves to have some architects there.

Hugh Molson, the Minister of Works (centre), and Sir Charles Mole, the former Director General of Works who retired two weeks ago (left), talking with J. M. Richards in the Architectural Press *pub, The Bride of Denmark, when they were entertained to lunch by the* JOURNAL *last week.*

SYMPOSIUM ON STINKS

Congratulations, RIBA, on a first-rate Symposium on the Design of Teaching Laboratories. Congratulations, too, to Cleeve Barr and Stanley Meyrick for organizing it. Does this mean that we know all there is to know about this portentous subject? No. Only that we know beyond all reasonable doubt that we know almost nothing. The success of the Symposium really sprang from the fact that it had brought about a real encounter between scientists and architects. The scientists admitted that they really didn't know what they wanted, the architects that they had been unbusinesslike in trying to find out. This happy result must be in part attributed to Sir Keith Murray, the Chairman (who is also Chairman of the University Grants Committee), who created exactly the right atmosphere and whose immense skill in keeping the proceedings up to schedule augurs well for the laboratory building programme.

*

One fact which emerged is the terrible power of professors. If labs are out of date almost overnight, this is not because subjects and teaching disciplines change but because professors die and are replaced. You are not much good as a professor (and in fact are not made one) unless you want to turn everything upside down as soon as you get a chance; and against you even Vice-Chancellors are powerless. The architect's only hope when faced by a professor's exorbitant demands is to make him state them in the presence of the other professors, who also, of course, have exorbitant demands of their own.

*

It was, however, unfortunate that an architect of Fry's standing should play into the scientists' hands by speaking so woollily and nonsensically. For instance: "Unlike science . . . architecture deals in unities and creates by intuition" and "the process of analysis is opposed to the creative process. Pushed too far it leads to parsimony."

*

Incidentally, the Universities issues of the JOURNAL and the *Architectural Review* came in very handy at the Symposium, the verdict being that they had done a good job in stirring up the mud. "The Architectural Press makes me *very* angry sometimes," said Richard Sheppard genially.

LORD! NELSON!

Below are some before and after pictures of the Lord Nelson Hotel in Liverpool. If you are going to modernize a building, why not really modernize it, instead of merely bringing it up to the sub-standard style of twenty years ago? The caption that accompanied these pictures when they appeared in *The Hotel and Catering Review* said that the old railings in front were "unsightly." They were not, perhaps, elegant, but does anyone think those knee-high dwarf walls are more "sightly"?

NUTS AND THE RIBA

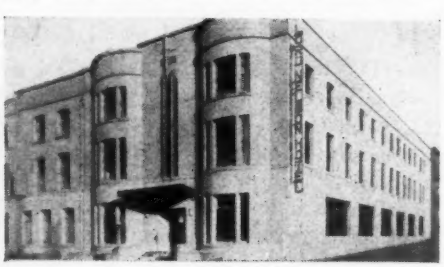
An interesting booklet which has just plopped into ASTRAGAL'S In tray is an Annual Guide to Careers for Young People, from the National Union of Teachers. Unfortunately architecture is not represented, presumably because half the guide is the work of advertisers. But can't the RIBA (and the schools), instead of economizing on public relations, arrange a really attractive display at the Education and Careers Exhibition which the NUT is organizing at Olympia next year?

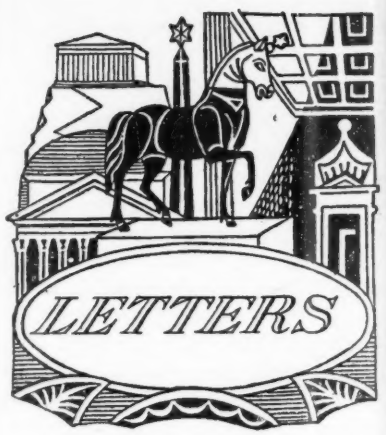
SENDING IN DAY

ASTRAGAL said last week that the final day for sending in models or drawings to the Royal Academy was March 26. This was an unfortunate error; closing date is in fact tomorrow, Friday, March 21. So you do *not* have this weekend to complete the drawings.

ASTRAGAL

The Lord Nelson Hotel, Liverpool, before (left) and after reconstruction: see "Lord! Nelson!"





Eric Lyons, F.R.I.B.A., M.S.I.A.
John Voelcker, A.R.I.B.A.
J. Paul, A.R.I.B.A.
Leonard C. Howitt, F.R.I.B.A., M.T.P.I.
William R. J. Hill, A.R.I.C.S.
A. E. Ward, F.C.C.S.
Secretary, Institute of Registered Architects
John Whitney, A.R.I.B.A.
Gordon Tait, F.R.I.B.A.

Elevational Control

SIR,—I think that planning has become a dirty word, and no wonder. Aesthetic control appears to be the main business of so many planning authorities, and is becoming a substitute for what might be called *positive planning*.

Your editorial attack (February 27) on Lord Mancroft can only confuse the situation. If Lord Mancroft doesn't like what goes on in the name of planning, then neither do I, and I can only agree with him that we need less of it. You yourselves say "aesthetic control is a major irritant to some architects but it has little or no effect on the mass of mediocre designs. . . ." I suggest that it is more than a major irritant: it is a major impediment. Aesthetic control is encouraging the decadent cult of preservationism, which is another substitute for *positive planning*.

By all means let us attack the many opponents of planning and architectural development, but we should feel encouraged that a member of the Government has at last recognised the need for some change in town planning legislation. Setting architects free from aesthetic censorship will not only correct a stupid situation but it will restore to architects their proper *responsibility* and thereby enhance their status. It is the first necessary process in creating a climate in which the architect and planner can collaborate.

ERIC LYONS.

Hampton Court.

SIR,—Being currently involved in the complexities of aesthetic control I should like to state that, infuriating as this kind of control is, I consider it to be a side issue in which I cannot become emotionally involved. On February 23, the *Observer* published a photograph of a missile base, an articulate group of buildings the centre piece like a church spire visible for several miles around. This "cluster" stood against the confused urban sprawl of California and I am to understand from the caption that it may stand among our own sprawls.

As an architect I consider that a missile base is no deterrent, on the contrary, it is a visual group which will destroy the whole sense of living in village, town or city. Were these bases to be constructed they would be the symbol of the Necropolis, the new urban idea, and they present a desperately urgent case for aesthetic control by architects, town-planners, and sociologists alike.

JOHN VOELCKER.

Staplehurst.

RIBA Subscription

SIR,—Your correspondents from Ayr (AJ, February 27) say that "Most young associates do in fact subscribe to the RIBA, simply in order to retain the distinction of A.R.I.B.A. . . ." This simple and hitherto overlooked fact is surely the basis for the reorganization that must come. I think that the RIBA subscription should be a composition fee. If it is true that the majority of members (and not only the "young" ones) only want the right to call themselves A.R.I.B.A., and do not require anything else, then why are they forced to pay for things they don't want?

The main function of the RIBA is to keep a list of members, as ARCUK does. One guinea seems a reasonable fee for this service and should be the basic subscription. Now, if there are members who wish to receive the *RIBA Journal* or the *RIBA Kalendar* (after all, there may be), well, in that case they would pay, say, four guineas, or seven, or ten, I would not be one of them and neither would nine out of ten others. But this system would be an honest one, you get what you want and what you pay for. The extras are optional. And if people want to go a-travelling, well, then, they should pay for it themselves.

Before offering an opinion on how the library is paid for, I should like to see an analysis of library users by regional distribution. I suspect that the London students form a large number of habitual users, and they pay quite enough already.

The introduction of this system would enormously simplify the administration. The Secretary with his half-dozen helpers could cope with the modest amount of essential work, thus making it possible to cut the wages bill and let out the now empty space for a considerable sum. Needless to say, there would be less money in the kitty than at present. If, after calculating the total income, the Council decide that there is not enough to keep the Establishment in the style to which it has become accustomed, why they will have to cut their coats according to their whatsits. The profession would not shed many tears if the impressive Portland Place headquarters of the RIBA were abandoned in favour of a place we *could* afford.

I understand that at a coming general meeting of the RIBA an attempt may be made to appoint a sort of watchdog committee, accepting the raised subscription as a *fait accompli*. I think this would be a mistake. For one thing it isn't too late until the cheque is actually in the post, and for another, instead of abolishing committees (the sensible thing) we would add to their number.

I therefore suggest that a resolution incorporating the composition fee principle be proposed at the general meeting; and I hope it will be received with enthusiasm, acclaim and a roar of agreement that will settle the future of the Institute for many years to come.

J. PAUL.

London.

"Unqualified Architects"

SIR,—In your news article on this subject on March 6, you report that the organization concerned employs "full time draughtsmen who are unqualified architects."

Perhaps you would enlighten your readers as to how it is possible for an "architect" to be "unqualified" in these days.

LEONARD C. HOWITT.

Cheshire.

The Editors write: We agree with Mr. Howitt that, legally speaking, there is no such thing as an unqualified architect, but how else do you describe a man who, in fact, does, however inadequately, the job an architect is supposed to do? It may be a distressing thought to Mr. Howitt that such men exist, but one must face reality.

Realistic Estimating

SIR,—Your review of *Spons Architects & Builders Price Book* referred to the "statistical fallacies" that the foot cube method of approximate estimating concealed, and advocated the use of foot super prices for this purpose.

The Editors of the price book in reply drew attention in their letter (AJ February 27) to similar fallacies concealed in the case of the foot super method, in particular to the lack of allowance made for differences in storey heights.

It seems equally wrong to use cube prices without regard, say, to the standard of finishings as to use a foot super price without making allowance for storey heights or window ratios.

Does this not confirm that, particularly where cost limits are laid down, it is advisable to prepare more accurate estimates based on approximate quantities, in which case the comparative prices in Spons Book are extremely useful, or to draw up a cost plan or an expenditure plan, based on known individual element costs of a previous contract with all the relative information regarding ratios of wall area to floor area, etc., so that these differences can be adjusted and a more realistic estimate provided?

WILLIAM R. J. HILL.

Nottingham.

Sale Of Good Will

SIR,—Recently, my Council have given consideration to the difficulties which arise on the death of an architect in sole practice. We are mainly concerned with the need to preserve the good-will until such time as the trustees can satisfactorily dispose of the practice. In several cases which have come to our notice, the Institute was not advised of the death of a member until much too late with the result that the good-will had been seriously impaired and, indeed, in some cases, it had practically vanished before effective action could be taken.

The Institute has taken legal advice on the drafting of a clause which architects in sole practice may include in their Wills. In effect, this is a direction to the trustees to communicate with the Institute without delay so that steps may promptly be taken to preserve the good-will pending the sale of the practice. This information has, of course, been given to all members but there may be other architects who, in the interests of their dependants, would like to have it. Details of the suggested clause will gladly be given by the undersigned.

A. E. WARD.

London.

Curing Subtopia

SIR,—It is good to know that integrity is not left unremarked (Mrs. Alex Richardson, AJ, Feb. 20), and of course we must always bear in mind the possibility of a fall from the present state of grace (this should apply to all designers, builders, manufacturers and even television producers).

Just supposing the situation were indeed very different. Suppose this very wicked lady's dark vision attained a certain reality and architects, somehow, stumbled into the wilderness: what would she advise them to do—and how would she guard against the rot setting in?

JOHN WHITNEY.

London.

Royal Academy

SIR,—None of your readers will quarrel with you in your endeavours to persuade architects to exhibit at the Royal Academy this year. In order that the public shall be in no doubt as to whether the buildings illustrated have been selected for their architectural merits, or for the skill of the manner in which they are presented, I do suggest that in future all architectural designs submitted to the Academy shall be in the form of models.

GORDON TAIT.

London.

DIARY

Pier Luigi Nervi—Constructor, Architect. Talk by Frank Newby, James Stirling and Peter Trench. Chairman: Edward Mills. At the ICA, 17, Dover Street, W.1. 8.15 p.m.
MARCH 20

100 Years of American Architecture. Exhibition at the RIBA, 66, Portland Place, W.1. Monday to Friday, 10 a.m.—7 p.m.; Saturday 10 a.m.—5 p.m. Admission free.
UNTIL MARCH 22

Plan for Rented Houses. Talk by J. E. MacColl, M.P. Chairman: Mrs. Mary E. H. Smith, Senior Housing Manager, Crown Estate Commissioners. At the HC, 13, Suffolk Street, S.W.1. 1.15 p.m. MARCH 25

Domestic Building and Speculative Development. Talk by Eric Lyons. At the RIBA, 66, Portland Place, W.1. 6 p.m.
MARCH 25

Economics of Construction. Talk by E. R. Parrinder. At the ISE, 11, Upper Belgrave Street, S.W.1. 6.30 p.m. MARCH 25

Presentation of RIBA Gold Medal. At the RIBA, 66, Portland Place, W.1. 6 p.m.
APRIL 15

RIBA

The Design of Teaching Laboratories: Vice-Chancellor Turns on his Critics

A one-day symposium on the design of teaching laboratories was held at the RIBA last week. The principal speakers were Sir Eric Ashby and Dr. S. R. Sparkes, who presented the clients' views, Maxwell Fry and Grenfell Baines who presented those of the architects, and W. H. Pritchard of Courtalds.

SIR ERIC ASHBY, the Vice-Chancellor of Queen's University, Belfast took as his text a sentence from the *Architectural Review*'s article on post-war university buildings, which it described as "the monumental record of failure of nerve in academic patronage, envelopes of red brick and stone, enwrapping an entirely vacuous concept of who, what and where a university is." Modestly confessing that he had given some thought to this entirely vacuous concept he added that such articles gave him and his colleagues the impression that some architects regarded a university as a state-subsidized opportunity for their own self-nobling aspirations.

"This is one of the things" he said emphatically, "which a university is not. A university is a society of people. In the middle ages, universities flourished without any buildings at all, and the vitality of a modern university is entirely independent of the quality of its architecture. The purpose of university buildings is not to ornament the landscape; it is to keep members of the society, together with their books and equipment, warm, dry and adequately illuminated. Therefore, when a university asks an architect to design a chemistry building, it expects the architect to work from the inside outwards. If the architect can make the building beautiful, so much the better. But its *purpose* is to suit the convenience of the society that works inside it, not to elicit the admiration of people waiting at the bus stop on the other side of the road."

After touching on the proposed expansion of the universities (Sir Eric thought the figures were on the conservative side) he discussed an unsolved problem in laboratory design, deplorably low "efficiency of plant-utilization." The largest laboratory was the elementary laboratory but the elementary class in (say) chemistry did only six hours practical work a week for two terms. In other sciences it might be even less. These laboratories were available 897 hours a year, but were only occupied by students for 108 hours a year, giving a "plant-utilization efficiency" of 12 per cent. For 88 per cent of the university's opening time those laboratories would be empty. Many advanced courses required the laboratories for no more than 12 hours a week, for 22 weeks or 264 hours a year, giving an efficiency of 29 per cent. Only the honours student in the last year occupied the laboratory for anything like the time it was available.

Sir Eric gave the following figures for a modern geology department, including all classes, not only those for geologists:

Laboratory	*Area, sq. ft.*	*Hours per year occupied*	*Hours per year vacant*	*Efficiency (per cent. available time occupied)*	*Student-place-hours vacant*
Elementary	1,600	176	721	19·5	39,600
Advanced (i)	1,600	264	633	29·4	12,640
Advanced (ii)	1,600	264	633	29·4	12,640
Total	4,800	—	—	—	64,880

The number of student-place hours of teaching space in this building (excluding a seminar room which is used by honours students on and off all the time), available in the year was about 80,640. The number of student-place hours actually used was about 15,760, an overall "efficiency of utilization" of 19·5 per cent.

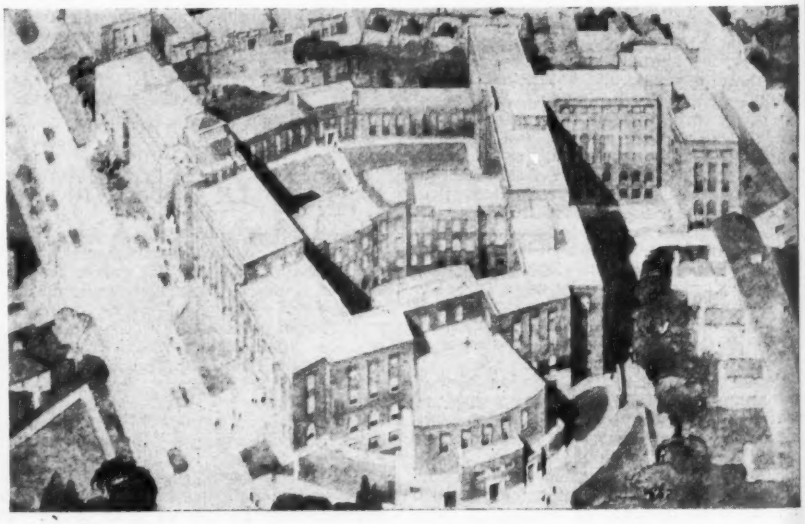
In the United States the problem was solved by splitting the classes into small groups which did their practical work in relays: and Sir Eric calculated that the saving in capital costs would just about pay the salaries of the extra assistant lecturers necessary to deal with the smaller practical classes. There were difficulties in the way of such a solution for Britain, particularly a lack of teachers. But would it, he asked, be possible to design multipurpose laboratories? If £12 million a year were to be spent on university building, a solution of the problem of the low efficiency of utilization of science laboratories might be of greater architectural interest than the realization of some of the querulous aspirations of the *Architectural Review*.

The second major point raised by Sir Eric Ashby was the fact that the buildings now going up would last 200 years, which gave him no comfort because it was impossible to foresee the needs of science in the third millenium, only 42 years away. If the view in some foreign countries that too much laboratory work was a waste of time prevailed here, the whole design of science departments would have to change. The only safe policy for the design of science teaching laboratories (which would, he conceded, be unpopular) he stated as follows:

"Science buildings should comprise elegant and permanent façades containing offices, classrooms, seminar rooms, lavatories, and a library. But the laboratories should be built at the back in such a way that they can be demolished and rebuilt in forty or fifty years without a qualm of conscience or a twitch of regret. What a science department needs most of all is space and opportunity for improvization. This often requires a back yard; and back yards are anathema to architects. I could give you examples of beautiful modern buildings, of the kind which even the *Architectural Review* might approve, with a plastic finish and a forward look, which are so beautiful all round that you couldn't add a dustbin or a shed to hold empty packing cases or a bicycle rack anywhere near without ruining the architectural effect. The buildings are all front. What the scientist needs is back. One prediction I will venture for the future. Campuses must have back yards."

He added that, if the laboratory was designed and built to last 40 years and not 200, the idiosyncrasies of professors could be adopted with a light heart, new professors could ask for the fresh laboratories with a clear conscience, the benefits of fresh ideas would be more rapidly incorporated into science departments, and architects would have to face the fact that some of their work would be as mortal as themselves.

Sir Eric Ashby, in the speech reported on this page, said that the purpose of university buildings was not to ornament the landscape. Is the new building, below, for his University (Queen's, Belfast) to be taken as an expression of this view?



"Creation by Intuition"

MAXWELL FRY, whose paper was called "The University Teaching Laboratory," said that to contemplate a programme of building in the way that Sir Eric Ashby had done was to vitiate the essential purposes for which Universities existed. The purpose of the University was to safeguard and promote civilization, and in this the confribution of the architect was distinguishable only in degree from that of the scientist. "I could, therefore, not agree that our function as architects is merely to provide a convenient and lasting shelter for university scientists. Offered me in such terms, I would decline the commission and look elsewhere for more purposeful clients." Sir Eric Ashby's conception of a building given over at the back to temporary structures had already been discarded by progressive industry.

The first step towards getting the right science buildings was to draw up a definite programme of needs. The special reason for the clearest possible programme of the client's requirements was this: unlike science in general, architecture dealt in unities and created by intuition. What distinguished architecture from mere building was feeling: what gave architecture its importance to society was its ability to fertilize the soul. Since this was a personal experience, everything possible should be done to ensure that the critical moment of creation was propitious.

The struggle to work out an architecture to fit more closely the facts of contemporary life made architects better able to serve scientists than in times past. The revolution in architecture was based on the study of function, the acceptance of industrialism as material for art and the service of society as a working faith. It could not do other than work from the inside outwards, and use the facts as we found them. But still less could it abrogate its chief end, which was to give outward form to the life of this society. Efficiency, as an end in itself, was nearly despicable. What they both sought was value, considered at its lower levels in terms of efficiency and at its higher in terms of feeling. The lower plane value could be measured in terms of performance, cost, durability and maintenance; it could be analysed, codified, standardized; but, though information was gold and economy another word for true proportion, the process of analysis was opposed to the creative spirit. Pushed too far it led to parsimony.

Assessing Accommodation

DR. S. R. SPARKES, Imperial College of Science and Technology, in his paper on "Planning Buildings for the Teaching of Science and Technology," said that the main emphasis on the diploma course in the colleges of advanced technology would be on the application of science to technological processes and the development of new processes. The equipment of technological laboratories might therefore have close relation to industrial processes. He put forward a possible synthesis of the requirement for such a college, on the assumption that five or six courses would be provided, and the maximum first-year entry for any course would be sixty, or perhaps 400 a year in all. As the lectures common to all courses would decline after the first year, there might be several hundred students at first year lectures, but most lecture rooms would be for about 60 students.

In the provision of drawing offices and classrooms Dr. Sparkes suggested that it might prove economical for each student to have his own drawing office place at which he kept his drawing board, tee square and instruments. By providing tables of normal height with removable supports for the drawing board, the rooms could be used as drawing offices, lecture rooms, rooms for private study and discussion. Such rooms would have a high intensity of use, and would be of suitable size for conversion to other uses as required.

In laboratory design there should be as many pieces of apparatus as there were groups of students working together, and laboratories big enough to cope with a whole class at once. This was obviously expensive, and consideration should be given to the co-ordination of the programme of laboratory work so that expensive equipment was used to the maximum extent. Dr. Sparkes stressed the importance of providing each member of the academic staff with his own room, so that with a student staff ratio of between 10 and 20 to one something like 50 small rooms would be required. He assessed the proportion of different types of accommodation for a college of advanced technology (using schedules of accommodation prepared for university engineering departments as a guide) as follows:

Description	*Percentage of total accommodation*
1. Lecture theatres and rooms (one lecture theatre for say 300 or 400 students at 10 sq. ft. per student, and lecture rooms for up to 60 or 70 at 11 sq. ft. per student. Lecture rooms up to 1,000 sq. ft.)	6
2. Drawing office/classroom (multi-purpose rooms for 60 to 70 students at 30 sq. ft. per student. Rooms up to 2,000 sq. ft. in area and, say, 12 ft. high)	14
3. Light laboratories up to about 1,000 sq. ft. in area and, say, 12 ft. high	20
4. Heavy laboratories and workshops usually greater than 2,000 sq. ft. in area and up to 20 ft. high	51
5. Staff offices and small rooms, 100 to 300 sq. ft. and, say, 8 ft. high	9

In science departments the percentage of rooms 12 ft. and 20 ft. high might be reversed.

Dr. Sparkes illustrated a possible arrangement of this accommodation with the large, high laboratories at ground level (the roofs being used as amenity open space) the class rooms, drawing offices and smaller laboratories being in a five-storey block, enabling different floor heights to be used and integrated within the same overall building envelope. He pleaded with architects not to squeeze all the accommodation into a uniform rectangular building of approximately equal floor heights, and illustrated two recent cases of university building to illustrate the consequences of this mistake.

On briefing Dr. Sparkes emphasized the need for getting a detailed brief peculiar to the college from two groups; the Principal and the Heads of Departments, and those in charge of the laboratories, including the senior technicians. Where enthusiasts, lacking a sense of proportion, maintained that their work was so important that it could not be bound by limits of expenditure, he suggested bringing rival enthusiasts together to argue it out, on the theory that it was easier for one technologist to tell another that he was talking nonsense than for the architect to do so. But he also urged the architect to respect the scientist's views on his technical proposals. It was not good enough to take a fashionable proprietary article off the shelf and assume it would be satisfactory. Too many clients were now paying the heavy price of maintenance and inconvenience caused by the architect's use of unsuitable materials or systems. The scientist and technologist in his own field could make a useful contribution to the architect's knowledge in such matters.

Finally, Dr. Sparkes said that it was most important that colleges engaged in any major new project should employ a technically qualified Planning Officer to liaise between the architect and the college, providing an essential link between architects having little technological knowledge and technologists having little knowledge of architectural techniques.

Importance of Briefing

GRENFELL BAINES, who spoke on "Science Buildings in Colleges of Technology," suggested that Sir Eric Ashby's Whistleresque picture could imply a building with an immaculate Queen Anne front designed by some eminent Academician, with shacks at the back provided by some convenient all-in service. Dr. Sparkes, he thought, was more definite. His emphasis on the individual implied that the more advanced the teaching the more small cells the building must provide, and this led straight into the design process.

In his office the design process was in three stages: (1) basic space arrangement by Department relationships; (2) room space shapes and relationships within Departments, and (3) detail layout of equipment and services. The third stage should conclude by offering ideal teaching and learning conditions in each room: good visual qualities could not be disassociated from the design of even the smallest item of equipment. Associated with all three stages was a threefold procedure: (*a*) obtain requirements, (*b*) retranslate and discuss requirements by schedule text and diagrams, and (*c*) draw up the outline building design. (*a*) and (*b*) were lengthy processes. At all stages it was important to know *all* about the people using the departments and the building, and what they *do*. He preferred to start with a summit meeting with the Principal and Heads of Departments, then with teachers and operators. To keep the design fluid in thought they avoided producing too many drawings at the early stages.

Grenfell Baines then went into some details of the design process to show how usefulness, firmness and beauty interacted in the process. In tall blocks they had concluded that there was much to be said for Core planning. So far no serious disadvantages had been discovered, but it was the architect's job to take himself and his client partner through the design time and time again until it was proved sound. One problem that was rarely solved properly was the disposal of corrosive effluents. In multi-storey buildings an all-glass system, if possibly totally enclosed and readily visible, was the most promising solution yet.

Next Grenfell Baines dealt with the "omniflexibility myth" which, he said, befogged the thinking of client and architect. Building for out and out flexibility was expensive, and overspending on it could mean inferior finishes in vital places. He had coined the phrase when designing an office building that "people are easier to move than partitions." The client agreed. In practice they invariably found that little use was made of elaborate and expensive provisions for removable walls, ceilings, and even floors. Omniflexibility had uses, however, to guard uncertain clients from too curious architects or as a convenient geni for lazy designers.

Perhaps the best tool for tightening the screws of logic in matters such as this was the Cost Plan, which was just as useful as the traditional sketch plan, and could be just as expressive of good or ill proportion in the design. Here Mr. Baines pointed out that while the costs of the group of items going to make the "habitable shell" were comparable, equipment and engineering services varied enormously with individual teaching designs. This exposed the difficulty of controlling costs over a national programme, and he hoped that with the greater use of cost planning technique the government would be persuaded to treat every college on its teaching needs, and only make comparisons where they could fairly be made.

W. H. PRITCHARD, of Courtaulds, who spoke on Materials and Services, used the time allotted to him to establish two points by means of specific examples. Some of these examples were already discussed in his articles in the Architects' Journal*, but others were new. His points were, first, that no centrally distributed service should be installed unless there is an overwhelming case for it; second, that no materials should be used which have not been examined regarding their chemical composition, physical properties and performance under conditions strictly comparable to those envisaged.

His reason for his first contention was the great improvement which has taken place recently in the manufacture of portable equipment. As an example he instanced the great superiority of the portable ion exchange column over the traditional condensate still for the production of distilled water; also the use of local filter pumps to obviate a central vacuum supply. Mr. Pritchard dealt with the question of the choice of materials by drawing attention to a number of specific applications which he considered very satisfactory. The first of these was mineral insulated cable, which is in effect a copper conductor insulated with compressed magnesium oxide and sheathed in seamless copper tube and is virtually indestructible. He suggested that if you have a plastic waste system you should have glass traps and that glass is also a useful material for certain kinds of distribution pipe, being less fragile than people imagine and easy and cheap to replace. For laboratory benches there is as yet no real alternative in this country to authentic teak, but he expressed the hope that we may be able to find an indigenous soapstone similar to the "Albarene" stone used in America. For fume cupboard backs he advocated asbestos cement finished with epoxy resin paint. He criticized the current use of Georgian wired glass for fume cupboard fronts as this will crack at quite usual temperatures: toughened glass costs only a little more and has far better resistance to heat. Lastly, for the future, he placed great hopes in polytetrafluorethylene which resists all chemical attack except by fluorine and molten alkali metals and can be used in temperatures of up to 300° C.

The last paper was followed by a discussion which was admirably organised and which added much to the main contributions. Professor Christopherson, of the College of Science, who opened the section of the discussion dealing with changes in teaching practice, spoke of the recent decision of MIT to end the teaching of engineering drawing in most engineering courses, a decision which at once reduced the need for drawing office space by three-quarters. The question of how flexible a laboratory should be and how long it should be built to last occupied a number of speakers and Sir Eric Ashby's concept of a tidy permanent front with an anonymous backyard came under heavy fire. Anthony Cox, leading the discussion on the organisation of space, suggested that the answer in general terms was multi-purpose building, but pointed out that laboratory departments were not used to this idea. Cleeve Barr, speaking on client/architect relations, agreed with Mr. Pritchard's suggestion that there was a strong case for appointing a liaison officer who understood both the architect's and the scientist's language, but said that there was a danger that he might become a barrier and prevent the architect from ferreting out the facts for himself. This point was later echoed by Anthony Pott, who drew attention to the emergence in America of Educational Consultants, who have become the bane of school architects' lives. The most frequently voiced demand, however, was for more research and for the gathering together and publication of existing knowledge. James Page, of the Department of Building Science at Liverpool University, said that he had estimated that a very useful study could be undertaken at a cost of only about ·025 per cent. of the current laboratory programme; Cleeve Barr called for a user requirement survey, Bruce Martin for the setting up of a group who would coordinate our knowledge, and Richard Sheppard for a study on the rate of laboratory obsolescence.

A vote of thanks was proposed by Sir Graham Savage, late of MOE, and seconded by Anthony Pott.

* May 30, 1957; June 6, 1957; August 29, 1957.

RIBA

In Brief

Negotiations are to be opened for an exhibition of work by Arne Jacobsen at the RIBA. The RIBA Council has also agreed to make a grant of £400 towards the cost of showing an exhibition of Le Corbusier's work in London under arrangements to be made by the Arts Council.

Norman H. Fowler, President of the West Yorkshire Society of Architects, has been elected Chairman of the Allied Societies Conference for 1958-9, and becomes a Vice-President, RIBA, for that session.

The RIBA Award for Distinction in Town Planning is to be conferred on Anthony Minoprio, Prof. Gordon Stephenson, and J. Lewis Womersley.

OBITUARY

We announce, with regret, the deaths of H. R. Bird, a past member of the RIBA Council and past president of the Essex, Cambridge and Hertfordshire Society of Architects; J. B. Shurman, a past member of the Council, and past President of the Birmingham and Five Counties Architectural Association; A. T. Allcock, a past member of the Council, and past President of the Leicestershire and Rutland Society of Architects; and A. J. Stedman, a past President of the South Eastern Society of Architects.

ARCUK

Another Financial Crisis: Fees Go Up

The Architects' Registration Council of the United Kingdom decided on March 14 to raise its annual retention fees by 50 per cent, from £1 to £1 10s., to double admission fee from 10s. to £1, and to increase the penalty on readmission from £2 to £3. On the assumption that the number of names on the register will remain at about 19,000 the increased retention fee will bring in an additional £9,500, of which one half is required by statute to be devoted to scholarships and maintenance grants. An incidental result, therefore, of the increased fees is an increase of the sums available for scholarships and grants by £4,750. The Finance and General Purposes Committee considered the possibility of reducing the proportion of the retention fee payable for this purpose, thus obviating the need to raise the fee, or making a smaller increase possible. The Committee considered, however, that the passing of the necessary amendment to the Architects' Registration Act was not possible in the foreseeable future; nor is the Council entitled to spend money on promoting legislation.

A note prepared by David Benton, the registrar, says that the annual retention fee was fixed at 6s. 8d. in 1932, at 10s. in 1939, and at £1 in 1945. Since then prices have increased, and additional charges arise from the contribution to the registrar's pension (10 per cent of his salary) and the pension of £900 to Mrs. Wicks, the widow of the former registrar. The rent of the new premises will be £1,350 a year, compared with nil at Wimpole Street and only £275 when ARCUK was previously at 68, Portland Place. Rates will be substantially higher. The cost of new furniture, fixtures, fittings and equipment is estimated at between £1,500 and £2,000. Budgets for 1958, 1959 and 1960 estimate an annual deficit of £2,192, £2,459 and £3,185, the total deficit more than absorbing the reserves of £7,350. In 1957 there was an excess of income over expenditure of £272. The admission fee was fixed at 6s. 8d. in 1932, and increased to 10s. in 1939, since when it has remained unchanged.

The increase is expected to bring in £150 a year. The penalty on readmission was 10s. from 1932 to 1945, and has been £2 since. The increase to £3 would bring in £90 a year.

DISCIPLINE

Press Rule Found Unworkable: Ban on Participation in Overseas Company

Other matters which came before the Council of ARCUK at its meeting on March 14 were:

Repeated defaulters: The names of those architects who, in the past, have repeatedly delayed the payment of their retention fees until after the receipt of the final warning letter, and who fail to pay this year's fee by April 1, 1958, are to be removed from the register on that date.

Press articles about architects: The council has withdrawn its recommendation made in June, 1956, that architects should insist on seeing a proof of any article describing an architect's work or practice before publication. It has been pointed out to the Professional Purposes Committee that when a building or an architect became of newsvalue to the Press, particularly to a daily newspaper, the architect concerned was rarely in a position to impose any condition on, or otherwise to control, what was published or the manner of its presentation. It has also been argued that the profession has been striving to arouse national interest in its work, and that an attempt to censor editors in what their newspapers might publish about them might discourage the Press from giving active and intelligent attention to architecture. The Committee have concluded that, at any rate as far as the lay Press is concerned, it might not be practicable for architects effectively to impose such a condition on editors, or reasonable to expect architects to have their names omitted from all publicity given to projects. The Committee have directed the Registrar to inform those architects concerned of these views, but to emphasize that each case of alleged advertising is considered in the light of its own peculiar circumstances. In doing so the Committee is guided by the principle that the onus must always remain on the architect to ensure by all practicable means that he does not receive publicity which is offensive to the ethical standards of the profession.

Christmas presents: The Committee have instructed the Registrar to reply to an enquiry about Christmas presents from contractors, manufacturers, etc., that this was not a question on which a clear line of demarcation could be drawn between what could be and what could not be accepted, and that it must be left to the good sense of individuals, the guiding principle being the fundamental one—that the acceptance of any gift or token must not denote, or raise the suspicion, that it would affect the architect's completely independent judgment.

Architects not allowed to take part in overseas company to meet competition: The Council has ruled that it would be inconsistent with the Code of Professional Conduct for architects to participate in a limited liability company formed to provide certain professional services overseas. The Professional Purposes Committee had been asked by a firm of architects whether there would be any objection to their participation in the formation and activities of the company.

The object of the new company was, briefly, to form into a legal entity a group of professional firms to meet existing foreign competition from Germans, Italians, the Dutch, Americans, etc., by providing comprehensive professional services overseas. It was the intention of the Group to function only on projects requiring a number of professional services, and by engaging the services of the Group a client would be advised on the total range of the services required for the project, an estimate of the overall initial costs of obtaining the services, and on other kindred matters. Such a comprehensive service was now, it was claimed, provided by foreign competitors and the Group would meet this competition by making available the collective specialist services of economists, accountants, engineers of all types, architects, surveyors, etc.

On the services of the Company for a project being engaged, separate Agreements would be entered into between the client and the professional members concerned in the normal way.

Group members would contribute funds to the Company for the provision of a central co-ordination and information service, and its management and administration.

The architects concerned state that the company would not obtain work except by normal professional means, but "any initial information issued to potential clients will be confined to the Company's objects and activities and methods."

In a covering letter from the principal of the firm of architects he states that the activities of the company would be limited so as to avoid unfair competition with their professional colleagues, and obtaining work other than by merit or personal introduction. The architects, and the other professional members would continue to practise in the normal fashion as well as working on Company projects.

After giving considerable thought to the above proposal, the Committee are of opinion that the participation of architects in a scheme of this nature is inconsistent with the Code of Professional Conduct, and the Registrar has been instructed so to inform the architects concerned. It was difficult to avoid the conclusion that such a company might engage in, and perhaps was intended to engage in, activities which are forbidden to architects, under the Code, *e.g.*, soliciting and advertising for business, and the payment of commission for the introduction of work.

New Council

The Architects' Registration Council of the United Kingdom for 1958-9 consists of the following representatives: Harold Anderson, D. H. Beaty-Pownall, J. B. Brandt, J. E. A. Brownrigg, L. A. Chackett, Thomas S. Cordiner, F. F. C. Curtis, R. E. Enthoven, S. Vincent Goodman, R. D. Hammett, J. Kenneth Hicks, Leonard C. Howitt, R. J. Hurst, H. L. Kelly, Cecil Kennard, A. H. Ley, H. Martin Lidbetter, Howard V. Lobb, E. D. Lyons, S. W. Milburn, E. D. Mills, T. E. North, J. T. W. Peat, F. B. Pooley, F. L. Preston, W. A. Rutter, R. H. Uren, A. Neville Ward, David B. Waterhouse.

Incorporated Association of Architects & Surveyors: A. P. Lambert, R. Mealings.

Faculty of Architects and Surveyors: S. Clough.

Architectural Association (London): J. M. Austin-Smith, J. Brandon-Jones, W. G. Howell, John S. Lacey.

Association of Building Technicians: B. H. Cox.

Provincial Associations: W. H. Glen Dobie, R. J. Potter.

"Unattached" Architects: Vincent Burr, E. W. Chapman, E. W. Palmer, W. H. Scanlan, H. E. G. Stripp.

Royal Society of Ulster Architects: R. S. Wilshere.

Appointed by the MOE: A. A. Part.

Appointed by the MOHLG: J. H. Forshaw.

Appointed by the MOW: G. Ford.

Appointed by the Department of Health for Scotland: T. A. Jeffryes.

Appointed by the Governor of Northern Ireland: J. M. Aitken.

Royal Institution of Chartered Surveyors: E. C. Strathon.

Institution of Structural Engineers: F. R. Bullen.

Institution of Municipal Engineers: F. H. Clinch.

The Society of Engineers: W. R. Howard.

Institute of Builders: D. A. Neale.

National Federation of Building Trades Employers: D. E. Woodbine Parish.

National Federation of Building Trades Operatives: Sir Richard Coppock.

CHURCH DESIGN

A Birmingham School

Interior view of a church at Coventry by A. H. Gardner, showing the ceiling referred to in the report.

A correspondent writes:

A two-day school on church design was held at the Friends Meeting House, Birmingham on February 28 and March 1, organized by the department of Extra-Mural Studies, Birmingham University. The school was opened by the Rev. Gilbert Cope, director of the department, and was devoted to two topics. The Rev. Peter Hammond spoke on the effect of the Liturgical Movement in the reformed and the Roman churches on the design of church buildings, and Jean Magnan, general secretary of the French Union of Churches' Co-operatives spoke on the latest developments in France, particularly the design of the new and reconstructed churches, and the collaboration between architect, sculptor, painter and decorator in the detail design of furnishings in the modern French church. M. Magnan has been very largely responsible for the enlightened outlook now so prevalent in France, and by contrast so conspicuously lacking in this country. He mentioned that the Union is often unable to impose the architects it wants on the local Communes, too many already having been appointed by local friendships. In France, he added, some architects had genius, many had talent and most knew their jobs, but there were others whose only care was their own notoriety, with whom the Union had to collaborate as best it could. Finally, when a good scheme of a good architect was obtained, they still had to fight to get it accepted by public opinion. The lively discussion at both sessions was made more interesting by the presence of priests of all denominations.

The second afternoon the party visited three recently-built churches in Coventry. The first, by Basil Spence at Tile Hill, impressed by its simplicity of design and rigid economy of means. The second, by Lavender, Twentyman and Percy, was also a simple rectangle without chancel or division. A nave 40 ft. wide was made to appear less wide by the ingenious, but on the whole æsthetically unsatisfactory, device of sloping in the walls. The third, by Alfred Gardner, might best be described as Pleasure Gardens pastiche. The architect explained that for reasons of cost the shell concrete triple vault roof he designed had been abandoned for a make-believe, in which a fibrous plaster ceiling pretending to be a triple vault roof is suspended from a simple timber structure carried on longitudinal r.c. beams. The ceiling is reminiscent of those Midland confections which ooze cream through a skin of pastry.

Of the three churches the last, despite its lack of structural honesty and some unfortunate pieces of decoration, gave the most satisfying effect of enclosed space. Basil Spence concentrated everything on the altar background, hanging in appliqué material a very striking and colourful design by Holt and Holtom. Lavender, Twentyman and Percy also gave great emphasis to the wall *behind* the altar, while only in Gardner's church did the space around the altar table give a feeling of community. The over-riding impression which the writer carried away from the school was one of optimism, and of the power of the Anglican and Roman, as well as the Free Churches, to go forward on the wave of the new liturgical movement as leading patrons of art and architecture.

HC

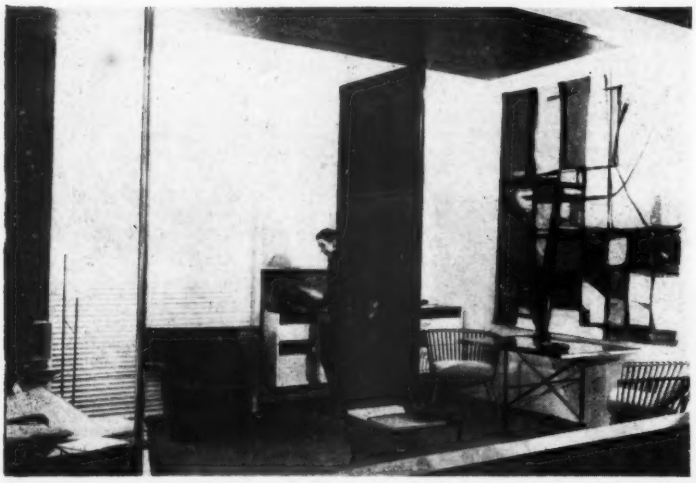
Office Location In Relation to Workers' Homes

The most surprising thing about the Housing Centre's one day conference on the location of offices in relation to office workers' homes was the plea for more information from Richard Edmonds, chairman of the LCC town planning committee (writes a correspondent). He said that it was a vital fact-finding conference, and appealed to those present to enlighten him on such questions as whether it was a practical proposition for an insurance company to maintain a prestige office in the centre of London, while moving the bulk of its routine office work to a more outlying area. If such elementary information is not available this only underlines the need for a serious planning research section, both in the LCC itself and in the Ministry of Housing and Local Government.

Mr. Edmonds envisaged some movement of population into the centre to bring office workers nearer their employment, and it was clear from the discussion that an increasing number of people who have fled from the city to the suburbs or the country is now anxious to get back to the centre. The City's housing manager said that more and more people from such attractive places as Sevenoaks and Brighton are applying for flats in such a desert as the

(*Continued on page* 426)

JAPANESE DEPARTMENT STORE DEFEATS THE

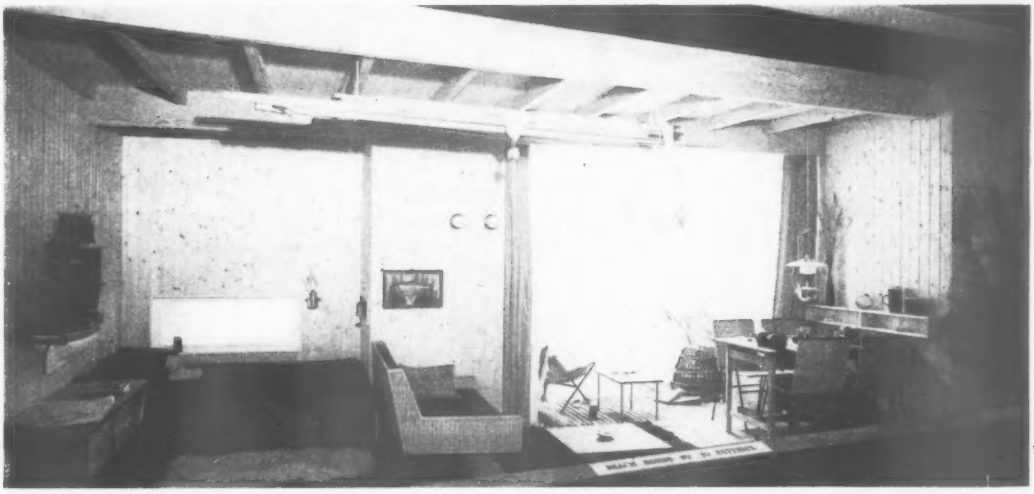


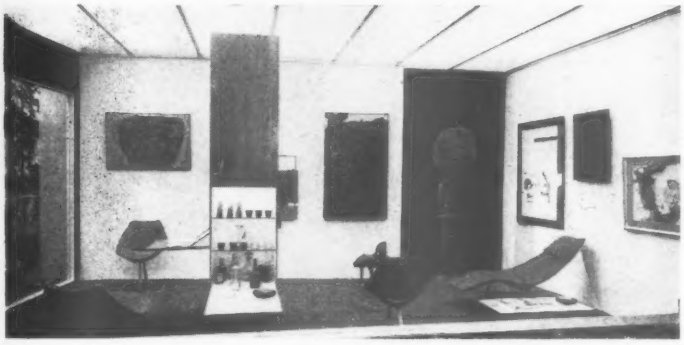
Above is a reproduction of a traditional Japanese kitchen being shown at the Ideal Home Exhibition. All the china and lacquer-ware came from the Shirokiya Department Store, Tokyo. The entire kitchen equipment cost less than £60. There is nothing particularly exciting about it, it is not intended to be. It is exceptional only in that it is good design, apparently effortlessly and cheaply

achieved, by comparison with the expense and mental flagellation evident in the rooms arranged by western designers—whether amateur, like Mrs. Gerald Legge, part of whose near-tawdry bedroom interior is shown above, or professional like Mathieu Mategot, whose bedroom for a young French couple, largely in meta strip and mesh, is shown centre left. The Danish dining

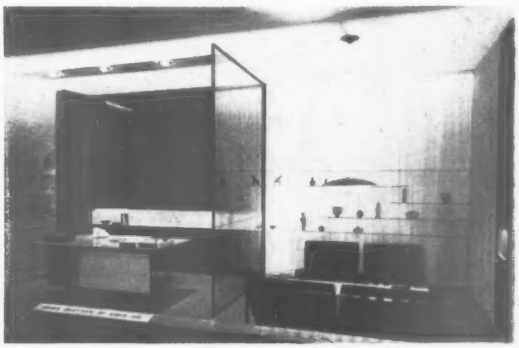
WESTERN WORLD AT IDEAL HOME EXHIBITION

room, bottom left, opposite page; Jo Pattrick's beach house, right; Richard Hamilton's "private picture gallery" below, and Robin Day's office centre right, for an executive all owe an obvious debt—of varying degree

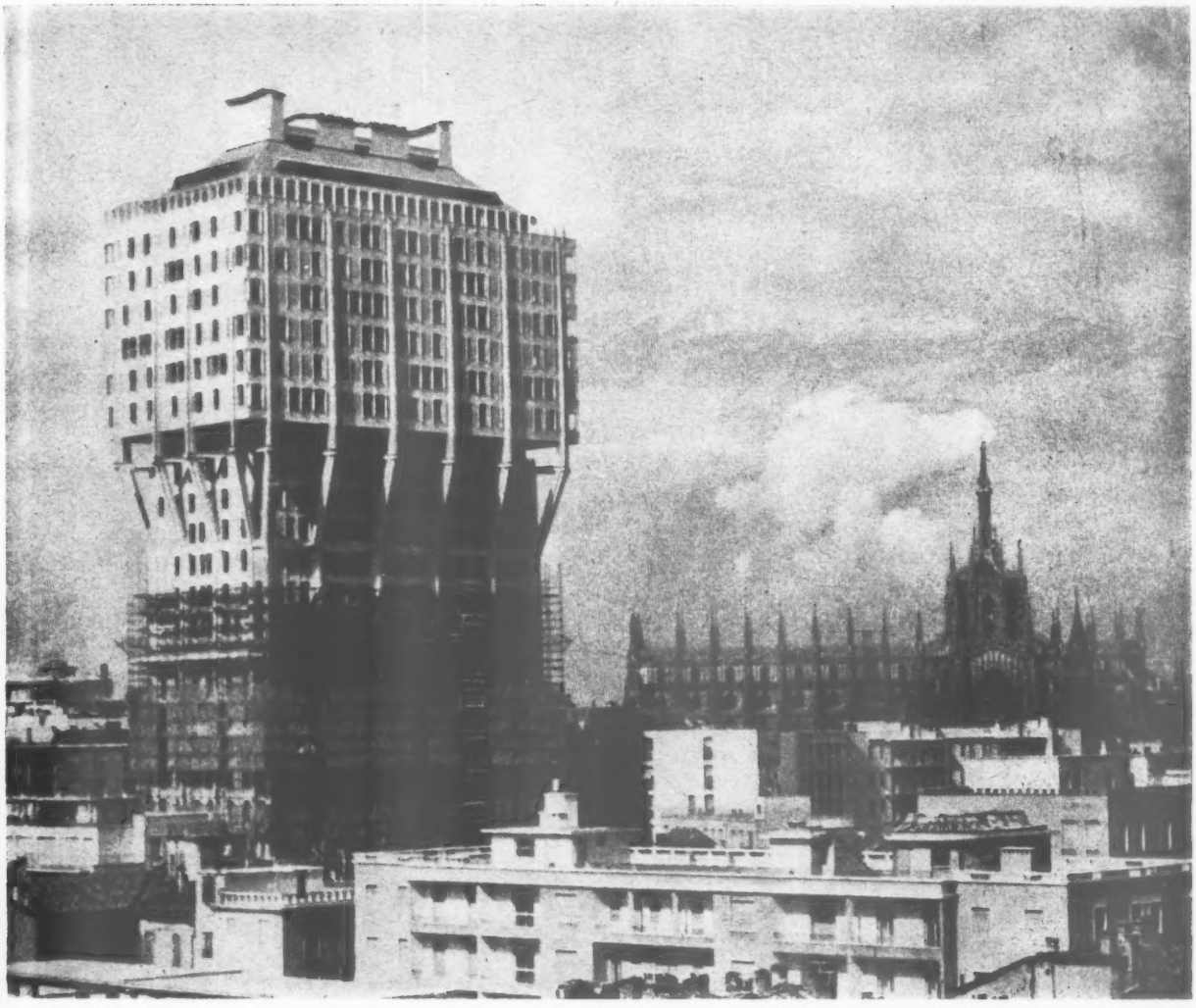




—to the Japanese. Hamilton's gallery, despite the fashionable shapes of chairs by Harley Earl, General Motors' stylist, is unsuccessful, largely due to the oppressive effect of intense, low-level, over-all ceiling lighting. Robin Day's office, designed to demonstrate (with a



collection of early pottery) that there is no reason why the "modern executive should not also be a man of culture," is so precious that it would only suit a man who wore his culture on his sleeve. The design by John Carter, bottom left, of a living room is influenced more by Lloyd Wright, regrettably, than by the Japanese, but demonstrates the facility with which interior designers have accepted the outward forms of modern architecture without understanding its purpose.



Above the progress being made with the 26-storey tower block of offices and flats in Milan by Belgiojoso, Peresutti and Rogers can be seen very well in this recent photograph.

Below, Howsham Hall in the East Riding of Yorkshire, which has been saved from demolition by a notable piece of co-operation between the Society for the Protection of Ancient Buildings and other interested parties. The building has stood empty since 1949, but is now to be restored with the aid of a grant, and will be used as a preparatory school. The fact that a use has been found for it after so many years shows the importance of keeping buildings of this quality standing as long as possible.

(*Continued from page* 423)

Barbican, because they can no longer tolerate the daily journey to work. But Mr. Edmonds' main theme was the need to locate offices further out: in the "inner perimeter" (is this the latest planning jargon?) at points such as the Elephant and Castle where there is a good transport service; in the "outer perimeter," by which he meant such boroughs as West Ham, Croydon or Lewisham, and in the new or expanded towns. He recognised the need for "prestige offices" in the City, but asked whether it was not possible to decentralise other office work while keeping the board room and similar functions centrally. With modern methods of communication was it not possible for the editorial side of printing to join the printing works, which have moved out to Watford? Mr. Edmonds offered no answer, as he admitted that he knew the problem, but not the solution. Miss Hart, the general secretary of the National Association of Women Civil Servants, emphasized that to move out staff raises a host of human problems which can only be solved in a planned operation that guarantees houses for those who are transferred. This is, of course, done in the new towns, but the point made against the new towns was the lack of social amenities compared with London. Brooke Taylor, of Hemel Hempstead, made the all too familiar point, that money must be spent on providing these amenities: the cost, he suggested, would be only one seventieth of the capital cost of the whole town.

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MDL.1

AN OPEN-PLAN BUNGALOW WITH CEDAR WALLCLADDING

This bungalow in cedar weatherboarding and shingles, with a low-pitched roof covered with green "slated" felt, was designed by A. L. Osborne for W. H. Colt Son & Co., to demonstrate attractively as many uses of wood and standard details as possible. Above is a general view of the bungalow from the south-east, showing cedar weatherboarding and continuous row of windows to the living room. The windows, by Crittall, are set in special wooden frames and the front door is of mahogany and sycamore, somewhat spoiled by the rather fussy porch treatment (shown below left). An open plan interior has been adopted, with a dining recess separated from the rest of the living room by a freestanding fireplace, and lined with parana pine ogee panelling. The living room, with two walls of continuous window (shown below, right) has curtains of broadly striped shantung which draw right across the windows, under a fitted Colt pelmet which runs the length of the room. Furnishing and colour schemes were carried out by Andriss of Tunbridge Wells.

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

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THE INDUSTRY

From the industry this week Brian Grant describes a new range of tiles, jointing polythene tube, an oil-burning cooker, a transformer plug, air filters, a plastic channel for trapping condensation and aluminium building sheet.

Coloured earthenware tiles

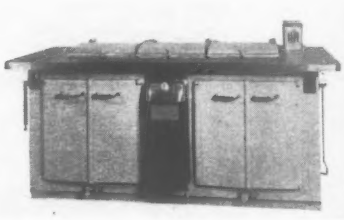
Some six months ago Carters introduced the Dolphin white glazed earthenware tile, and have now developed a further range of 36 colours which are claimed to have high resistance to crazing and to be consistently uniform in size and shade. The new colours include matt, glossy, plain and speckled finishes, and each colour has its equivalent in BS.2660 or in the new standard colour range for baths, sanitary ware and cookers. The normal Carter tile range includes about 70 colours and the present Dolphin range is likely to be extended when further experimental work is completed. (*Carter & Co. Ltd., Poole, Dorset.*)

Jointing polythene tube

The section on the right shows the arrangement of a new Wednesbury fitting used for jointing polythene tubes to BS.1972. A rigid plastic ring is inserted in the tube with a simple tool and forms an external raised collar which is gripped between the threaded body of the fitting. The sleeve and the tube cannot pull out, the manufacturers claiming that the joint will withstand a pull of 500 lb. or more. The fittings and tubes can be joined to existing metal plumbing with sleeves, and reducing bushes are also made so that small diameter piping can come directly off a larger fitting. The joints are all made cold with simple tools. (*The Wednesbury Tube Co. Ltd., Bilston, Staffs.*)

Cooking with oil

Smith & Wellstood introduced at last month's Catering exhibition an oil burning cooker for use in hotels. This is a large type measuring some 7 ft. by 3 ft., and is suitable for hotels catering for 100 persons a day or more. It has a thermostatically controlled burner designed for gas oil, and draught is provided by an electrically driven fan. Fuel consumption is small, the manufacturers quoting a daily cost of 4s. 7d. when catering for 50 people, and 5s. 8d. for double this number with oil at 1s. 4d. a gallon. There are two large ovens of 7¾ cu. ft. capacity and a top plate with an area of nearly 6 sq. ft. the latter being covered by three hinged insulating covers. The body of the cooker is also heavily insulated. Heat is provided by a pot type vaporizor which needs cleaning at intervals of about three weeks, but this is a simple process as the whole unit slides out on roller bearings. The oil supply is regulated by a float valve and also incorporates a magnetic valve which shuts off the fuel supply in the event of a current failure. (*Smith & Wellstood Ltd., Bonnybridge, Stirlingshire.*)

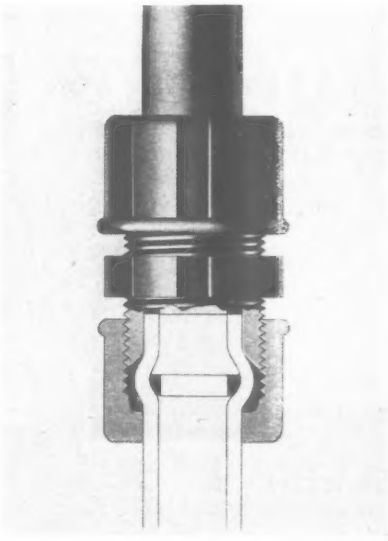


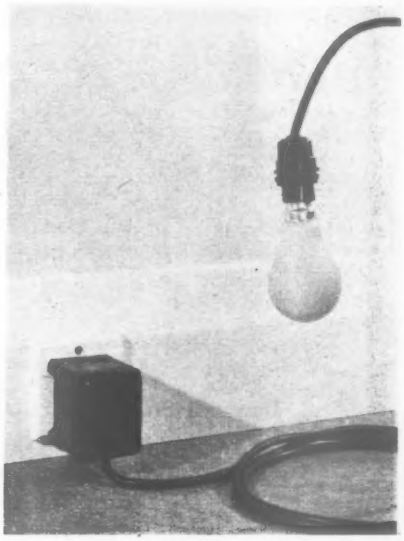
Smith & Wellstood's oil-burning cooker.

Electrical safety

One of the major hazards of industry is the trailing cable used with portable electric appliances. Many firms use low voltage supplies on separate circuits, but this is an expensive business and an alternative answer is the Electran transformer plug, which, used in an ordinary standard voltage socket, provides an output of 25 volts, which is perfectly safe, and which can be used for inspection lamps and hand tools of comparatively low wattage, such as soldering irons. The transformers are made in two sizes with outputs of 25 and 40 watts, at prices of £3 9s. 6d. and £3 14s. 6d. For portable drills or sanders considerably higher wattages are necessary. (*Dohm Limited, 167, Victoria Street, London, S.W.1.*)

Below, left, section showing the Wednesbury fitting for jointing polythene tube. Below right, the Electran plug with a transformer incorporated.





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Wash in the running spray
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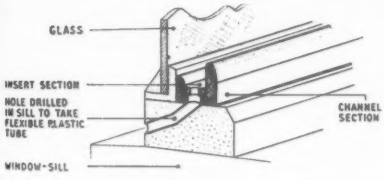
technical section

Air filters

An American type of air filter known as the Far-Air is now being made in this country by Intermit Limited. The filters consist of alternate crimped and flat strips of wire gauze, 2 or 4 in. wide, which are assembled into standard size pressed metal frames. These units are held in interlocking frames and can be built up into a large area filter bank through which air is drawn by fans. Each filter is treated before use with a mineral oil to trap air-borne particles. A 2 in. thickness of filter is enough for most installations, but 4 in. may be necessary for atmospheres where the proportion of solids is abnormally high. Cellulose tissue filters are also produced and can be used in conjunction with the metal fabric filters, fitted in the same frames, and will remove most of the solids up to 10 microns diameter. These filters have been installed at the Leofric Hotel, Coventry, to replace throw-away cloth filters, and the makers claim a saving of about £700 a year. Filter units can be changed in less than a minute, and Intermit have service stations which will collect filter units, clean and replace them, while they can also install cleaning plants for large-scale users. Automatic installations are also produced, in which the filters are cleaned and re-oiled at regular intervals. (*Intermit Limited, Bradford Street, Birmingham,* 5.)

Trapping condensation

Internal condensation on windows is a nuisance to mop up, and often does a certain amount of damage to curtains and wooden cills. Weep holes and a groove cut in the window frame are the simplest answer, but are somewhat awkward to carry out after the windows are in, and a

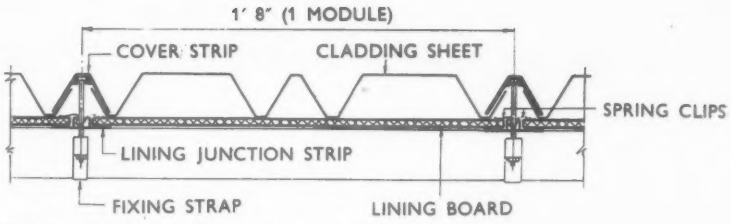


Section through window showing the condensator plastic channel.

quite useful alternative is the Condensator plastic channel, which is screwed to the cill and is supplied with a length of flexible plastic tube as a lining for weep holes. The weep holes will not always be necessary as small quantities of condensate should evaporate with a reasonable amount of ventilation. Fixing is quite simple with screws and an adhesive or a coat of paint for watertightness, and the retail price of the plastic section is 3s. 6d. a foot. (*The Condensator Company, Wyvern, Iford Gardens, Bournemouth, E.*)

Aluminium building sheet

A new leaflet from ICI Metals describes the various types of Kynal aluminium corrugated and troughed aluminium sheeting for



The 'Kynalok' aluminium building sheet secret-fix system.

roofing and wall cladding. Sheets of this kind are by now widely enough used to arouse no violent excitement, but readers may be interested in the Kynalok secret fix system, which can be used for both roofs and walls, and which can be easily adapted to all framed buildings. The system uses profiled sheets and extruded cover strips, and provision is made for the inclusion of an insulating lining, which is erected with the cladding and is secured by fixings common to both. There are no protruding bolt heads and the system is easy to erect as it can be used with any type of framed structure, either metal or wood. Spans can be up to 9 ft. on roofs and 10 ft. on walls, so that a certain amount of steel for sheeting rails and purlins can be saved. In view of Mr. Nabarro's insulation Act one may assume that a system of this kind has considerable possibilities, but before it is widely used it will be essential for the manufacturers to provide the various U factors obtainable with different types of insulation board as well as details of construction at eaves and round windows, for it will presumably be necessary to seal the cavity between the insulation and the skin. (*I.C.I. Metals Division, P.O. Box* 216, *Birmingham,* 6.)

INFORMATION CENTRE

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

10.164 **design: building types**

OPERATING THEATRES

Operating Theatre Suites. Ministry of Health and Department of Health for Scotland Hospital Bulletin Number 1. London. (HMSO. 9s.)

The first hospital building bulletin of a series being prepared by the Ministry of Health and the Department of Health for Scotland has now been published by HMSO. It is on operating theatre suites and will be followed shortly by others on nursing staff accommodation and consultative outpatient departments. It is intended "to give guidance on planning and cost" but is not intended to lay down standards or to "provide plans with a rigid prescription of planning details." Discussion is limited to theatres for general surgery in non-teaching hospitals. Within its terms of reference it is very thorough. General planning considerations, number, purpose, and size of rooms required in different sized suites, various layouts, detailed design and equipment of the main rooms, heating, ventilation, electrical installation and sterilizing equipment and other engineering services are all dealt with in useful detail. The last chapter on cost, noting in its first paragraph that twin theatre suites built since the war have varied in cost between £23,000 and £63,000 (March, 1957 prices), sets out the basis for cost comparison and gives £35,000 as a reasonable limit. There is a workable index and a list of reference books. There are 33 figures to illustrate the text varying in scope from a diagram of main circulation routes to one of autoclave pipe connections. The figures on the whole are not as good as the text. The basic circulation diagram for instance is confusing, whereas the text describing the circulations is very clear.

The bulletin points out that enormous windows are unnecessary when artificial lighting and air conditioning to modern standards are provided. It also warns against the design, on grounds of air hygiene, of theatres of unusual shape (egg-shaped for example) with elaborate recessed lighting systems. Such designs may incidentally provide good viewing positions for students, but in general surgical theatres at any rate, "the case for departing from the normal shape with conventional types of lighting fittings, has not been justified."

A criticism of the bulletin is that after making its statements on planning principles clearly, it confuses and weakens its arguments by giving too many examples. If a single strong line had been maintained this would have given better guidance in the face of inevitable demands for variation due to local circumstances. These variations could then have been tied to a clearly stated basic theme. With these limitations, however, it is a useful document.

technical section

18 CONSTRUCTION: THEORY
plastic theory of steelwork design: 2

Last week our author B. E. S. Ranger, A.M.I.C.E., A.M.I.Struct.E., reviewed the factors in theory and practice which have led to the development of " Plastic Theory." This article describes the elements of the theory and their application to the design of continuous beams and portal frames, with a note on research which is proceeding on stanchions for use in multi-storey buildings.

The plastic theory in the study of structures is based on the behaviour of a mild steel section bent beyond the elastic limit into the condition of " plasticity," *i.e.* where it bends rapidly without increase in the force applied.

To examine this behaviour a study of the stress-strain relationship of the material is first necessary. Subjected to an increasing tensile force the strain is proportional to the induced stress as far as the upper yield point (A) (Fig. 1). This is followed by a drop in stress to the lower yield point (B), at which the material stretches or " flows plastically " without additional loading until a condition of strain hardening (C) is reached. It is the condition of plastic flow at the lower yield stress that is the basis of the " plastic theory." In most design work, the yield stress is generally taken as 15¼ tons per sq. in., a value specified as the minimum acceptable in the manufacture of mild steel sections.

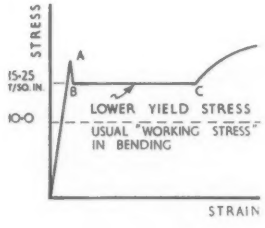
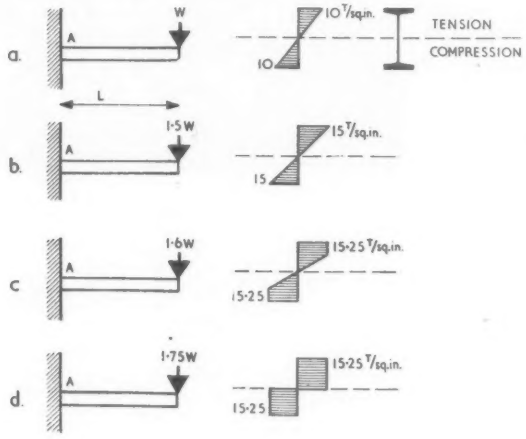


Fig. 1 (above), stress-strain relationship for mild steel.

Fig. 2 (below), diagrams illustrating the example of a cantilever loaded to failure.



In the design of beams to withstand everyday " working " loads, consideration is given to the maximum bending stresses which occur at the extreme fibres (normally at the top and bottom flanges) at these loads, and these stresses are kept within the elastic limit of the material, hence the term " elastic " design. Within this limit the loading may normally be repeated any number of times without permanent deformation of the beam resulting.

Action of a cantilever under load

Consider the case of a cantilevered r.s.j. of length L and an end load of W (Fig. 2) the maximum bending moment on the beam (at A) is W × L, inducing, say, the usual maximum design " working " stress in the section of 10 tons per sq. in., *i.e.*,

Bending Moment (M) = Moment of Resistance =
Permissible Stress × Section Modulus

$$W \times L = M.R. = 10 \times Z \text{ tons ins.}$$

where Z is the Section Modulus of the beam.

The variation in stress over the beam section is shown in Fig. 2a—from max. tension at the top flange to maximum compression in the bottom. Now suppose the load W is gradually increased: at a value of approx. 1·5W the maximum stresses at top and bottom of the beam will be 15 ton/sq. in.—close to the yield point (Fig. 2b). As the load is still further increased, the outer fibres will be strained into the " plastic " state and as they yield the next inmost fibres will be similarly stressed (Fig. 2c) and so on until the whole section is at the yield stress (15·25 tons/sq. in.)—the upper half in tension and the lower half in compression—(Fig. 2d). At this stage the moment applied to the section is given by

Plastic Moment of Resistance (Mp)

$$= 15{\cdot}25 \times 1{\cdot}15^{*} \times Z$$
$$= 17{\cdot}5 \times Z \text{ tons ins.}$$

and therefore the applied load at this stage is $W \times \frac{17{\cdot}5}{10}$

$$= 1{\cdot}75W \text{ tons.}$$

The bending moment Mp is the maximum that can be applied to the beam section without major deformation and if the load is increased beyond 1·75W, the section will bend rapidly at "A" (as in the nature of a hinge) and the cantilever will collapse. The " plastic moment of resistance " at the section therefore marks the stage at which the beam is " just on the point of collapse " and the applied load is the " Ultimate Load." If in a more complicated structure it were possible to calculate the load at which this state is reached simultaneously at certain vital points, that load would be an Ultimate Load for

* The " plastic " section modulus for r.s.j.'s, is 1·15 times Z, the ordinary section modulus used in elastic design; the difference arises from the condition of uniform (yield) stress across the section (Fig. 2d) as compared with varying stress in the elastic condition (Fig. 2a). It is sometimes called the " Shape Factor."

It all adds up to Concrete—

technical section

Fig. 3, a portal frame in a spinning mill at Witney, Oxon. Architects: Fielding Dodd and Stevens. Engineers: Conder Engineering Co. Ltd. This and all succeeding photographic examples were designed by plastic theory.

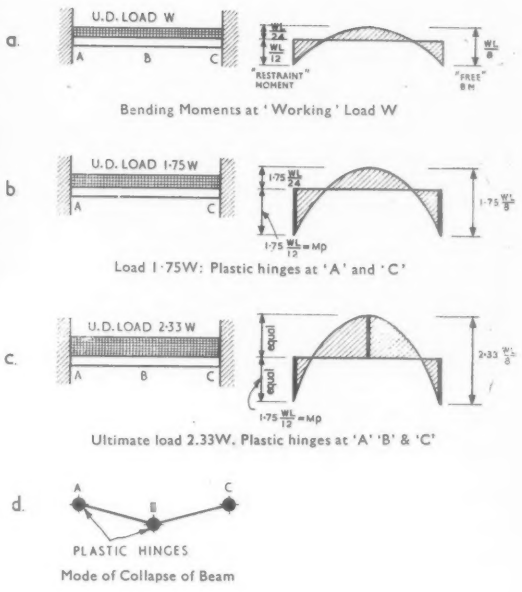


Fig. 4, diagrams illustrating the progressive loading of a beam "fixed" at each end.

the whole structure. Dividing the Ultimate Load by a " Load Factor " or " Factor of Safety " gives the loading that can be safely applied in normal use, *i.e.* the working load. (A structure may collapse in a number of different ways, or " modes of collapse "; the lowest load calculated to produce failure is the Ultimate Load of the structure for design purposes.)

In the cantilever example, present design at 10 tons/sq. in. bending stress will allow a working load of W tons; the cantilever would collapse at a load of 1·75W tons from which it is seen that the " Load Factor " in this case is 1·75.

A fixed-end beam

Similarly in a simple beam (*i.e.* simply supported each end) with any applied working load or loads totalling W, collapse would occur if the loading were increased to 1·75W.

It is not in simply supported beams that plastic design offers advantages over elastic design methods; if the Load Factor required is 1·75, the same beam sections will result. It is in the consideration of structural members whose ends are rigidly fixed to (*i.e.* restrained by) supports or other members that the factor of safety against collapse is, by elastic methods, often unnecessarily high; when it is considered that in only very few cases are members really simply supported (because all connections have some degree of rigidity) the extent of possible economies begins to appear.

To illustrate this more clearly, we will examine the case of a beam with uniformly distributed loading, W tons, fixed at each end to a rigid support (Fig. 4), *i.e.*, a " fixed-ended " beam. The maximum bending moment for the load W occurs at each end and is of magnitude $\frac{WL}{12}$; at midspan it is half this, $\frac{WL}{24}$ (Fig. 4a). The beam section required by elastic design must have a section modulus of $\frac{WL}{12 \times 10}$ or if W = 20 tons, L = 20 ft. = 240 in., required Z = 40 in.^{3} and we will assume a section of this modulus has been adopted. (In all the examples in this paper, the weight of the beam itself has, for simplicity, been omitted from the applied loading.)

Now consider what happens when the load is increased beyond W. The bending moment throughout the beam increases proportionately until, when the load is 1·75W, the restraint moment at each end is $1{\cdot}75 \times \frac{WL}{12}$ (Fig. 4b). This however is the maximum moment that the end sections will carry; if the load is increased they will yield *i.e.* act as hinges. The beam will not however collapse at this stage because it is still spanning quite happily between the " plastic hinge " points at either end. Further increase in load can take place until the bending moment at the centre also reaches the yield or plastic moment of resistance of the same value $1{\cdot}75 \times \frac{WL}{12}$ (Fig. 4c). Now,

technical section

Fig. 5, a welded plate girder floor system for heavy loading in Transit Shed No. 102 at Southampton. Consulting Engineers: Scott & Wilson, Kirkpatrick & Partners in collaboration with the Docks Engineer, J. H. Jellett. Photo by courtesy of the British Transport Commission.

however, there are three hinges and any further load will result in collapse in the manner shown in Fig. 4d.

At collapse, the bending moment diagram is as shown in Fig. 4c and the total collapse load can be calculated from it as follows:

$$\text{Height of Free B.M. Curve} = 2 \times 1{\cdot}75 \times \frac{WL}{12}$$

$$= \frac{1{\cdot}75WL}{6} \text{ tons. ins.}$$

$$\text{Free B.M. for load of W} = \frac{WL}{8} \text{ tons. ins.}$$

$$\text{But } \frac{1{\cdot}75WL}{6} = 2{\cdot}33 \times \frac{WL}{8} \text{ tons. ins.}$$

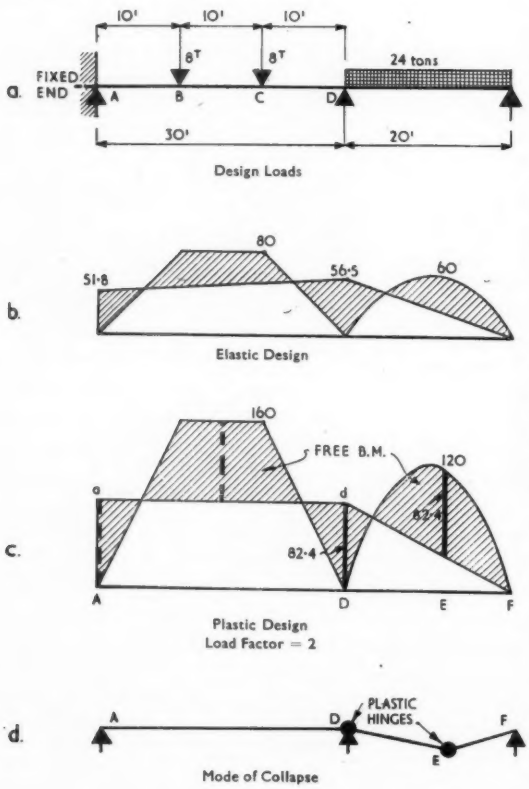
i.e. the Collapse Load of the beam is 2·33 × W and the Load Factor is 2·33. Thus if the beam is designed elastically at 10 tons/sq. in. a factor of safety of 2·33 (which may be unnecessarily high) is automatically incorporated.

Using plastic design for this beam and a load factor of only 1·75, the beam section required is obtained as follows:

$$Z = \frac{1{\cdot}75 \times \frac{WL}{8} \times \frac{1}{2}}{15{\cdot}25 \times 1{\cdot}15} = \frac{1{\cdot}75 \times 20 \times 240}{16 \times 15{\cdot}25 \times 1{\cdot}15} = 30 \text{ in.}^3$$

This compares with a Z of 40 in.³ required by an elastic design. The saving is not the same for all fixed-ended beams, the loads (whether point loads or distributed) and their disposition affecting each case.

Fig. 6. diagrams illustrating the loading of a continuous beam.



Continuous beam

To illustrate further the use of the design method, calculations are given below for a two span-beam with different loading on each span (Fig. 6a). The bending moment diagram for an elastic design is shown in Fig. 6b from which the maximum value is seen to be 56·5 ton.ft. requiring a beam with section modulus 67·8, say a 16 in. × 6 in. at 50 lb. r.s.j.

For a plastic design, the "simple span" or "free" bending moments are first drawn multiplied in value by the Load Factor, in this case taken as 2 (Fig. 6c). The restraint moment line *a-d*-F is then drawn to fulfil one of two cases:

(i) To give equal bending moments at D and E, as shown by the thick lines (for collapse of the span DF), or

(ii) To give equal bending moments at A, at mid-span between A and D and at D (for collapse of the span AD).

In this example, case (i) gives the higher value of the bending moment at collapse 82·4 ton ft., in span DF compared with case (ii) 80 ton ft. in span AD. If a beam of constant section throughout is used, span DF will be on the point of collapse when the loading is increased to twice the design load, and would collapse in the manner shown in Fig. 6d.

The section modulus required is 56·4 in.³—a reduction of 17 per cent. as compared with the elastic design. A 15 in. × 5 in. at 42 lb. r.s.j. would be suitable. As a possible alternative design, a beam giving a plastic moment of resistance of 80 ton ft. could be used provided

technical section

Fig. 7, welded main girders and stanchions at West London Air Terminal. Engineer: C. E. Dunton, Chief Engineer to London Transport Executive.

that it was strengthened in the region of E to give a value of approx. 83·4 ton ft.

In the design of beams, a further point must be considered. In the last example the web shear stresses are not high but if for example plate girders are used with web thicknesses calculated for shear at higher stresses, the plastic moment of resistance of a section will be reduced. Research into the relationship between web shear stress and the reduction in plastic moment has been carried out and a suggested method was put forward by Dr. J. Heyman and V. L. Dutton which related the max. bending stress (in the web) to the web shear stress at the plastic moment of resistance of the section by the formula

$$f_{bp} = f_y^2 - 3q^2$$

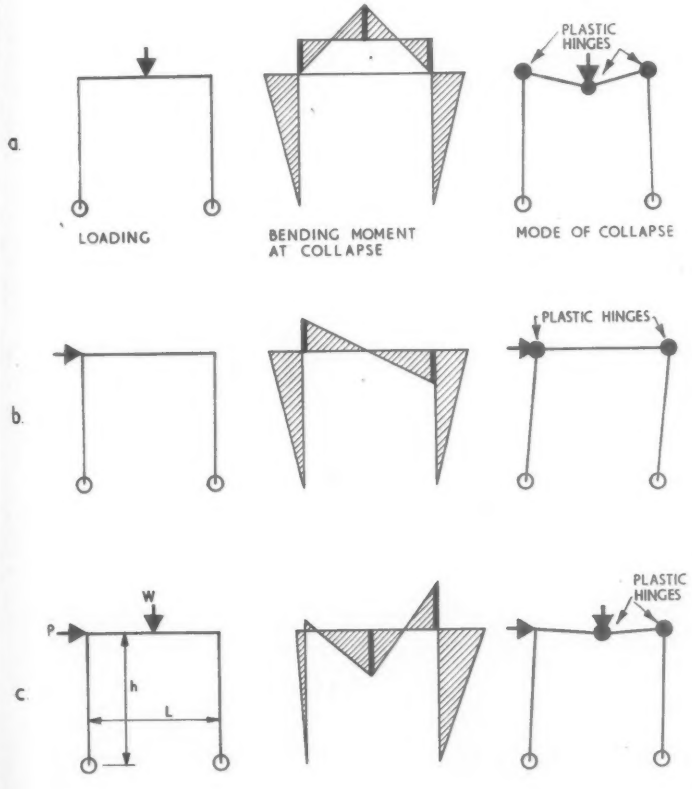
where f_{bp} = the bending stress in the web

f_y = normal yield stress (15·25 tons/sq. in.)

q = web shear stress.

In use, the plastic moment of resistance of the web alone using the reduced stress f_{bp} is added to the plastic moment of resistance of the flanges at f_y to give the nett total plastic moment of resistance of the complete section.

Fig. 8, examples of ultimate loading on portal frames.



RIGID FRAMES

The simplest form of rigid frame is the portal and plastic theory can be very simply used for design of the frame for collapse at a specific load factor.

In a rectangular portal of constant section (with hinged stanchion bases) with vertical loading on the beam member only, the frame would theoretically collapse in a manner similar to a fixed-ended beam already described, when plastic hinges are formed at the centre of the beam and either at the ends of the beam or tops of the stanchions—see Fig. 8a. (In practice, any small eccentricity of the load or asymmetry of the frame would cause it to collapse to one side or the other, in a similar manner to " b ").

In Fig. 8b are shown the bending moments and mode of collapse of a frame with only a horizontal load.

With both vertical and horizontal loads acting together, a combination of the cases illustrated in Figs. 8a and 8b occurs and the frame collapses when plastic hinges are formed at the centre of the beam and at one knee joint (still assuming a constant section throughout)—Fig. 8c. This mode of collapse occurs so long as the effect of the horizontal force does not predominate; in fact if $H \times h$ exceeds $\frac{W \times L}{2}$ collapse occurs as in (b), notwithstanding the effect of the central load.

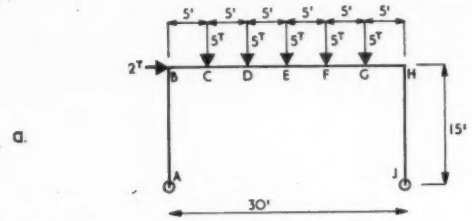
Examples of portal frame

An example will demonstrate this more fully. Fig. 9a shows a rectangular portal frame supporting a number of vertical loads together with a horizontal force.

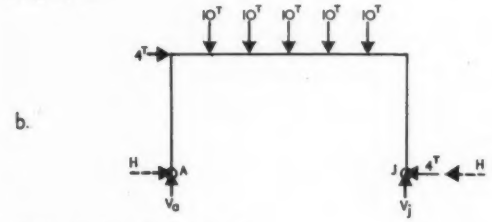
In Fig. 9b is drawn the loading which the frame would be required to carry when it was just on the point of collapse —in this example twice the working design loads. Horizontal and vertical reactions at the bases are indicated.

As a first step it is assumed that there is no horizontal reaction at A, the thrust of 4 tons being transmitted by the frame to base J. This makes the frame statically determinate and enables a diagram to be drawn for the bending moments in the frame due to the loads and the reaction V_A, V_J and 4 tons horizontally at J. Using a method due to F. A. Partridge, the diagram is simplified by drawing the base lines AB, BH, HJ horizontally in one line (Fig. 9c).

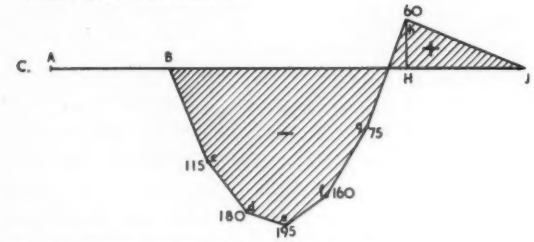
technical section



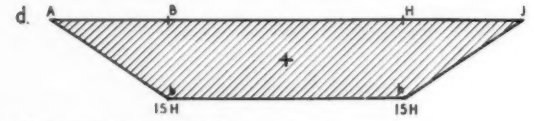
Design Loads



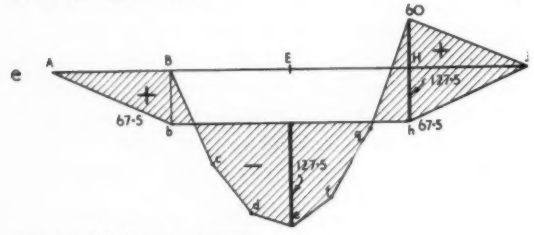
Ultimate Loading. Load Factor = 2



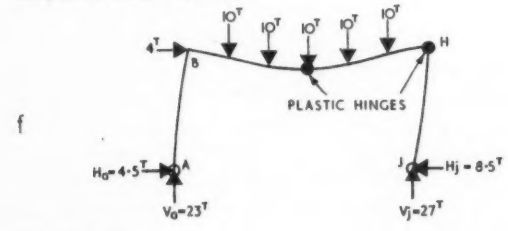
Free B.M. diagram (assuming H = O). B.M. in tons- ft.



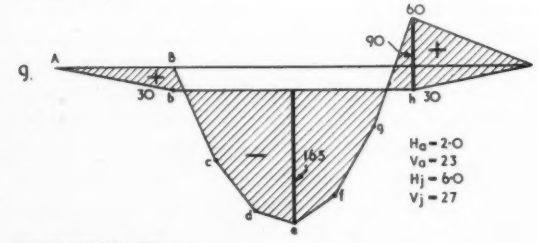
B.M. diagram for Force H alone



Complete B.M. diagram at collapse

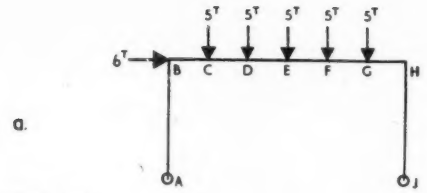


Mode of collapse

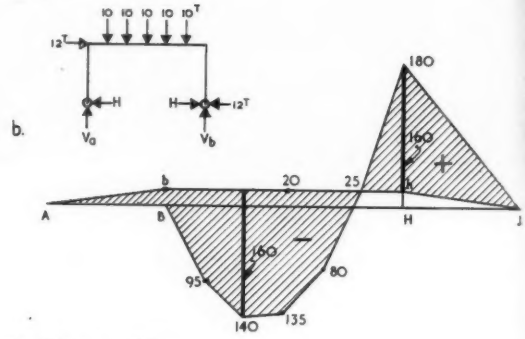


Alternative B.M. diagram

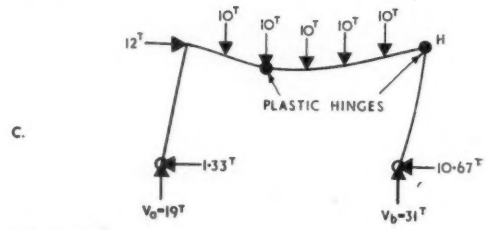
Fig. 9, a worked example of a portal frame.



Design Loads

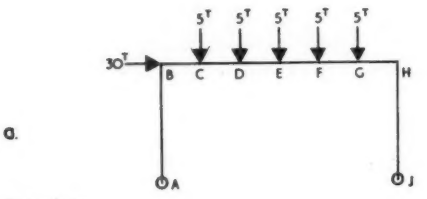


B.M. diagram at collapse

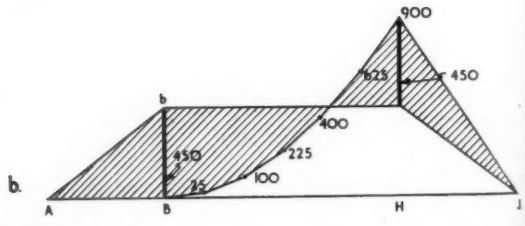


Mode of collapse

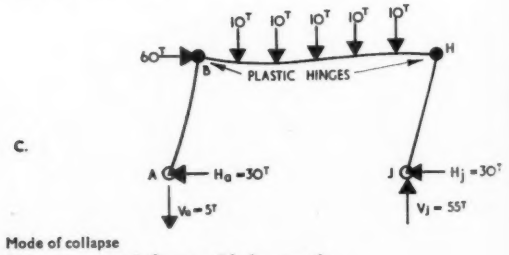
Fig. 10, portal frame, second example.



Design Loads



B.M. diagram at collapse



Mode of collapse

Fig. 11, portal frame, third example.

technical section

Fig. 12, two-storey site-welded frames at secondary school, Hunstanton. Architects: Alison and Peter Smithson. Consulting engineers: Ove Arup & Partners.

Next, an unknown force H is assumed to act at each base A and J in opposite directions—the bending moment in the frame due to these forces being shown in Fig. 9d—

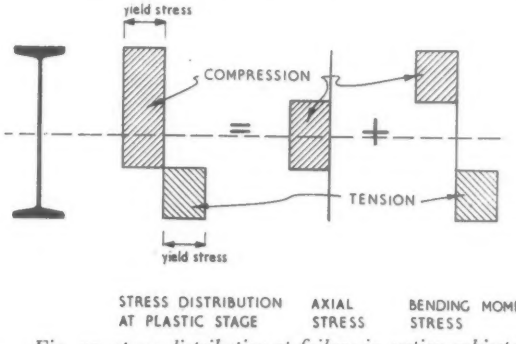
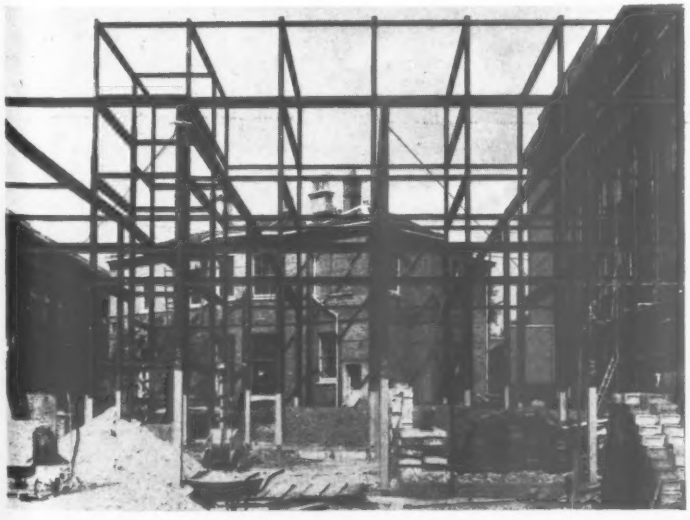


Fig. 13, stress distribution at failure in section subjected to bending and axial load.

Fig. 14, steelwork for new wing of Engineering Department, University of Cambridge. Architects: Easton & Robertson. Consulting engineers: R. T. James & Partners in collaboration with Professor J. F. Baker and Dr. M. R. Horne.



AbhJ—the maximum value being 15 × H. This diagram is now superimposed on Fig. 9c the line bh being placed so that the value of the bending moments at E and H are the same (in this case 127·5 tons ft.)—the reason for this is that with a frame of constant section, plastic hinges of the same plastic moment of resistance will be formed at these two points at collapse of the frame (Figs. 9e and 9f). The value of the moments Bb and Hh is 67·5 whence $H = 67{\cdot}5 \div 15 = 4{\cdot}5$, the total reaction at J being $H_J = 4{\cdot}0 + 4{\cdot}5 = 8{\cdot}5$ tons.

The section modulus required for the frame (neglecting for the moment axial forces in the stanchions) would be

$$Z = \frac{127{\cdot}5 \times 12}{15{\cdot}25 \times 1{\cdot}15} = 87{\cdot}3 \text{ in}^3.$$

If it is desired to make the beam section greater than the stanchion section, the line bh may be drawn (for example) as in Fig. 9g. The sections required being

Beam: $$Z = \frac{165 \times 12}{15{\cdot}25 \times 1{\cdot}15} = 113 \text{ in}^3.$$

Stanchion: $$Z = \frac{90 \times 12}{15{\cdot}25 \times 1{\cdot}15} = 61{\cdot}6 \text{ in}^3.$$

In this case, the values of H_A and H_J are 2 tons and 6 tons respectively.

In this example, the horizontal force was small compared with the vertical loads. The next example, Fig. 10, in which the general method is the same, shows the same case but with a larger horizontal force (6 tons). If the frame is to be of the same section throughout, the bending moment line bh in the final bending moment diagram, Fig. 10b, is drawn (to give equal moments at D and H) above the base-line, indicating that the force H (*cf.* Fig. 9b) acts in the opposite direction. In this case H_A and H_J are 1·33 tons and 10·67 tons respectively, both acting in the same direction, and the frame collapses by forming plastic hinges at D and H.

Again, if the horizontal force is very much larger (in this particular case over 25 tons) a different mode of collapse as in Fig. 8b will occur, plastic hinges occurring at B and H (Fig. 8).

These three examples have been chosen to show how the mode of collapse varies as loading is altered from (A) vertical loads only (as Fig. 8a); to (B) vertical loads with a small side load, the vertical loads predominating (Figs. 9 and 10); to (C) where the horizontal load is relatively large and its effect predominates, collapse occurring as if there were no vertical loading (Fig. 11).

Axial forces

In considering the design of portal frames and the plastic moments of resistance required for the sections, we have so far ignored the axial forces in the stanchion. The compressive stresses due to these will in fact reduce the value of the plastic moment of resistance in bending. Provided that the stanchion can be assumed as held rigidly in position laterally, the value of the reduced moment can be simply calculated.

In Fig. 13, is shown the stress distribution on a joist section at the " plastic hinge " stage. This distribution may conveniently be resolved into two parts, stresses due to axial force and moment, from which latter the nett plastic moment of resistance can be calculated.

technical section

It must be emphasised that this method is entirely dependent on the assumption that the stanchion cannot buckle, *i.e.* distort sideways—that it is adequately held in position by other members, or for example walls built solidly round it. Bearing this in mind, we will design sections for the portal frame example shown in Fig. 9e where the plastic moments of resistance of beam and stanchion must be not less than 127·5 ton ft.

Beam. Z required $= \frac{127{\cdot}5 \times 12}{1{\cdot}15 \times 15{\cdot}25} = 87{\cdot}3$ in³.

Try 18 in. × 6 in. at 55 lb. r.s.j. ($Z = 93{\cdot}53$ in³.)

Stanchion.

Assuming that vertical loads of 5 tons each act at B and H (to complete the system of loads), total axial force on stanchion JH = 32 tons (at collapse).

Section area required $= \frac{32}{15{\cdot}25} = 2{\cdot}1$ sq. in.

Web thickness = 0·42 in.

Depth required $= \frac{2{\cdot}1}{{\cdot}42} = 5{\cdot}0$ in.

Thus an area of the web 5 in. deep is considered as resisting the axial force. To calculate the nett plastic moment of resistance of the section, the possible moment on this section of web is deducted:

Gross Plastic M.R. $= \frac{93{\cdot}53 \times 15{\cdot}25 \times 1{\cdot}15}{12} =$ 136·8 tons ft.

M.R. of 5 in. of web $= \frac{15{\cdot}25 \times 0{\cdot}42 \times 5{\cdot}0^2}{4 \times 12} =$ 3·2 tons ft.

Nett Plastic M.R. = 133·6 tons ft.

Thus an 18 in. × 6 in. at 55 lb. r.s.j. is suitable for both beam and stanchions.

An elastic design would require a 20 in. × 6½ in. at 65 lb. r.s.j.

The above stanchion calculation has been based on the rather over-simplifying assumption that it will not buckle before it reaches its full plastic moment of resistance. While the method is possible for, say, stanchions encased in solid external walls and isolated " stocky " columns, it is not applicable to internal stanchions of multi-bay frames or to multi-storey buildings, where the slenderness of the stanchions is usually such that buckling would be the failure criterion.

The analysis of the failure of columns by buckling is extremely complex and much research work is being devoted to it at several centres in this country. Accounts of the work to date at Cambridge have been published by Prof. Baker, Dr. Horne and Dr. Heyman (see bibliography). A method for dealing with single-length stanchions subject to full plastic moments at either or both ends about the major axis has been suggested but a generally practicable design method for continuous stanchions such as in multi-storey buildings has not yet been established.

The complexity of this problem was very clearly demonstrated by Dr. Horne when he stated the different stanchion end-conditions which may apply, thus:

(i) beam simply connected (*i.e.* pin-ended)—affording only positional restraint to the stanchion;

(ii) beam exerting bending moment on stanchion, but still in elastic state;

(iii) ditto, but beam at plastic hinge state.

This enabled Dr. Horne to classify the conditions at failure of any stanchion as part of a complete structure. Any one of these conditions will operate in relation to each of the major and minor axes of a stanchion section, giving nine different sets of conditions possible at one end of a stanchion. Variation at both ends thus gives 45 possible combinations, each presenting a separate analytical problem. Not all combinations are of practical importance but it can be seen that the magnitude of the problem as a whole is considerable. Other factors which affect design and which will have to be solved in due course are the effect of sidesway (the effect of non-symmetrical loading), the effect of encasement and building into walls and of intermediate restraining members such as lintel beams.

To sum up: plastic theory has been developed to the stage where it can be readily and easily used in the Ultimate Load design of single-storey rigid frames such as portals and continuous-span systems of floor steelwork. It has been widely used already for many cases of welded portal frames, and some examples of these and other types of construction are shown in the photographs. General application of the theory to multi-storey buildings is not yet practicable in the ordinary design office but some pioneering work has been done in this direction.

A point which must be borne in mind is that savings in cost do not automatically follow from savings in the weight of steel. A portal frame, for example, requires rigid connections and if these are welded in-situ in the air, they often present difficulty; if the frame is site welded on the ground and lifted into position, its very lightness and flexibility may make erection difficult—these factors must be carefully investigated if the savings achieved in the design are not to be dissipated.

A recent development which helps to overcome these difficulties is the use of high-strength bolts in site-connections so designed that they transmit bending moment without loss of the rigidity essential to the design theory. It is anticipated that this form of site-connection will come into more general use.

Many aspects of the subject have necessarily been omitted or only cursorily referred to in these articles which are intended to show the basic principles of the Ultimate Load approach to design and the plastic theory. A short bibliography is given below for the reader requiring more detailed information.

Bibliography

1 J. F. Baker, M. R. Horne and J. Heyman. *The Steel Skeleton. Vol. II: Plastic Behaviour and Design.*

2 J. Heyman and V. L. Dutton. *Plastic Design of Plate Girders with Unstiffened Webs.* Welding and Metal Fabrication. July 1954.

3 M. R. Horne. *The Stanchion Problem in Frame Structures Designed According to Ultimate Carrying Capacity.* Proc. Inst. C.E. Pt. III, Vol. 5. April 1956. No. 1.

4 B. G. Neal. *The Plastic Methods of Structural Analysis.*

5 J. Heyman. *Plastic Design of Portal Frames.*

6 British Constructional Steelwork Association. Publications Nos. 3 : 1951 and 5 : 1952. *The Collapse Method of Design, being the Application of the Plastic Theory to the Design of Mild Steel Beams and Rigid Frames.* Also No. 11 : 1957—*Single-bay Fixed-base Portals.*

building illustrated

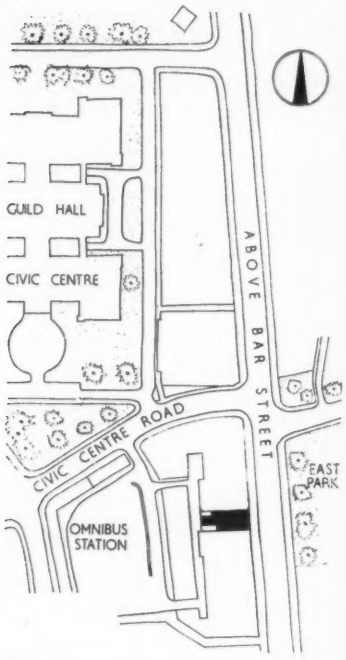
SHOPS

in ABOVE BAR STREET, SOUTHAMPTON; designed by OLIVER CAREY; quantity surveyors CROOT and PARTNERS; heating and ventilation consultants G. N. HADEN and SONS LTD.

This small building on the west side of Above Bar Street, Southampton, houses two shops which are the first to be built on a large bombed site. The remainder of the site is also scheduled as a shopping area

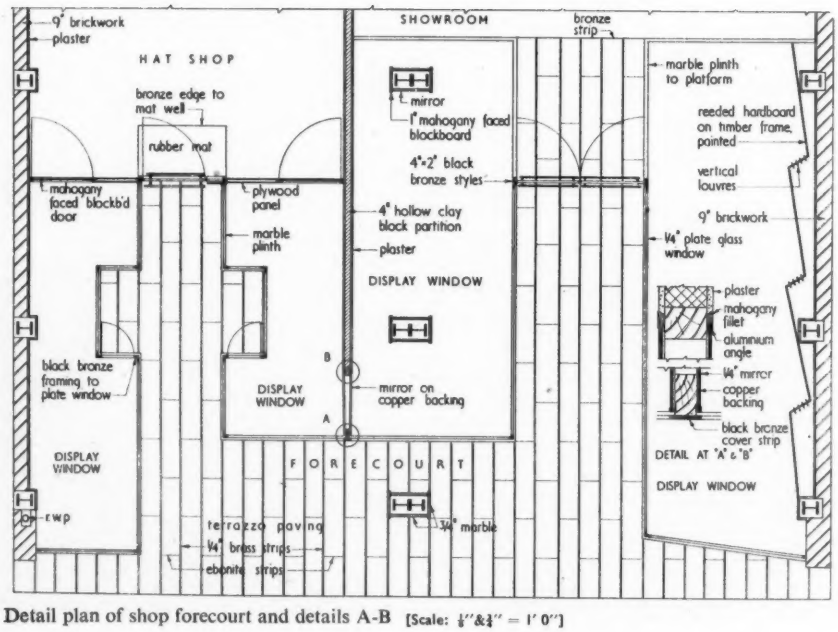
View from Above Bar Street.

building illustrated

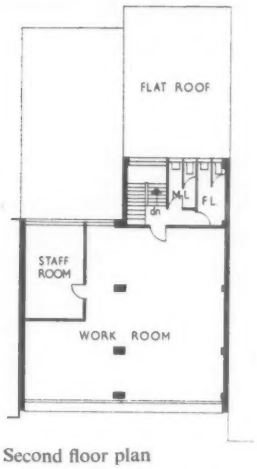


Site plan

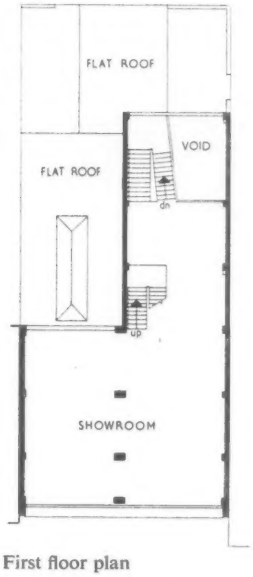
The above photograph, taken from approximately the same viewpoint as the previous photograph but after dark, with the artificial lighting switched on, gives some idea of the interior organization of the building. The shop on the left occupies less than half the width of the ground floor. The larger shop extends to the two upper floors, the first floor being used as a showroom and the second mainly as a workroom. The cantilevered balconies, used in place of the more usual undersill panels, provide a firebreak between floors and are also convenient for window cleaning—a matter which is sometimes overlooked. The green glass louvred ventilators over the windows of the upper floors are operated by cable gear.



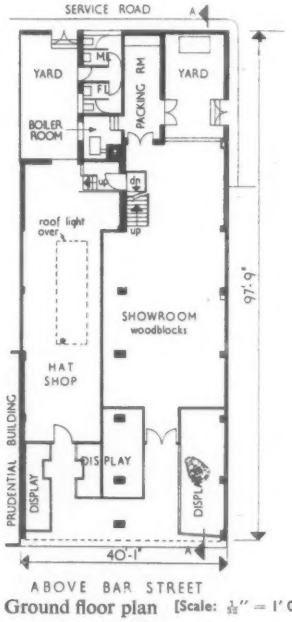
Detail plan of shop forecourt and details A-B [Scale: $\frac{1}{8}$"&$\frac{1}{4}$" = 1' 0"]



Second floor plan



First floor plan



Ground floor plan [Scale: $\frac{1}{32}$" = 1' 0"]

analysis

CLIENT'S REQUIREMENTS

Two shops, to replace shops damaged by bombing, were to be designed to rehouse the existing tenants, a fashion shop and a smaller milliner's business.

SITE

The total area is approximately 1/10 of an acre, and the site faces east, with a fine view across the park.
There is rear access to both shops from a service road off Windsor Terrace.

PLANNING AIMS

The fashion shop occupies over half the gound floor and all the first floor as showrooms, the second floor being used for a workroom, staff room and cloakrooms. The milliner occupies the remainder of the ground floor, and has independent access to the basement under the fashion shop, which is used for storage. A single-storey block at the rear of the premises houses the boiler room, packing rooms and cloakroom, all opening on to two small service yards, with access from a future service road. The dress shop required maximum daylight for display purposes, so an all-glass facade was used at both front and back. These glass elevations were planned in co-operation with the Borough Architect, L. Berger. The building was designed to fit into a future shopping area, to be developed to the north, and to preserve the character of Above Bar Street.

MAIN CONSTRUCTION

Steel frame and concrete, fire-proofed.

cost per sq. ft.	s	d
preliminaries and insurances	4	8¾
contingencies	2	9¾

STRUCTURAL ELEMENTS

Work below ground floor level 7 11
Continuous foundations with pier bases for steel framework. Increased depth of basement and old existing brick wall damp proofed with bitumen and 4½-in. inner skin of lime brick. Concrete floor, concrete retaining wall at existing foundations. Concrete staircase. Foundations to r.s.j.'s in basement rest on 3-ft. × 2-ft. continuous r.c. beam. Gravel and shingle sub-soil.

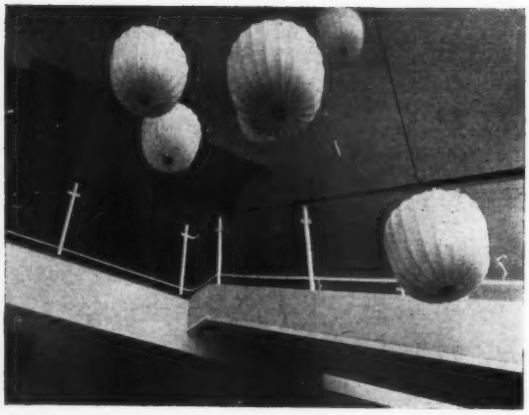
Frame or load-bearing element 15 11
Steel framework encased in concrete with expanded metal reinforcement to beams.

External walls 7 5
Galvanised metal windows, purpose made, painted. R.c. floors precast extended beyond front of shop to form a fire shelf and a means of access for window cleaning. 11-in. hollow walls with yellow facings to exposed sections, inner skin of cellular concrete blocks. (Front and back walls mostly glass.)
Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}816}{1}$

Windows 2 3
Metal windows at front full height; rear window full height to one side and part height the other. Opening fanlights at rear operated by winding

building illustrated

The rear of the building, above, is given over almost entirely to the function of providing adequate daylight in the necessarily long, thin interior. The two-storey window to the larger shop is glazed with obscured glass to avoid a view from the interior into the service yard. The large blank flank wall is intended as a future party wall; the slummy building on the left is a temporary shop which will give way to further shop development.



Although the shop fronts, apart from the lettering, were designed by the architect, the fitting out of the interiors was the responsibility of the tenants, and is not of interest. Shown above, however, is a view of the staircase (by the architect), which is constructed of reinforced concrete with a terrazzo finish to strings and risers; treads are finished with cork tiles and metal nosings. The balustrade has a tubular steel frame and toughened glass panels.

analysis

	s	d
gear; also louvred fanlights to front operated similarly. Ratio: windows / floor area = 0·2723 / 1		
External doors Rear door 2-in. flush both sides and hung on butts; 2-in. teak framed ledged doors to yard area from public area. Front doors by shopfitters, of plate glass and frameless. Ratio: doors / floor area = 0·024 / 1		2½
Upper floors 6-in. precast concrete beam floor across rolled steel beams, average 11-ft. span. Span: 11 ft. Area: 966 sq. yd.	4	11½
Staircases Concrete *in-situ* with half space landing ground floor to first floor and first floor to second floor. Treads and landings finished with cork tiling; metal nosings; strings and risers screeded and terrazzo finished; tubular balustrade with toughened glass panels bracketed to uprights. No. of staircases: 2. Width 3 ft. Total rise: 21 ft.	3	1
Roof construction Flat roof of 6-in. precast concrete beams, average 11-ft. span vermiculite screeded and asphalted. Area: 165 sq. yd.	1	8
Roof lights Metal gable and hipped-type roof light glazed with obscured wired glass, set on dwarf concrete curb. No. of lights: 1 lantern. Total area: 80 sq. ft. plan.		6
Glazing Plate glass to front windows with acid-green glass louvres to fanlights; rear windows obscured glass where full height; plate glass to other rear window.	1	1½

PARTITIONING

Internal partitions Part 3-in. hollow clay block, plastered both sides (62 sq. yd.) and part 4-in. molar hollow partition blocks plastered both sides, reinforced with 4-in. × 2½-in. mild steel angles set vertical (79 sq. yd.).		6½
Screens Toilet partitions 6-ft. high of aluminium-faced plywood, glazed spandril screen to ground floor, hardwood frame, reeded glass with glazing bars of aluminium.		5½
Internal doors 1½-in. flush faced softwood doors. No. of single: 8. No. of double: 2 pairs.		3½
Ironmongery Mortice locks and lever furniture to all doors.		3½

analysis

s d

Fittings 9
Isolated piers have alternate sides faced with mirrors and hardwood. Deal bench in packing room. Wall fittings to showrooms by tenant's shopfitters.

FINISHINGS

Floor finishes 4 4½
Hardwood blocks to ground, first and second floor, with hardwood skirting. Ground floor toilets, packing room and second floor toilets all in composition tiling.
Type of finish: Wood block and thermoplastic tiles.
Area: Wood block 520 sq. yd. Price per sq. yd. 42s. 9d. (average).

Wall finishes 1 11
Concrete columns finished in finishing plaster on backing of concrete bonding plaster; brickwork in haired browning plaster and wall finishing plaster. Ground floor columns: external, marble Imperial green and Botticino; interior, hardwood slats and mirror.

Ceiling finishes 3 0½
Plaster board and setting coat on timber framing suspended with metal hangers from concrete beam floors.

Roof finishes 2 3½
See " Roof construction."
Type of finish: Asphalt on cement screed.
Area: 1,485 sq. ft.

Decorations 2 0
On metal, both internal and external, mordant solution, zinc chromate metal primer, two undercoats and one finishing coat gloss. External concrete beam casing in internal primer and two coats enamel paint. Internal and external woodwork knot, prime and stop, two undercoats and one finishing coat of gloss. Wood block floors, two coats self-hardening lacquer.

SERVICES

External plumbing 11
Rainwater pipes, gutters and soil and vent pipes vitreous enamelled; zinc flashings.

Hot and cold water installation 7
Galvanised tubing in supply pipes with copper tubing to branches and fittings. Copper wastes and overflow pipes. Water heaters over basins.

Sanitary fittings 2¾
22-in. × 16-in. white glazed lavatory basins, with mirrors; low level w.c. suites, cleaner's sink.
Lavatory basins: 4.
W.c.s: 4.

Heating and ventilation 6 4½
Oil-fired boiler and wall radiators only.

Electrical installation 8 8
Ground floor, shop fronts and first floor showroom, fluorescent tube and polythene egg-crating in suspended ceiling; pendants and ceiling bowls in toilets and workroom, etc.

s d

Fire precautions
Fire hose reel on ground floor and hand extinguishers on other floors. Total cost: £67 16s. 6d.

Drainage 1 2
Cast iron under building and to sewer connection.

OTHER ELEMENTS 15 9

Shopfronts: metal fronts with armour-plate glass doors on floor springs; raised floor in window; window back panelled; boarded false ceiling on wood framing with metal hangers. Total cost: £3,852 15s. 4d.
Telephone: internal telephones for each floor. Total cost: £78 15s. 0d.
Curtains: white terylene curtains on concealed runners to front windows and rear of showrooms. Total cost: £84 12s. 0d.
Balcony at front: Concrete *in-situ* cantilever balcony at first and second floor with gutter asphalt lined and tubular metal balustrade. Total cost: £360 10s. 0d.
Demolitions: take down and remove temporary brick construction and concrete roof and asphalt finish building and remove from site, including necessary protection, etc., to adjoining property. Total cost: £912 4s. 2d.
Temporary structures: side cladding to half the building, temporary wood staircases and subsequent reinstatement on completion of entire structure. Total cost: £498 17s. 8d.
Increased costs: materials and labour, including necessary overtime to enable opening the sections as required. Total cost: £361 6s. 2d.
Net cost (including external works) per sq. ft. of floor area: excluding drainage: $\frac{£\ 39{,}408}{7{,}794 \text{ sq. ft.}}$ = 101 1¼

SUMMARY

Ground floor area 2135 sq. ft.
Total floor area 7,794 sq. ft.
Tender date: March 1956
Work began: March 1956
Work finished: May 1957
Type of contract: RIBA

SITE ORGANIZATION

The job was supervized by the general foreman, and regular site meetings were held, attended by the quantity surveyor, contractor and sub-contractors, under the guidance of the architect.

CONTRACTORS

General contractor: Brazier & Son Ltd. *Sub-contractors—Constructional engineers:* Sherratt & Smith Ltd. *Concrete, pre-cast beam floors and roof:* Blocrete Co. Ltd. *Shop fronts and staircase balustrading:* A. Davies & Co. (Shopfitters) Ltd. *Heating installation:* G. N. Haden & Sons Ltd. *Electrical installations:* F. W. Cook & Co. (Southampton) Ltd. *Metal windows and lantern:* Clement Bros. (Haselemere) Ltd. *Fire appliances:* L. & G. Fire Appliance Co. Ltd. *Development agents:* William Houghton & Son.

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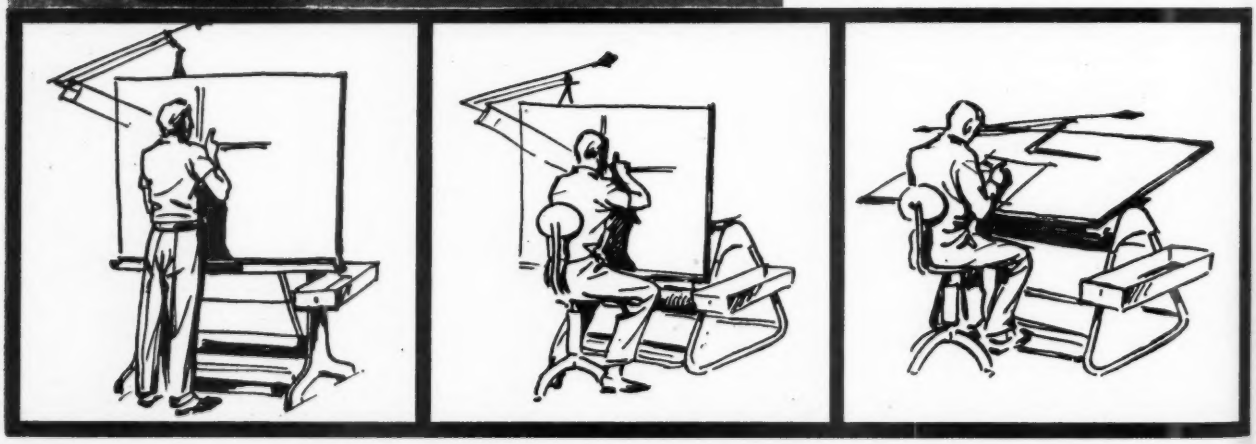

STAND No. 510 at the I.E.A. Exhibition Olympia 16th—25th April

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DOCTORS' GROUP SURGERY

at BRENTWOOD, ESSEX; designed by H. CULLERNE PRATT; assistant DEREK HEATH

quantity surveyors DANIEL B. CONNAL and PARTNERS

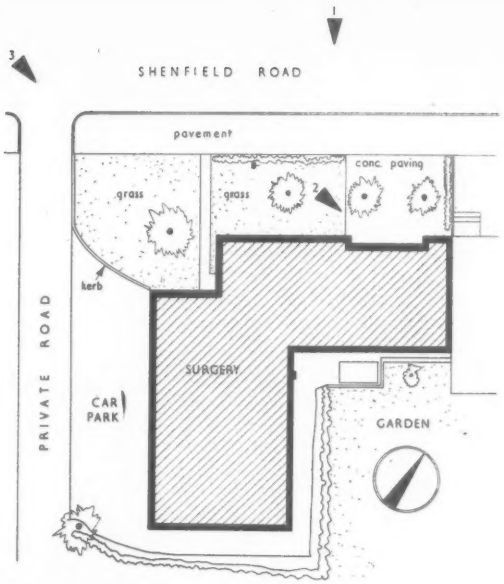
Family doctors are catching on to the advantages of joining in a group practice, that very British compromise between the Health Centres which ten years ago were supposed to be the keystone of the National Health Service, and the resolute independence of most general practitioners. As a result a new type of building has come into existence, the group surgery, in which a number of local G.P.s pool their resources co-operating, to provide the patients with a better round-the-clock service and themselves with more regular hours. Here, instead of each doctor having his own waiting room, surgery and secretary, the group provides a common waiting room and secretarial service, nurse and dispensary, while each doctor has his own consulting room on the premises. This week, for the first time, the JOURNAL analyses one of these new group surgeries, at Brentwood, Essex.

Viewpoint 1: the building from the north-west, looking across the main road.

building illustrated

Below (viewpoint 2): the wing of the building which faces the main road contains rooms which are least affected by noise; the waiting room, reception, dispensary and office. The glazed wall of the waiting room under its wide, overhanging gable, makes an informal and inviting entrance for patients and is the most successful part of the building externally. The sashes and door are of hardwood painted softwood frames; the undersill panel is of ribbed plywood. The consulting room wing lies back at right angles to the road, facing a public green. The staff entrance is contained in the angle between the two wings (viewpoint 3, above right). The small porch, the door and the lavatory window, tightly planned in the corner, give a rather pinched effect at this point. The treatment of the gables over the consulting rooms (ribbed plywood facing) is designed to facilitate the building of a second storey over this wing.

The waiting room, seen below from the reception counter, maintains the informal atmosphere given by the patients' entrance. The ceiling is a continuation of the soffit of the entrance gable.



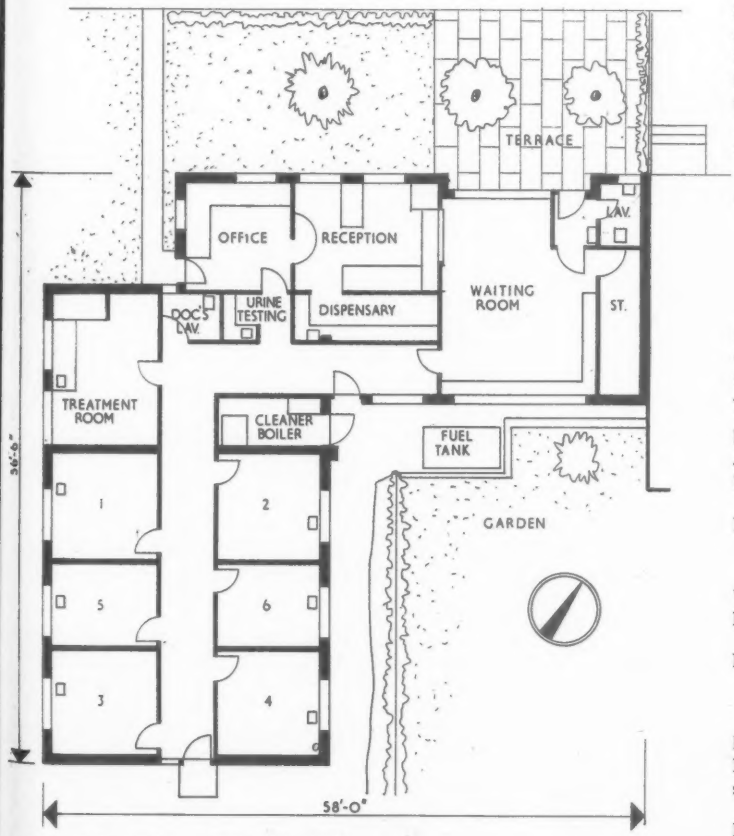
Site plan with photographic viewpoints

CLIENTS' REQUIREMENTS

The surgery was built for six doctors in general practice, the system for the group practice itself had to be worked out first.

SITE

The site was a small and awkward one, and as it faces on to a trunk road, the planning authority insisted that it have its own car park. On one side it faces the end of a public green at the end of the town, with eighteenth and early nineteenth century buildings surrounding it.



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

PLANNING AIMS

It was agreed that only four of the six doctors should be on duty at each " surgery " period, working on a rota, but that six consulting rooms should be provided, the two unused consulting rooms at each session being used as dressing rooms by the patients. This enables each doctor to see one patient while another is undressing, reducing the waiting time for the patients and surgery time for the doctors. Patients coming into the waiting room collect their cards at a reception counter, where all patients' files are kept, and as each doctor becomes free to see another patient he presses a push button on his desk which shows up his name and a coloured light in the waiting room, showing the next patient which doctor will be seeing him and in which room, since the coloured lights match the differently coloured doors of the consulting rooms.

The consulting rooms are compactly planned. Here it was important to have good light, coming from the right direction, quiet and privacy, and that it be possible to black-out the room if necessary. These rooms were made as sound-proof as possible with solid doors and double walls, but it was found difficult to exclude all noise, which enters under the doors and through the rebates of the frames.

A separate treatment room, with a nurse in charge, is used for patients needing treatment under the doctor's supervision, but carried out by the nurse. This saves doctors' time and patients from having to attend a hospital outpatients' department for treatment. The dispensary is small, as it is only used for private patients, N.H.S. patients getting their prescriptions from the chemist's.

The building has been designed so that another storey can be built later over the consulting rooms to house extensions of the group practice, such as dental surgeries, etc.

Cavity wall construction was used, with special attention to insulation against sound and loss of heat, and to economical maintenance. Heating is by oil with skirting convectors, which saved considerable floor space, but had the drawback that the waste pipes from doctors' basins had to be taken through the outside walls rather high up.

Note: The quantity surveyor acted as cost adviser but did not prepare a bill of quantities. The cost analysis figures shown below represent the most detailed breakdown of cost that could conveniently be provided in these circumstances.

price per sq. ft. s d

preliminaries and insurances

STRUCTURAL ELEMENTS

Frame or load-bearing element

Traditional cavity walls and wood roof construction.

External walls

4½-in. outer brick skin. 2-in. cavity. 4-in. insulation block.

Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}950}{1}$

Windows

Hardwood sashes in softwood frames.

Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0{\cdot}225}{1}$

External doors

Hardwood architect-designed minor doors and standard flush softwood.

Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0{\cdot}004}{1}$

analysis

	s	d
Upper floors Provision made for upper floor over the consulting rooms.		
Roof construction Pantiles on wood rafters. Glass quilt insulation. Actual area: 3,125 sq. ft.		
Roof lights 3 in corridor and dispensary. Total area: 16 sq. ft.		
Glazing Clear and obscured in private consulting rooms, etc.		

PARTITIONING

	s	d
Internal partitions Pumice block, double to consulting rooms— 4½-in. brick. Area: 200 sq. ft. pumice block. 1,600 sq. ft. 4½-in. brick.		
Internal doors 17 single.		
Total of structural elements, internal partitions, internal doors and substructure	**44s**	**5½d**

FITTINGS

	s	d
Ironmongery BMA throughout. Cupboard: aluminium alloy.	1	1¾
Fittings All rooms fitted up. Existing fittings from old surgery were refurbished and adapted to new building. All architect designed.	6	1¼
Total of fittings and ironmongery	**7s**	**3d**

FINISHINGS

	s	d
Floor finishes Linoleum finish throughout. Area: 1,650 sq. ft. Price per sq. yd.: 21s. 3d.	2	4½
Wall finishes Painted plaster. Waiting room panelled with reeded plywood.	2	10½
Ceiling finishes Distempered plaster.	1	3½
Roof finishes Pantiles. Area: 3,125 sq. ft.	4	3½
Decorations Emulsion paint, various colours, to walls. All ceilings very pale green for soothing effect. Each consulting room door different colour to synchronise with " call system " for patients by coloured lights in the waiting room.	3	4½
Total of finishes	**14s**	**2½d**

SERVICES

	s	d
External plumbing Normal cast iron r.w.p.s.		4½
Cold water installation Copper piping throughout.	1	2½
Sanitary fittings 6 surgeons basins in consulting rooms. 3 sinks in dispensing, urine and treatment rooms. 2 lavatory basins.	1	11
Heating and hot water Automatic oil-heating installation. Consulting rooms: internal temperature 68 deg., air change 1½ to 2, " U " of walls and roof, 0·25. Reception unit: internal temperature 65 deg., air change 2, " U " of walls and roof, 0·25. Waiting room and corridor: internal temperature 60 deg., air change 3, " U " of walls and roof, 0·25.	11	0
Gas installation 2 points in dispensary and urine test.		2
Electrical installation BMA switch gear throughout. All fittings flush with ceiling. High level of illumination to most rooms. 17 ceiling points. 11 wall plugs	3	9¾
Total of services	**18s**	**5¾d**

	s	d
Drainage Normal system	2	11¾
Pavings, etc. Front terrace paved with reconstructed stone, earth joints and grass. Car park—hoggin.	5	6½
Total per sq. ft. of floor area: £8,018 (net cost excluding external works) 1,900 sq. ft. (floor area measured inside external walls)	= 84	4¾

SUMMARY

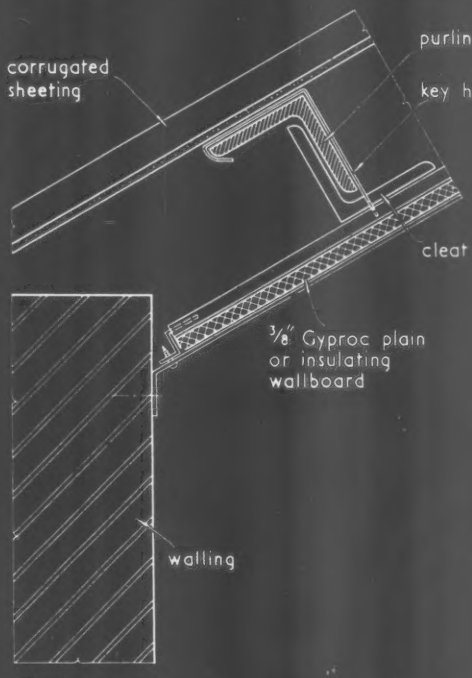
Ground floor area: 1,900 sq. ft.
Total floor area: 1,900 sq. ft.
Type of contract: Negotiated
Tender date: April 5, 1955
Work began: April 15, 1955
Work finished: December 23, 1955
Tender price of foundations, superstructure, installations and finishes: £8,246
Final contract price: £8,018
Tender price of external works: £471
Final contract price: £806
Total: £8,824

CONTRACTORS

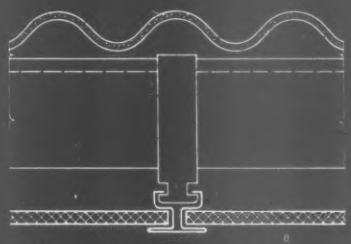
General contractor: Jack Durston. *Sub-contractors—Sanitary fittings:* Shaws Glazed Brickwork. John Bolding & Sons Ltd. *Electrical:* F. Jeffery. *Light fittings:* Thorn Electric Industries Ltd. Frederick Thomas Ltd. *Heating:* Watkin Heating Co. Ltd. *Paint:* Jenson & Nicholson Ltd. *Ironmongery:* F. Knight & Co. Ltd. Yannedis Ltd. *Plywood Panelling:* Venesta Co. Ltd. *Paving:* Neolite Ltd. *Artificial stone:* G. E. Marshall & Co. Ltd. *Skylights:* Velux Co. Ltd.

CEILINGS | PLASTER BOARD

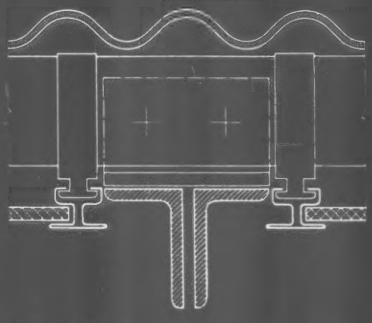
The Architects' Journal Library of Information Sheets 663. Editor: Cotterell Butler, A.R.I.B.A.



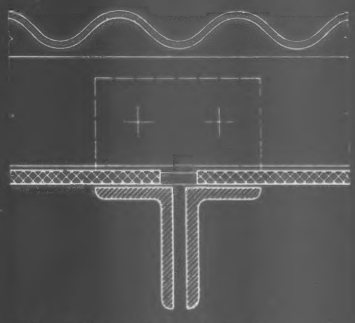
detail at eaves



section parallel to purlins

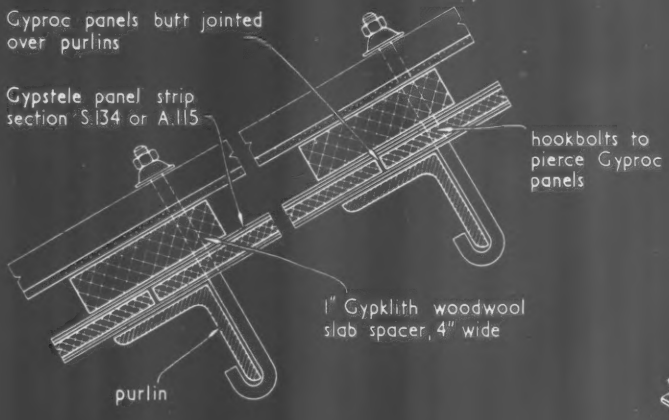


detail at truss

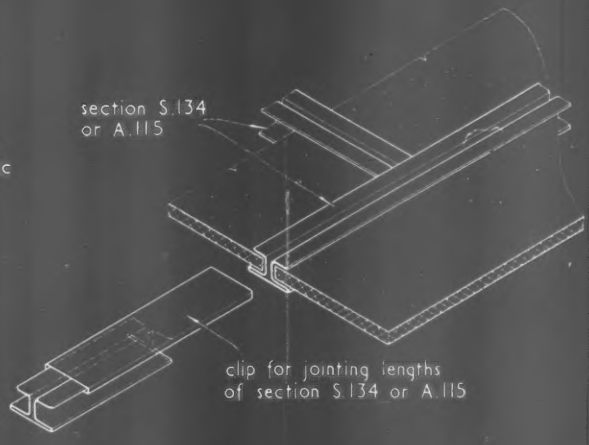


alternative detail at truss

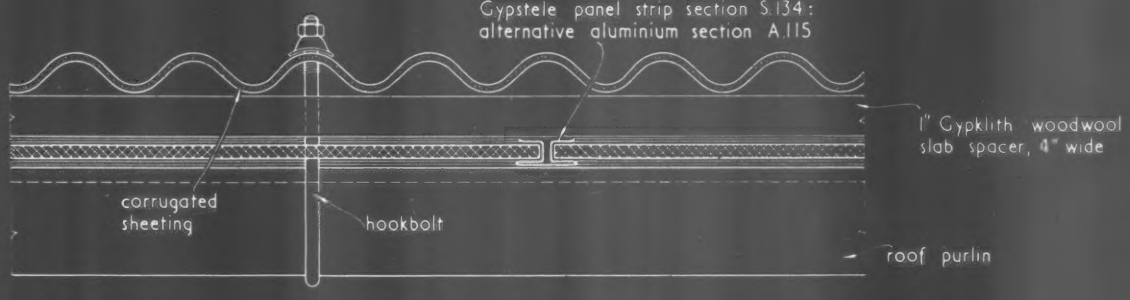
CEILING FIXED DIRECTLY BELOW STEEL ROOF PURLINS.



typical part cross section through roof



method of jointing lengths of section



part section through roof parallel with purlin

CEILING FIXED ABOVE STEEL ROOF PURLINS.

GYPSTELE CEILINGS : FIXED DIRECT TO ROOF STRUCTURAL MEMBERS. Manufacturer: Gyproc Products Limited.

22.E2 ·GYPSTELE· CEILINGS FIXED DIRECT TO ROOF STRUCTURAL MEMBERS

This Sheet deals with Gyproc ceilings fixed direct to structural members and supersedes Sheet 22.E2 published 25.3.48.

Construction

The ceiling consists of $\frac{3}{8}$ in. panels of Gyproc wallboard (plain or insulating) supported in either mild steel or aluminium-alloy sections. Details of the sections are given on Sheet 22.E1. The lining may be fixed either above the roof purlins with a spacer of Gypklith woodwool slab positioned on top of the lining above and parallel to the purlin, or directly below, as shown in the drawings on the face of the Sheet: a summary of methods for attaching strap hangers to structural roof or floor members is shown on Sheet 26.J3.

Ceiling panels: Gyproc wallboard consists of a gypsum plaster core encased in strong millboard and conforms to the requirements of BS. 1230 *Gypsum Plasterboard.* Gyproc insulating wallboard is the same material with polished aluminium foil applied to one surface. Tests at the Building Research Station reveal that the boards may be considered inert for all practical purposes. They do not, therefore, require site-conditioning but can be erected immediately. Where abnormally humid conditions are anticipated, as in laundries, kitchens, etc., primed Gyproc is recommended.

Size

The boards are 4 ft. 0 in. by 2 ft. 0 in. by $\frac{3}{8}$ in. thick.

Thermal Insulation

The thermal conductivity (k value) of Gyproc wallboard panels is 1·1 B.t.u. in./ft.² h deg. F. Where Gyproc insulating wallboard is used with the aluminium foil facing a cavity of $\frac{3}{4}$ in. minimum depth, a thermal conductance (C value) of 0·42 B.t.u./ft.² h deg. F. is obtained for board and air space combined. The following table gives the thermal transmittance (U) values obtained with typical Gypstele linings and ceilings fixed to a corrugated asbestos-cement roof:

Construction	B.t.u./ft.²h deg. F.
(*a*) Gypstele ceiling under purlins (Gyproc insulating wall-board panels)	0·32
(*b*) Gypstele lining over purlins (Gyproc insulating wallboard) with 1-in. thick Gypklith woodwool slab spacer	0·32
(*c*) Gypstele ceiling under purlins (plain Gyproc wallboard panels) with air space and 1-in. glass or mineral wool on back of board	0·17

Fire Resistance

Gyproc wallboard has an incombustible core and is rated Class I in surface spread of flame tests carried out in accordance with the requirements of BS. 476 *Fire Tests on Building Materials and Structures.*

Finish

The Gyproc panels have an ivory-coloured surface which may either be left undecorated, or painted or distempered in accordance with the specification given by the manufacturer of the selected medium. All steel components are sherardised.

Trade Mark

This is a proprietary system manufactured under the registered trade mark Gypstele.

Compiled from information supplied by:

Gyproc Products Ltd.
Head Office: Singlewell Road, Gravesend, Kent.
Telephone: Gravesend 4251-4.
Telegrams: Gyproc, Gravesend.
Contracts Department: Lacey Green, Aylesbury, Bucks.
Telephone: Princes Risborough 581/2.
Telegrams: Gyproc, Princes Risborough.
Glasgow Office: Gyproc Wharf, Shieldhall, Glasgow, S.W.1.
Telephone: Govan 2141-3.
Telegrams: Gyproc, Glasgow.
London Office: Bath House, Piccadilly, London, W.1.
Telephone: Grosvenor 4617-9.
Midland Sales Office: 11, Musters Road, West Bridgford, Notts.
Telephone: Nottingham 82101.

ACOUSTICS | DETAILS | CEILINGS

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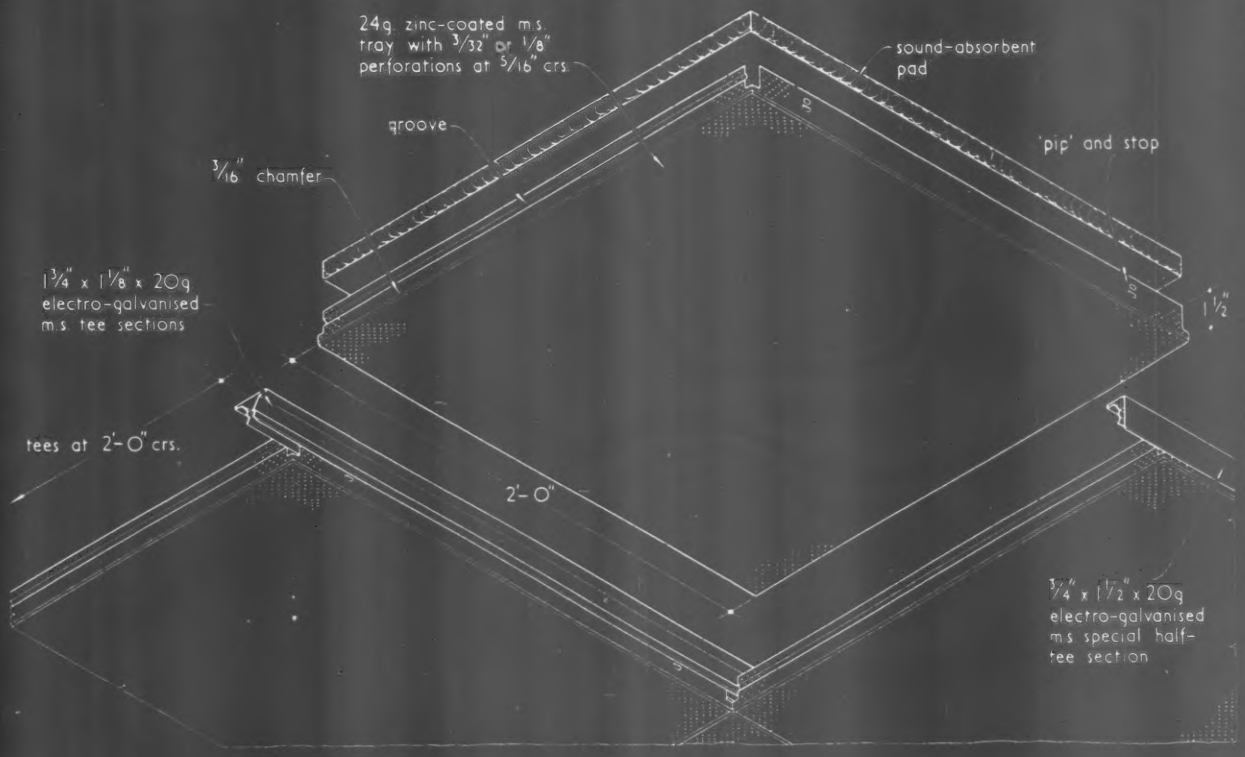
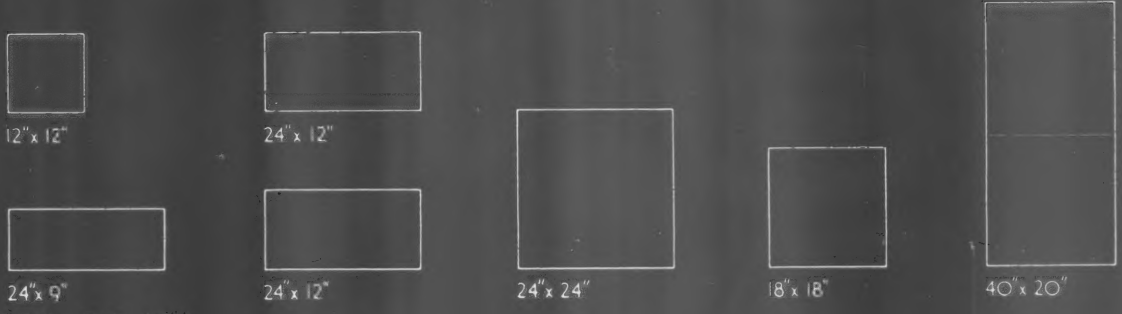
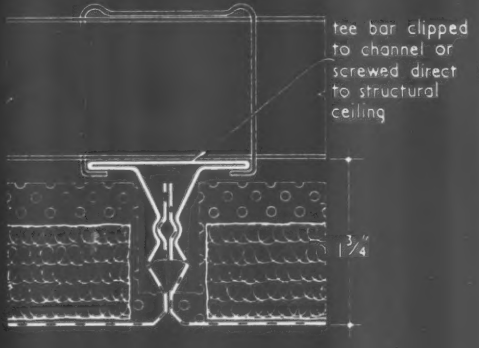


ASSEMBLY OF COMPONENT PARTS SHOWING CONSTRUCTION OF TILE.



STANDARD TILE SIZES



TYPICAL SECTION SHOWING TEE BAR FIXING.

ALTERNATIVE STANDARD FINISHES AT WALLS.

BURGESS ACOUSTIC TILES. Manufacturer: Burgess Products Company Ltd

27.B11 BURGESS ACOUSTIC TILES

This Sheet describes an acoustic treatment using sound-absorbent tiles supported by concealed mild-steel sections. The assembly can be fixed direct to wall or ceiling members or it can be used as a suspended ceiling and in either position may serve for radiant surface heating.

General

The tiles are in the form of perforated pressed metal trays filled with sound-absorbent material. All arrises on the underside of the tiles are chamfered so that the finished ceiling is composed of rectangles or squares separated by vee joints. "Pips" and stops are formed at intervals in two opposite edges of each tile, to engage in the tee section and hold the tile in position as shown on the face of the Sheet. Continuous grooves are formed in the other two edges of the tile for stiffening and also to take tee sections or half-tee sections when either is used for trimming the ends of a panel of tiles. The tee sections can be fixed direct to most types of ceiling but it may be necessary to provide cross battens, 1½ in. by 1 in. at 4-ft. to 5-ft. centres, or 1½ in. by ¾ in. by 16-gauge galvanised channel (as shown in the drawing on the lower face of the Sheet) also at 4-ft. to 5-ft. centres.

Tiles

Trays: There are seven sizes as shown on the face of the Sheet: in one case, the 24-in. by 12-in. tiles are divided across the centre with a vee-groove to give the appearance when fixed of 12-in. squares, and the 40-in. by 20-in. are similarly divided to give the appearance of 20-in. squares. All sizes are 1½ in. deep. The trays are made from 24-gauge (0·028) zinc-coated perforated mild steel sheet. They can be supplied with $\frac{3}{32}$-in. or ⅛-in. diameter perforations at $\frac{5}{16}$-in. centres. The chamfers on the underside are $\frac{3}{16}$ in.

Sound-absorbent material: This may be rock wool, glass silk, or other suitable sound-absorbing medium.

Weight: The weight per foot super of the 24-in. by 12-in., 24-in. by 24-in., 18-in. by 18-in. and 40-in. by 20-in. tiles with rock wool filling, is 1·54 lb. excluding the tee section. (The smaller sizes are slightly heavier owing to the greater number of lipped edges per sq. ft.). The maximum weight of a complete ceiling suspended at a depth of 2 ft. 0 in. is 2·25 lb. per foot super.

Supporting tee sections

Material and size: The tees are 1¾ in. by 1⅛ in. by 20 gauge and are rolled mild steel, electro-galvanised. The sections are fixed at 1 ft. 0 in. centres for 12-in. by 12-in. tiles, 1 ft. 6 in. for 18-in. tiles, 2 ft. 0 in. for 24-in. by 9-in., 24-in. by 12-in. and 24-in. by 24-in. tiles, and 3 ft. 4 in. for 40-in. by 20-in. tiles. Half-tee sections, ¾ in. by 1½ in. are also available.

Weight: Tee sections weigh 0·69 lb. per foot run. Half-tee sections weigh 0·51 lb. per foot run.

Sound Absorption

The following table is extracted from the National Physical Laboratory's Report, reference S.1183(a), May 27, 1953:

Material as tested (specimen 10 ft. by 10 ft. in area)

Burgess Acoustic Tiles, type (c): 24 in. by 12 in. by 1½ in. deep, 24 g. metal trays perforated $\frac{3}{32}$ in. diameter holes, 2765 holes per sq. ft. filled with resin-bonded Fibreglass slabs, 0·35 lb. per sq. ft., 1 in. thick. Tiles clipped to metal T-bar runners on wall, front surface about 1¼ in. from wall.

Reverberation Absorption Coefficients (to nearest 0·05) for frequency bands in region (c/s)

125*	250	500	1000	2000	4000	6000	8000*
0·10	0·30	0·60	0·75	0·80	0·80	0·75	0·80

* The accuracy is subject to reservation at these frequencies where the measurements present special difficulty.

Finish

The trays are zinc-coated and finished with two stoved coats of off-white finishing enamel. They do not require any additional finish after fixing. The supporting tee sections are electro-galvanised.

Maintenance

The surface of the tiles may be easily cleaned by wiping with a damp cloth dipped in a weak solution of non-abrasive liquid detergent.

Compiled from information supplied by:

Burgess Products Company Limited.
Head Office: Acoustical Division, Hinckley, Leics.
Telephone: Hinckley 700-2.
Telegrams: Burducto, Hinckley.
London Office: 127, Victoria Street, London, S.W.1.
Telephone: Tate Gallery 0251.
Telegrams: Burducto, London.

working detail

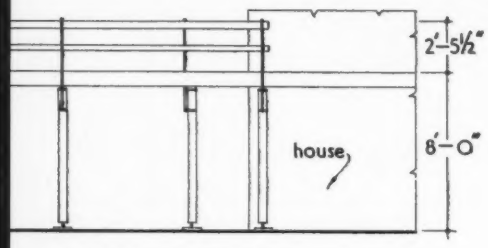
BALUSTRADE: HOUSE AT NYON, SWITZERLAND

Georges Cailler, architect (material supplied by Dariush Borbor)

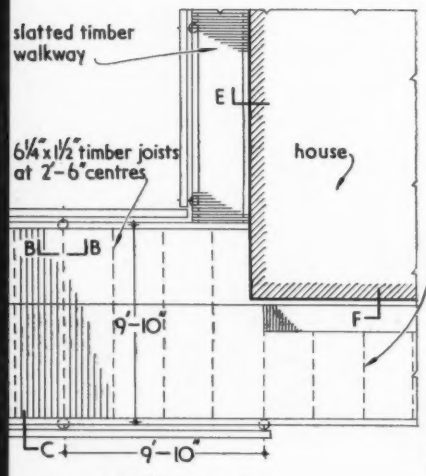
This is a version of a horizontal balustrade in which the uprights are reduced, visually, to a minimum. It is intended that the rails should be taken down and stored away for the winter. Note that the top rail is thicker than the bottom.

BALUSTRADE: HOUSE AT NYON, SWITZERLAND

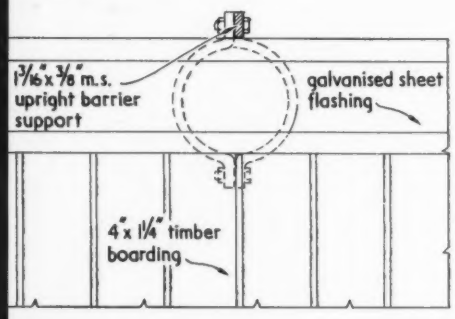
Georges Cailler, architect (material supplied by Dariush Borbor)



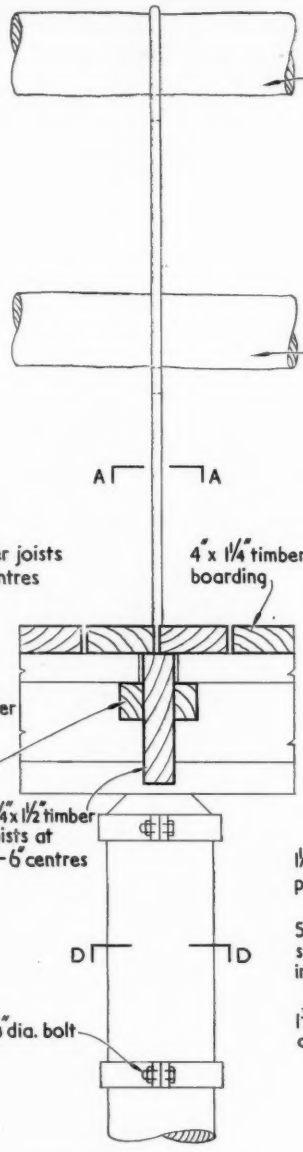
ELEVATION. scale ⅛" = 1'-0"



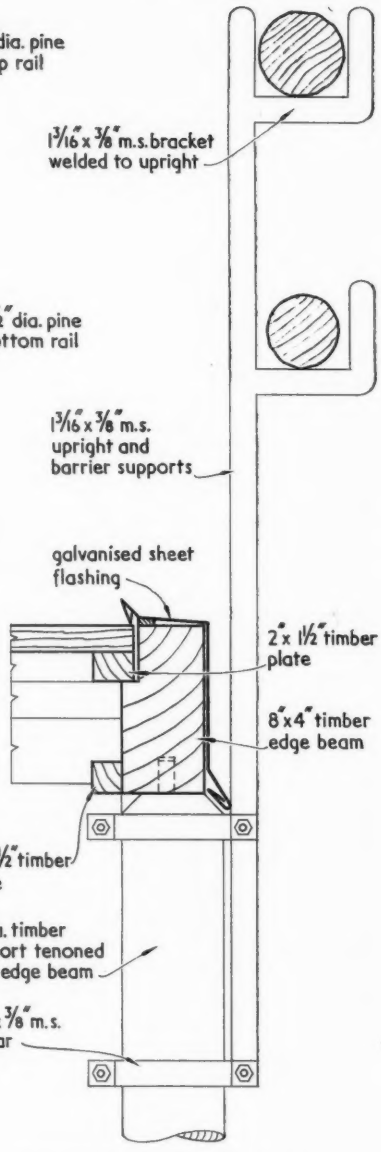
PLAN. scale ⅛" = 1'-0"



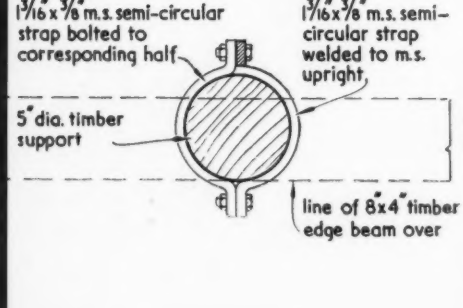
PLAN AT A–A. scale ⅛ full size



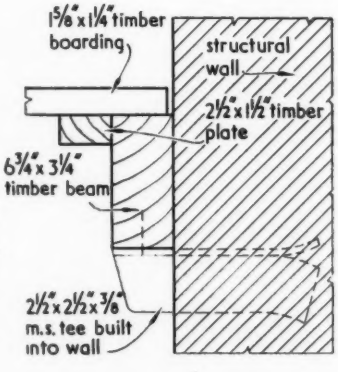
SECTION B.



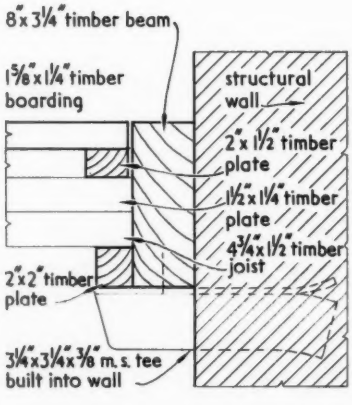
SECTION C. scale ⅛ full size



PLAN AT D–D scale ⅛ full size

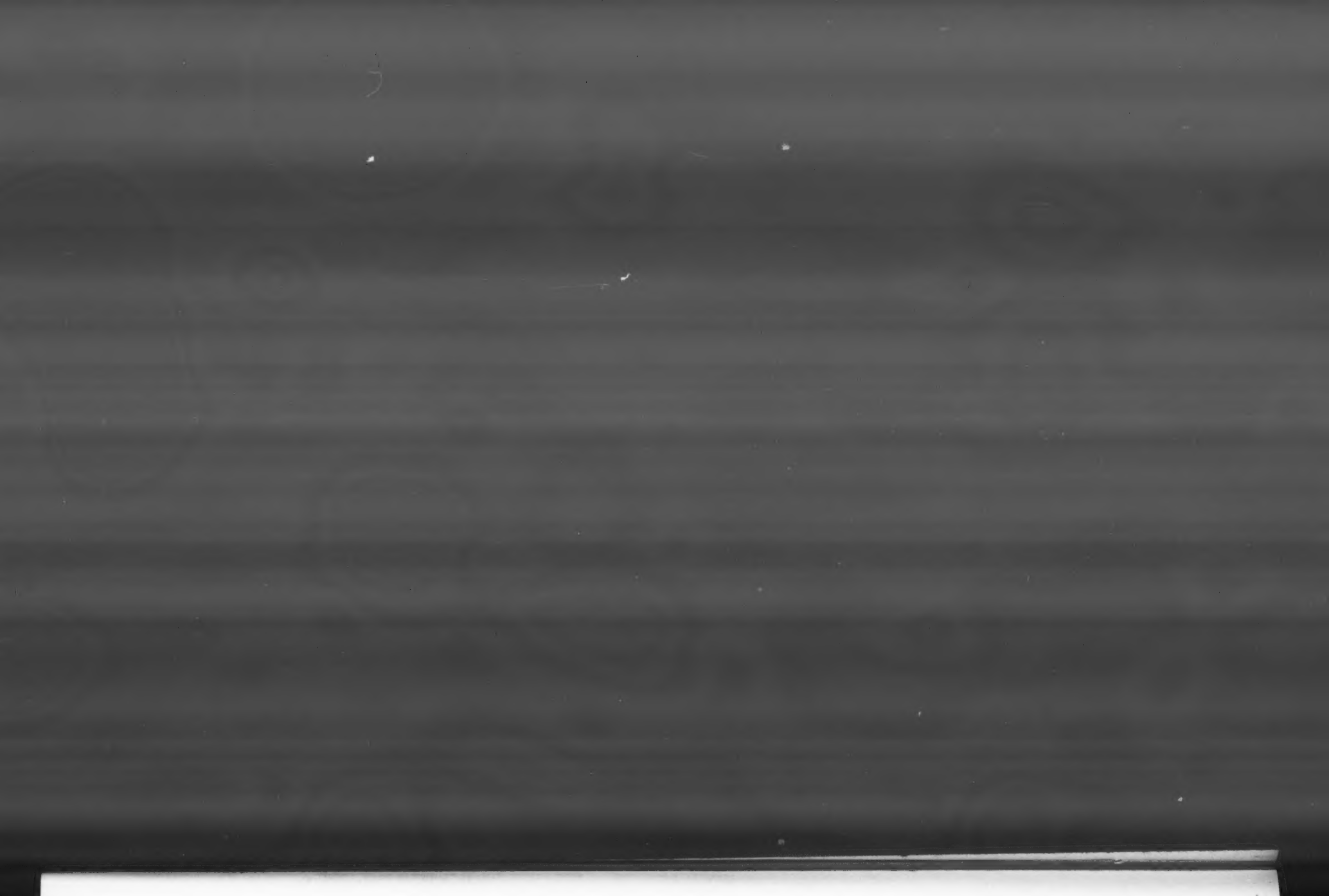


SECTION E.



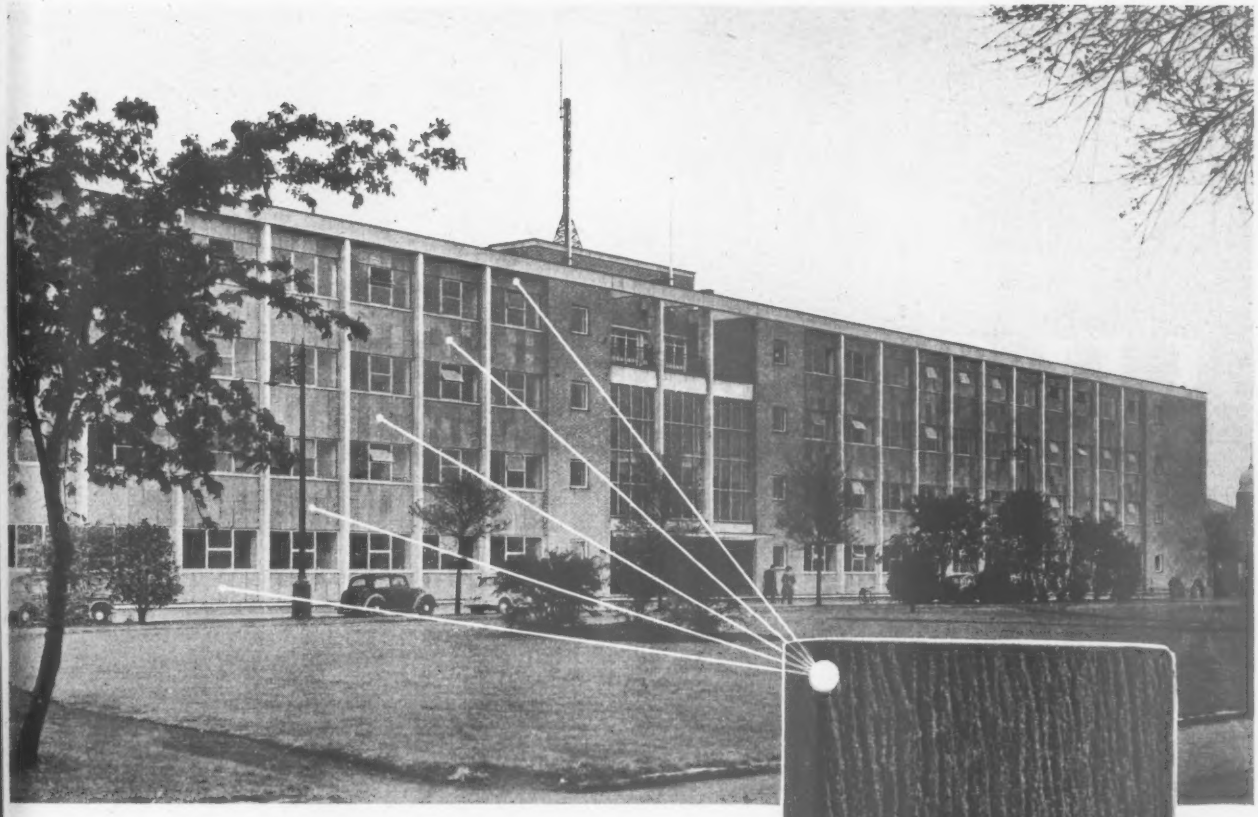
SECTION F. scale ⅛ full size

note: dimensions figured in feet and inches are approximate



BROUGHTON MOOR LIGHT SEA GREEN STONE

FRAME-SAWN FINISH



at the new Central Police Headquarters, Hull.
(Architects: Messrs. Priestman & Lazenby.)

Broughton Moor Green Stone is ideally suited for use both as internal and external facing, and remains sound for centuries. It can be supplied in a variety of beautiful finishes, including frame sawn, sanded, fine rubbed or naturally riven. It was these characteristics which caused it to be chosen for the facing of this impressive building. Fixing is normally effected by means of non-ferrous cramps and dowels, grouted into drillings in the stone, and brickwork or concrete.

Approximate area of slabs supplied:—12500 ft. sup. in sizes ranging from 3′ 6″ × 2′ 0″ to 2′ 0″ × 2′ 0″.

A section of Broughton Moor Stone, showing the distinctive appearance and texture of the frame sawn finish.

Technical pamphlets showing typical methods of fixing are available as follows: 1, Flooring; 2, Facings; 3, Coping; 4, Cills; 5, Riven Face Slabs.

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JAMAICA, B.W.I.

TRAFFIC OFFICE AT NORTH WALSHAM, NORFOLK

This small traffic office at North Walsham main station, Norfolk, is the first building to be completed by the Eastern Region of British Railways, using a new system of prefabricated timber construction, designed by H. H. Powell, chief architect, Eastern Region, under the general direction of A. K. Terris, chief civil engineer, for use in providing small offices and welfare facilities. Early in the design stage a cost analysis was made of ten recent buildings of more conventional construction and the cost plan for the new system was based on an average of these. The new system had to provide sufficient freedom in planning to meet various needs on restricted sites, to allow alterations or extensions, to save time in the drawing office and in building, and while the principal components are factory made, erection and finishes had to be within the scope of local builders. The system is based on a 3-ft. 3-in. planning grid, 3 ft. for infilling and 3 in. for structural frame of hardwood. At North Walsham the frame is kapur, a Malayan hardwood, with dark green insulated vitreous enamel panels externally and plasterboard lining.

YMCA HOSTEL AT CROYDON

This large and efficient new hostel for the YMCA at Croydon, opened on March 8 by the Archbishop of Canterbury, is one of a number of such buildings now being built in London. The building, designed by E. F. Starling, consists of a five-storey dormitory block, containing 20 bed-sitting rooms on each of the upper floors, and on the ground floor, space for all communal and social activities. Here a centrally placed chapel is the pivot around which the other activities of the Association revolve. The ground floor area is enlarged by two narrow adjoining annexes along the front and back of the block. All sections have a conventional reinforced concrete frame, expressed boldly both internally and externally

Announcements

PROFESSIONAL

H. A. Patton, D.A. (EDIN.), A.R.I.B.A., A.M.T.P.I. has now moved to 29, Wellington Place, Belfast (telephone: 24400) where he will be glad to receive trade catalogues.

Leslie Buxton, A.R.I.B.A., and John C. Truscott have entered into partnership and will practise at Public Rooms, Truro Road, St. Austell, Cornwall (telephone: St. Austell 747) under the title of Buxton and Truscott.

TRADE

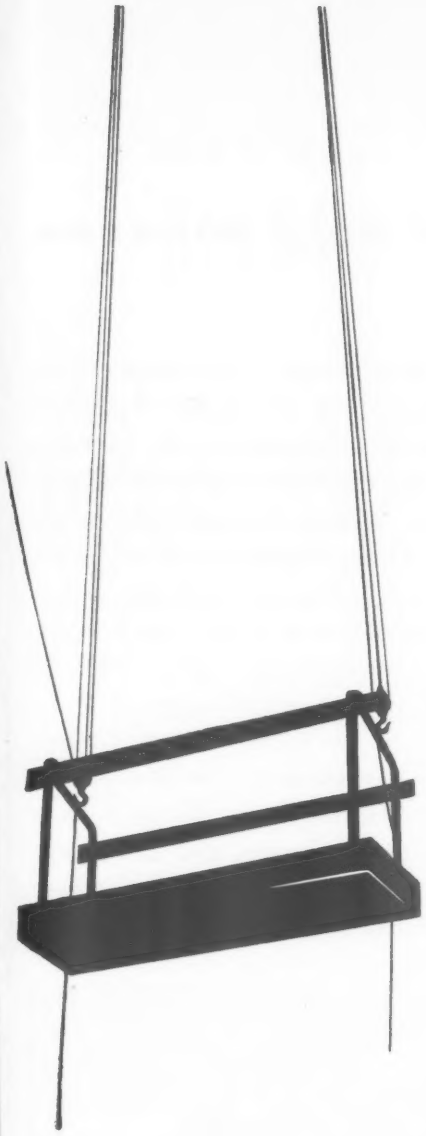
The Carron Co. have decided to close down their works at Glasgow as they cannot deal with the increasing demand for sheet metal products. All sheet metal, press and fabricating work will be transferred to a new factory at Carron Works, Falkirk, Stirlingshire.

National Benzole Co. Ltd., have appointed THM Partners as their design consultants.

The marketing of Airsola, the air entraining agent, is now being handled in the UK and the Commonwealth by Chas. H. Windschuegl Ltd. (one of the Amber Group of Companies) on behalf of CLB Supplies. Enquiries should be addressed to Chas. H. Windschuegl Ltd., 1, Leadenhall Street, E.C.3.

B. W. Dawkins has been elected chairman of Saxon Engineering Co. Ltd., and Bennis Mechanization Ltd., both of Fenton, Stoke-on-Trent and subsidiary companies of Bennis Combustion Ltd. Mr. Dawkins is joint managing director of the parent company, Bennis Combustion Ltd.

S. W. Farmer & Son Ltd., constructional engineers, have opened a new drawing office at their Lewisham works.



BUILDING MAINTENANCE

The solution to a permanent problem by Britain's leading cradle specialists

The Palmer Travelling Trolley, used in conjunction with, and fully controlled from the Palmer Cradle, is the complete answer to the maintenance of buildings where the architectural emphasis is on modern treatments and increased heights.

Manœuverability and complete absence of fittings on the face of the buildings are the dominant features. Bends, cornices or angles are all taken in its stride.

This purpose-designed installation—available for window cleaning, repairs and general maintenance, may be incorporated as an integral feature of new buildings, or added to existing structures. For speed and safety in operation, and economy in building upkeep, specify Palmer's Travelling Trolleys and Cradles. We will gladly supply complete details of this equipment, of which we are the sole designers and manufacturers.

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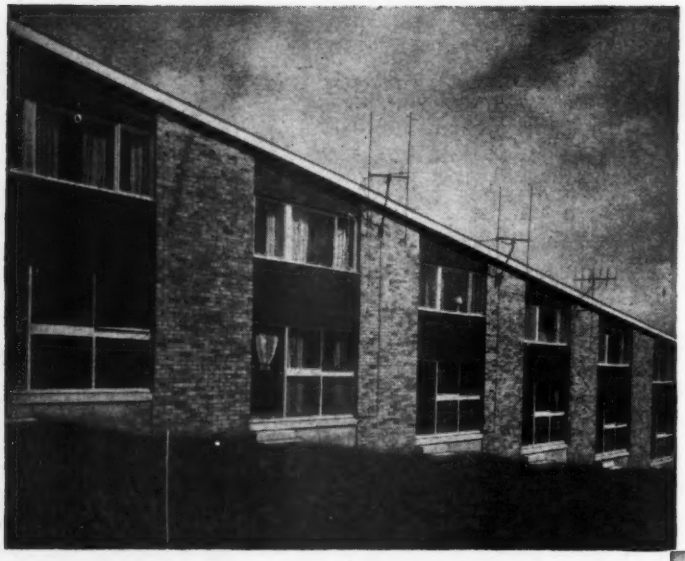
PALMER'S

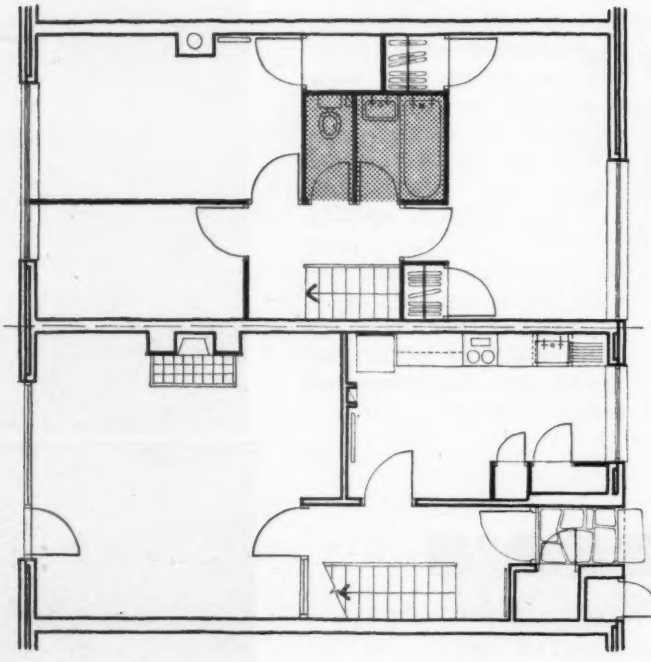
WILLIAMS & WILLIAMS NEWS SHEET

WILLIAMS & WILLIAMS Standard Metal Windows for unorthodox housing at Sheffield



These terrace dwellings on the Gleadless Valley Estate, Sheffield are specially designed to conform to an extremely hilly site. They are a cross-wall construction—the floors spanning between the walls. Frontages are purposely narrow so that the terrace can be built down a steep slope with a minimum of under-building. The interior planning is ingeniously devised to give a traditional room layout within the narrow frontage as the plans show.

Williams & Williams Standard Metal Windows and Doors to BS.990 have been used extensively in these houses. The units shown in the photograph are types ZND1 and ZND13. All the windows have been supplied rustproofed in accordance with BS.729.



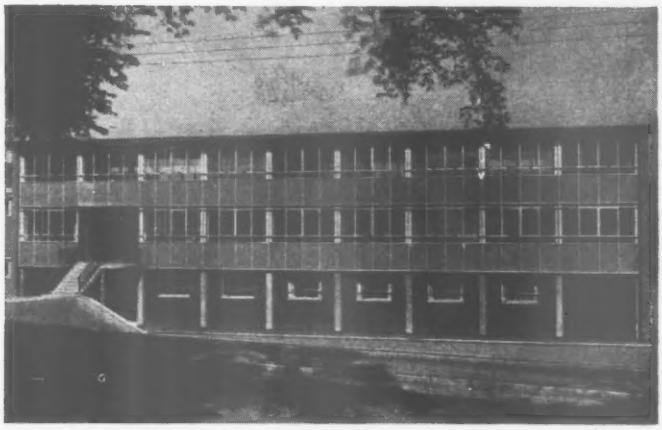
1 Terrace houses at Gleadless Valley Estate, Sheffield
Architect: J. L. Womersley, F.R.I.B.A., M.T.P.I., Sheffield City Architect.

2 A variation on the basic theme in which the individual dwellings are 'stepped' down the terrace.

3 First floor plan (above). Shaded area shows limit of skylight over bathroom and W.C. Ground floor plan below.

NOT ALL GIANTS

Curtain walling in this country has tended to become associated with larger and more elaborate type of building. But many architects have found 'Wallspan' an economic and practical proposition in a wide variety of small contracts, some of which are illustrated here.

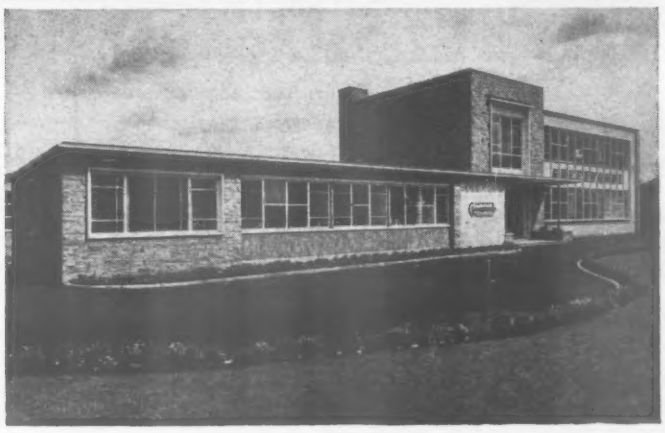


1 Office block for Gallaher Ltd., Sheffield
Architect: Austyn Henry, F.R.I.B.A., A.M.T.P.I.

2 Showrooms for Gowrings Ltd., Reading
Architects: Lassetter & Judd, L/A.R.I.B.A.

3 Henrys Stores, Stockport
Architects: Marsden, Massey & Arschavir, *Chartered Architects*

4 Head Office and Warehouse for Greenwoods (H.O.) Ltd., Guiseley
Architects: Samuel Jackson & Son, L/A/A.R.I.B.A.
Quantity Surveyor: R. G. McCaffrey, F.R.I.C.S.



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An example of Conder Steel construction is shown above — Machine Shop, Southampton. Architects: Fowler, Grove & Haggar, Southampton. Conder steelwork provides the Architect with a brilliant new design medium, including portal frames up to 150′ clear span and multi-storey frames. Conder complete erection service includes cladding and glazing. You are invited to send for the Conder Book. Profusely illustrated with examples of Conder steel buildings, it gives useful data on roofing materials and insulation.

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MANDERLAC Alkyd Enamel dries quickly, to a hard surface that stays bright, and keeps its protective powers for years. It is easy to apply and easy to clean, covers well even on sharp edges and is so lustrous that it 'looks wet when it's dry'. Do ask us for full details and copies of the wonderful Manderlac colour range.

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ar

Churches
Adam & Berkeley
Lettering

February Architectural Review

The variety and scope of the buildings illustrated, and subjects discussed, in the February issue will be catholic, even for the Review. *Three Churches* around Coventry by Basil Spence will show what the imaginative use of a modicum of rationalisation can do even for a church building programme; the spectacular *Teatro de los Insurgentes*, designed by Alejandre Prieto exhibits Latin-American design at its most exuberant and effective; while Erno Goldfinger's precise *Office block in Albemarle Street* is the kind of building our cities sorely need. Historical studies will re-examine aspects of eighteenth-century architecture: *Bishop Berkeley's* contributons to architectural theory will be the subject of an article by Marcus Whiffen, while a sheaf of papers on *Robert Adam* by various hands will include some unknown Clérisseau drawings from Russia. Gordon Cullen will complete his set of townscape studies for Bristol University with an analysis of *Trowbridge*, and Jacqueline Tyrrwhitt will examine the planning of *Fatehpur Sikri*, the ideal city of Akbar the Great, somewhat in the manner of Sir Hugh Casson's memorable studies of Peking. In *Skill*, John Sharp will complete his survey of methods and materials in *Architectural Lettering*.

Church at Bell Green, Coventry, by Basil Spence & Partners.

Office, Albemarle Street, W.1 by Erno Goldfinger.

Milford Haven
Lamp-Standards
Achthamar

March Architectural Review

The impending ruination—or transfiguration — of Pembrokeshire, by the proposed industrialisation of the Milford Haven area, will be the subject of an important *Counter-Attack* article by Ian Nairn in the March issue of the Review, while another *Outrage* problem of a more wide-spread (though no less acute) interest, will be surveyed by Peter Witworth —the design of street-lighting standards—in a special article in *Skill*. Among buildings of interest to be described and illustrated, the most outstanding will be two industrial groups; further additions to the distinguished work already done for the *Technicolor Laboratories* by Gooday and Noble, and a complete set of *Pithead Buildings in Fifeshire* by Egon Riss, who has captured something of that sense of technological drama that has been missing from so much recent English industrial building. In complete contrast will be a *Weekend House* on the seashore at West Wittering by Wells Coates and Michael Lyell. A travelogue by three recent voyagers in Turkey will document and illustrate the extraordinary sculptured church at *Achthamar*, and two historical articles will explore the frontier between architecture and technology in the early nineteenth century, W. J. Sparrow writing on the ingenious and adventurous *Count Rumford*, inventor, man of action, and landscape architect, and Mary Eldridge examining the impact of plate glass in ever-larger sheets upon the design of urban *Shop-Fronts*.

Rothes Colliery, by Egon Riss.

Carvings at Achthamar.

Costs
European Churches
Office Blocks

April, Architectural Review

Correction

In this column last week the house at Cowes should have been attributed to James Stirling and James Cowan.

Two contrasting and controversial subjects will be tackled in important articles in the April *Review:* John Carter will discuss *Cost Analysis*, and its implications for architectural education and the management of design; and Peter Hammond will suggest a drastic overhaul of current attitudes to *Church Architecture*, and especially the need for a rational analysis of liturgical functions. New office blocks at Newport Pagnell, by Gordon and Ursula Bowyer, and Birmingham, by J. A. Madin, will be described and illustrated. Other buildings to be illustrated include a remarkable small house on the Isle of Wight, designed by James Stirling, and James Cowan. The reputation of a pioneer Edwardian modernist, *Lamond of Dundee*, will be rescued from undeserved obscurity by M. D. Walker, and in *Tridon, or the shipwright* Reyner Banham will discuss an unexpected anticipation of mid-century architecture in an academic text of the Twenties. Regular departments such as *Exhibitions*, the *Counter-Attack Bureau* and reviews of important *Books* will continue, and an important new monthly feature will appear for the first time—an *Interior Design* supplement, covering recent and forthcoming developments in the field of "inside architecture".

Church at Dusseldorf by W. Xongeter.

House near Cowes, by James Stirling and Jame Cowan

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

30s. per inch; each additional line, 2s. 6d.

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for (1) ARCHITECTS, Grade III, starting salary up to £1,090 a year. (2) ARCHITECTURAL ASSISTANTS, starting salary up to £960.

Full and interesting programme of houses, flats, schools and general buildings.

Application form and full particulars from the Architect (AR/EK/5/58), The County Hall, S.E.1. (2½) 8741

BUCKS COUNTY COUNCIL

Applications are invited for the appointment of a qualified STRUCTURAL ENGINEER in the County Architect's Department on A.P.T. V, £1,175×£50 (3)—£1,325 p.a., commencing salary according to qualifications and experience.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.

Applications, on forms provided, must be returned by 30th April, 1958.

F. B. POOLEY,
County Architect.

County Offices, Aylesbury. 8968

CITY OF ST. JOHN'S
NEWFOUNDLAND, CANADA

Applications are invited for the following appointment:—

PLANNING ASSISTANT
at a salary of $5,000 per annum.

Duties will include survey and analysis for City Development Plan. Re-zoning and implementation of development control. The appointment offers scope for independent and responsible work.

Applicants must have considerable practical experience, preferably in a local Government Office and should possess professional qualifications.

Appointment will be on a contract for two years in the first instance. Passage will be paid for the selected officer.

Please reply by Air Mail to the undersigned with details of age, experience, present salary and qualifications together with copies of recent testimonials before 15th April, 1958.

ROY W. BALSTON,
A.R.I.B.A. A.A. Diploma.
City Planning Officer.

City Hall,
St. John's,
Newfoundland. 8879

CITY OF BELFAST
STRUCTURAL ENGINEER

Applications are invited for the above position in the Education Architect's Department.

Candidates must hold a recognised qualification in Civil or Structural Engineering, *e.g.* A.M.I.C.E. or A.M.I.Struct.E. and have sound experience in the design of structural steelwork and reinforced concrete, including foundation work, and should also have a practical working knowledge of site investigation and general experience of levelling work. A minimum practical experience of five years after qualifying, including three years office designing, is also necessary.

Salary: £970 × £40—£1,250 per annum.

Commencing salary will be fixed according to experience. Superannuation contributions of approximately 6 per cent. of remuneration will be payable. Reciprocal pension arrangements exist between the Corporation and other Public Authorities.

Canvassing will disqualify.

Application forms, etc., are obtainable from the Education Offices, 40 Academy Street.

Completed applications must reach the undersigned by Thursday, 27th March, 1958.

JOHN DUNLOP,
Town Clerk.

City Hall, Belfast, P.O. Box 234.
11th March, 1958. 9025

CWMBRAN DEVELOPMENT CORPORATION
APPOINTMENT OF JUNIOR ASSISTANT ARCHITECT

Applications are invited for the above superannuable post in my Department, which carries a salary range of £707×3 at £25×1 at £15×3 at £35—£907 per annum. The commencing salary will be in accordance with the qualifications and experience of the successful candidate.

Candidates should be graduate Architects or have passed the Final Examination of the R.I.B.A. Office experience will be an advantage.

Housing accommodation will be made available in suitable cases, or otherwise lodging allowance will be paid to married men for a limited period.

Applications, stating age, experience, details of present and former employment (together with applicable salaries), and the names and addresses of two referees, must reach the undersigned by first post on 31st March, 1958.

J. C. P. WEST, A.R.I.B.A., M.T.P.I.,
Chief Architect.

Victoria Street, Cwmbran, Mon. 8970

LANARK COUNTY COUNCIL
HOUSING—REDEVELOPMENT OF CENTRAL AREAS

A team of ARCHITECTS is required for Department of County Housing Architect (Samuel McColl, F.R.I.B.A.) at Hamilton.

(*a*) SENIOR ASSISTANT ARCHITECTS. Salary £1,155/£1,207 10s. Must be fully qualified, having experience in design and construction of flats, shops and ancillary buildings.

(*b*) ARCHITECTURAL ASSISTANTS A. & P. Grades I-VIII (£595/£1,055). Placing on A. & P. Grades will depend on qualifications and experience.

Superannuation. Medical examination. No canvassing.

Applications, stating age, qualifications and experience together with names and addresses of two referees, should be lodged with County Clerk, P.O. Box 1, Glasgow, within 14 days of date of advertisement. 9024

CANNOCK URBAN DISTRICT COUNCIL
(Population 41,970)
QUANTITY SURVEYOR

Applications are invited for the above-named appointment in the Architect's Department. Preference will be given to the holder of a recognised qualification.

Salary A.P.T. III (£845—£1,025 per annum), commencing point to be fixed according to qualifications and experience.

Housing accommodation available for successful married applicant, if required.

Applications giving particulars of age, present and previous appointments, training and experience, with not more than three referees, must reach the undersigned (from whom further particulars are available) by 11th April, 1958.

H. C. ALLEN,
Clerk of the Council.

Council House,
Cannock, Staffs.
18th March, 1958. 9020

COUNTY BOROUGH OF DUDLEY

(*a*) TWO ASSISTANT ARCHITECTS—Special Grade—£750—£1,030. Applicants must be A.R.I.B.A.

(*b*) QUANTITY SURVEYING ASSISTANT—A.P.T. Grade II—£725—£845.

Applications are invited for the above permanent appointments.

Applications giving age, qualifications and experience and all other relative information, together with the names and addresses of two referees, to reach me by Tuesday, 1st April, 1958.

P. D. WADSWORTH,
Town Clerk.

The Council House,
Dudley,
Worcs.
13th March, 1958. 9027

GLOUCESTERSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
ASSISTANT ARCHITECT. "Career" Class, A.P.T. Grades IV (£1,025—£1,175) and V (£1,175—£1,325).

ARCHITECTURAL ASSISTANT. "Qualifying" Class, A.P.T. Grades I (£575—£725), II (£725—£845) and Special (£750—£1,030).

Applicants for posts Graded A.P.T. Special and above must have passed Final Examination of R.I.B.A., and for Grades A.P.T. I and II the Intermediate Examination.

N.J.C. Service Conditions, Superannuation, Medical Examination.

Apply giving age, present position, salary and date of appointment, previous appointments, names and addresses of two persons for reference to County Architect, Shire Hall, Gloucester, by 29th March, 1958.

GUY H. DAVIS,
Clerk of the County Council. 9021

LANCASHIRE COUNTY COUNCIL
APPOINTMENT OF COUNTY ARCHITECT

The Lancashire County Council invite applications from Fellows or Associate Members of the Royal Institute of British Architects for the post of COUNTY ARCHITECT at a salary of £3,390 per annum rising by annual increments of £265 and £960 to a maximum of £3,915 per annum. The appointment will be subject to the provisions of the Local Government Superannuation Acts, and the successful applicant will be required to pass a medical examination.

Forms of application together with particulars of the terms and conditions of the appointment, may be obtained from the undersigned, to whom applications should be submitted not later than the 9th May, 1958.

R. ADCOCK,
Clerk of the County Council.

County Hall,
Preston. 9007

EBBW VALE URBAN DISTRICT COUNCIL
ARCHITECT'S DEPARTMENT
APPOINTMENT OF ARCHITECTURAL ASSISTANT
Grade A.P.T. II (£725—£845)

Applications are invited for the above appointment which is superannuable and subject to medical examination.

Applicants to be Intermediate R.I.B.A. or Intermediate R.I.C.S.

Housing accommodation will be made available. Form of Application from the Clerk of the Council, Council Offices, The Walk, Ebbw Vale, Mon., to be submitted by 31st March, 1958.

HOWARD J. WILLIAMS,
Clerk of the Council. 8986

CITY OF NOTTINGHAM
ESTATES DEPARTMENT

Applications are invited for the appointment of an ASSISTANT ARCHITECT in the Chief Architect's Section, at a commencing salary within the Special Scale (£750 × £40—£1,030).

Applicants should have passed Parts 1 and 2 of the Final Examination of the R.I.B.A.

The appointment will be subject to the National Joint Council's Scheme of Conditions of Service.

Applications stating age, qualifications, experience, present appointment and salary and naming two referees, should be sent to The Estates Surveyor & Valuer, The Guildhall, Nottingham, by Wednesday, 9th April, 1958.

T. J. OWEN,
Town Clerk.

The Guildhall,
Nottingham. 9006

BOROUGH OF HARROW

Applications are invited for the undermentioned post in the Borough Engineer's Department:—

CLERK OF WORKS (Building Maintenance). A.P.T. Grade II, Salary £725—£845 per annum, plus London weighting.

Applicants must have a sound technical experience in building trade subjects, have prepared tender documents and supervised repairs and renovations by contract.

The appointment will be subject to the Local Government Superannuation Acts, the National Scheme of Conditions of Service, and the passing of a medical examination.

The Council cannot offer housing accommodation.

Forms of application may be obtained from me, to whom they should be returned, not later than Tuesday, 8th April, 1958.

DAVID PRITCHARD,
Town Clerk.

Town Clerk's Department,
Harrow Weald Lodge,
Harrow, Middx. 9023

COUNTY COUNCIL OF ESSEX
COUNTY PLANNING DEPARTMENT

Applications invited for following posts:—

(1) SENIOR PLANNING ASSISTANT, Special Grade (£750—£1,030), to take charge of Survey and Development Plan section of Area office at Chelmsford. Applicants should be Corporate Members of Town Planning Institute or other comparable professional institute, and have had experience in the preparation of development plans and control of staff in the office of a local planning authority.

(2) PLANNING ASSISTANT, A.P.T. Grade I (£575—£725), at Romford. Applicants will be required to carry out duties in connection with development control, and must be competent draughtsmen.

(3) DRAUGHTSMAN at Romford. Miscellaneous Grades II-IV (£420—£620).

Medical examination. Superannuation.

Applications on forms to be obtained from County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, to whom they should be returned not later than 25th March, 1958. 8969

LANARK COUNTY COUNCIL

ARCHITECTS, as under, required for County Architect's Department, Motherwell:—

(*a*) ARCHITECTURAL ASSISTANTS, A. &. P. VIII (£975/£1,055). Must be A.R.I.B.A. with considerable office experience.

(*b*) ARCHITECTURAL ASSISTANTS, A. & P. VI and VII (£865/£1,000). Must be A.R.I.B.A. with office experience.

In addition to large School Building Programme, work in Department embraces every aspect of building with exception of Housing. Appointments, therefore, provide excellent opportunity for extending experience on an interesting and varied programme.

Medical examination. Superannuation. No canvassing.

Applications, stating age, qualifications and experience together with names of three referees, should be lodged with County Clerk, P.O. Box 1, Glasgow, within two weeks of date of advertisement. 9041

LINDSAY COUNTY COUNCIL
PLANNING DEPARTMENT

Applications are invited for the following appointments:—

(*a*) SENIOR PLANNING ASSISTANT, Special Grade £750—£1,030 per annum. Applicants must have passed Final examination of T.P.I. or be University graduates and have had in addition to training at least two years experience in a county planning department. Preference to candidates with experience in survey and research. Car allowance.

(*b*) TWO ASSISTANTS, A.P.T. Grade I, £575—£725 per annum—in one case a car allowance may be available if required. Applicants must have completed a three-year period of training in a planning, architect's or surveyor's office comparable with the recognised scheme for the training of Municipal Engineers or have passed the Intermediate examination of T.P.I. or R.I.C.S.

Commencing salary in both cases will have regard to qualifications and experience. Superannuation and N.J.C. conditions of service as approved by the County Council. Canvassing will disqualify. Relationship to any member or senior officer of the Council to be disclosed in writing by applicants.

Applications with particulars of training, experience and names of two referees to County Planning Officer, The Castle, Lincoln, not later than 3rd April, 1958. 9000

METROPOLITAN BOROUGH OF SHOREDITCH

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, salary within Grade A.P.T. II. £755—£875 p.a. according to experience and qualifications.

Applications stating age, training and experience and giving the name of two referees to reach Borough Architect, Town Hall, Old Street, E.C.1, by 26th March, 1958. 8987

CUMBERLAND COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

ASSISTANT QUANTITY SURVEYOR required. Salary in accordance with Special Grade (£750 × £40—£1,030). N.J.C. Service conditions. Post pensionable and subject to medical examination.

Applicants should be suitably qualified (A.R.I.C.S.), and experienced in estimating, taking off, billing, measurement of work, and settlement of accounts.

Applications, on forms obtainable from John H. Haughan, F.R.I.B.A., County Architect, 15 Portland Square, Carlisle, to be received by him not later than Saturday, 19th April, 1958.

G. N. C. SWIFT,
Clerk of the County Council. 9022

MIDDLESBROUGH EDUCATION COMMITTEE
ARCHITECTURAL STAFF

Applications are invited from suitable qualified persons for the following vacancies in the Education Architect's section in the Education Department.

Commencing salary will be determined according to qualifications and experience.

(*a*) ASSISTANT ARCHITECTS, Special Scale, £750—£1,030.

(*b*) DRAUGHTSMEN (or WOMEN), Misc. Grade III, £470—£550.

Housing accommodation may be made available for the successful applicants for posts (*a*) if required.

Application forms and particulars may be obtained from the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned not later than 31st March, 1958. 8988

KINGSTON UPON HULL EDUCATION AUTHORITY
REGIONAL COLLEGE OF ART AND CRAFTS
Principal: S. I. HEMMING, A.R.C.A.(Lond.), F.R.S.A.

SCHOOL OF ARCHITECTURE

Applications are invited for the post of ASSISTANT (Grade B) for ARCHITECTURE, to lecture and give studio instruction in the Five-Year Diploma Course. Candidates should have professional experience and possess a degree or diploma of a recognised School of Architecture.

Salary: Burnham Technical Scale £650 × £25—£1,025, with additions for training and graduate qualifications and increments for suitable teaching and/or professional experience.

Application forms, to be returned as soon as possible, will be supplied by the Chief Education Officer, Guildhall, Kingston upon Hull. 9001

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

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

APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects, capable of preparing working drawings from preliminary details. Five-day week in operation. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Manchester 4. 8276

BRIGHTON AND HOVE. SENIOR ASSISTANT required for small progressive office. Details to Box 8965.

REQUIRED urgently in busy London Office, SENIOR ARCHITECTURAL ASSISTANT. Opportunities for working on own initiative for experienced and capable man. Salary £800—£900. Good prospects. Pleasant office conditions. Full details to: Bowden, Son & Partners, 3 Adelaide Terrace, London, N.1. Telephone CAN 3979. 8959

ARCHITECT'S Department in City requires two ASSISTANTS of about Intermediate R.I.B.A. standard with some office experience. Salary range £600—£800 and work of an interesting and varied nature. Secure future for suitable applicants. Write giving particulars of age, experience and salary required. Box 8828.

GRENFELL BAINES & HARGREAVES. Full opportunities for ASSISTANT ARCHITECTS to practise Architecture in progressive office, pleasant working conditions, good company. Some School training preferred, five years' office experience necessary. Basic salary and guaranteed bonus £1,000 per annum, plus overtime on basic rates for minimum of one year following three months trial period. Possibility of permanence with established superannuation scheme. Apply 12 Guildhall Street, Preston. 8957

ARCHITECT. Reckitt & Sons wish to appoint a qualified Architect, age 30-35. The Company's staff design and superintend extensions and alterations to office, laboratory and factory buildings. The appointment offers scope for a competent designer who is interested in building operations. There is a good pension scheme. Applications should be made in writing and addressed to the Personnel Adviser, Reckitt & Sons Limited, Dansom Lane, Hull. 8964

ARCHITECTURAL ASSISTANT required in Westminster office for university Science Laboratories. Good draughtsman with knowledge of building construction. At least five years' office experience. Reply stating salary desired. Box 8831.

SMALL country practice requires inter. standard ASSISTANT. Starting salary about £400. Unfurnished flat available. Previous experience unimportant, but applicants *must* be conscientious and quick to learn. Send full personal particulars to Alec H. Joy, A.R.I.B.A., Victoria Place, Kingsbridge, Devon. 8974

SENIOR ARCHITECTURAL ASSISTANT required at once for busy London Office. Experienced and capable of taking responsibility. Salary £800—£900 or according to ability. Full details to Box 8958.

ARCHITECTURAL ASSISTANT required with at least two years' experience by West End Architect. Interesting and varied work. New buildings and interiors. Salary dependent on age, qualifications and experience. Apply Box 8933.

ASSISTANT of Intermediate standard required by City Office for work in London. Must be neat accurate draughtsman. Write, stating age and salary required to Box 8936.

BUSY office in Kensington requires ARCHITECTURAL ASSISTANT approaching Intermediate, with 3/4 years' office experience, good draughtsman and sound knowledge of construction essential, for work on licensed premises. Apply: Mayell, Webb & Hart. Telephone FRE 8596. 8940

ARCHITECTURAL ASSISTANTS required in busy London Office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications, experience, etc., to Box 873, c/o 7, Coptic Street, W.C.1. 8941

ARCHITECTURAL ASSISTANTS required for large schemes of contemporary character. Excellent opportunities to suitable applicants. Five-day week. Please write giving full particulars of experience and salary required to Johns, Slater & Haward, F./A.R.I.B.A., 32, Foundation Street, Ipswich. 8942

EXPERIENCED ASSISTANT required immediately for temporary position in small London office. Ring COV. 0565. 8955

RAMSEY, MURRAY, WHITE & WARD require SENIOR and JUNIOR ASSISTANTS for large scale industrial programme. Good draughtsmanship essential. Salary according to age and qualifications. Reply Ref. 309, 32, Wigmore Street, W.1. 8947

NORTH & PARTNERS, Chartered Architects, Maidenhead, seek a PARTNERS' ASSISTANT.—Please write, stating experience, salary required, etc., Box 8904.

MAJOR Petroleum Company requires for its London office an ARCHITECTURAL ASSISTANT, to work on varied commercial projects. Applicants must be of Intermediate R.I.B.A. standard, with sound knowledge of construction, and have had a minimum of 5 years' private office experience. Salary according to experience. Position will be permanent and pensionable. Excellent working conditions, staff restaurant, sports club, etc.—Apply in writing, giving full details of age, qualifications and experience, to Box 9040. Replies can only be sent to those selected for interview.

£500-£600 salary range. Inter. R.I.B.A. standard ASSISTANT required for Architect's Department of John Perring, Ltd. Interest in interior design an advantage.—Apply Leslie Walker, 26, London Road, Twickenham. Tel. POP. 3632. 9039

HARRY S. FAIRHURST & SON have a vacancy in Manchester for an experienced ASSISTANT.— Please apply in writing to 55, Brown Street, 2, giving details of experience and qualifications. First-class draughtsmanship is an important consideration for this appointment. 9037

BASIL SPENCE & PARTNERS require ARCHITECTURAL ASSISTANTS in their Edinburgh office.—Write, stating salary and experience, to 40, Moray Place, Edinburgh, 3. 9038

SIR JOHN BURNET, TAIT & PARTNERS require ARCHITECTURAL ASSISTANTS.—Reply in writing, giving age, particulars of experience and salary required, to 10, Bedford Square, W.C.1. 9036

ASSISTANT required for interesting and varied work. Intermediate standard. Salary arranged according to experience.—Apply Messrs. Sudell & Waters, Architects, 2, Guilford Place, W.C.1, or ring Chancery 7286/5687. 9035

JUNIOR ARCHITECTURAL ASSISTANT required.—Applications, stating age, qualifications, experience, and salary required to be made to Pyle, Saint & Marshall, A.R.I.B.A., 4, Grove Street, Wantage, Berks. 9034

JUNIOR and SENIOR ARCHITECTURAL ASSISTANTS required. — Applications, stating age, qualifications, experience and salary required, to be made to Pyle & Saint, A.R.I.B.A., Thomas Street House, Cirencester, Glos. 9033

ARCHITECTURAL ASSISTANT, Inter. standard. Busy varied contemporary practice. Salary up to £500 p.a.—Apply by letter please to J. D. & B. Y. Tetlow, Architects, The Friary, Lichfield. 9032

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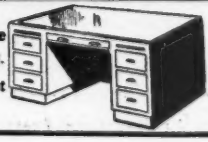

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