THE ARCHITECTS' JOURNAL

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

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12 Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders 48, Bedford Square, W.C.1.	Museum 7197/5176
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. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, 6, Fitzroy Square, W.1.	Euston 7171
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, 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, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1.	Abbey 5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 14, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 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.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5051
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988

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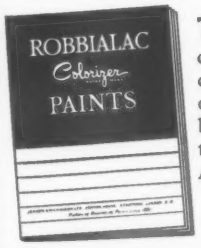

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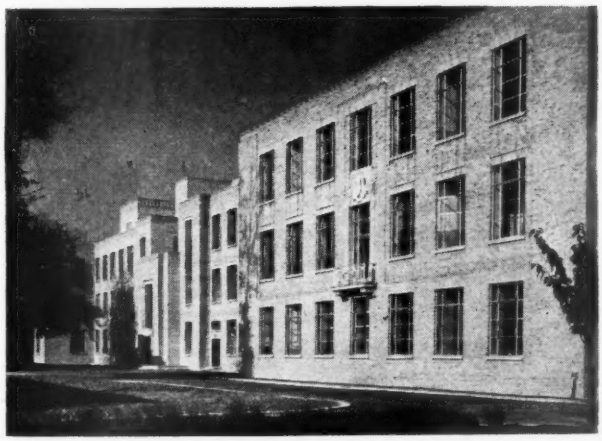

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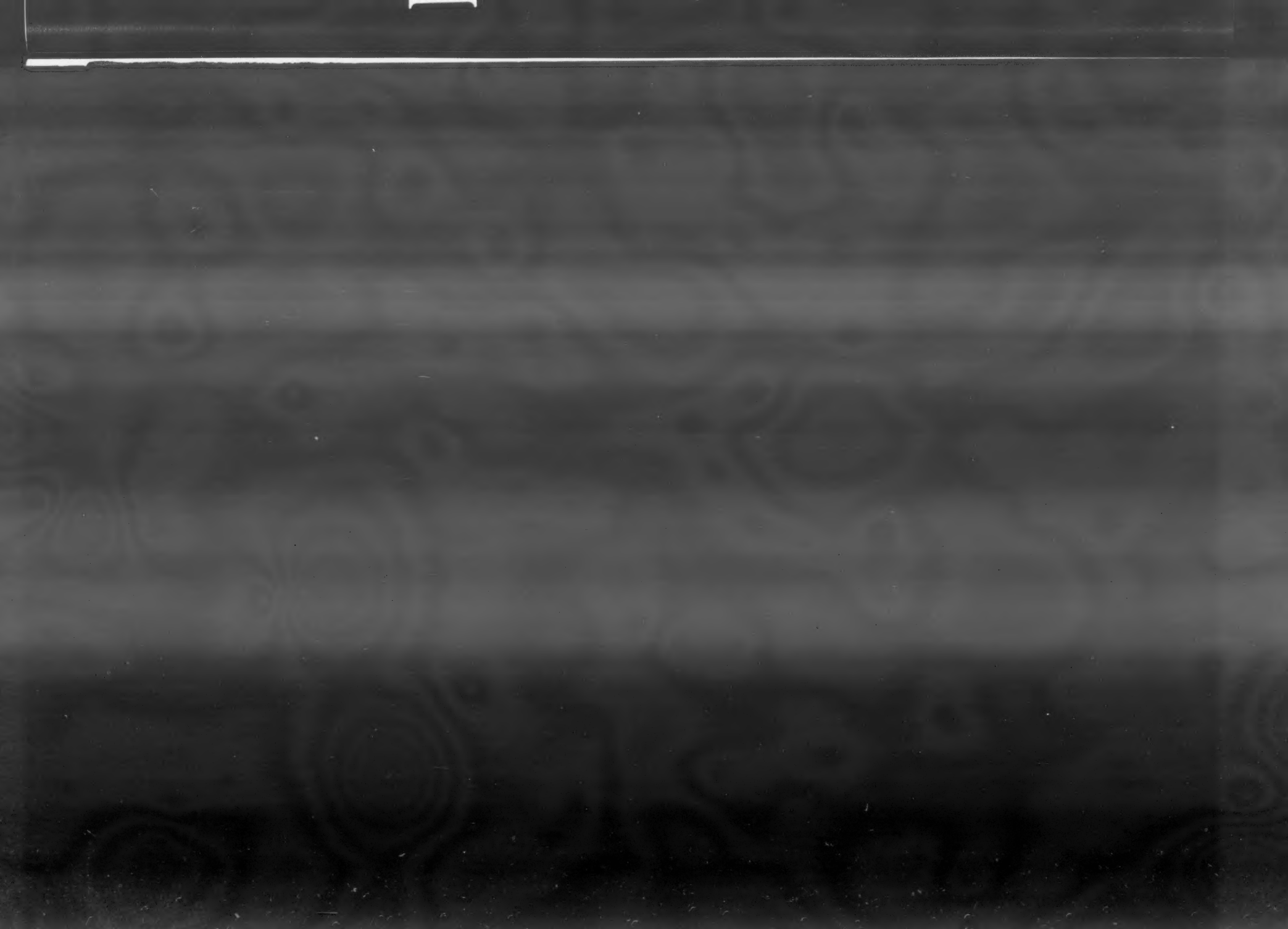

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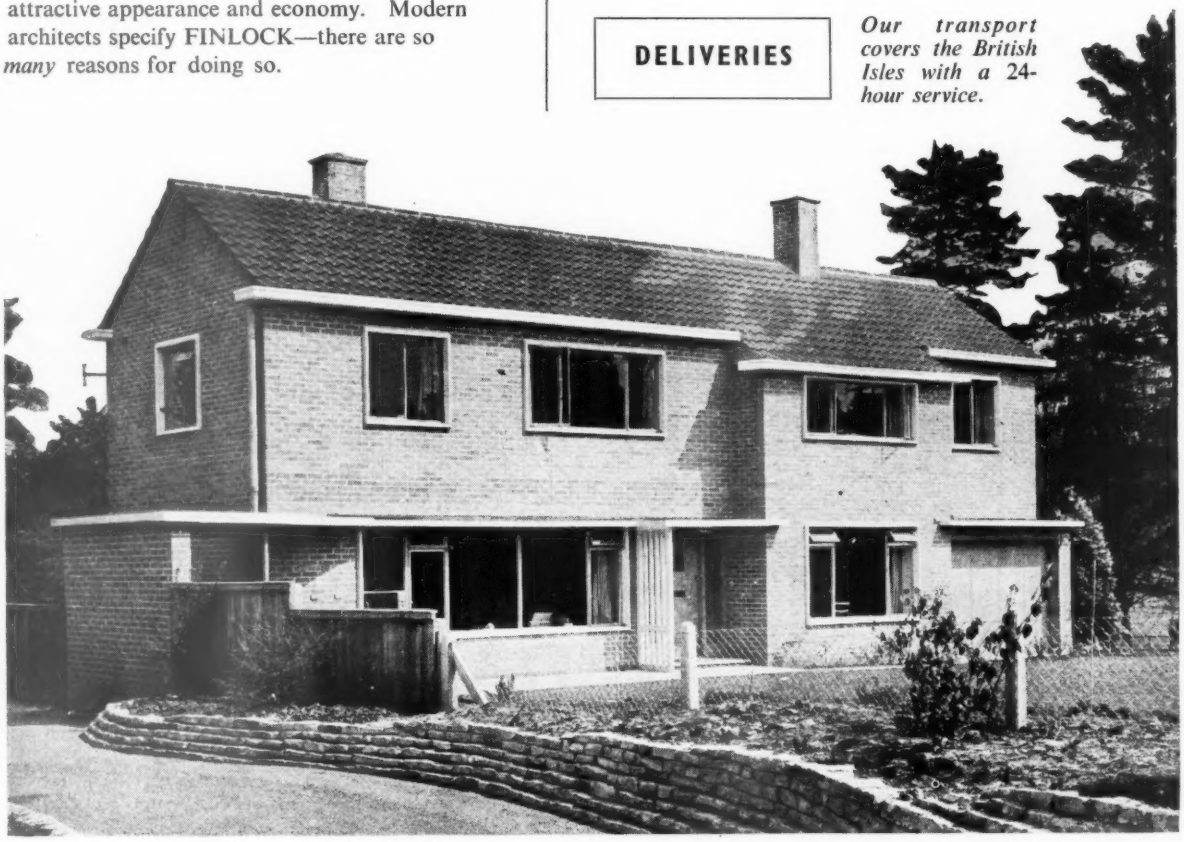

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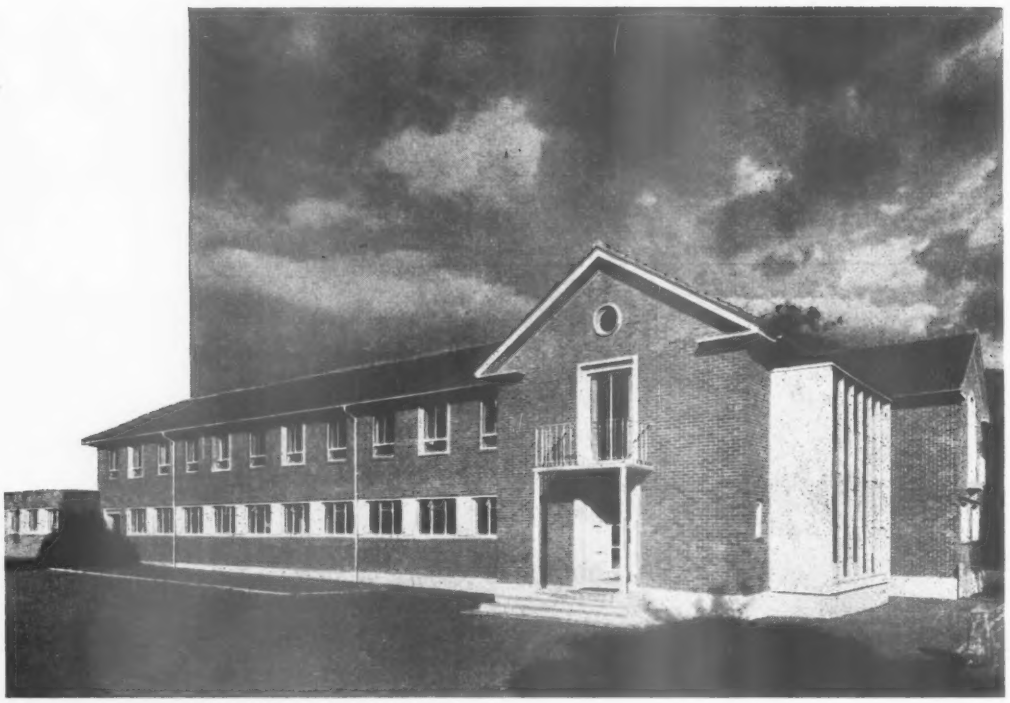

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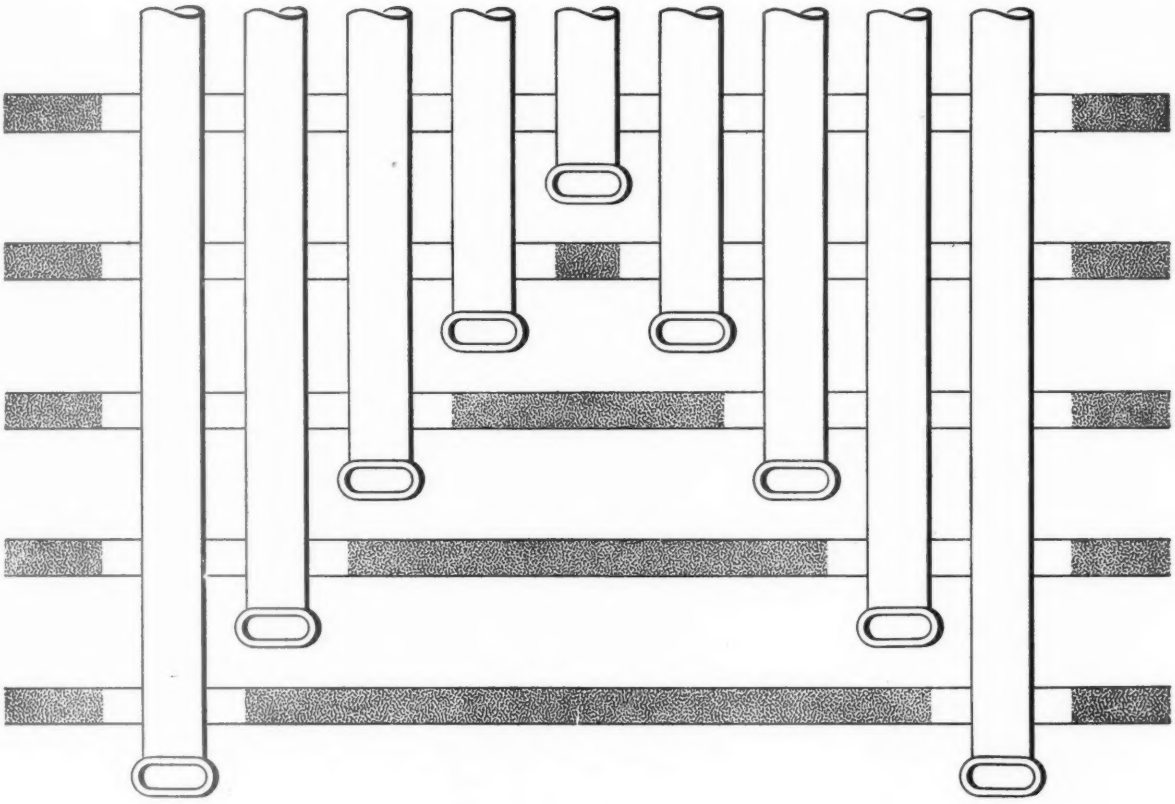

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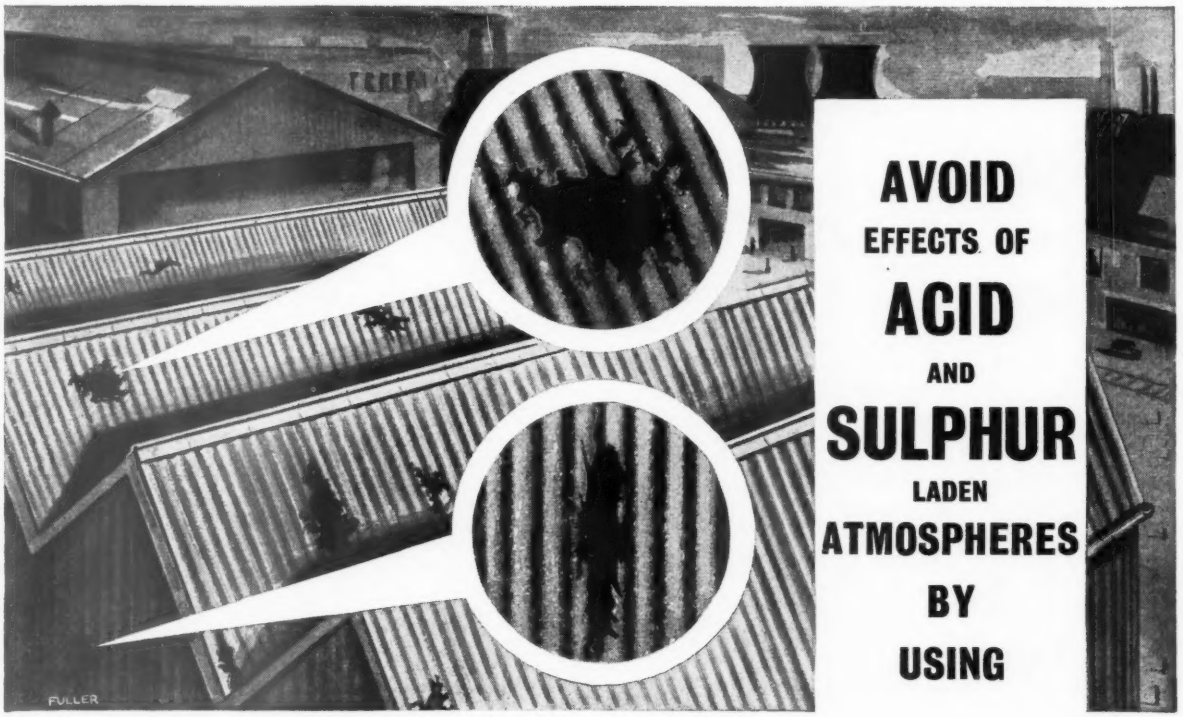

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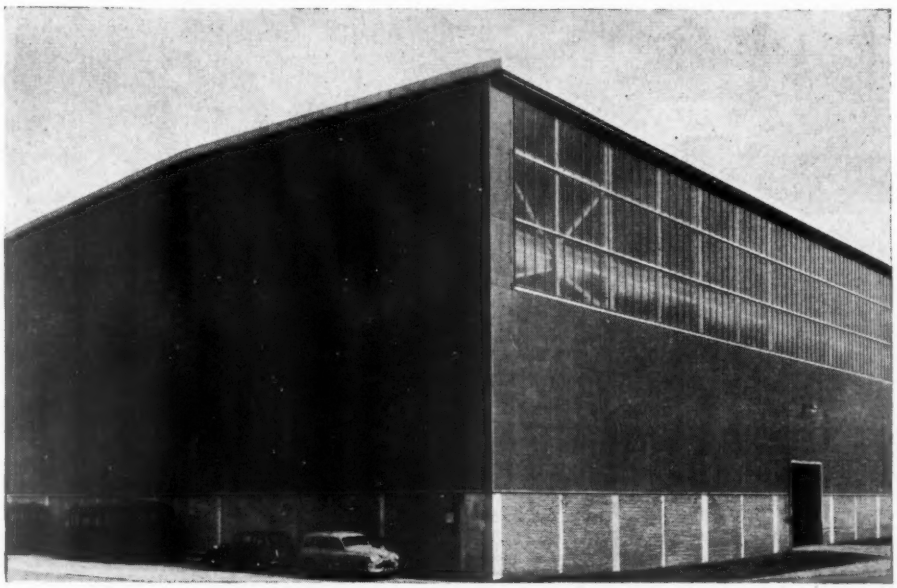

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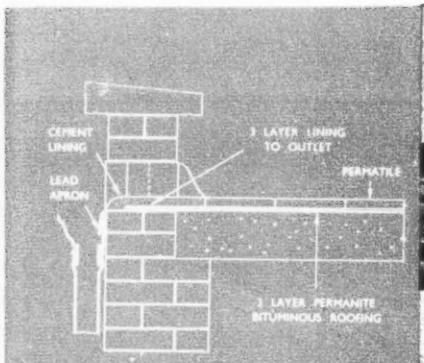
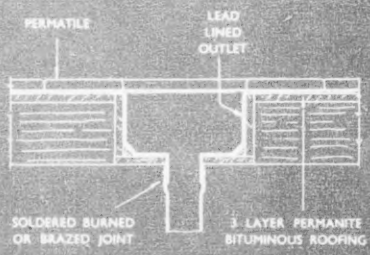


FINISH TO METAL LINED OUTLET THROUGH PARAPET WALL



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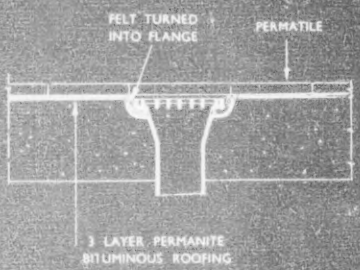

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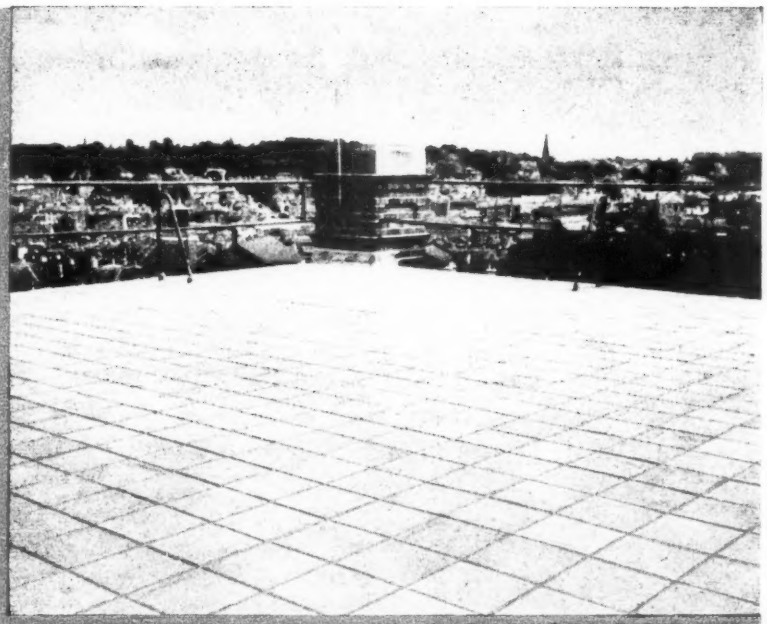

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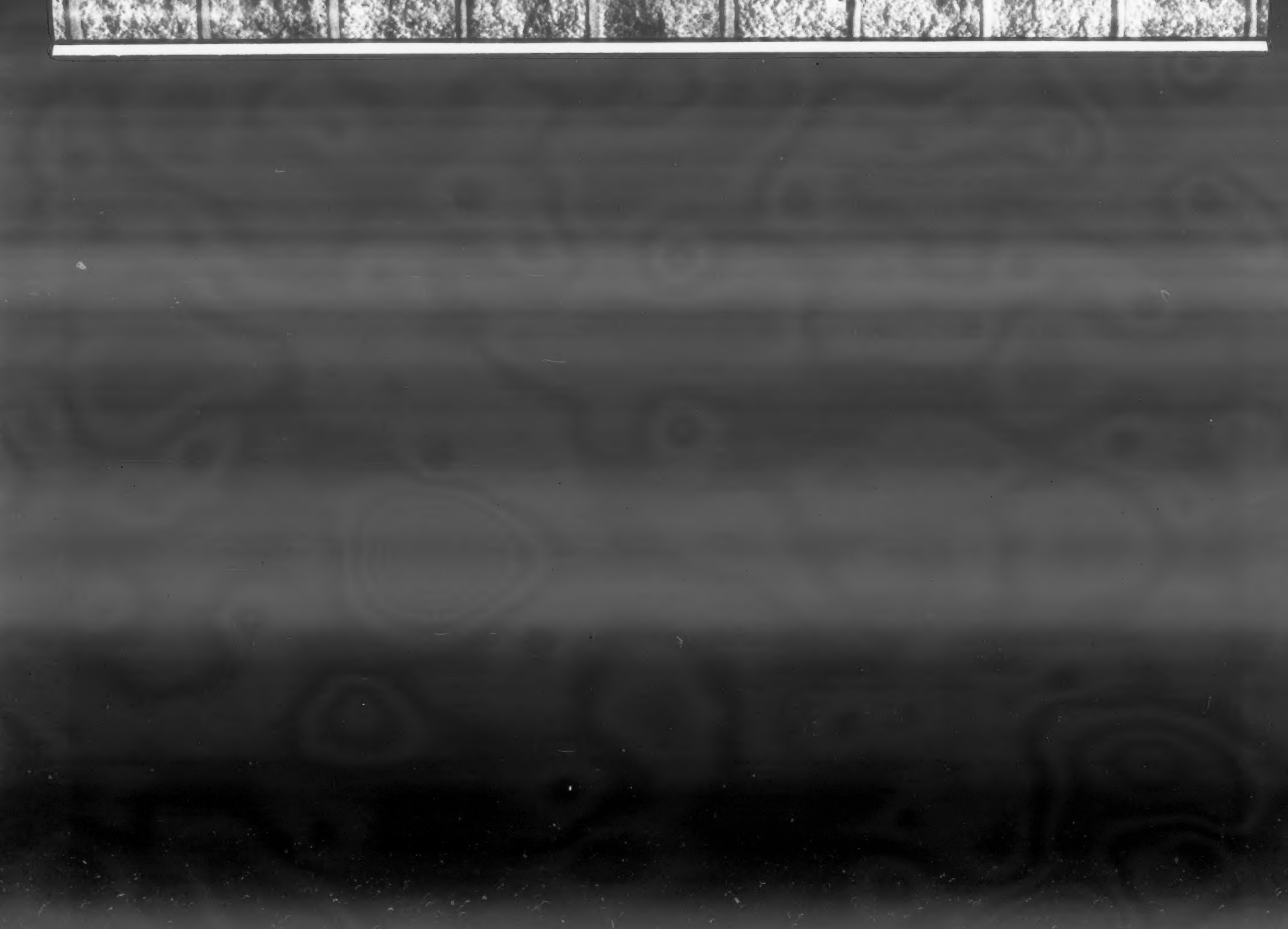

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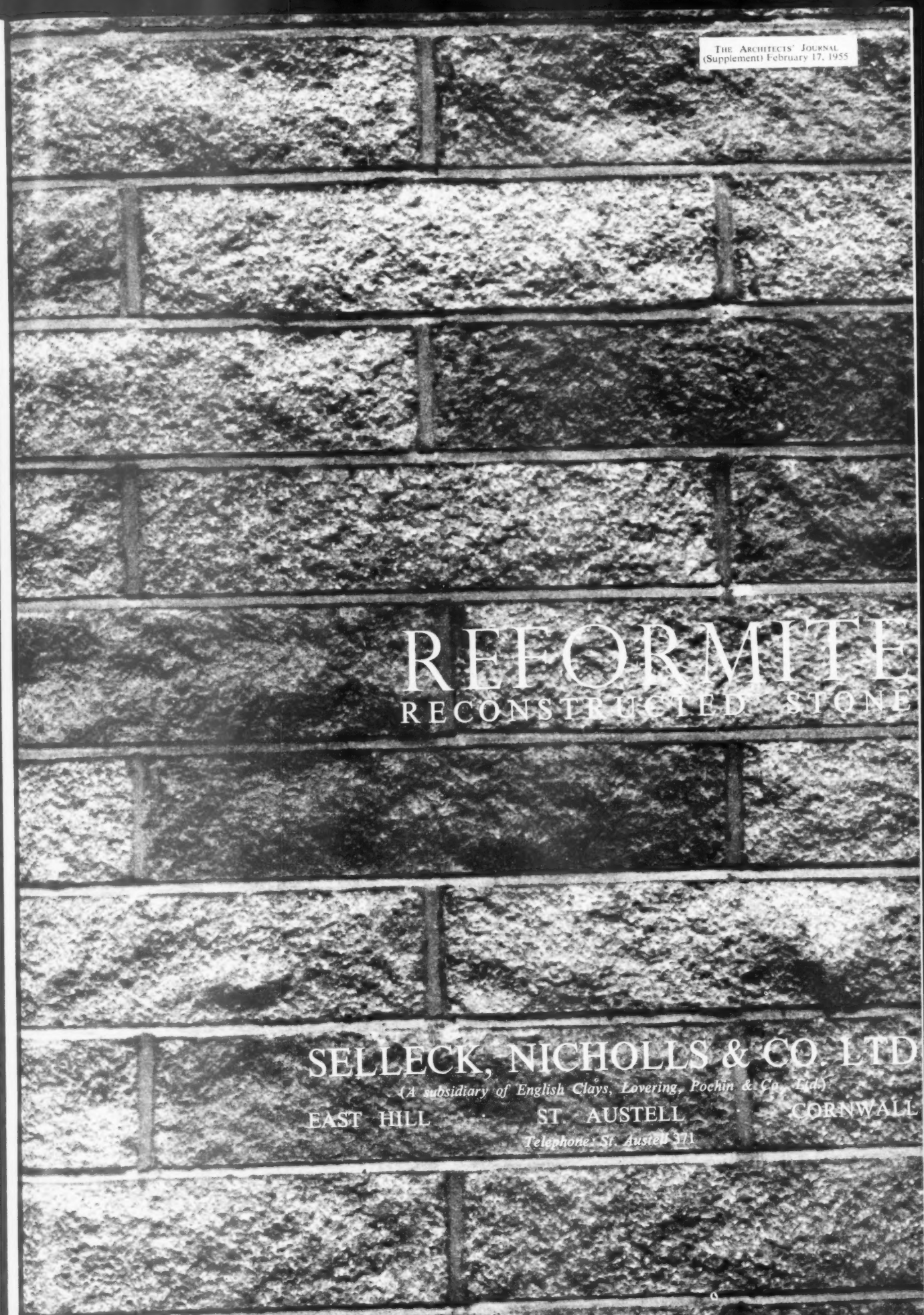
(Supplement) February 17, 1955



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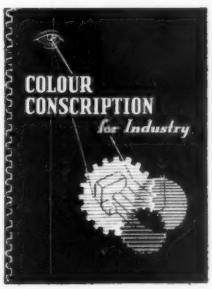

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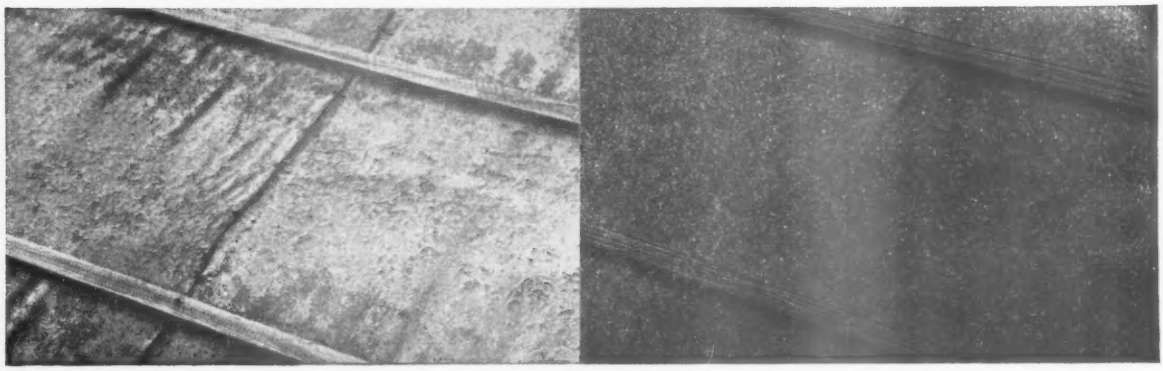

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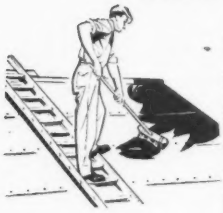

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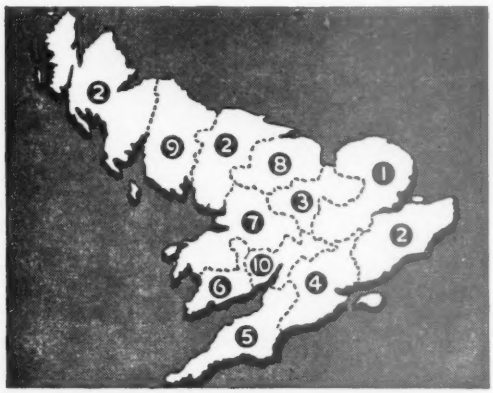

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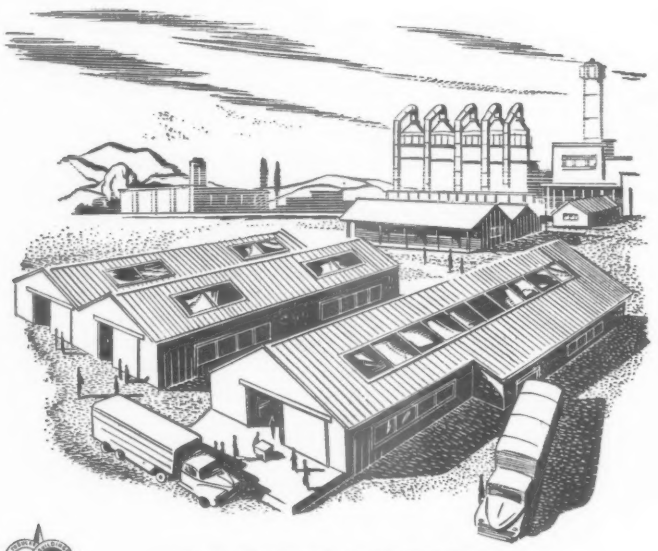

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The Unimer building consists of tubular steel trusses, purlins and sheeting rails, used in conjunction with tubular steel columns, in a wide range of spans and heights.

ACCESSORIES

The Unimer building can be clad with a variety of materials including Asbestos Sheets, etc. and can incorporate dwarf walls of brick or concrete blocks. Either roof or side lighting may be used.

ADVANTAGES

Tube is considerably stronger weight for weight, than sectional steel. Thus the Unimer building, whilst it is as strong, is lighter than a sectional steel building, so the saving in cost of steel, cartage, erection and foundations, make the Unimer building the fastest and most economical method of modern building.

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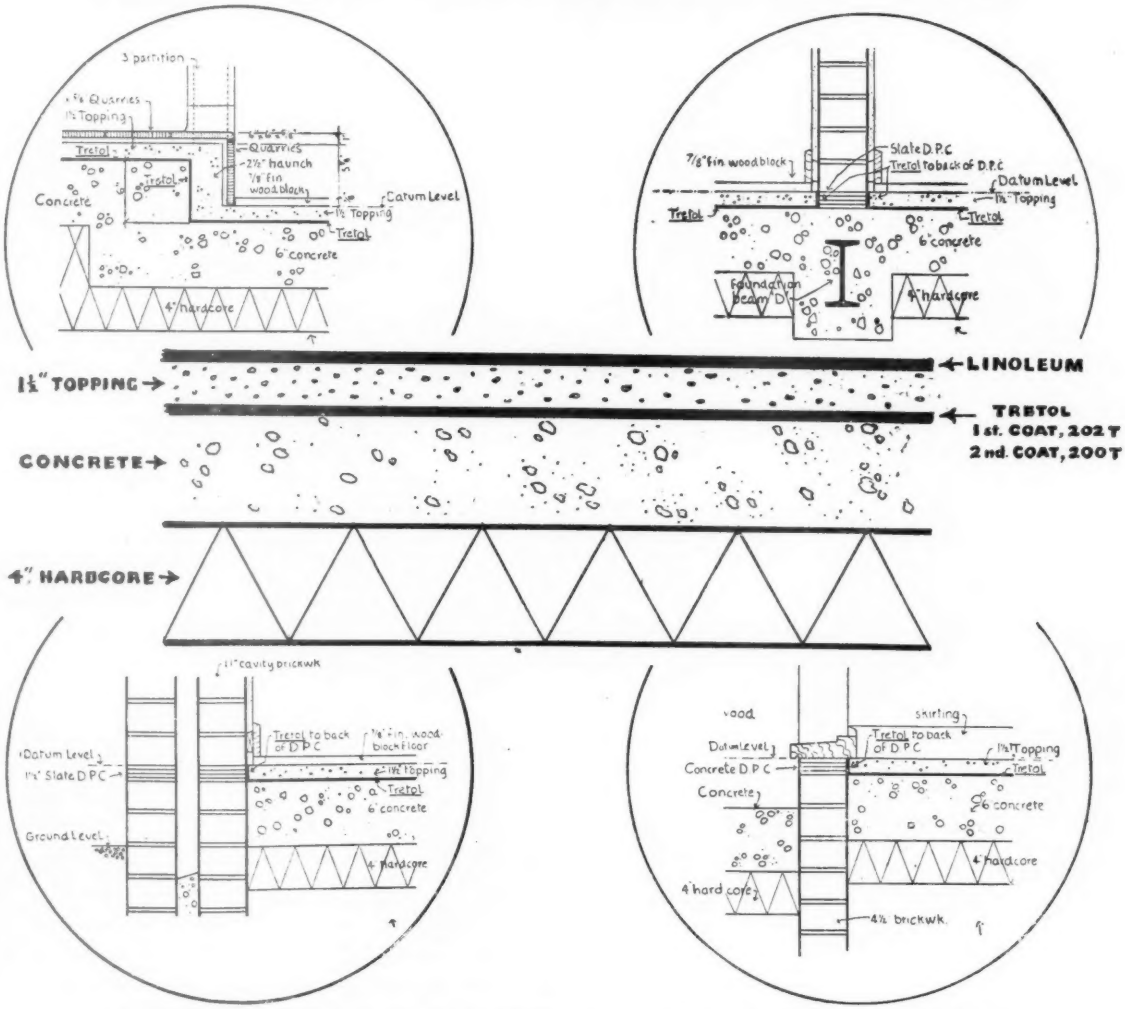

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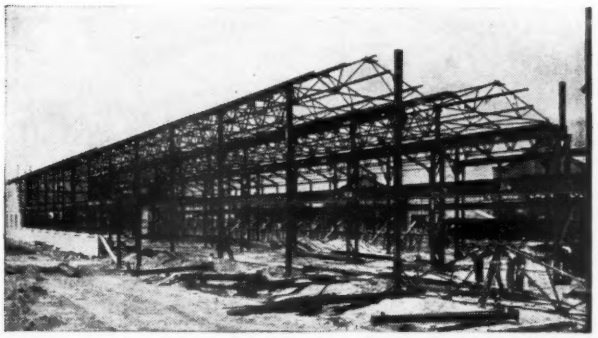
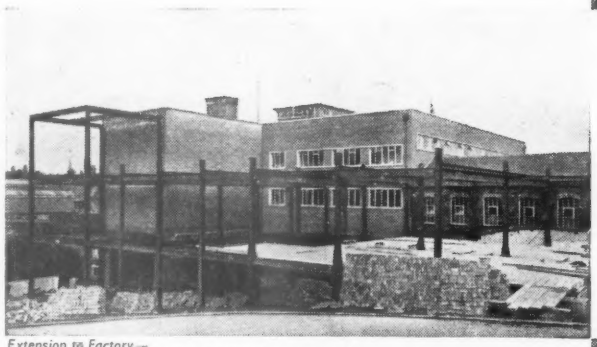


Stores building in course of erection for National Gas & Oil Engines Limited.



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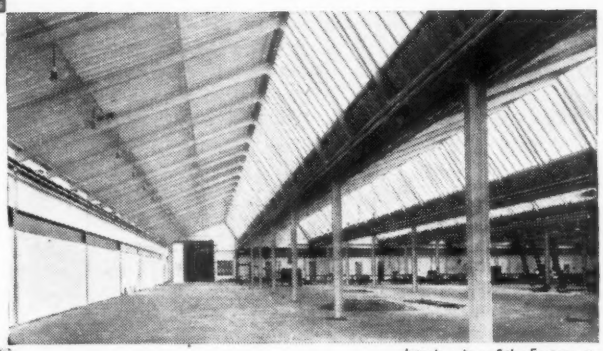
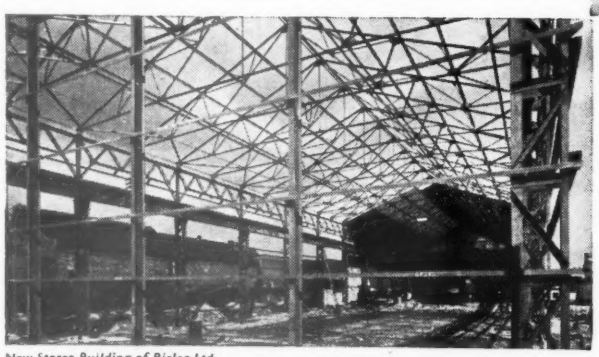


Interior view of the Factory at Barnsley, Messrs. Brook Motors Ltd.



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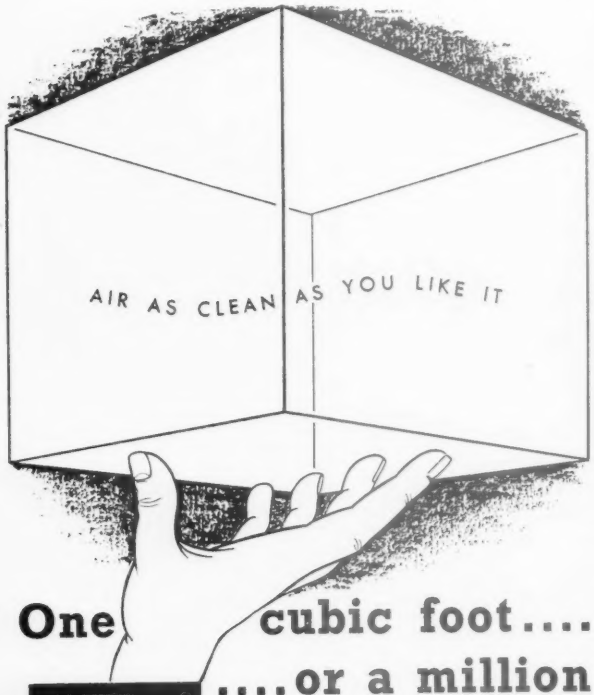

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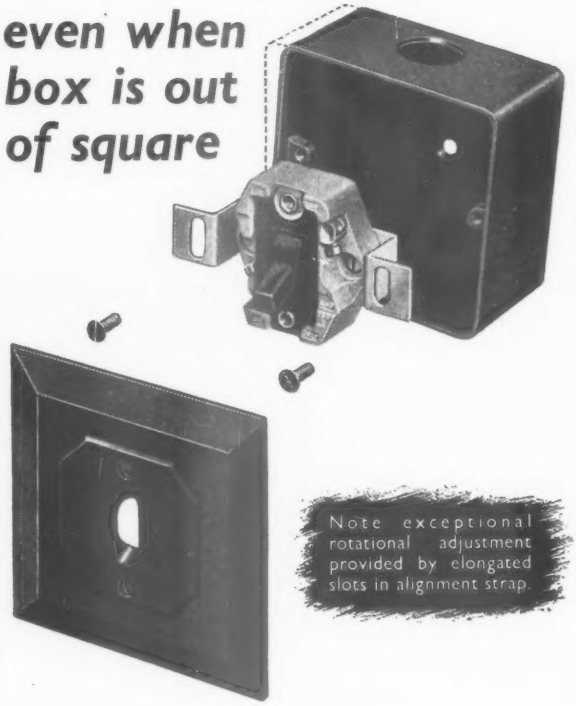

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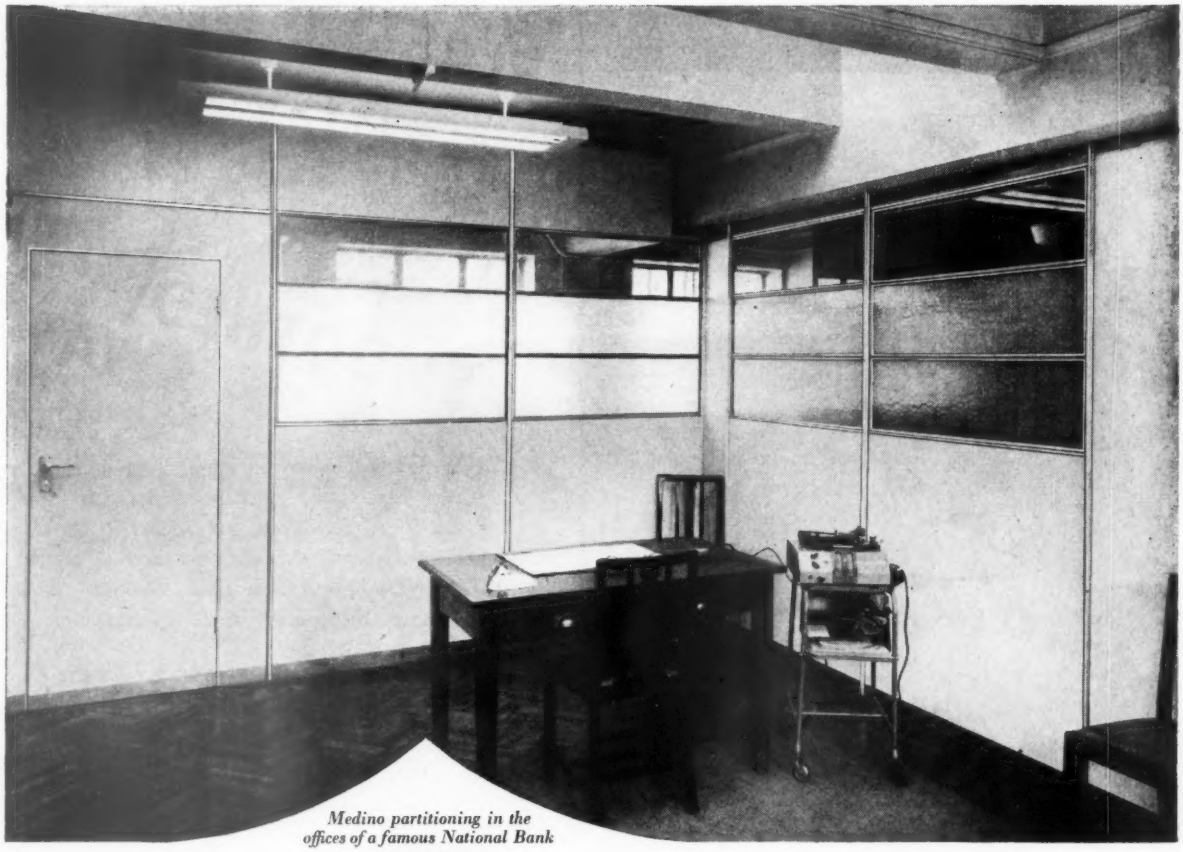

Medino partitioning in the offices of a famous National Bank

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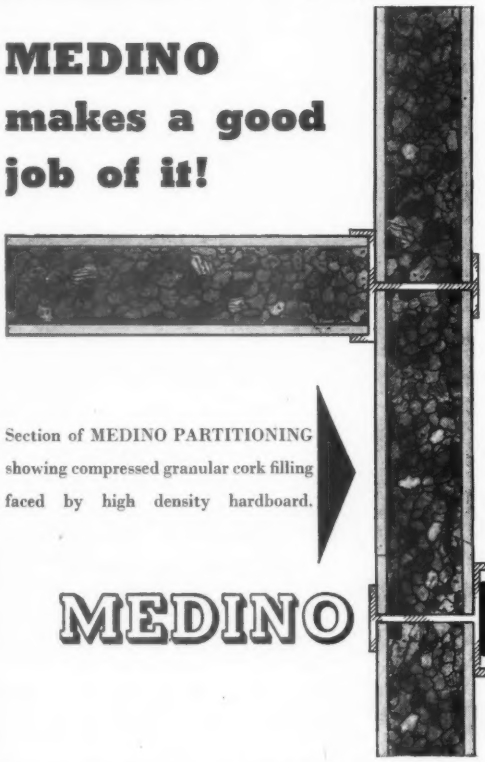

Section of MEDINO PARTITIONING showing compressed granular cork filling faced by high density hardboard.

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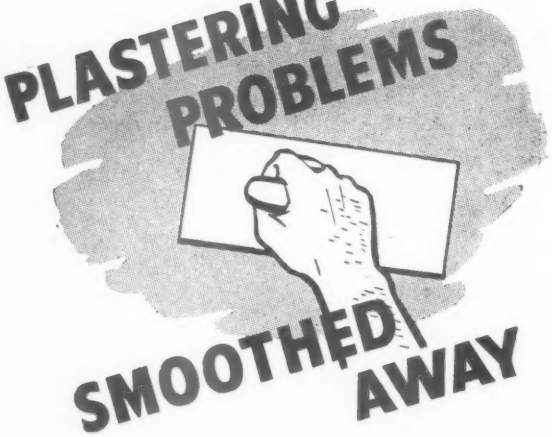

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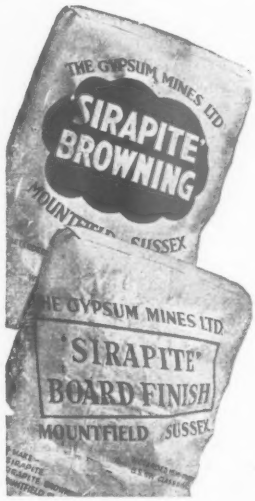

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24

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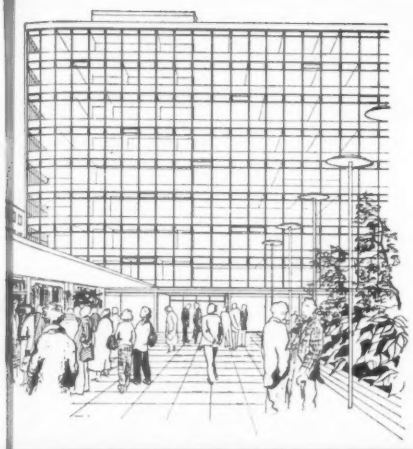

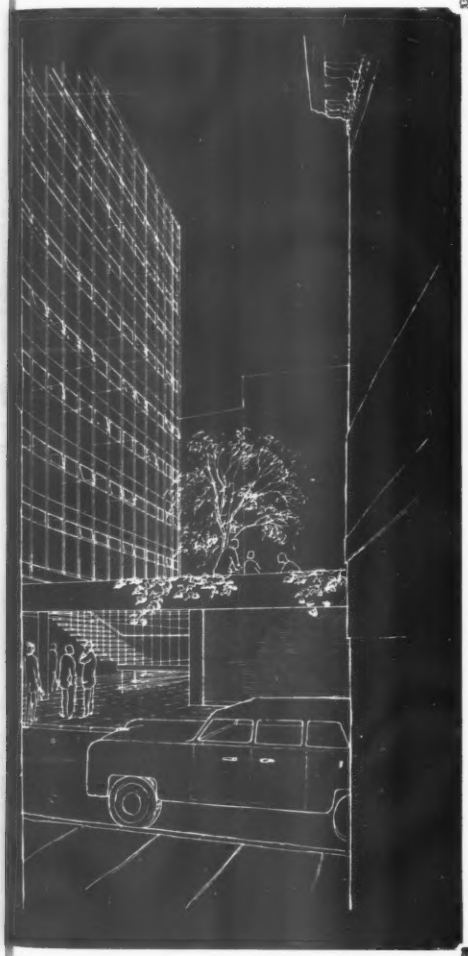

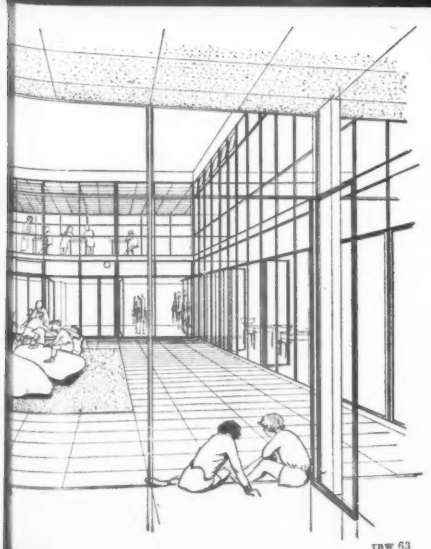

TBW 63

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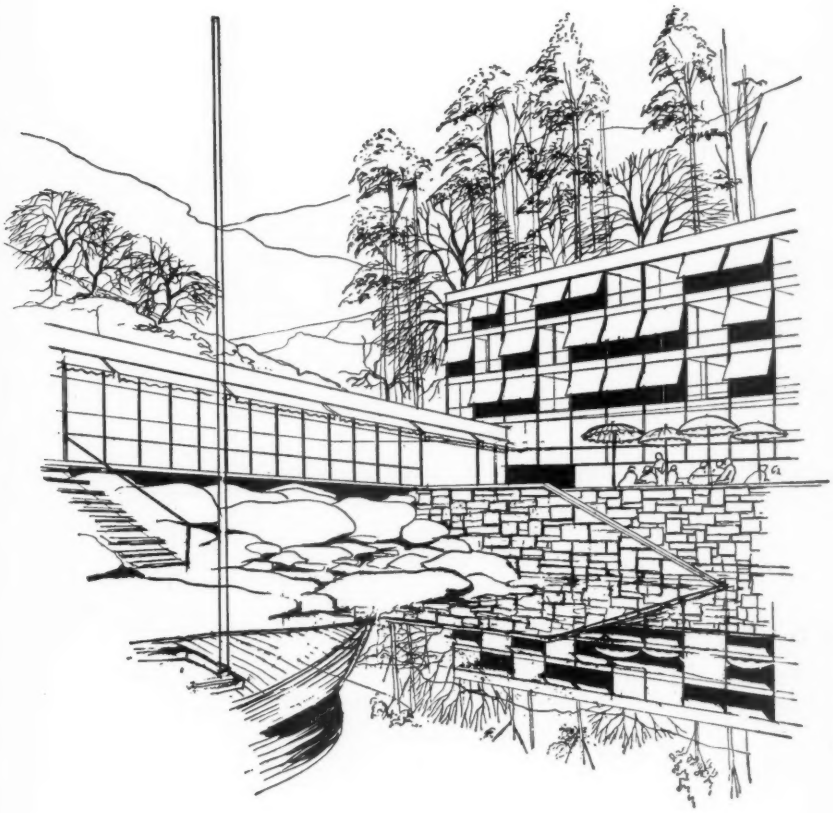

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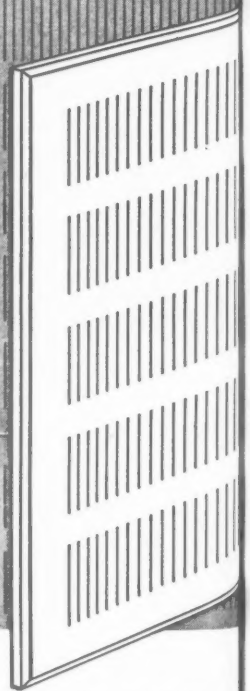

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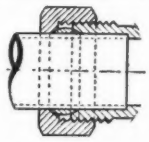
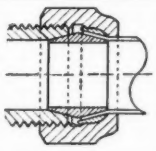


The CONEX Type 'A' Compression Joint for use with semi-hard Copper Tube to BS.659.



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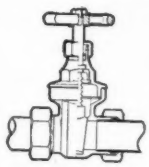

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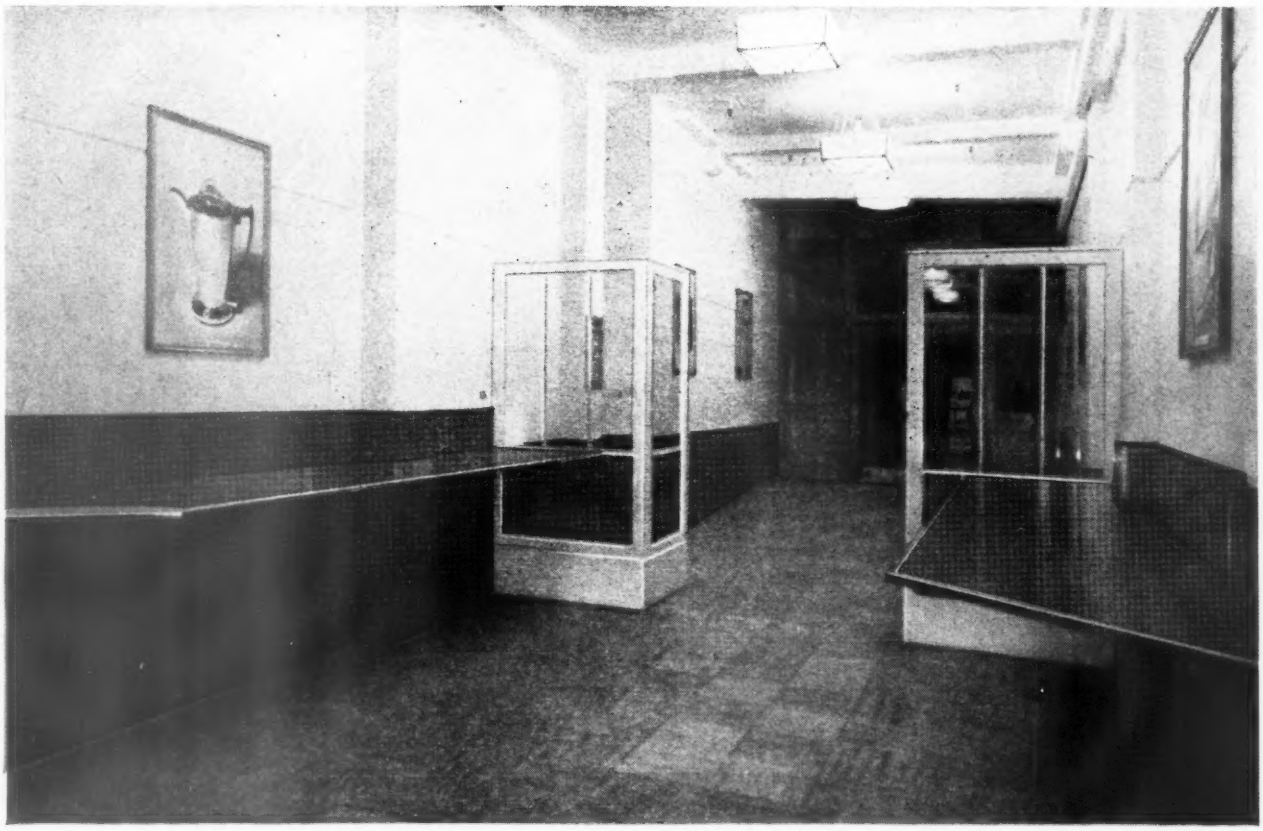

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THE ARCHITECTS' JOURNAL

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

No. 3129 February 17, 1955 VOL. 121

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WHAT MARY AND DAPHNE THINK

An enraged correspondent, in a How-Low-Can-You-Get frame of mind has sent in an article torn from a recent *Evening Standard*. It was written by a lady (who prefers to call herself Mary Applegate) who moved into a new house and had everything go wrong—leaks, smoky chimneys, canted floors, inoperative boiler and electrical tackle—the usual repertoire of disasters that overtakes everybody who moves into a house before it is properly finished.

* *

The point, however, is that the only person in any way responsible for the erection of the house who actually gets a mention in this epic is *the architect*. In fact, if you work over the internal evidence contained in this little saga, the dream-house-gone-wrong sounds just like a bad spec-builder's house of the sort that never had an architect at all. Perhaps Miss Applegate, who wrote the piece, or someone who jazzed it up for public consumption, simply put in the word "architect" because he is the usual person to blame.

*

But even if the author of this article really did employ an architect, it is unfortunate that she was allowed to publicise her misfortune and to give the impression—already shared by many ignorant folk—that it is a waste of money to employ an architect. Fortunately the *Evening Standard* has followed up the offending article by printing an account, written by Daphne (TV Personality) Padell, of the way she managed to have a satisfactory house built. "Having an architect," she said, "is important. Not only does he understand what you want, but he saves pounds by seeing that what is in the specification really goes into the house, screws, nails, bolts and all. *And* he can make the builder re-do a job."

Thank you, Miss Padell, even if you did spoil the effect of your kind words by pointing out that you personally supervised the job from a caravan on your building site. And thank you "Mrs. C., of Edgware," for writing (in the same issue) about your (obviously) spec.-built house, which nearly fell to pieces. All ASTRAGAL hopes for now is an apology in the *Evening Standard* from Mary Applegate (what a delightful picture that pseudonym conjures up of a rural rosy-faced lady who should never have left her country cottage!) for maligning our profession—if, that is to say, her architect was not really an architect.

*

If this article is accurate, however, the RIBA should at least have the architect before some court of enquiry. Why, you may ask, when a civil action on the part of the client is the proper course? Not pure ASTRAGAL-spite, but because the RIBA should be jealous of its reputation. Architects, unlike others, are so rarely wrong: how many architects can you recall being successfully sued in recent years? Builders, of course, but architects? Very few, I suggest. Do they never sin, or make mistakes? Or are they just too safe from the law?

MR. DEEDES COMES TO (NEW) TOWN

"Healthy, happy industrial living conditions are the handmaid of industrial productivity . . . modern planning and industrial efficiency are fundamentally friends, not foes." So spoke William Deedes, Parliamentary Secretary to the MOHLG, at the lunch which followed the opening of a new factory at Peterlee last week, thus leaving the next speaker, socialist David T. Jones, MP, without his clothes, but long-winded nevertheless. Eyes and voice raised, he pricked his audience's patience as a cat claws a knee in time to its purring. His main —almost insulting—theme: how clever of the working people of Durham to learn the processes of worsted spinning —apparently a Yorkshire prerogative.

*

Meantime, we hoped, the pretty little bunch of girls did their best to make up for the hours of work wasted in the morning while the Press shyly fiddled with their machinery, drove the works manager to *sotto voce* imprecations by

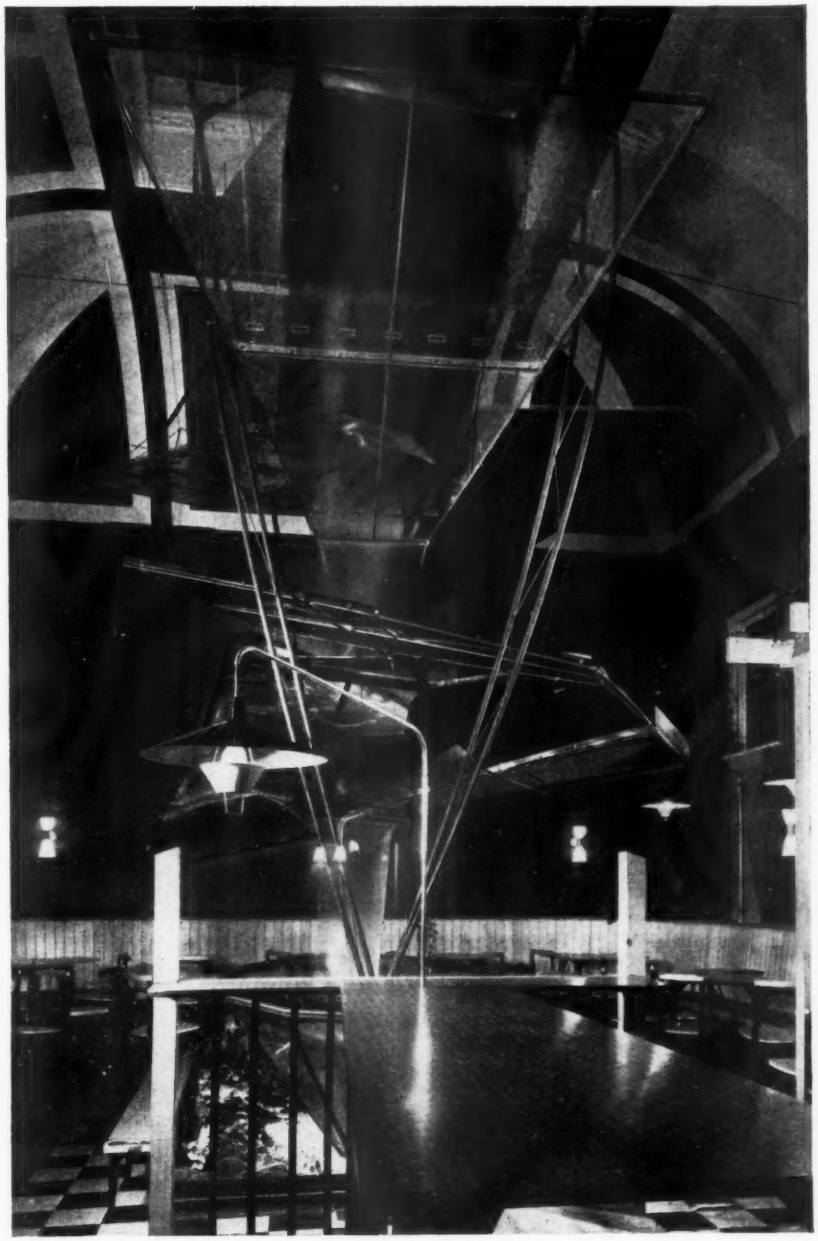
endlessly asking the same questions, and watched Mr. Deedes duly start operations by pressing a button. The factory, for Jeremiah Ambler Ltd., is the first for the new town and will eventually employ about 400. Designed by Sir William Holford and partner W. M. Shannon, and built by Bovis Ltd. in the remarkable time—for the operatives—of twelve months, the factory is a straightforward, workman-like solution of the problem; the main task being the provision of joints to allow for movement—both in the brick offices and in the 75-ft. span trusses—when subsidence occurs following the extraction of coal from seams below the factory.

*

Holford has coloured the interior particularly attractively—a point which the girls seemed to appreciate, as well as the visitors. As a high standard of cleanliness is essential for spinning it would be interesting to compare waste ratios in this colourful factory with those of the usual cream and green jobs to see if it cannot be proved that good design pays. For not all industries can be like Ambler's and have a chairman, Major Beddington Behrens, who, according to the handout, puts workers' welfare first and profits second.

*

Of Peterlee itself little was seen in detail, but an interesting " space frame " factory designed by Jack Napper is going up alongside Holford's, and about 1,600 houses have been completed, together with a handful of shops and a school or two. The housing was more attractive than rumour, the conservatism of the Development Corporation, and the dangers of mining subsidence had led us to believe.

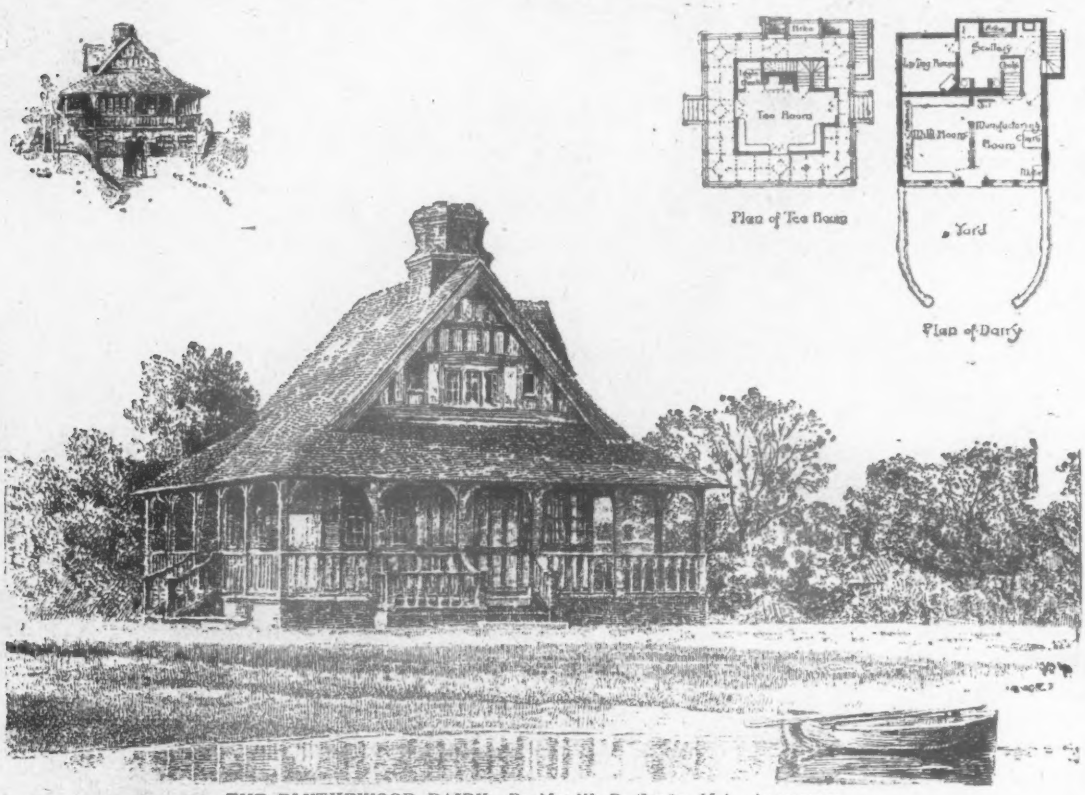


A stabile at " The Coffee House ", Haymarket. See note on this page.

MOBILES AND A STABILE

The old master of the light fantastic fandangle is on show again at the Le-Fevre Galleries or, in other words, Alexander Calder's performing mobiles are back in town, and are as fascinating as ever. You will probably know from the evening papers that the biggest one is called *Myxomatosis*, but the show also includes some virus-sized ones which look as if they were aimed at fashionable dressing-tables, china-cabinets and other show cases for the display of the bijou art-works that the Victorian Revival enjoins upon the people that people (according to *Vogue*) are talking about.

And talking about *Vogue*, ASTRAGAL finds that its recent *cri-de-coeur* " Can't we go to an ordinary place and have some ordinary coffee?" has been answered in part by another new coffee bar (how many does that make now?) which has avoided having an Espresso coffee machine, but certainly isn't an ordinary place by any normal rating. It is in one of these curious coved and clerestoried back rooms with which the West End must once have been stiff—a deep nasty tank of space at the bottom of a light well. The designer (Antoine Acket) has lowered the psychological ceiling quite effectively by an arrangement of beams and trusses just above head-height as you go in, but the other end of the room he has filled with a water-stabile (if that's the word) right up to clerestory height. Sheets of coloured transparent plastic, with water trickling down over them, are carried on a trellis of fashionably matt-black steel tubes. It is all very ingenious, and ASTRAGAL had to hunt through his files on American supermarkets for some time before he discovered where he had seen any part of it before.



THE BLYTHEWOOD DAIRY. By Mr. W. D. CARÖE, M.A., ARCHITECT.

COMPETITIONS.

COUNTY BOROUGH OF WEST HAM.
COMPETITION.

The Council of the County Borough of West Ham propose to ERECT a TECHNICAL INSTITUTE and PUBLIC LIBRARY in Romford Road, and they hereby invite Architects to submit DESIGNS for the same in competition.

Premiums of £250, £150 and £100 respectively will be paid to the Authors of the Designs which are placed by the Assessor first, second, and third in point of merit.

Competitor

TO ARCHITECTS.

DESIGNS and ESTIMATES are invited by Mr. N. Miller, of 95, Fishergate, Preston, Lanc. for a proposed FIRE-PROOF BLOCK of SHOPS, OFFICES, TWO HOTELS, &c., at a cost of from £45,000 to £50,000 (which latter sum must not be exceeded), on an area of 2,500 square yards abutting on to Church street, Lancaster road, Jacson-street, and Birley street, in the County Borough of Preston, Lancashire.

Premiums of £150, £100 and £50 are offered (in the adjudged order of merit) for the three designs which are selected as the most suitable, and which three designs will become the absolute prop—

The w—

MR. C. E. DEACON, architect of Liverpool, has been successful in a limited competition for new school board offices for the City; the estimated cost of the work is not stated.

WE understand that Messrs. Thornton & Son, of Liverpool, have secured the contract for the superstructure of the new post office in Victoria Street,

is—

Sixty Years of Buildings Illustrated

Sixty years ago, in February, 1895, the JOURNAL—then known as the *Builders' Journal*—was published for the first time. It contained only one feature on a contemporary building: this is reproduced *in its entirety* above. Since the 'nineties the JOURNAL has tried to give more space to the description and illustration of new buildings. But for some time the Editors have felt that a more comprehensive and analytical presentation was needed. To mark the occasion of our diamond jubilee we are to publish, next week, the first of a new series of illustrated descriptions of buildings. The building chosen for this first feature, which will include detailed tabulated information and a " breakdown " of costs, will be the Ravenscroft School, Barnet—shown in the photograph on the left. We hope readers will find this a useful introduction to their next sixty years of JOURNAL reading.

Last time I wrote about the decor of coffee-bars I warned readers that all their favourite cliches were being worn to death. This time I have published a picture of the principal gimmick in the new bar in the Haymarket so that none of you will accidentally crib it.

PUBLIC LETTERING

Christian Barman's talk on Public Lettering at the Royal Society of Arts disappointed this column, which had hoped for some controversial chat on neon signs and sky-writing, and got instead a straightforward historical account of the history of the western alphabets, the invention of Underground Sans-serif, and the importance of the Victorian revival in type-faces (incidentally, the effect of eighteenth century engravers on type-history didn't get a mention, and no reference was made to the responsibility of the Arts and Crafts boys for many of the horrors of late-Victorian typography).

*

But comforting as it was to hear all this material again, and proud as Mr. Barman might be to belong to the firm that pioneered the Sans-serif Revival in England (though ASTRAGAL has never liked Underground Sans as a type-face), surely the point about public lettering at the moment is not the *what*, but the *how* and the *where*. How big, how bright, how high above ground; where in relation to the building it's on and the building it distracts your attention from; how wide lettering should be in CinemaScope; how much fluorescence is enough in Trafalgar Square, and how much is too much on the South Bank.

BLACK MARK

Talking, as we were at the beginning of these notes, about conduct—I have just seen ARCUK's annual report and its revised Code of Conduct. There were only eight enquiries last year by ARCUK's Discipline Committee, but one of them was concerned with the publication by an architect of a booklet containing designs for small houses, and offering plans and specification for fifteen guineas. Reference was once made to this publication in this column and it is grimly satisfying to note that: "The Council have notified the architect their intention to remove his name from the Register, subject to any representations. . . ."

ASTRAGAL

POINTS FROM THIS ISSUE

The Editors

TRAVELLING BY ANOTHER ROAD

OUR correspondence column this week shows that feelings aroused over an architect's trade union have not yet quietened down. Hopes have been raised—part unwittingly—that, given certain conditions and a degree of support, some further organization, trade union, negotiating body—call it what you will—would, RIBA blessed, be able to put more money in the pocket of assistants. Such hopes—which we ourselves have encouraged—have recently been dashed. We are now back where the sub-committee of the Salaried and Official Architects Committee (who started off all the recent controversy) were two or more years ago.

Now before anyone starts shooting (and we are all likely to be a little trigger happy at the moment) what about checking on ammunition and firearms, and, even more important, on the target itself?

Are assistants only aiming for more money? If so, it is hard to see how an extra trade union could get more money any faster than the well-placed NALGO—bearing in mind the number of architects against a union. In fact, however, it is not just hard cash which assistants really want—they want, as the London architect points out on page 226 a higher status. And higher status means, we suggest, recognition, in the eyes of the law, and the public, and their fellow architects, of their responsibilities as professional men.

Now a few weeks ago we announced that an article was being prepared by an interested impartial onlooker on the whole question of how the profession might satisfy its desires for a better representation and organization of its aims in salaries, incomes and working conditions. This article will appear next week. The author is Martyn Webb, who assisted Guest Editor Professor Ian Bowen in carrying out his survey of the profession in 1953. The purpose of the article is twofold: firstly to try and straighten out current misapprehensions about the architect as a professional man, and secondly to show a possible way out of the present *impasse* as regards protecting the profession's financial interests.

In due course we would like to hear the views of readers on Martyn Webb's proposals. If not completely acceptable as they stand to some, they may at least suggest an alternative or a yet better line of approach. In any event, it is both stimulating and refreshing to learn occasionally of the views of a brilliant unbiased bystander from another profession.

In the meantime, we would like readers to cogitate for the next week over the following point, which we feel is fundamental. There has been one false start and a rather fruitless

expenditure of energy. Let us, before any more effort is wasted or bad temper engendered start from square one and work out where we are not, and where we are, going.

For instance, can we define an architect and his responsibilities? We know that *in law* only the principal architect of a firm is the Architect, however many qualified assistants there are. In an office of a principal and twelve assistants, of whom, say, six are qualified, can it truly be said that the principal is, in fact, giving his clients, and the art of architecture, the personal service and attention they deserve, and is expected of, the man who calls himself the Architect? Nobody paying five guineas for a visit to a Harley Street specialist would allow himself to be fobbed off with a diagnosis from the specialist's assistant doctor, far less the specialist's *unqualified* assistant. The idea is laughable—in medicine, but not in architecture. We have arrived at this absurd situation more by chance than by design.

Surely the ideal—apart from the convenience of certain variants, such as group-working on development programmes, or having architect office-administrators and job-getters—is to get back to, or forward to, the architect as an individual (or possibly a small partnership or team) being directly responsible, in law, to the client, whether the latter is an individual, a board of directors or a committee. The whole tendency in society today is to amalgamate and combine—to build up pyramids of power. The first task of the profession surely is to counter the disadvantages of that tendency by delegating responsibility and ensuring that the man who designs and details a building meets the client, and supervises the builder, is called—not "the county architect's senior assistant (schools)," or "Mr. Basildon Jones's junior," but "The Architect." And is paid accordingly.

No architect, surely, should take on more work than he can personally supervise, design and detail. He may have assistants, as draughtsmen, perhaps, or newly qualified architects gaining practical experience, or even qualified men who, while competent designers, are too weak on organization and finance to take on the responsibility of running a job, but such assistants could hardly total more than five, if direct personal supervision is to be maintained.

Such a fundamental issue as the above is one which can only be decided within the profession. NALGO is no help here. Principals, in both public and private offices, must decide whether they can truly say that they are giving their clients the personal service they profess to be offering and for which they are being paid. And, before deciding, they should remind themselves of the danger to true professional status of anyone being able to employ an architect for a few hundred pounds a year.

The first task, therefore, before income is discussed, is to discover just what an architect is, *in fact* (and not just in law), and then to find how many there are hidden from sight below the title of Chief Architect or Principal. As for the second task, we shall return to this subject next week.

This week Sir Richard Coppock, General Secretary of the National Federation of Building Trades Operatives, and Harry R. Selley, President of the Federation of Master Builders, have written to the Editors, commenting on the first articles in our series on "The Cost of Building." Another article in the series appears on page 236 of this issue. Letters on other subjects are published on page 226.

THE COST OF BUILDING

SIR: I have found your two articles on "The Cost of Building" most entertaining, though had it not been for the introductory passages I would have assumed the account to be one of a pleasant charade, acted perhaps in a mental home. If the articles are intended to represent things as they really are no wonder building costs are high. But incredible as it may seem the authentic note may be there, for building costs *are* high. Should we wonder at this when we have the admission of the experts themselves that one of the major industries of the country is conducted as a pantomime? For a moment, until I became convinced that they were really serious, I thought the authors had better confine themselves to writing about building than engaging in it.

But let me now deal with the industry's affairs as they are at present apparently conducted. To begin with, has it never penetrated people's heads that there are such beings as building workers—over a million of them? Perhaps according to some a nuisance, but let us accept them then as a necessary nuisance, shall we? For I believe they do have some part in the construction side of the job. Apart from a casual and very brief reference to the workers ("shortage of bricklayers") there is not throughout the two articles the slightest suggestion that there are building workers in existence or—if their existence is assumed—that one need attach the slightest importance to them. And people wonder why there are labour troubles! Materials are frequently mentioned, but labour hardly at all. Let me say without further ado that if co-operation is intended as something more than a pious expression (our whole lives seem to be governed by platitudes and clichés) building workers must be brought in from the very beginning of the job.

In this matter of co-operation, what an extraordinary (to the outsider) admission of the lack of it is given by the authors. Architect, client, quantity surveyor, builder—all of them seem to be perpetually at loggerheads with one another. A person entirely unfamiliar with the affairs of what, with unconscious humour, we label our economic "system" would assume that all the hustle and bustle

of architect, client, etc., was, and was intended to be, a competitive game under the title of "beggar my neighbour." I wonder how far wrong he would be!

"Basildon-Jones is not particularly interested in the reasons for the shortage of bricklayers—he gathers that it has something to do with a bonusing scheme that has gone wrong and has caused discontent."

Mr. Basildon-Jones is quite a "lad." So he is not interested in the shortage of bricklayers? Perhaps some kindly disposed person will one day inform Mr. Basildon-Jones that the shortage of bricklayers may have some bearing on costs. Your first comment in the second column, page 156, meets the position.

I note the remarks about the tower crane, which gives me the opportunity of saying that this particular piece of machinery has not yet satisfactorily passed the test of the Chief Inspector of Factories, and we are cautioning our members.

Your comment at the bottom of the same column (page 156) is revealing—that the builder is responsible for a nominated subcontractor; and so is reference to the delay in the delivery of materials. No one apparently thought of ordering beforehand to cope with expected delays to be assumed by normally intelligent people. I note too your comment:

"But this kind of contest is a barren pursuit, serving only to rehabilitate one party's self-esteem at the expense of the other's. The real need is for co-operative understanding by everyone, including the client—for to agree to the necessary time for adequate preparation he must know what is involved."

Your final comment apologizes for the unhappy ending. Don't mention it! One marvels that there was any ending at all. You have certainly written wisely in the statement "It is part of a recognized and, by and large, an accepted pattern." You ask whether we cannot do better. Until the industry is co-operatively conducted (and I mean *co-operatively*) by all in it (and here too I mean *all*) the answer must be "no."

From our point of view this sorry state of affairs would not matter a jot were it not for the fact that building workers are blamed for high costs. Every time they submit a wage increase demand or any other kind of demand that involves payment they are met with the cry that the industry can't afford it; that building costs are already too high, and so on.

RICHARD COPPOCK

SIR: First, let me congratulate you on the series of articles on "The Cost of Building." The problem of reducing building costs is one of vital importance, not only to those engaged in the building industry but to the nation as a whole. There may be no easy way of cutting costs, but discussion of the problem from all angles should prove beneficial.

My impression is that there could be considerable tightening-up in the industry, from that holy of holies, the architects' office down to the actual organizing work on the building site. This tightening-up process will involve some harder and clearer thinking, and more definite planning in the early stages if only as a means of reducing tears at the later stages of a building's construction.

Somehow we must provide better team work from the architect, the building contractor, the sub-contractors, and in fact from everybody connected with the job of translating the plans from the drawing board into the finished building. Better team work, of course, implies better management.

It may sound like a revolutionary idea to some people, but I do suggest that the practical builder, often a man of sorrows and of wide knowledge, should be called in for consultation, particularly in the early stages when plans for a new building are beginning to take shape.

Too often on a building contract there is a somewhat harassed tendency on the part of a number of responsible people connected with the construction of a building to hope that everything will come right in the end, and it so often does not. The result is that there is keen competition in shifting the blame and responsibility for delay and increased costs.

One of our major problems is to reduce costs, and your series of articles on "The Cost of Building" may well yield some useful ideas of practical value.

HARRY R. SELLEY

LCC

Approval of South Bank Building's Plans

The LCC has approved outline plans for the block of offices which the Shell Petroleum Company proposes to build, to the design of Sir Howard Robertson, on the South Bank site in London.

As the result of a suggestion by the Royal Fine Art Commission, the Council has said that the building can be higher than the 25 storeys proposed in its development scheme.

The outline plans approved provide for a tower block, the central feature, of 27 storeys. The tower can be as high as 29 storeys if the developers desire it.

This would make the total height more than 300 ft. and the offices would be the highest fully-occupied building in London.

In addition to the tower, which will be oblong, this group of buildings will occupy three sides of a square. The lower wings of 11 storeys will be 110 ft. high.

As the main group of the Shell buildings will not provide enough space for all the 6,000 employees, the company will lease another South Bank site, at the downstream end. This consists of 2.2 acres, bounded on one side by Tenison Way, leading off Waterloo Bridge, and now partly occupied by the National Film Theatre.

Offices to be erected here were planned to be 11 storeys high. After inspecting the area the Royal Fine Art Commission suggested that the tower, which is to dominate the scene on the south side of the river, should be taller.

The general massing of the buildings, it urged, would be improved by a reduction in the proposed 11-storey height of the main upstream and downstream blocks and a compensating increase of not more than four storeys in the height of the tower.

The Council has asked the company to consider meeting the commission's views. Possible revision of plans will include the question of reducing the height of the proposed 11-storey buildings. Now that outline plans, submitted for both sites, have been given planning approval, work on the detailed drawings can go ahead.

CCA

Another Congress

Readers who remember the very successful first congress held by the Federation Internationale de la Precontrainte in London last October will be interested to learn that the second Congress is to be held in Amsterdam from August 29 to September 2, 1955.

Those interested should get in touch with the Secretary of the Pre-stressed Concrete Development Group, Cement and Concrete Association, 52, Grosvenor Gardens, London, S.W.1.

A NEW FILM

The Sliding Door

After seeing a film, *The Sliding Door*, produced recently by E. Hill Aldam & Co. Ltd., one is impressed (writes a correspondent) by the great variety of types of sliding door, and the need for considering the technical requirements of any type at an early stage in planning. This film—a colour and sound production about 40 minutes long—shows sliding doors and their gear as they are installed in this country and abroad.

Copies are available, on free loan, to the building trade, architectural schools and professional associations.

COMPETITION

Electric Sign Design

The first Sign Design Competition to be held in this country (sponsored by the Electrical Sign Manufacturers' Association) has been won by J. K. W. Hopgood of New Southgate, London. His prize is £100. The second prize, of £50, goes to R. W. Pepper of Welling, Kent.

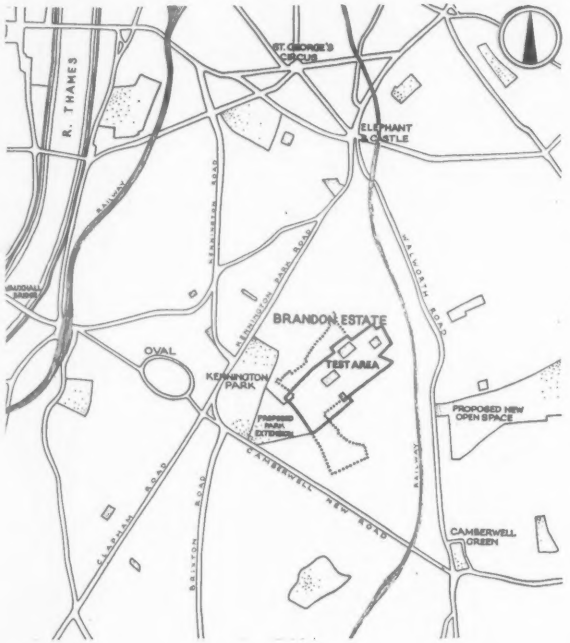
One of the three Consolation Prizes of £25 has been made into a third prize and increased to £35. The winner of this prize is Stanley Rickard, of Mitcham, Surrey. The remaining two consolation prizes of £25 each go to F. T. Oliver of Westcliffe-on-sea, Essex, and to Peter Watkinson, A.R.I.B.A., of Leeds. An entry by J. M. Burford of Birmingham was commended by the judges.

Altogether there were 92 entries for the competition. Most came from professional designers—including architects—but the

LCC SCHEME FOR CONVERSION AND REBUILDING AT SOUTHWARK, LONDON

The model shown in the photograph below is of an LCC redevelopment scheme in Southwark which has been prepared under the direction of the Architect to the Council, Dr. J. L. Martin. The area to be redeveloped (35 acres) contains property which, because it is considered too solid to be destroyed (example on the right), will be repaired or converted. Elsewhere on the site, property will be demolished (photo, extreme right) and replaced by new houses or flats. The conversion of existing buildings will be carried out when their inhabitants have been moved into the new accommodation. Although conversion work in a neighbourhood invariably reduces the amount of living accommodation, the LCC's scheme for conversion plus *new building (including point blocks) will, in fact, increase the number of dwelling units on the Southwark site. Building will begin in about eighteen months' time and the whole scheme should be complete in seven or eight years. A great advantage of this scheme, which will be a prototype for others in the London area, is that it will enable homes and neighbourhoods to be created more quickly and more cheaply than they would be in a scheme of complete redevelopment. LCC officers taking part in the preparation of the scheme in the Architect's Department were:—Housing Division: H. J. Whitfield Lewis, principal housing architect; M. C. L. Powell, assistant housing architect; W. L. Ward, assistant senior architect; and C. E. Reeve. Planning Division: Arthur Ling, senior planning officer; L. W. Lane, assistant senior planning officer; E. G. Sibert; and G. I. Clothier. When this scheme was described to the Press at a conference at County Hall last week, I. J. Hayward, Leader of the Council, had this to say: " The success of mixed development schemes in Wandsworth is leading us to apply the same principles to areas in inner London where intrinsically sound and pleasant terraces of houses have been neglected. Continuing urgency of housing needs and the increasing problem of rehousing obligations arising from school building, new open spaces and now an extensive road improvement programme—all on top of housing and slum clearance operations—has brought home the need for slum prevention.*

Areas for clearance, slum prevention and entirely new building are less often to be found in distinct parcels. We see the opportunity of turning the situation to advantage. Out of necessity and the practical ideals of good planning has been conceived a new and imaginative approach to the development of areas in London where all these three aspects of housing problem are interlocked. We believe we have devised a solution to a housing problem which will also be a positive step towards safeguarding and realising our policy of neighbourhood development. There are likely to be other areas in London suitable for similar treatment, including some already in the Council's possession.



Site plan

KEY

1. Old people's bungalows
2. Two-storey houses
3. Three-storey flats
4. Four-storey maisonettes
5. Six-storey flats
6. Eleven-storey flats
7. Six-storey maisonettes
8. Three-storey flats, with shops
9. Two-storey conversions
10. Three-storey conversions
12. Roman Catholic church (existing)
13. Parish Hall
14. Community Hall (existing building)
16. Proposed C.E. Primary School
17. Proposed County High School
18. Proposed primary school

Site plan

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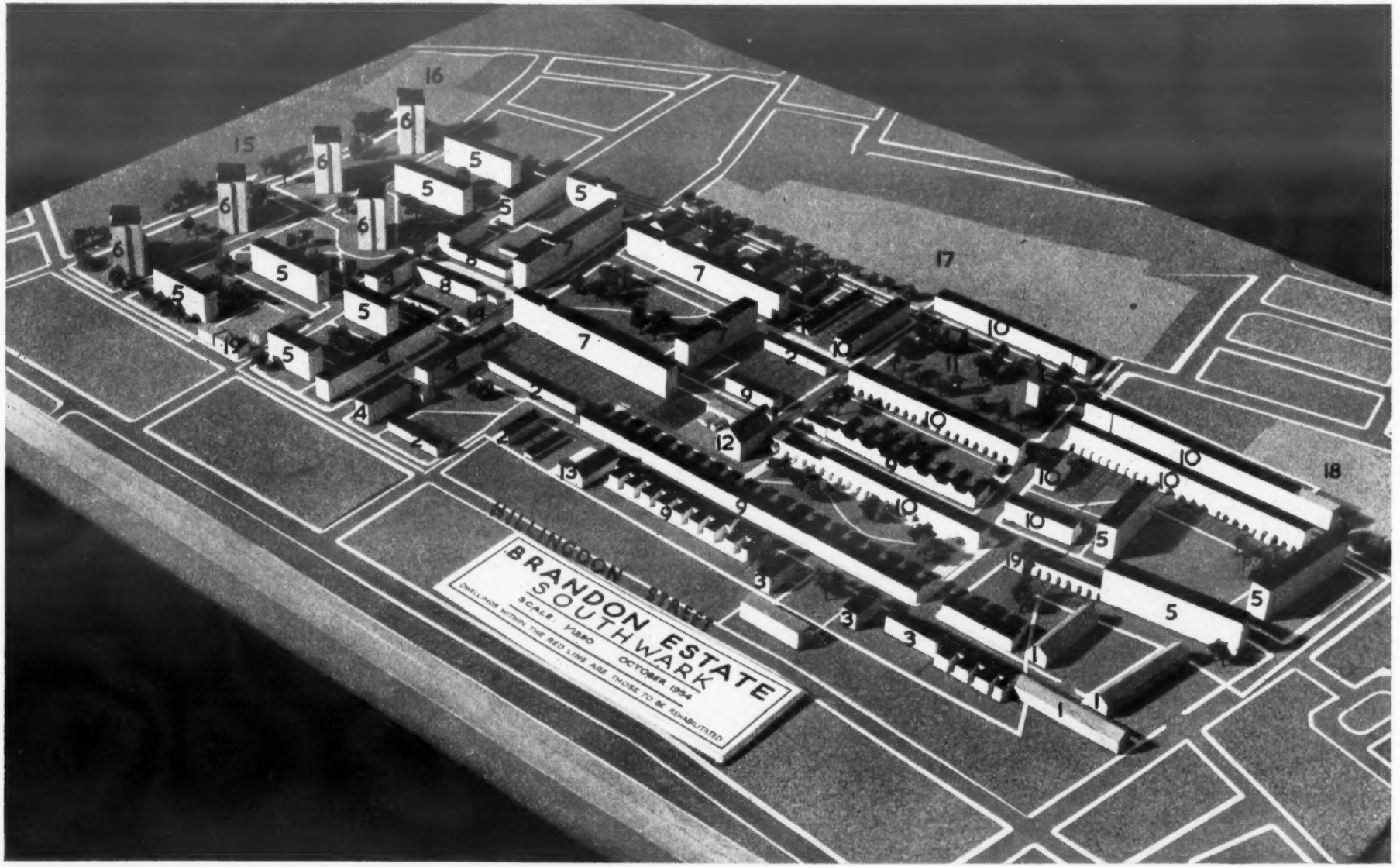
11. Lorrimore Square (containing existing church)
12. Roman Catholic church (existing)
13. Parish Hall
14. Community Hall (existing building)
15. Extension to Kennington Park
16. Proposed C.E. Primary School
17. Proposed County High School
18. Proposed primary school
19. Public houses



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amateur entries represented about a quarter of the total.

The designs were judged (by Sir Hugh Casson, Mischa Black, E. H. Doubleday, Norman Moore, and J. H. G. Pearce) on six points—advertising value, architectural harmony, contribution to the improvement of electric sign design, day-time appearance, identification and directional value, practicability. Each point was given the same maximum number of marks.

NFBTE

The President Speaks

"I am convinced," said Harvey G. Frost. the NFBTE's new president, "that if parents and schoolmasters were aware of the variety and scope offered by a career in building today they would not hesitate to advise the younger generation to join our ranks. We have enough work before us to keep the industry fully occupied for the next fifty years, but now is the time to start training young men for that work." Mr. Frost, who was speaking at a meeting of the council of the LMBA, in London, went on to say that systems of articled pupilship such as that which the LMBA proposed to inaugurate shortly indicated the genuine desire of building employers not only to attract young men of the right calibre but to give them also a thorough training in whichever branch of the industry they choose. "The days of rule of thumb methods in building have gone," said Mr. Frost, "and the emphasis is now on the scientific approach and the great technical developments of recent years. The industry therefore wants the best types of young men to come forward and train for the responsible senior jobs that even now are waiting to be filled."

DIARY

Turkey and the Levant. Talk by Anthony Maudit. At the AA, 34, Bedford Square, W.C.1. 6.15 p.m. FEBRUARY 17

The Effect on Values of Recent Legislation. Talk by T. S. Dulake. At the RICS, 12, Great George Street, S.W.1. 5.30 p.m. FEBRUARY 21

Concreting and Decorating. Film by Jos. Freeman, Sons & Co. Ltd. At the BC, 26, Store Street, W.C.1. 12.45 p.m. FEBRUARY 23

German Architecture Today. 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. FEBRUARY 24 TO MARCH 24

"*One London Architect*"

20 Members of the City Engineer's Department, Nottingham—Architects' section

R. Edds, Public Relations Officer, Madam Tussauds

No Confidence in RIBA

SIR,—The apathy and inactivity of the RIBA over the question of an Architects' Union has at last goaded me into asking how many Architects share my complete lack of confidence in our Royal Institute?

Never have I so bitterly resented paying a subscription to an organisation which only allows me to retain, what the layman understands to be my qualification, as long as I remain a member of the Institute.

I submit that over the formation of a new organisation the RIBA is perfectly right! We do not need a new Trade Union to represent the interest of the salaried Architect. Instead. the RIBA must face up to changed conditions and its new responsibilities, and change itself into an organisation which is to the Architectural Profession what the BMA is to the Medical Profession, and if the dusty "Charters" prevent this, then the charters must either be scrapped or revised. We do not need any more organisations to take care of us, the RIBA must carry out this duty.

If we have to form a separate Professional Organisation of Architects (not Architects, Clerks and the rest of the field embraced by NALGO) to negotiate and represent our interests, the RIBA can expect its members to desert in their thousands once an active organisation is founded. Only the monopoly enjoyed by the RIBA has saved them from the wrath of their members.

The decision of the RIBA Council to ignore the wishes of its members in this matter is quite typical of their autocratic attitude. They must be compelled by sheer weight of opinion to bow to the wishes of their members.

If the Council choose to ignore the result of their own questionnaire they will have to take notice of the opinions expressed in the Architectural Press, if these opinions are voiced by sufficient of our members.

If readers believe, as I do, that the RIBA no longer represents the greater bulk of its members, and if they have as little confidence in the organisation as it stands at present, then let them express themselves by writing to the AJ or to any other architectural journal.

The RIBA are no doubt waiting for this latest storm to die down. I hope it will not die down until we have forced our Royal Institute to face the fact that we are determined, sooner or later, that the RIBA shall truly serve both Architecture and the Architect to the best of its ability and raise our status to at least that of the medical profession.

"ONE LONDON ARCHITECT"

The Trade Union Problem

SIR,—We endorse the sentiments expressed by the 48 London Architects and the 34 members of the County Architect's Department, Derby, in their letters published in the January 27 issue of the JOURNAL.

Let us face it. There is no doubt as to the two reasons why we are in the profession, the first is the simple desire to create and build; the other is—cash, which, although we are told it is a secondary consideration, continually overshadows the former.

This lies at the bottom of all the unrest over the past year or so; the value of the salaried architect to his employer and society, and his actual salary.

The RIBA acknowledged the discontent throughout the profession by circularizing the questionnaire, only to fall in prestige when the recommendations were announced by the virtual failure to give a positive lead to its waiting members.

The RIBA is essentially schizophrenic in character. In theory it serves the needs of both fee- and salary-earning members, but as it is a "learned body" it cannot act as a negotiator on behalf of the salaried members' section. However, on the other hand, the RIBA can issue and revise a Scale of Professional Charges for the fee-earning section.

It would seem logical to assume then, in spite of the Salaried and Official Architects' Committee, that any attempt to better the standing of architects in public employ would be resisted by principals in private practice, who form the bulk of the government of the RIBA, on the not unreasonable grounds that any betterment would naturally affect their assistants and their own pockets also.

(We are given to understand that some private offices are proposing to operate schemes of junior or salaried partnership, a gesture we welcome. The position of the public architect remains unanswered.)

Consequently, the RIBA cannot—or will not—actively do anything to support the grievances of its salaried members, unless forced to by the increasing unrest, or protests such as this.

Instead, we are advised to join our appropriate union, but there are at least half a dozen appropriate unions covering all fields of employment, none of which has our complete confidence.

The ABT's statement on the RIBA's findings is sympathetic, in our view, but we consider that a new organization of, by and for architects, with a potential membership of at least 6,000 would gain support and recognition and is necessary to meet the particular demands of our side of the profession.

The whole problem of adequate salaries, together with the subsequent relationship with the private practitioner is a large one, and it must be resolved to the mutual satisfaction of the majority of the members.

If the RIBA is not able to act as a mediary then some other method must be sought. As a suggestion towards this, could not a delegate conference be sponsored by say the Salaried and Official Architects' Committee and other interested parties.

TWENTY MEMBERS OF THE CITY ENGINEER'S DEPARTMENT, ARCHITECTS' SECTION

Nottingham.

Stars in Marylebone

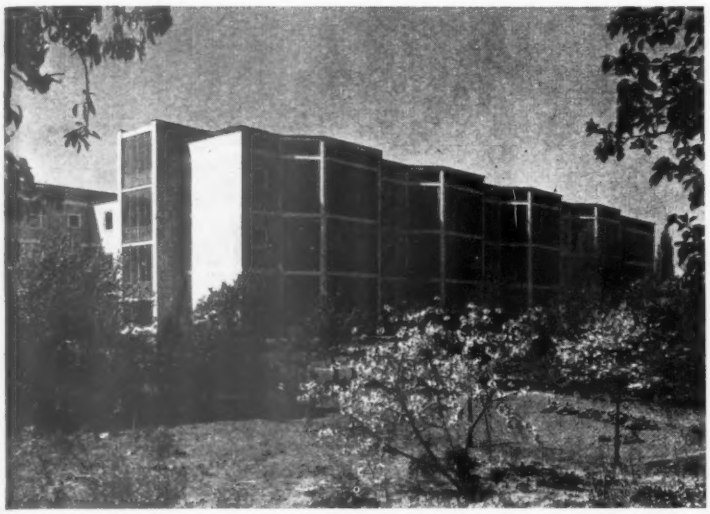
SIR,—In your issue of February 3, ASTRAGAL made some very interesting comments about Tussaud's Planetarium.

I would like to clear up one point, however. The site for this new and exciting venture will be on the corner of Allsop Place and Marylebone Road which was previously occupied by Madame Tussaud's Cinema, destroyed by the first 1,000-lb. HE bomb to fall on London in 1940.

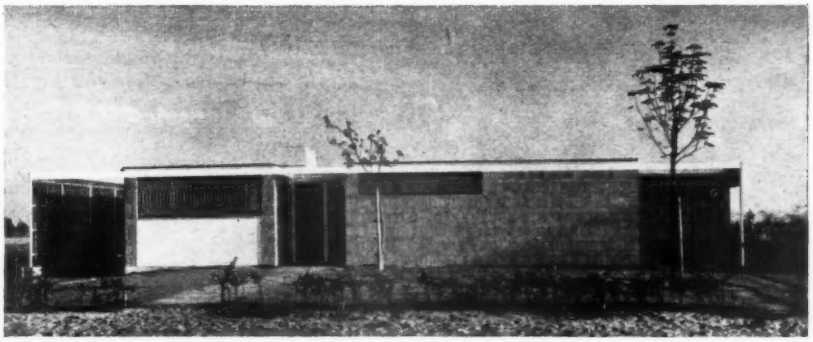
R. EDDS

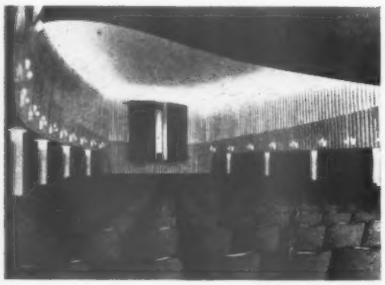
London.

EXHIBITION OF GERMAN ARCHITECTURE AT THE RIBA



These photographs are taken from the exhibition, "German Architecture Today," to be held at the RIBA, 66, Portland Place, W.1, from February 24 to March 24. The exhibition, prepared by the Bund Deutscher Architekten and sponsored by the West German Government, is divided into sections illustrating business, industrial and official buildings, private houses, public housing, schools, churches, cultural buildings, sports buildings and gardens. Another section shows the work of the pioneers of the modern movement in Germany. Illustrated here are, top left: school for metal workers at Hanover, architects Hillebrecht, Dierschke Lehneman; top right: home for old people, architect E. Breitling; centre right: private house in Cologne, architect G. Böhm; above: cinema interior at Hanover, architect Professor Dieter Oesterlen; right: flats for the US High Commission at Bad Godesburg-Mehlem.





In his article below Bryan Westwood tells how, during his recent visit to Italy, he was impressed by—among other things—the quality of design in even the smallest building (such as the estate office shown on the left), the imaginative treatment of the elevations of working-class flats, the inventiveness of engineering firms and the surprising variety of internal and external finishes in the luxury buildings. Mr. Westwood, who went to Italy in a party organized by the Cement and Concrete Association, took all the photographs published here apart from those where the photographer's name is given.

BUILDING IN ITALY

Bryan Westwood

The examples we see in England of Italian films, shoes, clothes and metal and glass give a tantalizing glimpse of a liveliness in design wide in its scope, and *Domus* and *Edilizia Moderna* whet one's appetite for a closer look at *building*. Furthermore, in view of the strength of the Italian tradition—a tradition strong enough never to assimilate the Gothic architecture of the rest of Europe—it is of particular interest to see the development in Italy of the so-called " International Style " of today.

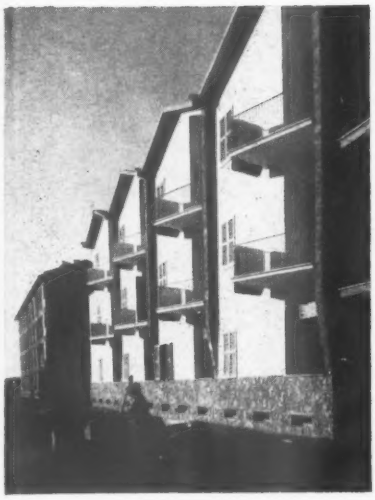
Meteorologically and architecturally the climate of Italy is very different to our own. On the one hand the weather does not impose such a heavy hand on innovations and heating and waterproofing are not of such *vital* importance; on the other hand, the Italian public over the centuries has come to attach importance to art and artists and the appreciation of their works, so that there is not the same tendency to confuse architecture and archaeology, or just to attach a value to buildings merely in proportion to their antiquity. The Roman in the street is just as likely to ask whether you have seen his new station as to enquire whether you have been to St. Peter's. The small shopkeeper spends money on recessed shelving and concealed lighting for such homely wares as bread and cheese. There is nothing standardized about his shop-front and wherever suitable he will probably have opened up the interior to view from the street. In such essential trades, the commercial advantage of attention to details such as these, is not immediately apparent. It is thus all the more refreshing to find that the small man cares about such things. In the same way, even though it may be under the enlightened guidance of the oil companies, the village petrol pump is more than likely to be housed under a daringly cantilevered concrete canopy, finished in mosaic of some pleasing colour.

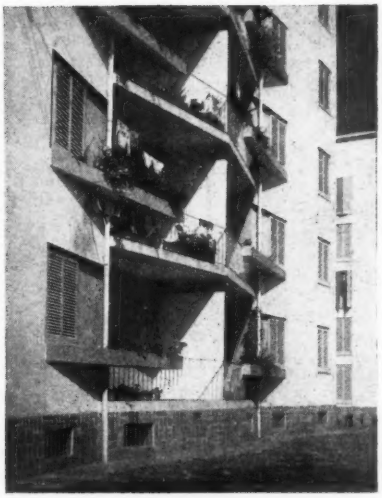
New ideas have been seized whole-heartedly and carried out with real verve. It is not the case of a few enlightened people experimenting timidly with new ideas, but a truly national movement, including all forms of applied art and industrial design. It is as natural to build in a contemporary way as it was in Renaissance times and there is nothing equivalent to a Georgian problem. With this general understanding behind them, and great attention focused upon them, the Italian architects appear to work in a tenser atmosphere than we do, and to be more experimental in their outlook.

Arriving in the north and going southwards, as one approaches any of the larger towns the skyline is dominated by the silhouettes of tower cranes; the hand-maidens of the builders of factories and blocks of flats. Nearing Rome this process is so widespread that it takes on the quality of a dramatic spectacle. Passing along over comparatively open country, one is suddenly met by an encircling girdle of scaffolding behind which intense activity is apparent. This is part of a huge housing programme. It is a section of a scheme being rapidly carried in units all over the country, to meet the needs of war-displaced persons and an expanding population. The problem is particularly pressing in Rome because its population has doubled in the last decade. (In one sector alone 40,000 people are to be housed in flats in a matter of months; and in one of the schemes 850 flats were being built under a 10 months contract.)

The keynote of the housing programme is the provision of walls and roofs for the *many* rather than completely fitted homes for a smaller number. Very few *houses* were being built (none under the national INA CASA scheme); *flats* were almost universal. These very large housing schemes serve the double purpose of creating employment as well as meeting the pressing need for accommodation.

The life of the Italian working man is essentially simple but gregarious. Many of the prospective tenants of the flats had been used to very low standards indeed. Around Rome some were living in caves. The new schemes, stark and simple though they are, provide a notably higher standard of living than that to which a mass of the population has been accustomed.





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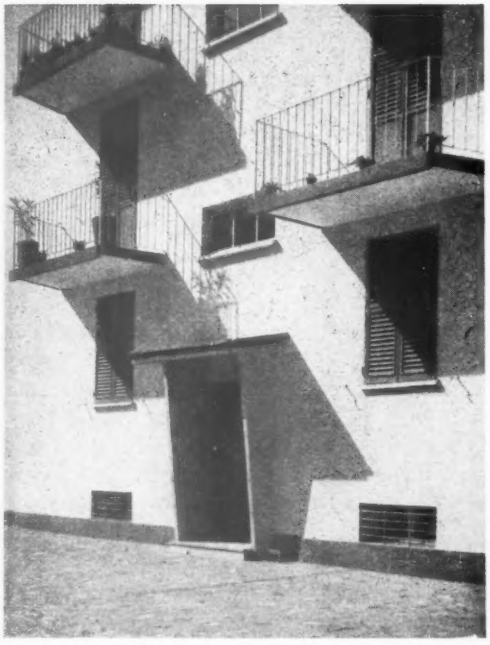
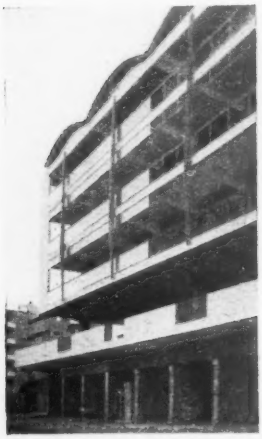


"Imaginative treatment was everywhere evident," writes Bryan Westwood, referring to the working-class flats he saw on his recent Italian visit. This type of flat, shown above, is little more than a shell inside. Occupants are expected to provide their own fittings—including fireplaces.

Flats were being built in large groups comprising blocks varying from three to five storeys, with occasionally higher blocks or, as a contrast, a terrace of two-storey flats or a line of shops with single flats over. When we saw them, these blocks rose straight up out of untamed sites and individual designs were mostly very simple. Despite this, imaginative treatment was everywhere evident. The juxtaposition of blocks was varied frequently, and their individuality was enhanced by different roof treatments; a positively uninhibited attitude to balcony design (see illustrations) and the use of a variety of colour washes further enlivened and accentuated by the splash of colour and trailing green displayed in every window box. On the larger schemes several independent architects had been used on the same site deliberately to give a variety of design, but the schemes retained their unity by the almost universal use of rendered surfaces, and the benign influence of bright sunshine.

The walls were of solid construction; brick, random stone or hollow tile or mixtures of all of these. They were rendered on the outside and plastered within. In the case of the higher multi-storey blocks a reinforced concrete frame was usual, but solid load bearing walls were used wherever possible. Six floors were usually the maximum and up to this height lifts were not provided. Floors were of concrete and hollow tile construction and in the blocks of flats around Rome a particularly ingenious use of hollow tiles to form permanent shuttering was used. Wood was used very little except for doors and frames and one missed the comfortable and human look that it gives. One contracted the stone and mosaic somewhat nostalgically with one's recollection of Scandinavian interiors and their much softer textures. The hard impervious surfaces, however, were suitable for Italian climatic conditions and must be remarkably good from the point of view of upkeep.

The core of the plans is the living/kitchen/occasional



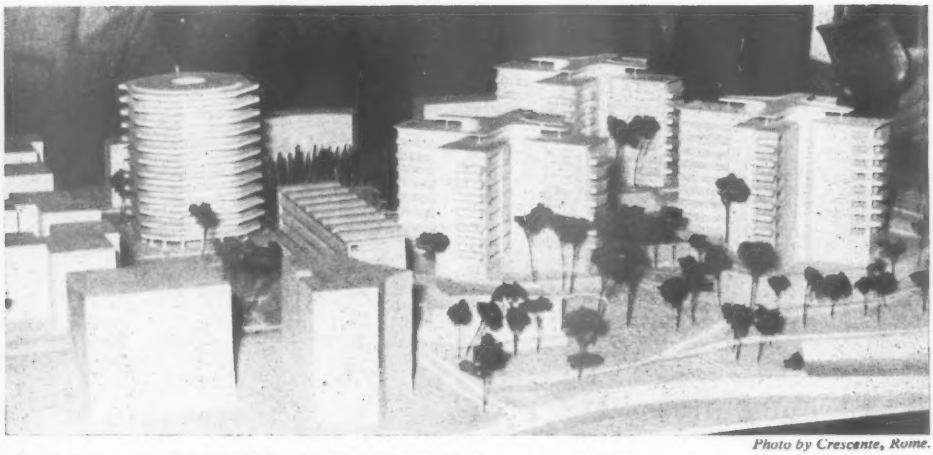


Photo by Crescente, Rome.

The model, above right, is of the "Vigna Clara" new residential centre which is being built just outside Rome. The scheme will include living flats (for sale) and ancillary buildings. Each of the star-shaped blocks will contain 32 large flats grouped four to a floor. The building with the barrel-vaulted roof (seen above left under construction) contains shops at the base, an open market at first-floor level, three floors for offices, studios and workshops and a restaurant on the top floor. The scheme, which was designed by the property company's architectural department, includes a cinema, garages, a swimming pool and tennis courts.

bedroom. Here the family spend most of the time that they are indoors, but a great deal of the time they seem to be out of doors! Sometimes there was a separate kitchen and sometimes it was combined with the bathroom. Varying numbers of bedrooms were provided. There was no hot water system and the occupants were expected to install their own stoves with flues taken into orifices in the main flues. A sink, with marble draining board and a marble shelf with ventilated asbestos hood over, were the only fittings in most cases, though we did see fitted charcoal-burning cooking stoves in one scheme. Cupboards were few and unfitted and there were no fireplaces. This was obviously a calculated policy and presumably the damage to the fabric which must be expected if tenants do their own finishings and fittings had been taken into account.

The simplicity of the services presumably gave greater freedom in economical planning as it was noticeable that in most cases the flats were not "handed" and thus balconies were arranged in accordance with optimum aspect, and not so as to pair with the flat next door.

The rather ruthless policy of providing the minimum equipment, but in a thoroughly sound shell, had its counterpart in site development. This was all provided for on paper, but evidently had a low priority. At most of the sites we visited even the roads were few and unfinished and the rest of site development was left severely alone. The layouts, in some cases, looked interesting on paper, but generally they appeared to me somewhat geometrical and I was not particularly impressed by the grouping of the blocks themselves, though no doubt they would appear more interesting when the sites were tidied up and the planting completed. The transplanting of full grown trees bore witness to the importance attached to the finished appearance of these new neighbourhoods.

In describing these flats I have purposely kept to generalities; different conditions imply adjustments which cannot be made without detailed study. There are, however, most excellent official booklets giving all manner of facts and figures for those interested in technical detail. Suffice it to say that some of the projects we visited were directly state-financed and others were under the control of municipalities.

It is perhaps of interest to note that there is a scheme for compulsory deductions from wages to finance the provision of houses for those needing them. As the houses become available lots are drawn to decide who shall occupy them. Up to twenty years credit is allowed for payment of the remaining capital. In other cases houses were rented to tenants.

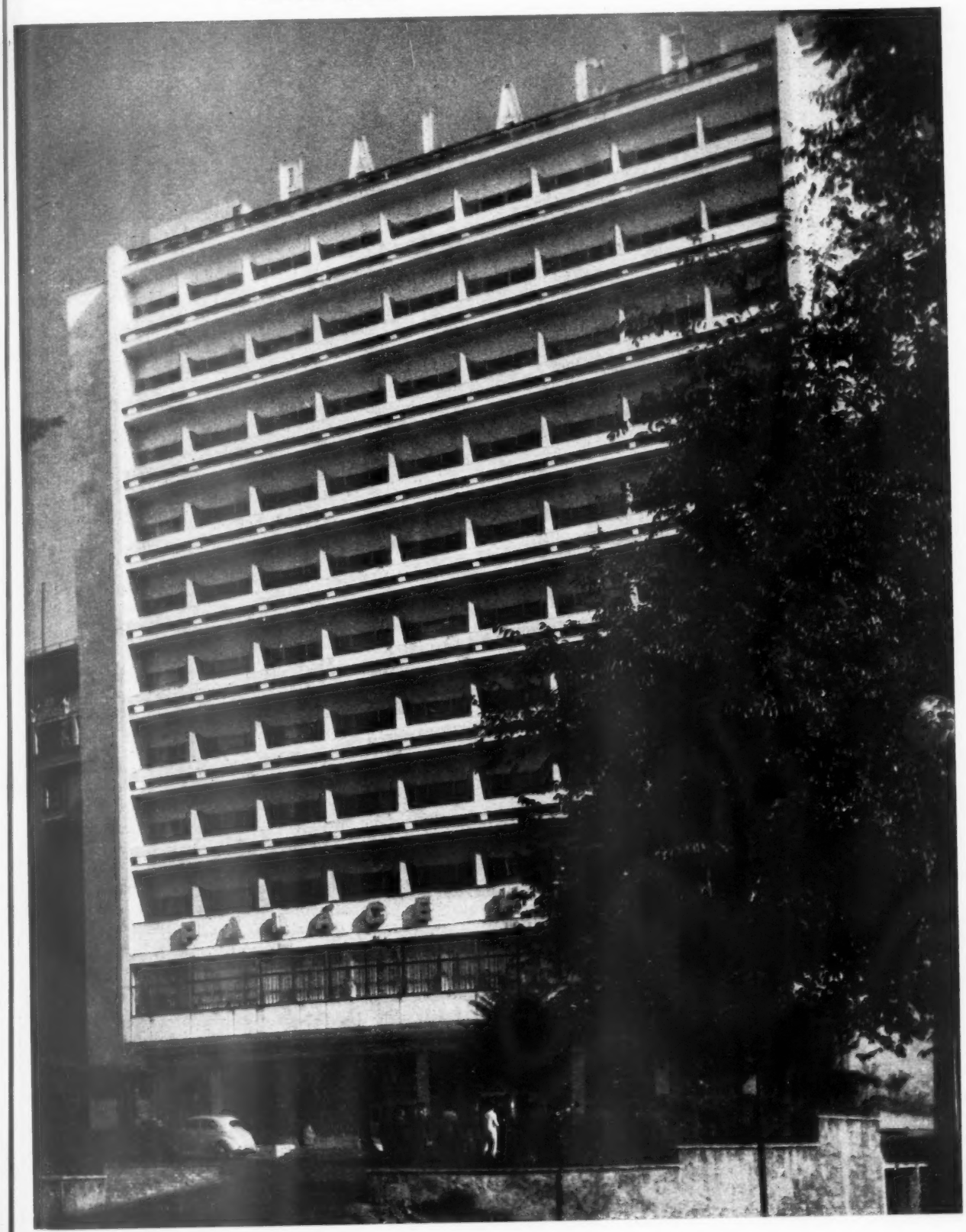
Housing, however, has by no means monopolized the country's building industry. The war left a trail of broken bridges and damaged buildings which are now being energetically tackled.

Programmes such as these are to be expected; one is simply surprised that a country which one had been led to believe was on the verge of bankruptcy after the war, has been able to tackle them in such a big way. The real shock comes when one realizes that a significant volume of building of quite another category is also in progress and the *finished buildings* are there to be seen. I refer to expensive flats and office blocks which are being built in appreciable numbers and also to the smaller number of resplendent hotels like the "Palace" at Milan, equipped to American standards, and imaginatively planned on a generous scale.

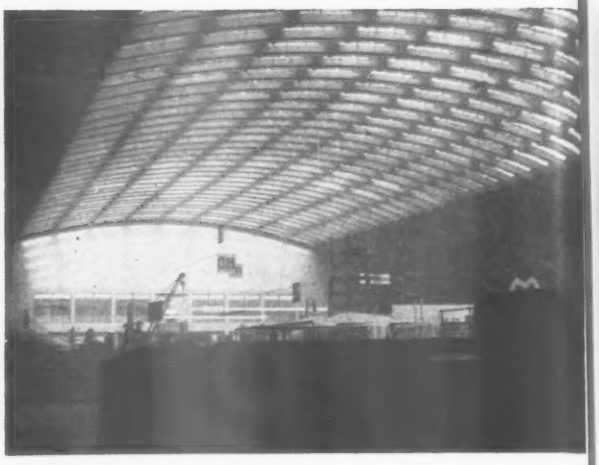
Accustomed as we have already become to the Welfare State, Italy is exciting as a country of extremes of wealth and one where the rich are not inhibited about being rich! (It also has the largest Communist Party in free Europe.) Since working-class housing has monopolized our attention in this country since the war, I think it is of interest architecturally to see what is being done elsewhere to house those with higher incomes as well as the poor. In the process of doubling its population in a decade, Rome clearly had to include accommodation for an element of the population which was *not* in need of subsidized housing.

We saw no new private houses or gardens. Property companies with their own architectural staffs were putting up high blocks of flats, well spaced, on the outskirts of towns, or slightly lower blocks as infilling nearer the centre. The individual flats in these blocks were generally sold freehold and the demand was such that despite the price (about £12,000 to £15,000 for the medium-sized flats we saw) they were being bought as fast as they were built. As an example,

The Palace Hotel, Milan (Architect: Ramponi) is one of the most completely equipped and luxurious hotels in Europe. One side is formed by inner and outer sets of frameless glass doors. In cool weather most of these are shut and the space between the two sets forms a greenhouse for sub-tropical plants. As in many new Italian buildings, rough stone is used as a contrast to smooth marble and paint-work.



Bridges like the one above, near Bologna, are being built rapidly. The design is slightly different from that of the usual bridge in France, Switzerland and Scandinavia. The horizontal platform carrying the roadway and the vertical piers form a rigid structural system rather than the normal hinged one. This requires greater strength in the main piers but results in a more slender arch.



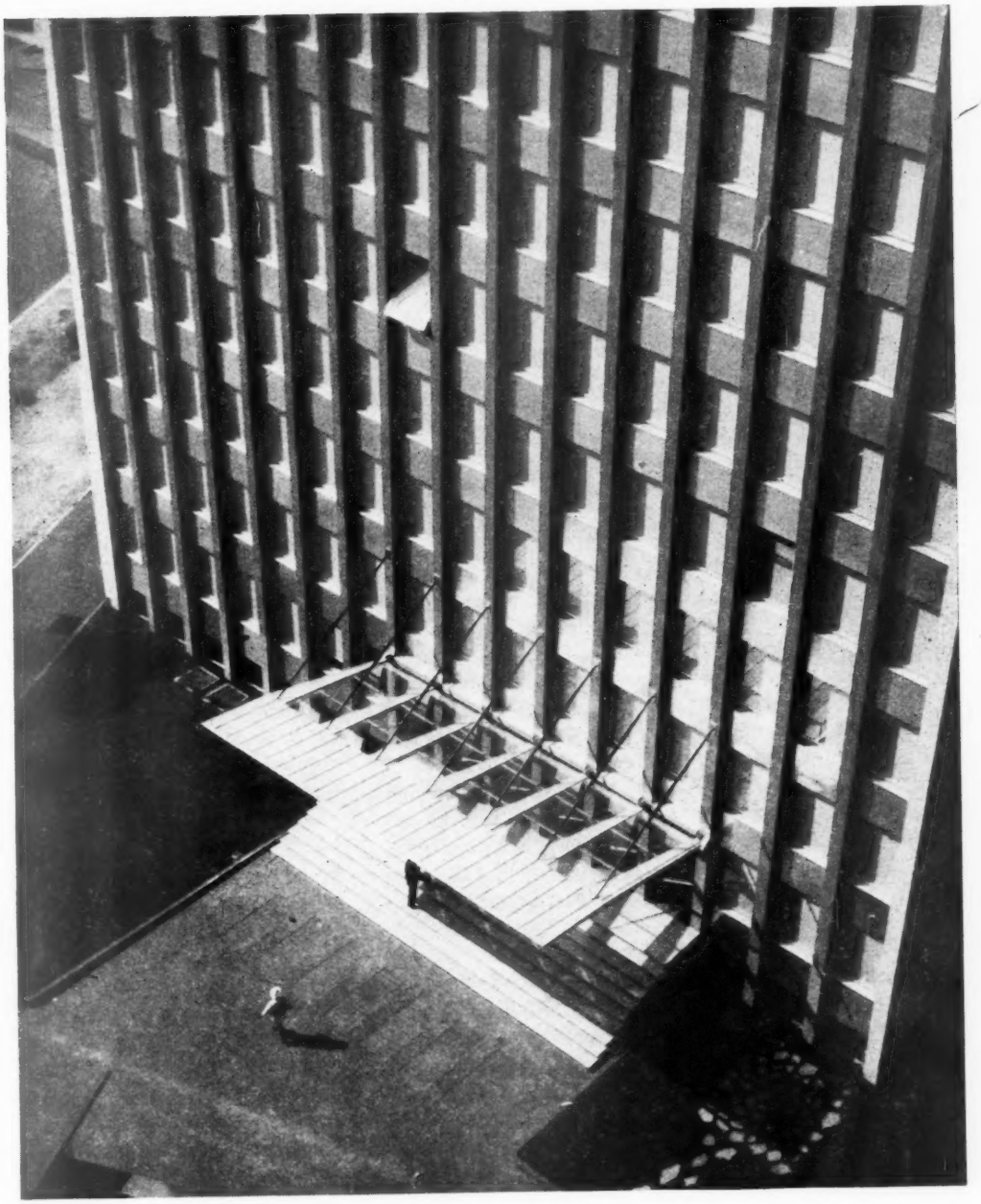
Above, the exhibition palace at Milan (Engineer, Nervi). The roof has a clear span of 315 feet and the hall is 250 feet long. The precast concrete units for the arches were cast on the site and erected on tubular scaffolding ; they then served as formwork for the concrete cast in situ *between them, resulting in monolithic arches of undulating cross-section.*

we were taken to see the " Vigna Clara " estate, built near the main Rome-Florence road about 10 minutes car drive (at Italian tempo!) from the centre of Rome. Judging by the property company's booklet this was only one of several such projects. It consisted of three eight-storey point blocks, together with cinema, swimming baths, tennis courts, etc. It was of special interest to note that in conjunction with the residential blocks a further very pleasantly designed building was being put up to contain shops, an open market and three floors of offices, which could be rented by tenants, and a restaurant on top.

The point blocks had a reinforced concrete frame and in the ancillary building this frame, with a hammered finish, was exposed in a decorative way. The concrete exterior had a neatly patterned finish and its neutral colour was enlivened with steel vertical stiffeners painted a bright yellow. The blocks of flats were beautifully finished with terrazzo on the outside and marble and terrazzo inside. The bathrooms were lined throughout with pink or grey marble. The accommodation was well planned on fairly orthodox lines except that each pair of flats share a very pleasant entrance hall. These halls were floored with rich purple glazed tiles with a surround of neutral-coloured terrazzo. Facing the stair was a large simple window framing a magnificent view of the Roman " Campania "; the most perfect example of the " picture " window I have seen. The kitchens were fitted with all the necessary cupboards, elaborate electric cookers and steel sinks fitted with electric rubbish disposers. The living rooms had free-standing metal semi-enclosed stoves and one wall was fitted with adjustable shelving.

It is difficult to describe one's feelings on suddenly being confronted with flats such as these; unostentatious but beautifully designed and fitted out—the perfect background to gracious living in the present day. I, myself, had not realized how seldom such a building occurred in my own surroundings nowadays. One could not help feeling that one's enthusiasms for clever ways of using fundamentally inadequate space were a little thin and purposeless; would it not be far more sound to spend the time and energy on methods of bringing down the cost of the structure so as to provide greater space and consequently more dignified living? One of our party who had made it a major part of his life's work to provide better " housing " was heard to remark that the government ought, as a policy, to provide funds to erect at least a few blocks like this to show what could be done. I think such feelings, though perhaps unfashionable, were fundamentally sound. In order to design working-class housing well, as architects (and not sociologists) I think one needs the occasional stimulus of work on projects of much wider scope.

The organization for designing buildings, and the mechanics of producing working drawings were somewhat different from normal practice here. So far as the latter were concerned, the principals relied on teams of draughtsmen who were not really architects in the process of climbing the ladder, but a race apart who specialized in developing the principal's ideas and getting the details perfectly worked out. Most of the firms, whose designs we saw, consisted of engineers and architects working together or embodying both professions in one person. The party I went with, though primarily organized for engineers, also contained a large number of architects. As can be imagined, the architect/engineer relationship was the subject of lively discussion and speculation as to whether it was the underlying reason for the general excellence of the work we saw. We saw buildings such as the bourse at Turin, where the architect stated quite plainly that the conception was primarily architectural with the engineer taking a secondary part; we saw bridges over the Arno designed by architect/engineer Morandi who stated that his theory was that the architecture should grow out of the engineering, and we saw the famous exhibition hall at Turin by engineer Luigi Nervi, which, though perhaps having no specific claim to be an *architectural* conception, was " satisfying " to architect and engineer alike and was highly architectural in the way it met far more than just the engineering requirements of the problem. Here Professor Nervi designed a medium-sized hall and a very large one. Both are interesting and of bold design and illustrate strikingly the intimately combined architectural and structural concept of the building. I found the large one by far the most interesting from all points of view. It had a simplicity and grace difficult to describe.



Part of the facade of the Pirelli office building, Milan (Engineer: Valtolina). The elevational treatment is very simple—mosaic-covered piers, aluminium panels and wooden Carda windows.

Apparently there was no time for the lengthy experimental calculations and tests on models normally undertaken by continental engineers. The original brilliant conception had to be checked and counter-checked and then put up prestissimo. The site clearing was started in August, 1947, and the building, of which the rectangular part alone measures 315 ft. by 250 ft., was completed and opened by the following June.

Shortage of time was the main reason for the adoption of novel types of design in prefabricated units. The precast concrete units for the arches were cast on the site, and erected on tubular scaffolding; they then served as formwork for the concrete cast in situ between them, resulting in monolithic arches of undulating cross-section. About thirty of these units were erected per day, each weighing 1½ tons. An interesting feature both in design and in aesthetic effect are the abutments, where the thrusts from three arches converge to a single pier so as to treble the passageway between piers, both at ground floor and at gallery level. This feature distinguishes this design structurally from other similar ones. As an architect I would say that although somewhat disappointing externally the essential lightness and simplicity of the design and the excellent provision of daylight through the glazed undulations of the roof put it in a class of its own. It is a building which one must *see* to appreciate. Illustrations give no idea of its *quality*, to me it had some of the awe-inspiring qualities usually only summoned up by splendid cathedrals.

At the risk of going over old ground, I have given disproportionate space to this building because I think it epitomizes the daring and vitality, and also the subtlety of design, common to so much recent Italian work. Rome railway station and the sports stadium at Florence are other well-known examples which spring to mind, but I also saw dams and hydro-electric works with similar engineering qualities.

On a smaller scale, the new bridges were of great interest. So many have to be replaced that refinements and small economies in design, by repetition become worthwhile. There is, for instance, a programme under way for the rebuilding of a number of bridges to carry the Florence-Rome road over the river Arno. Despite the fact that the river banks were high enough to have permitted the economic use of arches, beams spanning about 10 metres resting on tapered piers, were used. The designer, Morandi, taking advantage of pre-stressing technique, had gone back to the simple conception of beams free to move at one end. He claimed to have designed the structure in such a way that his beams were the smallest known to have been used for a similar purpose on such a span. The piers had to be wide at the top to accommodate the pre-stressing jacks and were tapered towards the base. These, combined with the slender beams resulted, at least to the architects in our party, in a surprisingly satisfying result—surprisingly because one would have expected an arched structure in such situations economically and aesthetically.

It is perhaps a truism to say that the perfect engineering solution is not necessarily the most pleasing answer to a particular problem. But from this it follows that something more than brilliant engineering is required to make the perfect structure. This something, in this particular context, is perhaps "architecture." Nervi had it in his great exhibition hall, but in the San Ruffilo Ucellino Tobacco Factory at Bologna he seemed to have become consciously "architectural" and the design appeared to us to fall far below his other work. This is a phenomenon which one has observed elsewhere and is perhaps a valid argument for engineers and architects to work together but *not* to combine both functions. In the case of the bridges already mentioned, there was a widespread feeling among the engineers of the party that "in a beautiful valley, arches would have been more pleasing." Here, surely, they were concerned with "architecture." However, the *architects* generally thought the design very satisfying as it was, and perfectly suited to its surroundings.

As can be imagined, our discussions on architecture and engineering were inconclusive, but whatever the aesthetic merits of the Italian system may be, it must have been a contributory factor in the remarkable rapidity of work on the site. Another factor is that despite an abundance of labour all but the very smallest building projects were equipped with tower cranes and other heavy equipment. Within the towns the most interesting works in progress are the new office blocks. The external treatment of these is simple in the extreme and looking at the photographs here back in England it is difficult to understand one's own reactions to them on the spot. The magic has gone. In their setting, they are surrounded by the tremendous noise and bustle of an Italian city with the sun blazing down from a blue sky. From the hot street they look cool and serene. There is a glimpse of a luscious interior through the frameless glass doors. Looking up the facade the natural beauty of colour and texture of marble or stone, or perhaps the pleasing sparkle from the slightly uneven surface of ceramic mosaic shines down. These qualities are usually enhanced by the precise lines of the window frame. The whole structure is finely finished. I would suggest, therefore, that the monotony of these facades as seen on the photographs is quite irrelevant, it is not there when the buildings are seen on the site. The larger ones, such as the Milan Skyscraper, or the headquarters in the same city of Montecatini Lane Rossi or Pirelli, have no need to regard too closely, in the treatment of their facades, the human scale. I think the pseudo-Georgian facades of our own monster office buildings bear witness to the folly of trying to do so. The treatment of the entrance and perhaps some special rooms at ground or first floor level give the necessary scale. Above this the building must bear proper relation to the town plan and to other large buildings and the natural expression of a multiplicity of similar simple units is some such simple and forthright treatment such as we see here.

It is clear that Italian "Big Business" is prepared to provide spacious headquarters buildings, more completely equipped than our own, and decoratively finished in original and individualistic ways. Any comparison with buildings here must take into account a different set of conditions and preferences and a different range of economic building materials. But the office buildings I looked at in some detail —and they were representative of many others—were conceived and carried out to a standard comparable to the "Time-Life" building in London.

To the English observer the extensive use of marble naturally produces an air of luxury. The striking thing, however, was not so much the quantity of marble, but the variety of ways in which it was used. It was, for instance, often laid in courses in random widths to show only the rough edge. In this form some pleasing effects in strong colours and sparkling textures were achieved. This treatment being suitable for both interior and exterior use it was employed in entrance halls to help transition from the street to the offices themselves.

The entrance vestibules were very generously planned and excellently furnished. Large, specially designed, desks for receptionists were the rule and the restrained use of indoor plants, leather seats and concealed lighting combined to give a very pleasant welcome to the visitor. In the Lane Rossi and Pirelli buildings in Milan and the IMI-UIC building in Rome, which I looked at in detail, there was everywhere an air of expensive slightly Scandinavian simplicity. My only important criticism is that the marble and terrazzo floors are so slippery that the visitor, at least, has to walk warily and rather uncomfortably.

Standardization of office furniture and equipment to any extent comparable to our own was not noticeable to the casual visitor. Much of the furniture that I saw had been designed specially for its specific purpose. The desks in the IMI-UIC building, for instance, were designed so that they could be moved about and combined with various other units of furniture. They were provided with grouped outlets so that they could be used for telephones, bells and electric supply. At the end of the day the office chairs were hung on rubber-covered arms which could be swung out from

The foyer of the Palace Hotel, Milan.

under the desk top, so that the floor was kept as clear as possible for cleaning.

After studying architecture elsewhere in Europe it is refreshing to see that the usual clichés are not to the fore. The Italians express themselves predominantly by the inventiveness of their engineering forms and the surprising variety of internal and external finishes in marble, terrazzo, ceramic, plaster and brick. For instance, one finds ceramic mosaic used to cover the whole of a tank structure high up on the top of an office building, or marble used for the *ceiling* of a large hall.

These excellent finishes are by no means used as an easy way to cover up poor design. It was really remarkable among such a large volume of work in city, town and village how comparatively few poorly designed new buildings one saw. I found myself saying "if only we had this marble and stone, think what could be done." But, even given excellent local materials, it would be difficult to match the resource and ingenuity with which they are used. The Italian architects seem to have a real flair for choice of material combined with the ability to perfect the detailing, particularly the junction of one material with another, with a final result giving an impression of effortless simplicity.

In rebuilding the historic parts of cities like Florence, the architects and engineers were faced with the same dilemma as we are in England. Were they to reproduce an exact copy of what was there before? (Such as has been done in Warsaw for instance), or were they to disregard the past and erect new buildings of the highest quality in the vernacular of today? Like ourselves they have had to take into account local opinion; fierce arguments have followed ending in the inevitable compromise.

Summing up, it was my impression that construction was rough, and in the case of walling, bulky in comparison with ours. In places where reinforced concrete was eventually to be hidden by suspended ceilings it was often very rough indeed. Walls of blocks of flats were frequently built of all sorts of rubble mixed with brick and bedded in weak mortar. It may well be that this rather massive rough construction explains the comparative freedom from cracking that was noticeable. I saw no steel frame buildings in course of construction and very little wooden construction. Various ingenious ways of using hollow tiles as permanent shuttering was a feature of housing work, where wooden floors are not used.

The climate, despite extremes of temperature, is not wet like ours and is obviously kinder to buildings. Some of the post-war ones were looking stained and jaded and some had been damaged by hooliganism, but on the whole the widespread use of marble and terrazzo, and hammered finishes to exposed concrete, results in buildings that appear to weather well.

As always, one cannot fail to admire Italian workmanship, but at the moment I would say that the most important thing about the architecture of Italy is its amazing vitality and individualism. As I have said earlier, this is probably at least partly due to the fact that the Italian builders have public opinion and understanding more behind them than those who believe in the new architecture here in England and, partly because of the extremes of distribution of wealth, there were a greater number of buildings where materials and workmanship of the highest class were in demand. We saw nothing comparable with our school programme, but in the other typical fields of building the Italians appeared to be going at their problems with a logic and enthusiasm and a *joie de vivre* which I think we must have had in the great canal and railway building era but seem to have lost in the twentieth century.

This is the fourth article by the JOURNAL *Guest Editors (Costs) for* 1955 : *N. Stanley Farrow, M.I.O.B.; A. W. Cleeve Barr, A.R.I.B.A.; James Nisbet, A.R.I.C.S.; Ivan Tomlin, A.I.B.E.; E. F. L. Brech, B.A., B.Sc., M.I.L.A.. It presents the cost situation in building from both the national and the technical standpoint, and suggests the direction of future change.*

WHY BUILDING COSTS?

In our first two articles we related the story of a fictitious office building contract, a story intended as a slightly caricatured version of what is common experience. We emphasized and commented on those characteristics of the process in which, as we see it, the price of building is higher than it need be and in which costs are not sufficiently under control. The story was followed, last week, by a commentary by one member of our team, E. F. L. Brech who, writing as an outsider to the building industry, brought to bear the " technology " of his own field—management—on the methods and processes described. While the story had, we hope, the merit of being close to " life," it did not allow a systematic assessment of the cost situation. Such an assessment is, we think, necessary for two reasons: first to show to what extent there *is* a cost problem, and to justify thereby our dealing with it at all; and second to indicate the direction in which a solution to the problem might be sought. It is this that we have attempted in the article below.

It seems to be accepted nowadays—both within and outside the industry—that the price of building is causing concern. For evidence there are many reports from investigating committees which have appeared since the war, all dealing broadly with the same problem.* Whether or not these reports stated unequivocally that the price of building was too high, the fact that such reports were required at all suggests both that building is in an unhealthy condition and that it is, perhaps, ripe for change. If committees have been primarily concerned with the examination of procedure and economic machinery in the industry, and with the assessing of its efficiency, there has also been much work done on the technical efficiency of building itself: for instance, the Post War Building Studies series, the National Building Studies which followed them and the research programmes on vital subjects, such as house heating, undertaken by BRS.

All these enquiry committees were mainly concerned with efficiency—the fitness of the building to its purpose, and the fitness of both the technical resources and the contractural procedures of the industry to " deliver the goods." (By " industry " we mean, of course, not only the builders themselves, but also the architects, consultants, sub-contractors and manufacturers who together form the whole team.) Given a defined objective of quality, cost is the measure of efficiency.

Since we, the JOURNAL'S guest editors, are engaged in the industry, our approach to the cost problem will be primarily an internal and a technical one. But to see the problem in perspective we shall first glance briefly at the position building holds in the national economy, to see whether in this tenth year after the war, with full employment still maintained, building " pulls its weight."

Demand and supply

It will hardly be contested that in three vital categories of building—housing, schools and medical buildings—there is still a serious lack of the buildings we need.

The housing shortage features less often in the Press now than it did immediately after the war, but it is far from being satisfied. The Minister of Health in 1943 forecast that four million new dwellings would be needed in the ten years following victory. The number actually built to date (end of 1954) is just short of 1·7 million for England and Wales. Clearly there is a tremendous leeway to be made up. Apart from the provision of new dwellings there is the problem of obsolescence. The government white paper " Houses the Next Step " estimates that there are 13½ million dwellings in Great Britain, of which 7¼ million are

* Simon Report (1944) *The placing and Management Building of Contracts*. Report on The Distribution of Materials and Components (1948). Girdwood Reports (1948, 1950, 1952) *The Cost of House Building*. Girdwood Report (1953) *The Cost of House Maintenance*. Working Party Report on Building (1950) Anglo-American Productivity Team Report (1954). *Joint Committee on Tendering Procedure (1954)*.

rented from private landlords, and of these some 4 million are over 75 years old. Many of them are no doubt accounted for in the miles of " bye-law " streets of our industrial towns; often they are soundly constructed, but are far short of the space and equipment standards that we now regard as minimum. Likewise, the standards postulated in the 1944 Education Act are, eleven years later, still not within sight of attainment, despite advances in the economy of school building technique. Although 1·08 million new school places have been provided between 1945 and 1953, over 48 per cent. of the pupils in primary and secondary schools are still in classes larger than the prescribed minimum of 40 and 30. It was part of the ideal embodied in the Health Act of 1946 that the nation's medical services should no longer be solely curative. They were also to be preventative and among new buildings proposed were a number of health centres which would owe much to the idea of the Peckham experiment. Only a handful of these buildings have so far been put up.

Such then is the gap between demand and supply. But the shortage is not solely due to lack of the money to pay for the buildings. After the first war, amidst the strong national sentiment expressed by " homes fit for heroes," the government of the day subsidized housing on a lavish scale. They relieved authorities of the whole cost of schemes in excess of the yield of a penny rate; but between 1920 and 1925 the number of houses built yearly averaged only 74,000, about 20 per cent. of the number built between 1934 and 1939. The money was there, but the houses were not built. We mention this to show that cost reduction merely to produce more money might not increase building output. The significant aspect of building cost is the measure it affords of efficiency in the process of converting " raw " materials into finished buildings.

The relationship between building price and income has, of course, a bearing on the problem—notably in housing. One could probably define a sound national economy as that in which the prices of the basic necessities of life were commensurate with the average income of the majority. If we take the economic rent of a dwelling as expressing its cost, then the need for housing subsidies to bring rents within reach of the majority suggests either that dwellings cost too much or that people are not getting enough money. The Girdwood Committee gave the cost of a house in 1951 as £1,690 including land, roads, services and fees; for this the economic rent would be 34s. 8d. a week, brought down to 21s. by the Exchequer and local authority subsidy. For the economic rent to be brought down to 21s., building cost must come down to £919.

This suggests that high building costs severely hamper social improvement. And it cannot be said that building costs have outstripped the cost of living, for the Girdwood Committee give the increase in housebuilding cost between 1947 and 1952 as 36 per cent. In the same period the cost of living (expressed by the movement of retail prices) rose 38 per cent.

Although there is less evidence to draw upon, the indications are that in the field of commercial and industrial buildings, developers are deterred by the heavy outlay and tend to make do with what they have got. Many architects must have been approached by a manufacturer who wants new premises for his firm, which is trying to exist in ramshackle tin sheds or converted Victorian terrace houses—buildings whose spatial scheme bears no relationship to the firm's manufacturing process. And then, when time and thought have been given to the job on the drawing board, it has turned out that the firm either cannot afford a factory of the size it needs or its money will run only to an asbestos-sheeted steel frame. This raises the question of quality in relation to cost. By quality we mean standards of space and amenity, of weather-resistance and durability, of insulation and equipment. For it is evident that standards must be set in these matters before the efficiency of the means of attaining them can be measured. In capital cost the asbestos-sheeted frame or the pre-war speculative house may be remarkably cheap but in other respects, not all of them measurable in money terms, they are expensive.

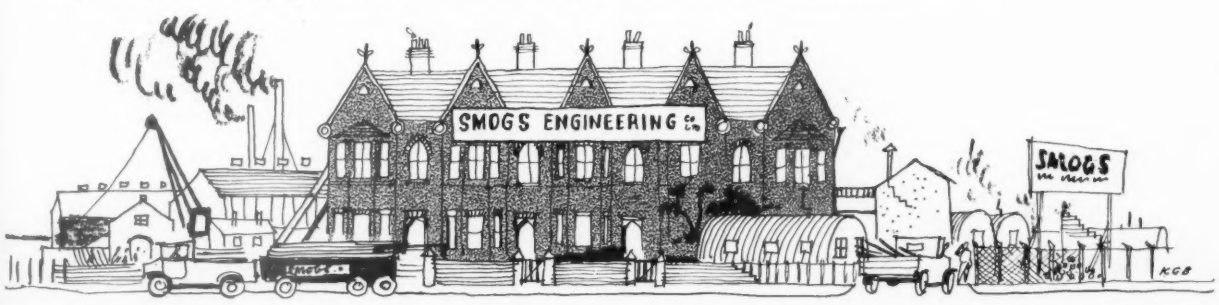
Such are the major signs of the seriousness of the building costs problem. But there are minor signs which are not without significance: the growing tendency, for example, for householders to do their own small repairs and decorations. They discover that while a builder will quote £70 or £80 for the complete repainting of a house interior, they can buy the paint (and a roller) for £12 to £15 and do it themselves.

Cost in the industry

So far we have discussed the familiar signs that building does not seem to " pull its weight " in the national economy. The conclusion from this—even if nothing whatever were known about the *technical* possibility of building more economically—would surely be that economy in building requires investigation. But if it is granted that the price of building is too high, by how much is it too high? How are we to decide what a fair price would be?

To approach this question, let us then consider for

" *Manufacturing firms . . . trying to exist in ramshackle tin sheds, or converted Victorian houses . . .* "



a moment what determines the price of building. To give some idea of where the money goes we show (opposite page) breakdowns for five types of building. The most striking characteristic is clearly the high proportion of cost not in the general contractor's hands. The amount averages some 60 per cent. It consists either of specialist materials and manufactured items whose cost is determined by the manufacturer and is outside architects' and builders' control; or of sub-contracted work, the bulk of which is not normally measured by the quantity surveyor and does not go through the price-checking procedure. Central office overheads, site overheads, preliminaries and profit appear to average about 10-12 per cent., a small amount which could not be reduced very much. So only about 30 per cent. of the cost (labour and materials) comes directly under the control of builder, quantity surveyor and architect. There are two ways of reducing labour and materials costs: first, keen buying in competitive markets, which can make some difference in the cost of materials, but not a great deal; and second, pre-planning, programming, and the effective deployment of plant, which can reduce the number of man-hours spent on building.

There is, of course, another way in which cost may be controlled. This is by the efficient arrangement (by the architect and his consultants) of the constructional fabric of the building to perform its function. This is partly a matter of the ratio of external skin to space provided, partly a matter of the economy and regularity of the structural form, and partly a matter of economy in the site and workshop operations which are required by the constructional system in use. To us, the conclusions to be drawn from all this are these:—(i) Far more detailed knowledge is needed of the way money is " distributed " in buildings, not only in the general contractors' work but in those " lump sum " items shown at the bottom of our scales opposite. The size of these items betrays the growing tendency for more and more building work to become specialized—to pass out of the control of architect and of builder. We shall say more about this later on. (ii) The number of man-hours in both general contractors' and sub-contractors' work must be reduced. As we have suggested this can only be achieved by architect, consultants, contractor and operatives jointly.

So far in this article we have tried to show that: (i) from the national economic point of view, building costs more than it ought; (ii) from the technical point of view it costs more than it need; (iii) the definition of a fair price for building depends first, on the fixing of a standard of quality and second, on the determination of a reasonable level of efficiency in the attainment of that quality. We now go on to discuss economy—the mutual adaptation of ends and means —in the design and assembly process.

Cost in design and construction

Having looked at cost in the contexts of the national economy and of the building industry, we may now give closer attention to the actual designing and putting up of buildings.

First the architect has to solve the problems of accommodation, support, weather protection, heating and lighting. In solving these problems he devises and arranges the construction of the building. Thus already the materials and components to be used, and the sequence of operations required for assembly are, in part, decided, or at least implied. Not until this stage is complete, the building measured and the measurements priced, is its cost known. The defect here—as we tried to show in the office building story—is that in the choosing of materials and constructional method, cost—if it is considered at all—is considered only in vague terms. The architect is not able to know with any precision whether the cost of any element—be it floor finish, roof structure or partition—is commensurate with its constructional importance; or if it claims an undue proportion of the total cost compared with similar elements in similar buildings, or if its capital and maintenance costs bear a relationship to each other fitted to the client's purpose. Costs are not planned with the same control (or in the light of similar comparisons) that is given to the space and the building materials themselves.

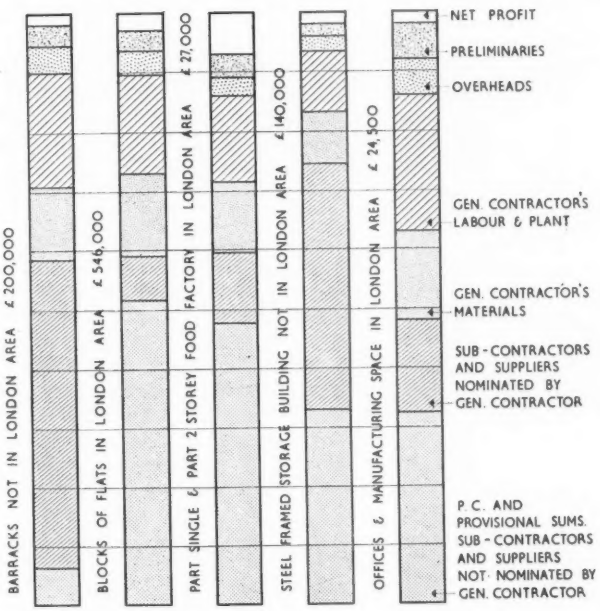
This matter will be considered in later articles, so for the moment we will leave it and pass to construction. The builder orders his material, organizes his labour force in the workshop and on the site, and co-ordinates his sub-contractors and nominated suppliers. Here the defect—as we see it—is not quite such a tidy one. As E. F. L. Brech pointed out in his article last week, the complex sequence of operations is not arranged with sufficient precision or in sufficient detail before it begins, and the programme is not adhered to when work is under way. The great difficulty is that close control involves a whole network of people: architect, builder, quantity surveyor, sub-contractor, operatives, material suppliers and —not least—the client. Whereas control of cost at the *design stage* involves a few closely-related, similarly-situated people; control at the *construction stage* involves a larger and more dispersed group, over a longer period of time. It is therefore the tougher of the two problems. Again we will not spend long on it here, for our only purpose now is to point the moral which both problems suggest.

The moral—as we see it—is that all members of the building team need to take on a rather changed outlook, an outlook which, as E. F. L. Brech explained last week, is now broadly accepted in other industries concerned with manufacture and assembly. (Other industries, be it noted, had a similar fight for a change of outlook—to the one we are now experiencing.) But the demand for a change is evident —demand for building to become less a hand craft and more a *production* job. Strict comparison with other industries must always, of course, be qualified, for building is an out-of-door job, and buildings will remain essentially " purpose made " products. Nevertheless industrialization is beginning to infiltrate. The tendency is for more and more of the building fabric to be factory- or workshop-made, for the contractor's job to become more that of assembly and the co-ordination of specialists.

The governing idea which presses is rationalization, an idea endemic in scientific knowledge and realized in the new materials and techniques made possible by that knowledge. But there is surely another spur to this development, the spur of high costs.

Cost and historical change

These developments seem to have caught us, in the professions and in the industry, unawares; we find we are not trained in the outlook or the knowledge that appear to be



Cost breakdown of five contracts. Note that the total of architect-nominated and contractor-nominated sub-contractors and suppliers tends to remain constant although the relative amounts vary greatly.

demanded of us, and the reason is not difficult to find. Until quite recent times traditional construction—brick and timber—was used for almost all buildings. Its costs were known and stable, its technical resources and site operations were long-established. Its leisurely speed and total price were appropriate to the kind of society in which it had been evolved. This inheritance has survived well into our own phase of mechanical, scientific and urban development and has strongly influenced the training of architects, builders, quantity surveyors and operatives now in their middle years. The service we give to society is then, to this extent, outmoded.

What, in this situation, is the client's position?

Clearly the agrarian trading society has long disappeared and the present commercial and industrial society has a changed, more complex, and infinitely more exacting set of needs. Thus the client is now more often a committee or board of directors charged with building for a large, perhaps remote group of people on a pre-determined budget. In many cases this corporate client has a programme for a defined future period, and thus more than ever he regards building as a business proposition, he is charged to lay out an allocation of money in the most economical way. He is interested, in a sense that his historical predecessors never were, in how quickly building can be done, how long it will last, and in what its capital-, running- and maintenance-costs will be.

Clearly there is a correlation between this new outlook at the "receiving end" of the building process and the pressure towards a new outlook (which we outlined above) at the "production" end. They are both part of the same order of ideas that distinguishes our society from those of previous ages. But neither is able to develop properly. The client is frustrated because he must wait upon a process which, by comparison with processes in other industries, is inefficient; and the full potential of cost planned and economic processes in building are similarly frustrated for want of a procedure and an outlook fitted to their full realization. Can we really blame the client, then, if he insists on too inadequate a time for design or contract preparation?

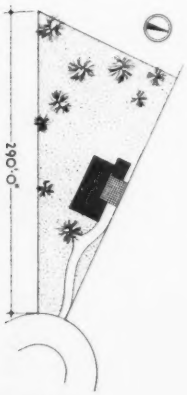
One of the results of this frustration should be mentioned. It is a side-stepping of the customary procedure by a service that offers to a client all the processes in one—design, construction and even in some cases financing. The service may be built round a particular system of construction, and be given by a team of specialists, perhaps including an architect. But he is unlikely to be the leader for the significant sign here is that leadership is being assumed by those who have a short-sighted commercial outlook as distinct from an economic one—economic in the sense that we have used the term. The only point we wish to make about this development is that it has come about in response to a specific and real need. For those who run it and those who avail themselves of its services it is a reasonable and logical step.

Up to now, the architect has based his claim on society upon his ability to find ordered and harmonious solutions to problems of accommodation, on his ability as a planner of space. Up to now emphasis has been on this and upon appeal to the eye. His right to this claim we fully endorse, but if he is to retain leadership he should surely combine with this another claim. Namely that of ability to provide his client with an economic proposition, with an ordered arrangement of space and material in which the relative merits of alternative methods and solutions have been fully investigated, in which a proper balance has been struck between capital and running costs; in which the site and workshop labour is deployed to the greatest advantage. It seems to us abundantly evident that the architect cannot achieve this alone. The initiative may in the first instance be his—for he is still the nominal leader—but full realization requires a concerted change by the architects and quantity surveyors, the specialists and builders and, of course the operatives, working co-operatively.

HOUSE

in GROVEWOOD CLOSE, CHORLEY WOOD, HERTS

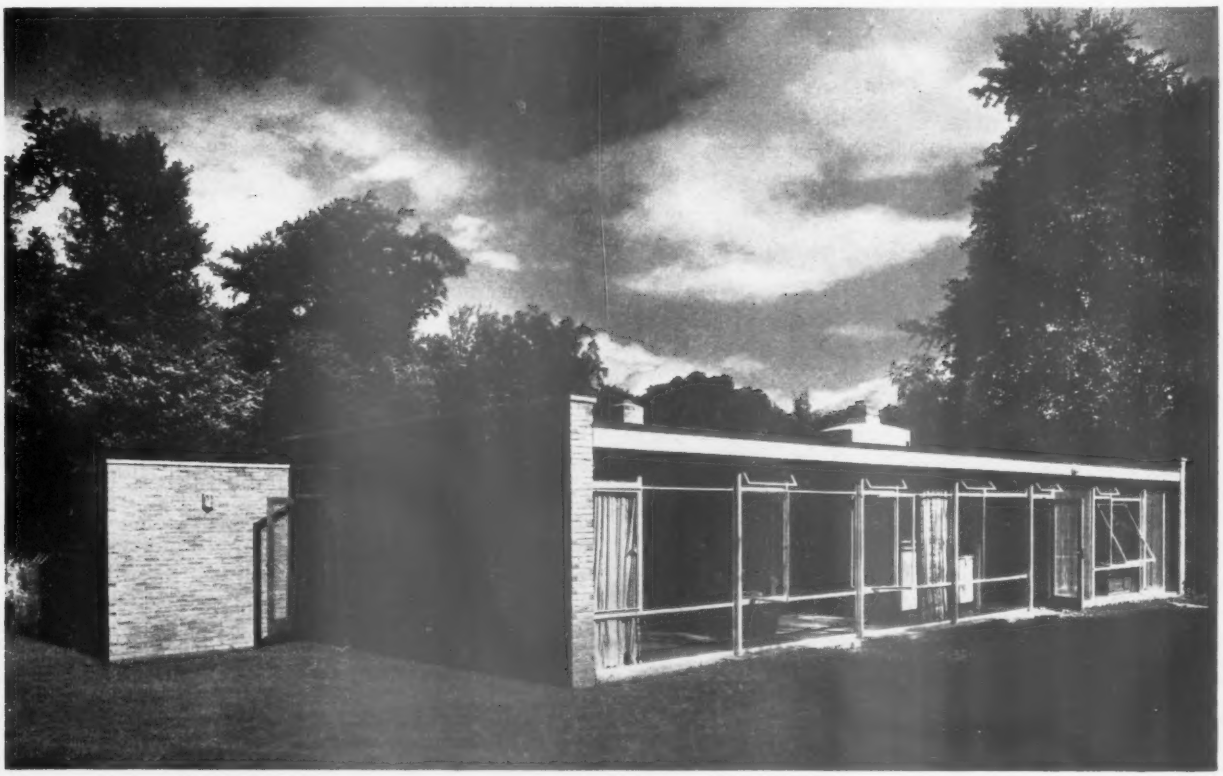
designed by C. B. RATCLIFFE



Site plan

This single-storey house at 49, Grovewood Close, Chorley Wood, was designed by the architect for his own occupation. It was decided that open planning must be the first consideration and that the house should have its main axis east to west with the south wall almost entirely glazed to gain maximum sunshine. The site, which is on high ground, is densely wooded and is surrounded by trees. A small spinney has been retained to the south-west of the house. Radiant floor heating is used throughout the house.

The garden facade from the south-west.



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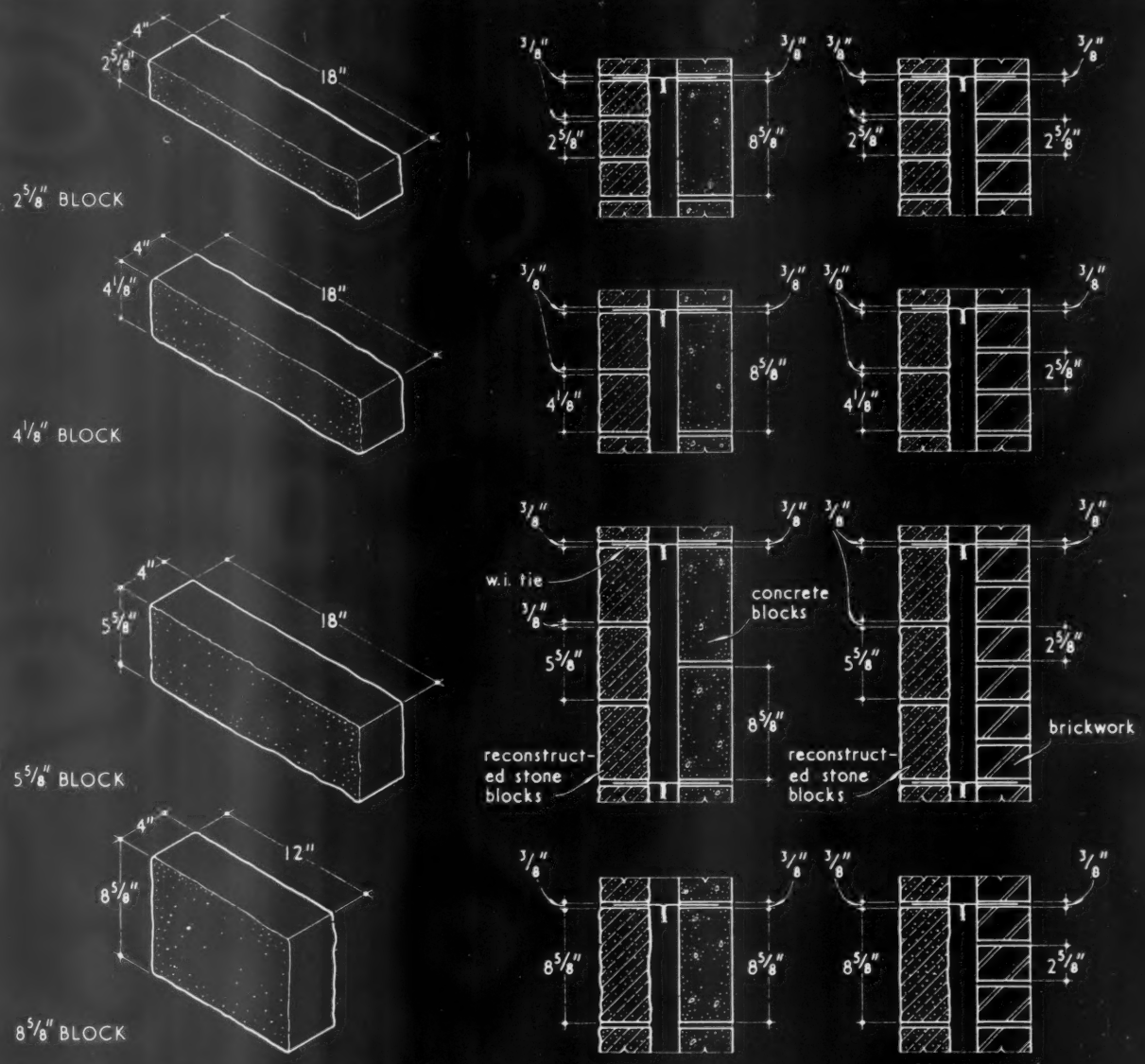
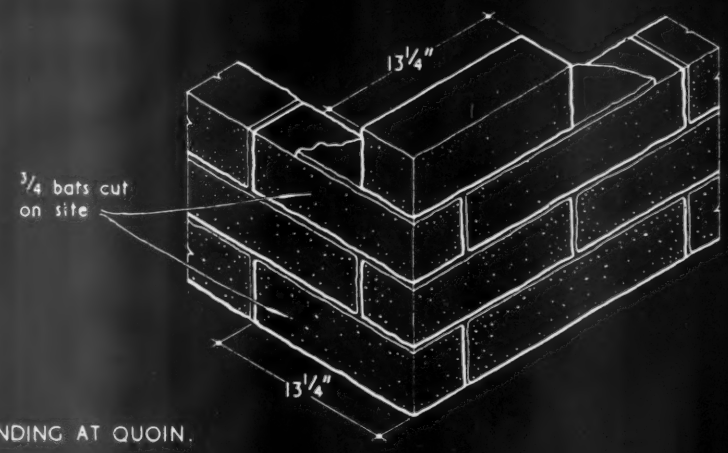
BUILDING BLOCKS | RECONSTRUCTED STONE

The Architects' Journal Library of Information Sheets 507. Editor: Cotterell Butler, A.R.I.B.A.



STANDARD BLOCKS AND APPLICATIONS TO CAVITY WALL CONSTRUCTION.



DETAIL OF BONDING AT QUOIN.

·REFORMITE· RECONSTRUCTED STONE WALLING BLOCKS. Manufacturer: Selleck, Nicholls and Co. Ltd.

14.F1 ·REFORMITE· RECONSTRUCTED STONE WALLING BLOCKS

This Sheet describes Reformite reconstructed stone walling blocks, which are designed to be used as facing or load-bearing units in solid or cavity wall construction.

General

The blocks are dense, durable, non-crazing, and indistinguishable in appearance and properties from natural stone. They are manufactured in a choice of colours derived from natural aggregates, no pigments being used for colouring: the colours are therefore permanent. They may be cut with hammer and bolster in the same way as natural stone and laid in the conventional manner without special tools or apparatus.

Sizes and Weights

Size	Number of blocks per sq. yd. of wall laid with $\frac{3}{8}$-in. joints	Weight of blocks per sq. yd. of wall 4 in. thick
18 in. long × 4 in. thick × $2\frac{5}{8}$ in. high	24	4 cwt. approx.
18 in. × 4 in. × $4\frac{1}{8}$ in. ..	16	
18 in. × 4 in. × $5\frac{5}{8}$ in. ..	12	
12 in. × 4 in. × $8\frac{5}{8}$ in. ..	12	

Crushing Strength

The crushing strength of the blocks complies with B.S.1217 : 1945, "*Cast Stone*."

Drying Shrinkage

The drying shrinkage of the blocks is also in accordance with B.S.1217.

Laying

The upper and lower surfaces of the blocks are indented to provide a key. With a joint of $\frac{3}{8}$-in. thickness the blocks will correspond with $2\frac{5}{8}$-in. bricks or with blocks manufactured to B.S.834, when either of these is to be used for the inner skin of a cavity wall.

Joints may be struck or keyed during laying to obviate subsequent raking out and pointing.

Mortar: The mortar recommended is a gauged mix of 1 : 1 : 6 cement/lime/sand.

Colours

The blocks are available in silver grey, pink and green.

Finish

The finished faces of the blocks are rough-dressed to resemble natural stone.

Ordering

Blocks may be supplied in any of the three colours to any one of the standard sizes or a combination of differing colours and sizes may be ordered. Precise requirements should be clearly stated.

Compiled from information supplied by :

Selleck, Nicholls & Co., Ltd.
Address : East Hill, St. Austell, Cornwall.
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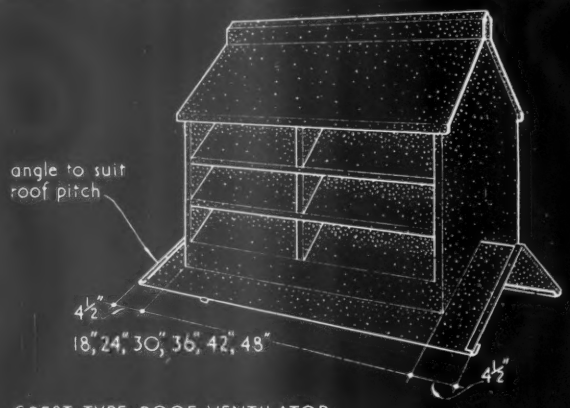
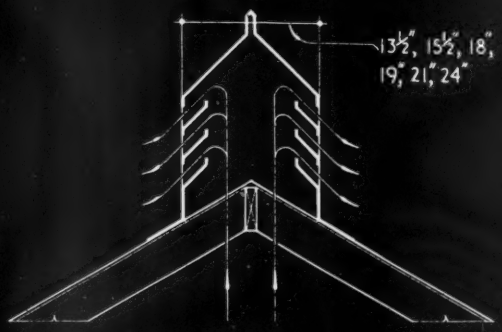
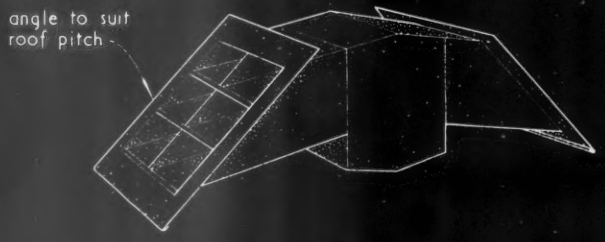
VENTILATION | NATURAL

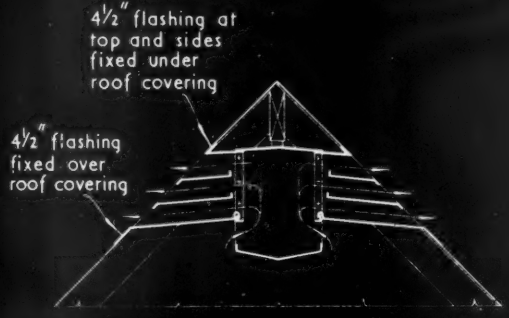
The Architects' Journal Library of Information Sheets 508. Editor: Cotterell Butler, A.R.I.B.A.





CREST TYPE ROOF VENTILATOR.

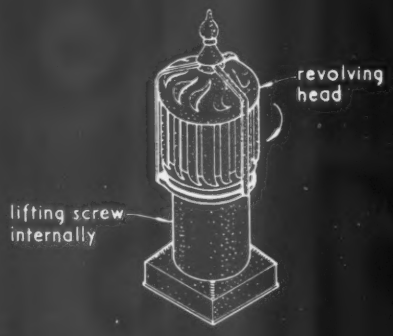




CONCEALED TYPE ROOF VENTILATOR.

dia.of stem	size of base	dia.of stem	size of base	dia.of stem	size of base
6"	8"x 8"	10"	12"x 12"	18"	22"x 22"
8"	10"x10"	12"	15"x15"	21"	24"x24"
9"	11"x 11"	15"	18"x18"	24"	28"x28"

EXTRACTOR VENTILATOR NO. 1107.



dia. of stem	size of base	dia.of stem	size of base	dia.of stem	size of base	dia.of stem	size of base
4"	6"x6"	11"	13½"x13½"	18"	22"x22"	28"	32"x32"
6"	8"x8"	12"	15"x15"	20"	24"x24"	30"	35"x35"
8"	10"x10"	13"	16"x16"	22"	26"x26"	32"	37"x37"
9"	11"x11"	14"	17"x17"	24"	28"x28"	34"	39"x39"
10"	12"x12"	16"	19"x19"	26"	30"x30"	36"	41"x41"

ARCHIMEDEAN VENTILATOR.

TYPICAL EXTRACTOR VENTILATORS. Manufacturer: G. A. Harvey and Co. (London) Ltd.

30.D1 EXTRACTOR VENTILATORS

This Sheet describes a range of extractor ventilators. Those illustrated are typical of the range manufactured. The numbers given are manufacturer's type numbers.

Crest Type Roof Ventilator

This is designed for fixing to pitched roofs, and when ordering, the pitch of the roof and whether it is slated or otherwise should be clearly stated. It operates as an efficient air extractor either with open types of roof or in conjunction with trunking, where the roof space is closed off by means of a ceiling. This type is available in zinc, galvanised steel or copper, in the range of sizes shown on the face of this Sheet.

Concealed Type Roof Ventilator

This is designed to be installed flush with the roof line and is suitable for open or closed roofs. That for an open roof is shown in the drawing on the face of the Sheet. For closed roofs, a duct is provided from the bottom of the ventilator to the ceiling: a condensation tray drained by a small pipe is placed in the top of the duct. The setting of the louvres is arranged to minimise downdraught. This type of ventilator is available in any size in copper, zinc and galvanised mild steel and to suit any pitch of roof, which, together with the type of roof covering, should be stated when ordering.

Extractor Ventilator Type 1107

The example illustrated is typical of a wide range. There are no moving parts and the efficiency does not, therefore, depend on regular servicing. This type is supplied either for fixing to pipes, roof slopes, flat roofs, or at the ridge of pitched roofs and is available in zinc, galvanised steel or copper.

Archimedean Ventilator

This ventilator is designed on the principle of a lifting screw in a circular shaft which is rotated by air currents driving winged vanes. The head revolves on hardened steel bearings in oil reservoirs which are easily filled from the outside. The action of these ventilators is such that they are silent in operation. The head is of tinned steel, enamelled: stems and bases of galvanised steel. The ventilators can also be supplied in copper or zinc. They are made for fixing to existing piping, roof slopes, flat roofs or at the ridge of pitched roofs.

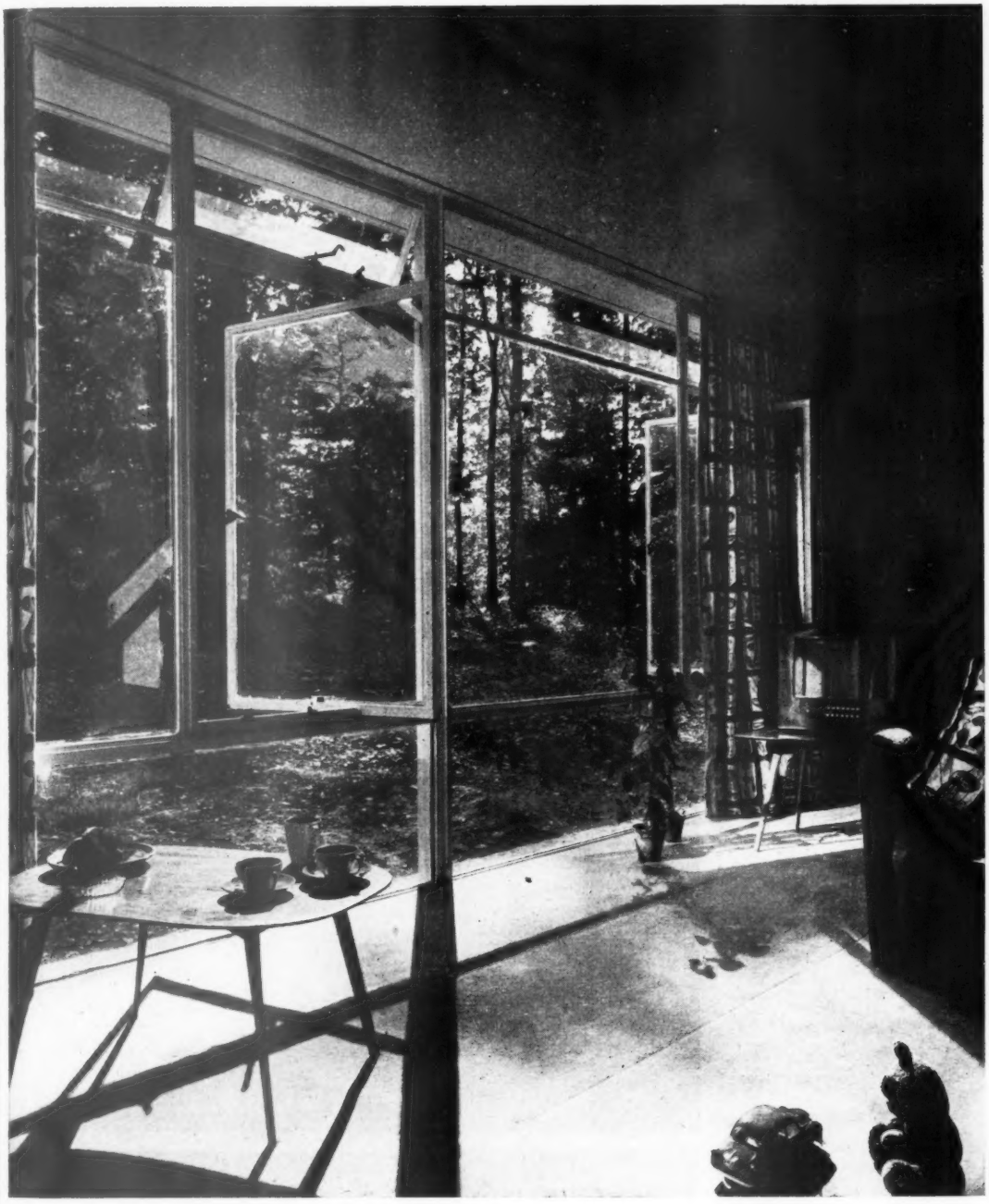
Further Products

Flèche type extractor ventilators with and without weathervanes, lobster-back ventilators, louvre ventilators for roofs, walls and ceilings, air inlet ventilators, tubes and wall panels, ventilation ducts, piping and accessories, perforated ceiling panels, hit-and-miss ventilators, weathervanes, chimneys and smoke cowls including down-draught preventors, tall-boys and elbow pots, elbow chimneys and revolving cowls.

This Series of Sheets deals with tanks, cisterns, bins, bunkers, cycle-racks, non-ferrous metal mouldings, perforated and embossed metals, woven wire screens, steel partitions and furniture, railings, fencing, gates, manhole covers, rainwater goods and ventilators.

Compiled from information supplied by:

G. A. Harvey & Co. (London), Ltd.
Head Office : Greenwich Metal Works, London, S.E.7.
Telephone : Greenwich 3232 (22 lines).
Telegrams : Cheaper, Wol, London.
London Office : 58, Victoria Street, S.W.1.
Telephone : Victoria 4963.

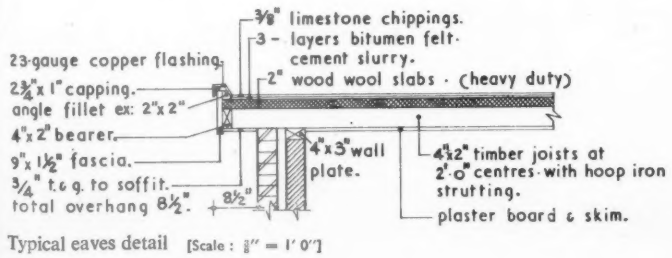


Above, part of the south wall of the living room. The bottom glass panels are double glazed. The curtain track is recessed. Below, right, the north facade, showing main entrance and garage.

HOUSE

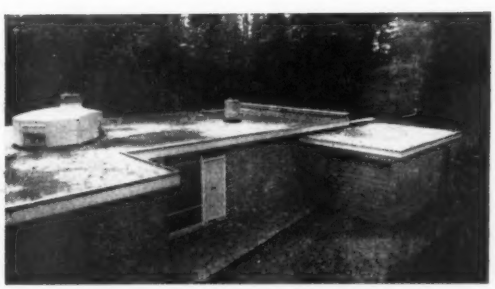
in CHORLEY WOOD, HERTS

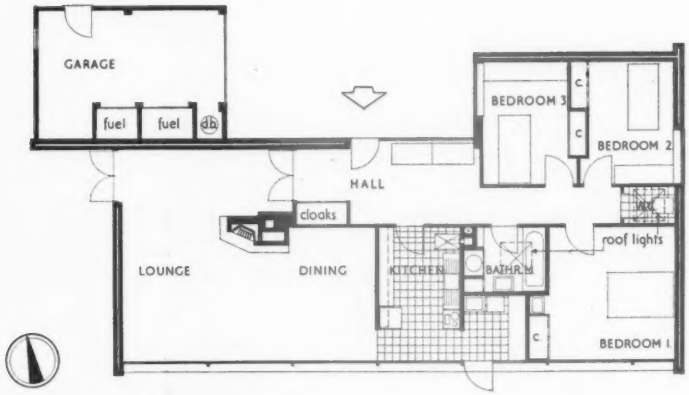
designed by C. B. RATCLIFFE



Typical eaves detail [Scale : ⅜" = 1' 0"]

PLAN.—The service rooms, kitchen and bathroom, are placed between the living area and the bedrooms on the east side. The garage at the north-west corner of the house acts as a shield against the prevailing wind. On the north side of the house





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

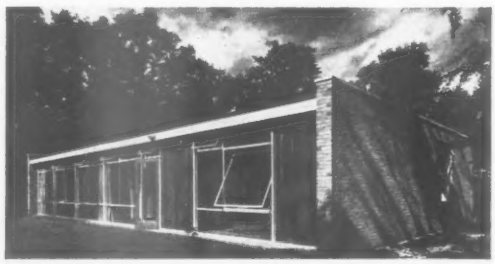
the large window beside the front door lights the hall, which is also used as a work space by the owner.

CONSTRUCTION.—The mass concrete foundations consist of 2-in. site concrete, damp-proof membrane, 4-in. concrete and 1-in. screed. The house is partly steel framed, with 2⅜-in. diameter columns at 8 ft. 3 in. centres, and beams consisting of two 4-in. by 2-in. channels placed back to back, designed to reduce the roof depth to a minimum. It was originally intended to use 3-in. channel-reinforced woodwool slabs in 8 ft. 3 in. lengths for the roof, but these proved too expensive and the architect reverted to 5-in. by 2-in. joists at 2-ft. centres. Solid external walls have an outer skin of 2-in. Dutch facing bricks and an inner skin of 4¼-in. breeze blocks.

FINISHES.—The roof is finished with 2 ply bitumen felt and ⅜-in. limestone chippings and ceilings are of ½-in. Swedish insulation board for thermal insulation. Internal partitions are of 3-in. breeze blocks. Metal windows have ¼-in. plate glass in the large squares, 32 oz. glass in smaller squares and double glazing in bottom panels of living room and hall windows. Floor finishes in living room, hall and bedrooms are of dustproof cement screed and in kitchen, utility room, bathroom and W.C., thermoplastic tiles. All screeded floors are close-carpeted. To form a heat barrier around the perimeter of the building for the floor slab, 1-in. thick cork slabs 2 ft. wide were stuck to the site slab with hot bitumen, and a 6-in. upstand of cork was also provided. Walls and ceilings are plastered and finished with emulsion paint. The shelf over the fireplace is of ¾-in. Rosso Levanto marble, cut to take a tray for indoor plants. Built-in wardrobes are used as a partition between bedrooms 2 and 3. On the south side, where glazing was not required, the metal frames are filled with hardwood panels of 1-in. thick in 2 in. widths, left natural and oiled and nailed to 1½-in. sq. softwood framing. The fascia is 9-in. by 1½-in., with a 2-in. capping; and end walls have 2-in. copings of clipsham stone.

SERVICES.—The heating throughout is by floor panels consisting of iron pipes embedded in the 4-in. thick slab, with supplementary wall panels. The automatic boiler, with mixing valve and accelerator pump, is located in the kitchen, and there is a central flue around which is grouped the plumbing. The tank room is over this service core. It is hoped to describe the heating system in a later issue of the JOURNAL. The area of the house is 1,310 sq. ft. and the contract price £4,913, including the heating layout, but excluding the garage. The cost per ft. sq. is approximately £3 15s. General contractors, Meacham Estates Ltd. Sub-contractors, page 250.

Below, right, the south facade, which was illustrated as a Working Detail in the JOURNAL *for January 27, 1955. Below, two views of the living area. The floor is close carpeted over heating panels embedded in the concrete floor slab. The fireplace and chimney breast are faced with fair-faced brickwork.*



TECHNICAL SECTION

A recent bulletin in the LMBA's Technical Information Service on Internal Decorating, discusses how the painting contractor can best meet the current tendency for more and more clients to do their own decorating. The answer they propose, sensibly enough, is the increasing use by the professionals of new mechanical equipment. They point out that the market is now stocked with spray guns, paint rollers, mechanical sanders and wire brushes, paint washing machines, steam wallpaper strippers, electric and gas paint strippers, wallpaper pasting machines and mechanical floor scrubbers and polishers, and ask how many of these aids have been seriously investigated? This question is answered by implication by the fact that the only one of these aids for which they can quote cost figures is the paint roller. These figures depend on the proportion of flat to moulded surfaces, but (the bulletin states) there are few jobs of reasonable size where the saving does not approach 10 per cent. of the total cost of the work and in special cases this saving can rise to 25 per cent. Bearing in mind that this is only one out of many possible aids and that in painting work, labour counts for four-fifths of the total cost, it will be seen that a really well-equipped paint-contracting industry may yet save the poor amateur the nuisance of not only having to make his own botch but to keep seeing it afterwards.

This week's special feature

10 DESIGN: BUILDING TYPES
the rehabilitation of rural schools:
3 sewage treatment

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

In our issues of January 6 and January 27 Cecil Handisyde discussed the general problems which beset an architect who has a rural school to bring up to date. This week, for the third and last article in the series, he hands over to a specialist, Frank Crabb of BRS, to discuss the question of sewage disposal.

It is the rule rather than the exception for rural schools to have no main drainage and for sewage disposal to be one of the matters calling for attention in any scheme for rehabilitation. From the outset the point must be made that, where costs allow, the specialist engineer should be called in, as efficient working depends on the particular site conditions of each case. The object of these notes, however, is to give some help to the architect where he has no specialist to assist.

It will be noticed that Statutory Instrument No. 473 of 1954 allows for the use of a cesspool. These should be avoided wherever possible and are not in fact discussed here as they are only a means for the storage of sewage and not for its treatment.

PRELIMINARIES AND SITING

Very briefly, the principles of sewage treatment are that it must first be discharged into a septic tank in which it is retained long enough for solids to settle and for anaerobic

bacterial action to transform some of the solid matter into liquids and gases; this process leaves at the bottom a black sludge, and at the top a thick scum, which have to be removed about every 6 months. The effluent from this tank must then be given a secondary treatment, which may be either in a biological filter or on the land. In practice, however, biological treatment is much to be preferred over land irrigation and this form alone is discussed in this article. It is assumed for the plants described that there is a piped water supply to operate the water carriage of sewage to the plant; that surface water and subsoil water are excluded from the foul drains, and that a certain amount of regular maintenance will be carried out.

Before designing the treatment plant, there are various matters on which information must be obtained, and the most important of these are:—

(1) The number of full-time and part-time inhabitants of the buildings concerned—these will of course in the case of schools be almost entirely part-time.

(2) The ground levels and contours of the site which will indicate whether the plant can operate entirely by gravity, or whether pumping may be necessary.

(3) The facilities for access for vehicles to the proposed site, and the local cesspool-emptying services.

(4) Particulars of the highest known flood level and minimum flow of any stream or other natural water course to which discharge of the effluent may be possible.

(5) The requirements of the Local Authority or River Board as to the discharge of effluent.

The treatment plant should always be sited as far from the building as possible, and (due consideration being given to the local flood level and the necessity for road access to the septic tank) at the lower end of the site. For schools up to 50 pupils the absolute minimum distance from the building should be 50 ft. and this minimum must be proportionately increased up to 200 ft. for schools of 200 pupils. It is advisable to fence the plant to prevent interference by children.

THE SEPTIC TANK

The simplest type of septic tank consists of a rectangular brick or concrete chamber 5 to 6 ft. deep from the water line, and having its length about three times its width.

For populations above, say, 150 part-time occupants, it is preferable to divide the total capacity between two tanks operating in parallel, and for the smaller tanks, the performance is often improved by dividing the tank into compartments, of which the first should contain about ⅔ of the total capacity. To calculate the size of tank required, the following formula may be used:—

$$C = (10N + 200) \text{ gallons}$$

Where C = capacity of tank in gallons
N = number of pupils in part-time occupation

This is very nearly equal to (1·6N + 32) cub. ft., which is perhaps a more convenient form. Table 1 gives suggested dimensions for septic tanks, based on the above formula.

Septic tanks should always be covered. A convenient form of cover consists of reinforced concrete slabs resting on the walls, and provided with lifting rings; ventilation is important to allow the escape of gases which may be explosive and the cover slabs should be spaced slightly apart to ensure this. If the tank has an "in situ" concrete cover, ventilated manhole covers should be fixed over the inlet and outlet both to provide this ventilation and also to facilitate tank emptying and clearing of the dip-pipes.

The tank walls should be built of engineering bricks (at least to equal Class B of B.S. 1301) in cement mortar, and the floor of 1:2:4 concrete. The walls should be rendered inside with cement mortar if ordinary bricks are used. A sump extending right across the tank should be provided in the floor at about ¼ the length from the inlet end and the floor should slope down towards this sump from each end. Fig. 1 shows a typical single tank.

No. of pupils	Single Tank			Each of two parallel tanks		
	Length	Width	Depth	Length	Width	Depth
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
20	5 9	2 3	5 0	—	—	—
40	7 9	2 6	5 0	—	—	—
60	7 9	2 9	6 0	—	—	—
80	9 0	3 0	6 0	—	—	—
100	10 0	3 3	6 0	—	—	—
120	10 9	3 6	6 0	—	—	—
140	11 3	3 9	6 0	7 9	2 9	6 0
160	12 0	4 0	6 0	8 9	2 9	6 0
180	12 6	4 3	6 0	9 0	3 0	6 0
200	13 0	4 6	6 0	9 0	3 3	6 0

Table 1. Suggested dimensions for septic tanks.

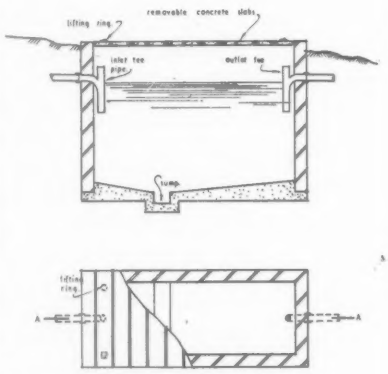


Fig. 1. Long section and plan of single tank.

The inlet and outlet of a septic tank should be so designed that the inflow of crude sewage and the outflow of clarified liquid will take place with the least possible disturbance of the settled sludge or the surface scum; for tanks less than 4 ft. wide this can be satisfactorily achieved by using for both inlet and outlet a vertical cast iron dip-pipe built into the tank wall so that the upper limb extends above the scum level, and the lower limb about 18 in. below liquid level. These may be made with standard cast iron Tee pipes, as Fig. 2 or with Tee pipes specially made for this purpose, which are obtainable, and are shown in Figs. 1 and 4.

For tanks wider than 4 ft., or for duplicate tanks in parallel, the inlet should consist of a channel from which are fed two or more dip-pipes. An alternative to dip-pipes in these cases could be cast-iron bends discharging about 15 to 18 in. below water level and protected by a baffle to minimize turbulence. (See Figs. 3 and 4.)

Outlets of tanks over 4 ft. wide provide a more even flow of effluent and are more efficient if made in the form of a weir extending the full width of the tank, with a scum board fixed 6 in. from the weir and having 18 in. of its depth submerged and at least 6 in. extending above weir level. (See

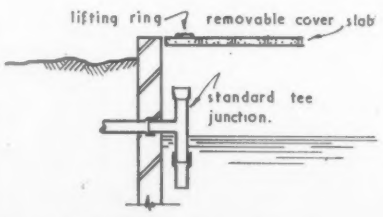
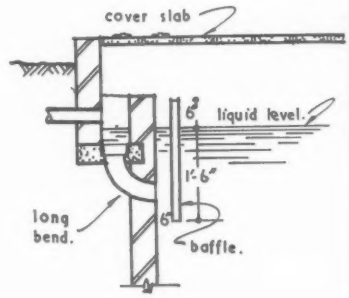


Fig. 2. Dip pipe formed from standard tee junction.



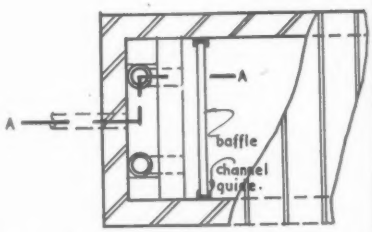
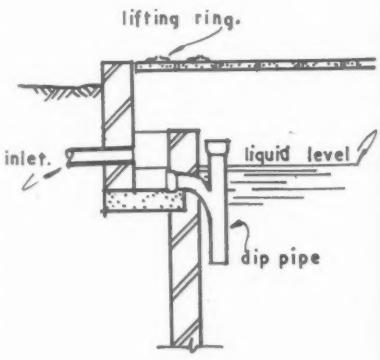


Fig. 3. Wide tank channel inlet showing the use of cast iron bends in place of dip pipes.



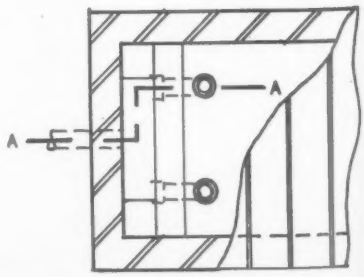
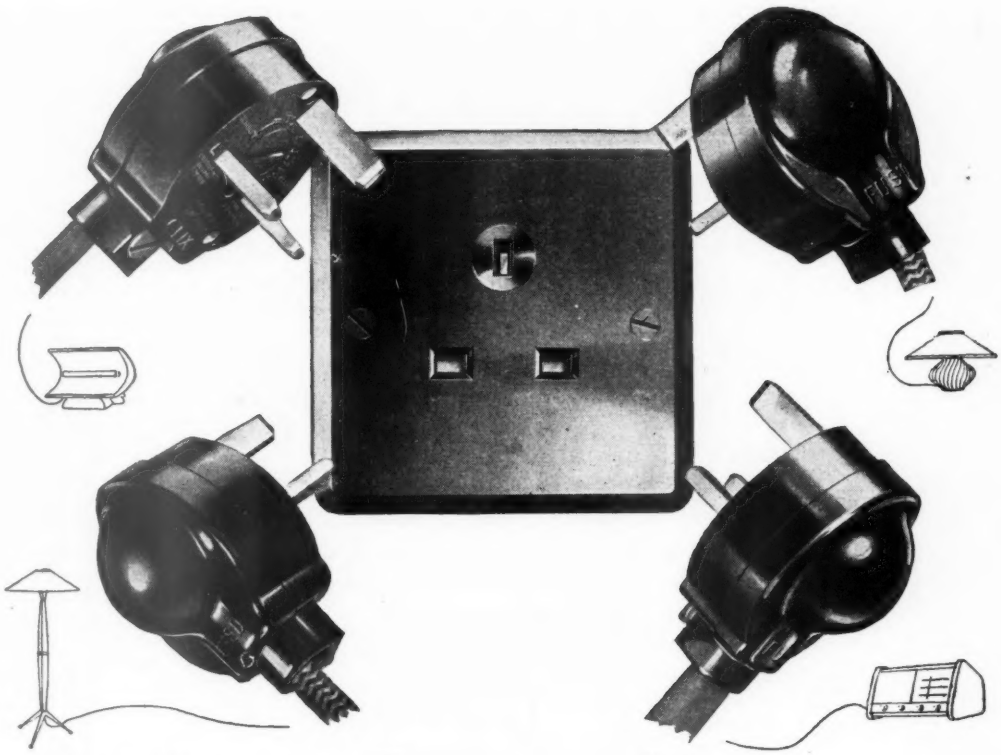


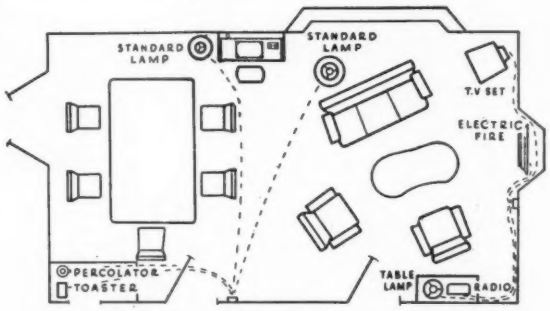
Fig. 4. Channel inlet with dip pipes.



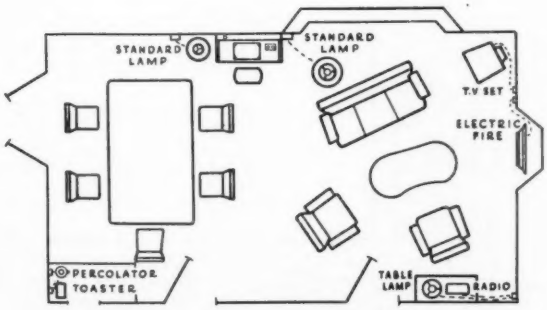
4 into 1 *won't* go...

...so be generous when specifying the number of Socket Outlets for each room.

THE Windsor range of Ediswan Wiring Accessories includes all types of 13 amp. Socket Outlets, Switch Socket Outlets and rectangular pin fused Plugs required for normal installations—quality Accessories at competitive prices. Remember also that Ediswan manufacture a Plug which can be re-fused in 15 seconds.



Insufficient socket outlets wrongly placed. Note the long trailing flexibles running dangerously across doorways and "traffic ways".



Correct arrangement of socket outlets. Long flexibles and inconvenient adaptors are avoided.

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E.37

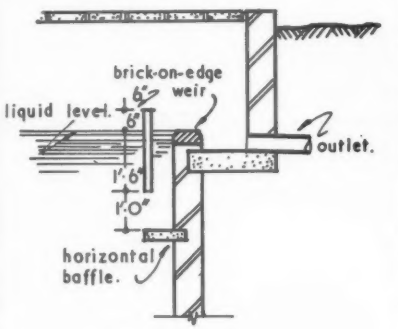
Fig. 5.) It is important that the invert of the inlet pipe in all cases should not be below, nor more than one inch above the liquid level in the tank; also that the final length of drain should if possible be laid at a gradient which will not give a flow velocity of more than 3 ft. per second.

The sludge will have to be removed from the tank at intervals of about six months, and to do this the tank should be completely emptied by means of a cesspool-emptying vehicle. If circumstances make it impossible to use this means of emptying, the sludge may be pumped or gravitated into a lagoon or trenches which should have a capacity equal to that of the tank. When dried out, the sludge may be used as garden manure.

THE BIOLOGICAL FILTER

This consists of an enclosure filled with a medium such as hard-burnt clinker over which the effluent from the septic tank is sprinkled so that it trickles from the top to the bottom. The surfaces of the medium will become coated with an organic film which assimilates and oxidizes a great deal of the impurities in the tank effluent.

A biological filter should be about 6 ft. deep, with a concrete floor laid to suitable falls to ensure the drainage of the effluent to the discharge channels; the walls are usually of brickwork. The shape may be rectangular or circular, generally depending on the type of distribution employed; for the simpler forms of static distributor the rectangular shape is best, and for a rotating-



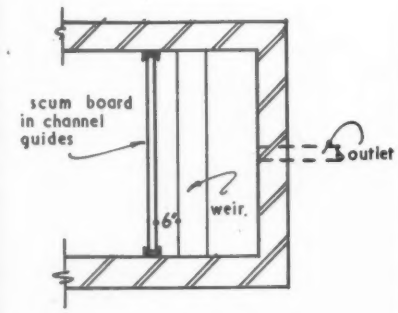


Fig. 5. Wide tank with weir type cutlet.

arm distributor a circular shape is more convenient. The process is aerobic and it is very important that the filter is adequately ventilated. Aeration of the medium must be ensured by laying on the floor a system of field drains or glazed-ware half channels laid upside down and open-jointed. These under-drains should have direct communication with the atmosphere.

The filter should not be covered, but protection by wire netting is useful to keep out falling leaves, etc.

The size of the filter may be taken as ½ cube yard of medium per head of part-time population—which gives for a 6 ft. deep filter, a range of sizes from 45 sq. ft. for 20 pupils to 450 sq. ft. (or 22 ft. 6 in. dia. if circular) for 200 pupils (assuming 6 ft. of depth). A rectangular filter may be built adjacent to a septic tank, using one wall as a common wall between the two.

The most suitable materials for the filter medium are:—hard-burnt clinker; washed quartzite gravel; hard broken stone, blast-furnace or old iron ball slag; and the material should comply with the requirements of B.S. 1438 (1948). The efficiency of the filter depends a great deal on careful grading of the medium; the lowest six inches should be 4 in. to 6 in. gauge, and the remainder 2 in. nominal maximum size, i.e., the percentages passing various sieves should be within the following limits:

Passing B.S. sieve	Per cent.
In.	
2½	100
2	85—100
1½	0— 30
1	0— 5

Table 2. Grading of the filter medium.

The tank effluent must be distributed evenly over the surface of the filter medium, and in the case of a rectangular filter, this may be done by directing the flow into a series of fixed channels of metal or reinforced concrete, having notches in their sides through which the effluent overflows on to the filter. These channels must be very carefully levelled to ensure equality of distribution over the whole filter, and they must be fed by a tipping trough or similar mechanism arranged to give them intermittent doses of effluent. (See Fig. 6.)

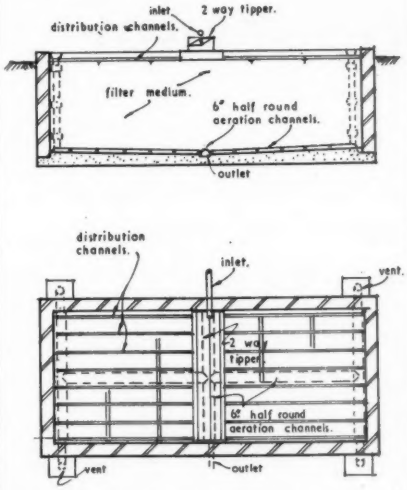


Fig. 6. Rectangular type biological filter.

A circular filter is better adapted to the use of a revolving distributor consisting of one or more radial arms which rotate around the centre of the filter and sprinkle the effluent over the surface of the medium.

There are various types of these on the market, most of which are self-dosing and self-propelling. Generally speaking the rotating distributor will require a larger hydraulic head to operate it than the fixed type.

The effluent from a biological filter will always contain a putrefactive by-product of the bacterial action, known as humus, and it is desirable that this is removed before discharging to a watercourse, or, in suitable ground, to a soakaway. For the small plants under consideration, this is best done by surface-irrigation over grass or contour-ploughed land, using an area of 1 to 3 sq. yds. per pupil.

If the levels are such that the plant cannot function by gravity, it will be necessary to install a small pump to lift the septic tank effluent to the biological filter, and this should preferably be electrically-driven and automatically controlled by a switch actuated by the level of the liquid in the pump well. In the absence of electric power, a petrol or oil-driven pump must be used and operated, say, once a day; in this case the pump-well should have a capacity of one day's flow, and the pump should deliver this in six hours.

MAINTENANCE

It will be obvious, and it cannot be stressed too emphatically, that regular and intelligent maintenance must be provided if the treatment plant is to work efficiently. The main points to which regular attention must be given are:—

(1) The de-sludging of the tank every six months.

(2) Keeping the filter distributor free from obstructions which would prevent the free and even flow of the tank effluent.

(3) Maintenance of mechanical plant—e.g., tippers, rotary distributors, pumps, etc.

(4) Inspection of the filter medium, and if it becomes clogged with organic matter, either removing weed growths from the surface, loosening the surface with a fork, or hosing down.

(5) Generally keeping the plant clean and tidy.

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.

10.121 design: building types
POLICE STATIONS

Memorandum on the Design and Construction of Police Stations. Home Office. (HMSO 1955. 1s. 6d.).

Good general notes and tabulated data on accommodation. Appendix deals with requirements of detention cells in some detail.

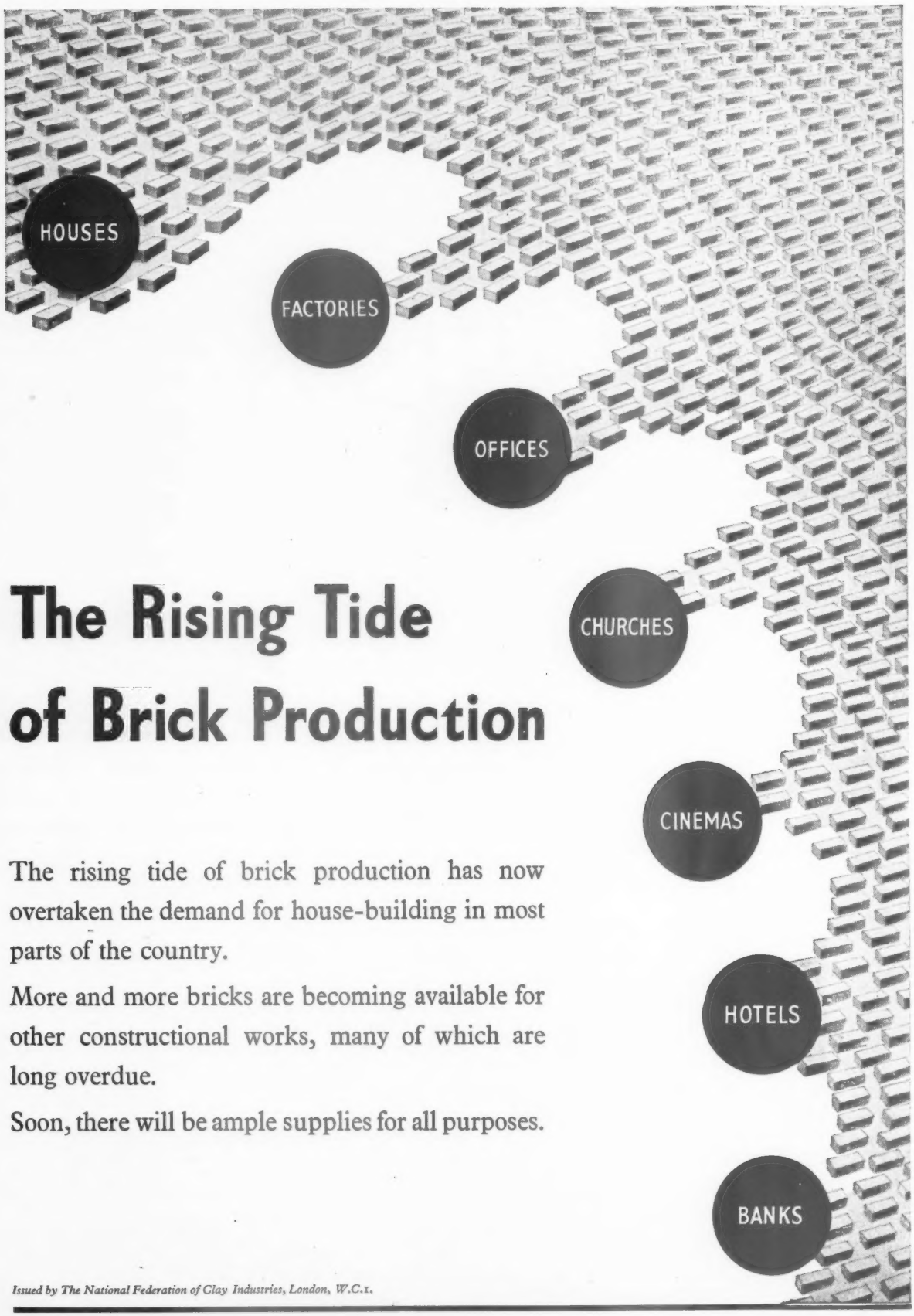
11.40 materials: general
ASBESTOS CEMENT FLUES

Asbestos Cement Flue Pipes and Fittings—Heavy Quality. B.S. 835:1954. *Asbestos Cement Flue Pipes and Fittings—Light Quality.* B.S. 567:1954. (British Standards Institution: 5s. each.)

These are revisions of earlier Standards and the only change is the inclusion of hydraulic parts for fittings.

Why must there be two separate publications instead of a combined one? Much of the material is word for word the same in the two documents and anyway it must be

(*continued on page* 247)



The Rising Tide of Brick Production

The rising tide of brick production has now overtaken the demand for house-building in most parts of the country.

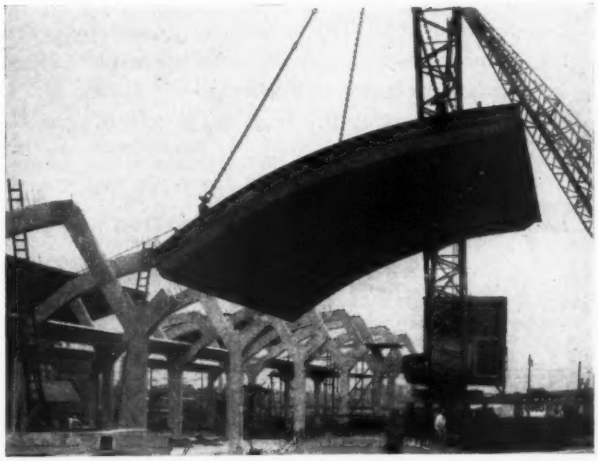
More and more bricks are becoming available for other constructional works, many of which are long overdue.

Soon, there will be ample supplies for all purposes.

Issued by The National Federation of Clay Industries, London, W.C.1.

WORKSHOP BLOCK AT KINGSTON-UPON-HULL TECHNICAL COLLEGE

The workshop block is the first stage of a new Technical College designed for the Hull Corporation Education Dept. by Frederick Gibberd. It comprises a single-storey building 312 ft. long and 192 ft. wide planned on a 24-ft. square grid, and is divided into four blocks by 12-ft. corridors running the width of the building. The whole construction is in precast prestressed and ordinary reinforced concrete. The foundations were difficult as part of the site lay over the old dock and the frames and ground floor were carried on piles. The suspended floor contains a system of main and subsidiary ducts throughout its area to accommodate the various services, the ducts being so arranged as to form the main beams of the floor construction. The superstructure consists of a series of shell roofs supported on precast prestressed frames to provide a north-light construction. The main frames were built up with the precast units to form eight bay continous portal frames. There were only two basic units: (i) a combined column and north-light strut and (ii) the curved rib. The units, which were cast with pre-formed holes were placed in position by means of Scotch derricks (right). High-tensile steel bars were inserted, the joints concreted, the bars stressed and finally grouted. Gutter units were precast on the site, pretensioned sufficiently to withstand handling stresses and finally post-tensioned when in position. These gutter units, when connected to the main frames, make a series of portal frames laterally. Each unit of the shell roof is 2½ in. thick by 16 ft. by 24 ft. spanning in the 24 ft. direction, and weighs about 7 tons. These units are all precast and pretensioned. In view of their size they were cast on the site, in batches of eight, on a prestressing bed which was set up in a bay of the previously constructed ground floor (above, top left-hand corner). Eight gutter units were cast simultaneously with eight roof units. The roof units were fixed by laying them on the frames, clamping them down, and placing a filling of in-situ *concrete between adjacent units over the frame ribs. The wires were stressed in pairs by the travelling jack which has a compensating device in the*



WHY SHOULD A FACTORY WITH INSULATION COST LESS THAN ONE WITHOUT?

The newly-erected B.S.A. factory at Dowlais, Merthyr Tydfil, gives the answer.

Uninsulated, the thermal transmittance of the corrugated sheet roof would have been 1.40: lined with ½" Lloyd Insulation Board it is 0.32—a clear saving of 1.08 B.Th.U/sq. ft./°F/hour.

In other words, the insulating efficiency of the roof is increased by 75%. This means that considerably less fuel is needed to keep the building warm and a much smaller boiler plant could be installed. It also means that a capital saving has been made which is nearly double the cost of insulation.

Calculated in terms of the balance sheet this shows:

A saving on building costs of nearly £9,000
SO INSULATION SAVES CAPITAL

A yearly saving on fuel costs of about £1,500
SO INSULATION PAYS REGULAR DIVIDENDS

Apart from the actual saving in costs, Lloyd Insulation has other advantages: lighting is better and more even: solar radiation is reduced in summer so less air circulation plant is needed: and with the Lloyd fixing systems an existing factory can be insulated *without interrupting production.*

For more information about **Lloyd Insulation** *have a word with*

BOWATERS BUILDING BOARDS LIMITED

Bowater House, Stratton Street, London, W.1. Telephone: GROsvenor 4161.

WORKSHOP BLOCK AT KINGSTON-UPON-HULL (continued)

gripping head. The load was simultaneously taken up on the tie bars 5 ft. below ground to ensure that the plated channel uprights remain vertical. To de-tension, the loads on the tie bars were gradually released and the entire head arrangement was allowed to pivot about the rocker bearings until all the load was released. An interesting and essential feature was the early consultation between architects, consulting engineers and contractors. The major erection problems were solved before work started and enabled the contractor to progress, almost from the beginning, at a rate of eight bays of superstructure every two weeks. The consulting engineers were Scott & Wilson, Kirkpatrick & Partners, the contractors William Moss & Sons, Ltd.

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an expensive way of circulating information as surely most people needing either B.S. will require both. Also it is tiresome for filing and annoying for reference purposes. B.S. 567 says: "these light quality pipes and fittings should not be used for solid fuel appliances." Presumably, therefore, the conscientious architect then rushes off to buy B.S. 835 but he then finds in the latter document that: "for a slow-combustion stove or heater the first 6 ft. of flue pipe should be of metal." While this is, of course, quite correct, it seems unnecessary to buy two documents at 5s. each to find it out.

18.159 construction: theory
REINFORCED CONCRETE DESIGN

Preferred Dimensions of Reinforced Concrete Structural Members. BS 2539-1954. (British Standard Institution. 1954. 2s.)

British Standard dealing with suitable dimensions for shuttered faces of reinforced concrete structural members, excluding light precast members, based on recommendations published by the Reinforced Concrete Association in 1946.

It is doubtful whether this Standard will be employed by the average architect. In the majority of building work sizes are kept down to a minimum and every extra half inch offered to the engineer is accepted with gratitude. To suggest that sizes be varied by multiples of 1½ in. or 3 in. is in many cases absurd. The Standard only appears to be of use where the architect has unlimited choice of structure and where use of the recommended sizes will have a marked economy on the job.

24.186 lighting
ARTIFICIAL LIGHTING FOR JELLY JAM INSPECTION

Lighting for Jelly and Jam Inspection. IES Lighting. (Data Sheet 5-3 Journal of Illuminating Engineering Society (USA), July, 1954.)

In the USA factory-inspection of jams, jellies and preserves is usually carried out by flowing the product over a stainless steel table with a high level of illumination (30-100 lumens per sq. ft.) directed on to the upper surface of the product. Removal of foreign material in these circumstances is difficult because the foreign matter is generally of the same order of brightness and colour as the sound fruit. The installation briefly described in this article shows an attempt to make inspection easier by revealing foreign impurities in silhouette.

The installation consists of two 36 in. "de-luxe warm white" fluorescent lamps mounted underneath (4 in. below) an inspection table with a ⅜ in. glass bottom, sand blasted to provide an even brightness of light. The jam or jelly flows over the surface of the table to a maximum depth of 4 in. and with the illumination provided the inspection procedure is to detect and remove dark black objects from a field of slightly glowing red sound fruit. It is said that with this form of lighting the Company concerned found that one operator without extensive experience can sort and inspect as much jam as four experienced operators working with plant which uses the more customary opaque inspection tables.

The article is of particular interest in demonstrating the value of a careful appraisal of the exact nature of the visual task when lighting for inspection purposes.

24.187 lighting
EXIT SIGNS

Exit Signs. BS 2560:1944 (British Standards Institution. 3s.)

Experiments in one of the largest cinemas in Britain have shown that the lettering "EXIT" incorporated in the illuminated box sign specified in this standard is more legible than that in current signs. . . despite the fact that the height of the letters is appreciably less than that of most existing signs.

Since the standard establishes the dimensions necessary to enable the manufacture for stock of standard lettered panels, with their accompanying diffusers and colour filters, users will benefit from easier replacement of worn or damaged parts. The dimensional and constructional details specified are those necessary to ensure safety and efficiency; the standard does not limit individuality in the design of the housing.

The signs are suitable either for surface mounting on a wall or for recessing into a wall. They may be illuminated by electricity, gas, or other forms of illuminant and the provisions laid down for two alternative forms of illumination in any one sign are in accordance with the requirements of the Cinematograph Regulations.

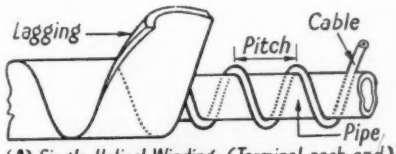
THE INDUSTRY

From the Industry this week Brian Grant reports on a new pipe heater, a bus shelter, lighting trunking, a booklet on the fixing of tiles and a catalogue of soil drainage fittings.

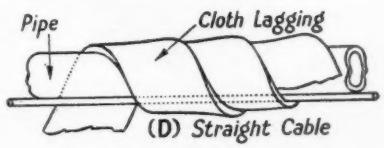
PREVENTING FROZEN PIPES

Every architect presumably knows how to run rising mains and general plumbing in a proper way to avoid freezing, but there are many alteration and modernization jobs where the main runs up an external wall with the usual turn in the roof space where it is most exposed to eaves draughts. On most jobs some relatively simple form of insulation is the answer, but there may be times when a pipe is too close to the wall for an adequate thickness to be applied. This would be a good case for the Warm-Glow pipe heater which is produced by a firm which has for many years been making

"Warm-Glow" pipe heating cables.



(A) Single Helical Winding (Terminal each end)



(D) Straight Cable

the trend is to Fuel Oil

More and more architects are specifying oil firing for central heating plants in blocks of flats, hotels, offices and similar large buildings.

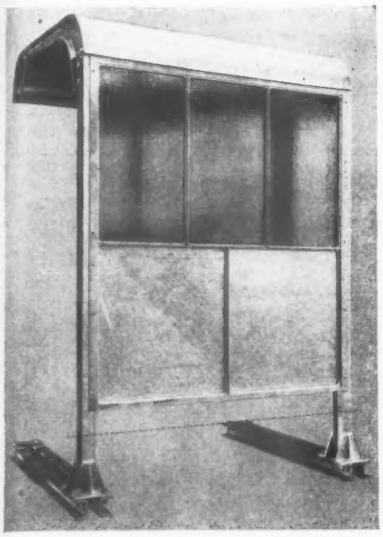
The unique flexibility of oil firing is such that heat can be instantly, automatically and accurately controlled through the widest variations to meet peak loads. Outstanding cleanliness in use, high burning efficiency, negligible ash content . . . all lead to economies in handling costs, storage space and ash disposal.

Esso Fuel Oil—delivered to your premises from distribution points located throughout the country—may well be the answer to *your* heating problem.

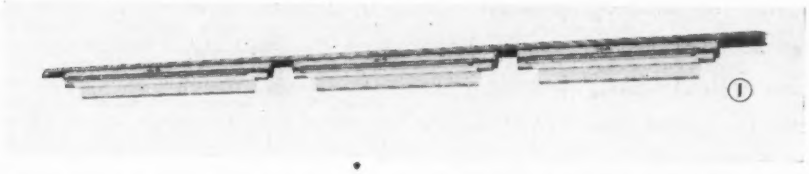
It pays to say ESSO **FUEL OILS**

FOR ALL HEATING APPLICATIONS

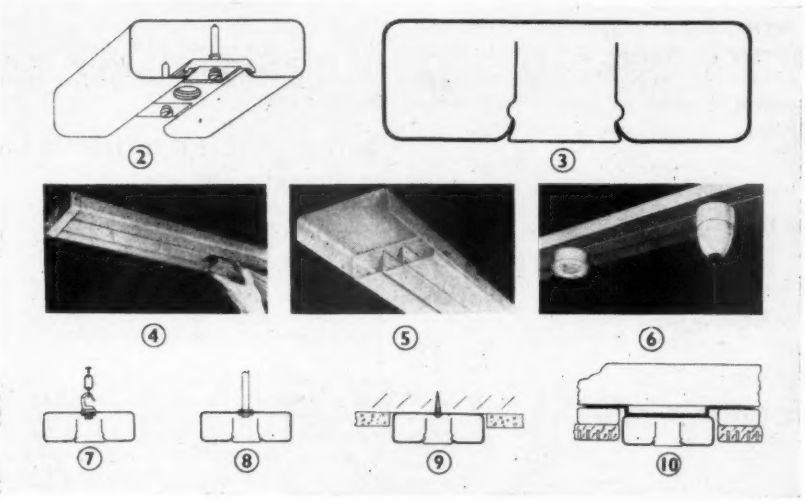
• *For interesting and informative literature on this subject write to*
Esso Petroleum Company, Ltd., 36, Queen Anne's Gate, London, S.W.1.



Prefabricated aluminium bus shelter.



Above, a range of fluorescent lights fixed to a run of Messrs. Ediswan's shallow trunking. Below, details of the system.



electric blankets and soil heating cables. The pipe heating cable is made in standard lengths with total loadings ranging from 75 to 300 watts, capable of dealing with pipe runs of 100 ft. or more. The cable can either be run straight along the pipe or wound spirally if the exposure is severe, and should then be covered with felt or hessian.

These cables can also be used in oil fuel installations where the cold weather viscosity of the oil may prevent free flow. More heat may be necessary than for frost-prevention, but this can be provided by wrapping the spiral of wire more closely, and it is possible to provide almost any degree of heating up to about 140 deg. F. This is a sensible precaution in schools or other buildings which may be shut down over the weekend, and where fuel oil may congeal in the feed pipes. (*The Warm-Glow Co. Ltd., Progress Road, Leigh-on-Sea, Essex.*)

BUS SHELTERS

The photograph above left shows a bus shelter with a cantilevered roof which has been standardized by Hopes. The units are 6 ft. long and have a roof projection of 5 ft. with minimum headroom of 6 ft. 10 in. This will provide protection for queues of people standing two abreast, and at the same time the obstruction of the pavement is kept to a minimum.

The roof is carried on cast aluminium cantilevers and sheeted in 16 gauge aluminium, and the stanchions are steel panelled in galvanised sheets with the upper half glazed. The shelters can be extended in 6 ft. units and return ends and hinged glazed panels for time tables can also be supplied. (*Henry Hope & Sons Ltd., Smethwick, Birmingham.*)

LIGHTING EQUIPMENT

Messrs. Ediswan have produced a shallow form of trunking, 4½ in. wide by 1½ in. deep which is suitable for offices and shops as well as for factories. The cost is 3s. 1d. per foot run and the trunking can either be mounted flush with the ceiling or hung on chains or conduit. Trunking of this kind will often show considerable savings over normal wiring methods, as multiple conduit runs are avoided, fewer suspension points are needed, and labour costs should be lower.

The trunking is made in 13 ft. lengths and there is ample space for all wiring connected with the lighting circuits and for separate circuits supplying light duty power operated equipment. Lighting fittings are supported on a carrier plate, and a snap-in cover strip is used to seal the trunking in between fittings. This cover strip divides the trunking into three separate ducts (see section) the two large outer ducts taking the principal circuits and the middle one the connections between fittings. The dimensions of the trunking also allow conduit connections to be made in any direction, and the end caps have three knock-outs for ¾ in. conduit. (*The Edison Swan Electric Co. Ltd.*, 155, *Charing Cross Road, London, W.C.2.*)

THE FIXING OF TILES

Richafix mastic cement for the fixing of ceramic tiles has already been referred to in these notes, and the manufacturers have now produced a booklet which describes the full range of mastics and contains a series of brief codes of practice for fixing tiles to walls, as well as special applications such as swimming pools, steel decking, cold stores, bath panels, ceilings, and other jobs. The mastic allows tiles to be fixed to almost any material, including hardboard and asbestos cement, or in fact almost any flat surface which is free from springiness. (*Richards Tiles Ltd., Tunstall, Staffs.*)

DRAINAGE AND SOIL

A monumental catalogue of some 300-odd pages has just been published by the Finch organization. It has the title of *Cast Iron Soil, Drain and General Castings*, and is as thorough a job as I have seen, all the fittings being illustrated, dimensioned and priced. Also included are plumbers tools and pipe fittings, and an excellent technical section. This is a really essential book, but it is obviously rather expensive to produce. The publishers therefore, quite rightly, ask that only responsible people should send for it. (*B. Finch & Co. Ltd., Belvedere Works, Barkingside, Essex.*)

INFORMATION CENTRE

INDEX FOR 1954

An alphabetical index covering Information Centre items and special articles published in the Technical Section during the twelve months ended December 31, 1954, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor, THE ARCHITECTS' JOURNAL, *not later than March 7, 1955.*

Please send me the Information Centre Index for 1954:

Name .....
(*Block letters*)

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Address .....
(*Block letters*)

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AJ 17.2.55

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

ENQUIRY FORM

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

.....

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Please ask manufacturers to send further particulars to :—

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PROFESSION or TRADE

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ADDRESS .....

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17.2.55

Buildings Illustrated

House at 49, Grovewood Close, Chorley Wood, Herts (Pages 240-242). Architect: C. B. Ratcliffe, A.R.I.B.A. General Contractor: Meacham Estates Ltd.; General Foreman: E. H. Westrip. Sub-contractors: bricks, R. Y. Ames; artificial stone, Croft Granite Brick & Concrete Co. Ltd.; structural steel, Johnson Ireton Ltd.; special roofings, Ragusa Asphalte Paving Co. Ltd.; glass, J. Preedy & Sons Ltd.; water-proofing materials, Tretol Ltd.; boilers, Ideal Boilers & Radiators Ltd.; electric wiring, Beasley Electrical Contracting Co. Ltd.; electric light fixtures, H. C. Hiscock Ltd., and Troughton & Young Ltd.; sanitary fittings, Shanks & Co. Ltd.; door furniture, casements, window furniture, James Gibbons Ltd.; rolling shutters, Bolton Gate Co. Ltd.; joinery, Joseph Sandell & Co. Ltd.; marble, Harvey Bros. (Masons) Ltd.

Announcements

PROFESSIONAL

Messrs. Raglan Squire & Partners, Architects and Consulting Engineers, have opened an office in Baghdad. Their address is Selim Building (New Spinneys), El Rashid Street, Baghdad, Iraq, where they will be pleased to receive trade catalogues, etc. The firm's Rangoon office has now been transferred to 343, Prome Road, Rangoon, Burma (P.O. Box No. 1256).

Mr. S. B. Shiber, B.ARCH., A.R.I.B.A., A.M.T.P.I., has accepted the post of resident and associated architect for Messrs. Cobb, Bidwell & Partners, National Bank of India, Aden, S. Arabia. He hopes to fly out in February and will be pleased to receive trade catalogues, etc.

Messrs. Vallance & Westwick, Chartered Architects, have opened an office at Sturgate R.A.F. Station, Upton, near Gainsborough, Lincs, and will be pleased to receive trade catalogues and technical literature.

TRADE

Mr. Joseph Walton has retired from the Joint Managing Directorship of Messrs. Thos. W. Ward Ltd., Albion Works, Sheffield, but will still be available in a consultative capacity and will retain his position as Chairman and Managing Director of The Darlington Railway Plant & Foundry Co. Ltd., Darlington.

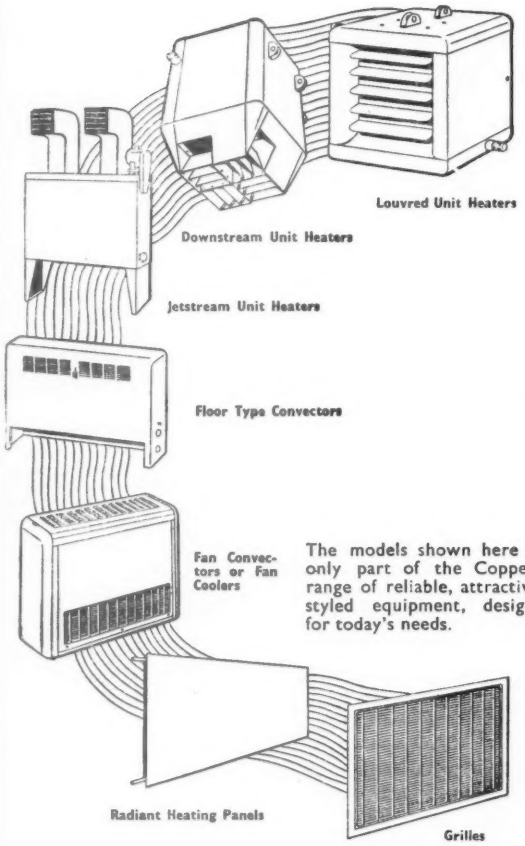
THE LIBRARY OF INFORMATION SHEETS

36.B1—*REFERENCE BACK*

Readers are asked to note the following revision and to amend their copies of the Information Sheet in question. Reverse of Sheet, heading "Pyrene Everyway Hose-reel," subheading "Operation," add at the end the following new paragraphs:

"When the hose-reel is not in use the main water control valve should be kept closed. If desired, the hose can be kept charged with water provided it is not under pressure.

"The recommended procedure after installation, or after use or test, is to shut off the water at the nozzle cock, then shut off the main control valve; after this, re-open the nozzle cock to release the excess pressure and close it again."



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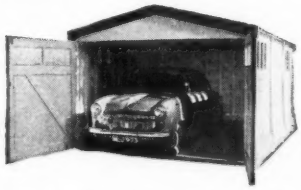
Attractive appearance and durability equal to brick.
From £50 for SINGLE garage.
From £56 for MULTIPLE garages.



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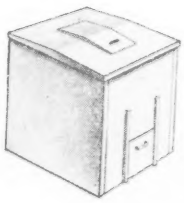
Available in 8, 16, 24 and 32 cwt. capacities, in a pleasing terracotta colour.



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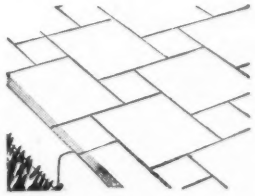

When building in country districts save time and cost with the Marley precast Concrete units for cesspools and septic tanks. Two types, deep and shallow; four capacities.

Write to your NEAREST Works for illustrated brochures and prices, telephone for Technical Representative to call.

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SHURDINGTON, NR. CHELTENHAM. *Shurdington* 334/5
WATERLOO, POOLE, DORSET. *Broadstone* 6261
SURREY CONCRETE LTD., PEASMARSH, GUILDFORD, SURREY. *Guildford* 62986

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

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

LONDON COUNTY COUNCIL.

Grade III ENGINEERS (salary up to £892 10s.) and SURVEYING ASSISTANTS (up to £739 10s.) required in District Surveyor's Service. Qualifications A.R.I.B.A., A.M.I.Str.E., or A.R.I.C.S.; structural knowledge essential. Particulars and application forms from Architect (AR/EK/DS/2), County Hall, S.E.1. (1025). 3511

LONDON COUNTY COUNCIL.

Architects and surveyors required for safety regulations of theatres and special buildings, and for general building regulation work. Salaries up to £892 10s., according to experience. A.R.I.B.A. or A.R.I.C.S. essential. Particulars and application form from Architect (AR/EK/TBR/3), The County Hall, S.E.1. (848) 3487

OFFICE OF THE RECEIVER FOR THE METROPOLITAN POLICE DISTRICT.

Applications are invited for unestablished appointments as LEADING ARCHITECTURAL ASSISTANTS in the Architect and Surveyor's Department. The work is concerned with the design and construction of police dwellings and buildings, and candidates will be required to work in the Westminster area.

Rates of Pay (Men).*—£665 × £20—£725 × £25—£780.

Women.—£580 × £20—£640 × £25—£665.

* The scales quoted are subject to an increase of approximately 3 per cent., while a 45½-hour week is being worked and also to the addition of a Pay Supplement of £25 or £30 per annum, according to the point reached on the scale.

Conditioned hours.—44 per week.

Annual Leave.—24 days.

Application forms from the Chief Architect, Architect and Surveyor's Department, New Scotland Yard, London, S.W.1, marking the envelope "Architectural Assistants." 6005

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS required for drawing offices in London, Edinburgh and various provincial offices.

Candidates must have had at least three years' architectural training, some experience in an architect's office, and be of Intermediate R.I.B.A. standard. London salary £442—£695 per annum. Rates elsewhere slightly less. Starting pay according to age and experience. Prospects of promotion and permanency.

State age and full details of training and experience to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, W.G.10/CA. 19, F9, Abell House, John Islip Street, London, S.W.1. 8375

LINDSEY COUNTY COUNCIL.
PLANNING DEPARTMENT.

SENIOR ASSISTANT (ARCHITECTURAL) required with Final R.I.B.A. and experience in Planning Department in architectural control and estate design and layout. New grade A.P.T. IV £675—£825. Superannuation and N.J.C. conditions. Allowance 25s. a week and return fare home bi-monthly may be paid up to six months to married man unable to find housing accommodation. Candidates must disclose in writing whether to their knowledge they are related to any member or senior officer of the Council. Canvassing will disqualify. Apply with full particulars of age, training, experience, qualifications and two referees to undersigned by 24th February, 1955.

R. L. STIRLING,
County Planning Officer.
The Castle, Lincoln. 8414

BOROUGH OF BATLEY.
ARCHITECT.

Applications are invited for the appointment of an ARCHITECT in the Borough Engineer and Surveyor's Department at a salary in accordance with A.P.T. Grade IV (£675 rising by annual increments of £30 to £825).

Candidates should be Registered Architects with experience in the design of municipal houses and estate development, and should be Associate Members of the Royal Institute of British Architects.

Applications on forms which may be obtained from the undersigned, and endorsed "Architect," should be forwarded to the Borough Engineer, Hanover Street, Batley, not later than the 25th February, 1955.

L. O. BOTTOMLEY,
Town Clerk.
8554

THURROCK URBAN DISTRICT COUNCIL.

(*a*) ARCHITECTURAL ASSISTANT Grade IV £675—£825 per annum.

(*b*) ARCHITECTURAL ASSISTANT Grade II £560—£640 per annum.

Applications are invited for the above appointments under the Architect to the Council.

Appointment (*a*)

Candidates should be Associates of the Royal Institute of British Architects and must be experienced in the design, preparation of drawings, specifications and supervision of various building and architectural work undertaken by a Local Authority. A Travelling Allowance in accordance with the National Scales is payable in respect of an 8 H.P. car.

Appointment (*b*)

Candidates should have passed the Intermediate Examination of the Royal Institute of British Architects. General Architectural experience is necessary and applicants must be capable of preparing working and detailed drawings of various types of Local Authority's building and architectural projects.

Housing accommodation if necessary will be provided for both successful candidates if they live more than 20 miles from Thurrock.

The appointments are subject to the provisions of the Local Government Superannuation Acts 1937 and 1953, and the successful applicants will be required to pass a medical examination.

Applications suitably endorsed, stating age, qualifications and experience, together with copies of three recent testimonials should reach the undersigned not later than Friday, February 25th, 1955.

Canvassing will disqualify, and applicants must disclose in writing any relationship to any Member or Senior Officer of the Council.

A. E. POOLE,
Clerk of the Council.
8506

BOROUGH OF EALING requires a TEMPORARY SENIOR ARCHITECTURAL ASSISTANT salary A.P.T. IV-V, £675—£900, plus London weighting. Application form and full particulars to be obtained from Borough Surveyor, Town Hall, Ealing, W.5. Closing date 21st February, 1955.

E. J. COPE-BROWN,
Town Clerk.
8410

URBAN DISTRICT COUNCIL OF CORBY.
ENGINEER AND SURVEYOR'S DEPARTMENT.
SENIOR QUANTITY SURVEYOR.

Applications are invited for the above appointment at a salary in accordance with new Grade A.P.T. IV (£675—£825), commencing at £675 per annum.

Applicants must have passed the final R.I.C.S. (Quantities Section) examination and be thoroughly experienced in the preparation of Bills of Quantities, adjustment of variations and settlement of final accounts. Previous experience of substantial contracts for local authority housing is desirable.

The provisions of the Local Government Superannuation Acts, 1937-1953, will apply to this appointment.

Housing accommodation will be made available to the successful candidate, if married.

Forms of application may be obtained from the undersigned, and completed forms must be received not later than 9 a.m. on Saturday, the 5th March, 1955.

G. B. BLACKALL,
Clerk of the Council.
Council Offices, Corby, Northants.
2nd February, 1955. 8493

GLOUCESTERSHIRE COUNTY COUNCIL.

ASSISTANT ARCHITECTS, qualified members of R.I.B.A., Grades III, £600—£725 (£650—£775 if at least five years' experience). Also ARCHITECTURAL ASSISTANTS, Grades II (£560—£640 p.a.) Inter. R.I.B.A. Appointments open to both male and female candidates. N.J.C. Conditions of Service. Medical examination.

Apply giving age, experience, present position, salary and date of appointment, previous appointments, names and addresses of two persons for references, County Architect, Shire Hall, Gloucester, by 24th February, 1955.

GUY H. DAVIS,
Clerk of the County Council.
8496

COVENTRY CORPORATION require Four PRINCIPAL ASSISTANT ARCHITECTS (Salary £1,307 10s. × £52 10s.—£1,517 10s.) to serve in Department of newly appointed City Architect (Mr. A. G. Ling, B.A., A.R.I.B.A., M.T.P.I.). Housing accommodation may be available in approved circumstances. Details of duties and application form from City Architectural & Planning Department, Bull Yard, Coventry, returnable by 28th February. 8525

COUNTY BOROUGH OF SOUTHPORT.

Applications are invited for the appointment of an ASSISTANT ARCHITECT in the Borough Architect and Town Planning Officer's Department at a salary in accordance with the interim scale for Registered Architects of the National Scales of Salaries (£625—£675 per annum). Candidates should have had experience in School Design and Construction and must be Associates R.I.B.A.

Application forms may be obtained from the Acting Borough Architect and Town Planning Officer, Pavilion Buildings, 99/105, Lord Street.

R. EDGAR PERRINS,
Town Clerk.
8526

COUNTY BOROUGH OF ROCHDALE.

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

ASSISTANT ARCHITECT at a salary of £650 rising by annual increments of £25 to £775 per annum, commencing at a salary above the minimum, according to qualifications and experience. Candidates must be Registered Architects.

Alternative applications will be considered from persons engaged in the study of Architecture but not yet qualified to be Registered, at a salary between £500 and £640, according to experience, rising to range £650—£775 immediately on becoming Registered.

ASSISTANT HEATING AND VENTILATING ENGINEER at a salary of £650, rising to £775, all as Assistant Architect above, with the exception that candidates must be members or associate members of the Institution of Heating and Ventilating Engineers.

Alternative applications will be considered from persons not fully qualified at a salary between £500 and £640 according to experience rising to range £650—£775 immediately on becoming qualified.

Appointments will be subject to the provisions of the Local Government Superannuation Act and to the selected candidate passing a medical examination. Canvassing is prohibited and candidates must disclose whether, to their knowledge, they are related to any member or Senior Officer of the Council.

Applications stating age, qualifications and full particulars of experience, together with the names and addresses of two persons to whom reference may be made and endorsed "Assistant Architect" or "Heating Assistant" must be delivered to the Borough Surveyor, Town Hall, Rochdale, by 9 a.m. on Saturday, 12th March, 1955. 8557

CITY AND COUNTY OF BRISTOL.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for following permanent staff appointments:—

(*a*) ASSISTANT ARCHITECTS—Grade II (£560—£640 p.a.).

(*b*) ASSISTANT QUANTITY SURVEYOR—Grade I (£500—£580 p.a.).

(*c*) ASSISTANT ARCHITECTS—Grade I (£500—£580 p.a.).

(*d*) JUNIOR ASSISTANT QUANTITY SURVEYOR—General Division (£275 at age 20).

For appointments (*a*) and (*c*) applicants should have passed the R.I.B.A. Intermediate Examination or equivalent, or qualified in accordance with Paragraph 28 of National Conditions of Service and have good experience, including preparation of working drawings, details, etc. For appointment (*b*) applicants should have passed the R.I.C.S. Intermediate Examination or equivalent or qualified in accordance with Paragraph 28 of National Conditions of Service and have suitable experience. For appointment (*d*) applicants must be not less than 20 years of age, and have suitable education and experience. Duties include squaring, abstracting, and billing, and generally work under supervision of Assistant Surveyor.

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

Particulars and application forms obtainable from me. Applicants must state post for which they are applying. Completed application forms by 28th February.

J. NELSON MEREDITH, F.R.I.B.A.
City Architect.
The Council House,
College Green,
Bristol, 1. 8538

COUNTY BOROUGH OF STOCKPORT.
BOROUGH ARCHITECT (NEW APPOINTMENT).

Inclusive salary £1,650—£1,900. Commencing salary according to qualifications and experience. Candidates must be Associates or Fellows of R.I.B.A. Car allowance (J.N.C. scale) for vehicle of not more than 10 h.p. Conditions of appointment and particulars of duties from Town Clerk, Town Hall, Stockport. 8541

COUNTY BOROUGH OF SUNDERLAND.

Applications are invited for the following appointments in the Borough Architect's Department. Candidates must be Associates of the Royal Institute of British Architects. Commencing salaries will be fixed according to experience.

(*a*) CHIEF ASSISTANT ARCHITECT.—Salary within Grade VI £825—£1,000. The position requires a man of considerable ability to take charge of a team within the Planning and General Section of the department to deal primarily with the general planning and schematic development of central reconstruction and major building projects for the Corporation.

(*b*) SENIOR ASSISTANT ARCHITECTS.—Salary within Grade V £750—£900. The positions call for men of initiative with an aptitude for good design and ability to translate their individual designs into practice.

Application forms and further details from the Borough Architect, Grange House, Stockton Road, Sunderland (state for which appointment it is desired to apply). Closing date for receipt of completed applications, 11th March, 1955.

Canvassing, either directly or indirectly, will disqualify.

G. S. McINTIRE,
Town Clerk.
Town Hall,
Sunderland.
8th February, 1955. 8579

CAMBRIDGESHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) THREE ASSISTANT ARCHITECTS, Grade A.P.T. V (£750—£900). Applicants must be registered architects, and preference will be given to members of the R.I.B.A. They should have a knowledge of modern school design and construction, the preparation of specifications and site supervision.

(*b*) THREE ARCHITECTURAL ASSISTANTS, Grade A.P.T. IV (£675—£825). Applicants must be registered architects, and should be able to develop working drawings from sketch plans.

(*c*) THREE ARCHITECTURAL ASSISTANTS, Miscellaneous Grade III (£420—£485) and one ARCHITECTURAL ASSISTANT, General Division (£170—£475, according to age and qualifications). Applicants should be neat and expeditious draughtsmen and be able to prepare working drawings from tracings.

(*d*) THREE QUANTITY SURVEYORS, Grade A.P.T. IV (£675—£825). Applicants should be chartered surveyors and should have had considerable experience in all duties of quantity surveying, including site measuring and final accounts.

(*e*) ONE ENGINEER, Grade A.P.T. V (£750—£900). Applicants should be associate members of the Institute of Heating and Ventilating Engineers or hold equivalent qualifications and should have experience in the design, specification and supervision of contracts for heating, ventilating and lighting services in large public buildings.

The appointments are subject to the Local Government Superannuation Acts, 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory medical examination and termination by one month's notice on either side.

Applications stating age, present salary, present and previous appointments, details of training and experience, together with one recent testimonial and the names and addresses of two referees should be submitted to the undersigned not later than Thursday, 3rd March, 1955.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge.
9th February, 1955. 8585

CITY OF ST. ALBANS.

Applications are invited for the following appointments in the City Engineer and Surveyor's Department:—

(1) SENIOR ENGINEERING ASSISTANT. Applicants should have passed either the final of the I.Mun.E. or Parts A & B of the Final of the I.C.E. and have had experience on highway and sewerage work. Salary, £650—£775.

(2) TEMPORARY SENIOR ENGINEERING ASSISTANT. Applicants should have had considerable municipal experience on highway and sewerage work, but need not possess the Final qualifications referred to above. Salary, £650—£775.

(3) TEMPORARY ARCHITECTURAL ASSISTANT. Applicants should hold the intermediate R.I.B.A. examination, or equivalent. Salary, New Grade A.P.T. II (£560—£640).

Posts (2) and (3) are unestablished, but are not likely to be for less than two years. Housing Accommodation will be available for the successful applicant in each case. Applications must reach me by Monday, 28th February, 1955.

W. B. MURGATROYD,
Town Clerk.

38, St. Peter's Street,
St. Albans. 8556

The Hastings Corporation invite applications for the appointment of ARCHITECTURAL ASSISTANT in the New Special Scale (£650 × £25—£775) commencing salary according to the experience of the candidate. The appointment will be subject to the National Scale of Conditions of Service, the passing of a medical examination and to one month's notice in writing on either side.

Applications stating age, qualifications (which must include A.R.I.B.A. or equivalent) present and previous appointments, and salary, accompanied by copies of not more than three testimonials, should be forwarded to the Borough Engineer, 37, Wellington Square, Hastings, not later than 25th February, 1955. Canvassing will be a disqualification.

N. P. LESTER,
Town Clerk.

Hastings. 8537

ARCHITECTURAL ASSISTANT required by the GOVERNMENT OF NORTHERN RHODESIA P.W.D. for one tour of 24-36 months in the first instance. Salary scale (including present temporary allowances of approx. 17 per cent. of salary) £855 rising to £1,142 a year. Commencing salary according to war service and experience. Gratuity at rate of £100 a year. Liberal leave on full pay. Free passages. Furnished quarters available at moderate rent. Candidates under 35 years must have served articles or have been trained as an Architect and should preferably have passed the Intermediate examination of the R.I.B.A. They must be able to prepare sketch plans, working drawings, and details and specifications of many types of Government Buildings. A knowledge of surveying would be an advantage. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2B/30696/AG.

CHESTERFIELD RURAL DISTRICT COUNCIL invite applications for the appointment of ASSISTANT ARCHITECT on salary scale New A.P.T. I to Special Scale III, (£500—£775), according to qualifications. The appointment is subject to the Scheme of Conditions of Service, to the Local Government Superannuation Act 1937/1953 and to the passing of a medical examination. All possible assistance will be given with housing accommodation. Applications on forms to be obtained from Mr. J. B. Wikeley, M.Eng., A.M.I.C.E., Barrister-at-Law, Engineer and Surveyor to the Council, should be returned to the Clerk of the Council, Rural Council House, Saltergate, Chesterfield, by 1st March, 1955. 8555

COUNTY BOROUGH OF EAST HAM.
ARCHITECTURAL STAFF, HOUSING DEPARTMENT.

(A) ARCHITECTURAL ASSISTANT. Salary new A.P.T. II (£560—£640 per annum*).

(B) ARCHITECTURAL ASSISTANT. Salary new A.P.T. I (£500—£580*).

(* Plus London Weighting.)

Applicants for (A) or (B) should have passed the intermediate examination of the R.I.B.A. and have had experience in the detailing of flats and houses.

Further details and forms of application (returnable by 9th March, 1955) from the Town Clerk, Town Hall, East Ham. 8581

LONDON ELECTRICITY BOARD.
ENGINEERING DRAUGHTSMAN.

Applications are invited for the above position in South Western District, based at Battersea, London, S.W.11.

Applicants should have had a good general education and technical education up to Ordinary National Certificate standard. They should have had considerable experience in transformer chamber layouts, mains records and system diagrams. Knowledge of building construction would be an advantage.

The post is graded under Schedule "D" of the National Joint Board agreement as Grade 6—£535 10s. to £661 10s. per annum, inclusive of London Allowance.

Application forms obtainable from Personnel Officer, 46/7, New Broad Street, E.C.2, to be returned completed by 28th February, 1955. Please enclose addressed envelope and quote ref.: V/1909/A on envelope and all correspondence. 8582

HACKNEY BOROUGH COUNCIL require a JUNIOR ARCHITECTURAL ASSISTANT. Salary within Grade A.P.T. I (£500—£580 p.a.), plus London Weighting Allowance. Candidates should have had a good architectural training and be at least probationers of the R.I.B.A. Apply to Town Clerk, Town Hall, Hackney, E.8, for form of application, returnable by 26th February, 1955. 8583

NEWCASTLE REGIONAL HOSPITAL BOARD.
REGIONAL ARCHITECT'S DEPARTMENT.
APPOINTMENT OF SURVEYING ASSISTANT.

Applications are invited for the appointment of a permanent (superannuable) Surveying Assistant on the Headquarter's staff of the Regional Architect in Newcastle. Candidates must have passed the Intermediate Examination of the Royal Institution of Chartered Surveyors, or an examination recognized by the Institution as equivalent.

The commencing salary within the Grade £465 × £25(1) × £20(8) to £650 per annum, will depend upon the applicant's age and amount of practical experience since passing the Intermediate Examination but will not exceed £550 per annum.

Candidates should be experienced in surveying sites and buildings and the man appointed will be the junior member of a team responsible for completing a survey of all hospital sites and buildings in the Region, for preparing folios of up-to-date record-plans and for making inspections of lands and properties which the Board may consider acquiring.

The terms of appointment and conditions of service will be as set out in the Whitley Council Circulars P.T.B. 19, 20 and 40 relating to professional and technical status of Regional Hospital Boards. The successful candidate will be required to pass a medical examination.

Applications stating age, qualifications, past and present appointments, present salary and details of training and experience, together with the names of three referees, should be forwarded to the Secretary not later than 4th March, 1955. "Dunira,"
Osborne Road,
Newcastle-upon-Tyne, 2. 8610

BEDFORDSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for the following established posts:—

TWO ASSISTANT ARCHITECTS A.P.T. VI (Salary £825—£1,000)

THREE ASSISTANT ARCHITECTS A.P.T. IV (Salary £675—£825).

TWO ARCHITECTURAL ASSISTANTS A.P.T. II (Salary £560—£640).

TWO TECHNICAL ASSISTANTS General Division (Salary according to age)

Applicants for Senior posts should be suitably qualified and state experience on (*a*) New Colleges and Schools; (*b*) Modernisation of existing Schools.

Forms of application are obtainable from the County Architect, Shire Hall, Bedford, and should be returned on or before 28th February, 1955. 8562

BOROUGH OF WALTHAMSTOW.
BOROUGH ARCHITECT, ENGINEER & SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointment in the Architectural Division of the Department:—

One SENIOR ASSISTANT QUANTITY SURVEYOR, Grade IV. A.P.T. (£705—£855, inclusive).

Applicants must have passed the final examination (Quantities) of the R.I.C.S.

The duties will be principally in connection with new housing schemes and new municipal buildings, and will consist of the preparation of bills of quantities, valuations and final accounts.

Applications, with names of two persons for reference, should be received by the undersigned not later than Friday, the 4th March, 1955, endorsed "Quantity Surveyor."

G. A. BLAKELEY,
Town Clerk.

Town Hall,
E.17. 8611

COUNTY BOROUGH OF BOURNEMOUTH.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(A) SENIOR ASSISTANT ARCHITECTS (TWO POSTS)—Salary Grade A.P.T. V (£750—£900 p.a.).

(B) ASSISTANT ARCHITECT—Salary Grade A.P.T. III (£600—£725 p.a.).

The above positions are Established Posts and applicants must be registered architects, members of the R.I.B.A. and have a comprehensive knowledge of architectural works required by Local Authorities. Experience and knowledge of the Education Building 1944 Act being essential for one of the posts (A) and post (B).

(C) ARCHITECTURAL ASSISTANTS (TWO POSTS)—Unestablished—Salary Grade A.P.T. II (£560—£640 p.a.). Applicants must have had one/two years' experience, preferably on education buildings after passing the Inter. R.I.B.A. exam.

Successful candidates will be appointed at present salary if within the incremental scale.

Application Forms and further particulars from Borough Architect, Town Hall, Bournemouth. Completed applications, with copies of three recent testimonials, must reach me by 10 a.m. 5th March, 1955.

A. LINDSAY CLEGG,
Town Clerk.

8553

LEEDS REGIONAL HOSPITAL BOARD.

Applications are invited for the following appointments:—

(*a*) ARCHITECTURAL ASSISTANT (£465—£650).

Applicants must have passed the Intermediate Examination of the A.R.I.B.A.

(*b*) QUANTITY SURVEYING ASSISTANT (£465/£650).

Applicants must have passed the Intermediate Examination of the A.R.I.C.S. or an examination recognised by the Institution as equivalent.

In certain cases the starting salary of officers in the above grades may be fixed above the minimum.

(*c*) ENGINEERING DRAUGHTSMAN (£380—£570).

Applicants appointed to this grade must have had suitable training, including three years' technical experience in engineering drawing or architectural drawing. Site or workshop experience as well as drawing office experience also necessary.

Applications stating age, experience, qualifications, together with the names and addresses of two referees, to be sent to the Secretary to the Board, Park Parade, Harrogate, by not later than the 26th of February, 1955. 8563

IMPERIAL ETHIOPIAN GOVERNMENT, MINISTRY OF EDUCATION.

Applications are invited for a SENIOR ARCHITECT. Candidates must be Associates of the Royal Institute of British Architects. Previous experience of Government or Local Authority work is desirable and a knowledge of French useful. The appointment would be on Contract terms, 3-year tours. Salary will be 9,000.00 Ethiopian Dollars (free of tax) according to age, qualifications and experience. Current exchange rate $7 = £1. Return passages paid for officer and wife and housing allowance. Applications to and further particulars from J. Seymour Harris & Partners, Architects and Town Planning Consultants, 4, Greenfield Crescent, Five Ways, Birmingham 15. 8560

NORTHERN IRELAND HOSPITALS AUTHORITY.
HEADQUARTERS STAFF.
ARCHITECT'S DEPARTMENT.

Applications are invited for vacancies in the above department. Appointments will be made in one or other of the following grades:—

(*a*) SENIOR ASSISTANT ARCHITECT
Salary—£975 × £30—£1,025 per annum.

(*b*) ASSISTANT ARCHITECTS
Salary—Grade I £825 × 25—£900 per annum
" II £750 × 25—£825 per annum
" III £645 × 25(3) × 30—£750 per annum

(*c*) ARCHITECTURAL ASSISTANTS
Salary—Grade I £590 × 25—£665 per annum
" II £515 × 25—£590 per annum
" III £435 × 20—£515 per annum

Application forms and particulars may be obtained from the Secretary, Northern Ireland Hospitals Authority, Victory Buildings, 44/46, Queen Street, Belfast, to whom completed forms should be sent so as to arrive not later than 12 noon on Saturday, 12th March, 1955. 8615

LIVERPOOL REGIONAL HOSPITAL BOARD.
Applications invited for following vacant appointments in the Department of the Regional Architect at 86, Church Street, Liverpool, 1:—
ARCHITECTURAL STAFF.
(a) SENIOR ASSISTANT ARCHITECT: £900 × £30—£1,060 per annum.
Candidates must be Registered Architects, having passed the requisite examinations and have had considerable experience in design and construction, preferably of Hospital buildings, and must be capable of carrying out and advising on large building contracts.
(b) ASSISTANT ARCHITECT: £625 × £25 (7) × £30 (3)—£890 per annum.
Advanced increments may be granted for experience.
Candidates must be Registered Architects, having passed the requisite examinations and must be capable of supervising building contracts.
(c) ARCHITECTURAL ASSISTANT: £465 at age 21 or over × £25 (1) × £20 (8)—£650 per annum. Advanced increments may be granted for experience.
Candidates must have passed the Intermediate Examination of the R.I.B.A. and have had appropriate experience.
(d) DRAUGHTSMAN: £380 at age 21 or over; less £20 for each year below that age × £20 (3) × £25 (2) × £20 (4)—£570 per annum.
Candidates must have had suitable training, including three years technical experience in architectural drawing.
(e) JUNIOR ASSISTANT: Male—£170 at age 15 and by increments according to age to a maximum of £370 per annum at age 25.
Female—£165 at age 16 and by increments according to age to a maximum of £305 per annum at age 25.
Candidates must have a genuine intention to acquire technical qualifications if appointed to this post.
QUANTITY SURVEYING STAFF.
(a) ASSISTANT QUANTITY SURVEYOR: £625 × £25 (7) × £30 (3)—£890 per annum.
Advanced increments may be granted for experience. Candidates must be Corporate members of the Royal Institution of Chartered Surveyors (Quantities Sub. Division) and have had experience in preparation of Bills of Quantities and checking final accounts.
(b) QUANTITY SURVEYING ASSISTANT: £465 × £25 (1) × £20 (8)—£650 per annum. Advanced increments may be granted for experience.
Candidates must have passed the Intermediate Examination of the R.I.C.S. (Quants. Sub. Div.) and have had appropriate experience.
(c) SURVEYORS CLERK: £390 at age 24 or over; less £20 for each year below that age. × £15 (4) × £20 (2) × £15 (4)—£550 per annum.
Candidates must have had suitable training, including at least three years' technical experience in quantity surveying with a Quantity Surveyor or Building Contractor.
Applications, indicating post applied for and stating age, education, qualifications, experience, present and previous appointments and salary, and names and addresses of three referees (two technical) to me by 1st March, 1955.
VINCENT COLLINGE,
Secretary to the Board.
19, James St.,
Liverpool, 2. 8580

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD.
Applications are invited for the following appointments to the Board's Architectural Staff:—
1. ARCHITECTURAL ASSISTANT.—Commencing salary between £465 and £550 p.a., according to age and experience. Scale £465 × £25 (1) × £20 (8)—£650 p.a. plus London Weighting Allowance of £10—£30 p.a. according to age. Applicants must have passed the Intermediate examination of the Royal Institute of British Architects (or an examination recognised by the Institute as equivalent), have had good architectural training and general experience, and be capable of preparing working and detail drawings. Previous experience of Hospital Architectural work is not essential.
2. ASSISTANT QUANTITY SURVEYOR.—Salary scale £625 × £25 (7) × £30 (3)—£890 p.a. plus London Weighting Allowance. Commencing salary in accordance with age and experience. Applicants must be Associate Members of the Royal Institute of Chartered Surveyors (Quantity Surveying Branch) and have sound practical experience in the estimating and analysis of prices, working up and taking off of quantities for small contracts and also of checking Contractors' accounts.
Applications stating age, qualifications, present appointment and salary, training and experience, together with the names and addresses of three referees, should be forwarded to the Secretary (S.2) 11a, Portland Place, London, W.1, marking the envelope "Architectural Staff," by not later than 4th March. 8600

CITY ARCHITECT'S OFFICE, MANCHESTER.
Applications are invited for the appointment on the permanent staff of an Architectural Assistant. Salary A.P.T. II £560 to £640 per annum. Candidates should have passed the intermediate examination of the R.I.B.A. or its equivalent at a recognised School of Architecture. Forms of application may be obtained from the City Architect, Town Hall, Manchester, 2, and should be returned to the same address not later than 28th February, 1955. Canvassing is prohibited. 8602

COUNTY BOROUGH OF DARLINGTON.
BOROUGH ARCHITECT'S DEPARTMENT.
Applications are invited for the appointment of THREE ASSISTANT ARCHITECTS, each at a salary in accordance with Grade A.P.T. IV, viz.:—£675—£825 p.a.
The department has a large programme including secondary and primary schools, housing, and municipal offices. Preference will be given to candidates experienced in this class of work, and who are members of the R.I.B.A.
Housing Accommodation will be made available if required.
Applications giving full particulars of age, qualifications, present appointment with salary, previous appointments with dates, and the name and address of three referees to be sent to E. A. Tornbohm, A.R.I.B.A., A.M.T.P.I., Borough Architect, Central Buildings, Darlington, not later than Monday the 28th February, 1955. 8558

CORPORATION OF GLASGOW.
ARCHITECTURAL AND PLANNING DEPARTMENT.
SENIOR INSPECTOR OF WORKS.
Applications are invited for the above position from suitably qualified persons who have had a first-class wide experience in the supervision of large scale building projects and who possess a sound technical knowledge combined with administrative and organisational ability.
Salary scale £952 10s.—£1,075 per annum.
The appointment will be superannuable, subject to medical examination.
Particulars of appointment and form of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.
Candidates who submitted applications in response to a previous advertisement need not renew application.
A. G. JURY,
City Architect and Planning Officer. 8566

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.
OFFICE OF THE COUNTY ARCHITECT.
Applications are invited for appointments in the grades shown below, the salary ranges of which are:—
A.P.T. I, £500—£580.
A.P.T. II, £560—£640.
A.P.T. III, £600—£725.
A.P.T. IV, £675—£825.
A.P.T. V, £750—£900.
ASSISTANT ARCHITECTS.—Grades A.P.T. I, II, III, IV, and V. Applicants for posts in Grades I and II should have had good training and preference will be given to those who have passed the Intermediate Examination of the R.I.B.A. Applicants for posts in Grades III, IV and V must be Registered Architects and Associate Members of the Royal Institute of British Architects and have had good training and experience in the design and construction of modern buildings.
The above appointments are subject to the provisions of the Local Government Superannuation Acts and the successful candidates will be required to pass a medical examination.
Applications, on forms obtainable at this office, must be delivered not later than the first post on Tuesday the 8th March, 1955.
HUBERT BENNETT,
County Architect.
Bishopgarth,
Westfield Road,
Wakefield. 8601

NATIONAL COAL BOARD.
NORTHERN (N. & C.) DIVISION.
ARCHITECTURAL ASSISTANT—GRADE I.
Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade I, in the Divisional Architect's Branch of the Northern (N. & C.) Divisional Board, Gosforth, Newcastle-upon-Tyne, 3. Applicants must be students of the R.I.B.A. with experience in the preparation of working drawings under supervision. Commencing salary according to qualifications and experience within the scale of £525 × £25—£650.
Applications stating age, training, and full details including salaries of past and present appointments, should be submitted not later than 28th February, 1955 to the Divisional Establishment Officer, National Coal Board, Northern (N. & C.), Division, Ellison Buildings, Ellison Place, Newcastle-upon-Tyne, 1. 8603

CARSHALTON URBAN DISTRICT COUNCIL.
SENIOR ASSISTANT, Architectural Section, Engineer and Surveyor's Department: Must hold Final Examination Certificate of the R.I.B.A., and be Registered Architect. Must also be competent in design and construction and have had full and varied practical experience, preferably in architectural work of a local authority.
Carshalton is a large urban district of 62,000 population with a development programme which includes multi-storey flats and other building works.
Salary within Grade A.P.T. V, plus London "Weighting" (£780—£930).
The Council cannot provide housing accommodation.
Applications on forms obtainable from the undersigned must be returned with names of three referees not later than the 1st March, 1955. Canvassing will disqualify.
C. H. DURRANT,
Clerk of the Council.
District Offices,
The Grove,
Carshalton, Surrey. 8540

OXFORDSHIRE COUNTY COUNCIL.
Applications are invited from suitably qualified persons for the following appointments in the County Architect's Department:—
(a) ASSISTANT QUANTITY SURVEYOR—A.P. & T. Grade IV (£675—£825).
(b) QUANTITY SURVEYOR'S ASSISTANT—A.P. & T. Grade III (£600—£725).
(c) QUANTITY SURVEYOR'S ASSISTANT—A.P. & T. Grade I (£500—£580).
(d) QUANTITY SURVEYOR'S ASSISTANT—Misc. Grade II (£375—£435).
(e) QUANTITY SURVEYOR'S ASSISTANT—Misc. Grade I (£345—£390).
Candidates for (a) should be Associate Members of the R.I.C.S. (Quantities) or possess similar qualifications.
Preference will be given to candidates for post (b) who have passed the Intermediate Examination of the R.I.C.S. and applicants should have experience in the preparation of Bills of Quantities, interim valuations and final accounts.
The appointments are subject to the provisions of the Local Government Superannuation Act 1954 and to medical examination.
Forms of application may be obtained from the County Architect, Park End Street Offices, Oxford, and should be completed and returned to him not later than the 1st March, 1955.
GERALD GALE BURKITT,
Clerk of the Council.
County Hall,
Oxford.
9th February, 1955. 8599

METROPOLITAN BOROUGH OF CAMBERWELL.
DEPARTMENT OF DIRECTOR OF HOUSING AND BOROUGH ARCHITECT.
(a) SENIOR ASSISTANT ARCHITECT. National Scale. A.P.T.V (£780—£930 inclusive of £30 London weighting); (b) ASSISTANT ARCHITECT. A.P.T. III/IV (£630—£855 inclusive); (c) JUNIOR ARCHITECT. A.P.T.II (£590—£670 inclusive). Commencing salary according to experience. Qualification required for first two posts A.R.I.B.A.; for junior architect R.I.B.A. Intermediate Examination or its equivalent followed by a minimum of one year in an architectural office. Work of department includes design and construction of public buildings, housing estates including multi-storey construction. No housing provided. Superannuation scheme. Application form from Town Clerk, Town Hall, S.E.5. Closing date 9th March, 1955. 8612

BOROUGH OF LUTON.
APPOINTMENT OF QUANTITY SURVEYING ASSISTANT.
Applications are invited for the appointment of a QUANTITY SURVEYING ASSISTANT (Salary A.P.T. IV—£675—£825). Candidates should be Qualified Quantity Surveyors with considerable experience. Housing accommodation may be considered.
Application forms from Borough Engineer, Town Hall, Luton, to reach the undersigned by 7th March, 1955.
A. D. HARVEY,
Town Clerk. 8606

CORPORATION OF DUNDEE.
DIRECT LABOUR DEPARTMENT.
APPOINTMENT OF MANAGER.
Applications are invited from men not exceeding 45 years of age, having considerable experience of the various branches of the Building Trade and having the requisite technical qualifications, for appointment as MANAGER of the Direct Labour Department of the Corporation.
The salary will be at the rate of £1,000 rising to £1,200 annually on satisfactory service with placing according to the qualifications and experience of the successful applicant.
The post is superannuable and the successful applicant will require to pass satisfactorily a medical examination.
Applications in writing, stating age, experience, qualifications and present appointment, and with the names and addresses of two professional referees should be lodged with the Town Clerk, City Chambers, Dundee, on or before 4th March, 1955. 8591

AYCLIFFE DEVELOPMENT CORPORATION.
JUNIOR ARCHITECTURAL ASSISTANT—GRADE A.P.T. II (£560—£640).
Applications are invited for the above appointment with commencing salary within the Scale according to qualifications and experience.
Candidates should have passed the R.I.B.A. Intermediate examination and have had two years' office experience.
Appointment subject to N.J.C. Conditions, Superannuation and medical examination.
Housing accommodation if necessary.
Applications, stating age, experience, details (including salaries) of present and former employment and addresses of two referees should be forwarded before the 26th February, 1955, to:—
A. V. WILLIAMS.
General Manager.
Newton Aycliffe,
Co. Durham 8586

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
Vacancies for ASSISTANTS to deal with applications under the Town and Country Planning Act, 1947. Salary up to £739 10s., according to experience. Particulars and application form, returnable by 11th March, 1955, from the Architect (AR/EK/TP/5), The County Hall, S.E.1. (171) 8568

BIRMINGHAM REGIONAL HOSPITAL BOARD require ASSISTANT QUANTITY SURVEYOR (£625 × £25 (7) × £30 (3)—£890 p.a.) for Architect's Department. Applicants should have Final R.I.C.S. and be fully experience in taking off and preparing bills of quantities and settling final accounts. Superannuable. Write naming three referees to Secretary, 10, Augustus Road, Birmingham 15, by 7th March, 1955. 8561

COUNTY BOROUGH OF WEST BROMWICH. Applications are invited for the following appointments:—

(a) ARCHITECTURAL ASSISTANT, Grade A.P.T. IV (£675—£825 per annum).

(b) ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£560—£640 per annum).

Commencing salary dependent on experience. N.J.C. Conditions of Service. Housing accommodation for post (a) will be provided if necessary.

Applications, naming two referees, to the undersigned by the 18th February, 1955.

H. SCHOFIELD,
Borough Engineer and Surveyor.

Town Hall, West Bromwich. 8429

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Vacancies for ARCHITECTURAL ASSISTANTS in Historic Buildings Section, for work in connection with either maintenance or recording. Salaries up to £739 10s. Application forms and particulars, returnable by 1st March, from the Architect (AR/EK/HB/2), The County Hall, S.E.1. (158) 8544

COUNTY BOROUGH OF WALLASEY.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the position of ARCHITECTURAL ASSISTANT in the salary range £625—£675, amended with effect from 1/4/55 to £650—£775 in accordance with N.J.C. Circular 113A. Applications from persons qualified under the relevant clause of this Circular, on forms obtainable from the Borough Architect, are to be returned not later than 24th February, 1955. The Council will favourably consider the provision of housing accommodation in connection with the appointment.

A. G. HARRISON,
Town Clerk.

8559

SURREY COUNTY COUNCIL.

Applications invited for appointment of ASSISTANT MAINTENANCE SURVEYOR GRADE IV, £675 × £30—£825 p.a., plus London Allowance. Must be Members of R.I.C.S. (Bldg. Sub. Div.) and capable of drafting specifications in all trades, prep. schedules of dilaps., detailed estimates for gen. maint. works and surveys of properties.

Applications giving full details and present salary, accompanied by copies of three recent testimonials, to County Architect, County Hall, Kingston, by 26th February, 1955.

8584

COUNTY BOROUGH OF GATESHEAD.
BOROUGH SURVEYOR'S DEPARTMENT.

Applications are invited from suitably qualified and experienced persons for the following appointments which are subject to N.J.C. Conditions:—

TWO ARCHITECTURAL ASSISTANTS, A.P.T. IV (£675—£825);

ONE JUNIOR ASSISTANT QUANTITY SURVEYOR, A.P.T. I (£500—£580).

Post pensionable; medical examination; and subject to one month's notice on either side.

Applications to be sent to the Borough Surveyor, Swinburne Street, Gateshead, 8, by 5th March, 1955.

C. D. JACKSON,
Town Clerk.

Town Hall,
Gateshead, 8.
9th February, 1955. 8605

BOROUGH OF SOUTHGATE.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of ONE ARCHITECTURAL ASSISTANT in the Department of the Borough Engineer and Surveyor. The post is permanent and superannuated and is Graded A.P.T. III (£600 × £25—£725 p.a.) plus London Weighting. The starting salary will be fixed in accordance with qualifications and experience.

Forms of application may be obtained from the Borough Engineer and Surveyor and should be returned to the undersigned by not later than 9 a.m. on Monday, 7th March, 1955.

Canvassing, directly or indirectly, will be a disqualification.

GORDON H. TAYLOR,
Town Clerk.

Town Hall,
Palmers Green,
London, N.13.
February, 1955. 8604

Coventry Corporation require PLANNING ASSISTANT A.P.T.II (£560—£640) for Development Control Section. Additional local award £26 p.a. (men), £19.10s. p.a. (women) in approved circumstances. Intermediate Examination T.P.I., sound knowledge of planning legislation and practical experience of development control work essential. Additional architectural qualification an advantage. Application form and conditions from City Architect, Bull Yard, Coventry, returnable 28th February. 8609

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Vacancies for ASSISTANTS in the District Surveyors' Service. Applicants should have been trained as structural engineers. Salary up to £739 10s., according to experience. Particulars and application form, returnable by 3rd March, from the Architect (AR/EK/DSA/3), The County Hall, S.E.1. (168) 8588

HERTFORDSHIRE COUNTY PLANNING DEPARTMENT.
PLANNING ASSISTANT (GRADE III A.P.T. £600—£725 p.a.).

In the East Herts. Divisional Planning Office, Hertford. Must be competent to handle applications for development, and preferably have had experience in personal contacts with members of the public and other authorities. Associate Membership of the Town Planning Institute (or other equivalent qualification) essential. Car allowance paid. Forms from The County Planning Officer, County Hall, Hertford.

Returnable 2nd March, 1955. 8587

STEPNEY M.B.C. require TEMPORARY ARCHITECTURAL ASSISTANT for work on Council's housing programme. £650 p.a. plus London Weighting Allowance. Apply Borough Engineer and Surveyor, 227, Commercial Road, E.1. 8589

Architectural Appointments Vacant

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

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

BUILDING SURVEYING ASSISTANT (about R.I.C.S. Final Standard) with at least two years' practical experience required by City firm of Chartered Surveyors & Architects. 3925

ARCHITECTURAL ASSISTANT, intermediate standard required as a personal assistant to a principal in a large general practice in the Home Counties. The appointment will offer opportunity for works in all stages of architecture and in the administration of a private practice. Enthusiasm and ability essential. Box 5063.

SENIOR ASSISTANT ARCHITECTS required with experience of work on commercial and industrial buildings. Salaries up to £915 per annum for suitably qualified applicants.

ASSISTANT ARCHITECTS also required, capable of preparing working drawings and details from preliminary sketches. Salaries up to £745 per annum.

Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester. 4919

ARCHITECTURAL ASSISTANT: Intermediate approaching final. Commercial and industrial work; large-scale contracts. Watson, Johnson, Stokes, Victoria Square, Birmingham. 4895

ASSISTANT required in busy practice in West End, in early twenties, about Intermediate R.I.B.A. standard. Excellent opportunities for gaining all-round experience. Box 5092.

RONALD WARD & PARTNERS require several ARCHITECTURAL ASSISTANTS. Apply 29, Chesham Place, Belgrave Square, S.W.1, or telephone Belgravia 3361. 7023

ARCHITECTURAL ASSISTANT required. Must be good draughtsman and have sound knowledge of construction. Salary according to experience. Apply with full particulars to Jackson & Jackson, A/L.R.I.B.A., 13, North Street, Ashford, Kent. 8158

TWO Intermediate Standard ASSISTANTS required by Central London Office with large varied practice. Good salary to applicants interested in modern structural design. Write stating experience and salary required to T. P. Bennett & Son, 43, Bloomsbury Square, W.C.1.

WEST END Architects require Intermediate and Pre-Intermediate standard ASSISTANTS. Box 8440.

CITY Architects require ASSISTANT, Intermediate standard, also JUNIOR. Write full details, Gordon & Gordon, Finsbury House, London, E.C.2. 8441

ARCHITECTURAL DRAUGHTSMAN required in Wembley. Write stating age, experience and salary required. Box 8406.

ARCHITECTURAL ASSISTANT required; Intermediate to Final standard with office experience for small busy practice. Shaw and Lloyd, F.R.I.B.A., 74, Gt. Russell Street, W.C.1 Museum 9693. 8405

ARCHITECTURAL ASSISTANT wanted: Intermediate standard, for stores and commercial work; capable of preparing working drawings and details from sketches; competent surveyor, good quick draughtsman. Salary £650—£700 according to experience; good prospects. Apply for interview, Norman Jenes, Sons and Rigby, F/A.R.I.B.A., 271, Lord Street, Southport. 8509

JUNIOR ASSISTANT required immediately, intermediate standard, Hampton district. Write stating experience and salary required. Box 8386.

SENIOR ASSISTANT required by a Cambridge Architect (Dipl. Arch.) in a small practice. Would suit recently qualified school-trained associate or the equivalent wishing to gain first class architectural experience. Cash allowance. State salary required. Box 8387.

ARCHITECTURAL ASSISTANTS required, about Intermediate standard, for varied and interesting high grade work. 5-day week. Apply in writing only, giving full details of experience and salary required, to Sir Giles Scott, Son & Partner, 3, Field Court, Gray's Inn, W.C.1. 8356

ARCHITECTURAL ASSISTANT, with office experience, required in busy old-established practice in Bedfordshire. Salary according to ability and experience. Write Box 8332.

ARCHITECTURAL ASSISTANTS required. One Senior qualified and experienced, and one Intermediate stage, for busy West-End office engaged on commercial work. Five-day week. Reply stating qualifications, experience, age and salary required, to Box 8383.

JUNIOR and intermediate ARCHITECTURAL ASSISTANTS required. Applicants with knowledge of commercial work, including offices and stores, etc. London experience an advantage. Box 8481.

RILEY & GLANFIELD seek MALE ASSISTANT of experience for factory, Church, domestic and public house work. Ability to assume responsibility for design and supervision. Good draughtsmanship essential. Salary to be agreed. CHA 7328. 8483

SENIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required. 5-day week. Write or telephone, giving full particulars, including age and salary, to Hasker & Hall, Architects, 13, Welbeck Street, W.1. (WELbeck 0061). 8507

REQUIRED by West End London Architects, young ASSISTANT with practical experience of detailing. Keen interest more important than qualifications. Box 8489.

ARCHITECTURAL ASSISTANTS required in the Architect's Department of Reckitt & Colman, Ltd., Norwich. Large interesting programme, work guaranteed for at least three years, if satisfactory. Must be about Intermediate Standard R.I.B.A., neat and expeditious draughtsmen, able to survey and level and prepare working drawings and details under supervision. Apply stating age, qualifications, experience and salary required to Joint Secretary, Carrow Works, Norwich. 8465

ARCHITECT'S ASSISTANTS required by a large Chain Store organization. Commencing salary £600 to £750 per annum according to experience. Subsidized Staff Canteen. Staff Pension and Life Assurance Scheme. Write, giving details of past experience, age, etc., to Box AJ 104, LPE, 55, St. Martin's Lane W.C.2. 8388

"THE ARCHITECTS' JOURNAL" requires a first-class DRAUGHTSMAN for the preparation of Working Details and Information Sheets with a keen interest in the compilation of technical data.

Write to the Editor (Information Sheets), 9, Queen Anne's Gate, S.W.1, stating age, architectural training and experience. 901

OPENING for two qualified ARCHITECTS to train as ASSISTANT DESIGNERS with an ever expanding firm of new traditional builders. Must have good general practical knowledge, a keen and enquiring mind and be willing to travel abroad if required. Starting salary £650. Messrs. Reema Construction, Ltd., Milford Manor, Salisbury, Wiltshire. 8491

CIVIL ENGINEERING AND ARCHITECTURAL ASSISTANTS required by The Steel Company of Wales Limited (Steel Division), Port Talbot, in their Engineering Drawing Offices.

Highest rates. Permanent positions. Attractive Pension Scheme.

Those wishing to apply should write giving full particulars of age, experience, qualifications, etc., to the Personnel Superintendent, The Steel Company of Wales Limited (Steel Division), P.O. Box No. 3, Port Talbot, Glam. 8501

REQUIRED for Architects' office, Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 2325

BARTLETT & GRAY, Dip. Arch., A/A.R.I.B.A., require ARCHITECTURAL ASSISTANTS. Salary: Senior, £400—£650 p.a.; Junior, £250—£400 p.a. Varied practice including: Housing, Factories, Shops, Offices, Schools. Apply to Castle Gate Chambers, Castle Gate, Nottingham. 8465

MAJOR Petroleum Distribution Company require for their London Office a SENIOR ARCHITECTURAL ASSISTANT. Applicants must be fully qualified, experienced and capable of applying initiative and drive to the development of a major project just commencing. Applications giving full details of age, qualifications and experience to Box 8420. Replies can only be sent to those selected for interview.

SURREY.—SENIOR ASSISTANT ARCHITECT required in busy and growing office—man of initiative able to take complete control of work. Excellent prospects, salary £750/£850; apply with full particulars to Box 8570.

MANCHESTER practice requires ASSISTANTS with some office experience for interesting good quality work, mostly contemporary; able to carry jobs through, under supervision, quickly and accurately. Congenial office; individual ideas encouraged. Some school and/or church experience an advantage. Commencing salary £600—£700 p.a., according to qualifications, and thereafter commensurate with ability. Profit-sharing scheme to be inaugurated in due course. Please apply, with particulars of age and experience, to Box 8425.

ARCHITECTURAL ASSISTANT required. Office experience and clean draughtsman essential. Salary £500—£600 p.a. Apply with details, to R. Jelinek-Karl, F.R.I.B.A., 22, Chancery Lane, W.C.2. 8469

ARCHITECTURAL ASSISTANT required; experienced in preparation of working Drawings, Details, Specifications and supervision, for South West London Office. Apply in writing, giving full particulars of experience, age and salary required, to Box 8432.

ARCHITECT'S ASSISTANT urgently required with experience of preparation of working drawings, details and specifications, etc. Please apply in writing stating experience, age and salary required, to H. Payne Wyatt, Son & Partner, Bank Chambers, 463/5, Brixton Road, S.W.9. 8433

ASSISTANT urgently required in Architectural Section of firm of Chartered Surveyors to work largely on own initiative. R.I.B.A. qualification not essential; applicants considered on merits. Salary according to age and experience. Apply R. E. J. Chew, A.R.I.B.A., Browett Taylor & Co., Chartered Surveyors, 3 & 4, Lincoln's Inn Fields, W.C.2. Tel.: CHA 8275. 8436

CLIFFORD CULPIN & PARTNER require keen ASSISTANT. Salary approx. £700. Also enthusiastic JUNIOR with some office experience £6 to £8. Work includes Schools, Flats and Housing. 3, Southampton Place, W.C.1. CHAncery 5395. 8517

CITY firm of architects and surveyors require first-class DRAUGHTSMAN to work principally on shop fitting contracts. High standard and speed of draughtsmanship essential. Write giving particulars of past experience, qualifications and salary required to Box 8344, c/o, Charles Barker & Sons Ltd., 31, Budge Row, London, E.C.4. 8511

ARCHITECTURAL ASSISTANT, Inter-Standard with some experience, required for work on large laboratory project in London. Write to Clifford Tee & Gale, 5, Buckingham Palace Gardens, S.W.1. 8415

QUALIFIED ARCHITECTURAL ASSISTANT for busy general practice. Salary up to £600 p.a. according to experience. Apply H. N. Jepson & Partners, Midland Bank Chambers, Nuneaton. 8516

ARCHITECTURAL ASSISTANTS required for London and Ipswich Offices of Private Architect. Applicants should be aged 25 to 35 with a knowledge of contemporary works and preferably school trained. Reply, giving full details of qualifications and experience and salary required to Box 8519.

ASSISTANTS—Inter. and Final standard. Salary according to ability—ring AMB. 7271. Box 8571.

APPLICATIONS are invited for the appointment of a senior ARCHITECTURAL & SURVEYING ASSISTANT in the Surveyor's Department of a well-known London company. The work will cover the design and construction of new buildings, together with works of reconstruction and adaptation. The commencing salary will range from £800-£850 a year according to qualifications and experience. Applications, together with copies of three recent testimonials, should reach Box 8573 by first post on Friday, 25th February, 1955.

POWELL and Moya require ARCHITECTURAL ASSISTANTS, Inter. standard, with office experience. School and hospital work. Salary £400—£500. 'Phone ABBey 3156. 8574

ASSISTANTS, Junior and Senior, required. Salary according to qualifications and experience. Write giving details to Richardson & McLaughlan, 13, Mansfield Street, W.1, or telephone Langham 5984. 8576

CLIVE PASCALL (F), 124, Victoria Street, S.W.1 (Vic. 0994), requires an ARCHITECTURAL ASSISTANT, Inter. R.I.B.A. Standard or thereabouts, for medium-sized practice with considerable contemporary variety. Five-day week. Luncheon vouchers. Write or 'phone for appointment, giving qualifications. 8575

CONSTONE LIMITED, South Wigston, near Leicester, require ARCHITECTURAL DRAUGHTSMAN for setting out cast stone. Permanent position for right man. Apply stating age, experience and salary required. 8577

ARCHITECTURAL ASSISTANTS required for varied and interesting contemporary work in medium-sized office with scope for initiative and responsibility. Two A.R.I.B.A. or Final Standard with some office experience and two of intermediate standard. Salaries by arrangement according to ability. Hadfield, Cawkwell & Davidson, 1, High Court, Sheffield, 1. 8569

BRIAN PEAKE requires SENIOR ASSISTANT, interested and experienced in the running complete of small contracts. 7, Chesterfield Hill, W.1. Tel. No. GRO 7888. 8551

ASSISTANTS required for firm of Architects in Portland Place area, the following qualifications being essential:—

(a) Should be about Intermediate standard;
(b) Excellent drafting ability;
(c) Several years' office experience;
(d) Sound knowledge of construction;
(e) Keen interest in modern architecture.

Box 8564.

ARCHITECTS.—SENIOR ARCHITECTURAL ASSISTANTS required immediately for a wide variety of work. Salary range £700—£975 per annum. Superannuation scheme.

Application should be made in writing to:—Kenneth F. Masson, A.R.I.B.A., Chief Architect, S.C.W.S. Ltd., 119, Paisley Road, Glasgow C.5. 8565

ASSISTANT ARCHITECT, Intermediate R.I.B.A., required by British Railways for Architect's Office, Euston. Applicant must be competent to carry out work from the scheme to contract stage with minimum of supervision. Starting salary £660. Residential and other travelling concessions available. Applications with particulars of age and experience to be addressed to Chief Civil Engineer, London Midland Region, British Transport Commission, Euston Grove, London, N.W.1. 8597

A LARGE industrial firm in the Midlands require permanent and temporary CLERKS OF WORKS for the supervision of minor and major structural alterations to their many properties throughout Great Britain, and also for the supervision of a new factory construction. Initially successful candidates will operate from headquarters. A good deal of travelling by rail will be involved. Apply stating age, qualifications, experience, whether married or single and salary required, in that order. Box No. 473, Smiths' Advertising Agency Ltd., 100 Fleet St., London, E.C.4. 8598

ARCHITECT'S ASSISTANT wanted—Junior or Inter standard. Write or Telephone 5685 for appointment to C. Gurney Burgess, Esq., LRIBA, Market Hill Chambers, George Street, Luton, Beds. 8614

ARCHITECTURAL ASSISTANT required for small but varied practice in Greater London area. Good design and draughtsmanship and some site supervision required. Commencing salary £440 per annum. Please write to Tingey Associates, 29a Longbridge Road, Barking, Essex. 8613

ARCHITECTURAL ASSISTANT, up to 32 years of age, required by multiple company, Northampton. Able to prepare drawings/specifications for shop property alterations/developments. Permanent position. Pension scheme. Commencing salary £550—£600 p.a. Apply Box 8596.

ARCHITECTURAL ASSISTANTS and ASSISTANT ARCHITECTS urgently required in Central London office (W.C.1) with wide range of work. Applicants must be capable of producing working drawings and supervising work. Wages will be paid commensurate with ability. Excellent prospects for those who wish to settle down. Please write stating age, salary required and experience, to Box 8592.

ARCHITECTURAL AND SURVEYING ASSISTANT of at least Intermediate Standard. Neat draughtsman with sound practical experience. Fine opportunity for keen young man interested in close contact with modern building methods. Superannuation scheme. Please write relevant details to: Howard Farrow Limited, Building Division (Architectural Dept.), Golders Green Road, London, N.W.11. 8596

ARCHITECTURAL DRAUGHTSMAN required for London Office of major Oil Company. Applications stating age, present position, qualifications and experience and salary required, to Box 8594.

HIGH WYCOMBE firm of Architects require: ONE ARCHITECTURAL ASSISTANT—senior fully qualified. TWO ARCHITECTURAL ASSISTANTS—junior, preferably Inter. standard. ONE QUANTITY SURVEYOR—senior qualified, able to prepare Bills of Quantities without supervision. ONE QUANTITY SURVEYOR—junior, capable of working-up. Salaries will be according to age and experience and applicant should have completed National Service. Box 8552.

HELLBERG AND HARRIS F/A.R.I.B.A., require qualified senior ASSISTANTS for school, industrial and commercial work. Successful applicants will be given responsibility. Apply stating experience and salary required to 13, Queen Victoria Road, Coventry. Tel. 40521-3. 8548

ARCHITECTURAL ASSISTANT wanted. Intermediate R.I.B.A. Standard with office experience. For busy West End practice. Salary according to experience. Apply with full particulars to E. H. D., Box 8549.

A VICTORIA office requires both junior and intermediate grade ARCHITECTURAL ASSISTANTS. Applicants should be interested in planning for modern industry, the presentation of schemes and the working-up of details, etc. Please reply stating previous experience and salary required to Box 8536.

COVELL AND MATTHEWS require THREE ARCHITECTURAL ASSISTANTS. Hospitals, schools, churches. Sound knowledge of contemporary construction and detailing. Salary: £600—£700—£800. Apply in writing to 48, Seymour Street, London, W.1. 8535

EXPERIENCED ASSISTANT required to take charge of Drawing Office in country town, North Essex. Salary, bonus and subsistence allowance. Apply with full particulars to Box 8533.

JUNIOR ASSISTANT required for general practice. Twelve miles on direct bus route from centre of Bristol. Apply giving details of experience and salary expected to J. A. Matthews, Dip.Arch.(Manc.), A.R.I.B.A., Chesterfield House, Chipping Sodbury. 8532

ARCHITECTURAL ASSISTANT required about Intermediate R.I.B.A. Standard for Private Practice in Truro area. Age and experience to Box 8547.

SENIOR ASSISTANT required for Head Office, Bristol, with sound practical experience, high standard draughtsmanship; opportunity to exercise contemporary designing abilities. Prepared to take full responsibility in controlling contracts on very wide variety of work in an expanding practice. Reply in writing stating experience, qualifications, age and salary, to Angus McDonald & Partners, A/A.R.I.B.A., 1, Unity Street, College Green, Bristol, 1. 8531

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