THE ARCHITECTS' JOURNAL

Standard contents

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

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

ILA	Institute of Landscape Architects. 1, Park Crescent, W.1.	Museum 3473
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1.	Hunter 1945
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee), Fire Research Station, Boreham Wood, Herts	Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2.	Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, W.1.	Hyde Park 7070
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's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell-Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 14, Howick Place, Victoria Street, S.W.1.	Victoria 1600 & 6477
NAS	National Association of Shopfitters. 2, Caxton Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10, Storey's Gate, S.W.1.	Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4459
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1631
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1.	Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street S.W.1.	Trafalgar 6838
NT	National Trust. 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
RIB	Rural Industries Bureau. 35, Camp Road, S.W.19.	Wimbledon 5101
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.	Whitehall 5322/9245
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SE	Society of Engineers. 17, Victoria Street, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

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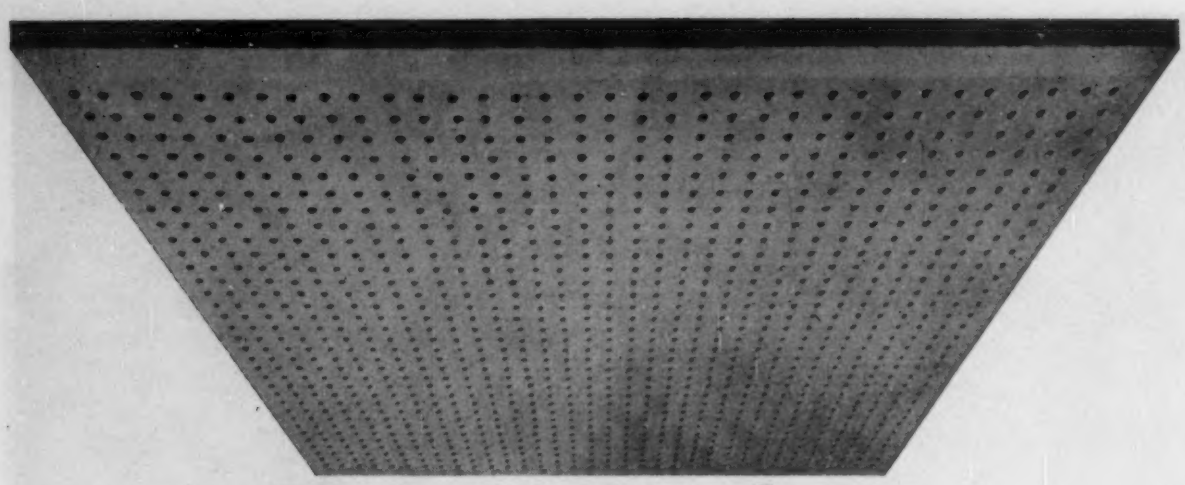

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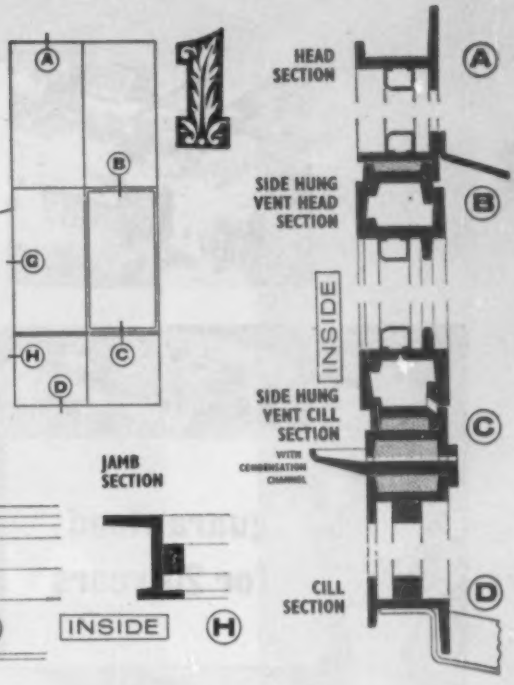

1 The Architect has achieved a bold elevational effect by setting Steel windows, between the verticals and horizontals of his concrete structure — the result has many of the advantages of curtain walling but avoids the usual flat effect.

2 The Architect has used a dark massing effect of brickwork to set-off the glass areas of the Assembly Hall of this school. These Steel windows are coupled horizontally and incorporate outward opening doors in case of emergency.

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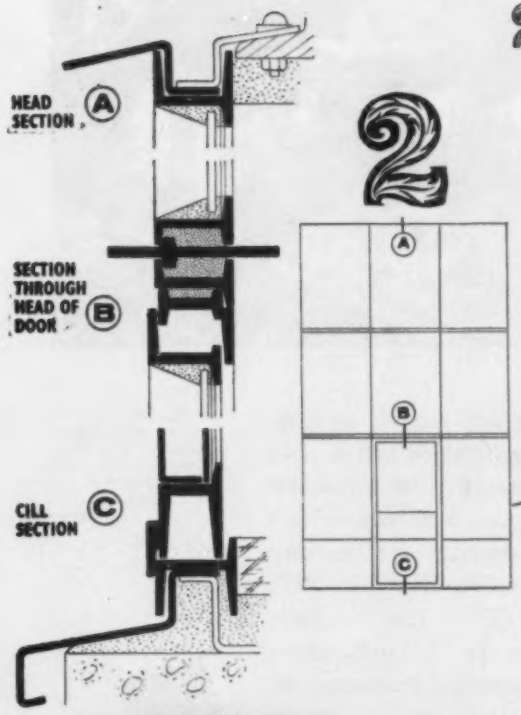

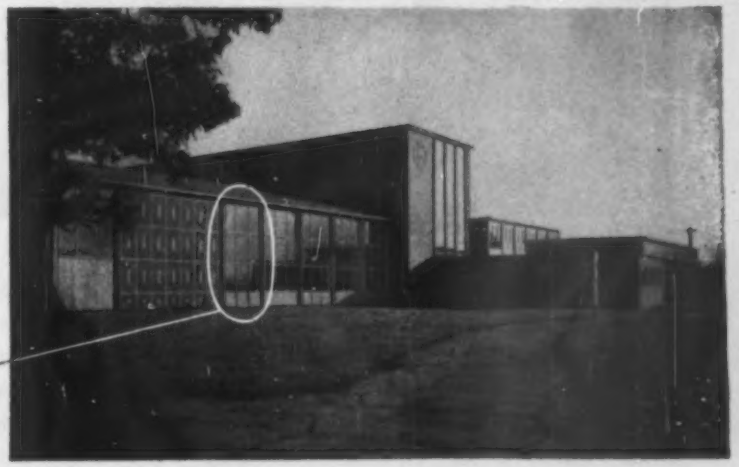

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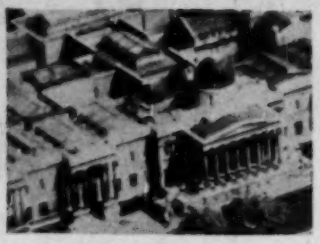

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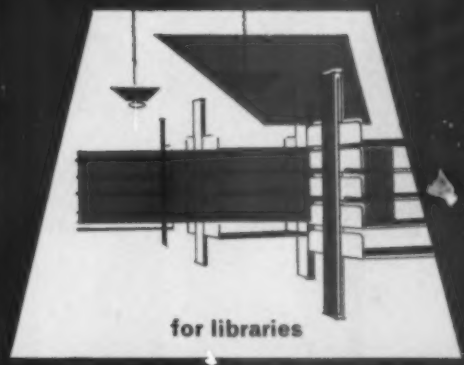

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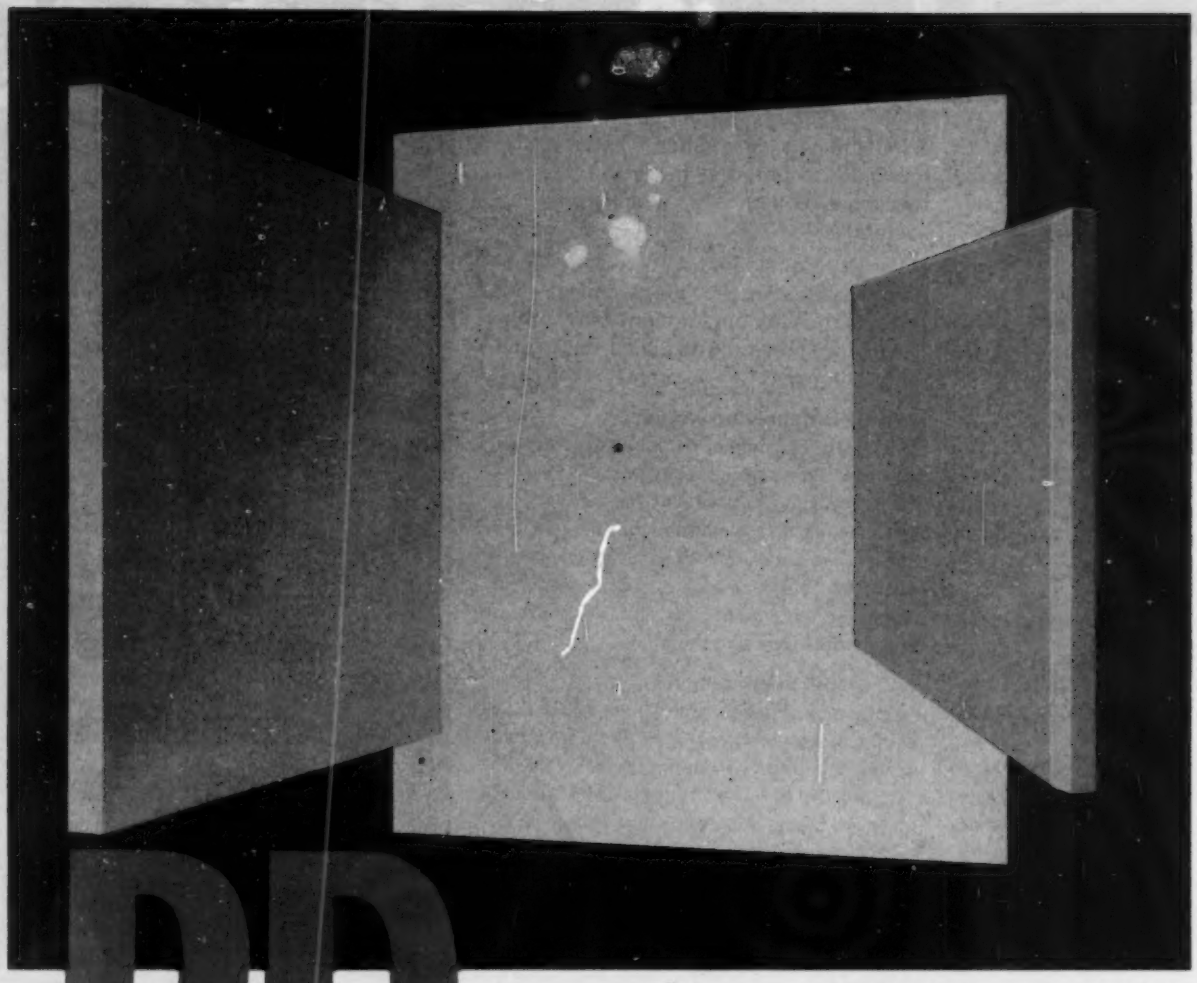

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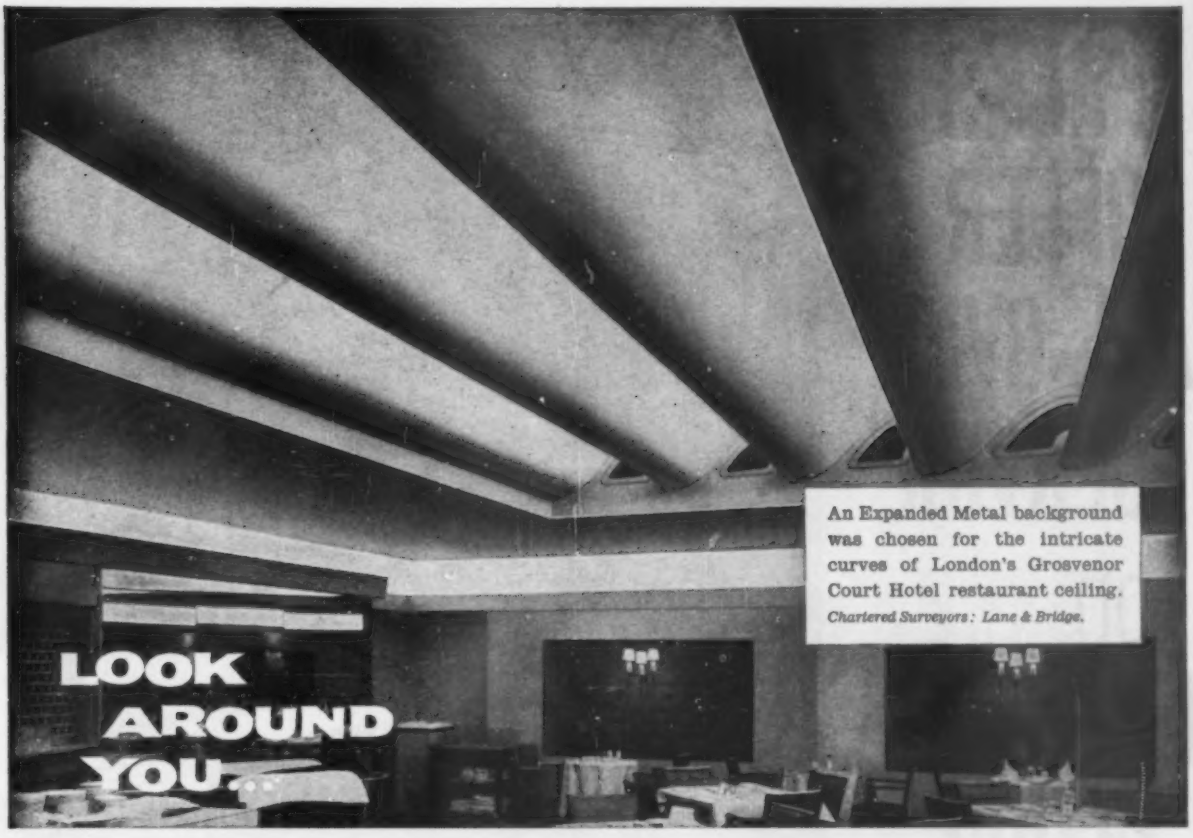

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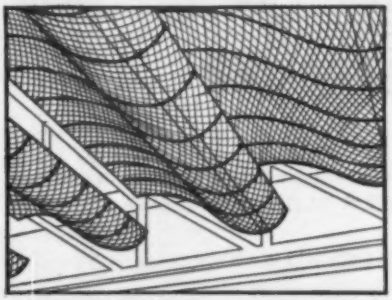

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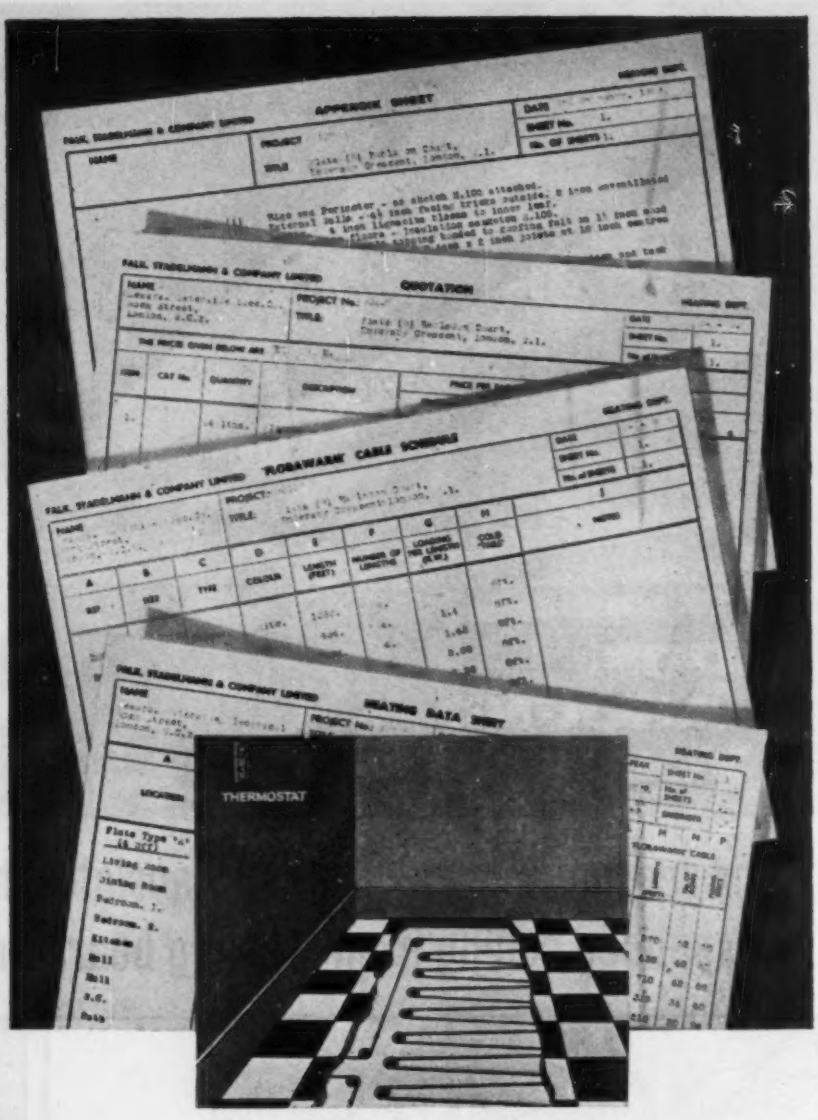

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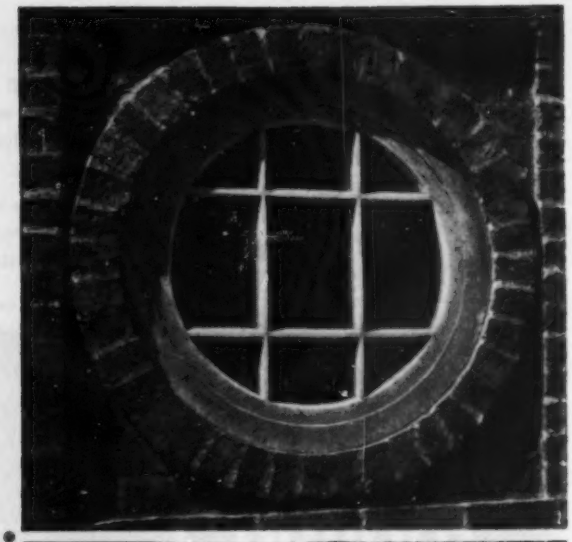

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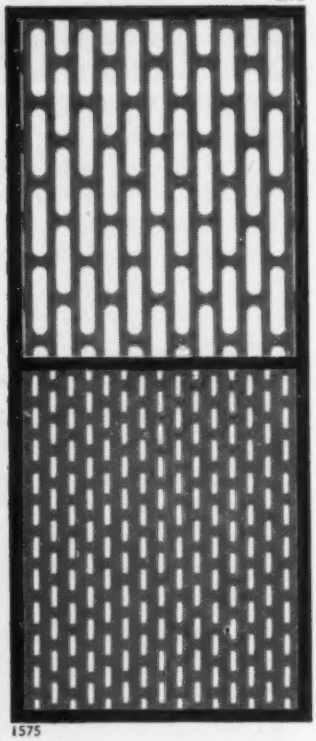

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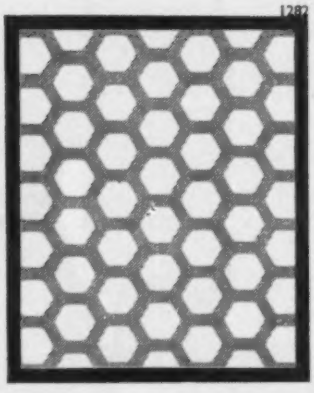

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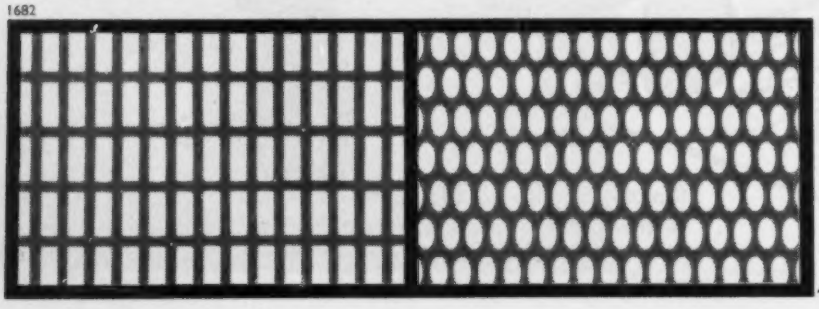

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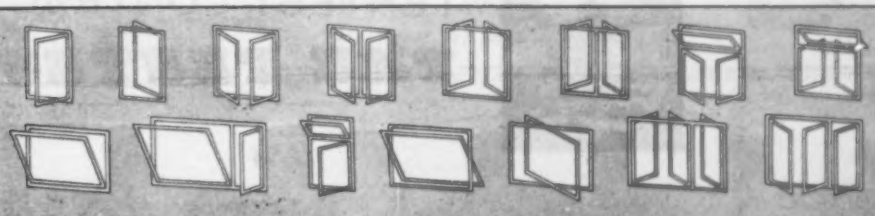

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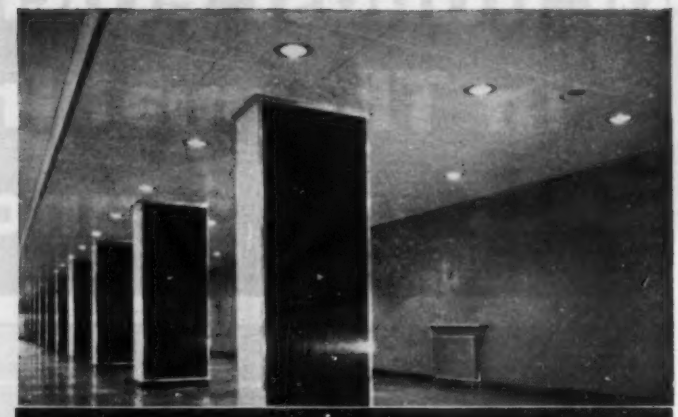

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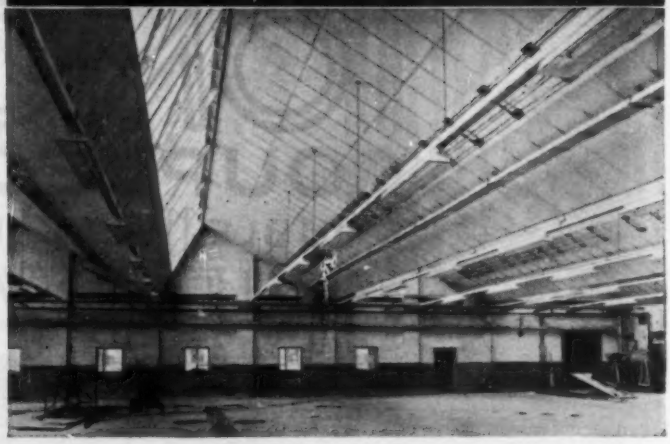

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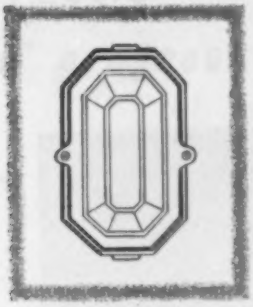

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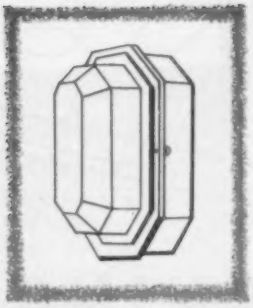

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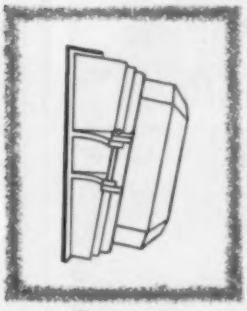

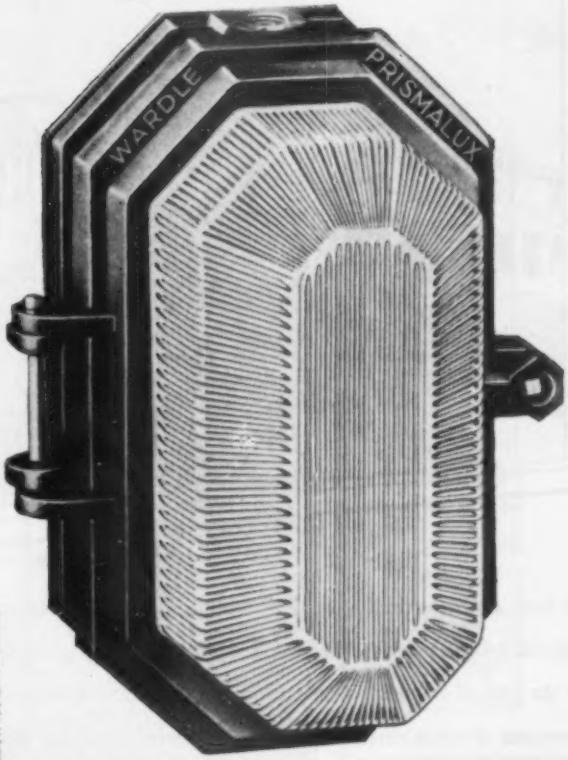

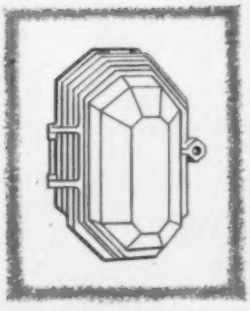

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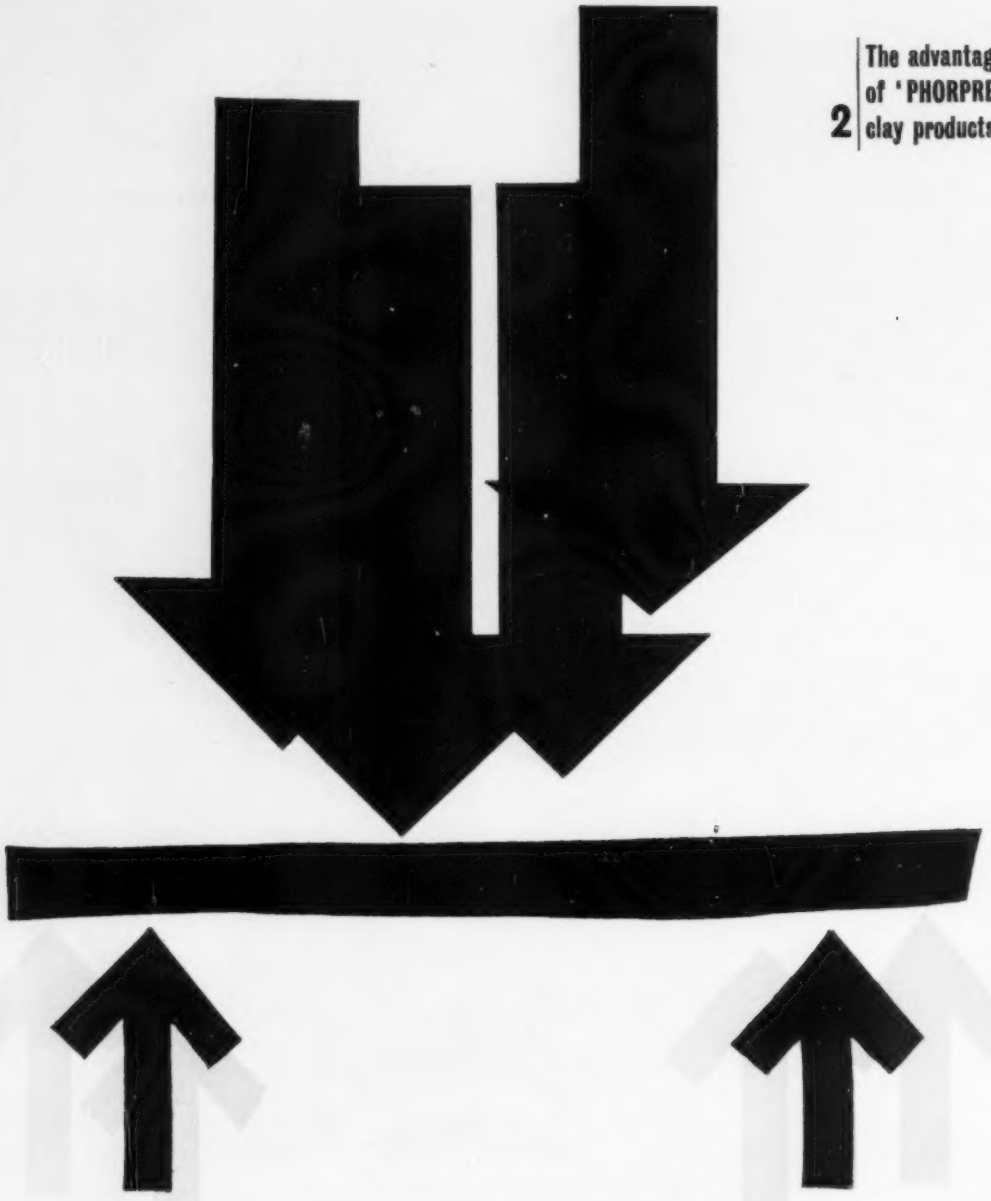

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NOT QUITE ARCHITECTURE

FILE UNDER $\frac{\text{B}}{69{\cdot}001{\cdot}3\text{ (verse)}}$

Isn't it time something was done to improve architects' specifications—those useful, but long prosy documents, quite uninteresting in themselves? They are completely out of date in conception, and are just not in keeping with today's outlook, and smartly presented contemporary drawings and designs.

*

If, now, they were presented in rhyming verse that would be another matter, and a further step in interesting the general public in architectural matters—

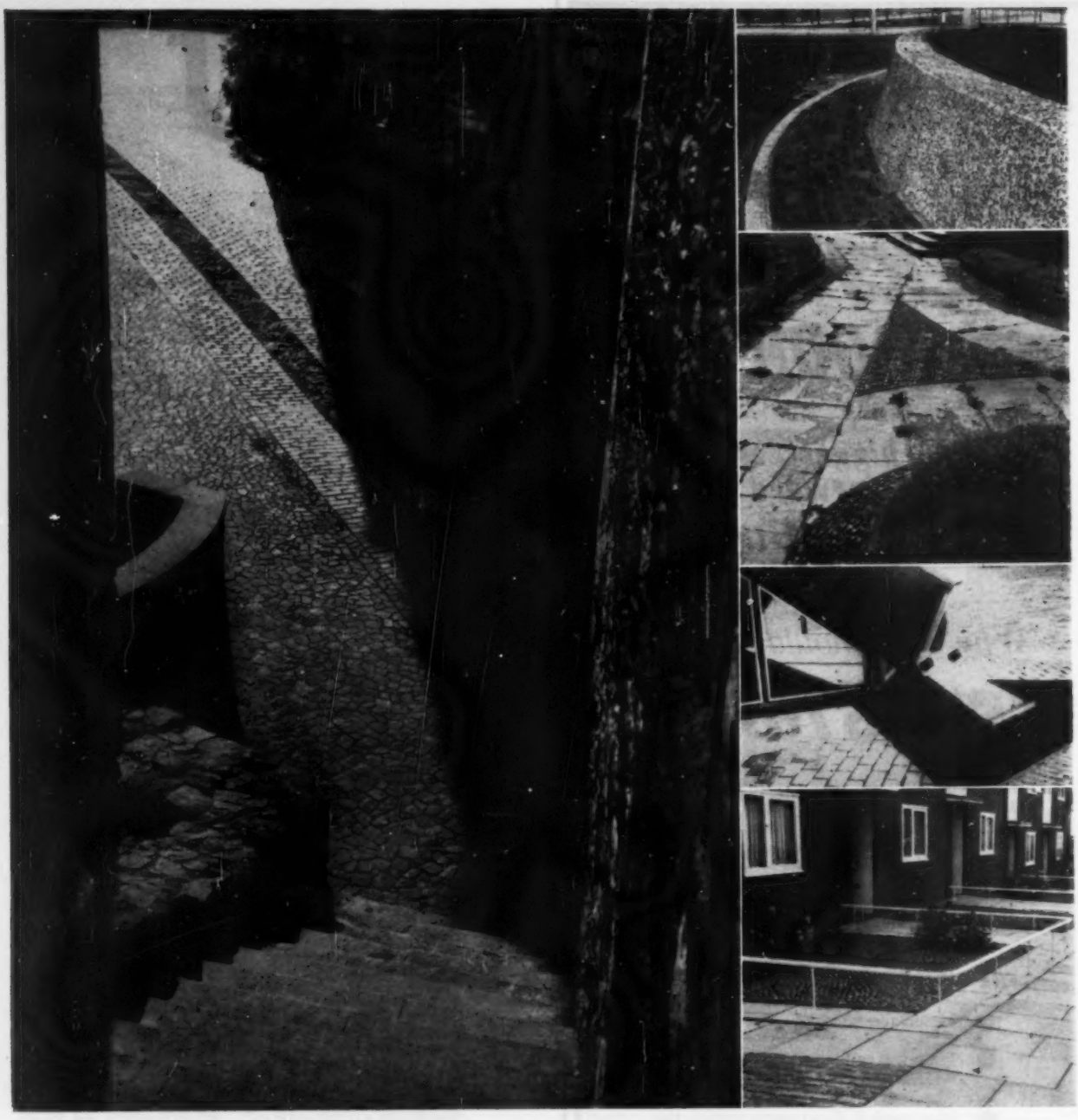
I know his designs are perhaps not quite up to the mark, but my DEAR, his SPECIFICATIONS—

Now, one can't imagine an architect's memoirs having a very large sale, but—

Hitherto unpublished specifications of Mr. . . ., who was a well known Dorset architect. Most of his earlier specifications appeared on his retirement in . . . I particularly enjoyed his verses on plastering, a field in which he excelled. . . . Published by Rendor and Sette, 25s.—

Admittedly, there would be disadvantages and difficulties:

I am afraid we were unable to include a Harcourt-Williamson pre-selectable extract ventilator in your new house, as it was found impossible to accommodate it satisfactorily into the metre of the specification. However, if you refer to verse 86, line 3, you will see that. . . .



Details for Floorscape

After the roof, the space between buildings has been the most ignored and neglected element in architectural design of this century. Thanks to the *Architectural Review* after the war a series of articles illustrated with photographs and the sketches of Gordon Cullen have drawn attention to the importance of making the ground beneath our feet as varied, stimulating and attractive as the sky overhead,.and to serve the obvious function of marking out where and where not our feet should tread. Until now there has been no comprehensive collection of good floorscape details. The omission has been rectified by architect Elisabeth Beazley in her admirably illustrated and detailed book *Design and detail of the space between buildings* (published by the Architectural Press, price 42s.). The photographs above, taken from this book, illustrate a few of the many aspects of floorscape for which Elisabeth Beazley provides a mass of information on design, materials, specification and construction. Top right is part of an in situ concrete retaining wall at the Elephant and Castle (architects: LCC) with exposed granite finish and a contrasting paving of brick. Below, the use of cobbles for drainage, and to reduce the scale of a paved path. Below again, the use of an iron grating to catch rainwater from the domed roof of the MIT auditorium. Bottom, low iron guard rails to maintain privacy for open-fronted houses. Left, an impressive example of the pavior's craft.

To illustrate the idea more fully, here are some suggested specimen clauses, taken at random for various trades:

20. Excavate,
Depth two feet eight,
And refill trench when inspected.
Spare earth to be spread,
In a level bed,
At a point on the site where directed.

34. Supply and lay
To each bay
Concrete of this mix;
Portland cement, and
Gravel and sand,
In the proportion of one to six.

35. It must be laid
As soon as it's made,
To the sizes previously noted;
With smooth face,
On hard core base.
Six inches thick when floated.

40. Cover the joints
At these points
With a layer of "Expamet,"
And finish the wall,
'Twixt lounge and hall,
With two coats render and set.

[illegible]. All timber to be
Completely free
Of shakes, wavy edges and knots.
Contractor, beware!
You must repair
Any faults which the architect spots.

87. Of a correction
To the section,
Carpenter, here's a reminder;
Four by two plate,
Ridge one by eight,
Six by three purlins and binder.

94. Provide and fix
Six foot six
By two foot six flush doors:
Plywood faced,
And to be placed
On first and second floors.

106. Allow the sum
Of ten pounds one,
For valves for water mixing:
To be connected
Where directed,
And add for profit and fixing.

114. Provide and fix
Five foot six
Rectangular bath and side panel;
With taps to the main,
Waste plug and chain,
And recess for holding a flannel.

115. Install please
Two w.c.s
Where they are shown on plans:
Complete suites,
With plastic seats,
And white glazed fireclay pans.

F. PITFIELD

The Editors

PROFESSIONAL WEDDING PREPARATIONS

A NUMBER of the engineer speakers who contributed to the discussion which followed Alan Harris's excellent paper at the RIBA on *Architectural Misconceptions of Engineering*,* made the point that the paper ought to have been given at the Institution of Civil Engineers and not at the RIBA. It is notorious that architects feel the need for collaboration with engineers more ardently than vice versa. This is the natural outcome of the fact that, whereas architecture has always been regarded as a general subject with a broad basis in human requirements, engineering has developed as a series of specialised subjects. In an age of specialisation it is usual for life's general practitioners to feel the need for specialists. It is much less usual for this feeling to be reciprocated: for the specialist to note that his lifelong concentration upon detail may have affected his judgment even on matters within his own professional terrain. Yet this need is as real as the other, even though it is not yet widely recognised. A sense of the interdependence of architect and engineer is rare among the engineers of this country; and it is perhaps not altogether accidental that the few who, like Alan Harris, possess it, have also a continental professional upbringing.

If Alan Harris's view is accepted, as surely it ought to be, then his talk may be interpreted as a kind of pre-marriage guidance for the architectural partner in this future professional liaison. His main point of guidance—put delicately in his paper but more explicitly in his summing up after the discussion—is that architects would make themselves more fitted for exchange with engineers if, like engineers, they were to become "numerate": that is, if they were to be as fluent in numbers and mathematics as they already are in the alphabet and grammar. This he urged not on the ground that mathematics forms the basis of design, but that its use makes design easier and its practice gives the mind that background of precise information which is so useful when guesses have to be made. Since it is the architects who are wooing the engineers, it is for the architects to embark on this self-improvement without loss of time.

RAIL-ROAD REAPPRAISAL

Baiting British Railways has become a fashionable sport, and the value of our rail transport system is in serious danger of being underestimated because the road hogs and car interests are so vociferous.

So it was interesting to notice, amid the pop of explosions in and about Glasgow's six-week-old electric train service (now so incredibly withdrawn while "teething troubles" are cured in AEI's new electric engines) that the improved service has brought an immediate increase of custom, from 170,000 passengers a week to 400,000.

Only a few days before, London Transport announced that,

* See page 926.

since the new station was opened at Notting Hill Gate, providing easy interchange below ground between Circle and Central lines, passengers using the station have increased from 9¾ million to 14 million in a year.

Such a response to modernisation shows that better services will bring thousands of passengers off the roads to the greater comfort, peace, safety and speed of the dear, old-fashioned railways.

The Government's new proposals for the railways we hope foreshadow more of such schemes, but decentralisation and a "businesslike" determination to "make it pay" will not solve our transport problems. These will only begin to be solved when the Ministers of Transport and Housing recognise that they share one problem, and treat our whole transport system as a vital part of town and country planning. There is no sign that this fact has yet been recognised.

HOT AT THE TOP

ASTRAGAL went along to the official opening of the LCC's Brandon Estate, Southwark, the other day, and found all the tenants he met very enthusiastic about the place. One pair, living on the top floor of a tower block, said that "at night, with all the lights on over London, it's just like being on board ship." They said they enjoyed surprising friends by asking them up ("and they sometimes need some persuading") and showing them how homely it is. Homely is certainly the right word. It's incredible to walk into a seventeenth floor flat and find yourself in something that looks like the front parlour of a cottage; and *feels* like it too. I was almost knocked backwards by the heat, provided on the blown-air system. Tenants say the system is economical (in a three-room flat they pay 15s. 6d. a week for heating and hot water, plus an extra charge on the basic meter allowance) because they can control it themselves. Those who are out working all day find the system particularly good, because the constant background heat keeps the structure dry and aired and they are not troubled (as early Roehampton tenants were) by the effects of condensation.

*

The LCC intends to repeat this form of heating on future large estates with one interesting improvement. It hopes to put the large oil-fired boiler houses on rooftops, and thus do away with their usual expensive foundations.

MUSCLES AND COCKLES

A couple of weeks ago an architect appeared on BBC TV's *Panorama* talking complete gibberish about the Henry Moore exhibition. And if you think I'm being unkind, let me explain that Mr. Steedman—if I've got the name right—*admitted* he was talking gibberish. In fact he admitted far more—that he was paying fifty guineas for the chance of doing so. Apparently he was on a week's course, designed to make him "uninhibited and muscularly free." The camera team caught him half way through the course, and it was certainly having an effect. Only a very uninhibited architect would allow himself to be interviewed as "a businessman."

*

In the following week's *Panorama* another architect turned up—a Mr. Süssmann? to be congratulated by Mr. Dimbleby on winning a first prize (two were given) in the programme's amateur film competition. We were shown the film, which was a somewhat morbid bit of camera preoccupation with old steam engines and the rather damp and steamy things that happen to their vital parts. Very nice, I'm sure, for anyone who finds pleasure in rusting iron cockles.

B IS FOR BOGUS

No one has written a really good children's guide to architecture. The man to do it is, I'm sure, Eric Lyons, who is giving the RIBA Christmas holiday lectures, this week, for boys and girls. I've seen an advance copy of his notes and I can't help thinking they're going to make some of those children too hot to handle when they get home. With his usual wit and a fair amount of enlightened self-interest (after all, with luck he'll still be practising in twenty years time), Mr. Lyons is treating the audience as a planning committee designate. If anyone leaves the lectures with a favourable opinion of bogus architecture, semi-det status-building or suburban sprawl he simply hasn't been listening. And if anyone hasn't been listening it can't be Mr. Lyons' fault. He has a tremendous flair for relating architecture to the people who use it, and making them respond to his challenging remarks. Not so long ago I saw him infuriate a hall full of people who didn't even know, until then, that they were interested in architecture.

WHAT YOU WANT IS WHITNEY

For Christmas relaxation in London let me recommend, apart from the obvious things, the pictures from the Whitney collection at the Tate Gallery. Although there is nothing difficult enough here to frighten Auntie, it is all good stuff—including what is reckoned to be the best Van Gogh self-portrait, some *Fauve* paintings by Dufy, Derain, Vlaminck and so on, all bursting with captive sunshine. An then there's vintage Cezanne and Toulouse Lautrec, and some good American paintings of the older generation which you rarely

The site for a civic centre competition at Lincoln, advertised by the City Council in the AJ for December 15. On the left (foreground) is the new road to the centre of the town, over the main railway. The site itself is the open area, now used mainly for car parking, beyond the roundabout. Competitors are asked to design for a civic centre and a number of shops for the whole island site, and to retain Sincil Street, on the far side, as a pedestrian shopping area. Another admirable feature of this competition for buildings and *townscape is the fixed maximum cost—something neglected in many other civic competitions. The cost is not to exceed* £975,000, *excluding site clearance and professional fees and including external works. Three premiums of* £4,000, £2,000 *and* £1,000 *will be paid for the three best designs, the assessors reserving the right to combine and redivide the second and third prizes according to the number of designs of outstanding merit. Assessors: Geoffrey Jellicoe, FRIBA, Sir Leslie Martin, FRIBA, and J. M. Richards, ARIBA. Closing date July* 7, 1961. *Last day for questions: January* 31. *Applications to the Town Clerk, Saltergate, Lincoln, with a deposit of* 2 *guineas.*

see in England—Winslow Homer, Eakins and so on.

PROFESSOR WINDS UP

Professor Wind finally got round to architecture in his fifth Reith lecture on *Mechanisation in Art*. It was a curious series, full of fascinating miscellaneous information (especially on the men who have made our ideas about Art) but it hasn't been possible to find any general argument running through it, and even now it's not easy to see what the professor thinks of modern architecture. He clearly dislikes most recent buildings, in whatever style. And although he is loath to see architects relinquish *any* of their design responsibilities to component manufacturers, he is prepared to admit that the best modern buildings are produced from a high level of involvement between architect and mechanisation.

VERY LITTLE NELL

The Age of Charles II which is, as you know, the winter exhibition at the Royal Academy, might equally well be called *The Age of Affluence I*. The galleries are cluttered with overwrought silver and furniture and bulging with baroque vulgarity. And the walls are practically papered with Lely and Kneller portraits of overdressed females fiddling with their bodices and overfed men apparently in need of their peppermints. It is a daunting vision which omits most of the things that rendered the age glorious.

*

You would only just know it was the Age of Nell Gwynn (there are two portraits, one doubtful) though you get a slightly stronger sense of the Age of the Royal Society (two and a half cases of scientific instruments). There is very little sense of the Age of Grinling Gibbons (only four pieces) while the Age of Wren is represented by two portraits apiece of Hugh May and Sir Christopher himself. Architecture is —I suppose, a tough proposition to exhibit in a show like this, but its absence throws the whole image of the period out of balance and is compensated for only very slightly by the strong showing of sculptors. The Merry Monarch's scowl, from a mass of wig-maker's ringlets, was obviously a gift to sculptors, and John Bushnell got good value out of it in the full-size standing portrait from the old Royal Exchange. It now dominates the central hall of the RA, but without entirely killing the Gibbons *Cherubs with a Bible*, and two weirdly impressive figures of Raving and Melancholy Madness by Cibber. I'd give you the rest of the show for these four (and the Pierce bust of Wren round in the next room).

ASTRAGAL

LETTERS

Leonard C. Howitt, F.R.I.B.A., M.T.P.I.

Eric de Maré, A.R.I.B.A.

Reyner Banham, Ph.D.

Frederick Adams,
President, Institute of Registered Architects

The IME Letter

SIR: While one can understand the reluctance of the Royal Institute of British Architects to comment in other than general terms on the letter which the Institution of Municipal Engineers has addressed to certain town clerks, the facts are so distorted that they cannot be allowed to pass unchallenged.

The Institution freely acknowledges that local authorities should employ the services of architects, as practically all of them are doing, and agrees that undoubtedly the best method from the point of view of economic and efficient local administration is the single department co-ordinating and carrying out all building activities, including their engineering, architectural and planning aspects, controlled by one chief officer with assistants who are qualified in the various branches of the work to be carried out.

This is precisely the view of the City and Borough Architects' Society, which has been successfully campaigning for the past 12 years for the establishment of such departments. But, unlike the Institution, we architects claim with a logic that is beyond challenge that the chief officer responsible for co-ordinating and carrying out building activities must be the architect, the recognised leader of the building team—not the municipal engineer, whose talents lie in other directions.

The whole case put forward by the Secretary to the Institution rests in a fallacy arising out of the application of the title "engineer." Unlike "architect," which has a statutory significance, "engineer" can be applied to the designer of some mammoth civil engineering undertaking or to the man who oils the engine on a local ferry boat, and it is wise and usual to include a qualifying prefix.

The engineering content of building work on which the Institution's letter puts such stress is certainly not municipal engineering; it is more properly defined as building engineering, which comprises the professions of structural, electrical, heating and ventilating engineering.

These are the professions which normally work in association with the architect and under his leadership in all building projects, public or private. It is therefore right and proper for these specialists to work as members of the building team in the architect's department.

Viewed in this light the reference in the Institution's letter to the amount of building work which is still carried out under the nominal direction of municipal engineers merely serves to emphasise the extent of the wrongs which in the public interest should be righted.

The reluctance of the municipal engineers concerned to lose the larger and more interesting part of their present responsibilities is understandable. But only the most unreasonable could deny the logic and justice of the architect's claim. The fallacious arguments now advanced will do nothing to stem the progress of the enlightenment of municipal authorities which originated in these parts nearly 60 years ago, Manchester, Bradford and Hull having established the first city architect's departments in 1901.

LEONARD C. HOWITT,
Sale, Cheshire.

Full Employment Nonsense

SIR: Mr. Michael Leonard in his letter calling for a rationalised æsthetic goes too far. In any creative activity reason on its own leads only to sterility. Anyway, you cannot eliminate the unconscious mind, however hard you try. But we should certainly become more conscious of what, broadly, we are trying to do and what it is we really want.

For example, your leader-writer on "New Life in the Countryside" accepts assumptions which, rationally analysed, can be shown to be crazy. (To soften that blow I must add that nearly everyone else accepts them too.) They are: (1) that all towns and villages should provide, or be made to provide, "expanding economic opportunity" (For whom? For what?); (2) that the object of an economic system, indeed of any human society, is to provide everyone with Full Employment for ever.

Why do we *want* a labour-camp civilisation? Look at the beastly, dreary, wire-filled earth-rape it makes. Let the machines do the chores. What are they for otherwise? Then we can begin to enjoy life, each in his own way without compulsions (perhaps re-creating the environment), while living more and more on the Wages of the Machine and less and less on so-called earnings through Full Employment (which is by no means the same thing as full productive activity; *vide* the recent Players fracas).

Every person has a right to those "wages," thanks to the unearned and ever-growing increment of association and to the cultural inheritance belonging to all of us, of which technology is the latest and most remarkable and sudden addition. At present those "wages" are paid to no one. The results are ever-mounting, phoney and mostly irrepayable debts, public and private, needless and ever-mounting taxes (which include inflation), a situation of shops-full-but-pockets-empty, needless international frictions—and Subtopia.

War comes in the end as an explosive psychic release from personal creative frustrations (also, of course, and more obviously, from fatuous struggles for export markets and raw materials).

All human life should now be based on an æsthetic philosophy, not merely small and insignificant parts of it, as though beauty and enthusiastic creation were self-indulgent, if not regrettable, spare-time luxuries. Machines have made it possible. Have we not had enough of anxious, mean commercialism and its fraudulent mystique of money? These matters are of fundamental importance to everybody, but especially to architects—by which I mean, not business tycoons, but artists who want high quality and "live to build, not boast, a generous race."

ERIC DE MARÉ

London, W.11

Banham on Pevsner on Sert-Sweeney on Gaudí

SIR: The published literature already available suggests at least one solution to Professor Pevsner's Gaudí-Candela problem, raised in his review of the Sert-Sweeney book (AJ, December 15). If the crypt of the chapel of the Coloma de Cervello "looks so much like Candela" might it not be that both Gaudí and Candela (remembering that the latter was a Spaniard before he was a Mexican) had considerable on-site experience of Catalan tile vaults. Both Sert-Sweeney and George R. Collins underline Gaudí's rule of thumb approach to the use of this kind of tiled vault-work, and Candela's intuitive approach to vaulting is generally attributed (by himself, even) to working with Catalan masons who put up these vaults by eye rather than maths. It is worth noting that the sea-sick roof of the Parochial School of the Sagrada Familia is a "ruled surface" based on straight generating lines, and so is the vault of Candela's Cosmic Ray Pavilion, and that this kind of surface attracts the rule-of-thumb geometer because it can be done with straight planks and *without* maths. It looks as if "the frenzied builder of 1898 and the engineer of 1950-60" do indeed belong together. I would also submit with all due deference, that nobody else does "belong together" with Gaudí, certainly *not* Corb, and even more certainly not the Jaoul Houses, and equally certainly not the Philips Pavilion at Brussels which, though composed of ruled surfaces, very definitely was not done by eye and rule of thumb.

REYNER BANHAM

London, SW1

Why More Architects' Departments?

SIR: Is it possible that Sir William Holford and his colleagues are misdirecting their efforts?

Most private architects would agree that a local authority's "Architects'" department is more likely to function efficiently under the direction of an architect than under some other official. But practising architects are surely entitled to ask why they should not do their own town's work instead of paying part of their rates to cut off their livelihood at the source.

FREDERICK ADAMS

London, W.1.

NEWS

SMITHSONS' DESIGN FOR RFAC

New Economist *Building*

Peter and Alison Smithson, in association with Maurice H. Bebb, have been appointed by the *Economist* to design their new building in St. James's Street, Westminster, and their design is at present being considered by the Royal Fine Art Commission.

In answer to questions at the December meeting of the L.C.C., as to whether the Council had granted planning permission, what form the proposed new building would take and whether it was considered that "the proposed new building will bear suitable relationship to its neighbours and will not constitute an eyesore in this important area of London," Mr. Richard Edmonds, chairman of the Town Planning Committee replied that application for planning permission had not yet been made, but "a sketch scheme has been considered informally by the Town Planning Committee. This provided for redevelopment of the *Economist* offices in conjunction with the owners of Boodles Club. The tentative scheme provided for three related blocks on a raised piazza, to which the public would have access. It is understood that the developers propose to refer their proposals to the Royal Fine Art Commission . . . so that when an application is received their comments will be available to the Committee." The general form of the proposals seemed satisfactory.

BRIGHTON SEA FRONT

Casson's Advice

Sir Hugh Casson, appointed architectural consultant to Brighton Corporation on the 11-acre site awaiting redevelopment on the sea front, has advised the planning committee not to go ahead with any of the three schemes short-listed earlier this year without serious modifications.

Sir Hugh was appointed on the advice of the R.F.A.C., after they had considered the three schemes, and in a forthright report to the Corporation he writes: "Brighton is more than a famous seaside resort: it is unique and legendary. . . . If this is its fortune it is also its responsibility, for it means that it cannot afford to aim lower than the best."

He proposes that sea-front buildings should not be more than 150 ft. high, taller blocks—preferably point blocks, not slabs—being permittted only behind them and climbing up the hills.

The Planning Committee is to ask the January council meeting to authorise Sir Hugh and the chief officers to meet Taylor Woodrow and their architects and discuss modifications of their scheme for developing the site.

ROYAL COLLEGE OF PHYSICIANS

Minister Puts Model on Show

Denys Lasdun's design for the Royal College of Physicians, which is expected to replace Someries House at the east side of Regent's Park, was on view in the Upper Waiting Hall of the House of Commons for a week before Christmas, so that M.P.s could see it before the Minister authorised the LCC to grant planning permission.

In answer to a question in the House, Mr. Henry Brooke said, "The Royal Fine Art Commission says that it is well satisfied with the design: it feels that it would be acceptable as a neighbour to the Regency buildings which are to be preserved. The Crown Estate Commissioners have given their consent to the plans . . . The St. Pancras Borough Council has no objection, subject to questions of access, and the London County Council is disposed to grant planning permission."

RIBA

Survey of Architects' Offices

Members of the team which is to carry out the survey of architects' offices have now been appointed, as follows:

J. M. Austin-Smith, principal in private practice.

A. G. Derbyshire, assistant city architect, Sheffield.

D. Howard, management consultant from Associated Industrial Consultants Ltd.

Mrs. Madge, economist.

Miss Joan Milne, deputy secretary, Board of Architectural Education.

Messrs. Austin-Smith, Derbyshire, and Mrs. Madge will serve part-time, the other members of the team full time, and the team has already held several meetings.

The team will be visiting some 50 offices, it is hoped, by the end of March, and is also to make a postal inquiry on a sample basis.

Contact with MPs

The architectural profession is scarcely represented in Parliament: there are two architects in the House of Lords, none in the Commons. Efforts are now being made, however, to make close and regular contact with MPs and increase their interest in and knowledge of architectural problems.

A start was made in November when Sir William Holford spoke to two meetings, one of 35 Conservative and one of 15 Labour members at the House. An informal discussion over dinner was also held at the House, attended by the President and six architects, and nine MPs from both parties. Sir William told a Press conference before Christmas that the meetings had discussed such problems as renewal of central areas, traffic, and comprehensive development, and that he had found MPs of both parties deeply concerned with these questions, and showing more agreement about them than on some other issues.

A New Appointment

The November Council meeting appointed Mr. Aylwyn Mellor Lewis, Assistant Secretary (Economics/Statistics), and decided that he should work under the direction and control of Miss Joan Milne.

Mr. Lewis is 39, married, and an exhibitioner of Peterhouse, Cambridge, with a B.A. in History. He served from 1942 to 1946 in the RAF; was Research Assistant on an Economic and Social Survey for the West Midland and North Staffordshire plan, then Senior Research Assistant at Hemel Hempstead Development Corporation; and his last job was in the Development Secretariat and Ministry of Housing in Ghana.

Loan of Drawings

The Library of the RIBA has been asked to send an exhibition of drawings to the Convention of the Society of Architectural Historians at Minneapolis in January, and has selected 54 drawings which are being mounted, and sealed in frames, for exhibition at the conference and later for a tour of about a dozen interested American institutions.

BC FORUM

Lightweight Reinforced Concrete

The Forum on Lightweight Reinforced Concrete which took place at the Building Centre on December 14, like its predecessor on Consumer Protection, was well attended and went like a bomb. There were three speakers: A. Short of BRS. J. A. Derrington of McAlpine's and J. H. Humphreys, Senior Structural Engineer of the LCC. Gontram Goulden was in the chair.

From the point of view of the architect, the starting point of the evening was provided by Thomas Mitchell who pointed out half way through that we had been hearing a great deal about the difficulties of using lightweight reinforced concrete and asked what were its advantages? The answers given included that its use reduced the dead weight of the structure by a third, a factor which is of great importance in tall buildings; that, in decreasing the actual load of materials to be handled, its use left the workmen much less tired at the end of the day; that, since the concrete hardened quicker and dried out quicker, building was more rapid; and that thermal insulation was better. As against these it was fairly clear (although there was conflicting evidence on this point) that the sound insulation of partitions and floors would be less good.

The opening speaker, Mr. Short, began by remarking that two entirely different materials were included under "lightweight concrete": lightweight aggregate concrete and aerated concrete. This was of great

practical inconvenience in the Forum, for too often it was not clear which a given speaker was talking about. Mr. Short divided the subject into three aspects: the protection of reinforcement, the transfer of internal forces, and the design data to be used. To these Mr. Derrington added a fourth: site practice. It seems best to gather all that was said in the course of the evening under these four heads.

The Protection of Reinforcement and Bond Strength

Mr. Short prefaced his remarks on this subject by pointing out that the protection of reinforcement depends on the alkaline nature of the concrete. If the alkaline materials disappear—either because the mix is too lean, by the leaching out of the free lime, or by carbonisation—then the protection goes. In this the most important factor is the quality of the concrete: the nature of the aggregate does not matter. Lightweight aggregate concrete, therefore, is not substantially different in this respect from ordinary dense concrete. Aerated concrete being uncompacted is different and, for this reason, the steel reinforcement must be coated. One firm of manufacturers in this country, he said, does not give this protection. One difficulty in practice is that steelwork often has to be cut on site and it is then difficult to ensure that the cut ends are properly sealed. One speaker, representing Celcon Limited, suggested that there was no practical evidence to show that corrosion did take place on a serious scale. His firm, he said, had been making aerated concrete on the Continent since 1927 and had often left steel unprotected but had experienced very few failures. Commenting on this, Mr. Short said that there was no danger of corrosion if you could guarantee dry conditions throughout the life of the building, but that in practice you could not give this guarantee.

In lightweight aggregate concrete, Mr. Short said, the bond strength is reduced to half that of dense concrete due to the shrinking away of the concrete from the reinforcement. In aerated concrete the bond is inherently strong, but the protective coating reduces this and it is, therefore, necessary to provide an anchorage.

Design Data

Although the tensile and shear strength of lightweight aggregate concrete are higher than those of dense concrete, the E value is lower for the same compressive strength and higher deflections must be expected in ageing due to creep. There is as yet no mix design theory for this type of concrete and, therefore, contractors have to rely on the results of trial mixes; but, although lightweight aggregate concrete is different from dense concrete, the same principles of design must be used and the Code of Practice still applies. This is not true of aerated concrete which has a very low E value, though it is little subject either to shrinkage or to creep and offers a high load factor against cracking.

Mr. Humphreys, speaking of the byelaw requirements in London, said that Part IV of the London Building Act of 1939, Section 29, permits waivers from the letter of the byelaw and that the recent decision of the Council to publish typical waivers granted enables District Surveyors to pass designs which diverge from the Act in a manner similar to the published waivers, without the need to make a separate application to the LCC. To use lightweight aggregates a designer in London must obtain waivers to byelaws 302, 303, and 307, but the District Surveyor has power to waive 303 without reference to the LCC if he thinks fit. A number of speakers paid tribute to the liberality and good sense of the LCC in this matter, but it was not clear if the same was true of local authorities elsewhere.

Site Practice

Mr. Derrington, speaking mainly on site practice, said that the chief practical difficulty with lightweight aggregate concrete arose because the aggregates themselves soak up so much water. This makes standard weigh batching plant of no use. Mr. Short agreed with this and said that lightweight concreting was awaiting equipment specially designed for it. Mr. Kinniburgh of BRS said that the Station were endeavouring to waterproof aggregates and that the difficulty in this was economic, not technical. There was much discussion on this soaking of aggregates. One speaker, a manufacturer, pointed out that when they were soaked the percentage of moisture was not greater than that of ordinary dense concrete. Another claimed that not all lightweight aggregates need soaking. A contractor said that soaking was not technically necessary, but was economically desirable having regard to the fact that lightweight aggregates were harsher and less easily worked without water.

A last point on practice was made by Mr. Derrington who appealed to architects to accept lightweight concrete as a finished surface: chiefly because it was in itself a good surface, but also because, being porous, is is very expensive to stop for paint.

REPLY TO HOWITT

Engineer's View

The following reply to Leonard Howitt (see p. 922) was published in the *Daily Telegraph* of December 20.

SIR: Mr. Leonard C. Howitt, in his letter published in your issue of December 14, does ill service to both professions in stimulating a feud between civil engineers and architects.

As a member of the former profession I have to work closely with the latter, and realise the exasperation which many pre-war civil engineering structures must cause to architects who know how the appearance of a structure may embellish or mar a scene. But those pre-war days are past when, as long as a structure stood up, its cost was the major criterion.

Most people are now aware that beauty is worth paying for and are willing, within reason, to find the necessary funds. Therefore the architect is no longer a subsidiary agent called in at the last minute to stick a few ornaments on a stark and commonplace structure.

He is an integral member of a team who, from the start of a project, works with the civil engineer in achieving a grace and flow of line in structures which few of the latter profession can obtain unaided. The closest co-operation between the two professions is necessary to attain this end.

On the other side of the picture, buildings of any size in these days require the collaboration of the civil engineer with the architect to design the structural framework, which few of the latter profession can do unaided. Again it is team work that counts in achieving the final design, for many of the architect's wishes have to be conditioned by what is structurally practicable or economic—a vast panorama of floor space uninterrupted by columns may be impressive, but the resulting increase in the cost of the roof and foundations, though quite possibly justified, may be enormous.

Appearance must be reconciled with cost, and the discipline of the civil engineer should dovetail closely with the vision of the architect in achieving this end.

It is a notable step forward that some civil engineering schools are now providing courses on the aesthetics of structural design. On their side I would beg two things from our friends the architects:

(i) A little more forethought and respect for the cost of some of their more fanciful flights, and

(ii) A little more coherence in explaining to more mundane mortals what they are trying to achieve in terms that may be interpreted into a structural design.

If we can each aid the other in these respects, surely the question of who shall be the "Chief Officer" (in Mr. Howitt's words) is a petty matter. It is the individual with the firmest grasp of many conflicting aspects of the problem and the widest vision in resolving them who will lead the team, be he an architect or civil engineer.

Yours faithfully,

R. BRIDGMAN, M.I.C.E.

Burgess Hill, Sussex.

HOUSE OF LORDS

Parking Platforms

Lord Bossom asked last week whether, since there was great difficulty in finding sites for large parking garages at ground level, there was any reason why British Railways' marshalling yards and tracks at the approach to the larger stations should not be covered over with parking platforms.

The Parliamentary Secretary to the Ministry of Transport, Lord Chesham replied that the British Transport Commission is prepared, where railway operations permit, to discuss the leasing of sites, and that the Ministry would welcome such facilities.

ILA

The Landscape of Extractive Industry

As much as one sixth of the land use demand in Britain is for extraction and tipping. This was revealed by John Casson of the

Lancashire County Council in a talk given to the I.L.A. on November 18. Most tipping, he pointed out, is not subject to planning control and for economic reasons a hole that needs filling is often left, while an unsightly mound is produced some comparatively short distance away. This was again brought out in some of the slides shown.

Mr. Casson contended that the planning authority should show its plan of development for mineral workings in the same way as it does for housing. He agreed that a considerable amount of dereliction was unavoidable. However, the meeting ended optimistically in the belief that the means of dealing with derelict sites are becoming progressively easier and cheaper with the development of mechanical earth-moving equipment. The chairman, Dr. Dudley Stamp, recalled how the Australian engineer/farmer, P. A. Yeomans, using simple and economical methods, has succeeded in creating 6 in. of topsoil in 5 years on an arid site, thus accelerating the processes of nature.

IUA CONGRESS

Organising Team

From January 1 the Building Centre have very generously agreed to make Mr. Gontran Goulden available as Director—"not absolutely full time"—of the IUA Congress planning team, which includes Malcolm MacEwen, Miss R. Cridland, David Taylor and Mrs. Mead, plus secretarial staff.

The Building Centre has also offered £500 to provide secretarial help for Mr. Goulden. The RIBA Secretary's Report last week pointed out that "there remains a wealth of executive action to be taken to ensure that the Congress goes without a hitch," and that "this argues a controller to co-ordinate, see that the progress chasing is relentless and detailed and generally conduct the operation as a military campaign."

MOT

St. Neot's Bridge

The Minister of Transport, Mr. Ernest Marples, has appointed Messrs. Posford Pavry and Partners as consulting engineers to prepare the necessary scheme for the reconstruction of St. Neot's Bridge, Bedfordshire, to the design of Frederick Gibberd.

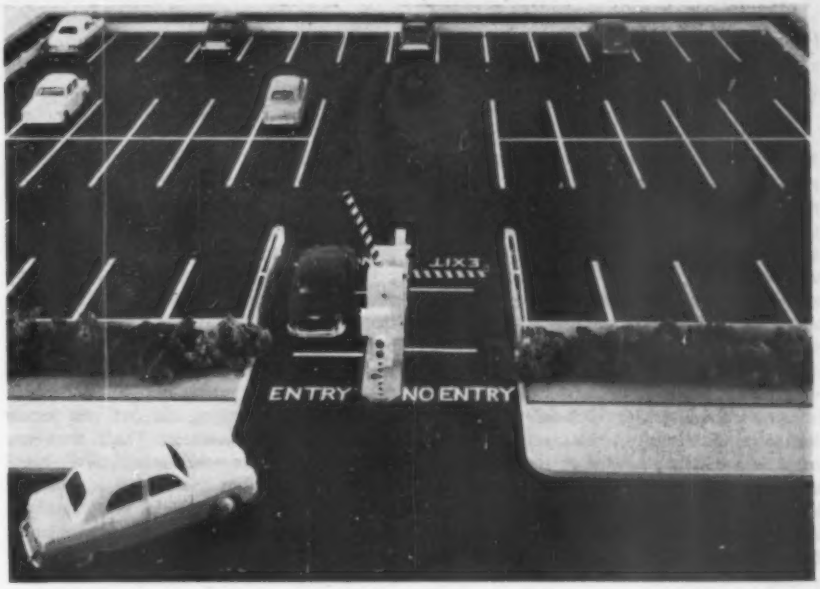
ONE-WAY LONDON

Traffic Experiment

Three miles of Central London main roads, including Tottenham Court Road and Gower Street, are to become one-way streets next May Day for an experimental period of six months. This is the first of a series of similar schemes prepared by the London Traffic Management Unit.

AUTOMATION IN PARKING

Selective Robot



Model of a small car park with entry controlled by PARCOA devices

Architects designing buildings where parking space is to be provided may soon be asked to incorporate devices which either admit cars whose owners are permitted to use the parking space while keeping other cars out, or alternatively make the motorist pay a parking fee either on entering or on leaving the parking space.

Such devices are now being manufactured in small quantities in this country, and marketed by Parking Developments Ltd. (2-4 Cranmer Road, London, S.W.9) who recently demonstrated them to the press. They were evolved by PARCOA (the Parking Company of America), who have installed them widely in the USA with apparent success.

The PARCOA system makes use of a lifting barrier a few feet long operated by a servo-motor, which blocks the entrance to and exit from a parking area. This barrier is lifted automatically either when the wheels of a vehicle pass over a three-bar treadle in the entrance or exit driveway; or alternatively when a coin is inserted in a slot; or else when a card bearing a magnetic "code" is inserted in a card-reading sensory device (mounted about 3 ft. from the ground) which reads the magnetic image and, if this is correct, actuates the servo-motor which raises the barrier. The barrier is closed again when the car passes over a treadle.

The card-operated system is used to control entry to private car parks (e.g., those attached to factories, hospitals, town halls, etc.) where only authorised persons are allowed to park. It can also be used to admit "season ticket" parkers—the magnetic code can be changed every month, and the reading device set to accept only cards with the new code, or it can be set to accept cards with two different codes if a period of grace is allowed for changing one's card.

The coin-operated system can be used on public car parks where a flat rate is charged for a day's parking. It can also be used to control the *exit* from a car park attached to a shop or a cinema—token coins can then be issued to parkers who have patronised the establishment. In cases where entry to the car park is controlled, a free exit will be obtained by passing over a treadle.

The lifting barrier can also be used in conjunction with a "ticket spitter." This device automatically stamps the date and time on a card when a car passes over a treadle; when the driver withdraws the card from the mechanism, the barrier is lifted. With this arrangement an attendant will still be needed to collect the appropriate cash as the driver leaves the car park or garage—all the other systems are completely automatic in operation, which is of course their great advantage.

The treadles in the entrance and exit driveways can be made to feed information into an automatic capacity counter. This is a computer which keeps count of the number of cars in the car park or garage. When all spaces are occupied the barrier will not rise, and coins will be rejected, until such time as a car leaves the park, thereby allowing one further car to enter.

Between them these devices seem to offer the means of providing automatic or semi-automatic control of the use of parking space in car parks or garages in just about all possible circumstances. Costing from about £600 upwards, they should be assured of a big market in this country in the years ahead.

NIGEL SEYMER

RIBA

Architectural Misconceptions of Engineering

We publish below a slightly abbreviated version of A.J. Harris's talk to the RIBA on December 13

My intention this evening is not primarily polemical but frankly explanatory. During many years of working with architects it has on occasion seemed to me that they did not quite know what engineering was about. In consequence I thought perhaps I should spend a few moments this evening in giving my idea of what engineering seems to be about, and if as I go I can clear up one or two of the less glaring misconceptions——I will not deal with the more glaring ones because it might create too much bad blood, but some of the milder misconceptions—we may be somewhat advanced. In so doing I have no doubt that even more glaring misconceptions on the part of the engineers will be revealed, and I understand that time will later be available to clear up these.

Engineering an Art

First of all engineering is clearly an art and not a science. One is entitled to choose one's own definition of these words, and art I assume to be any direction of the practical intellect to the making of things. Quite clearly engineering, seen from this point of view, is essentially an art. The job of the engineer is making things—if you like, imposing an idea or a form upon material, upon matter. There is a science of engineering, there is knowledge which is necessary if the engineer is to do this, just as there is knowledge which is necessary on the part of any artist to do anything at all, but the whole essence of the activity is that it is essentially an art.

The second point is that it is rife, it is widespread, there is a lot of it. A great deal of engineering is going on right, left and centre. The electricals, the mechanicals, the civils, the aeronauticals comprise a vast body of endeavour, devotion, work of all sorts and types and conditions, producing a large volume of products. In a certain mood one casts one's eye over the engineer and over the product and one tends to dismiss the product as so many cartloads of junk. In yet another mood one can see the products of engineering as one of the major auxiliary factors in the enormous increase in the world's population this last century, a feature which is perhaps the profession's final justification.

Anyhow, it is a very wide, a very broad field of human activity and civil engineering, the profession to which I belong, occupies what is relatively a corner but is pretty substantial. If one looks at the average consulting engineer's drawing board—I am thinking of one belonging to a firm of moderate size—what does one find? One finds harbour works, bridges large and small, hangars, heavy foundations, machinery beds, nuclear gadgets—I mean the works and not the buildings—generally speaking a very wide range. Now there is a frontier for civil engineering, the frontier where civil engineering meets the architectural profession. Do not think I am preaching any illusion of grandeur here when I say that it is too often forgotten that the proportion of architecture to civil engineering is at this moment rather small. In fact, when in a fanciful and possibly slightly satirical mood, one is tempted to picture oneself looking out over the whole of the arts and sciences. There they are ranged before one—mechanical, civil, highways—the lot. And there, if you raise the head and turn slightly right, is a tastefully decorated and rather crowded musician's gallery in which, with their backs to the hall, sit the architectural profession.

Mathematics and engineering

I trust I have made my point that engineering is basically an art and that the science of this particular art is imposing shape and form on material. This leads us to our first misconception. The foundation of engineering is knowledge of materials not, as engineers are so often apt to preach, a knowledge of mathematics. It is true that every profession has what we may familiarly call its own particular line of "bull". I am afraid there is a temptation, which few engineers have been able to resist, to shoot this mathematical line. I maintain that the basis of engineering is knowledge of the materials being used; knowledge of what they are made of, how they are made, how they are shaped, how you fit them together, how they stand up to stress, how they break, how they catch fire, how they react to all the various agencies of ruin which are perpetually nibbling at them, how in due course all fall down.

This is the true basis of engineering. Now this is the sort of knowledge which in the old days was brother to the craftsman. The craftsman got this knowledge by working the materials themselves, so knowledge came almost through the fingertips. An example of this knowledge is that willow is the right wood for cricket bats. Why this should be so, I do not know. It would be difficult to express the particular suitability of willow for striking a cricket ball, but most of us who tried to strike it with a bat made of oak, if such there be, would doubtless be well placed to remark on the superiority of willow. That sort of knowledge, that craftsman's knowledge, is a precursor in time of the knowledge which is necessary to the engineer, but it took the craftsman a long time to find it out, probably generations, perhaps centuries. By a long process of trial and error it was certain, but it was very slow, and the speed at which we work these days is different and the scale on which we use materials is such that it is difficult to get this craftsman's knowledge. Here is where mathematics comes in as something exceedingly helpful to the engineer. Mathematics enable one to determine the characteristics of a material in a remarkably short space of time. This century a very large number of new structural materials have arisen. Due to one reason or another we have recently invented glued timber. The existence of glue has revolutionised the use of timber. Before that we had prestressed concrete and aluminium. Before those, reinforced concrete. Before that, mild steel. All these materials in their various forms represent a complete revolution in the art of building and their characteristics, which in the old days would have taken centuries to understand, have been determined at an ever-increasing speed. For instance, we know a great deal about prestressed concrete and this took about fifteen years. It took us about sixty years to get reinforced concrete to the same stage of development, and possibly a little longer in the case of steel.

This, I maintain, is the true basis of engineering, not mathematics. Of course mathematics are necessary. If you cannot count, then your opinion is worth "X". If you can count then your opinion is worth "Y", and "Y" will be slightly more accurate.* Talking about mathematics, there are three kinds of chaps—A. Those who never knew any; B. Those who are damned good; C. Those who knew a lot but have forgotten it all. Once upon a time I fancied myself—this was before the war. Then during six years of war the only calculations made were those which one could do on the move, as it were. This revealed two things to me: one was that at the end of the war I was no longer any good at mathematics—the internal co-efficient of friction was so high that it took me weeks to do the simplest of operations; the other was that perhaps mathematics were not quite so necessary after all.

* In his summing up after the discussion, Mr. Harris said the following: It is a long time since there ceased to be anyone illiterate in this country. I would like to think that we do not have long to wait before there is nobody who is innumerate, as it were. The language of figures, which is in itself a form of logic, is exceedingly fruitful, and I would maintain that while not everyone who learns to read is capable of becoming a Shakespeare, it is no reason for not learning to read. Similarly not everyone will be an Einstein or a Poincaré, but that is not a reason for not knowing a bit of mathematics.

A state of innumeracy—I trust this phrase does not fall too unkindly on your ears—is a state which is comparable to the state of illiteracy and, as such, is a most unfortunate condition to be in. Certainly mathematics in themselves are a first-class means of producing that sort of subconscious ruler at the back of your mind, that sort of guide, that discipline which builds the ability to design by eye. This was expressed crudely by one of my professors, who maintained that maths were training for guesswork.

Materials the Basis of Engineering

What is the basis of engineering? We have the relation between design and materials, the relation between design and the mathematical analysis of the structure when designed, and finally we have the relation between design and scientific knowledge. The initial action of the engineer—I hesitate to use the word "creation" because it sounds ponderous—is that of invention, design if you like; the action of decision to discover, dream up, the shape of a structure. This is beginning to lead us into a further misconception, the business of structural economy. It is impossible to dream up a shape of structure without having some idea of the characteristics and material of which it is made.

Structural economy has no existence except in terms of a certain structural material. Let me give an instance. One of the most banal of structural materials is, I suppose, mild steel. You buy a little handbook bound in red leather that tells you a great deal about standard forms which mild steel takes. You take your book, open it at the right page and run your finger down the column, and there you have it. This, you may say to yourself, is steel engineering. So it is, but it is steel made in a certain way. It has been rolled hot. If your material is steel which has been cast, the shape of your structure, all your conceptions of structural form, will inevitably be radically altered. I say this because I have detected on occasion amongst those with whom it has been my pleasure to work, a sort of idea about structural economy to the effect that there is the structure and there is inherent economy in structural form to which we must attend. True, but there is no such thing as structural form divorced from something of which it is made.

Occasionally one reads laudatory words concerning some of the early chaps. Leonardo da Vinci is occasionally put forward as one of the earliest engineers. Without in any way deprecating his reputation as a true revolutionary thinker, I would just put in a word to say that he was not an engineer. A man who dreams up a structure or a mechanism for which there is no material with which it can be made, as an engineer is an ass. It is idle to produce a snappy metal bolt which does this, that and the other when the material for it has not yet been invented. Such a man may be many fine and noble things but he is not an engineer. There it is: in terms of your material you conceive your structure. You have your structure first. Having designed your structure you then have recourse to one technique or another to see if it is going to stand up or not. A delicate moment, Ladies and Gentlemen! One on which much depends.

Form Precedes Structural Analysis

One of the ways of doing this is to analyse the stresses mathematically. There are many other ways. One is to build a structure and see if it falls down. Another is to make a model and test that and see how that goes. This is a technique which is becoming increasingly used and of greater and greater importance as the various scale factors and the instrumentation become more highly developed. But you still have to know, as you do when you are seeking to estimate the mathematical analysis of a structure, what questions you want to ask. It is no use loading the thing up with instruments and reading them, if you do not know what you are trying to find out. But there are many ways, having designed your structure in terms of your material, and the means which you are going to use to get your material into this shape in position, by which you can then ascertain that your structure will be adequate.

Mathematical analysis is one of the most powerful human achievements, but not necessarily the most powerful, because there are assumptions in mathematical analyses. Never get out more than you put in in terms of your basic hypothesis! It is certainly true that mathematics are one of the major human achievements. The works of some of the great mathematicians are the modern Homer; they are a species of almost artistic creation. They have their majesty. Nevertheless, in practical day-to-day engineering, the situation is different and, in fact, there is a considerable gulf between the mathematician and the engineer. I know this personally because my father-in-law is a professor of mathematics. I have had many an occasion to explore the gulf which lies between us, and I think I could sum it up by saying that to the classical mathematician 2 plus 2 equals 4, whereas to the engineer 2 plus 2 is approximately of the order of half of 10. Now this is a substantial gap.

I mentioned the question of the invention of forms. Basically this is a design operation. Nevertheless the chaps who are good engineers come along at regular intervals with new forms. There is only one exception that I know of to the general law that the shapes come first and the analysis follows much later. The exception is an interesting one—the hyperbolic paraboloid. That is a piece of pure mathematics. It was thrown out in the thirties by a couple of Frenchmen, long before anyone had got on to building one, and it was not until many years afterwards—first of all in a very small way in France, and then to a slightly greater extent in Eastern Europe, and then finally, as a rather late burgeoning in Mexico by Candela—that anybody got around to building hyperbolic paraboloids. It is the only exception to the fact that people dream up their structures first and do not wait to know all they need to know about them. They just get cracking and build them. Much later come along the chaps who analyse these structures, and by the time that the rigorous analysis has been obtained, nine times out of ten that particular structural form has passed out of current use.

It is interesting to note, moreover, that the engineers who are known to architects—I am almost tempted to qualify this by reducing the phrase to the engineers who are known; at any rate civil engineers who are known—are those who have presented architects with new forms. Let us look back over this century. Who are they? Maillart. He built a few bridges in Switzerland, exquisite bridges. Freyssinet was an interesting case. He is known to architects as the man who invented some new and peculiar forms of shell roof, and one or two novel forms of bridge. He also invented a new material, but in respect of this I get the impression that he is regarded as a sort of ironmongery merchant. The Freyssinet who is known is the man of pre-1930. They heard of the new material later, which really is of far greater significance than the structural form. Since Freyssinet we have had Nervi and Candela and many others. If you ask who were the great engineers in suspension bridges and arch span bridges in general, no one seems to know. There is a paradox here. There may be some significance in it, I do not know. Passing to the question of the employment of engineering forms, nine times out of ten these are produced with a particular purpose in view, invariably with a given material in view. They then become famous. Shell roofs, barrel vaults, and so on, are used by architects quite widely. One has to be grateful for the rapidity with which the new shape becomes a matter almost of fashion. This leads insensibly to the emergence of what one might call an engineering style—it has done so this past 20 years—in which the engineering forms thought up with a particular material for a particular employment are commonly used for their own sake. Am I alone in having seen scattered around this town shell roofs which consist of expanded metal plastered over and hung from steel trusses? There are many instances of this kind where the form has been taken for its own sake, and then built in some completely different material merely because it has become rather chic. However, do not let me plunge that knife in too far and waggle it round.

There is, finally, the relation between the engineering design and scientific knowledge in general. Scientific knowledge, of course, is another of these rather bugaboo phrases. Again I exercise my right to define the terms I am using. Scientific knowledge, as it is known to the engineer, is basically physics, which is the knowledge of material by measurement. The typical process is that if there is a phenomenon which you want to investigate, you isolate some variable, measure it hundreds and hundreds of times and plot it. You then join your points together with a curve if you can; if not, you drive a curve through the middle of the lot. Then you express this curve in the form of a mathematical expression and from that you can predict, with greater or lesser degree of confidence, where the curve is going off the paper, and it is possible to deduce from the shape of this curve a number of the derivatives and quite a lot of singularly useful information. Now this clearly is necessary for design in as great a degree as possible. The more knowledge we have of our materials and of the functions to which we put our structures, the better the structures will be.

The Search for the Scientific Solution

Here perhaps I can deal with what I think

is another misconception, namely, that the scientific solution is a cramping and unique solution; that as soon as you start dealing with a scientific analysis of your problem and of your structure you are immediately bound by the precise knowledge which you obtain. Now here I think one is dealing with one of the basic beliefs of the engineers. This unique scientific solution is conceivable; you can conceive of knowing so much about the function for which your structure is intended, and knowing so much about the material of which it is made—of all the forces, the agencies of ruin to which your material and your structure is submitted—that you can have a series of optimum solutions. Now from these optimum solutions it is possible to choose one which can be produced with the minimum expenditure of human labour. This solution would, of course, be unique and necessary. It is the basic, if unavowed, belief of the engineer that if ever he got this solution it would be a solution of superhuman, if not angelic, beauty. You would here have something beyond human wit to achieve, and by so doing you would have achieved something, I repeat, of an angelic beauty.

This is the motive which underlies the common exercise of the design process on the part of the engineer. In point of fact, we are very, very far from it. We know very little indeed about what our structures are being used for. The degree of confidence which we have in our stresses and our loads is well indicated by the factor of safety, which may vary between two and five, according to the confidence we have either in the manufacture of our materials or in the skill with which they are put together or in the certainty with which we have analysed our forces or in the certainty with which we know the loads imposed upon them. So that whilst it is true that a unique solution is indeed conceivable, in fact we are a very long way away from it, and the greater the degree of precise knowledge we can obtain concerning our structures, the better those structures will inevitably be.

There is one final misconception which I would like to deal with here and that is this: I think I have given the impression—the true impression—that the engineer starts off by drawing. All the etymological origins of the word "design" are related to drawing, and the earlier the stage in the design process the softer the pencil and the farther you are away from the 6H sharpened to a chisel point. If, then, the engineer starts off with a piece of charcoal and thinks that the process of mathematical analysis can in certain circumstances be dispensed with, and that then somehow the whole thing becomes so much easier, this is a misconception which can well be paralled by the misconception of the young fellow anxious to entertain at Christmas who, dismayed with the impedimenta and mechanics of illusion, decides that sleight of hand is the thing for him. You just go like that (*indicating*) and four more billiard balls appear. It is so easy. The illusion of sawing the lady in half—in appearance, not reality—full of mechanics inside the rigid box, is much more difficult. In point of fact, so far from being easier if you are able to dispense with mathematics, it is very much more difficult. And whilst it is true that the creators of new forms and structural shapes did not wait for analysis, for precise and rigorous analysis, nevertheless they paid for the lack by grossly exaggerated factors of safety, for if you do not know what you are doing you are bound to play safe. If you do not play safe, sooner or later the structure will fall down.

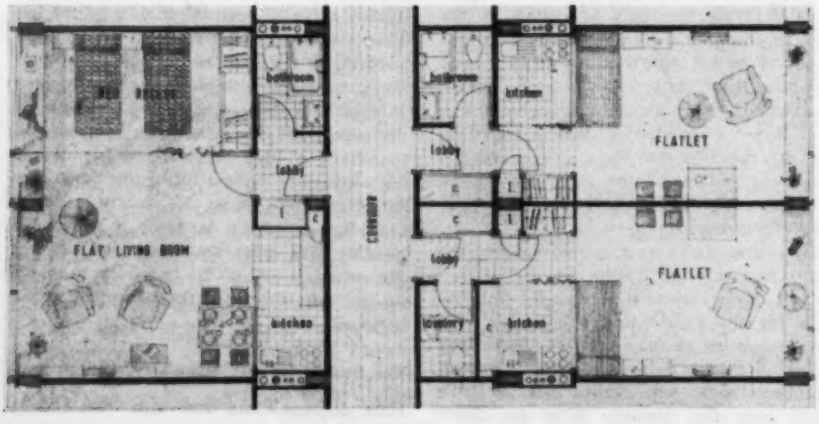
Utility and Aesthetics

Now I come to my last point. There is a distinction between objects of utility and objects of delight—works of art which are made to please. The engineer is an artist concerned primarily, almost entirely, with the object of utility. I offer no opinion as to what extent the work of the architect consists of A or B, for that is no concern of mine. I know perfectly well that as far as the engineer is concerned utility reigns, but this does not mean that you will not get a job produced by a junior and presented to a senior slung out because it looks bad.

Freyssinet has written rather powerfully about this in connection with his hangars of Orly, built in 1926, a startling structure, blown up during the war. A British architect once said to me before the war, "Ah, yes, the hangars of Orly—the Parthenon of the modern world." It is the sort of thing which architects do say on occasions. I repeated this to Freyssinet. He thought for a moment and then said, "That is an exaggeration." This was a structure put up in the normal French style, with a functional specification, and the contractors were asked to produce a tender comprising design and construction. Freyssinet, it appears, was busy at that time and he dashed off a little thing on the back of an envelope and passed it to the chaps to price, and he got the job. His price was about half that of the nearest competitor. This put the wind up him. He had "bought it" by now and, in consequence, he maintains that he has never devoted so much attention to the absolute minimum cost of construction as on that job. He started off by paring his material down and he then proceeded to so trim, so adjust, so dispose of his various members, that the absolute minimum of cost of construction was achieved. No other structure, he maintains, in all his career has been so subjected to ease and economy of construction. The result was singularly impressive. Even people who came to see it with a hostile bias, who maintained that it was not all it was cracked up to be, could not fail to be impressed by the nature of this structure. Here you had a powerful effect arising from an intention which was purely one of convenience and economy carried to the absolute limit.

Finally I think the true distinction is not between the engineer and the architect but between design and analysis. I suppose, to be symmetrical, one would call them synthesis and antithesis. The antithesis is that function which breaks things up into their parts, so that you can obtain detailed and precise knowledge. The synthesis is that which puts things together, imposes your form upon your matter, and a sort of design, a sort of creation. I think that this distinction is one which cuts right through both of our professions. We both have our analysers, we both have those who put things together, those who design, who create and build. Indeed I am tempted to wonder whether the difference between the engineer and the architect is not primarily institutional.

HOUSING CENTRE Housing Old People



A scheme for "Large scale housing for old people," prepared for a private developer was described by its architect, H. J. Spiwak, at the Housing Centre last month.

Mr. Spiwak began with a plea for new thought in designing housing for old people. Britain has an ageing population. At present, one in seven is of pensionable age and it is expected that the next census will show that this ratio has increased to one in six. Changing social customs and smaller houses prevent many old people from living with their children. It was difficult to give any realistic figures of the overall housing need, Mr. Spiwak said, because MOHLG

Floor plan

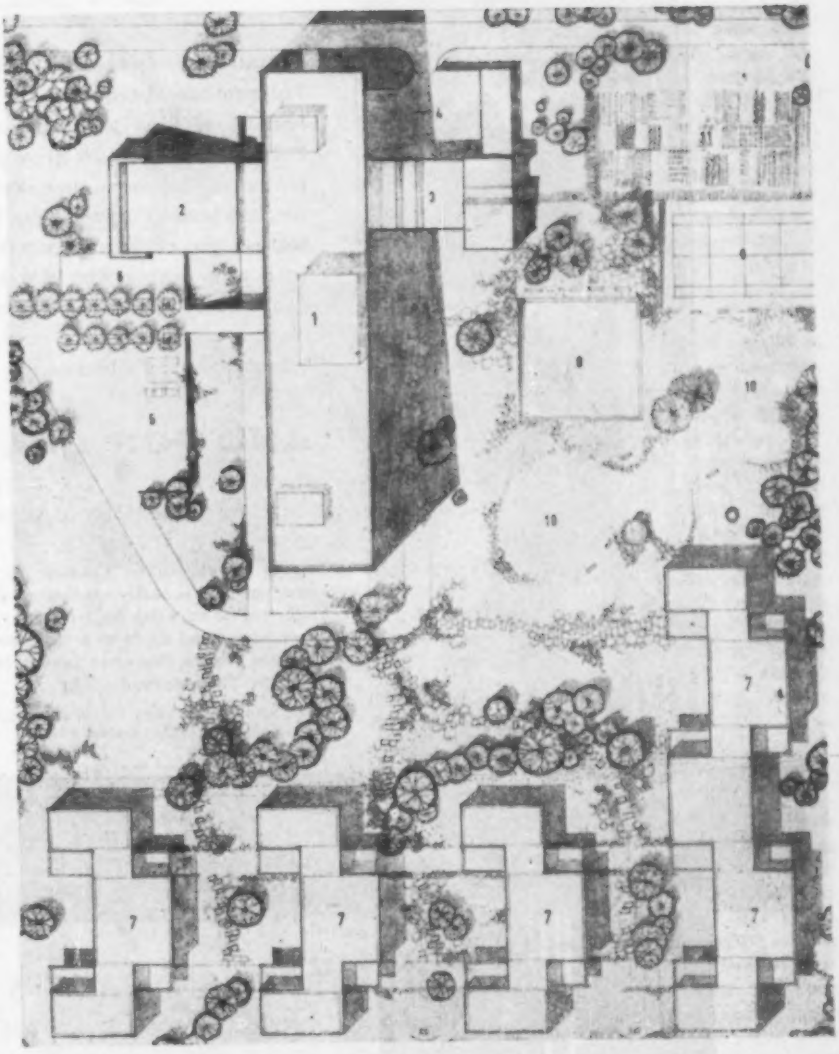
took the view that the gap between supply and demand was so great that there was no point in making an accurate assessment —any provision was to be welcomed. At present, approximately 30 per cent of local authority housing under construction was of a type suitable for old people. Of the small schemes for 12-20 old people advocated by the Ministry, 30 had been built and 40 more were planned. There were also larger schemes for 80-200 old people such as the Whiteley village and the Linen and Drapers Company scheme.

Mr. Spiwak then showed slides of the scheme he had prepared as a result of his studies. This was commissioned by a property and investment company, who wished to develop six sites of approximately five acres, each to accommodate 500 old people. His first reaction was that a scheme of this size was bound to be institutional but he was encouraged to investigate the idea because of the success of the continental schemes.

The sites were selected adjacent to large communities and the accommodation was arranged in one 11-storey and a number of two-storey blocks. Site amenities included tennis courts, a golf course and a vegetable garden. The ground floor of the 11-storey block was given over to public rooms, including lounges, a restaurant which served also as a cinema and theatre, shops, a licensed bar and a library, all available to the public. The lower ground floor contained hobbies rooms including wood and metal workshops and a sewing room. On the fifth floor was a clinic with small wards for patients, and working and residential accommodation for doctors and nurses. This might be run under the auspices of the NHS and its scope would vary with the availability of the local medical services. The remaining floors contained accommodation for 340 old people, two-thirds being units for single people and one-third for couples. The overall area of the single unit was 225 sq. ft. and it comprised a bed-sitting room, kitchen and bathroom. The double unit was 450 sq. ft. in area and the living space could be divided in two with a curtain to form a sitting room and bedroom. The two-storey blocks contained similar units and had small protected gardens adjacent, which could be looked after by the occupants or by the site gardeners, as required.

Mr. Spiwak recognised that the scheme would not suit all old people but he considered that there were sufficient numbers of retired professional people, Civil Servants, etc., to justify it, and the developers wished to make the scheme available to people in their mid-fifties, and since not everyone might fit into such a scheme, it was possible that there would be a probationary period of six months, as is the custom in some American schemes. Preliminary calculations have shown that rents would be in the region of £3 6s. for a single unit and £5 for a double. These rents were exclusive of rates, medical services, etc. It might be possible to reduce the cost of the scheme through the national subsidies for old people's housing, high buildings and difficult sites.

Perspective of the scheme



Site plan

1 11-storey block
2 Restaurant
3 Kitchen
4 Service yard
5 Car park
6 Terrace
7 2-storey flats
8 Bowling green
9 Tennis court
10 Miniature golf
11 Vegetable garden

technical section

THE INDUSTRY

This week Brian Grant describes a gas-fired space heater, an adjustable desk lamp, a window ventilator, and information about asbestos cement products

Warm air space heating

Bratt Colbran now have in production a warm air gas fired heating unit which can be installed in the average small house for a total cost between £95 and £135 according to the length of ducting required. It has an output of 23,000 B.Th.U/hr., enough to provide full heating for the living space of the 1,000 sq. ft. house, plus background warmth for bedrooms. Annual running cost in a house insulated to Egerton standards is estimated at £27 to £36. The unit measures only 32 by 23½ by 14½ inches, and is small enough to fit on the wall or in a cupboard. The cabinet contains a gas burner, heat exchanger, and a small electric fan, and is controlled by a thermostat which would normally be in the living room. Air is drawn into the heater through ceiling grilles and then ducted to registers at skirting level: warm air can also be diverted to a drying cupboard, whence it can be vented to the outside. Ideally, the units should be placed more or less in the centre of the plan, and both balanced flue and Se-duct models are produced. For hot water supply an Ascot or similar form of heater is recommended, when the total annual cost is estimated at £40 to £50. The Radiation Group also makes a series of larger Ductair units with outputs up to 85,000 B.Th.U./hr., for use with gas, oil or solid fuel. (*Bratt Colbran Ltd., 10 Mortimer Street, London, W.1.*)

Cebe desk lamp

Greenwood and Airvac permanent ventilator

Bratt Colbran Ductair G105/23 warm air unit

Desk lamps

The illustration on the left shows the Swedish Cebe lamp, somewhat reminiscent of the Terry Anglepoise, but with concealed springs. It is instantly adjustable to any position and the reflector contains two 18-in. fluorescent tubes with a total rating of 30 watts, giving about the same light output of a 100 watt tungsten lamp. All moving parts are within the housing, so that it is easy to keep clean, and the total reach of the reflector is 40 in. from the point of fixing. Price is £8 17s. 6d. There is a further model with a circular reflector for use with tungsten lamps. This costs £3 less. (*M. J. Glover & Co., (London) Ltd., 8 Evelyn Grove, Ealing, London, W.5.*)

Permanent ventilation

Greenwood and Airvac have just introduced the Permavent horizontal window ventilator, which is made in lengths up to 6 ft., and gives permanent controlled ventilation with a minimum restriction of lighting area. The ventilators are suitable for both internally and externally glazed windows, and are fitted within the glazing rebate at the top of metal or timber windows. There are two versions, one for permanent ventilation, the other with a cord controlled adjusting flap, and both types are made with or without fly screens. Any required length of ventilator is available up to 6 ft. but longer lengths can be made to special order. (*Greenwood's and Airvac Ventilating Co., Ltd., Beacon House, Kingsway, London, W.C.2.*)

Asbestos Cement Products

Four new leaflets from Turners deal with Granitone decorated sheets, water storage cisterns with capacities from 6 to 180 gallons, Everite extractors and ventilators in sizes up to 24 in. diameter, and Poilite textured flat sheets, which are now available in a variety of patterns for both interior and exterior use. There are some interesting suggestions for painting the patterned sheets in two colours. There are some useful notes on painting, and a list of recommended proprietary primers and paints which have proved satisfactory in use with asbestos cement. (*Turners Asbestos Cement Co., Ltd., Trafford Park, Manchester 17.*)

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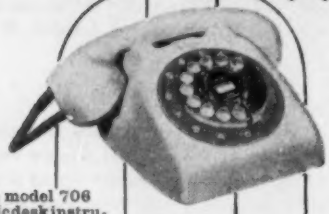

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Bowater House

at Golden Lane Housing Estate, London E C 1

Golden Lane estate is one of the best-known housing schemes in London. The subject of architectural competition in 1952, work started in 1953, and the estate was formally opened by the Lord Mayor in 1957, although some blocks are still under construction. Bowater House, the subject of this article, was one of the first to be finished, therefore the appraisal has been the opportunity not only to assess the design, but also to see how the building has withstood four years of occupancy.

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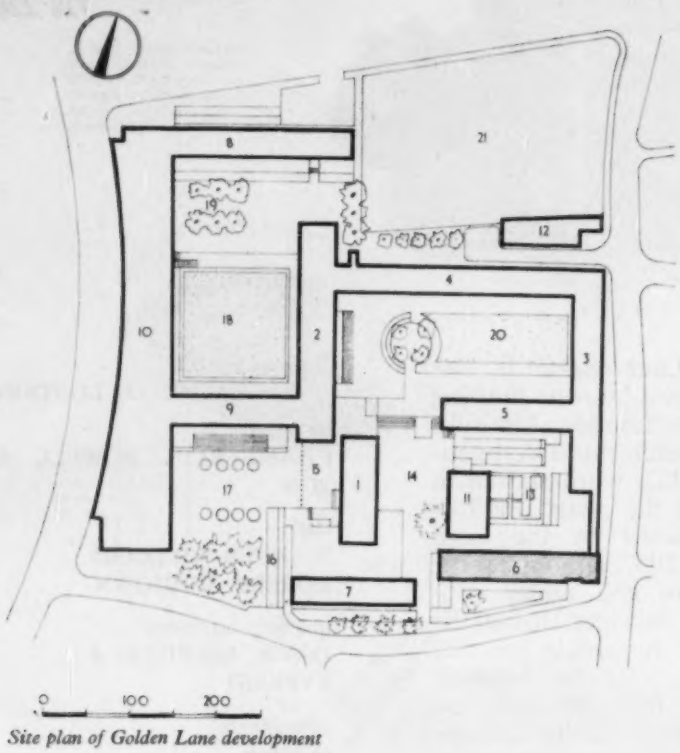
Bowater House is the maisonette block in the foreground

Building study—2nd series



1. Great Arthur House
2. Recreation building (under construction)
3. Stanley Cohen House
4. Basterfield House
5. Bayer House
6. Bowater House
7. Cuthbert Harrowing House
8. Block at Baltic Street (under construction)
9. Block at Bowling Green (under construction)
10. Block at Goswell Road (under construction)
11. Community building
12. Estate workshops (serving all Corporation's housing estates)
13. Low-level court with formal garden layout
14. Main pedestrian piazza
15. Boiler house below ground level
16. Ramp down to underground service road
17. Pedestrian forecourt at ground level with garages under
18. Low-level court with bowling green
19. Playground for older children
20. Low-level court with lawn and decorative paving
21. Site for future LCC primary school

Site plan of Golden Lane development

APPRAISAL: The Golden Lane maisonettes were in a sense pioneering works of their kind. Designed eight years ago for a competition, the plans were at that time widely publicised and there can be little doubt that in both conception and realisation they have helped to establish in this country a dwelling form now generally accepted but hitherto virtually unexploited. The idea of arranging two-storey maisonettes on three or more levels is now commonplace; in 1952 it may not have been novel to those with eyes on Le Corbusier and others, but to the Corporation of London it must have appeared quite revolutionary. In attempting to make an appraisal in 1960, one is left largely in admiration of the basic concept and critical mainly on points of architectural detail.

Bowater House, named after the Lord Mayor who laid the foundation stone of the estate, lies at the south-east corner of the site. It is a long rectangular block, seven storeys high, placed on an east-west axis so that the principal aspect for the 30 two-storey maisonettes it contains is almost due south. Access galleries are provided on alternate floors on the north side. Because of its situation and outward-looking aspect the block turns its back on the rest of the estate. This is perhaps unfortunate, for the north elevation is very much the "back" and, being in perpetual shade, is somewhat gloomy. This gloominess is enhanced by the rather harsh red and blue of the outside colour scheme, by the wide brick piers that screen the entrance doors to each maisonette, and also, perhaps paradoxically, by the grilles (in the bedroom-level escape balconies) intended to improve daylighting in the kitchens below. The exposed concrete to the balconies here as elsewhere has weathered badly, its streaked and grimy appearance at present tending to spoil what is otherwise a crisply designed and detailed building.

On the south side the ingenious modelling of the facade is more successful; there is an appropriate sense of scale and the building appears less flatted and less severe. Again, the concrete spoils the overall effect, and nowhere is this defect more apparent than at the east and main entrance end of the block, the staircase to which could well be straight from the set of *West Side Story*. The work is rough, the concrete lift joints are ragged (the appearance of these might have been improved had they been intentionally defined) and the resultant effect is depressing. In contrast the plain brickwork of the west end displays a pleasing quality; there is a simplicity and directness in this wall that only the bright splash of a virginia creeper might one day improve.

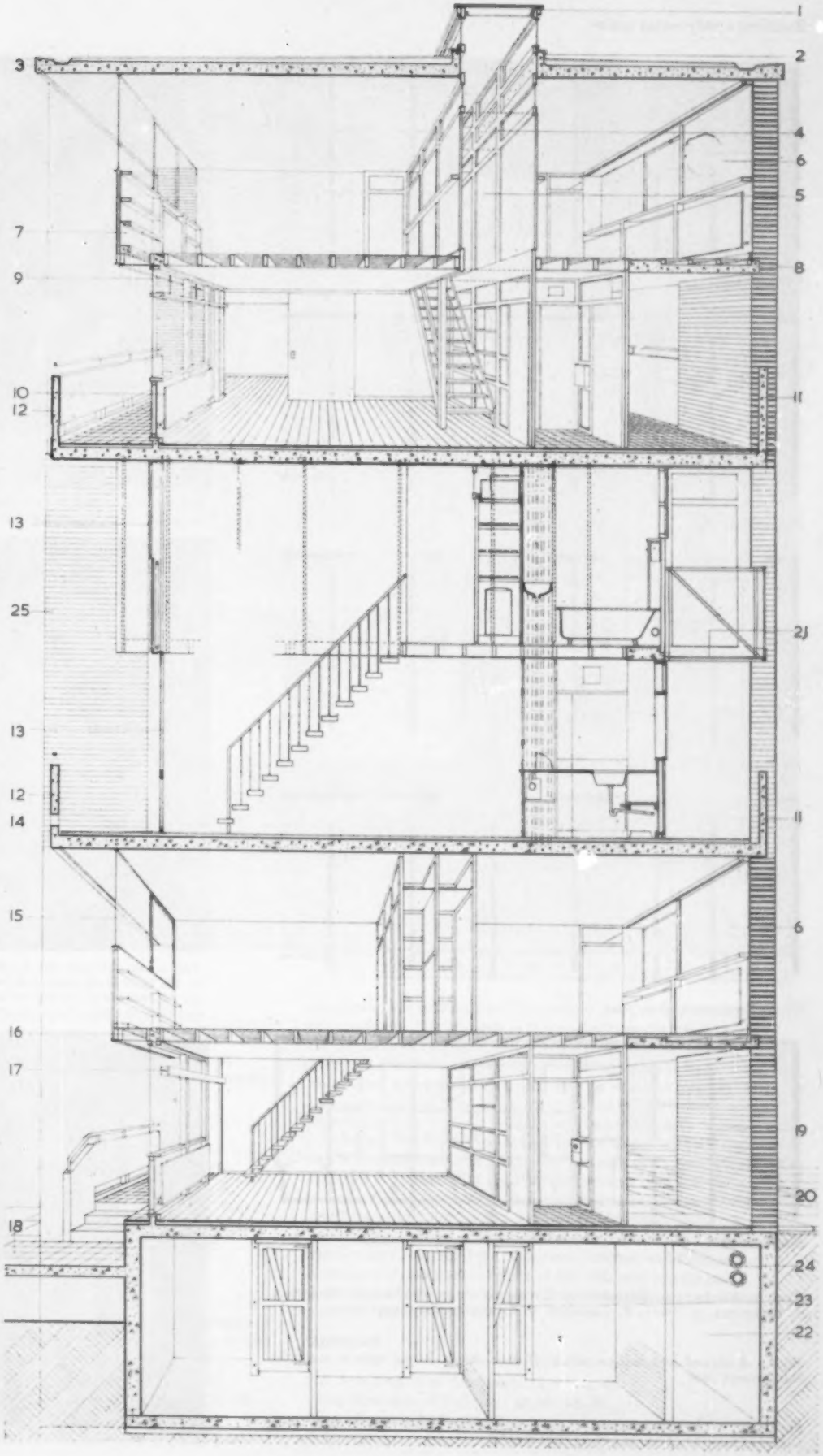
Internally, the finishes to the maisonettes are wearing reasonably well (as the two photographs of a recently vacated one show) and defects, where they have occurred, have been due to the inevitable maintenance difficulties that arise in the early years of occupation in any large building.

General maintenance is always a problem in large housing estates. The borderline between the tenants' and owners' responsibilities is not always clearly defined. At Bowater House the general appearance of the building is marred by several items which require attention. The paintwork to the external balustrading, for example, is in poor condition, the basement laundries and the approaches to them need brightening, and the odd door may be seen twisted, or to be missing (e.g., to the refuse containers). Those responsible for routine maintenance of the building state that the external paintwork will be renewed next year, which means that the work was either underspecified in the first place or poorly executed, or that four years is too long an interval before repainting a new building. Over some of the other small items it may be that there is some dispute between the various parties concerned over responsibility for putting them right: whatever the reason may be, these very few nagging eyesores remain.

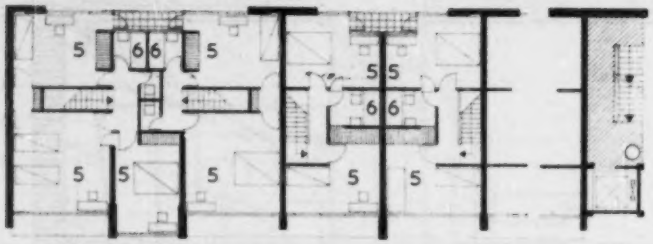
This is a pity, for these minor defects (together with the disappointing weathering of exposed concrete work) spoil what is otherwise an excellent and well-cared-for block. The architects have here provided an attractive building, pleasant to live in, and forming part of an estate which is, and ought to remain, one of the show places of the City of London.

KEY

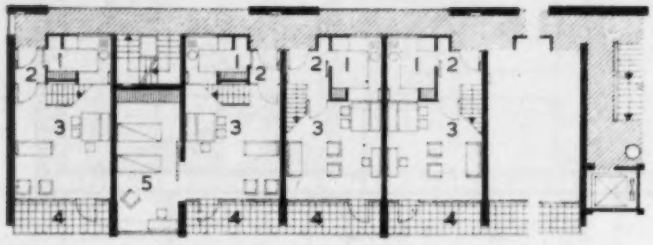
1. 3-ply felt on t. and g. softwood boarding; fascia, sheet aluminium.
2. Hardwood sill with lead flashing.
3. R.c. roof, 2-in. vermiculite screed, asphalt and marble chippings.
4. Standard 4 in. × 2 in. softwood framing for all internal framed partitions, extends up 2 floors to top of rooflight. Fixed lights and glass louvres with frames applied from outside; opening lights or louvres fixed from inside.
5. Panel infilling in framed partition; horizontal member acts as shelf on bedroom side.
6. Curtain track across brick pier.
7. Coloured rough cast glass cladding held by extruded aluminium frames screwed to softwood frames with asbestos board linings, braced by softwood shelves on inside.
8. Softwood floor on battens on concrete over access gallery.
9. Frameless sliders in polished plate with full height grip and draught excluder running in felt fixed on site into groove in hardwood frame.
10. External cladding in ⅛ in. sheet glass above sill, ¾ in. plywood below sill, bedded in putty and fixed to 7 in. × 2 in. hardwood frame by 2 in. × 1 in. hardwood battens from outside. Bottom half insulated by ½-in. fibreboard with convection heater on inside concealed by aluminium-faced asbestos board panels.
11. All visible concrete fair-faced and, where exposed to weather, left unpainted. Balcony upstand on north is structural and continues through brick piers. All bottom and side edges chamfered at 45 deg. and throatings are provided throughout. Joints of plywood shuttering coincide with elevational grid.
12. Concrete balcony front not structural.
13. Glazed aluminium door to balcony, sliding vertically and counter-balanced by top-light which can be lowered to 4 ft from floor. Bottom glass panel is in toughened sheet for safety. Heating coil above door prevents down draughts; it is fixed within depth of aluminium frame, so cannot cause pattern staining.
14. 1-in. hardwood veneer floor lightly nailed to 2 in. × 1 in. battens on 6-in.-wide strips of ½-in. insulation board which rests on concrete floor. Battens and insulation board held in place by bitumen; floor boards are nailed to concrete only on perimeter of room and in centre to reduce sound transmission to minimum. Hardwood veneer finished with plastic coat before laying.
15. Aluminium windows overslide for cleaning.
16. Flow and return pipe to heating coil.
17. Projecting curtain track and pelmet across balcony door.
18. Private stairs, concrete finished with blue quarry tiles, give access to sunken courts from ground-floor living-rooms.
19. 13½-in. brick piers in purple sand-lime facing bricks with tinted weather pointing used on all external brickwork.
20. Concrete paving flags.
21. Floors of escape balconies between north bedrooms are purpose-made mild steel grilles, shot blasted and galvanised.
22. Basement corridor fair-faced concrete walls, emulsion painted.
23. Basement stores doors hinged from softwood plates bolted through 3-in. on-edge brick partitions. Stores ventilated through 3-in. gap at bottom and 1 ft. 6 in. high opening above door, protected by 2 in. × ½ in. mild steel flats laid horizontally on each brick.
24. Site heating ring mains.
25. 9-in. structural cross walls in semi-engineering bricks on ground and first floors, flettons on top four floors.



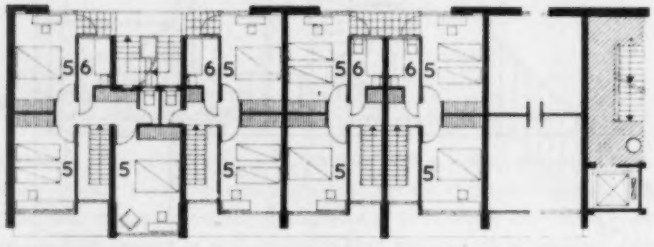
Building study—2nd series



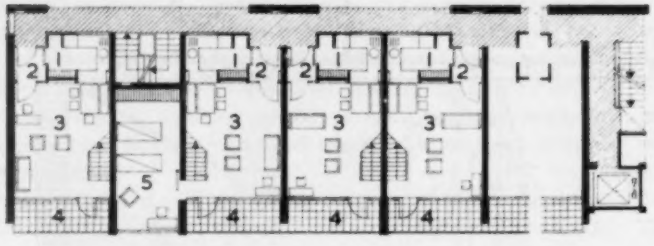
Fifth floor plan



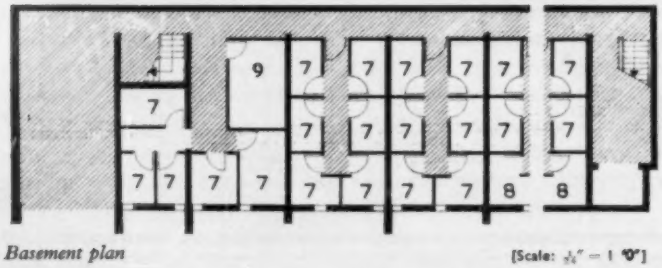
Fourth floor plan



First and third floor plans



Ground and second floor plan



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

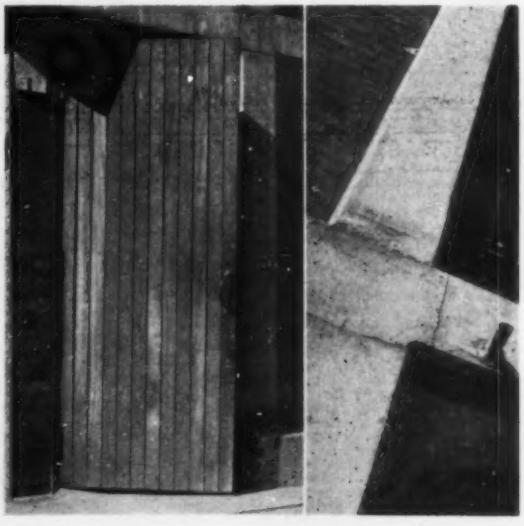
Key: 1. Kitchen. 2. Entrance. 3. Living-room. 4. Balcony. 5. Bedroom. 6. Bathroom. 7. Store. 8. Laundry. 9. Calorifier and pump room.

Right: A twisted and half-wrenched-off door should be put right as a routine maintenance item

Far right: The appearance of the concrete lift joints might have been improved had they been intentionally defined

The north elevation is very much "the back" and, being in perpetual shade, is somewhat gloomy

The access balconies are rather dark. This is caused partly by the wide brick piers and partly by the grilles provided in the bedroom-level escape balconies to improve daylighting in the kitchens below. Note the staining of the concrete.



A section of the north elevation

CLIENTS' REQUIREMENTS

Dwellings to house 1,400 people at a density of 200 persons to the acre. A community building, garages, estate workshop, laundry rooms and district heating service to be included in the development. (This paragraph refers to the whole Golden Lane Scheme.)

SITE

Before the war the seven-acre site was densely developed with buildings used for light industrial and commercial purposes. In December 1940 these buildings were destroyed by bombing. When the site was handed over for redevelopment, basements of former buildings were filled up to ground level with bombed debris.

PLANNING AIMS

The two-storey maisonettes are arranged on three levels with gallery access on the north side reached by lifts and stairs. The form of the galleries is modulated by recessing the paired entrance doors opposite the brick piers and by introducing open grilles to the bedroom-level escape balconies, thus improving daylighting of the kitchens below. Characteristic of the Golden Lane maisonette planning is the variety of plan types within each block. In the lower ones, staircases leading from living-room level up to bedroom level are planned so that the stair well contributes to the spaciousness of the living-room and provides a well-lit landing at the top: in the top storeys the staircase at the back of the living-room is lit from above. Four-room maisonettes are adjacent to the secondary public staircases, and the third bedroom opens out of the living-room in alternate maisonettes. All kitchens and bathrooms have natural lighting and ventilation (one of the clients' requirements); some top-floor bathrooms are roof-lit. On the south elevation, the party walls extended at both ends of the balconies provide complete privacy between maisonettes, which thus become individual two-storey dwellings placed side by side as in terrace housing. Within this framework, the large windows between living-room and generous balcony, and the glazed screen between kitchen and dining-space, combine with the double height of the stair well to give an impression of spaciousness much greater than is usually possible for a severely limited floor area.

SUMMARY

Net floor area of all dwellings: 24,300 sq. ft.
Gross floor area of building: 32,060 sq. ft.
Type of contract: Competitive tender.
Substructure contract: August 1953.

Building study—2nd series

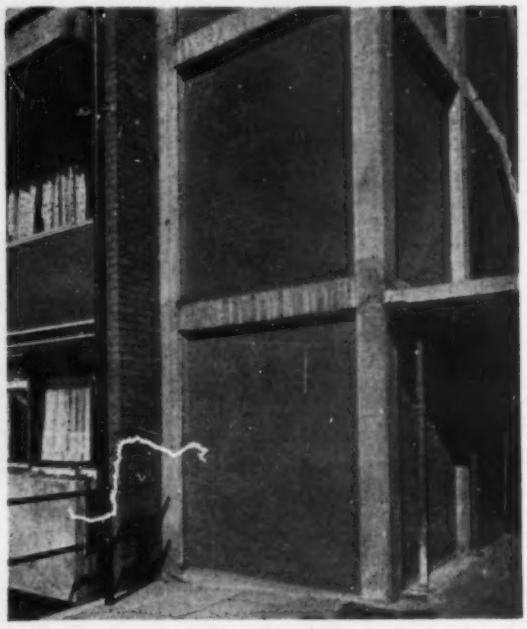
Tender price: £9,475.
Superstructure contract: September 1954.
Tender price: £65,040.
Work began (substructure): November 1953.
Work finished: December 1956.
Total tender price: £74,515.
Total tender price of external works and ancillary buildings: £14,903.
This analysis is based on the lowest tenders received for Substructures (August 1953) and Superstructures (September 1954) and deals with only one of the types of dwelling—the maisonette blocks—included in the scheme.

Rates and figures quoted exclude cost of land, professional fees, post-contract variations and increased costs under the Fluctuations clause of the contract.

NOTE: Costs per square foot relate to net floor areas

The net floor area for this example is the total space contained within the inside face of walls enclosing the dwelling plus the net area of stores and laundry rooms in the basement. The area of private balconies and common circulating space is excluded.

On the south side the ingenious modelling of the facade is more successful. There is an appropriate domestic scale



The charming entrance canopy apparently requires additional support

SCHEDULE OF ACCOMMODATION

Three tiers of maisonettes (24 three-room, 6 four-room) with basement stores and laundry rooms.

Maisonette type and description	*Description*	*No. of bedrooms*	*No. in scheme*
M 3 a	Typical plan on two	2	8
M 3 b	lower tiers with bathroom window to access gallery	2	8
M 3 c	Top-tier plan with	2	4
M 3 d	larger bedrooms and internal top-bathroom	2	4
M 4 a	One of each on two	3	2
M 4 b	lower tiers, where dog-leg staircase allows for extra bedroom	3	2
M 4 c	As M4a and b, but	3	1
M 4 d	both on top tier, with larger bedrooms and internal top-lit w.c.	3	1
Basement storerooms			30
Basement laundry with gas boiler and two drying-cabinets			2

COST ANALYSIS

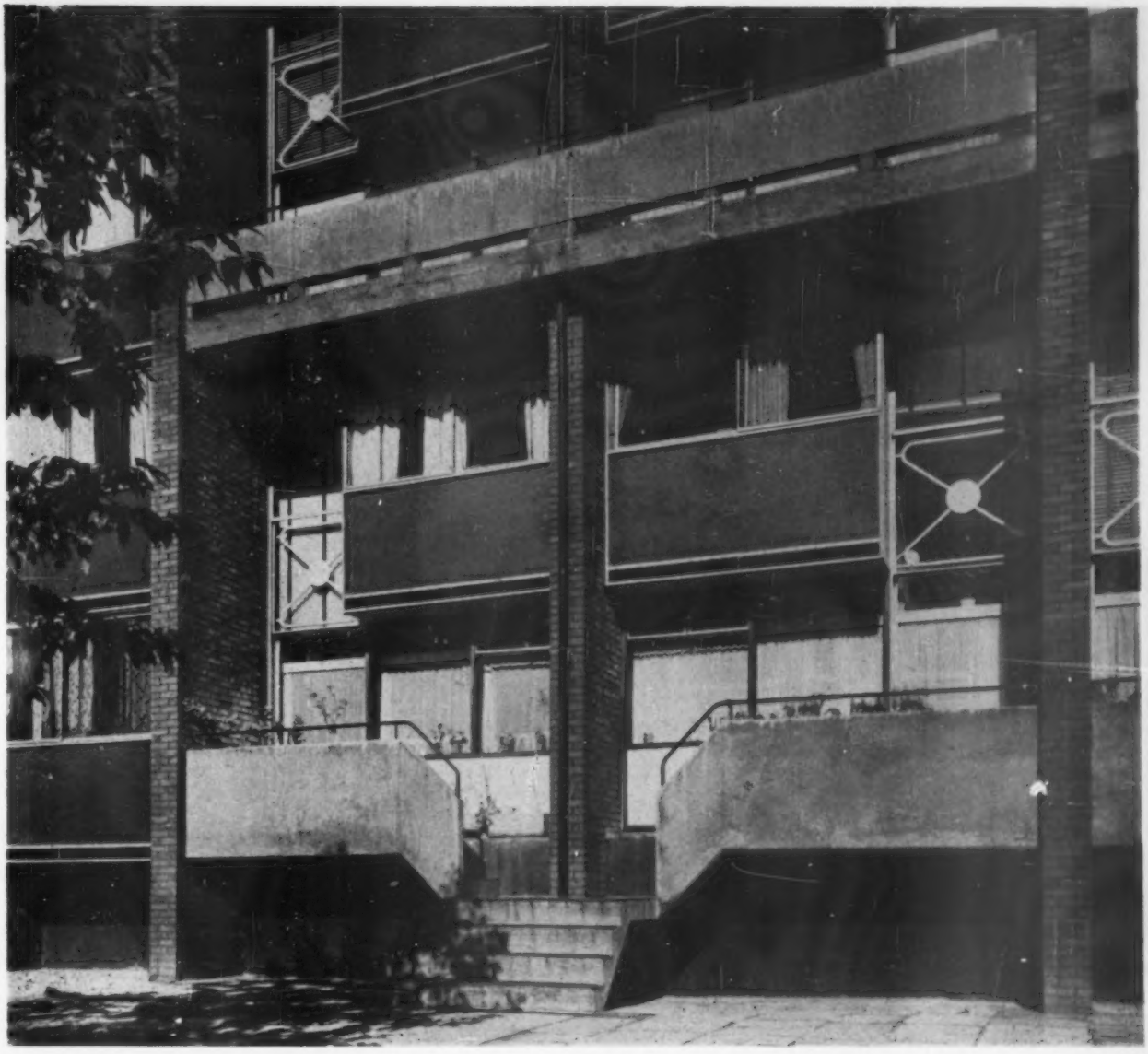
based on tender. (AJ revised elemental breakdown in use from November 10, 1960.)

	Cost per sq. ft. s d
Preliminaries and insurances 11½ per cent of remainder of contract.	6 4
Contingencies	5½
Work below lowest floor finish Excavation for basement about 10 ft. deep, 6-in. reinforced concrete basement slab on 9-in. waterproofed reinforced foundation walls. No tanking.	3 11½

STRUCTURAL ELEMENTS

Frame
Brick and concrete box frame and piers under External Walls and Internal Structural Walls.

Upper floors 6 5½
(including ground floor over basement)
4-in.–10½-in. reinforced concrete in situ slabs: 2,385 sq. yds.
Concrete beams and columns, 960 cu. ft.
6-in. timber joists and supports and hangers: 615 sq. yds.
Metal grille landings: 40 sq. yds.



A detail of the south elevation

Roof 2 3½

7-in.–10½-in. reinforced concrete in situ slabs: 235 sq. yds.
8-in. timber joists and 2-in. wood wool: 350 sq. yds.
Asphalt on vermiculite screed: 585 sq. yds.
Guard railing, vitreous enamel rainwater pipes from roof and balconies, flashings.

Rooflights 3

Pyramidal timber-framed: 25 sq. yds.
Patent glass domes: 21 sq. yds.

Staircases 1 9

Reinforced concrete cast in situ external access staircases with granolithic risers and granolithic or quarry tile treads, mild steel balusters and handrails.

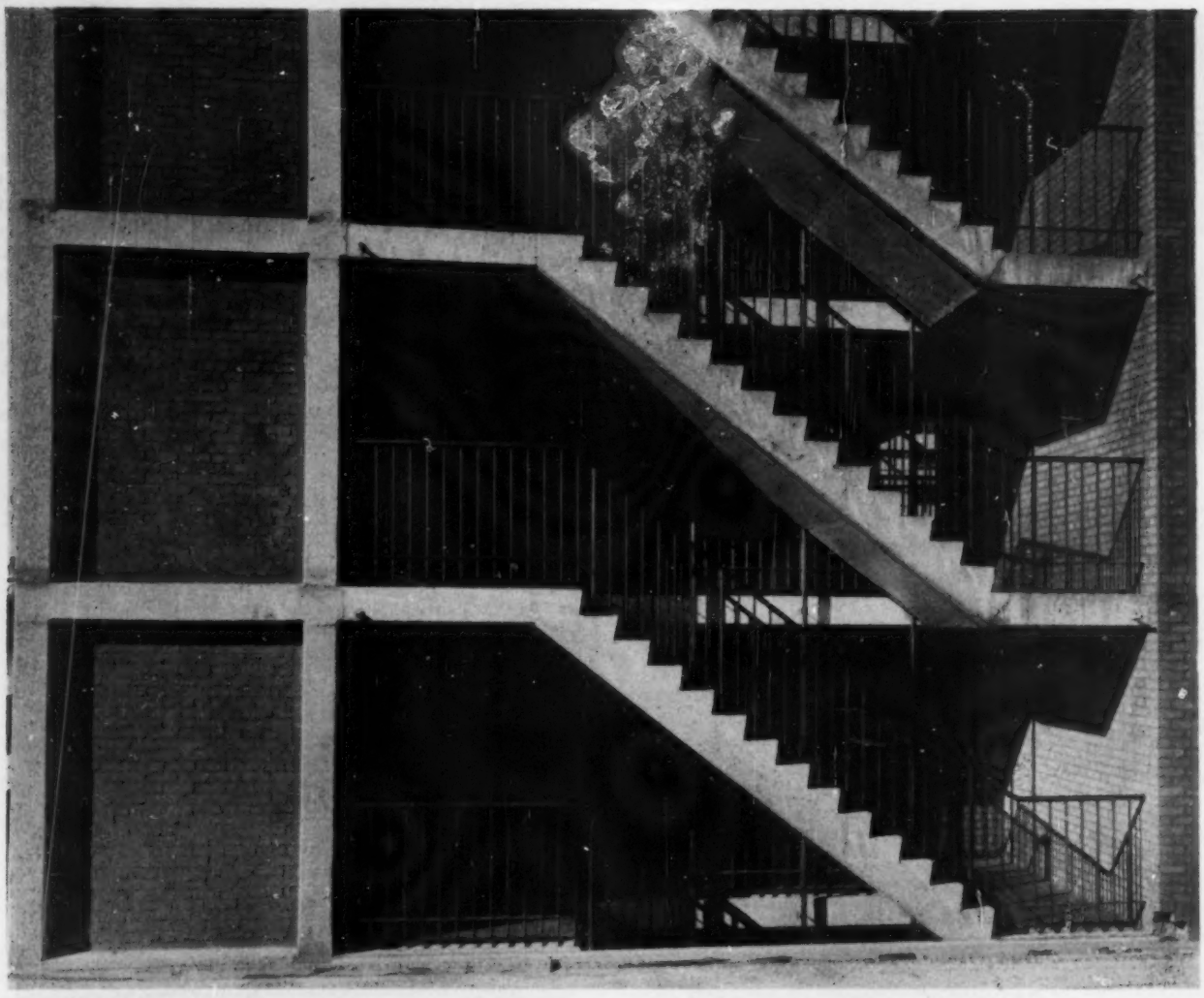
No. of staircases	*Width*	*Total rise*
1	3 ft. 9 in.	44 ft. 0 in.
1	3 ft. 9 in.	52 ft. 6 in.

9½ in. × 2½ in. precast concrete cantilevered treads within maisonettes. Mild steel balusters and handrails.
No.: 20 *Width:* 3 ft. *Total rise:* 8 ft. 2 in.

Timber staircases with hardwood strings and plywood treads, beech handrails.
No.: 10. *Width:* 3 ft. *Total rise:* 8 ft. 2 in.

External walls 10 2½

9-in. reinforced concrete walls to basement: 314 sq. yds.



The main staircase

13½-in. fletton and semi-engineering brick walls and piers faced with purple Uxbridge facings: 837 sq. yds.

9-in. wall in purple Uxbridge facings: 110 sq. yds.

3-in. wall in lightweight expanded clay aggregate partition blocks rendered externally; cost includes 100 sq. yds. timber fixed and opening lights, 471 sq. yds.

Aluminium-framed curtain walling with ready glazed sliding windows; coloured glass panel filling below, backed with hollow core plasterboard or lightweight expanded clay aggregate blocks (glazed area 66 per cent), 788 sq. yds.

Timber-framed curtain walling with external quality plywood and insulation board panel filling; cost includes 75 external quality plywood-faced doors (glazed area 50 per cent), 400 sq. yds.

4½-in.–6-in. reinforced concrete balcony walls and mild steel guard rails and balusters, 235 sq. yds.

Internal structural walls 2 11½

9-in. reinforced concrete cross walls in basement: 276 sq. yds.
9-in. fletton and semi-engineering brick cross walls: 1,483 sq. yds.

Windows

included with External Walls.

External doors

included with External walls.

Partitions 1 8½

4½-in. fletton brick, 60 sq. yds.
3-in. semi-engineering brick on edge, 463 sq. yds.
2-in. breeze, 174 sq. yds.
2-in. solid plaster, 376 sq. yds.
Softwood framing with plywood, hardboard, granite-surfaced asbestos or glass infilling, 561 sq. yds.

Simple brickwork at the west end forms a refreshing contrast

Internal doors 6½

193 1⅜-in. hardboard-faced flush doors to rooms; cost of frames included with partitions: 3,180 sq. ft.
61 tongued and grooved and V-jointed boarded doors to stores, including frames: 1,056 sq. ft.

Ironmongery 11

Aluminium furniture to timber doors and windows.
Track for sliding doors. Curtain tracks.
(Ironmongery to aluminium windows and doors included with External Walls.)

Total of structural elements: 27s 0½d

FINISHES AND FITTINGS

Wall finishes 9

Two-coat gypsum plaster: 3,622 sq. yds.
Setting coat on panel filling: 72 sq. yds.
Asbestos board splashbacks: 36 sq. yds.

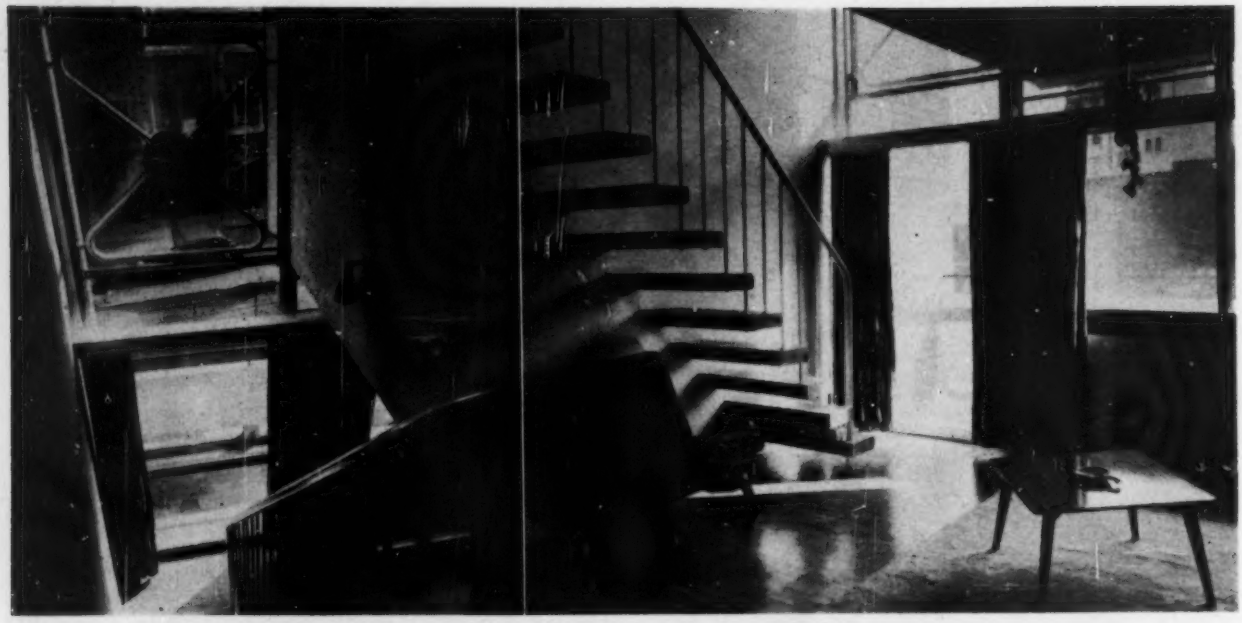
Floor finishes 3 11

2-in. granolithic: 432 sq. yds.
Quarry tiles on screed: 228 sq. yds.
Quarry tiles on asphalt on screed: 110 sq. yds.
Quarry tiles on asphalt on screed on fibre-glass: 131 sq. yds.
P.v.c. felt-backed flooring on screed (later changed to hardwood): 252 sq. yds.
P.v.c. felt-backed flooring on screed on fibre-glass (later changed to hardwood): 1,098 sq. yds.
Precast concrete slabs: 87 sq. yds.
1-in. softwood strip on fillets: 731 sq. yds.
Elemental cost includes skirtings, floor channels, etc.

Ceiling finishes 8½

Two-coat gypsum plaster: 1,344 sq. yds.

Building study—2nd series



Two views of staircase and vertically sliding door to balcony

Three-coat gypsum plaster on metal lathing: 336 sq. yds.
Asbestos insulation board: 581 sq. yds.

Decorations 2 6¾

Plastered surfaces 2 coats emulsion paint, 2 coats oil paint to kitchens and bathrooms. Woodwork, hardboard and metalwork, 2 coats oil paint. Softwood floors wax polish.

Fittings 3 6

	Quantity
Built-in wardrobes and doors	117
Linen cupboards	30
Kitchen cupboards	30
Larder cupboards	30
Kitchen units	30
Draining boards	60
Shelving (mainly in basement stores)	2,250 sq. ft.
Boilers, wringers, washing machines and tables in laundry; drying units in laundry	4

Total of finishes and fittings: 11s 5d

SERVICES

Sanitary fittings 11¼

Type of fitting	*No. of each type*
Kitchen sinks	30
Lavatory basins	30
Baths	30
Low-level w.c. suites	30
Laundry wash-tubs	2

Waste, soil and overflow pipes 1 5¼

Copper wastes, anti-syphonage, etc. Cast-iron stack pipes, one pipe system.

Cold water services 9

Two 1,000-gallon main tanks on roof.
Thirty 40-gallon galvanised tanks in maisonettes.
Galvanised steel down service with copper branches.
92 draw-off points.
Builders' work in connection. 3¾

Heating and hot water services 3 5¼

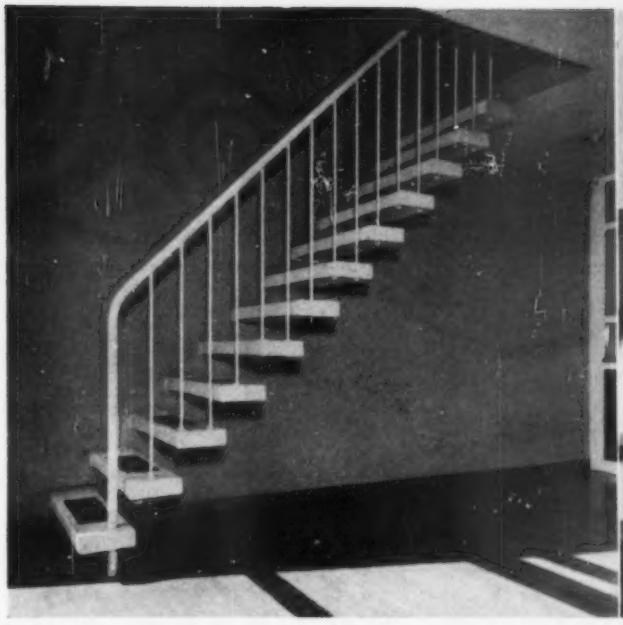
Full central heating by low-pressure hot water convectors with system linked to calorifier for hot water to 92 draw-off points.
(See end of analysis for percentage addition for proportional cost of communal boiler house, flue and site mains.)
Builders' work in connection, including purpose-made built-in convector covers. 7¼

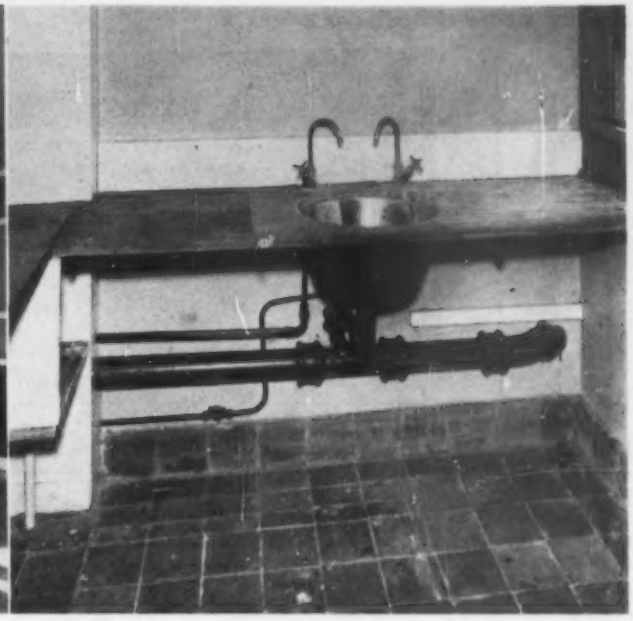
Gas services 2

Normal subsidised domestic installation plus supply to 4 drying units.
(includes builders' work in connection).
No. of points: 64.

Electrical services 2 3¼

	No. of points
Tungsten lighting, conduit chased into walls. Meter and switchgear. Lighting installation to common access galleries, staircases and stores	87
Lighting installation, maisonettes	252





The interior of a recently vacated dwelling shows that finishes are wearing well

Power installation	132	
Cooker control units	30	
Lighting fittings to common access galleries, staircases and stores.		
Lighting fittings, maisonettes.		
Service to laundry equipment.		
Service to lift.		
Builders' work in connection.		2½

Total of services: 10s 1½d

SPECIAL SERVICES

Lift installation	1	5½
One electric 8-person passenger lift serving 4 stops at speed of 100 ft. per minute.		
Builders' work in connection (excluding shaft)		1
Refuse chutes		3
Concrete-encased stoneware single stack with three hopper entries (excluding removal containers).		
Dry riser installation		2
Provisional sum.		

Total of special services: 1s 11½d

Total cost per sq. ft. (excluding external works and proportionate cost of boiler house, etc.) based on NET floor area, 24,300 sq. ft. :	61	4

EXTERNAL WORKS (based on NET area)

(*a*) Proportion of cost of site clearance, external works, external services and drains: 14½ per cent.	8	10½
(*b*) Proportion of cost of communal boiler house, boilers, flue and site mains: 5½ per cent.	3	4½
	73	7½

Total cost per sq. ft. (excluding external works and proportionate cost of boiler house, etc.) based on GROSS floor area, 32,000 sq. ft. (measured inside external walls):	46	5½

EXTERNAL WORKS (based on GROSS area)

(*a*) As above.	6	9
(*b*) As above.	2	6½
	55	9½

COST COMMENTS

This analysis is difficult to compare with previously published examples. For one thing we are here dealing with a single block in a comprehensive scheme of diverse development and therefore cost comparisons which could be made between high and low building in the same project, as at Roehampton (AJ, November 5, 1959), are obviously impracticable. Furthermore, this 7-storey block cannot in fairness be directly compared with the 4-storey blocks in the Roehampton scheme, nor with those in Camberwell Grove (AJ, April 28, 1960), or with the 15-storey blocks at Sceaux Gardens (AJ, January 7, 1960). However, if the Bowater House figures are adjusted to bring them into line with those of the examples quoted, certain elemental comparisons may be made and these can be tabulated as in Table 1, overleaf.

The comparative gross costs per habitable room and per dwelling for these six different schemes may also be of interest. They can be tabulated as shown in Table 2.

Before any firm conclusions are drawn from the figures it must be

Building study—2nd series

Table 1

	Bowater House (7-storey) with net areas adjusted to include private balconies as in the other examples	*Sceaux Gardens (15-storey)*	*Camberwell Grove (4-storey)*	*Roehampton (4-storey)*	*Roehampton (11-storey)*	*Roehampton (12-storey)*
Tender date	Aug. '53 (substructure) Sept. '54 (superstructure)	May '57	Sept. '55	Nov. '54	Nov. '54	Nov. '54
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Preliminaries, insurances, contingencies	6 4¾	9 10¾	2 0	3 11	2 5¾	3 0½
Work below ground and structural elements	26 2¼	32 1¼	32 1*	17 5	28 11	33 11¾
Partitions, finishes, fittings	13 8½	17 5	14 11	13 11¾	15 1¾	14 10½
Services: lifts, boilers, flues, etc.	14 6½	21 3	10 8	6 6¾	17 6	18 11½
Total, excluding drainage and external works	60 10	80 8	59 8	41 10½	64 0½	70 10¼

Table 2

Accommodation	24 two-bedroom maisonettes 6 three-bedroom maisonettes	196 two-bedroom maisonettes	16 two-bedroom maisonettes 14 three-bedroom maisonettes 1 four-bedroom maisonette 1 five-bedroom maisonette 13 one-bedroom flats 7 two-bedroom flats	16 three-bedroom maisonettes	75 two-bedroom maisonettes	22 two-bedroom flats 22 one-bedroom flats
	£	£	£	£	£	£
Average cost per dwelling	2,647	3,056	2,184	2,173	2,395	2,230
Average cost per habitable room	827	1,019	701	543	798	892

* 6s. 6d. of this cost owing to abnormal site conditions

remembered that building costs vary from year to year and that between the six schemes there are many important differences, only a few of which have here been noted.

The architects of Bowater House have produced a fine building with above-average finishes (apart, perhaps, from the concrete) which should stand up well to use and to the London atmosphere and should require minimum maintenance. And this is more than can be hoped for with many other buildings of its age, location and architectural genre.

CONTRACTORS

(For Bowater House and other blocks forming the first phase of the Golden Lane estate.)

For substructure: Griggs & Son Ltd. *For superstructure:* George Wimpey & Co. Ltd.

Nominated sub-contractors—Electrical installation: John Hearson & Co. Ltd. *Heating and hot water:* Ellis (Kensington) Ltd. *Lifts:* Express Lift Co. Ltd. *Gas installation:* North Thames Gas Board. *Pavement lights:* John Healey (London) Ltd. *Patent glazing:* Williams & Williams Ltd. *Folding doors:* Esavian Ltd. *Linoleum:* Great Metropolitan Flooring Co. Ltd. *Hardwood and p.v.c. felt-backed flooring:* S. F. James. *Floor tiles:* Marley Tile Co. Ltd. *Fire-resisting doors:* Mather & Platt Ltd. *Steel partitions:* Steel Bracketing & Lathing Ltd. *Rolling shutters:* Haskins. *Resin bonded flooring:* Haskell Robertson Ltd. *Lightning conductor:* R. C. Cutting & Co. Ltd. *Extract hood:* Air Heat & Dust Control (Kings) Ltd. *Terrazzo paving:* Roman Art. *Window-cleaning rail:* Carron & Co. *Curtains and rails:* John Holliday & Sons Ltd. *Turf:* James Monk, F. D. Tomkins & Co. *Cat ladders:* Clark Hunt & Co. Ltd. *Blinds:* Army & Navy Stores Ltd.

Nominated suppliers—Aluminium windows and frames: Quicktho Engineering Ltd. *Wall tiles, manhole covers:* Broad & Co. Ltd. *Precast concrete stair treads:* Costain Concrete Co. Ltd. *Nameplates:* R. W. Coan Ltd. *Steel windows:* Crittall Manufacturing Co. Ltd. *Wall boards:* Cape Asbestos Co. Ltd. *Ironmongery:* Comyn Ching & Co. (London) Ltd., A. G. Roberts Ltd. *Glass and domelights:* Pilkington Bros. Ltd. *Prestressed floor planks:* Pierhead Ltd. *Railing standards:* David Rowell & Co. Ltd. *Sanitary fittings:* Rownson, Drew & Clydesdale Ltd., Stitsons Sanitary Fittings Ltd. *Bricks, paving slabs:* R. Passmore & Co. Ltd. *Paints:* W. & J. Leigh Ltd.

technical section

THE LIBRARY OF INFORMATION SHEETS

This week part of the Technical Section is devoted to the customary annual review of the Library.

From time to time, and regularly each December, all Sheets are examined and checked, and where a manufacturer's products form the subject of a Sheet the manufacturer in question is asked to certify that the data are still current. Where a Sheet is found to require considerable modification, it is cancelled and readers should remove such Sheets from their collections. Where only small variations are involved, revision notes enable the Sheet to be corrected.

Sheets 46.Z1 (A-D) and 46.Z2 (E-L) published in the issue of 22.12.60, and Sheets 46.Z3 (M-R) and 46.Z4 (S-Z) in this issue, give an up-to-date index cancelling all previous indexes.

On the following pages will be found a list of the revisions and cancellations which have become necessary during the year, and a statement of the contents of the Library with all Sheets current at this date in correct sequence. For the benefit of new subscribers, we also give information on the method of filing Sheets.

REPRINTS

Reprints of all Information Sheets in the current Library are available either singly (price 3d. each) or in complete sets in classified order. Specially-designed loose-leaf binding cases to hold approximately 100 Sheets may also be obtained and four to five are necessary to contain a complete set to date. Prices are as follows:

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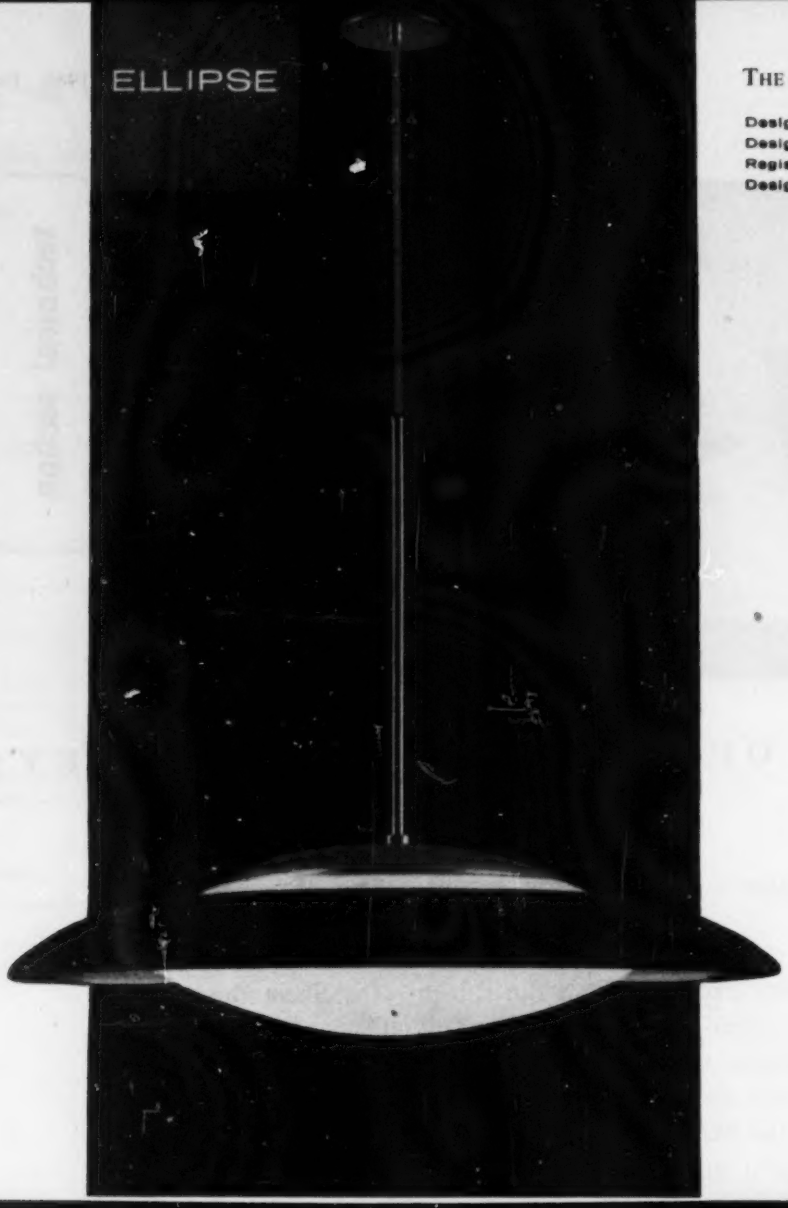

THE ARCHITECTS' JOURNAL for December 29, 1960

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Design of the Year Award, Canada, 1959.
Registered Design Nos. 888702 and 888736.
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technical section

FILING INSTRUCTIONS

Every Information Sheet is perforated so that it may be readily removed from the JOURNAL and has a classification symbol printed in the top corner, for example, 32.C20. The key to the classification system is contained in Sheet 1.A1, reference to which should make filing a simple matter.

The first number of the symbol, 32, refers to one of the 46 main subjects into which the Library has been divided (in this case, water heating): the letter that follows refers to the section, C (in this case, units : gas), under subject 32: the final number indicates the position in which the Sheet is to be placed in the appropriate section.

Every December a check list of the contents of the Library is issued showing the correct sequence of all Sheets published to date. Throughout the year, any revisions to or cancellations of Sheets are noted in the JOURNAL and the Editor will always be pleased to assist if any difficulty is encountered in keeping the Library in order.

CORRECT SEQUENCE OF COMPLETE LIBRARY AT DECEMBER 22, 1960

1.A1	1.A2	1.A3	1.B1	1.B2	1.B3	14.K4	14.L4	14.L12	14.L13	14.L14	14.L15	29.B1	29.B2	29.B3	29.B4	29.C1	29.C2
1.B4	1.B5	1.B5a	1.B6	1.B7	1.B8	15.B1	15.B4	15.B5	15.C1	15.C2	15.C3	29.C5	29.C10	29.G1	29.G2	29.H2	29.H5
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1.B15	1.B16	1.B18	1.B19	1.B20	1.B21	16.C1	16.J1	17.B1	17.B2	17.D1	17.D2	29.J6	30.B3	30.B4	30.B5	30.C1	30.C2
1.B22	1.B23	1.B24	1.B25	1.B26	1.B27	17.D3	17.D4	17.H2	17.J1	18.E1	18.E2	31.C3	30.C4	30.D1	30.D21	30.D22	31.C2
1.B28	1.B29	1.B30	1.B31	1.B32	1.B33	18.E3	18.F2	18.N1	19.D1	19.G1	19.G2	31.C4	32.C3	32.C4	32.C20	32.C21	32.C22
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1.B57	1.C1	1.C2	1.C3	1.C4	2.A1	20.D6	20.E1	20.E3	20.Z1	20.Z5	20.Z7	32.E1	32.Z1	33.B1	33.B2	33.C1	33.C2
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REVISIONS 1960

6.Z1, 6.Z2, 6.Z3, 6.Z5—The manufacturer is now known as Ductube-Udall Limited.

6.Z6—Reverse of sheet, heading "Components, description, sizes and weights," sub-heading "Standard panels," table of sizes, delete first five entries and add 4 ft. 0 in. by 6 in., 9 in., 1 ft. 0 in., 1 ft. 6 in. or 2 ft. 0 in., weighing 15½, 20, 30, 41 and 54 lb. respectively.

10.B1, 10.B2, 10.B3—Delete all references to aluminium alloy H10.

10.B2. Face, last entry in table, second column, should read "Foil: IC crumpled or . . . ." Reverse, heading "Manufacturers," Northern Aluminium Company Limited is now known as Alcan Industries Limited, Banbury, Oxfordshire.

14.F1—Reverse, heading "Laying," add "Where it is desired to use a plasticiser, the recommended cement to sand ratio is 1 : 8. In exposed positions or severe weather conditions, a richer mix may be used, but it should not exceed 1 : 6."

14.K3—Reverse, heading "Characteristics," sub-heading "Compressive strength," delete "cube as delivered: 750 to 800 lb. sq. in." and substitute "(Saturated): in excess of 500 lb. sq. in."

14.K4—Reverse, heading "Board manufacturers," amend first entry to Cork Specialities Limited: the address remains the same. Add to the list: Cemoss Equipment Limited, 5, Grange Road, Waltham Cross, Herts.; Levecto Limited, Station Road, Fordingbridge, Hants; Flamingo Foam Limited, 34 Victoria Street, London, S.W.1; Resil Processes Limited, Booth Ferry Works, Howden, East Yorkshire.

15.B4, 36.A2—The manufacturer's telephone number is Uxbridge 37111. Telex 23471/UXB.

15.B5—The manufacturer is now known as Martin Olsson (Fibreboards) Limited for Ljusne-Woxna AB.

18.F2—Face of sheet, the cork skirtings are now ¼ in. thick, 1 in. wide at the base and with a cove radius of ⅝ in.

19.K1—Reverse heading "Material": a bactericidal quality is now available for use in hospital wards devoted to antibiotic therapy; details and test reports can be obtained from the manufacturer.

19.Z11—There have been a number of modifications in the design of the stair treads and the Sheet will be republished. Meanwhile delete all reference to the industrial-type tread with steel backing.

20.D2—Reverse, heading "Loading," table, third column to be amended to 12 ft. 6 in. (from 13 ft. 0 in.), 15 ft. 6 in. (from 16 ft. 0 in.); fifth column, 14 ft. 6 in. (from 15 ft. 0 in.), 16 ft. 6 in. (from 17 ft. 0 in.); seventh column, 11 ft. 6 in. (from 12 ft. 0 in.).

20.D3—Reverse, heading "General," second sentence to be amended to ". . . widths up to 7 ft. 6 in."

20.D4, 20.D5, 22.F3—The manufacturer's Birmingham address is now George House, George Road, Edgbaston. Telephone: Edgbaston 4391-3.

21.C3—The glazing of the partitions is now fixed by removable glazing beads, the glass still being mounted in rubber.

22.F2—Face, drawing headed "Suspended from Roof Trusses," hair pin clip can be supplied in other than 10 gauge. Face and reverse, amend wire ties to 16 gauge. For fixing to timber joists, flat-headed nails are now used instead of staples.

22.F3 See 20.D4.

24.L2—Reverse, heading "Sizes," third column, amend all entries to 48. The manufacturer's telephone number is now West Drayton 2645/6.

24.S1, 24.S2—The manufacturer's telephone number is now Redhill 5511-4. Telegrams: Unicontrol, Redhill.

26.C2—Reverse, heading "Construction," sub-heading "Open palisade type," the centre rail can be dispensed with on fences up to 6 ft. 0 in. high.

26.M4—Reverse, heading "Material," add "off white" to the list of standard colours and delete "other colours are available." Heading "Coverage," add "A joint calculator giving design of joints and coverage is available from the manufacturer."

26.M5—Reverse, heading "Properties," add "The standard colours are white and black."

27.B14—Reverse, heading "Components," sub-heading "Tiles," after "bonderised" add "treated with Shell Epikote for resistance against corrosion." Third sentence, add "They are also manufactured 24 in. by 24 in. without a central groove."

29.A1—The appliance has been slightly modified: the manufacturer should be consulted.

29.H2—Reverse, delete paragraph headed "Acoustic Treatment": information on this subject is contained in Information Sheet 29.H6. Heading "Relevant publications," add "Key for Plaster . . . Leaflet CP7" and "Heated Acoustic Ceilings HCl/4."

29.H6—Reverse, heading "Further Information," amend number of first entry to "HCl/4" and delete the last three entries.

31.C2—The handles to the oven and storage drawer have been redesigned.

32.C3—Reverse, heading "Finish," sub-heading "Type No. 2," amend to "Cream or white enamel . . ." Heading "Installation," sub-heading "Water type No. 15" to read "Connection: Inlet, ½-in. copper to B.S. 659. Outlet, ¾-in. B.S.P. taper male." The manufacturer is now known as Main Morley Limited.

33.K1—Reverse, heading "Gas rating," sub-heading "Floor type," delete second line and substitute "Governor available as an extra." Heading "Flues," third sentence to read ". . . but if these are necessary, they should not exceed 6 ft. 0 in. in total length, should have a gradient of 1 in 4 and should be continued with a vertical rise of not less than three times the horizontal distance." Add also the following: "In cases where a number of appliances are to be connected to a common flue, mechanical extraction is essential. All incinerators used in this type of installation should be equipped with a flame-failure device and the system protected by a fan-failure assembly, to ensure that the incinerators cannot be used without the required extraction." Heading "Further Information," after 3708A, delete "for flush installations" and substitute "projecting 4 in. from the wall face (excluding handles)"; add, "modified 3705 model (projecting ½ in.)."

33.P3—Reverse, heading "Material," the fitting is now available in brass tubing with a lead trap.

33.U1—Face and reverse, amend date of B.S. 1431 to 1960. Reverse, opening paragraph, delete second sentence. The address of the Copper Development Association is now 55, South Audley Street, London, W.1. Telephone: Grosvenor 8811.

34.K2—Reverse, heading "Finishes and colours," second sentence, the only colour now obtainable is white. After third

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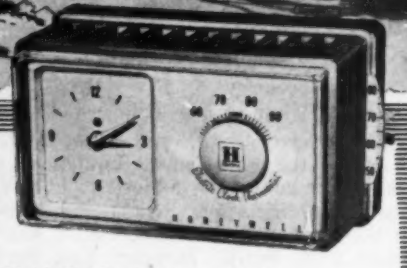

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sentence, add " Plain black metal end plates are also available in place of the polystyrene end plates: with these the aluminium end plates of the top casing are not required." Add a paragraph headed " Further Information " stating: " Other models are available, including an industrial reflector and a low-brightness louvred metal fitting: details may be obtained from the manufacturer."

34.Z1—Face and reverse, delete " grub screw " and substitute " self-tapping screw " on the suspension bracket.

34.Z2—Face and reverse, tiles are also now available 24 in. square. Reverse, heading " Components and Sizes," sub-heading " Suspension mounting strip," second sentence to be amended to " Fixing holes are provided at 8 in. centres. . . ." Sub-heading " Suspension wire," amend to " . . . available in 50 ft. coils." Heading " Weight," add at end of first sentence " and each 24 in. by 24 in. panel, 32·5 oz."

36.A2—See 15.B4.

36.B1—The telephone number of the manufacturer's London office is now Victoria 8474 and that of the works, Isleworth 4131.

37.Z1—The profile of the duct frame section has been slightly modified. The ¼-in.-diameter rod for keying to concrete is no longer fitted to the ends of ducts.

38.B1—Face, last column of table, second, fourth, fifth and eleventh entries to read " Walpamur Tinted Primer "; sixth entry to read " Walpamur Colourless Primer." Reverse, heading " Preparation and Application," sub-heading " Brushing," second sentence to read "At least 16 hours. . . ."

40.C1—Reverse, heading " Specifications," table, last column, amend first entry to " . . . approximately ¾ gal. to 1 cwt." and second entry to " . . . approximately ½ gal. to 1 cwt."

40.C2—Face, heading " Properties of Treated Surfaces," table, substitute " Keuper Marl " for " Ibstock." Reverse, sub-heading " Prevention of Efflorescence," third sentence to read " No case where this has occurred outside the laboratory is known. . . ." The telephone number of the Production and Technical Service is now Barry 2583.

42.E1—Pattern A (double tier) is no longer manufactured and a modified Pattern B (double tier) can now be supplied.

42.K2—The manufacturer's telephone number is now Croydon 1165/6.

43.E13—Face, the upstands to the work tops are now $1\frac{17}{32}$ in. deep, not ¾ in. Reverse, all reference to S.22 cover strips to be deleted.

43.E15—Face and reverse, delete all reference to ER92 refrigerator.

43.H1—Face, drawing headed " Wall channels, open type," these are no longer notched at 1 in. centres. Drawings headed " Shelf brackets," 15° sloping regular duty brackets are now obtainable: heavy duty brackets range in length from 8 in. to 2 ft. 2 in.

43.Z5—Face, drawing headed " Isometric view of general arrangement," the overall depth can be 5 ft. 0 in. or 5 ft. 6 in.

44.J3—The distributor for Dexter locks in the U.K. is now E. and J. Fleming, 30, City Road, London, E.C.1. Telephone: Monarch 4881-7. The lock No. 50 is no longer available and several new designs have been added to the range: the distributor should be consulted for details. Reverse, heading " Fixing," add " Locks for doors up to 3 in. thick can be supplied, if required, and alternative backset lengths of $3\frac{1}{8}$ in. and 5 in. are obtainable."

CANCELLATIONS

Sheets **19.G1-4, 19.Z10, 29.G2** and **44.D1** were cancelled and republished this year. Sheets **12.N1, 15.C11 15.S6 15.S8 15.T6 15.T8 15.T9 15.T10 15.U1 16.B2 16.B3 18.H1 19.F1 19.F2 19.F3 19.F11 19.Z1 20.Z2 21.E2 21.E4 23.C1 23.C2 23.C3 23.Z2 24.C1 24.D1 24.D2 24.D3 24.D4 24.L1 26.E1 26.J3 26.K1 27.B11 27.Z1 29.C3 29.C4 29.F1 30.B1 30.B2 30.D10 30.D11 30.D12 30.E1 31.C3 32.C10 32.C11 37.C2 37.D1 37.D2 37.D3 37.D4 38.E1 42.D2 43.E1 43.E2 43.E12 43.Z4 44.E1** have been cancelled and should be withdrawn from the Library.

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Churches (and church halls) (96) 726.4/5		
Church hall, Chessington	Kenneth Wood	11.8.55
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Congregational church, Crawley	Lomas & Pooley	4.12.58
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South Bolton Gardens, London	Chamberlin, Powell & Bon	13.9.56
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Hackenthorpe, Derbyshire	Samuel Morrison & Partners, and F. H. Crossley, county architect	18.10.56
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Woolton, Liverpool	Bernard Miller & Duncan Stewart	4.9.58
School kitchen and dining-room, Beckenham	Elie Mayorcas	12.2.59
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Alderman's Green Nursery school and St. Michael's Primary School, Coventry	Arthur Ling, city architect	29.10.59
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Great Ponton, Lincs.	MOE	30.6.60
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Hospital Extension, Casualty Block, Dunfermline	John Holt	10.9.59
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Hotels (98) 728.5		
The Dover Stage, Dover	Louis Erdi	8.8.57
The Washington Hotel, extension, London, W.1	Bronek Katz and Vaughan	22.1.59

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Houses and Flats (private) (98) 728.3		
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Dunbar, East Lothian	Michael Laird	28.1.60
Lasswade, nr. Edinburgh	Morris & Steedman	28.1.60
Housing (Local authority) (98) 728.2		
Flats in Bedford	Max Lock	7.7.55
Flats in Osnaburgh St., St. Pancras	Davies and Arnold	29.12.55
Maisonettes	Study by R. O. Whittington	26.7.56
Fitzhugh Estate, London, S.W.17	J. L. Martin (LCC)	29.11.56
Claremont Estate, West Ham	T. North, borough architect	17.10.57
Demonstration maisonettes at Canterbury for MOHLG	John L. Berbiers, city architect	27.3.58
Millpool Hill Estate, Birmingham	A. G. Sheppard Fidler, city architect	17.4.58
Alton Estate, Roehampton	Hubert Bennett (LCC)	5.11.59
Fountain Square, Gloucester	J. V. Wall, city and county architect	11.11.59
Sceaux Gardens, Camberwell	F. O. Hayes, borough architect	7.1.60
Flats in Camberwell Grove	F. O. Hayes, borough architect	28.4.60
Hide Place Development, Westminster	Stillman & Eastwick-Field	23.6.60
Houses at Basildon, Essex	A. B. Davies, Development Corporation	11.8.60
Bowater House, Golden Lane, London, E.C.1.	Chamberlin, Powell & Bon	29.12.60
Housing (for old people) (98) 728		
Plymouth (bed-sitting rooms)	H. J. W. Stirling, city architect	21.11.57
Old People's bungalows, East Horsley, Surrey	Clifford Culpin	24.7.58
Flats at West Hartlepool	A. G. Sinclair	24.7.58
Bungalows at Harlow	Frederick Gibberd	7.5.59
Industrial buildings (factories) (93) 725.4		
Factories and offices, Stevenage	D. P. Reay and L. G. Vincent, Dev. Corporation architects	31.3.55
Standard Telephones, Harlow	Frederick Gibberd and Victor Hamnett	26.5.55
Peterlee, Jeremiah Ambler Mills	Sir William Holford & Partners	15.9.55
Silentbloc, Crawley	J. M. Austin-Smith & Partners	6.10.55
Loewey Engineering, Poole	Farmer and Dark	17.5.56
British Tabulating Machine Co., Stevenage	L. G. Vincent (Dev. Corp. architect)	6.9.56
Paint factory, Hemel Hempstead	Ove Arup & Partners	20.12.56
Corset factory, Shrewsbury	W. Marmorek and L. Weaver	24.1.57
Allen & Hanbury's, Ware	Dunham, Widdup and Harrison	23.5.57
Universal Grinding Wheel, Stafford	Edward D. Mills & Partners	13.6.57
Factory and offices, Camberley	John Bickerdike	31.10.57
Flatted factories at Birmingham	Philip Skelcher & Partners	20.2.58
Aspro-Nicholas, Slough	J. Douglass Mathews & Partners	17.7.58
British Diamond Wire Die Co., Poole	Farmer and Dark	31.7.58
Extension to Pullins Optical Co., Brentford	Joseph Mendleson & Partners	28.8.58
Pickle Factory, Hackney	Walter Segal	2.10.58
Unit Workshops, Long Street, Stepney, London	Hubert Bennett (LCC)	23.4.59
Factory extension, Gotham, Notts.	Bartlett and Gray	4.6.59
Burroughs Adding Machine, Cumbernauld	Keppie, Henderson & Partners	18.2.60
Terrace factories, Basildon	J. M. Austin-Smith & Partn	21.7.60
Industrial (laboratories) (97) 727.5		
Sylvania-Thorn Colour TV	G. A. Jellicoe & Partners	15.11.56
Shell, Egham	P. A. Cranswick	14.2.57
ICI, Welwyn Garden City	J. Douglass Mathews & Partners	25.4.57
Fison's Research Centre, Levington, Suffolk	Johns, Slater and Haward	6.3.58
Laboratory and process block, Duxford	Ove Arup & Partners	14.1.60
Industrial (warehouses) (93) 725.4		
Warehouse and processing building, Witham, Essex	Chamberlin, Powell & Bon	14.6.56
Warehouse and offices, Cardiff	Grenfell Baines & Hargreaves	28.3.57
Warehouse and offices, Nottingham	J. M. Austin-Smith & Partners	18.4.57
Warehouse and factory, Dublin	Michael Scott	5.6.58
Farmiloes, Nine Elms Lane, London, S.W.	J. M. Austin-Smith & Partners	30.10.58
Depot and offices, Leeds	T. Trepass	4.6.59
Industrial (Miscellaneous) (93) 725.4		
Boiler house, MAFF Research Institute, Pirbright	Westwood, Sons & Harrison	14.3.57
Pithead Baths, Dudley, Northumberland	Richard Sheppard & Partners	22.8.57
Pithead Baths, Pye Hill, Notts.	Elie Mayorcas	31.7.58
Industrial (Works canteens) (93) 725.4: 331.827		
Canteen and medical block, Birkenhead	Grenfell Baines and Hargreaves	1.12.60
Commercial and Offices (92) 725.23		
Poole, Dorset	Farmer & Dark	10.3.55
Edgware Road, N.W.9	Walter Segal	28.7.55
Cattle Market, St. Oswalds Road, Gloucester	J. V. Wall, city architect	3.5.56
Chiswell Street, E.C.1	Handisyde & Taylor	21.6.56
Dock Labour Board, S.E.1	Frederick Gibberd	18.10.56
Hypothetical office building	Stillman & Eastwick-Field	25.10.56 24.1.57 25.4.57
High Street, Sidcup	Huckle & Durkin	15.8.57
Heath Road, Twickenham	MOW	7.11.57
Traffic Manager's office at Cambridge for BR	H. H. Powell & R. T. Walters	23.1.58
Engineering and Allied Employers' HQ, Edgbaston	John Madin	10.4.58
Armour House, Liverpool	Stephenson, Young & Partners, Robert Gardner-Medwin	6.11.5
Offices and showrooms, Duxford	Westwood Sons and Partners	14.1.60
Pembroke House, City Road, London, E.C.1	Morris de Metz	3.3.60
Ruislip Road, Greenford	Clive Pascall and Peter Watson	10.3.60
West Howe, Bournemouth	Farmer & Dark	13.10.60
Public baths (95) 725.73		
Slipper baths, Coventry	Arthur Ling, city architect	29.9.60
Public buildings (fire stations) (92) 725.191		
Fire and ambulance station, Slough, Bucks.	F. B. Pooley, county architect	31.1.57
Fire station, Eastern Avenue, Gloucester	J. V. Wall, city architect	18.7.57

Type of building and classification	*Architect*	*Date published*
Fire station, Wythenshawe, Manchester	Leonard C. Howitt, city architect	3.10.57
Fire station, Harlow	Harold Conolly, county architect	30.1.58
Public buildings (miscellaneous) (92) 725		
Community Hall, Roe Green, Hatfield	Lionel Brett & Kenneth Boyd	1.9.55
Library, Beaconsfield, Bucks	F. B. Pooley, county architect	25.7.57
Law Courts, Slough, Bucks	F. B. Pooley, county architect	26.12.57
Public buildings (police stations) (92) 725.188		
Police HQ, Stretford, Manchester	G. Noel Hill, county architect	5.5.55
Police HQ, Wellington, Shropshire	C. H. Simmons, county architect	1.11.56
Police HQ, Earls Court Road, London	J. I. Elliott	9.5.57
Police HQ, Hull	Priestman & Lazenby	3.10.57
Police HQ, Coventry	Arthur Ling, city architect	8.1.59
Shops (92) 725.21		
Department store, Portsmouth	T. P. Bennett & Son	13.9.56
Shops and maisonettes Basildon, Essex	Noel Tweddell, Development Corporation architect	8.11.56
Department store, Southampton	Yorke, Rosenberg & Mardall	6.12.56
Shops and maisonettes Coventry	Arthur Ling, city architect	21.2.57
Furniture shop at Bromley, Kent	Bertram Carter	5.12.57
Shops in Above Bar Street, Southampton	Oliver Carey	20.3.58
Department store, Cardiff	T. Alwyn Lloyd & Gordon	18.8.60
Sports buildings (95) 725		
Werneth Golf Club extension, Oldham, Lancs.	George A. Hayes	5.9.57
Sports Pavilion, Hayes, Kent	Pite, Son & Fairweather	27.2.58
Sports pavilion, Acton, London, W.3	Hening & Chitty	27.2.58
Cricket pavilion, Oundle School	Hughes & Bicknell	27.2.58
Swimming pool, Hornchurch, Essex	Vincent Williams, borough engineer	27.11.58
Empire Pool, Cardiff	John Dryburgh, city architect	27.11.58
Transport buildings (93) 725		
Potters Bar railway station	H. H. Powell & R. T. Walters	8.12.55
Airport terminal buildings, Edinburgh	R. H. Matthew	5.7.56
Garage and service station, Harlow, Essex	Ramsey, Murray, White & Ward	29.8.57
Traffic Manager's offices, BR, Cambridge	H. H. Powell & R. T. Walters	23.1.58
Hangar, offices and workshops for Transair, Gatwick Airport	Clive Pascall & Peter Watson	13.11.58
Service station and showroom, Poole	Farmer and Dark	24.9.59
Service station, Knaphill, Surrey	Wells & Hickman	22.10.59
Service station, Canterbury	Robert Paine and Partners	14.4.60
Harlow Town Station, Essex	H. H. Powell and A. K. Terris	15.12.60

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Shops and maisonettes Basildon, Essex	Noel Tweddell, Development Corporation architect	8.11.56
Department store, Southampton	Yorke, Rosenberg & Mardall	6.12.56
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Harlow Town Station, Essex	H. H. Powell and A. K. Terris	15.12.60

46.Z3 ALPHABETICAL INDEX TO DEC. 22, 1960 (M-R)

46.Z4 ALPHABETICAL INDEX TO DEC. 22, 1960 (S-Z)

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

working detail

STAINED GLASS SCREEN: SHOWROOMS IN LONDON, W.1

Slater and Uren, architects

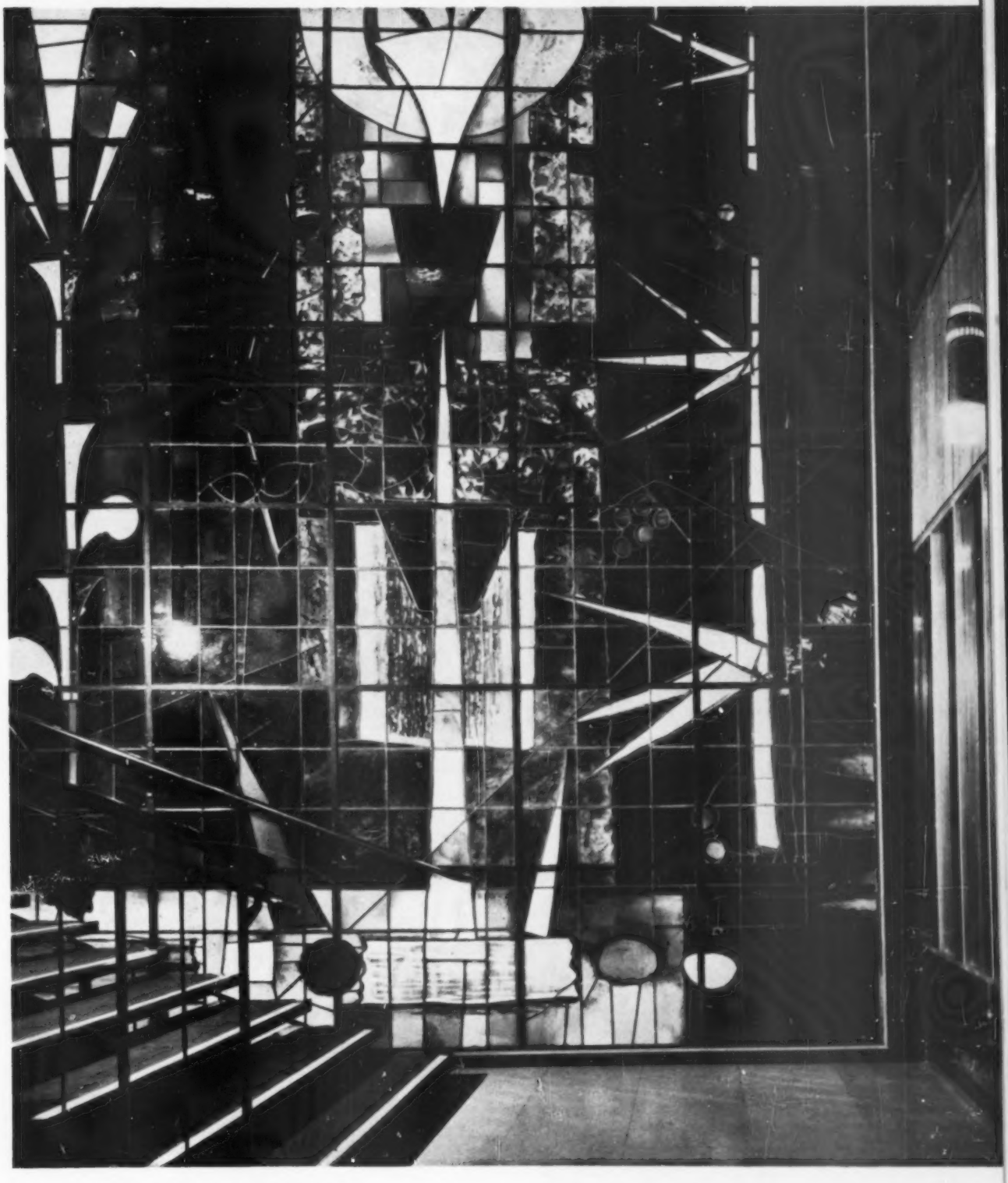
This stained glass screen by John Piper is supported on steel brackets ragbolted into the r.c. structure and is framed in aluminium. It is artificially lit from behind and by this means the presence of a deep concrete beam passing behind the glass, and only 9 in. from it, is concealed.

46.Z4 ALPHABETICAL INDEX TO DEC. 22, 1960 (S-Z)

working detail

STAINED GLASS SCREEN: SHOWROOMS IN LONDON, W.1

Slater and Uren, architects



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STAINED GLASS SCREEN: SHOWROOMS IN LONDON, W.1

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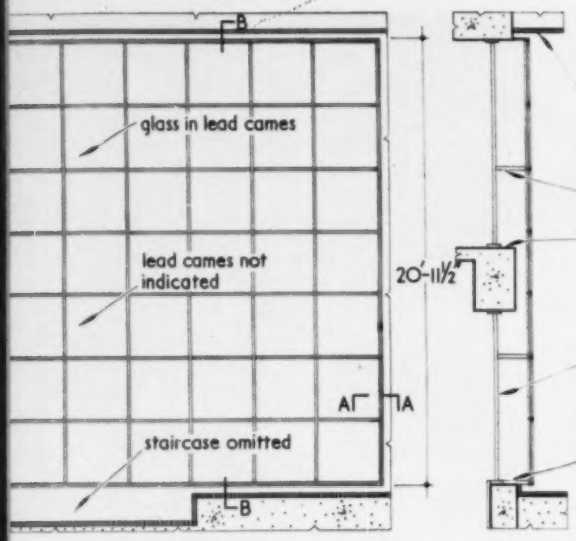
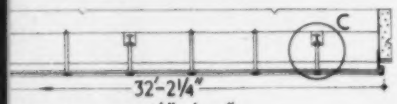
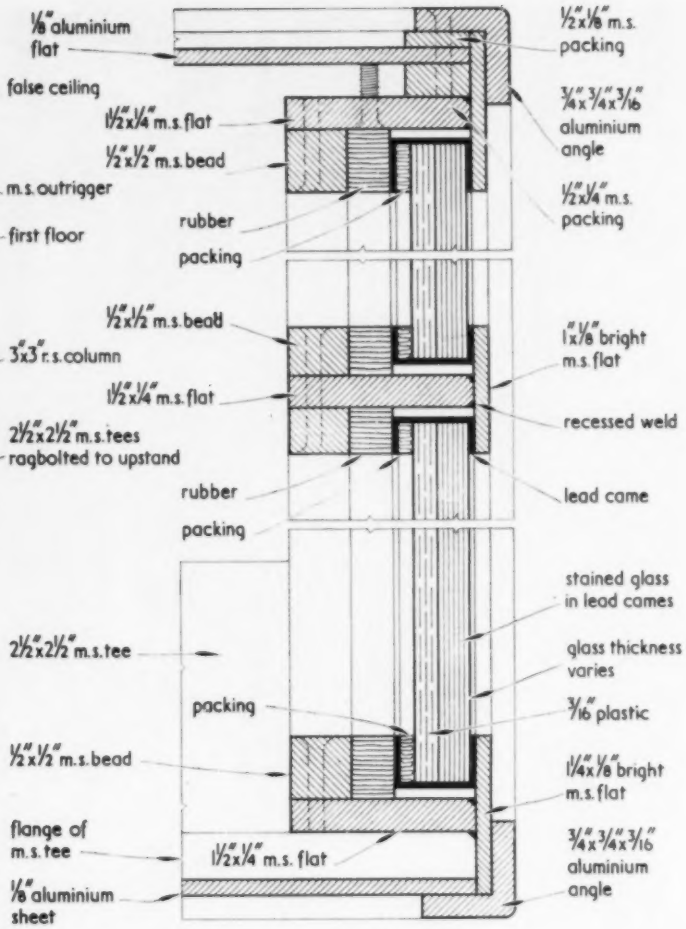


ELEVATION. scale ⅛"=1'-0"

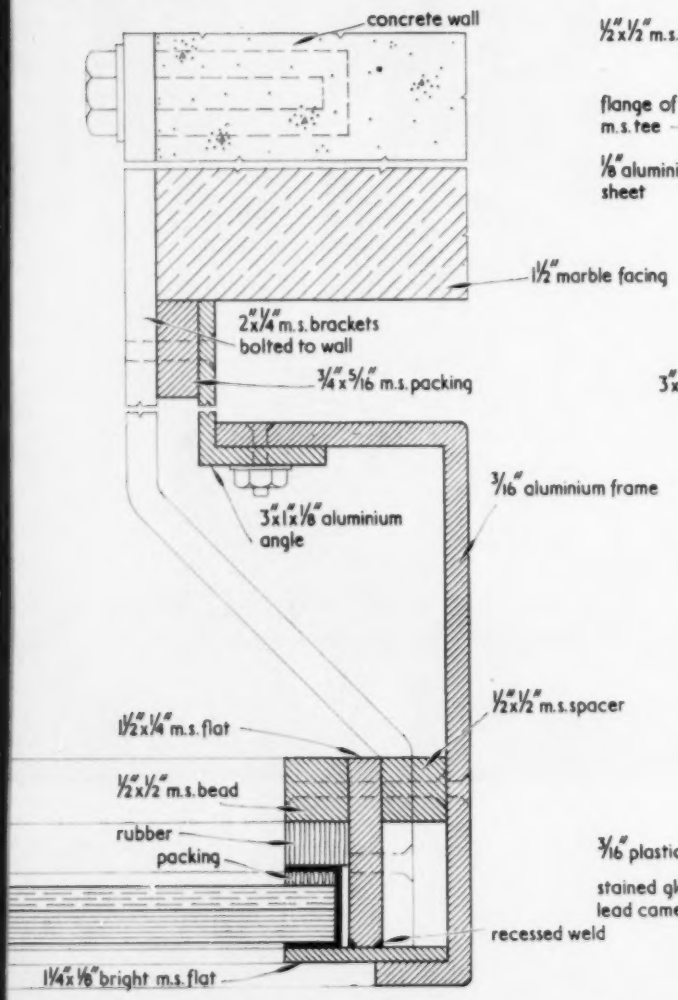
SECTION.



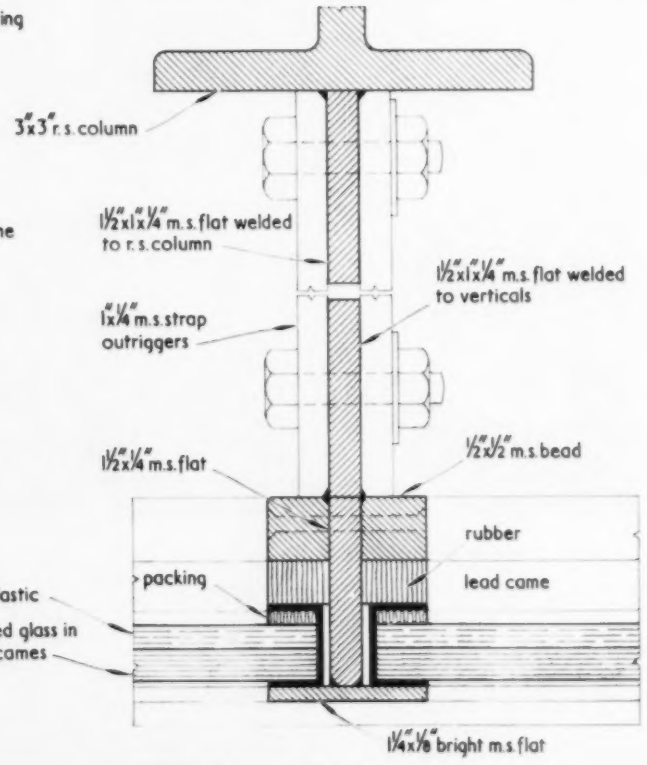
PLAN. scale ⅛"=1'-0"



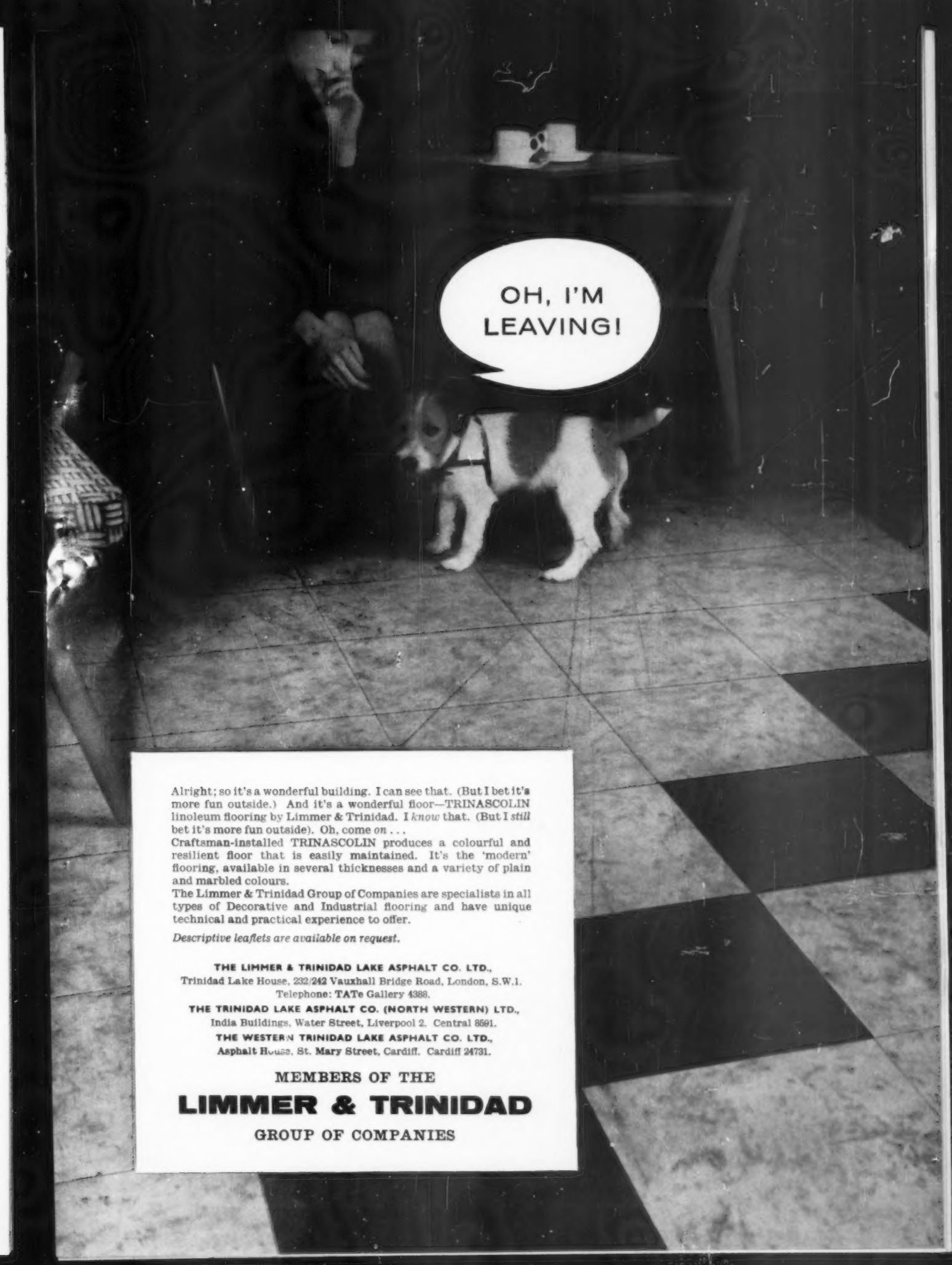
SECTION B-B. scale ¾ full size



PLAN A-A. scale ¾ full size



DETAIL AT C. scale ¾ full size



Alright; so it's a wonderful building. I can see that. (But I bet it's more fun outside.) And it's a wonderful floor—TRINASCOLIN linoleum flooring by Limmer & Trinidad. I *know* that. (But I *still* bet it's more fun outside). Oh, come *on* . . .

Craftsman-installed TRINASCOLIN produces a colourful and resilient floor that is easily maintained. It's the 'modern' flooring, available in several thicknesses and a variety of plain and marbled colours.

The Limmer & Trinidad Group of Companies are specialists in all types of Decorative and Industrial flooring and have unique technical and practical experience to offer.

Descriptive leaflets are available on request.

THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242 Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

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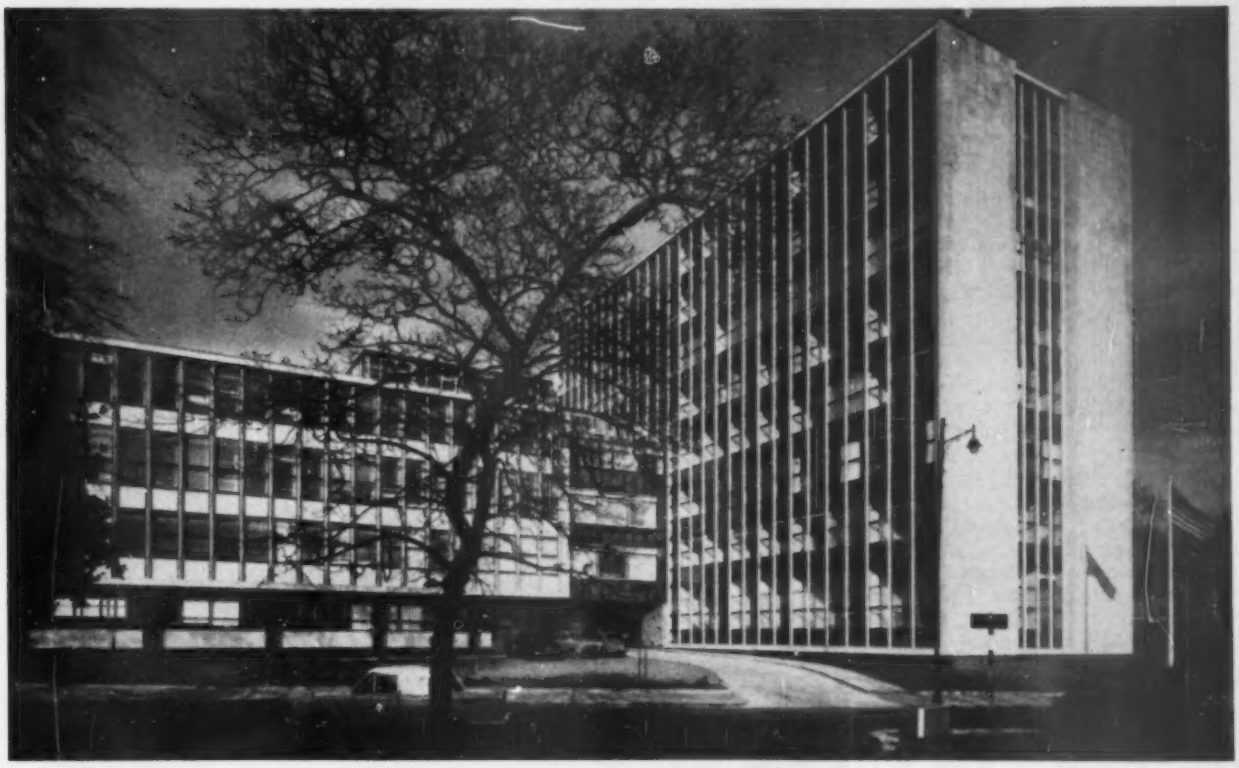
LIMMER & TRINIDAD

GROUP OF COMPANIES

New Birmingham Chamber of Commerce



This building, designed by John Madin, is one of the first to be completed in the redevelopment as a commercial centre of part of the Calthorpe Estate at Five Ways, (*continued overleaf*)

Birmingham Chamber of Commerce (continued)

Birmingham. It consists of two main elements: a four-storey block for the Chamber of Commerce itself, including administrative offices, Council chamber, committee and club rooms, and an eight-storey block of offices for letting. The two blocks are linked by a three-storey bridge which forms a *porte-cochère* serving both main entrances. The exterior has been designed to be easily cleaned and maintained, using travertine and green marble as external cladding to the structure of the Chamber of Commerce block, with infill panels of white ceramic mosaic below the windows; and for the office block aluminium glazing in combination with travertine and Portland stone.

On the right is the information department on the first floor of the Chamber of Commerce block.

Cadbury's

require

ARCHITECTURAL ASSISTANTS

of Final or Intermediate R.I.B.A. standard either for a post at their **Bournville** factory or for a post at their new factory at MORETON, Wirral, Cheshire for work on a varied and interesting programme.

Experience in industrial and commercial building design desirable.

Five day week.

Attractive working conditions and amenities.

Applications stating age, qualifications and salary required should be addressed to

Chief Architect,
Cadbury Brothers Ltd.,
Bournville, Birmingham.

MICHELIN

TYRE CO. LTD. STOKE-ON-TRENT

requires

1. **Architectural Assistants** age 26/40, commencing salary at least £1,000 per annum. Applicants should have a minimum qualification of Inter R.I.B.A., H.N.C. Building, or equivalent and several years' experience in industrial building work.

2. **Junior Architectural Assistants** age 21/23, having a minimum of 12 months' experience in a professional office. Commencing salary not less than £615 per annum at age 21.

3. **Assistant Quantity Surveyors** age 21/23, having a minimum qualification of Inter I.Q.S. or equivalent, and appropriate experience in a professional office. Commencing salary not less than £615 per annum at age 21.

4. **Assistant Clerks of Works** age 28/40. Commencing salary in range £800-£950 per annum according to age and experience. Applicants should be of O.N.C. (Building) standard and have good experience of industrial building work.

These appointments are permanent and pensionable. Housing assistance given in appropriate cases. Removal expenses paid. Five-day week. Three weeks holiday.

Please write in confidence, giving full details of qualifications and experience quoting present salary to:—Mr. B. G. Tierney, Technical Personnel Officer, quoting Ref. B/634/AJ at the above address.

ARCHITECT

required to take charge of the Sheffield Branch Office of a national firm.

Salary £1,300 to £1,500 per annum, according to age and experience.

Applicants must be A.R.I.B.A. with experience in controlling contracts through all stages and be capable of supervising staff.

Reply—
Stating details as to experience and age to Box No. 4949.

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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advertisement Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post 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.

AIR-MAIL SERVICE available on request.
In response to requests from a number of Overseas subscribers for air-mail delivery of Public Appointments Vacant, we have been pleased to arrange that cuttings of all such classified and Official Appointment details and Other advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayments should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

Public and Official Announcements

36s. per inch; each additional line 3s.

UNIVERSITY OF OXFORD

Applications are invited for a new post in the architectural section of the University Surveyor's office for an ASSISTANT ARCHITECT. He will be employed on new work and extensions, laboratories, and other university buildings. Applicants must be qualified with several years' experience, and should be keenly interested in progressive design.

The salary will be in the range £1,300 to £1,600 per annum, and in addition the successful applicant will be entitled to membership of the Federated Superannuation System for Universities and to a family allowance at the rate of £60 per annum for each child.

Write for further particulars and form of application to the Surveyor to the University, The Malthouse, Tidmarsh Lane, Oxford. 4798

BOROUGH OF ENFIELD
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

(Non-County Borough in the County of Middlesex. Population 109,700. Area 12,400 acres.)

Applications are invited, from suitably qualified persons, for the following permanent appointment:—

JUNIOR ARCHITECTURAL ASSISTANT, A.P.T. I, £645—£815 per annum plus London weighting.

The commencing salary will be fixed at points within the scale commensurate with qualifications and experience.

There is a large varied programme of work, including the redevelopment of Clearance Areas and other areas scheduled for Comprehensive Development.

Housing accommodation may be made available in appropriate cases. The Council is also prepared to consider 100 per cent. advances to successful applicants for house purchase within the Borough.

Saturday mornings are normally free from duty.

Application forms, obtainable from H. D. Peake, M.Sc.(Eng.), M.I.C.E., Borough Engineer & Surveyor, 7 Little Park Gardens, Enfield, Middlesex, must be delivered to the undersigned as soon as possible.

CYRIL E. C. R. PLATTEN,
Town Clerk.

Public Offices,
Enfield, Middx. 4842

COUNTY BOROUGH OF SOUTH SHIELDS
ASSISTANT ARCHITECTS

Applications are invited for the above appointments in the Borough Engineer's Department. Applicants must be suitably qualified and the salary paid will be within the range of £1,140 to £1,480 per annum according to qualifications and experience.

Housing accommodation will be made available to successful applicants if necessary and they will be required to pass a medical examination for Superannuation purposes.

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields, and should be returned to him not later than 10 a.m., Monday, 23rd January, 1961.

R. S. YOUNG,
Town Clerk.
4870

Vacancies for
ARCHITECTURAL ASSISTANTS
in the Civil Service (at least sixteen)

Pay rises to £13 a week, approx. (Man) or £10 12s. approx. (Woman). Commencing pay up to £9 16s. approx. (Man) or £7 15s. approx. (Woman), depending on age. Maximum age: 35 years, with extensions. Application forms, etc., from Secretary, Civil Service Commission, (Dept. A), 45, Upr. O'Connell St., Dublin. *Latest time for receiving completed application forms:* 5 p.m. *on 13th January*, 1961. 4973

BOROUGH OF SOLIHULL
APPOINTMENT OF ASSISTANT QUANTITY SURVEYORS

Applications are invited from Quantity Surveyors with suitable qualifications and experience for appointment as Assistant Quantity Surveyors in the Architect's Section of the Borough Surveyor's Department at a salary in accordance with A.P.T. Grade IV (£1,140—£1,310 per annum) commencing according to experience.

The Borough, which has a population of approximately 90,000 and which is still expanding rapidly, is an Excepted District for education and in April, 1961, is assuming delegated powers for health and welfare services. It has also been recommended for County Borough status by the Local Government Commission for England. There is a considerable programme of varied capital work on hand and to be undertaken in the future.

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

In appropriate cases the Council will assist in the provision of housing accommodation and half the removal expenses will be paid.

Applications, giving full particulars as to age, qualifications, and past and present experience, together with the names and addresses of three referees, should be submitted to the Borough Surveyor, 90, Station Road, Solihull, not later than Friday, 6th January, 1961.

W. MAURICE MELL,
Town Clerk.

The Council House,
Solihull.
12th December, 1960. 4911

NOTTINGHAM: The following additional staff are urgently required for Commercial, Educational, War Department, Hospital and Industrial contracts:
Three SENIOR ARCHITECTS, Salary £1,050 × £100 to £1,500
Two ARCHITECTS, Salary £800 × £50 to £1,050
Three ARCHITECTURAL ASSISTANTS, salary up to £800 depending on experience. Increments of £50 per annum.
Staff pension scheme, Life Assurance scheme, 5 day week. Apply Bartlett & Gray, 15 Bridgford Road, West Bridgford, Nottingham. Telephone No. Nottingham 88711/2/3. 4917

BOROUGH OF ENFIELD
BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT

(Non-County Borough in the County of Middlesex—Population 109,700; area 12,400 acres.)

Applications are invited, from suitably qualified persons, for the following permanent appointments:—

1. ASSISTANT ARCHITECT—A.P.T. IV, £1,140—£1,310 plus London weighting.
2. ARCHITECTURAL ASSISTANTS, A.P.T. III, £960—£1,140 plus London weighting.

The commencing salary will be fixed at points within the Scale commensurate with qualifications and experience.

The successful applicants will be engaged, *inter alia*, on the preparation of three-dimensional schemes for the redevelopment of the Town Centre as a pedestrian shopping precinct, the design of multi-storey point blocks of flats, and the redevelopment of clearance areas.

Housing accommodation may be made available in appropriate cases. The Council is also prepared to consider 100 per cent. advances to successful applicants for house purchase within the Borough.

Saturday mornings are normally free from duty.

Application forms, obtainable from H. D. Peake, M.Sc.(Eng.), Borough Engineer & Surveyor, 7, Little Park Gardens, Enfield, Middlesex, must be delivered to the undersigned as soon as possible.

CYRIL E. C. R. PLATTEN,
Town Clerk.

Public Offices,
Gentleman's Row,
Enfield, Middlesex. 4903

CITY OF CHICHESTER
ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment at a salary in accordance with A.P.T. Grade II (£815—£960).

The person appointed should have a good knowledge of building construction, design and draughtsmanship. Possession of the Intermediate Examination of the R.I.B.A. would be considered an advantage.

The appointment will be in accordance with the National Conditions of Service and terminable by one month's notice on either side.

Housing accommodation will be provided, if required.

Applications stating age, education, qualifications, training and experience, present and previous appointments, together with the names of two referees, should reach the City Surveyor, Greyfriars, North Street, Chichester, by 13th January, 1961.

ERIC BANKS,
Town Clerk.

Greyfriars,
North Street,
Chichester. 4950

THE RURAL DISTRICT COUNCIL OF GODSTONE
ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment in the Engineer and Surveyor's Department at a salary in accordance with Grade A.P.T. III (£960—£1,140). A car allowance on the essential user basis is payable for a car not exceeding 1,199 c.c.

Candidates should have passed the Intermediate R.I.B.A. Examination.

Assistance will be given in the provision of housing accommodation, if required.

Applications, stating age, qualifications, present and previous appointments, and experience, together with the names and addresses of two referees, should reach the undersigned not later than 6th January, 1961.

M. HAWORTH,
Clerk of the Council.

Council Offices,
Oxted, Surrey. 4997

LAGOS EXECUTIVE DEVELOPMENT BOARD
ARCHITECT APPOINTMENT

Applications are invited for the undermentioned post:—

2 ARCHITECTS (Group 6)—Salary according to experience and qualifications within the grade £1,380 rising, subject to satisfactory service, by annual increments of £50 to £1,608, together with £300 per annum inducement allowance for expatriate officers.
Duties: The design and supervision of large building projects in connection with new central redevelopment and housing schemes.
Qualifications: Candidates must be A.R.I.B.A. or hold an equivalent qualification with a minimum of two years professional experience.

The appointments will be on contract for tours of approximately 18 months renewable by mutual agreement and the secondment of officers by their present employers in the United Kingdom will be favourably considered. Leave will be granted at the end of each tour on the basis of one week for each completed month of residential service. The Board will provide basically furnished housing accommodation at a low rental. Officers appointed will be required to contribute 10 per cent. of their basic salary to the Board's Provident Fund and to this the Board will themselves add 15 per cent. Free passages are provided for officers together with their wives and children, and facilities exist for children to visit parents during school holidays. Special children's allowances are, in addition, payable at the rate of £75 a year whilst the children are maintained in England. Full details of conditions of service and application forms for the above appointment may be obtained from the Commissioner for Nigeria, Nigeria House, 9, Northumberland Avenue, London, W.C.2 (envelopes to be clearly marked "Attention of L. E. D. B. Representative.") Applications are to be completed in duplicate and despatched as follows:—

1 copy to the undersigned by air mail.
1 copy to Nigeria House (address as above).

The closing date for the receipt of applications is 30th January, 1961.

O. AJOSE-ADEOGUN,
Secretary,
Lagos Executive Development Board.

Lagos Executive Development Board,
Reclamation Road,
P.O. Box 907,
Lagos, Nigeria. 4970

STAFFORDSHIRE COUNTY COUNCIL
COUNTY PLANNING AND DEVELOPMENT DEPARTMENT

Applications are invited for the appointment of a JUNIOR PLANNING ASSISTANT in the Headquarters Office at Stafford and the Southern Area Planning Office at Sedgley on A.P.T. Grade I (£645—£815 per annum) or A.P.T. Grade II (£815—£960 per annum). The commencing salary and grade will be determined by reference to qualifications and experience.

Applicants should either have a university degree in geography or have had professional training in an architect's, surveyor's or planning office. A qualification in planning will be an advantage.

Facilities will be provided including financial assistance to enable persons appointed to undertake further studies in accordance with the Council's Post Entry Training Scheme.

The Council are prepared to grant lodging allowances of 35s. per week for a period of six months and second class railway travel home every two months during the initial six months to married applicants maintaining a home outside the geographical county. Consideration will also be given to the granting of financial assistance in appropriate cases towards removal expenses.

Applications giving details of age, education, qualifications, present and previous appointments, experience and the names of two persons to whom reference may be made should be sent to D. W. Riley, County Planning and Development Officer, 41A Eastgate Street, Stafford, not later than the 10th January, 1961.

Relationship to any member or senior officer of the County Council must be disclosed. Canvassing will disqualify.

T. H. EVANS,
Clerk of the County Council.
4964

RESEARCH ORGANISER

The National Playing Fields Association seek the services of a suitably qualified investigator to undertake Research into the facilities and type of accommodation required for indoor and outdoor recreation. The work will involve a comprehensive study of existing schemes in relation to need, planning and layout of playing fields and recreational buildings. A series of surveys of Standards will be examined as will aspects of design and construction. The issue of Technical Advice will be an important outcome of this work and experience in writing and preparing descriptive and illustrated material for publication will be an advantage. It is thought therefore that the character of the work envisaged by the Association will have an unusual appeal for young architects, planners, and landscape architects and also for graduates specialising in particular Research.

Salary range £1,000 to £1,250, related to age, qualifications and experience.

Application in writing giving full particulars with dates and experience with names of two referees should be sent to the General Secretary, National Playing Fields Association, 71, Eccleston Square, London, S.W.1, not later than Monday, 30th January, 1961. Envelopes should be endorsed —"Confidential—Research Organiser." 4978

COUNTY BOROUGH OF DEWSBURY
BOROUGH ARCHITECT AND BUILDINGS SURVEYOR'S DEPARTMENT

Applications are invited for the following appointments within the scope of the grades stated:—

(a) **PRINCIPAL ASSISTANT ARCHITECT** (Housing and General Section)—A.P.T. Grade V (£1,310—£1,480 p.a.)—Applicants should be A.R.I.B.A.

(b) **ARCHITECTURAL ASSISTANT** (Education Section)—A.P.T. Grade I (£645—£815 p.a.).

(c) **QUANTITY SURVEYING ASSISTANT**—A.P.T. Grade I (£645—£815 p.a.)

Housing accommodation may be made available if required. The appointments will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Acts.

Applications stating age, education, qualifications, full particulars of training and experience, together with copies of two recent testimonials, should be sent to the undersigned not later than Tuesday, 17th January, 1961, in envelopes endorsed "Appointment of ....."

A. NORMAN JAMES,
Town Clerk.

Town Hall, Dewsbury.
16th December, 1960. 4971

HAMPSHIRE COUNTY COUNCIL
PLANNING/RESEARCH ASSISTANT, A.P.T. II (£815—£960), required for pensionable post at County Planning Department Headquarters in Winchester. Duties include survey, statistical and other work in connection with the review of the Development Plan. Candidates should be graduates in Geography, and preferably have had some experience in the Planning Department of a Local Authority. Separation allowance and assistance with removal expenses in approved cases.

Applications, stating age, education, qualifications and experience, together with a copy of one testimonial and the names of two referees, should reach the Clerk of the County Council, The Castle, Winchester, by 4th January. 4982

STAFFORDSHIRE COUNTY COUNCIL
APPOINTMENT OF AREA PLANNING OFFICER

Applications are invited for the appointment of an **AREA PLANNING OFFICER** on J.N.C. Scale D, (£1,710—£1,975 per annum) to be responsible for the Central Area Planning Office at Stafford and the Eastern Area Planning Office at Lichfield.

The Area Planning Officer, in addition to being responsible for the control of development in these areas, will also be required to have wide experience in the preparation of Town Maps, and Central Area Redevelopment proposals.

Applicants must be corporate members of the Town Planning Institute and in addition a recognised qualification in architecture, engineering or surveying would be an advantage.

The Council are prepared to grant lodging allowances of 35s. per week for a period of six months and second class railway travel home every two months during the initial six months to married applicants maintaining a home outside the geographical County. Consideration will also be given to the granting of financial assistance in appropriate cases towards removal expenses.

Applications, giving details of age, education, technical training, qualifications, present and previous appointments, experience, and the names of two persons to whom reference may be made, should be sent to D. W. Riley, County Planning and Development Officer, 41a, Eastgate Street, Stafford, not later than the 9th January, 1961.

Relationship to any member or senior officer of the County Council must be disclosed. Canvassing will disqualify.

T. H. EVANS,
Clerk of the County Council.
4983

BRACKNELL DEVELOPMENT CORPORATION

Applications are invited for posts in the following Grades in the Chief Architect's Department:—

(1) **ARCHITECT**, Grade VI; Salary range £1,305—£1,565.

(2) **ARCHITECT**, Grade IV; Salary range £1,140—£1,310.

(3) **ARCHITECT**, Grade III Salary range £960—£1,140.

The posts offer a variety of interesting, contemporary work. The Minister has also just completed his statutory consultations with the County and Local Authorities on a proposal to extend the scope of the New Town by increasing the designated area from 1,850 to 3,050 acres. Superannuation schemes, medical examination, five day week. Good housing accommodation available for each post. Applications, stating post applied for and giving age, education, qualifications, experience and appointments held (with dates and salaries), and the names of two referees, should be addressed to the General Manager (A), Bracknell Development Corporation, Farley Hall, Bracknell, Berks., to be received not later than 11th January, 1961. 4952

THE UNIVERSITY OF SHEFFIELD

Applications are invited from qualified architects of at least five years' standing for the post of **ASSISTANT PLANNING OFFICER**, who will assist the Planning Officer in the supervision of the University's building programme. The work will be varied and interesting and will cover both teaching buildings and Halls of Residence. Commencing salary according to experience within the scale £1,325 × £75—£1,850 with family allowance of £50 per child and F.S.S.U. benefits. Further particulars and forms of application may be obtained from the Bursar, The University, Sheffield, 10, to whom applications should be sent by 10th January, 1961. 4932

WORCESTERSHIRE COUNTY COUNCIL
PLANNING DEPARTMENT
SENIOR PLANNING ASSISTANT A.P.T. IV
(£1,140—£1,310)

Special experience is required in draughtsmanship, printing and map production for supervision of Development Plan work, and ability to take charge of training of junior staff in all branches of Planning Practice.

Applicants should be A.M.T.P.I. This is a new appointment.

Superannuation, medical certificate; car required; assistance in removal and lodging allowance in approved cases.

Application forms obtainable from County Planning Officer, County Buildings, Worcester, returnable by 23rd January, 1961. (H. 96). 4960

AUSTRALIA
THE UNIVERSITY OF NEW SOUTH WALES
CHAIR OF ARCHITECTURE

The University invites applications for appointment to the newly established second CHAIR OF ARCHITECTURE.

Applicants must have high academic architectural qualifications and be members, or be eligible for membership, of the R.I.B.A., or the R.A.I.A. Experience in the practice of architecture, preferably in planning and design, and in teaching or lecturing is essential. A knowledge of the aims and methods in the professional education of architects, together with ability to supervise teaching staff, is required.

The Professor will be responsible, *inter alia*, to the Head of the School of Architecture and Building (who is also Dean of the Faculty of Architecture) for the day-to-day teaching standards and conduct of the undergraduate courses leading to the degree and diploma in architecture, both of which are fully recognised professional courses taken by full-time and/or part-time study (five to eight years).

The Professor will be expected to collaborate in the work of the Faculty and serve on the Professorial Board and other committees.

Salary will be £A4,279 p.a.

Subject to the consent of the Council of the University, Professors may engage in a limited amount of higher consultative work.

The successful applicant will be eligible, subject to satisfactory medical examination, to join the superannuation scheme which provides a maximum pension of £A2,184 p.a.

First Class ship fares to Sydney of the appointee and his family will be paid.

Professors are eligible for six months' study leave on full salary after three years of service, or twelve months after six years of service.

The University reserves the right to fill the Chair by invitation.

With the approval of the University and its bankers, married men may be assisted by loans to purchase a home.

Four copies of applications (including the names of three referees and a recent photograph of the applicant) should be lodged with the Agent General for New South Wales, 56-57, Strand, London, W.C.2, and a copy forwarded to the Appointments Section, The University of New South Wales, Box 1, Post Office, Kensington, N.S.W., Australia, by air mail to reach there before *10th FEBRUARY*, 1961. Applicants outside the United Kingdom need only submit one copy of their application to the London address. 4985

BOROUGH OF WREXHAM
ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited for the following appointment:—

ASSISTANT ARCHITECT—Salary in the range of A.P.T. Grade III (£960—£1,140 per annum).

Candidates should have passed the Parts 1 and 2 of the R.I.B.A. examinations or equivalent.

Casual car allowance will be paid on the instructions of the Borough Surveyor, and the Council will consider the payment of removal expenses.

Housing accommodation is available if required.

Form of application and particulars of duties and works in hand are obtainable from the Borough Surveyor, 31, Chester Street, Wrexham.

Applications to be returned to the undersigned by not later than 12 noon on 20th January, 1961.

PHILIP J. WALTERS,
Town Clerk.

Guildhall, Wrexham.
14th December, 1960. 4958

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
FURNITURE AND DISPLAY SECTION

FURNITURE AND INTERIOR DESIGNERS with wide and varied experience of research, planning, detailing and specification writing on interior schemes of a highly technical nature wanted immediately. Up to £1,250. Form, returnable by 10th January, 1961, from Hubert Bennett, F.R.I.B.A., Architect to Council, (EK/A/3243/12), County Hall, S.E.1. 4963

BOROUGH OF SOLIHULL
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT

Applications are invited from qualified Architects with initiative and drive and with a background of good experience in local authority offices for appointment as Chief Assistant Architect at a salary in accordance with Scale "B" (£1,505 × £55 (3) to £1,670 per annum) at a commencing salary to be settled according to experience. An essential user car allowance will also be payable in respect of this appointment.

The successful applicant will be responsible to the Deputy Borough Architect for the work of the Architect's section of the Department, the establishment of which numbers 29 assistants.

The Borough, which has a population of approximately 90,000 and which is still expanding rapidly, is an Excepted District for education and in April, 1961, is assuming delegated powers for health and welfare services. It has also been recommended for County Borough status by the Local Government Commission for England. There is a considerable programme of varied capital work on hand and to be undertaken in the future.

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

In an appropriate case the Council will assist in the provision of housing accommodation and half removal expenses will be paid.

Application, giving full particulars as to age, qualifications and past and present experience, together with the names and addresses of three referees should be submitted to the Borough Surveyor, 90, Station Road, Solihull, not later than Friday, 6th January, 1961.

W. MAURICE MELL,
Town Clerk.

The Council House,
Solihull.
12th December, 1960. 4913

BOROUGH OF NUNEATON
ASSISTANT ENGINEER

Applications are invited from suitably qualified persons for this post. Salary A.P.T. Grades I/II (£645—£960) according to qualifications and experience.

The post is suitable for a junior assistant with recognised training in a Municipal Engineer's Office and offers opportunities of exceptionally wide experience.

Forms of application, which must be returned not later than the 7th January, 1961, may be obtained from the Borough Engineer and Surveyor, Council House, Nuneaton.

A. A. CRABTREE,
Town Clerk.

Council House,
Nuneaton.
December, 1960. 4951

NATIONAL COAL BOARD
NORTH EASTERN DIVISION

Require in Architects Branch at Conisbrough, Nr. Doncaster:—

(*a*) ARCHITECT to take charge of Section dealing with planning and construction of Social Welfare Centres, Sports Pavilions, Old Peoples Homes, Youth Clubs, etc.

Qualifications: A.R.I.B.A., and experience of dealing with, and advising Committees.

Salary £1,240 × £45—£1,625. (Quote AA/579.)

(*b*) ARCHITECT to act as Leading Assistant to Section Architect. The work covers a wide and varied field and all stages of projects.

Qualification: A.R.I.B.A.

Salary £900 × £35—£1,250. (Quote AA/585.)

(*c*) ARCHITECTURAL ASSISTANTS. The work is varied and interesting, covering sketch plans, working drawings and construction stages.

Salary £785 × £30—£1,100. (Quote AA/599.)

All posts are superannuable, the staff work a five-day week, and canteen facilities are available.

Write for application forms, quoting references as shown above, to Staff Department, 16 South Parade, Doncaster, by 6th January, 1961. 4933

ARCHITECTURAL ASSISTANTS of Intermediate R.I.B.A. standard, with interest in Ancient Monuments and Historic Buildings, required by the Ministry of Works, London. Some knowledge of surveying, and preservation of Ancient Monuments is desirable. Salary range from £600 (at age 21) to £980 per annum. Starting pay according to age and experience. Five-day week. 3½ weeks' annual leave initially. Prospects of promotion with salaries rising to £1,435 per annum. Opportunities for permanent (non-contributory) pensionable posts. Apply, giving details of age, training and experience, to: E. Bedford, Esq., C.B., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works (AJ), Abell House, Room 427, John Islip Street, London, S.W.1. Interviews will be held in London. 4781

CITY OF CANTERBURY
SENIOR ASSISTANT ARCHITECT

Applications are invited for the above appointment in the City Architect and Planning Officer's Department.

Commencing salary within A.P.T. III/IV (£960—£1,310) according to ability and experience. Although the successful candidate is likely to be engaged initially on the New Technical College project the scope of the work in the department includes Housing, Public Buildings and General Works. Applicants must have attained the necessary standard of qualification.

Housing accommodation available if required.

Applications, with the names of two referees, to the City Architect and Planning Officer, John L. Berbiers, F.R.I.B.A., by Saturday, 14th January, 1961.

Canvassing will disqualify.

J. BOYLE,
Town Clerk.

Municipal Buildings,
Canterbury. 4980

BOROUGH OF SOLIHULL
APPOINTMENT OF PRINCIPAL ASSISTANT ARCHITECT AND ASSISTANT ARCHITECTS

Applications are invited from Architects with suitable qualifications and experience for the under-mentioned appointments:—

(*a*) Principal Assistant Architect, Scale "A" (£1,400 × £55 (3) to £1,565 per annum).

(*b*) Assistant Architect, A.P.T. Grade III-IV (£960 to £1,310 per annum).

(*c*) Assistant Architect, A.P.T. Grade I-II (£645 to £960 per annum).

In each case the commencing salary will be fixed according to experience of the successful applicants.

Applicants for post (*a*) will be in charge of the Housing and General Section of the office, the work of which includes a new covered swimming bath and possibly some eight-storey flats.

The Borough which has a population of approximately 90,000 and which is still expanding rapidly, is an Excepted District for education and in April 1961, is assuming delegated powers for health and welfare services. It has also been recommended for County Borough status by the Local Government Commission for England. There is a considerable programme of varied capital work on hand and to be undertaken in the future.

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

In appropriate cases the Council will assist in the provision of housing accommodation and half the removal expenses will be paid.

Applications, giving full particulars as to age, qualifications and past and present experience, together with the names and addresses of three referees, should be submitted to the Borough Surveyor, 90, Station Road, Solihull, not later than Friday, 6th January, 1961.

W. MAURICE MELL,
Town Clerk.

The Council House,
Solihull.
12th December, 1960. 4913

AUSTRALIA
THE UNIVERSITY OF NEW SOUTH WALES
VACANCY FOR
HEAD OF SCHOOL OF ARCHITECTURE AND BUILDING

Applications are invited for the position of Head of the School of Architecture and Building at Kensington which will fall vacant on the retirement of Professor F. E. Towndrow, present Head of the School and Dean of the Faculty of Architecture, in January, 1962. The University hopes that the successful applicant will enter on duty not later than June, 1961.

The salary of the position will be £A4,279 per year. As the new Head of the School is also appointed Dean of the Faculty, he will receive an additional £A250 per year as salary and a further £A100 per year for entertainment expenses.

Applicants will need to have:—
(a) a degree or diploma of a fully recognised architectural school;
(b) membership of the Royal Institute of British Architects or of the Royal Australian Institute or of a professional body of similar standing;
(c) varied experience in architectural practice as a principal or partner;
(d) experience in the professional education of architects and building executives;
(e) organising and administrative ability.

Subject to the consent of the Council of the University, professors may engage in a limited amount of higher consultative work.

The successful applicant will be eligible, subject to satisfactory medical examination, to join the superannuation scheme which provides a maximum pension of £A2,184 p.a.

Professors are eligible for six months' study leave on full salary after three years of service, or twelve months after six years of service.

The University reserves the right to fill the position by invitation.

With the approval of the University and its bankers, married men may be assisted by loans to purchase a home.

First class ship fares to Sydney of the appointee and his family will be paid.

Four copies of applications, including the names of three referees and a recent photograph of the applicant, should be lodged with the Agent General for New South Wales, 56, Strand, London, W.C.2, and a copy forwarded to the Appointments Section, The University of New South Wales, Box 1, Post Office, Kensington, New South Wales, Australia, by airmail to arrive before 28th February, 1961. Applicants resident outside the United Kingdom and Eire need only submit one copy of their application to the London address. 4926

HUNTINGDONSHIRE
COUNTY ARCHITECT'S DEPARTMENT
ARCHITECTURAL ASSISTANT—GRADE A.P.T. 2 £815—£960 p.a.

Applications are invited for the above appointment. The person appointed will become a member of a small architectural team engaged in projects of varying size, and it is desired that candidates shall be keenly interested in architecture with an up-to-date approach to planning and design.

Application forms may be obtained from the County Architect, County Buildings, Huntingdon, and completed forms should be returned to the undersigned as soon as possible.

A. C. AYLWARD,
Clerk of the County Council.

County Buildings,
Huntingdon. 4944

ROYAL COUNTY OF BERKSHIRE
BUILDING INSPECTOR, A.P.T. Grade IV, £1,140—£1,310. Applicants must have a thorough knowledge of building construction, materials and contract procedure and have passed the Final Examination of the R.I.C.S. in the Building Surveying Section.

ARCHITECTURAL ASSISTANT, A.P.T. Grade II, £815—£960. Candidates should have passed the Intermediate examination of the R.I.B.A. One day per week will be allowed for study at a recognised School of Architecture.

The office is engaged on all types of County buildings and owing to the rapid increase in population a very full programme lies ahead.

There is a number of staff houses and flats, some of which become available from time to time, and assistance up to 75 per cent. of removal expenses is given.

Application forms obtainable from the County Architect, Wilton House, Parkside Road, Reading, are to be returned by the 10th January, 1961. 4979

TETTENHALL URBAN DISTRICT COUNCIL
ARCHITECTURAL DRAUGHTSMAN

Applications are invited for the position of Architectural Draughtsman in the Engineer and Surveyor's Department. Candidates should be competent draughtsmen able to prepare plans from sketches and have full knowledge of Building Construction with a view to preparing working drawings. The salary will be within the Grade Miscellaneous III (£555—£625) according to qualifications and experience.

Applications, accompanied by the names of two referees, should be sent to J. W. Mason, M.I.Mun.E., M.T.P.I., Engineer and Surveyor, Council Offices, Upper Green, Tettenhall, not later than the 18th January, 1961.

13th December, 1960. 4929

COVENTRY
SENIOR PLANNING OFFICER (RESEARCH)
£1,350—£1,566 p.a. N.J.C. Scale "A"

Applications are invited from experienced Planners to be responsible to Assistant Principal Planning Officer (Planning Policy) to organise research into urban planning projects.

Housing assistance may be granted in approved circumstances. Removal expenses loan.

Application forms from Department of Architecture and Planning, Council House, Coventry, to be returned by 16th January, 1961. 4939

BOROUGH OF ALTRINCHAM
ARCHITECTURAL ASSISTANT (QUALIFIED)
GRADE A.P.T. III

Applications to Town Clerk, Town Hall, Altrincham, stating qualifications and experience. Two referees. Closing date. 7th January, 1961.

Please disclose whether related to any member or senior officer. Canvassing will disqualify. Housing accommodation will be considered. 4918

Applications are invited for the following posts in the office of the Architect, Eastern Region, British Railways, at King's Cross Station. ASSISTANT ARCHITECTS: in the salary range £945—£1,020 and £1,070—£1,145. Starting salary will be determined in accordance with qualifications and experience. The office is engaged on a wide range of interesting buildings and gives responsibility for design, administration and site supervision to those with ability. Modern working conditions, five-day week, rail travel concessions. Apply in writing giving particulars of age, experience and qualifications to the Architect, Chief Civil Engineer's Offices, British Railways, Eastern Region, King's Cross Station, London, N.1. 4920

COUNTY BOROUGH OF HUDDERSFIELD
BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT

Applications are invited for an ASSISTANT ARCHITECT, Grade A.P.T. IV (£1,140 to £1,310). Applicants must be Associate Members of the Royal Institute of British Architects.

The post is subject to the National Scheme of Conditions of Service, as adopted by the Council, and to medical examination.

Housing accommodation will be provided, if required.

Applications with the names of two referees should reach S. M. Richmond, F.R.I.B.A., A.M.T.P.I., Borough Architect and Planning Officer, High Street Buildings, Huddersfield, not later than Monday, the 9th January, 1961.

Canvassing directly or indirectly will disqualify.

HARRY BANN,
Town Clerk.

Town Hall, Huddersfield. 4928

READVERTISEMENT
NORTHUMBERLAND COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited for the following posts in the County Planning Department:

(a) PLANNING ASSISTANT (Grade A.P.T. IV, £1,140—£1,310). This post is in the Development Plan section and the successful applicant will be engaged on the review of the County Development Plan and on research into specific problems. Applicants should have an analytical approach to planning problems, a good knowledge of statutory planning and experience of work on research and development plan matters, and be capable of writing clear and concise reports. Applicants should be Corporate Members of the Town Planning Institute or hold a suitable alternative qualification.

(b) PLANNING ASSISTANT (Grade A.P.T. IV, £1,140—£1,310). This appointment is in the Development Plan section and the successful applicant will be engaged on the preparation of Town Maps including schemes for the comprehensive redevelopment of central area. Applicants should have experience of Town Map work, an ability to put forward constructive suggestions for future planning policies, and be capable of viewing problems objectively and producing clear, concise reports. Applicants should be Corporate Members of the Town Planning Institute or hold a suitable alternative qualification.

(c) LANDSCAPE ASSISTANT (Grade A.P.T. IV, £1,140—£1,310). The post is in the Design Section and the successful applicant will be a member of a small landscape team. Applicants should have a good knowledge of all aspects of landscape work in connection with the preparation of schemes for various types of development in urban and rural areas, and in addition be capable of reporting on the problems of afforestation, etc., which will arise mainly in the Northumberland National Park area. Applicants should be Associate Members of the Institute of Landscape Architects or hold a suitable alternative qualification, with experience in the wider aspects of landscape planning.

The salary for each post will be fixed according to previous experience and ability. Application forms are obtainable from the County Planning Officer, County Hall, Newcastle upon Tyne, 1, and must be returned not later than 11th January, 1961. 4925

Architectural Appointments Vacant

1s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra.

RONALD WARD AND PARTNERS invite applications from ARCHITECTS, Senior and Junior. Long-term prospects. Scope for initiative and responsibility in interesting commercial, industrial and civic projects in British Isles, West Africa and Australia. Salaries commensurate with ability. Non-contributory Pension and Life Insurance schemes. Five-day week. Pleasant offices. Apply 29, Chesham Place, Belgrave Square, London, S.W.1. Tel.: BELgravia 1361. 2960

ARCHITECTURAL ASSISTANT required in busy City office. Assistants should be capable of carrying through schemes from sketch stage to final construction. Mainly office and residential buildings in London area. Varied and interesting projects. Long term engagement to right person. £1,600 per annum plus luncheon vouchers. Five-day week. Applicants must be capable of producing sketch schemes on contemporary buildings and preparing working drawings. Box 4226.

BASIL SPENCE & PARTNERS require qualified and experienced ARCHITECTS to fill positions of responsibility on a major building programme. Write to 1, Fitzroy Square, W.1, stating experience and salary required. 9824

WEST END OFFICE requires ASSISTANT ARCHITECTS of Final and Intermediate standards for interesting industrial projects in Home Counties. Good salaries offered to men with initiative and ability. Bonus Scheme, five-day week, holiday arrangements honoured. Box 9039.

ELIE MAYORCAS requires ARCHITECTURAL ASSISTANTS with a minimum of three years' office experience in this country. Write, giving brief particulars of architectural education and experience, and salary required, to 13, David Mews, Baker Street, W.1. 3295

£1,000/£2,000 p.a. will be paid to experienced competent ARCHITECTS by a private practice in the City of London. The work will be primarily on the drawing board on new and interesting projects of magnitude. A high standard of design and detailing ability is required. Please apply in writing to Box 9360.

ARCHITECTURAL ASSISTANT required for City Office. Qualifications unnecessary, but experience in the preparation of working drawings essential. Salary £1,000 per annum plus luncheon vouchers. Five-day week. Box 4229.

ARCHITECTURAL ASSISTANT required, with at least two years' office experience. Apply in writing to Thomas Mitchell & Partners, 20, Bedford Square, London, W.C.1. 7283

HOWARD V. LOBB & PARTNERS require ASSISTANT ARCHITECTS. Salaries would be between £750 and £1,250 per year. Please write to 20 Gower Street, London, W.C.1. 3640

MONRO AND PARTNERS require ARCHITECTURAL ASSISTANTS of Intermediate/Final R.I.B.A. standard in their London, Watford, and Glasgow Offices for work on interesting industrial and commercial projects. Salary range £900—£1,000 p.a. Non-contributory Pension scheme. Five-day week. Apply in writing to 33, Clarendon Road, Watford. 8609

SIR JOHN BURNET, TAIT & PARTNERS have vacancies for ARCHITECTURAL ASSISTANTS of all grades. Salaries ranging from £1,000 to £1,500 per annum. Luncheon vouchers. Pension and Medical schemes (non-contributory). Telephone LANgham 3626 for appointment. 9113

SENIOR ASSISTANTS required immediately. Salary by arrangement. Theo. H. Birks, 38, Portland Place, London, W.1. LAN 7236. 1486

ASSISTANT ARCHITECTS required for staffing a new office opening in Southampton for work on interesting projects including University, War Department and Ecclesiastical programmes. Juniors also required. Apply stating age, qualifications, experience and salary required to Robert Potter, F.R.I.B.A., & Richard Hare, B.Arch., A.R.I.B.A., De Vaux House, Salisbury. 3167

WILLIAM H. ROBBINS, A.R.I.B.A., requires ARCHITECTURAL ASSISTANTS of Final and Intermediate standard for interesting work in expanding office. Applicants should be experienced in design and construction and taking responsibility. Excellent opportunity of advancement, salary range from £750 to £1,400 per annum according to experience. Five-day week. Apply to 77, Wigmore Street, London, W.1. WELbeck 0274/5. 3841

BOOTH, LEDEBOER AND PINCKHEARD require ASSISTANTS in the salary range £750—£1,250. Apply 17-20, Mason's Yard, Duke Street, St. James's, S.W.1. Tel.: TRAfalgar 1866. 3119

INTERMEDIATE to Final ASSISTANTS required immediately. Salary according to ability and experience. Theo. H. Birks, 38, Portland Place, London, W.1. LAN. 7236. 9739

WALLIS GILBERT and PARTNERS ALSO NEED STAFF URGENTLY. 5, Cromwell Road, S.W.7. KENsington 1450. 3614

A VACANCY occurs in the West End Branch of large provincial Architectural Practice, for an ASSISTANT at Intermediate standard. The post offers considerable scope on varied projects. Five-day week, Luncheon Vouchers. Write giving particulars of age, experience and salary required to Box 4135.

SENIOR ASSISTANT ARCHITECTS required immediately for a wide variety of interesting work. Applicants should be experienced in all aspects of modern building design and construction. Attractive remuneration to right men capable of working on own initiative under ideal conditions for self expression. Preference given to men over 45 years of age although all applications will be considered on merit irrespective of age. Applications should be made, in writing, to Kenneth F. Masson, Esq., A.R.I.B.A., Chief Architect, S.C.W.S. Ltd., Architectural Division, 76 Morrison Street, Glasgow, C.5. 4152

EXPERIENCED ARCHITECTURAL ASSISTANT required for busy West End office. General practice but mainly office and commercial projects. Bernard Gold & Partners, 4/6, Saville Row, W.1. REGent 7551. 3742

A QUALIFIED ARCHITECTURAL ASSISTANT required immediately in Home Counties office. Successful applicant will have the opportunity of working on widely varying industrial, commercial and housing schemes. Five-day week. Write full particulars to Box 4135.

C. H. ELSOM & PARTNERS need experienced ARCHITECTS for a wide range of public and commercial projects. VICtoria 4364. 10, Lower Grosvenor Place, W.1. 4071

BRIGHTON & HOVE. Experienced ASSISTANTS in all grades required. Details please to: H. Hubbard Ford & Associates, 67, Church Road, Hove, 3, Sussex. 4336

INTERMEDIATE to FINAL STANDARD.

Expanding practice engaged large scale commercial projects requires ARCHITECTURAL ASSISTANTS with design and supervision initiative. Good salaries according capabilities. Five-day week. L.V.s. Raymond Spratley & Partners, 9, Hertford Street, Park Lane, W.1. GRO 1638. 4306

OSCAR GARRY AND PARTNERS require one or two SENIOR ASSISTANTS to work on large projects at present at early design stage. Minimum five years' experience essential. Salaries not less than £1,100. Luncheon Vouchers. Apply 66 Gloucester Place, London, W.1, or phone WELbeck 2509. 4320

WATKINS, GRAY & PARTNERS, 57, Catherine Place, S.W.1, require ASSISTANTS of Intermediate and Final standards for work on large hospital projects. Excellent opportunities for those seeking first hand experience in this most interesting and rapidly developing field. Luncheon vouchers and pension scheme in operation. Write giving full particulars. 4233

TWO first class ARCHITECTURAL ASSISTANTS required. Salary range £1,250—£1,750 p.a. depending upon experience. Write with fullest details of experience. Box 4227.

SENIOR and JUNIOR ASSISTANTS required for small Office with interesting and varied work.

Green, Lloyd & Son,
5, Pickering Place,
St. James's Street, S.W.1.
Telephone WHitehall 9926. 4080

QUALIFIED ARCHITECTS looking for some really interesting new work should apply to George, Trew and Dunn at their new offices, 50, Eastbourne Terrace, W.2. 4598

ARCHITECTURAL ASSISTANTS who are looking for some really interesting work where wide experience can be gained, should apply to George, Trew and Dunn at their new offices, 50, Eastbourne Terrace, W.2. 4599

SENIOR and JUNIOR ASSISTANTS and DRAUGHTSMEN required by Multiple Shop Company's Architects Department. Five-day week, excellent salaries, staff canteen, etc. Work consists of detail working drawings both ¼ in. and ½ in. together with travelling throughout the country. Please reply, stating age, salary required and past experience to Box 4534.

CHIEF ARCHITECT
of Expanding Architects Department of established Building & Development Company requires

SENIOR
ARCHITECTURAL ASSISTANTS
at new Headquarters Building in Ealing, for work on Industrial and Commercial Projects. Keenness and experience essential. Good salaries paid. Five-day week. Luncheon vouchers. Pension scheme available. Please state age, experience and salary required to
Box 4697.

ARCHITECTURAL ASSISTANT required by Multiple Shoe Company for the design of building and shop fitting work. Must be capable of taking surveys, preparing drawings and prospective sketches for numerous interesting projects. Pension Scheme, salary according to experience. Applications giving full details to R. C. Lansdown, Property Department, Lilley & Skinner Ltd., King's Cross, London, N.1, marked Confidential. 4687

LOUIS DE SOISSONS, PEACOCK, HODGES, ROBERTSON & FRASER require competent ARCHITECTURAL ASSISTANTS in their Exeter office; good salaries will be offered to suitable applicants. Details of training, experience and age should be sent, with an indication of salary required, to 12 Baring Crescent, Exeter. 4698

ASSISTANT required, Final standard, for varied practice in office of Barber, Bundy & Greenfield, F/A/A.R.I.B.A. Salary by arrangement. Reply to 5 Apple Market, Kingston-upon-Thames. 4646

STOP THAT COMMUTING! To ARCHITECTS in West Sussex we offer work on a wide variety of West African projects, prospects of service abroad, and £1,000 per annum. Apply in writing to Tecnic, Architects and Town Planners, 38 Sudley Road, Bognor Regis. 4690

EDINBURGH. ARCHITECTURAL ASSISTANTS required immediately for expanding practice. Please write giving details of age, experience and salary required to Law and Dunbar-Nasmith, 54 Frederick Street, Edinburgh. 4705

ARCHITECTS in London offer up to £1,500 a year, plus various benefits, to capable SENIOR ASSISTANTS. Lesser salaries offered to more junior men. Reply giving brief particulars, age, and experience, and qualifications to Box 4713.

ROBERT MATTHEW & JOHNSON-MARSHALL have vacancies in their London office for ARCHITECTS at all levels of experience for a variety of interesting jobs. Apply to Robert Matthew & Johnson-Marshall, 24 Park Square East, N.W.1. 4734

ASSISTANTS of Final and post Intermediate standard required immediately to fill responsible positions in expanding practice. Applicants must be competent draughtsmen with sound knowledge of construction and detailing, with keen interest in good design. Details of experience and ability, and salary required, to: Felix Walter, F.R.I.B.A., 4, Raymond Buildings, Gray's Inn, London, W.C.1, or telephone HOLborn 0535. 4761

SENIOR ASSISTANT required by Architects in West End to deal with the administration of building contracts. Salary £20—£25 per week. Reply Box 4785.

GOLLINS, MELVIN, WARD & PARTNERS require a JUNIOR ARCHITECTURAL ASSISTANT for their Sheffield Office to work on interesting University projects. Five-day week with pension scheme. Write: 281, Glossop Road, Sheffield, 10, or telephone Sheffield 29922, for an appointment. 4802

INTERMEDIATE standard, office-trained ASSISTANT required immediately for small expanding office. Very varied programme of work and congenial atmosphere. Ability to work on own initiative essential. Salary by arrangement. Apply: RAYMOND J. CECIL, Dip. Arch., A.R.I.B.A., 3, Mill Street, Hanover Square, W.1. MAYfair 6574. 4803

ARCHITECTS in Private Practice in the Home Counties will pay £1,000 to £1,500 per annum to competent ARCHITECTURAL ASSISTANTS. Varied and interesting work in hand. Write stating age, experience and salary required to Box 4767.

SENIOR ARCHITECT

DENYS LASDUN & PARTNERS require a SENIOR ARCHITECT to take charge of a major and unique University project, starting in the New Year. Good salary and prospects for right man with experience and a high standard of design. Write 3, Albany Terrace, N.W.1. 4819

CHIEF ARCHITECTS required for South Coast head office of an established and progressive firm. Responsible posts requiring initiative, drive and qualities of leadership. R.I.B.A. Final qualification essential. Salaries commensurate with ability. Five-day week. Write giving full particulars to Box 4783.

CAMBRIDGE Office requires ASSISTANTS to work on University and College projects. Salary from £1,000 per annum. Apply to David Roberts, 33a, Bridge Street, Cambridge. Tel. 56175. 4773

WE have just a few places left to fill in our new office for Senior and Intermediate ASSISTANTS. We are looking for one or two more really good people—at really good salaries. Our staff share the responsibility and profits of an enormous range of interesting work.

Write ref. KAM or 'phone HUN. 1711 for an appointment to see the office and meet people and for details of current work and our Associateship and Pension Schemes. Beard, Bennett, Wilkins & Partners, 101, Baker Street, London, W.1. 4776

ARCHITECTURAL ASSISTANTS required in busy office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications and experience, etc., to Thomas, Jolly, Grant and Kelsey, 26, Kent Road, Southsea, Hants. 4784

TWO ASSISTANT ARCHITECTS with four years' office experience wanted by medium size progressive London firm on University, School, Industrial and other work. Good salary, bonus and non-contributory pension scheme. Telephone CHAncery 3526. 4251

FULLY Qualified ARCHITECT required by rapidly expanding building company in Somerset, to replace architect recently deceased. Excellent prospects. Good salary. Architectural assistant employed. Must have high standard of design and detailing ability, particularly in Factory and Housing work. Box 4846.

ARCHITECTURAL ASSISTANTS, Intermediate and Final R.I.B.A. are required in the Glasgow and Stirling offices of Honeyman, Jack & Robertson. The positions are permanent and progressive with three weeks' annual vacation, five-day week and R.I.A.S. Pension Scheme. Applicants should write to Honeyman, Jack & Robertson, Chartered Architects, 196 Bath Street, Glasgow, C.2, stating age, qualifications, experience and salary required. 4879

ARCHITECTURAL ASSISTANTS required for busy London practice with interesting and varied work such as Power Stations, Schools, Offices, Churches, etc. Salary from £700—£1,100, depending on qualifications and experience, plus luncheon vouchers. Please write, giving full details, to Box 4864.

ARCHITECTURAL ASSISTANTS required. Recently qualified, Intermediate or equivalent standard for large projects of contemporary character. Excellent salaries offered. Pension and Life Assurance Schemes in operation. Five-day week. Please write giving full particulars of experience to Johns, Slater & Haward, F./A.R.I.B.A., 32, Foundation Street, Ipswich. 4860

CROYDON. Varied and interesting experience offered in progressive and growing practice to experienced ASSISTANT and JUNIOR. Five-day week. Please write or telephone: L. A. Macintosh & Haines, A/A.R.I.B.A., 33-35 High Street, Croydon. CRO 5780/9992. 4884

FRY, DREW & PARTNERS require qualified ASSISTANTS for interesting and important work in England. Salary range £850—£1,000. Apply 63, Gloucester Place, W.1. WEL 3318. 4858

PLAYNE & LACEY require experienced and enthusiastic ARCHITECTURAL ASSISTANTS. Salary range £900—£1,050. Write 19 Queen Anne's Gate, Westminster, S.W.1, or ring WHI 2563 for interview. 4859

ASSISTANTS of all grades required. Salaries by arrangement. Bonus. Pension Schemes in operation. Schools, Industrial, Commercial, Hospital and Domestic work. Write to Firth, Son & Blackburn, A.A.R.I.B.A., Broadway House, Crackenedge Lane, Dewsbury. 4898

REQUIRED, A.R.I.B.A., not less than five years' office experience, and general ASSISTANTS, Intermediate standard. Good opportunity in expanding office, interesting variety of work. Evening interviews if required. Write or phone George E. Clay & Partners, AA.R.I.B.A., 198 Parrock Street, Gravesend, Kent (Gravesend 1401/2). 4899

REQUIRED immediately. Senior and Junior ARCHITECTURAL ASSISTANTS. Varied and progressive work including large scale multi-storey housing schemes. Write or telephone to Collcutt & Hamp, 86 Prince Albert Road, Regents Park, N.W.8. PRImrose 5157. 4901

ARCHITECT required by Development Company to take charge of a number of large scale housing developments in North Wales. Preference will be given to applicants who have had experience of this type of work. The Company operate a non-contributory pension scheme and a car will be provided. Assistance will be given to providing accommodation, if required. Please write stating age, salary required, to Chief Architect, Bunting Estates Ltd., 73 Acre Lane, London, S.W.2. 4907

ARCHITECTS Department to City Property Company with expanding programme of interesting commercial and residential developments wish to enlarge their staff and offer the following posts which involve considerable delegated responsibility and opportunity to work on comprehensive central area redevelopment schemes. STAFF ARCHITECT to lead new section and must be capable of handling contracts from sketch design to completion and supervising junior staff; salary range £1,500—£1,650. ARCHITECTURAL ASSISTANTS, Intermediate to Final standard, up to four required to work in sections on larger schemes but to be capable of running smaller contracts with the minimum of supervision; salary range £950—£1,200. Write or telephone for an appointment, Maurice R. Day, A.R.I.B.A., Industrial & Investment Services Ltd., City Wall House, Finsbury Pavement, London, E.C.2. Tel.: MOOrgate 0768. 4909

ASSISTANT required to carry out medium size projects under supervision but with scope for initiative. Preferably used to commercial or school work. Excellent prospects. Box 4375.

£850-£1,400. ARCHITECTURAL ASSISTANTS with imagination and designing ability required to assist with large and important new developments in the central London Area. Telephone or write: Trehearne & Norman, Preston & Partners, 83, Kingsway, W.C.2. HOLborn 4071. 4934

ARCHITECT.—Good SENIOR ASSISTANT required in Architects Department of Public Company, specialising in the development of commercial and industrial properties in all parts of the country. Experience more important than qualifications. Salary in range of £1,000 to £1,500. Write or telephone Mr. S. M. Haines, Town & Commercial Properties Ltd., 25, Grosvenor Street, London, W.1. HYDE PARK 3841. 4935

£1,250 P.A. MIN. to suitable ARCHITECTURAL ASSISTANT with not less than five years' experience, to assist in general practice administration and to run jobs on own initiative. Required immediately. Raymond Spratley & Partners, 9, Hertford Street, Park Lane, W.1. GRO. 1532. 4936

GOOD salaries and varied opportunities for ASSISTANT ARCHITECTS to run jobs on Colleges, Schools (all types), Technical Colleges, Offices and Publishing House, Halls of Residence, etc. Write Charles Pike & Partners, 14, Lincoln's Inn Fields, W.C.2, or phone HOL. 3532 for appointment. 4938

ARCHITECTURAL STAFF

SYDNEY GREENWOOD, A.R.I.B.A., CHIEF ARCHITECT,
JOHN LAING AND SON LIMITED
requires

ARCHITECTS, ASSISTANT ARCHITECTS and ARCHITECTURAL ASSISTANTS for a recently established Regional Office in Manchester.

This office will be responsible for all types of Architectural projects undertaken by the Department.

Architects should be qualified with at least five years' experience in Schools, Industrial and Commercial Projects.

Assistant Architects should be qualified with two/three years' similar experience including domestic experience.

Architectural Assistants should be of Intermediate standard with two/three years' experience in Architects Office.

There are excellent prospects within an expanding organisation including Pension Scheme and other progressive benefits.

Applications giving brief details to Personnel Manager (MRO. 10), John Laing and Son Limited, Page Street, Mill Hill, N.W.7, or arrangements for interviews can be made by telephone (Mill Hill 3636). 4940

£800-£1,500 MALE or FEMALE ASSISTANTS required by Architect's Department of rapidly expanding Development Company with new offices at Walton-on-Thames with all the advantages of freedom in design and detailing of economical buildings of all types. Please phone G. W. Mills, A.R.I.B.A., Walton-on-Thames 26311. 4941

FARMER AND DARK

require

ASSISTANT ARCHITECTS

with some office experience, initiative and ability. Varied work. Apply Romney House, Tufton Street, S.W.1. Tel.: ABBEY 6311. 4942

TWO SENIOR ASSISTANTS required. Salary in accordance with experience. Please apply to F. G. Frizzell, A.R.I.B.A., 80, Portland Place, W.1. LANgham 1732. 4943

SENIOR reliable experienced ASSISTANT urgently required for busy progressive Office for responsible position. Write Morgan and Carn, A/A.R.I.B.A., 12, Grand Avenue, Hove, Sussex. 4945

GLASGOW Office requires experienced ARCHITECTURAL ASSISTANTS (Intermediate and up to Final standard) for work on varied large scale projects. Five-day week. Pension Scheme. Write or 'phone to Baron Bercott, 118, Blythswood Street, Glasgow. CENtral 6556/7. 4946

GLASGOW Office requires experienced SENIOR ARCHITECTURAL ASSISTANTS for work on varied large scale projects. Five-day week. Pension Scheme. Write or 'phone to Baron Bercott, 118, Blythswood Street, Glasgow, C.2. CENtral 6556/7. 4947

NORTH LONDON.—ASSISTANTS required about R.I.B.A. Intermediate standard. Wide variety of interesting work. Five-day week. Facilities for part-time day study. Apply C. E. Owen Ward, L.R.I.B.A., Midland Bank Chambers, Palmers Green, London, N.13. PAL. 1186/7. 4948

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EXPANDING and progressive Company requires the services of a Senior Architectural Assistant in their Housing Division. Experienced in design and the preparation of working detailed drawings in connection with multi-storey flat developments. Salary according to experience and qualifications. Luncheon Voucher and Superannuation Schemes in operation. Phone or write Chief Building Surveyor, Housing Division, Percy Bilton Ltd., 54/58, Uxbridge Road, Ealing. Telephone EALing 7777. 4563

ASSISTANT ARCHITECT with experience and/or interest in schools and multi-storey flats. Write ERIC LYONS, MILL HOUSE, BRIDGE ROAD, HAMPTON COURT, MIDDX. 3562

LANCHESTER & LODGE urgently require ARCHITECTURAL ASSISTANTS of all grades for various types of projects. 'Phone for interview: Secretary, Museum 0845. 4930

EXPERIENCED ARCHITECTS and ARCHITECTURAL ASSISTANTS of all grades urgently required for the Architect's Department of a firm of Consultants for their offices in Southern England. Progressive salaries commensurate with experience and qualifications. Please apply in writing, giving details of experience, training, etc., to Box 4924.

ARCHITECTS
ASSISTANT ARCHITECTS

A LEADING firm of London Consulting Engineers have vacancies in their Architect's Department for work in a wide and interesting field of industrial projects. These are permanent and pensionable positions; five-day week, luncheon vouchers. Applications, stating qualifications, experience and present salary, should be sent, in confidence, to the Personnel Manager, W. S. Atkins & Partners, 158, Victoria Street, London, S.W.1. 4927

ARCHITECTURAL ASSISTANT required by the Area Architect, Wates, Limited, Birmingham. Applicants should possess sound knowledge of construction and be capable of preparing working and detailed drawings, particularly on housing and multi-storey projects. Salary commensurate with ability, experience and enthusiasm. Five-day week and superannuation scheme. Apply giving full details to:

WATES LIMITED,
Building & Civil Engineering Contractors,
94, Hagley Road,
Edgbaston,
BIRMINGHAM, 16. 4922

THE Research Section of Chamberlin Powell and Bon, under the direction of Dargan Bullivant, is being expanded. ARCHITECTS and ASSISTANTS specially interested and experienced in applying research to building the Barbican and to University development should apply in writing now. The work includes planning and design investigation as well as research and development work in techniques. Good library and other facilities for information work. Applicants not immediately available should also apply as engagements will take place over a period. Please reply in writing to Avenue Studios, 15, Sydney Mews, Fulham Road, London, S.W.3. 4921

ARCHITECT.—Mobil Oil Company invite applicants for a position as Architect in their Sheffield Division Offices. A.R.I.B.A. essential and applicants must have had experience of administration, staff control and contemporary design and they will be required to see projects through from start to completion. Car driver. Pension scheme. L.V.'s and sickness benefits. Write giving details as to age, experience and salary required, to Employment Adviser, Mobil Oil Co. Ltd., Caxton House, Westminster, S.W.1. 4956

PERIPHERAL Office of Grenfell Baines & Hargreaves want lively ARCHITECTS able to control own jobs. Details to 4, Cavendish Place, London, W.1. 4977

ARCHITECT.—Mobil Oil Company invite applications for a position of Architect in their London Head Office. The work is in connection with design and research into service stations. A.R.I.B.A. essential and applicants must be capable of a high standard of presentation. Five-day week, luncheon vouchers and full employee benefits. Write giving details of age, experience and salary required, to Employment Adviser, Mobil Oil Co. Ltd., Caxton House, Westminster, S.W.1. 4967

ARCHITECT.—Mobil Oil Company invite applications for a position of Architect in their Birmingham Division Office. Applicants will be required to take full control of projects from start to completion. Car driver essential. Pension scheme, luncheon vouchers and sickness benefits. Write giving details of age, experience and salary required, to Employment Adviser, Mobil Oil Co. Ltd., Caxton House, Westminster, S.W.1. 4955

ARCHITECTURAL ASSISTANT required in the Manchester Office of the Mobil Oil Company. Applicants must be Intermediate Standard of the Royal Institute of British Architects, and be capable of a high standard of presentation. Luncheon vouchers, five-day week and good employee benefits. Write giving full details of age, experience and salary required, to Employment Adviser, Mobil Oil Co. Ltd., Caxton House, Westminster, S.W.1. 4954

ARCHITECTURAL ASSISTANT required in busy West End office. Good salary and prospects for keen and energetic young man. Apply in writing to Maurice Sanders Associates, 24, Harley Street, W.1. 4959

JUNIOR ASSISTANT required, Intermediate standard, for small office. Lush & Lester, Craven House, 121, Kingsway, W.C.2. HOLborn 5101. 4961

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AERO ENGINE DIVISION
urgently require
EXPERIENCED
ARCHITECTURAL
ASSISTANTS

TO work under the supervision of the Company Architect on an expanding building programme including new industrial and office buildings, etc., alterations and general maintenance work.

Applicants should have a sound knowledge of construction, a flair for design and be capable of taking responsibility.

Please write stating age, experience and salary required, to the:

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ROLLS-ROYCE LIMITED, P.O. BOX 31,
DERBY. 4962

£750 - £1,200. Experienced ASSISTANTS and ASSISTANT ARCHITECTS required for team to work on new development for Oil Research Company Offices and special Laboratories. Five-day week and overtime. L.V.'s, sick pay. Write or 'phone Lanchester & Lodge, 10, Woburn Square, W.C.1. Museum 0845. 4964

UNUSUAL OPPORTUNITY. We need a qualified ARCHITECT of proven ability to run branch office in Pembrokeshire, with minimum of supervision and interference from Head Office. Established and varied urban and rural practice, much of it in National Park. Basic salary offered plus percentage of fees as first step towards partnership. Write to Box 4965 for interview, sending details of past and present posts. Ages 25-35 preferred. 4965

CROYDON Architects need Intermediate and qualified ASSISTANTS. Please write for appointment giving details of experience. Graham Crump & Denis Crump, F/A.R.I.B.A., 43, George Street, Croydon. 4966

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QUALIFIED AND INTERMEDIATE ASSISTANTS required by IND COOPE (EAST ANGLIA) LTD. Sound training and experience together with an interest in interior design essential. Salary range £600—£1,500.

The Company operates a Pension Scheme with substantial widows' benefits in the event of death before or after retirement. Five-day week. Write, giving age, salary (at present, or required) and full details of training and experience to the Architect, Ind Coope (East Anglia) Ltd., The Brewery, Romford. 4967

GLASGOW Architects seek experienced ASSISTANTS, not necessarily qualified, for Civic, Industrial, Commercial and Domestic projects. Congenial atmosphere, pleasant surroundings, five-day week, pension scheme and good salary for someone hardworking with initiative and ability. Write brief particulars, in confidence, to Lothian Barclay & Jarvis, 19, Woodside Place, Glasgow, C.3, or telephone DOUglas 2228 for appointment. 4969

SENIOR ASSISTANT ARCHITECT REQUIRED FOR LARGE INDUSTRIAL CONCERN IN SCOTLAND. MUST BE EXPERIENCED IN DESIGN OF BUILDINGS AND CAPABLE OF CONTROLLING REPAIR AND MAINTENANCE OF BUILDINGS. AGE 35 TO 45. CONTRIBUTORY PENSION SCHEME. APPLY GIVING DETAILS OF EXPERIENCE AND TRAINING AND SALARY REQUIRED TO BOX 4972.

SENIOR ARCHITECTURAL ASSISTANT

C. & J. CLARK LIMITED, SHOEMAKERS STREET, SOMERSET, still require the services of an experienced SENIOR ARCHITECTURAL ASSISTANT in the office of their Architect and Estates Manager.

The work is mainly industrial and experience in this type of work will be considered an advantage.

Applicants should be studying for R.I.B.A. examinations and should be about Intermediate level.

The successful applicant will be the Senior member of a small office and the ability to accept responsibility will be welcomed.

WE OFFER:—

1. Commencing salary £750—£900.
2. Help towards removal expenses.
3. One day per week allowed for part-time study at a recognised school.

Applications, giving details of age, qualifications, experience and salary, should be made to the Personnel Officer, marked "Private" and quoting reference number MSM/19/1. 4974

JOHN STAMMERS has vacancies in his Reigate office for qualified ASSISTANT and INTERMEDIATE with some experience School, Office, Church and Domestic work. Write, giving particulars and salary required to Alders Road, Reigate. 4981

QUALIFIED ASSISTANTS required in busy Nottingham office. Must be capable of full control of contracts. Salary by arrangement. Particulars to Box 4976.

SHINGLER & RISDON, 47 Bedford Row, London, W.C.1, require one ARCHITECTURAL ASSISTANT with Final Examination and three years' experience, at a salary of £1,200 per annum plus bonus, and one ARCHITECTURAL ASSISTANT with Intermediate Examination, at a salary of £850 per annum plus bonus, to work on large and interesting town centre and other projects, at their new Birmingham Office. Five-day week. Applications to above address. 4986

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Other Appointments Vacant

3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra.

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