# THE ARCHITECTS' JOURNAL



*standard contents*

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

*NEWS and COMMENT*

*Diary*
*News*
*Astragal's Notes and Topics*
*Letters*
*Societies and Institutions*

*TECHNICAL SECTION*

*Information Sheets*
*Information Centre*
*Current Technique*
*Questions and Answers*
*Prices*
*The Industry*

*PHYSICAL PLANNING SUPPLEMENT*

*CURRENT BUILDINGS*

*HOUSING STATISTICS*

*Architectural Appointments Wanted and Vacant*

No. 3097] [VOL. 120

*THE ARCHITECTURAL PRESS*

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*Registered as a Newspaper.*

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

| | | |
|---|---|---|
| IGE | Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1. | Sloane 8266 |
| IHVE | Institution of Heating and Ventilating Engineers. 49, Cadogan Square. | Sloane 1601/3158 |
| IIBD | Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1. | Euston 2450 |
| ILA | Institute of Landscape Architects. 12, Gower Street, W.C.1. | Museum 1783 |
| I of Arb | Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2. | Temple Bar 4071 |
| IOB | Institute of Builders. 48, Bedford Square, W.C.1. | Museum 7197/5176 |
| IR | Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3. | Avenue 6851 |
| IRA | Institute of Registered Architects. 47, Victoria Street, S.W.1. | Abbey 6172 |
| ISE | Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1. | Sloane 7128 |
| IWA | Inland Waterways Association. 14, Great James' Street, W.C.2. | Chancery 7718 |
| LDA | Lead Development Association. Eagle House, Jermyn Street, S.W.1. | Whitehall 7264/4175 |
| LMBA | London Master Builders' Association. 47, Bedford Square, W.C.1. | Museum 3891 |
| LSPC | Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1. | Whitehall 7264/4175 |
| MARS | Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, 6, Fitzroy Square, W.1. | Euston 7171 |
| MOA | Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1. | Whitehall 3400 |
| MOE | Ministry of Education. Curzon Street House, Curzon Street, W.1. | Mayfair 9400 |
| MOH | Ministry of Health. 23, Savile Row, W.1. | Regent 8411 |
| MOHLG | Ministry of Housing and Local Government. Whitehall, S.W.1. | Whitehall 4300 |
| MOLNS | Ministry of Labour and National Service, 8, St. James' Square, S.W.1. | Whitehall 6200 |
| MOS | Ministry of Supply. Shell Mex House, Victoria Embankment, W.C. | Gerrard 6933 |
| MOT | Ministry of Transport. Berkeley Square House, Berkeley Square, W.1. | Mayfair 9494 |
| MOW | Ministry of Works. Lambeth Bridge House, S.E.1. | Reliance 7611 |
| NAMMC | Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1. | Abbey 1010 |
| NAS | National Association of Shopfitters. 9, Victoria Street, S.W.1. | Abbey 4813 |
| NBR | National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. | Welbeck 0619 |
| NCBMP | National Council of Building Material Producers, 10, Princes Street, S.W.1. | Abbey5111 |
| NFBTE | National Federation of Building Trades Employers. 82, New Cavendish Street, W.1. | Langham 4041/4054 |
| NFBTO | National Federation of Building Trades Operatives, Federal House, Cedars Road, Clapham, S.W.4. | Macaulay 4451 |
| NFHS | National Federation of Housing Societies. 13, Suffolk St., S.W.1. | Whitehall 1693 |
| NHBRC | National House Builders Registration Council. 82, New Cavendish Street, W.1. | Langham 4341 |
| NPL | National Physical Laboratory. Head Office, Teddington | Molesey 1380 |
| NSA | National Sawmilling Association. 14, New Bridge Street, E.C.4. | City 1476 |
| NSAS | National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1. | Abbey 1359 |
| NT | National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1. | Whitehall 0211 |
| PEP | Political and Economic Planning. 16, Queen Anne's Gate, S.W.1. | Whitehall 7245 |
| RCA | Reinforced Concrete Association. 94, Petty France, S.W.1. | Abbey 4504 |
| RIAS | Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh. | Edinburgh 20396 |
| RIBA | Royal Institute of British Architects. 66, Portland Place, W.1. | Langham 5721 |
| RICS | Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1. | Whitehall 5322/9242 |
| RFAC | Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1. | Whitehall 3935 |
| RS | Royal Society. Burlington House, Piccadilly, W.1. | Regent 3335 |
| RSA | Royal Society of Arts. 6, John Adam Street, W.C.2. | Trafalgar 2366 |
| RSI | Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1. | Sloane 5134 |
| RIB | Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. | Wimbledon 5101 |
| SBPM | Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1. | Victoria 2186 |
| SCR | Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8. | Western 1571 |
| SE | Society of Engineers. 17, Victoria Street, Westminster, S.W.1. | Abbey 7244 |
| SFMA | School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3. | Mansion House 3921 |
| SIA | Structural Insulation Association. 32, Queen Anne Street, W.1. | Langham 7616 |
| SNHTPC | Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen. | |
| SPAB | Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. | Holborn 2646 |
| TCPA | Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2. | Temple Bar 5006 |
| TDA | Timber Development Association. 21, College Hill, E.C.4. | City 4771 |
| TPI | Town Planning Institute. 18, Ashley Place, S.W.1. | Victoria 8815 |
| TTF | Timber Trades Federation. 75, Cannon Street, E.C.4. | City 5051 |
| WDC | War Damage Commission. 6, Carlton House Terrace, S.W.1. | Whitehall 4341 |
| ZDA | Zinc Development Association. Lincoln House, Turl Street, Oxford. | Oxford 47988 |

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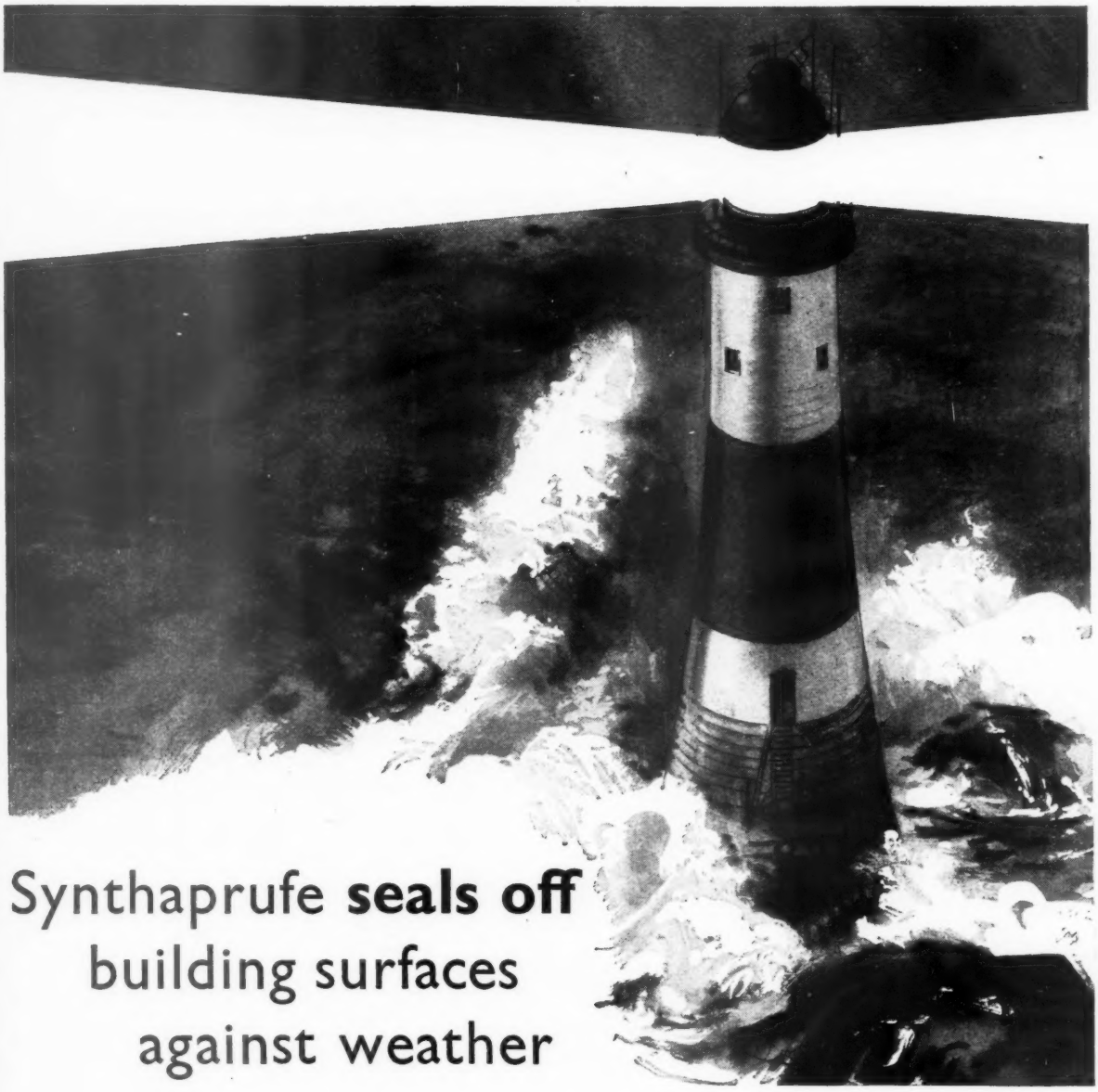

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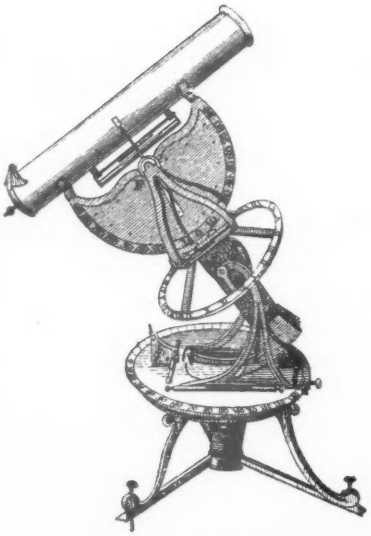
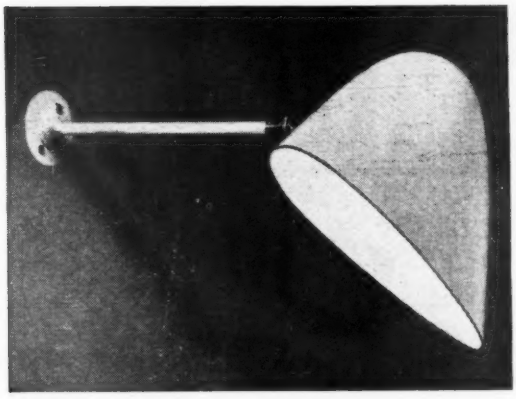


WORKMANSHIP



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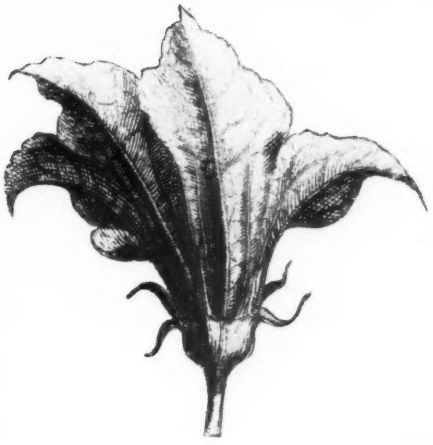

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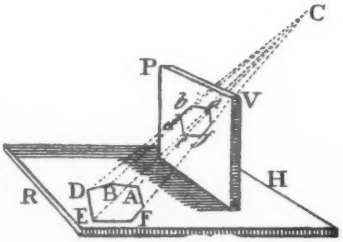


UNDERSTANDING

F1200

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*specified by*
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*(MIDLANDS DIVISION)*

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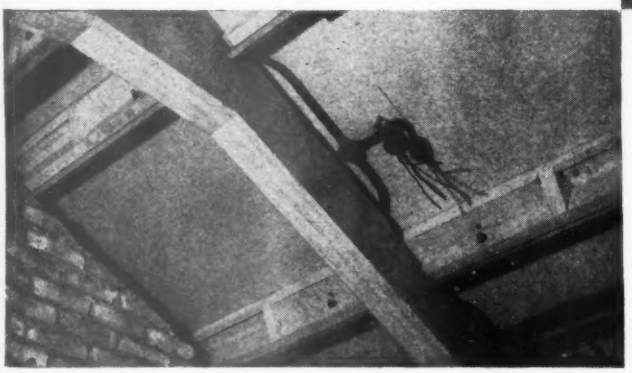

*PLIMBERITE is a versatile wood chipboard possessing the general characteristics of natural timber. Manufactured in 8' x 4' boards in thicknesses of ½" and ¾", it is used extensively for partitions, floors, walls, roofs, etc. For full details refer to your standard reference books or write to the manufacturers for illustrated technical literature.*

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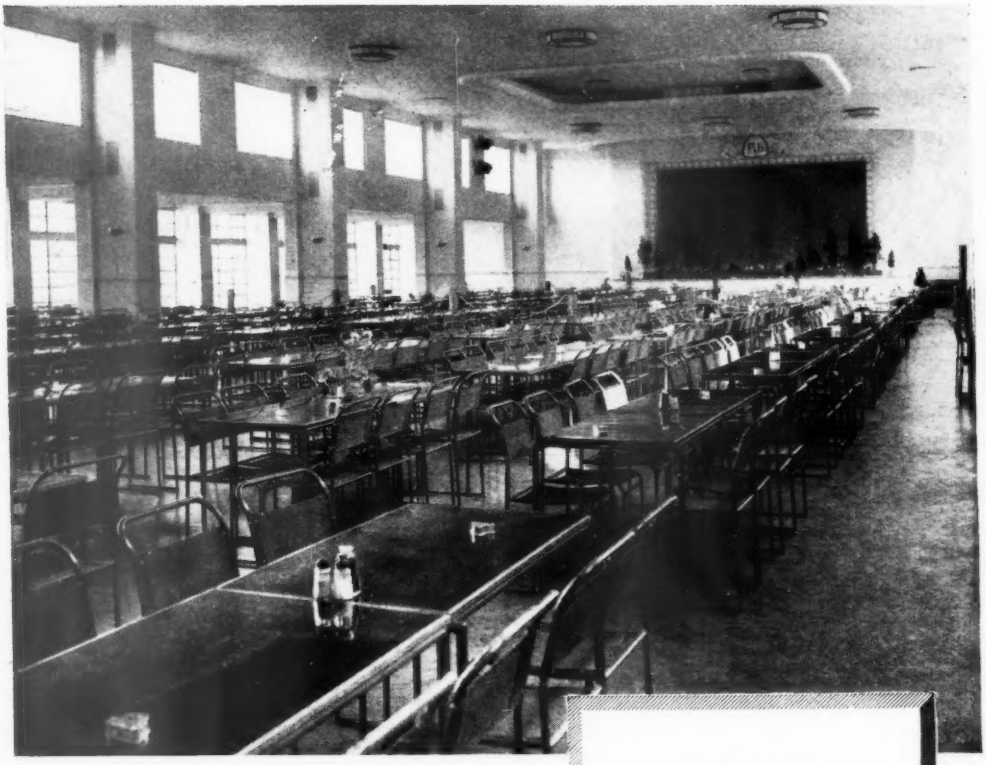

*Photograph by courtesy of Paton & Baldwin Ltd. Architects: Sir Alex Gibbs & Partners, Queen Anne's Lodge, London, S.W.1*

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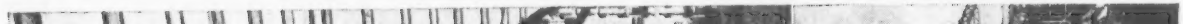

# Stairtreads
# Stairtreads
# Stairtreads

and still more stairtreads—in 19 different nosings and a choice of 9 colours (brown, green, gold, blue, maroon, black, white, silver and red): that is the DON range. They are extruded from 99.25% pure aluminium, plastic-filled,* fade-damp-heat-and-light proof, and suitable for all types of stairway—wood, metal or stone—and all types of service. FIXING NOTES DON Plastic-filled Stairtreads are drilled to take No. 6 or No. 8 wood screws and are countersunk to take No. 6 or No. 8 screw-caps; these fittings may be brass or cadmium plated. Alternatively, the treads can be supplied with holes counter-bored through to the aluminium bases, these holes being fitted with plastic plugs after the treads have been fixed. WOOD STAIRS Care should be taken to ensure that the stairtreads bed down evenly. Where the steps are badly worn it may be advisable to chisel out and fit the tread flush with the remainder of the step. Where the step is only partly worn it may be built up level and the tread fitted to the top. CONCRETE STAIRS With new stairs the treads may be cast in when making the steps or, alternatively, timber fillets may be cased in to take the fixing screws. With existing stairs the steps can be drilled and plugged to take the screws. METAL STAIRS The treads should be fixed with $\frac{3}{16}$" brass countersunk screws and steel nuts with washers, the steps being drilled accordingly

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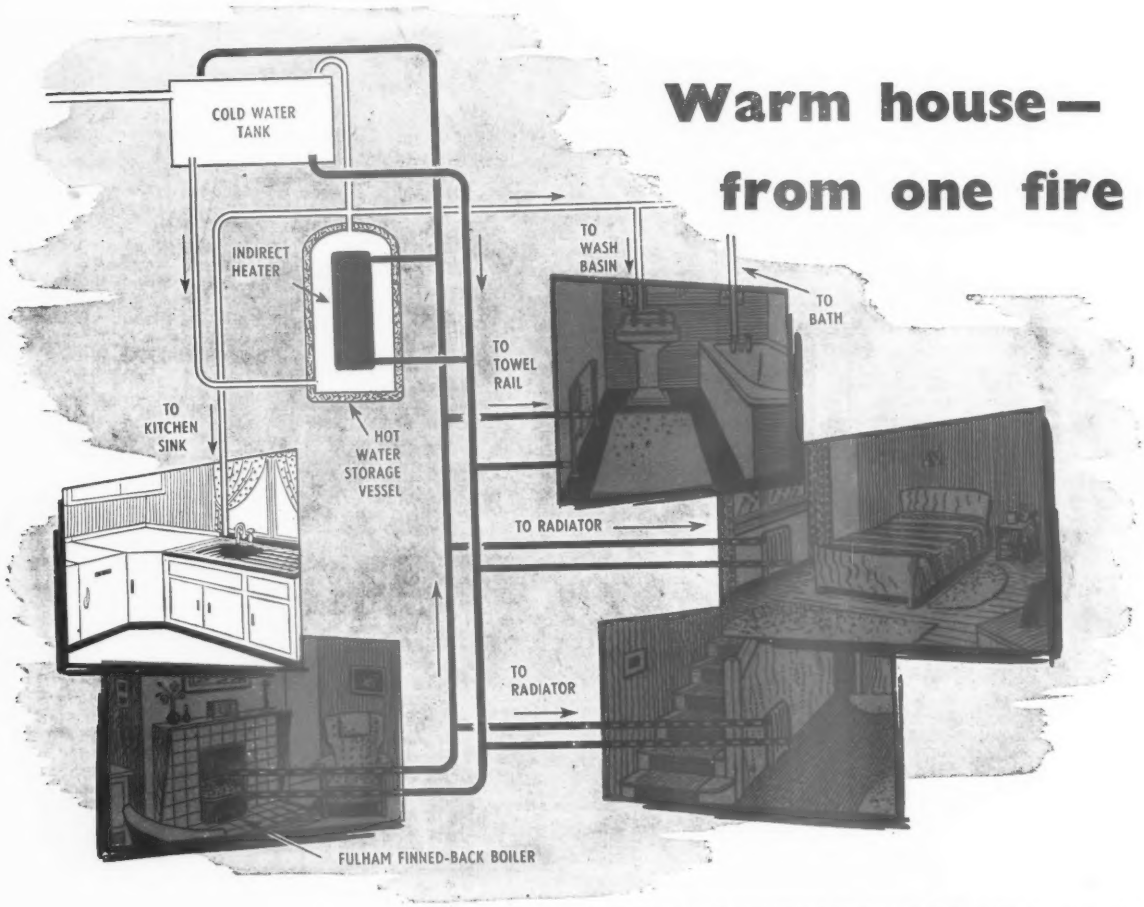


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*for glazing Metal Windows.*

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**Semanco Non-Hardening Compound**
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**L.185 Roofing Putty**
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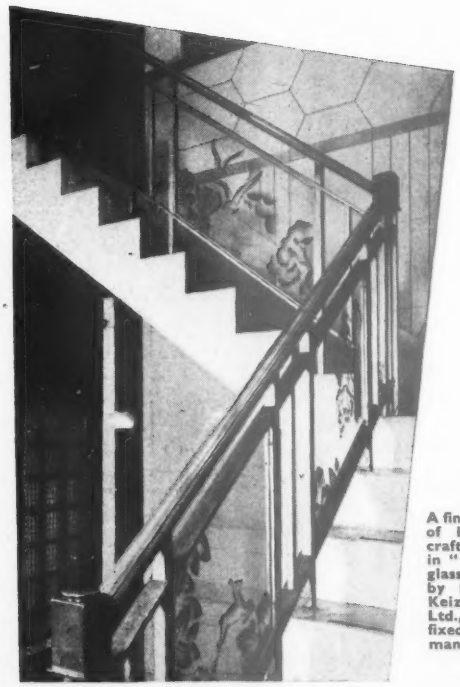

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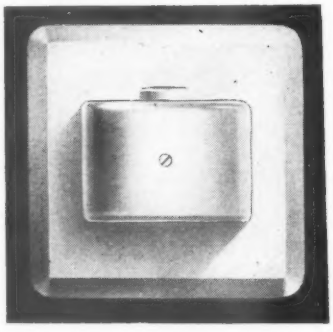

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*Owners: Chesters Brewery Co. Ltd.*

*Architect: F. Riley Esq., L.R.I.B.A., F.M.S.A. (Messrs. Brameld & Smith.)*

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*Hollow*
*Victoria*

Note ap
Architects

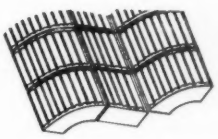
*Messrs. Odells, King St., W.1. Architects: Kenchington & Farms, F/A/A.R.I.B.A. Contractors: Rudduck & Co. Ltd.*

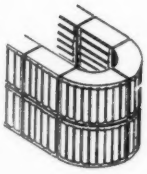
# IDEAS

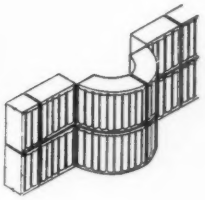
*spring from* HOLLOW

# GLASS

BLOCKS







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Complete installations undertaken by our skilled craftsmen.

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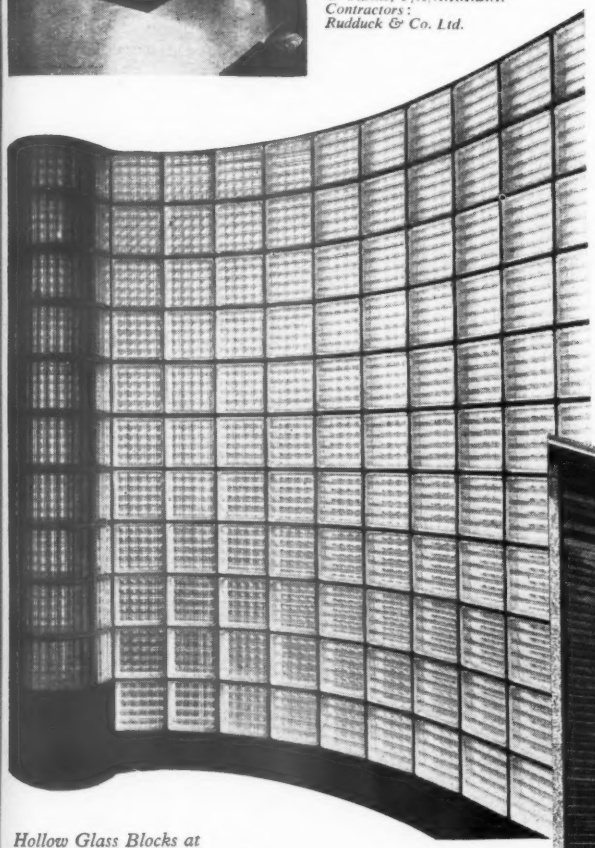
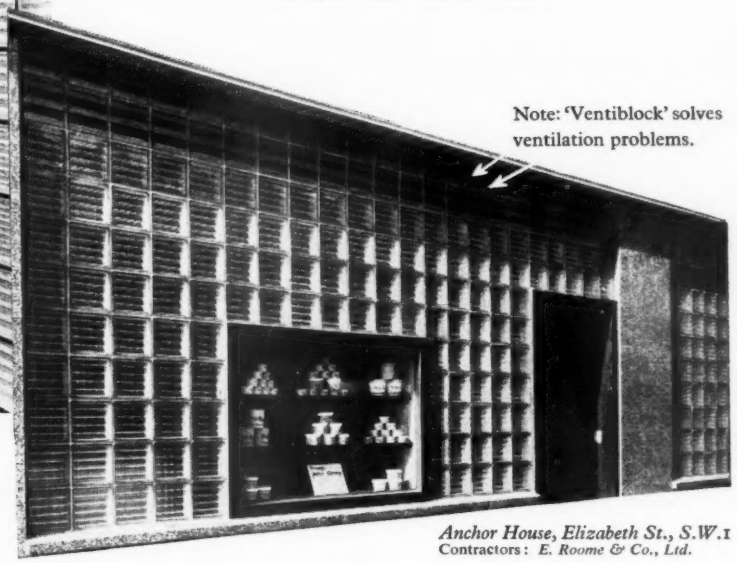


*Hollow Glass Blocks at Victoria Coach Station, S.W.1.*

Note application of corner blocks to form column.

Architects: *Elliott, Cox & Partners, F.R.I.B.A.* Contractors: *Higgs & Hill Ltd.*



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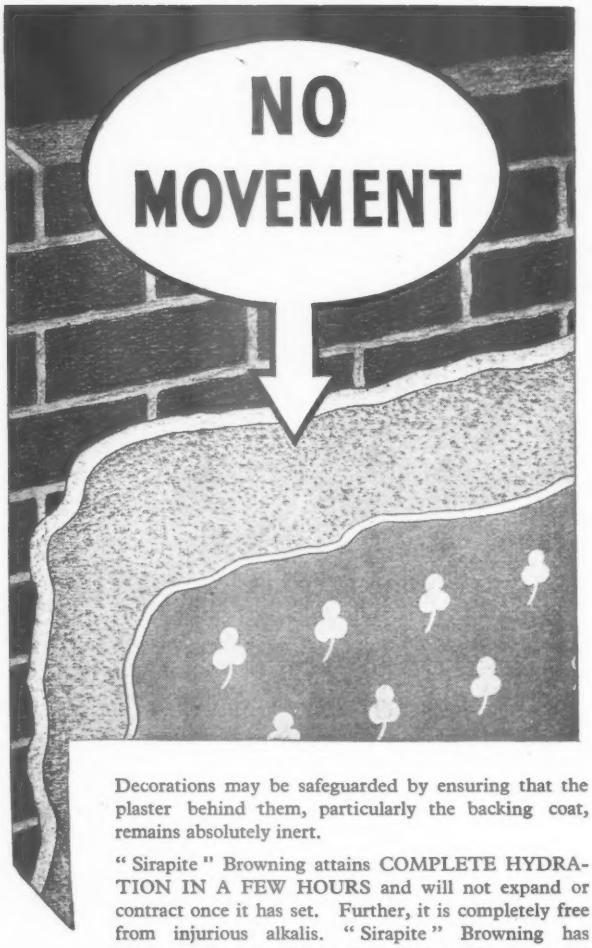


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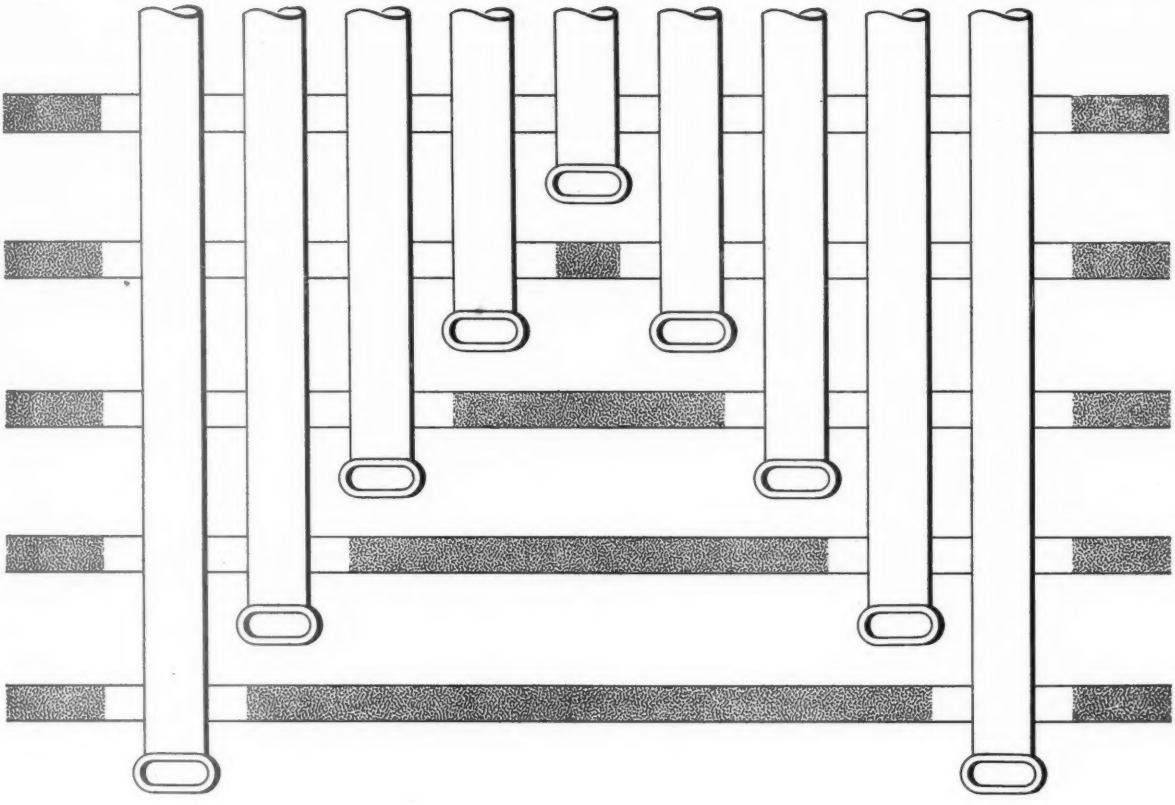

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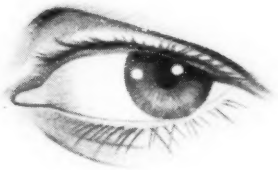
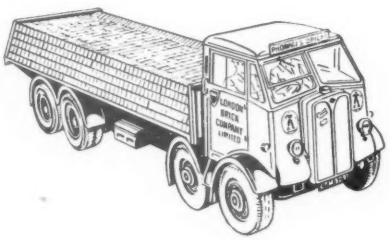


# you look...



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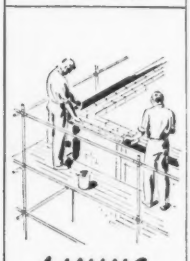



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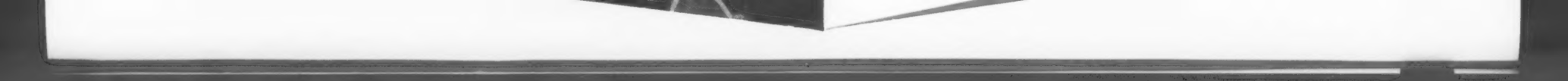

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THE ARCHITECTS' JOURNAL



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

No. 3097 July 8, 1954 VOL. 120

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AA DIVERSION

What is the function of the AA? Is the AA any longer necessary? Should the AA be disbanded or cold-shouldered out of existence? The questions bubbled to the surface of ASTRAGAL'S mind when he was told quite firmly, that he could not report —and barely attend—last week's meeting at the AA titled "A policy for the AA." After all, one could say, the place has fulfilled its purpose so far as architectural schools are concerned. The pioneer school, it has set the pace of architectural education, and rather inexact copies of it are to be found from Plymouth to Dundee—and overseas as well. And as an association, is there anything it can do which the RIBA could not, or should not, do better? Well, its library is not so good as the RIBA's, of course, but it has the only architectural slide collection in the country, if not the world; it has better lunches than the RIBA and it has the professional man's solace—a bar, which is the kind of thing the RIBA can't have. Anything else? A shop, a good supply of rather alarming assistant architects, handsome buildings and, not least, more goodwill than any other architectural body in the country. Are those sufficient assets to give the AA the right to a further lease of life. Most people will have no doubt that they are.

*

It is odd, perhaps, to run over the good points of this dark horse here, but it is as well to remind readers of some of the assets which they maybe can't find for looking. And it's ASTRAGAL'S bet that while the AA is engrossed in bashing out a new policy it is going to go through an extremely arduous, and possibly difficult, time, during which it will need the active support of all its more enlightened members.

*

The new evening school which it has formed, and the recent symposia which it has held on different building types perhaps faintly foreshadow changes to come. The latest indication of the AA's expanding programme and progressive policy is news of the formation of a Department of Tropical Architecture, under the direction of Maxwell Fry, with whose practical experience of the subject, in West Africa and India, readers will be familiar. A most impressive staff of lecturers and critics has been obtained and the top-notch gang of lecturers and specialists of the main school of architecture will be available to the new department as well. Please raise your caps, dear readers, to this, the *first and only* post-graduate architectural school in the country.

*

Is there anything else which might serve to point the way which the AA will go? There are suggestions for a closer tie-up with the building industry, closer relations between members and students, and yet further ventures into post-graduate research and study. But not to be forgotten, of course, is its rôle as the London architects' society.

*

It is not an allied society of the RIBA, of course, but it was interesting that past-president Howard Robertson promptly gave that as one of its rôles when an architect at the RIBA's annual general meeting asked for some society for the many thousands of architects in the London area. Perhaps the questioner thought the AA was an old boys' club only—instead of being open to everyone. But the interesting thing is that the AA provides this service of being a London society quite free, so far as the RIBA is concerned. Although a large portion of the RIBA membership fees are ploughed back into the allied societies, not a penny goes to the AA. The service here is one way only. The RIBA must by now owe the AA a very large sum indeed, a sum which is increased each year by several thousands of pounds. . . . Anybody blushing . . .?

NEW WAYS OF SERVICING

The *Architectural Press* has just published a companion to *New Ways of Building*.* It has the title *New Ways of Servicing Buildings*, and it may be just the thing for you (or even, as the blurb suggests, for your client) if you want to dip into the specialist domains of lighting, heating, sanitation, and so on. One of the best features of the book is an explanation—excellently illustrated—of the difference between discomfort glare and disability glare. There is also a useful addendum with paragraphs about such things as television aerials, incinerators, and ring mains.

*

And did you know that gold is 1·075 times more noble than copper, or that the people of Dallas drink their own sewage (more or less)?

NEW MURAL

Congratulations to the English Folk Dance and Song Society for acquiring what is surely the largest mural painting in captivity—in England at least. This painting, by Ivon Hitchens (shown below), occupies nearly the whole of one of the long walls of the main hall at Cecil Sharpe House, the Society's headquarters near Regents Park, and though one cannot help wondering why it does not reach the ends of the wall, one must admit that it is most impressive.

*

It is not quite what most people would expect from Ivon Hitchens, for in spite of its very wide-screen format it does not have that curious and fascinating Cineramic perspective which is to be found in his oil paintings. But closer inspection of the rather complex composition does reveal what the artist calls a "cyclorama" as its basis. The colours are mostly light and bright; the paint-work (on canvas) looks dry and crumbly and the total effect will not be admired by all. But arguments about architect-muralist co-operation can now be thought out on a more sound basis.

* *New Ways of Servicing Buildings*. Edited by Eric de Maré. Architectural Press.

D AND W

No two people had more influence in popularizing modern architecture in the 'thirties than M. O. Dell and H. L. Wainwright, who were then the official photographers of *The Architectural Review*. As they brilliantly depicted, one after another, the buildings by means of which modern design was put on the map in this country, they showed—as no-one could have done without their technical mastery and their eye for a picture—that the new architecture was capable of far more grace and refinement than the functionalist label then being attached to it suggested.

*

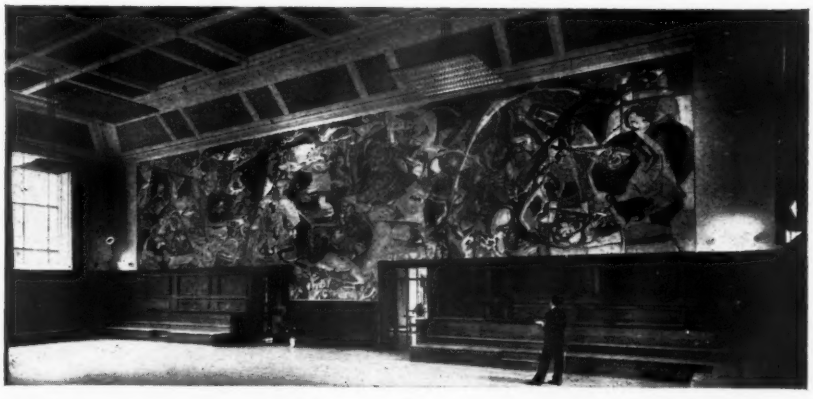
The pioneer architects of those days owed them an incalculable debt—Wells Coates, Tecton, Chermayeff, T. S. Tait, Yorke, Fry, Gibberd, and the rest. During the war Mr. Dell retired, but pre-war memories will be brought back to any architect who cares to visit the Ilford gallery in Holborn, where there is an exhibition of Mr. Dell's landscape photographs, possessing all the fine qualities associated with his work. The exhibition contains a number of architectural subjects too, including some masterly interiors of Durham and Winchester cathedrals.

CITY OF REILLY

*The Liverpool Daily Post* has just issued a lavish twelve-page supplement called "The New Face of Liverpool." In it everyone, from the Lord Mayor downwards, congratulates everyone else upon Liverpool's new and proposed buildings. These are mainly commercial—and symbolize the nadir of western commercial culture; there is also a thin smattering of housing and churches. Sir David Eccles has said some hard things about the City of London—and said them, alas, to little purpose—but Liverpool is out to beat the band.

*

It is sad to think that, in its own grimy, salty way Liverpool was once a romantic city.



*Ivon Hitchens's mural at Cecil Sharpe House (architects: John Eastwick-Field, in association with Hugh Pite). See note above.*

# *Architecture or Housing?*

Both the housing schemes shown above are approved—apparently—by the Minister of Housing, Harold Macmillan. He has awarded a housing medal to the architect of the top one, Tile Hill North, Coventry (designed under Donald Gibson, the city architect). And the other is one of many spec. housing schemes which are being put up all over the country with the blessing of the Minister and without the help of architects. When the Ministry's housing awards were presented at the RIBA last week, Mr. Macmillan's parliamentary secretary, Ernest Marples, told his audience that he *hoped* private enterprise builders would turn more often to architects for advice. If that is the official view of the Ministry, then it should be possible for Mr. Marples to do more than merely hope. The Minister, whose recent decision to cut housing subsidies may well result in local authorities handing over more housing work to the private developer, should ensure—as he has the power to do—that the private developer makes use of the architectural profession. Or would he prefer to go down in architectural history as Minister of the Inferior? (More housing awards and spec. building schemes are illustrated on pages 38 to 40).

UNDER TWO FLAGS

In thirteen months the Mall has gone into ceremonial dress three times. The first time—for the Coronation—it was glittering and charming rather than dramatic; the second time—for the Queen's return—it reached a new low, with banal little pictures of outposts of Empire fixed to masts. For the Swedish visit the MOW—consciously or not—took a leaf out of Sweden's book, and used—with considerable success—many large flags. These were so closely ranked that when seen from Admiralty Arch they made a continuity of colour all the way to the Palace.

*

This is not just a plea to use more flags; it is a plea to have them very big and very close together. And flags, after all, are cheap enough.

TO DO-IT-YOURSELF WITH

This "do-it-yourself" business has caught on so much that some firms have been enterprising enough to turn out the materials you can do it yourself with. You simply measure your room, choose your paint, wall-paper and so on, and the firm does everything else—except the work. It sells you undercoats and topcoats and lends you brushes, turps, sand-paper, boards, trestles, dust-sheets and whatever else you need—except, presumably, a paper-backed novel to read furtively on the job.

*

And now will someone start a hire service of power hand-tools, like planes and floor-sanders? These things are expensive to buy and they are not needed very often.

ST. JAMES'S

Opposite that offensive poster hoarding in Piccadilly is a superb gem of the English baroque. In all its glory of white and chocolate and gold leaf and clear glass St. James's, Piccadilly, has been restored by Professor Richardson. Perhaps its glory is greater than it ever was; perhaps here, more than anywhere, we can see what Wren's true intentions really were. ASTRAGAL will always mourn the little rectory and has the gravest doubts about the new iron railings proposed for the street front (drawings in the vestibule), but about the church itself there need be no reservations.

ASTRAGAL

**POINTS FROM THIS ISSUE**

**Housing awards** and **spec. building** .. papes 34, 38, 39 and 40

Cut in **Housing Subsidies** .. .. .. .. .. .. page 36

Progress of the **rebuilt bombed cities** .. .. .. page 41

## The Editors

## TOWN PLANNING'S STRENGTH AND WEAKNESS

THE strength of town-planning is also the cause of its weakness: inasmuch as town-planning represents the combined and co-ordinated activities of many spheres of life controlled through the medium of the official planning offices, its position is one of strength; but it is, perhaps, just because town-planning represents group activity at large that its position is weak, in so far as no one section of society feels immediately directly responsible for undertaking fundamental research into the ends and means of town development. Among the great social activities of our time, town-planning must be an unique case of a nation-wide practice being carried on without the backing of research on a comparable scale. In industry, in the Armed Forces even, organized research is recognized as a basic necessity. Yet town-planning still has to thrive on the intellectual and imaginative capital provided by the first half of this century. That the dangers of this situation are not widely recognized is equally surprising.

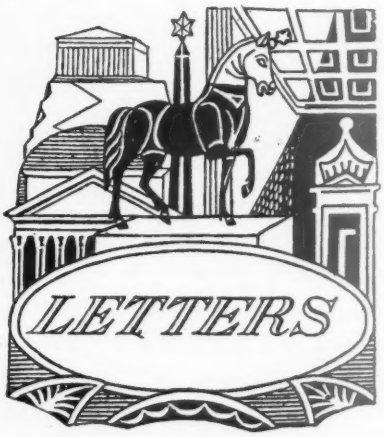
Attempts in the past have been mad to stimulate the establishment of town-planning research but so far, to little avail. Sir Patrick Abercrombie, in a Minority Memorandum attached to the war-time Barlow Report, with others, recommended the setting up of an independent Research Commission—this may have led to the Research Sections in the Planning Ministry, but these really are more in the nature of intelligence units rather than teams concentrating on exploring and experimenting.

The almost complete, if not complete, neglect of true research—not fact-finding which so often goes under the guise of research—may be said to be the most significant outcome of the series of surveys made by D. Rigby Childs and D. A. C. A. Boyne over the past two years of the re-building of the bombed cities; the series is summed up in this issue. From this it is clear that a bird's-eye view of the general planning and re-building schemes is one of men so busy with the struggle of getting anything done at all, that they do not have the time to stop, to pause, to think: to think about the kind of cities they are really building; to think about the outcome of planning controls, of the effect of economic forces on building, of trends in building technique and design, of people's reactions to what is built . . . .

It is this absence of fundamental thinking on the ends and

means of planning on the broadest scale that portends *danger ahead.*

It is probably too much to hope that the Government alone should undertake this kind of research, since the prime duty of the Planning Ministry is to be an Executive to the Legislature; indeed, it is probably better that it should not. Unfortunately, as we have previously suggested, there is no one interest to whose welfare Town and Country Planning is of vital necessity. It could probably best succeed if it could be a co-operative venture between the Government, Local Authorities, possibly Industry, and the Universities. The establishment of a research group could be small. Its main function would be to provide the means whereby men and women for a time could withdraw from practice to think, to experiment, to develop and work out new ideas.




*Donald K. Baron, A.R.I.B.A.*

*Reyner Banham, B.A., Member A.I.C.A.*

*W. E. Wright,* Director, J. S. Wright & Co., Ltd.

## Building By-laws

SIR,—May I, as another architect who has had to do with by-laws, take ASTRAGAL severely to task for his petty, half childish comments (July 1) on the recent RIBA discussion. Having read an account of the proceedings in another technical journal, I would indeed like to commend to all who are prepared to think about the formulation of codes for good building what R. A. Simons had to say. Then I would ask them to go further and consider how best to implement the functional basis of building as the only rational basis for the design and execution of our building work. Until Mr. Simons's idea has sufficient support among all concerned with building, we as architects will remain hamstrung as we are by the unbending laws that survive from the rule-of-thumb days which preceded this era of truth in the search for knowledge.

DONALD K. BARON.

Glasgow.

## Astragal at the Bartlett

SIR,—I have no particular complaint against the ASTRAGAL report (June 24) of my trifling address to the Bartlett Students, but I would like to express my appreciation of Gerald West's letter of July 1. Since I was speaking of fundamental, not to say basic, matters I had expected that my words would be heard with hilarity and embarrassment, as is the English custom, but I had not dared to hope that my views would be understood as Mr. West understood them, and that I should be able to feel that glow which must have been experienced by Einstein when English writers took his theory of Relativity as a proof of the existence of the Deity, or Freud when other English writers found in his work justification for the doctrine of Original Sin.

If Mr. West can find in my remarks any suggestion that the Ecole-des-Beaux-Arts has any connection with the concept of architecture as an art, then he has joined a distinguished body of thinkers. The whole tendency of Beaux-Arts systems has been to excuse the architect from considering how his building will look to a man of five-foot-ten endowed with powers of locomotion, as Professor Pevsner has lately been at pains to point out, and it has been the Beaux-Arts and its theorists who have spread the plan-structure-function gimmick about the world ahead of the Modern Movement. I persist, in my wrong-headed way, in believing that disreputability, not the Beaux-Arts, is the only hope of CIAM. Up, if I may say so, the New Brutalists!

REYNER BANHAM.

London.

## Plumbing

SIR,—I was very interested to read the article on page 583 of the JOURNAL, May 13, 1954, regarding the failure of drainage pipe work above ground level, as my notice has been called on numerous occasions to defects caused by cast-iron branches becoming fractured when passing through walls, usually due to the settlement of the building.

In view of the large number of very high multi-storey flats being built throughout the country, on all conditions of sites, it is difficult for any architect to guarantee that some settlement, even though small, will not take place, thereby cracking the cast-iron sanitary branches which pass through walls, and in some instances also cracking the w.c. pedestals connected thereto.

It is not always easy to guarantee the even thickness of a casting, particularly a cast-iron branch, and which by the slightest settlement of the building could crack.

A remedy is to fix a heavy steel galvanised fabricated branch pipe in lieu of cast-iron, the reason being that steel is of a known even thickness throughout, and furthermore, will resist fracture, which is not the case with cast-iron.

Another difficulty which has been brought to my notice is the cracking of the outlets of w.c. pedestals, and this has mainly been brought about by jointing the outlet of the pedestal with yarn and Portland cement. I have found that the best jointing method between the outlet of the pedestal and the branch fitting is to use yarn and red lead putty cement, which whilst remaining air-tight, will allow for any movement of the soil branch, without necessarily cracking the outlet of the pedestal.

Another method I have found very satisfactory is to use yarn and "Nozzitt"; this is another jointing material which will not only make a satisfactory air-tight joint, but will allow for movement.

W. E. WRIGHT.

Birmingham.


## MOHLG

## *Cut in Housing Subsidies*

Ernest Watkins writes the following:—

The Minister of Housing and Local Government, Harold Macmillan, has announced that he proposes to reduce the rates of subsidy on houses built by local authorities as from April 1, 1955. He is required by the Housing Act of 1946 to make an annual review of the rates and his proposals for reduction need an affirmative resolution in support from the House of Commons.

The principal changes proposed are:

| Subsidies (annual) | Ministry Existing | Ministry New | Local Authority Existing | Local Authority New |
|---|---|---|---|---|
| General standard subsidy | £26 14s. | £22 1s. | £8 18s. | £7 7s. |
| Special standard subsidy for houses in agricultural areas | £35 14s. | £31 1s. | £2 10s. | £2 10s. |
| Additional subsidy for heavily burdened areas.. .. | £4 9s. | £3 13s. | £8 18s. | £7 7s. |

The general standard subsidy between 1946 and February, 1952 (when it was raised to its present figure) was £16 10s. The present annual cost of all subsidies granted since the end of the war is just over £30 million.

The reasons given by the Minister for the decision to reduce the payments are:

(*a*) a reduction in the rate of interest payable on local authority loans from the Public Works Loan Board;

(*b*) economies in the design of house and in the lay-out of estates, and

(*c*) an increase in the average earnings among those likely to become tenants.

The postponement of the operation of the reductions for nine months will, the Ministry suggests, enable local authorities to obtain some appreciable benefit in advance from the lower rates of loan interest and also avoid serious dislocation to their current programmes for new houses (it may, indeed, produce something of a rush to complete houses by April 1 next).

But it is difficult to feel that the reasons given by the Minister for the reductions are really adequate—at least, that they include all in his and the Treasury's mind. The Minister must have been conscious of the fact that each year in which local authorities build another 300,000 houses they add another £10,600,000 at least (at the present rates) to the £30,000,000 the Treasury already has to find from general taxation. Consistently with its political point of view, the Government can argue that it is right to encourage the individual to build or buy his own house. It can point to the need to divert some housing money to the rehabilitation of existing property. It could also add that there are others besides prospective council tenants (notable the old age pensioners) who have at least a moral claim on the extra £10 million that 1954's crop of council houses will cost the Treasury.

But logic and housing subsidies have long since parted company. It is an odd thought that a sizable proportion of the million or so families receiving, in effect, about 13s. a week from the taxpayer were chosen, not by reference to their financial needs, but by reference to the date on which they decided to put their names down on some council's housing list. It is an interesting variation on the older forms of state lottery.

## RIBA

### *"Function Comes First," says Mr. Marples*

"Architecture ought not to hide its function," said Ernest Marples, Parliamentary Secretary to the MOHLG, when he spoke at the RIBA last week. "Function comes first," he added, "and the architect must take that into account."

Mr. Marples's audience of architects and builders had not gone to the RIBA on Wednesday afternoon especially to hear him speak on "this controversial topic in this hallowed place." They were there to watch some of their colleagues receive housing medal awards from the Housing Minister, Harold Macmillan. But Mr. Macmillan had been otherwise engaged and had sent his deputy in his place. And even Mr. Marples could not stay long enough to present the awards. But he did stay long enough to tell those present something of his "personal idiosyncrasies" about architecture which was, in his opinion, "a science as well as an art" and was "rapidly becoming more difficult." He hoped people would realize that this was the background against which criticism was made.

Mr. Marples, who was pleased that builders, as well as architects, were now receiving awards—"a gap that ought to have been filled before"—had something to say about the architect-builder relationship. A bad firm of builders and a good architect did not, he pointed out, make an effective combination.

"And," he added, "vice versa."

Mr. Marples had little to say about the schemes which won awards. But he did confess that he had "been struck between the wide gulf of municipal architecture." This, he said, was a gap which he wanted to see narrowed, and he thought the RFAC might do something about it.

Before leaving hurriedly for the House of Commons, Mr. Marples had a word of cheer for all the architects present. He was sure, he said, that private enterprise builders would take more architectural advice in future.

Pictures of work done by builders who are not yet using architects are published on pages 34 and 39 in this issue. Some of the housing award schemes, which were listed in the JOURNAL for June 17, can be seen on pages 34, 38 and 40.

### *68, Portland Place*

The Council has approved of instructions being given to Wornum and Playne to prepare plans and an approximate estimate of cost for the rebuilding of 68, Portland Place, with a view to this rebuilding being completed, as convenanted with the ground landlords, by 1960.

### *Taxation on Retirement*

Charles Woodward and the RIBA's deputy secretary will represent the RIBA at further meetings to be convened by the Law Society for the purpose of studying what action might be taken to implement the recommendations of the Millard-Tucker Committee on the taxation treatment of provisions for retirement by self-employed professional men, in consultation with representatives of leading professional bodies.

## GUILDHALL

### *New Armorial Shields*

Illustrated below are three out of a total number of eighty shields to be erected in the roof of the Guildhall. Each shield depicts the armorial bearings of one of the city companies and is being gilded and decorated to its appropriate design and colour. The shields are set in a framework of heavily carved English oak, which spans the length of the roof on the north and south sides. Above this is a row of heavy leaf carvings surmounted by tracery panels,

which lie in a horizontal position on each side of the centre span of the roof. The work was designed by Sir Giles Gilbert Scott, and is being executed by Green & Vardy Ltd., of Islington. The photographs show, left to right, the arms of the Company of Plaisterers, the Company of Stationers, and the Company of Founders.

## PARLIAMENT

### *Rebuilding the City*

Harold Macmillan, the Minister of Housing and Local Government, was asked last week, in the House of Commons, what he intended to do "in view of the low architectural standards of the reconstruction of central urban areas to which attention has been drawn by the RFAC."

In a written reply, Ernest Marples, the MOHLG's Parliamentary Secretary, said that arrangements were instituted earlier this year for the City of London's planning consultants, Dr. Charles Holden and Professor Sir William Holford, who is also a member of the Commission to meet regularly with officers of the corporation and of the LCC. The purpose of this was to consider the general form of development for each of the main building units in the war-damaged areas of the city, as well as to deal with individual proposals. Under this procedure, "close and early collaboration will, the Minister understands, be maintained with the Commission on questions of design in the more important cases."

In his reply Mr. Marples explained why he was referring only to the City of London: "The Minister," he said, "believes that the Commission's concern arises mainly over the rebuilding of the City of London."

*Messrs. Hille claim that their new "Q stak" chair is the first chair on which melamine plastic is applied to a curved surface. This heavy-duty chair, which is cheaper and needs less storage space than the "Hillestak," is made in two parts: the seat and back are formed with eight-ply veneer and finished either with natural wood or melamine; the welded legs are made of ¾ in. tubular steel. The seat and back are fixed to the legs by exploded stainless steel rivets—a fixing technique borrowed from the aircraft industry.*

# DIARY

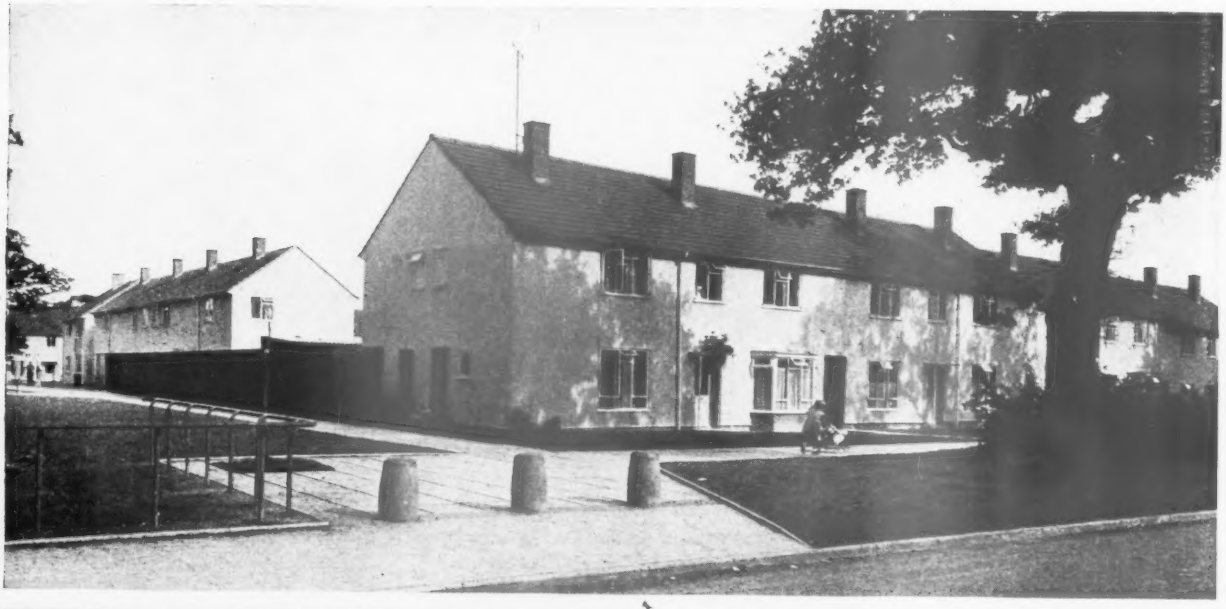
*BRS Exhibition.* The exhibition prepared by the BRS for the British Architects' Conference, Torquay. At the RIBA, 66, Portland Place, W.1. JULY 3 TO 17

*Scandinavian Furniture and Furnishings.* At Heal & Son, 196, Tottenham Court Road, W.1. UNTIL JULY 10

*Exhibition of Industrial Design: Students' Work.* At the Royal College of Art, Western Galleries, Imperial Institute Road, S.W.7. Daily 10 a.m. to 5.30 p.m. (closed Sundays). JULY 10 TO 24

*New Life for Older Houses.* Conversion of early nineteenth century houses to modern flats by the MOHLG. At Holles Street, off Oxford Street, W.1. UNTIL END OF AUGUST

## APPROVED BY THE MINISTER OF HOUSING: OFFICIALLY



## . . . . AND UNOFFICIALLY

*On the left are three of the housing schemes for which Harold Macmillan has awarded housing medals. (Top: Tile Hill North, Coventry; city architect, Donald Gibson. Centre: Orchard Croft, Harlow; architect, Frederick Gibberd. Bottom: houses at Inhurst, for Kingsclere and Whitchurch RDC; designed by E. D. Chick, and Powell and Moya.) On this page are some of the housing schemes, built without the help of architects, which may help the Minister of Housing to go down in history as Macmillan the Villa-man, the minister who gave us houses at the expense of aesthetics. There is still time for Mr. Macmillan to spare himself from being held responsible for a country littered with ribbons of spec. development on pre-war lines. Too much has been built already, but it is within the Minister's power to see that future development by private enterprise is done in consultation with architects.* *(See also page 34.)*

## MORE HOUSING AWARD SCHEMES

*These four housing schemes were among those for which a housing medal was awarded by Harold Macmillan, the Minister of Housing and Local Government. Left : top, Bell Street, Swanage UDC ; architect, A. E. Geens, Bournemouth ; bottom, Cannington, Bridgwater RDC ; architect, R. G. Nicholls. Below : Barton-on-the-Heath, Shipston-on-Stour RDC ; architect, E. H. Earp. Bottom : Ambleside, Greenbank, Lakes UDC ; architects, J. Jennings and J. C. Gill. See also pages 34 and 38, for illustrations, and page 37 for the comments of Ernest Marples, Parliamentary Secretary to the Minister of Housing and Local Government, at the award-giving ceremony.*

*The photograph above is of part o, Canterbury High Street, showing a shop in the foreground under construction, designed by Messrs. Paine and Partners, and beyond : the new Woolworth store, a building for Pearl Assurance, designed by Messrs. Bates and Sinning, and a shoe shop for Dolcis by Ellis E. Somake.*

*In response to many requests we publish below an article comparing the physical achievements in rebuilding of those nine blitzed cities whose progress in reconstruction formed a series of articles in the* JOURNAL, *which appeared during the past two years. One of the authors, D. Rigby Childs, here shows how Plymouth has been by far the most favoured city in the matter of building licences issued, although both Canterbury and Exeter have built more in the central areas, in terms of square footage of shops and business premises per head of population. In housing too, on a population basis, Canterbury is away out in front of the others. The comparison in the series is not, unfortunately, absolutely complete, as the Liverpool planning department was unable—or unwilling—to find the time to give Mr. Childs the necessary data.*

*A COMPARISON OF PROGRESS IN*

# REBUILDING BOMBED CITIES

We began with a survey of re-building at Canterbury; we finished at Coventry: with these two and in the interim we covered nine cities,* large and small, which between them represent a microcosm of urban Britain.

In these surveys we described how the cities suffered, how they began the first stages of recovery, how they planned and then built, of their opportunities and difficulties, of the people behind all this activity, especially the architects. As the series drew to a conclusion it seemed that a general look-back would be worth while and as a theme for this we chose a question which we met constantly on all sides: How have we done compared with other cities? To answer this we decided to invite the various City Planning Officers to let us know the up-to-date position, as it was in Autumn, 1953. It seemed, however, that a crude statement of what had been lost and regained might give a false impression so we extended the review to give a wider perspective covering housing, slum clearance and the other major post-war programmes, schools and industry. The preparation of answers to many of our questions could not be abstracted from stock data; their preparation meant a sizeable task for the Planning Officers, several of whom were engaged at the time with planning inquiries, and for their colleagues in other departments. In receiving the answers we had several requests that the information garnered from other cities should be made available to all. Thus encouraged by the interest taken we have thought it to be worth while to publish the data in full and in doing this we should like to take this opportunity of thanking Planning Officers and their colleagues for the unstinted help which was put at our disposal throughout this series of articles.

The theme of this concluding article is that, first, we will take a measure, quantitatively, of the achievements by the cities; then we will add some comments which we received in answer to some of our questions; finally, we will discuss the merits of what has been done.

* *Canterbury :* April 24, 1952 ; *Plymouth :* June 12, 1952 ; *Exeter :* August 21, 1952 ; *Bristol :* October 2, 1952 ; *Portsmouth :* October 30, 1952 ; *Liverpool :* December 25, 1952 ; *Southampton :* April 16 1953 ; *Hull :* July 2, 1953 ; *Coventry :* October 8 1953.

## the measure of the achievement

Some time ago Astragal, from the depths of his wisdom, remarked " Statistics are what you make of them." How true! Architects as a group generally are suspicious of figures, so in presenting the tables of statistics which follow we quite expect to be properly scolded. Their value is that they do, however imperfectly, provide a panoramic view of what has been done in the cities, and of their backgrounds. To our knowledge, this is the first time a comparison of this kind has been attempted.

A glance at the tables shows something of the variety which exists among these different cities which included: *

Bristol, the West Country Port and industrial centre.

Canterbury, the home of the Primacy of England, market town, victim of a Baedeker raid.

Coventry, at the pulsating heart of Industrial England, the first major provincial city to suffer.

Exeter, the West Country Capital; another Baedeker victim.

Hull, the Humber Port, whose history is as old as any, repeated victim of raids.

Plymouth, of Naval fame, and whose rebuilding began with a dash.

Portsmouth, a home-town of seamen, and with Southsea a seaside resort.

Southampton, whose old city approaches right up to the modern quaysides.

Liverpool, the largest city of them all. The war-time north-west port.

To answer the question—How have we done compared with other cities?—we saw that because of the variety of characteristics among them we should have to try and relate the data we had collected to a common standard if the comparisons were to be valid. To form this standard we selected population figures as they were in 1939, at the beginning of post-war rebuilding and what they were expected to be in 1971, the year up to which the present development plans go. Table I establishes the standard by treating the 1939 populations, whatever their size, as equalling 100; then showing the relative increase or decrease in size which has been and is likely to occur in the future. It is to this standard, size of population and rate of change, that we compare their rebuilding.

* The first eight cities mentioned supplied information for our review.

We see from Table 1 that whatever changes of population occurred during the war, by about 1949 certain trends were already showing; upward ones for Coventry, Canterbury and Exeter, while the two Port towns of Portsmouth and Hull were in reverse, the latter less because of people leaving the city altogether, but through the physical expansion of housing beyond the respective city boundaries; the most marked trends being Coventry 46 per cent. increase and Portsmouth 22 per cent. decrease during the planning period. A rough adding up of the separate population figures shows indeed that, with their populations combined, these several English cities present collectively a fair sample of what has been achieved in post-war Britain.

### TABLE 1: TO PROVIDE A BASIS FOR COMPARISON

| | DATA<br>A comparison between the population pre-war (1939), at the beginning of post-war reconstruction (1949) and at the end of the present 20-year development plan period (1971) | | | ANALYSIS<br>A comparison between the relative increase or decrease in population post-war and as expected at the end of the planning period, taking 1939 population—100 | |
|---|---|---|---|---|---|
| City | 1939 | 1949 | 1971 | 1949 | 1971 |
| Bristol .. .. .. | 419,010 | 447,545* | 418,600 | 107 | 99·9 |
| Canterbury .. .. | 26,330 | 25,370 | 35,000 | 96 | 133 |
| Coventry .. .. | 229,500 | 254,400 | 336,000 | 111 | 146 |
| Exeter .. .. .. | 71,810 | 75,570 | 87,300 | 105 | 122 |
| Hull .. .. .. | 317,800 | 298,000 | 278,000 | 94 | 87 |
| Plymouth .. .. | 200,900 | 192,100 | 197,200 | 96 | 98 |
| Portsmouth .. .. | 259,000 | 230,000 | 203,000 | 89 | 78 |
| Southampton .. .. | 181,250 | 178,236* | 209,000 | 98 | 115 |

* Bristol and Southampton: Figures for 1949 are the 1951 estimated figures.

*Opposite page: Exeter's High Street, nearing completion. This photo, and other aerial views in this issue, were by Aerofilms Ltd.*

*Right: Royal Parade, Plymouth, on the left is a department store by W. J. Reed. Beyond are the Pearl Assurance offices by Alec F. French and Partners and a department store designed by Sir John Burnet, Tait and Partners.*

## TABLE 2: CENTRAL AREA BOMB DAMAGE AND REBUILDING

Table 2 is a direct answer to the question—How have we done? Again, to have a basis for comparison we limited our query to the amount of damage sustained among shops and offices in central areas; although in several cases other users were included, in the replies the table shows unmistakably which city relatively lost the most in its commercial centre: Exeter. Fittingly, Exeter, head for head, has regained the most; and though the least in size, Canterbury is not far behind.

In spite of its heavy blitz, Coventry seemed to suffer lightly compared with Exeter: the explanation is that pre-war Coventry was poorly provided with shops, mainly small local shops, compared with those of the West Country shopping capital.

The analysis for areas regained is shown for 1939 to give the same standard as for areas lost; and for 1949, to give a more accurate picture of the achievements per head in the post-war city.

**DATA**
A comparison between the total floor area of shops and business premises which was *lost* by war damage and the floor area which has been *regained* by post-war reconstruction

**ANALYSIS**
A comparison between the number of square feet of shops and business premises *lost* per head of 1939 population and that *regained* compared to the 1939 and 1949 population

| City | Lost Sq. ft. | Regained Sq. ft. | Lost per head 1939 Sq. ft. | Regained per head 1939 Sq. ft. | Regained per head 1949 Sq. ft. |
|---|---|---|---|---|---|
| Bristol | 7,439,000* | — | 17·8 | — | — |
| Canterbury | 290,000 | 78,000 | 11·0 | 2·9 | 3·1 |
| Coventry | 702,600 | 134,208 | 3·1 | 0·6 | 0·5 |
| Exeter | 1,481,000 | 252,200 | 20·6 | 3·5 | 3·3 |
| Hull | 1,494,100 | 409,464 | 4·1 | 1·3 | 1·4 |
| Plymouth | 1,000,000‡ | 419,000‡ | 4·98 | 2·1 | 2·2 |
| Portsmouth | 800,000 | 300,000 | 3·1 | 1·2 | 1·3 |
| Southampton | 2,500,000† | 296,000† | 13·8 | 1·6 | 1·7 |

* Includes shops, offices, warehouses and industry
† Refers to shops, offices, light industrial and warehouse premises.
‡ Refers to shops only.

## TABLE 3: CENTRAL AREA REBUILDING WORK IN COURSE OF CONSTRUCTION

It is sometimes said that the rebuilding of central areas has scarcely begun. The tables partly give a lie to this popular view, for if one adds together the respective indices of this table with those of Table 2, it would be seen that, for shops and offices at least, by the time current work is finished, then Canterbury's rebuilding will be almost half done; Coventry will be two-thirds the way; even the stricken Exeter will be looking towards the halfway mark; Plymouth will be passed this mark; and Portsmouth will have actually replaced its losses. The figures from Plymouth being restricted to net shopping area only do not do full justice to the results of this city's bold measures for construction.

**DATA**
A Table showing how much floor space is in the course of construction being built for shops and business premises at the different stages of building

**ANALYSIS**
A Summary of the total floor area o shops and business premises in the course of construction, relating this total to the 1949 population

| City | 1 Just Started Sq. ft. | 2 Half-finished Sq. ft. | 3 Nearly Completed Sq. ft. | Total of Cols. 1, 2, 3 Sq. ft. | Total per Head |
|---|---|---|---|---|---|
| Bristol | — | — | — | — | — |
| Canterbury | 7,000 | — | 38,000 | 45,000 | 1·8 |
| Coventry | 44,020 | 348,796 | — | 392,816 | 1·5 |
| Exeter | 175,620 | 69,290 | 78,000 | 322,910 | 4·3 |
| Hull | 139,392 | 143,748 | — | 283,140 | 0·9 |
| Plymouth | 163,100* | 28,900* | 26,100* | 218,100 | 1·1 |
| Portsmouth | 300,000 | 150 000 | 5,000 | 455,000 | 4·1 |
| Southampton | 131,400 | 108,850 | 54,600 | 294,850 | 1·7 |

* Refers to shops only.

*Part of Bristol's central area development, showing the Council House, above right, a pre-war design recently completed by Vincent Harris; and foreground, the nine-storey block of offices by Alec F. French and Partners.*

## TABLE 4: CENTRAL AREA REBUILDING: BUILDING LICENCES

The value of building licences issued for all central area rebuilding is a measure of the general activity which has been going on. Table 4 shows why it is one always thinks of Plymouth being in the van of rebuilding; Southampton and Exeter come next. Bristol and Hull lag behind, and thereby, one feels sure, hangs a tale—a tale of planning difficulties.

DATA
A Table showing the total value of building licences and allowances for purchase of materials which had been issued for the Central Area reconstruction programmes up to the end of 1953

ANALYSIS
Value of building licences issued per head of 1949 population

| City | By end of 1953 £ | Per head £ |
|---|---|---|
| Bristol | 1,562,750 | 3·5 |
| Canterbury | 290,000 | 11·4 |
| Coventry | 2,739,565 | 10·8 |
| Exeter | 1,500,000 | 19·8 |
| Hull | 2,300,000 | 7·7 |
| Plymouth | 5,159,112 | 26·8 |
| Portsmouth | 2,800,000 | 12·2 |
| Southampton | 3,711,500* | 20·8 |

* Up to 31st October, 1953. This total includes the value of licences issued for repairs and alterations.

## TABLE 5: CENTRAL AREA REBUILDING: TIME-TABLE

Table 5 is a forecast of how long it is expected to be before all rebuilding is complete; we can see it may be anything from another five to twenty years! In Coventry, where the rate of rebuilding is expected to be speeded up, the finish will not be reached until about 1970, thirty years after the first damage was sustained, and there is a parallel position, even in Plymouth, where the present pace is to be continued. On the other hand, Canterbury and Southampton hope to finish within a reasonably short period of five years, and Hull apparently hopes to make up for its original delays.

DATA
A Table showing how long it is likely to be at the expected rate of rebuilding before all war damage is made good, and whether the pace of rebuilding is to be accelerated

ANALYSIS
The average number of years which the completion of making good war damage is likely to take in the eight cities reviewed

| City | No. of years | If pace is to be accelerated | |
|---|---|---|---|
| Bristol | 10* | Yes | |
| Canterbury | 5 | Yes | |
| Coventry | 20 | Yes | |
| Exeter | 10 | No | |
| Hull | 5—7 | Yes† | 11·4 years |
| Plymouth | 20 | No | |
| Portsmouth | 15 | Yes | |
| Southampton | 5 (approx.) | Yes | |

* Applies to new Central Shopping Area.
† Rate of rebuilding is expected to increase up to mid-1955; thereafter remaining steady.

## TABLE 6: CENTRAL AREA REBUILDING INCREASE OR DECREASE IN SIZE

To improve the perspective, we show by Table 6 something of the character of central shopping and business areas. More than, perhaps, any other table in this review, Table 6 reveals the almost astonishing range in areas of shops and offices which are to be found among these cities. It demonstrates forcibly how misleading average figures for accommodation can be—the gap between the lowest figure, that of Portsmouth (5·2 sq. ft. per head in 1939), and the highest figure, that of Canterbury, (46·8 sq. ft. per head in 1939) is ninefold. Actually, Canterbury in 1939 seems to have been slightly over-shopped; it is the only city to show a tendency, however small, relatively to aim at contracting a shopping area; whereas Portsmouth aims to expand by something more than 50 per cent., which may account for the exceptional progress already alluded to. The aspirations of Hull, regional shopping centre though it is, appear to be surprising.

DATA
As an indication of whether the Central Area is increasing or decreasing in size, a comparison between the total floor area of shops and offices which was available in 1939 and is expected to be available in 1971

ANALYSIS
Relating the floor area of shops and offices available in 1939 and expected to be available in 1971 to the population in the same year

| City | 1939 (sq. ft.) | 1971 (sq. ft.) | 1939 (sq. ft.) | 1971 (sq. ft.) |
|---|---|---|---|---|
| Bristol .. | 6,850,000 | 8,000,000 (approx.) | 16·3 | 19·1 |
| Canterbury .. | 1,234,000 | 1,600,000 | 46·8 | 45·7 |
| Coventry .. | 1 345,000 | 2,573,500 | 5·9 | 7·7 |
| Exeter .. | 2,273,675 | 2,945,460 | 31·7 | 33·7 |
| Hull .. .. | 4,721,904* | 6,089,688 | 14·9 | 21·9 |
| Plymouth .. | 1,538,650† | 2,154,800† | 7·7 | 10·9 |
| Portsmouth .. | 1,350,000 | 2,000,000 | 5·2 | 9·8 |
| Southampton | 3,746,160* | 4,356,000 | 20·7 | 20·8 |

* Figures supplied in acres.
† Net shopping floor space (includes Devonport).

## TABLE 7: WAR DAMAGE GENERALLY IN THE CITY

To concentrate on the progress of rebuilding without showing a glimpse of post-war building generally would be to present a distorted picture. From the information available we can again see that the progress made, expressed in terms of overall values lost and regained, varies widely. To look at percentages, regardless of the actual poundage value entailed, is misleading: for instance, in terms of pure percentages it will be seen that Canterbury has gained more than twice the rateable value it lost, whereas Portsmouth hasn't yet made good one-third of its losses, which were, one notes, ten times as high as Canterbury's (but reference back to Table 1 shows that Portsmouth's population was also ten times as large).

The position in the middle range of this table is perhaps indicative of what has been happening in the average city. Exeter, Hull and Plymouth are by now slightly up on their losses.

A word of explanation is needed to appreciate these figures for rateable values regained: they represent the values of war-damaged buildings rebuilt, other new buildings, and increased rateable values of standing properties. In one or two cases we can see the losses which have to be recovered.

DATA
A comparison between the total rateable value lost by war damage, how much total rateable value has been regained up to date by building generally, war damage or otherwise, and, if known, the rateable value of buildings still to be rebuilt after war damage

ANALYSIS
Relating the total rateable value lost by war damage to the 1939 population and the total rateable value regained to the 1949 population

| City | Lost £ | Regained £ | To be done £ | Lost £ | Regained £ |
|---|---|---|---|---|---|
| Bristol .. .. .. | — | — | — | — | — |
| Canterbury .. .. | 29,129 | 69,589 | 15,000 | 1·1 | 2·7 |
| Coventry .. .. | 200,057 | 100,000 | — | 0·9 | 0·4 |
| Exeter .. .. .. | 112,990 | 144,547 | — | 1·6 | 1·9 |
| Hull .. .. .. | 242,500 | 304,000 | — | 0·8 | 1·02 |
| Plymouth .. .. | 396,222 | 420,082 | — | 1·97 | 2·2 |
| Portsmouth .. .. | 283,289 | 74,359* | 208,930 | 1·1 | 0·3 |
| Southampton .. .. | 345,000 | — | — | 1·9 | — |

* Refers to rebuilding only.

## TABLE 8: LOCAL BUILDING FORCE

As a conclusion to the review of progress in rebuilding central areas, we append Table 8 which shows one of the dominant factors in the speed of building—the strength of the local labour force. Again we see wide variations. Looking at this table one is naturally tempted to pose the question: have the cities which have done most, the most labour available? Let us see. Our surmise is correct: being above the national average, Exeter and Plymouth are comparatively well off, whereas Coventry and Portsmouth fare badly and to that extent depend largely on imported labour. Canterbury is not so well off either, but the city is so placed geographically that to import labour must be fairly easy. Coventry has to meet the rival claims of its factories, whereas Portsmouth has to compete with the demands of the Army and Navy for labour.

DATA
A Table showing the comparative size of building and civil engineering labour force available compared with other trades

ANALYSIS

| City | Percentage |
|---|---|
| Bristol .. .. .. .. .. .. | — |
| Canterbury .. .. .. .. .. .. | 3·4 |
| Coventry .. .. .. .. .. .. | 1·5 |
| Exeter .. .. .. .. .. .. | 9·10 |
| Hull .. .. .. .. .. .. | 6·7 |
| Plymouth .. .. .. .. .. .. | 12·33 |
| Portsmouth .. .. .. .. .. .. | 1·6 |
| Southampton .. .. .. .. .. | 7·4 |

The percentage figure for the country as a whole is 6·5%

It is interesting to compare this table with Table 4: the order numerically has much in common.

The perspective changes: the view is now towards the housing side of the city's building programme.

Again we look at the position as it was in 1939. The analysis begins by showing in each case the average number of heads per dwelling, and in this instance we find a striking affinity with the average figures for the whole country usually reckoned as 3·75 (the 1951 Sample Census gives this as 3·21). Only the naval towns of Portsmouth and Plymouth, especially the latter, are notably higher than the national average figure.

The same information is also expressed as a percentage to provide a standard for subsequent data.

How do these cities stand in relation to one another's housing lists? The first impression is, again, one of relative uniformity, but a closer look reveals an interesting variation: the semi-residential cities of Canterbury and Exeter have the smallest needs; next come the industrial cities of Bristol and Coventry; then the ports of Hull, Plymouth and Southampton; while Portsmouth caps the list with a housing need proportionately almost twice as great as Exeter and Canterbury.

It is interesting to see a comment from Hull, where apparently the trend, at the present rate of building, is that the total size of the waiting list is not likely to decrease in the near future, but the number of people without houses is diminishing, the present proportion of the list being just over half. From Bristol there is a comment that in the early stages of post-war housing, the housing list comprised many large families, but now there are only 1,483 families of five persons or over on the list. It is also observed that whereas in 1946 there were only 197 vacant properties in the city, there are now about 1,000 dwellings vacant.

## TABLE 9: HOUSING: PRE-WAR AND CURRENT NEEDS

DATA
A Table showing by the number of dwellings available in 1939 how housing needs were met before the war, the scale of the current demand for housing and whether this shows any signs of diminishing

ANALYSIS
Relating number of dwellings available to the population in 1939 and the current Housing List to the post-war population

| City | No. of dwellings 1939 | Housing List 1953 | Whether diminishing | 1939 Heads per dwelling | 1939 No. of dwellings per 100 | 1953 Housing List per 100 |
|---|---|---|---|---|---|---|
| Bristol .. .. | 108,900 | 18,017* | Yes | 3·8 | 25·99 | 4·03 |
| Canterbury .. .. | 7,300 | 920 | Yes | 3·6 | 27·3 | 3·6 |
| Coventry .. .. | 61,580 | 11,811 | No | 3·7 | 26·8 | 4·6 |
| Exeter .. .. | 18,500 | 2,700 | Yes | 3·9 | 25·7 | 3·6 |
| Hull .. .. .. | 91,000 | 15,927 | No | 3·5 | 28·6 | 5·3 |
| Plymouth .. .. | 43,000 | 9,500 | No | 4·7 | 21·4 | 4·9 |
| Portsmouth .. | 63,508 | 15,056 | No | 4·1 | 24·5 | 6·5 |
| Southampton .. | 47,500 | 9,435 | Yes | 3·8 | 26·2 | 5·3 |

* List to be revised 1954.

As to the post-war records for house building, Canterbury again, relatively, has pushed itself into the lead, but in terms of sheer numbers Bristol has by far the best record, though Coventry is to the fore for current building. How does the record of building compare with needs? Portsmouth has the greatest need but almost the lowest output (output, though, has been held back by a very real shortage of land); whereas Canterbury has the reverse record; Hull has the least impressive record; places like Coventry and Plymouth take a middle place. Actually Plymouth, whose needs are fairly high, takes second place in housing progress.

## TABLE 10: HOUSING: POST-WAR BUILDINGS

DATA
A Table showing the number of post-war permanent dwellings which has been built up to September 30, 1953, and the current rate of building in numbers of dwellings per year

ANALYSIS
A comparison between the total number of post-war dwellings built and the current rate of building to per 100 of 1949 population

| City | No. of Dwellings Built | Current Rate of Building | No. of Dwellings Built | Current Rate of Building |
|---|---|---|---|---|
| Bristol .. .. .. | 13,859 | 1,800 | 3·10 | 0·4 |
| Canterbury .. | 1,632 | 350 | 6·4 | 1·4 |
| Coventry .. .. .. | 8,863 | 2,000 | 3·5 | 0·8 |
| Exeter .. .. .. | 2,344 | 400 | 3·1 | 0·5 |
| Hull .. .. .. | 4,650 | 950 | 1·6 | 0·3 |
| Plymouth .. .. .. | 8,802 | 1,200 | 4·6 | 0·6 |
| Portsmouth .. .. | 4,604 | 1,100 | 2·0 | 0·5 |
| Southampton .. .. | 6,538 | 1,300 | 3·7 | 0·7 |


*The new shops and stores on the east side of Above Bar Street, Southampton. The co-ordinating architect for this part of the main street was Rowland Pierce.*

## 'MURAC' P.E.P. PLASTIC EMULSION PAINT

*Note.—Except where otherwise stated, Murac P.E.P. should be thinned with about half pint of water to the gallon.*

| Material | Preparation | Treatment |
|---|---|---|
| Plaster | New plaster may be coated with Murac P.E.P., thinned to a consistency where it flows easily, but not until excess water has evaporated and the new plaster is surface-dry. At least 14 days good drying weather is recommended. On very absorbent surfaces the first coat of Murac P.E.P. may be thinned with up to an equal volume of water.<br>Heavily-trowelled, quick-setting plasters, e.g. Sirapite, Keene's, Parian, should be lightly rubbed with No. 0 glasspaper to remove glossy surface.<br>Where water-soluble stains are present in the plaster, these, and the area immediately surrounding them, should be "spot-primed" with Murac Primer. In bad cases the whole surface should be coated with Murac Primer. | 1st coat: Murac P.E.P. thinned as required, dependent on absorbency of surface.<br>2nd coat: Murac P.E.P. |
| Wallpaper | Unglazed wallpaper should be treated as a very absorbent surface. Glazed wallpapers require individual specification. Where paper is in good condition it should be cleaned down and tested for adhesion. Where in poor condition it should be stripped down and treated as for a very absorbent surface.<br>A small area should be coated to determine whether pattern contains any dies soluble in water: if so, a first coat of Murac Primer is recommended. | 1st coat: Murac P.E.P. thinned with at least 25% water.<br>2nd coat: Murac P.E.P. |
| Non-Washable Distemper and Ceiling White<br><br>Oil-bound Distemper | Where in good condition the first coat of Murac P.E.P. may be applied direct. Where flaking occurs, or where there is a heavy "build-up" of previous coats, the old coating should be removed and treated as a very absorbent surface. | 1st coat: Murac P.E.P. thinned with an equal quantity of water.<br>2nd coat: Murac P.E.P. |
| Emulsion Paint | Where the surface is in good condition it should be washed with detergent and the first coat of Murac P.E.P. applied direct. Where the old coat is flaking or powdering, it should be completely removed with Ripping Paint Remover and the surface washed with white spirit. | 1st coat: Murac P.E.P.<br>2nd coat: Murac P.E.P. |
| Flat Oil Paint<br><br>Gloss Paint or Enamel | Where in good condition it should be washed down. Gloss paint or enamel should be rubbed down to a matt surface with fairly coarse wet-and-dry paper. Murac P.E.P. is then applied direct. Where there is flaking or saponification the paint should be completely removed with Ripping Paint Remover and the surface washed with white spirit. For gloss paint or enamel a blow-lamp may be used: in this case water-soluble stains from charring may occur, and the surface should therefore be primed with Bristol Lead Primer 525/1 and allowed to dry 16 hours.<br>*Note.—Murac P.E.P. should not be applied to previously oil-painted surfaces in rooms subject to severe condensation.* | 1st coat: Murac P.E.P.<br>2nd coat: Murac P.E.P. |
| Building Boards | *Hardboards* should be lightly rubbed with No. 0 glasspaper to break the surface, and a first coat of Murac P.E.P. applied, thinned with 25% water.<br>*Normal soft wallboards* and ceiling boards should be given a first coat of Murac P.E.P. thinned with an equal quantity of water.<br>*Very absorbent ceiling boards* need to be treated specially, and appropriate specification may be obtained, on request, from the paint manufacturer.<br>*Low and medium density wood chipboards:* a first coat of Murac Primer should be applied.<br>*Note.—It is advisable to coat the backs and edges of building boards with Brolaceal Damp- and Alkali-resisting Primer before fixing, to prevent the penetration of moisture.* | 1st coat: Murac P.E.P. thinned with water as required, dependent on absorbency of surface.<br>2nd coat: Murac P.E.P. |
| Asbestos-Cement | Any white deposit must be washed off with water and the surface allowed to dry thoroughly. Backs and edges must be sealed with Brolaceal Damp- and Alkali-resisting Primer. | 1st coat: Murac P.E.P. thinned with an equal quantity of water.<br>2nd coat: Murac P.E.P. |
| Woodwork, Metalwork | See general notes under "Preparation and Priming of Surfaces." | 1st coat: Murac P.E.P.<br>2nd coat: Murac P.E.P. |
| Exterior Wall Surfaces | New or bare masonry, brickwork, cement, stonework, etc., must be thoroughly cleaned down. Previously-painted surfaces must be prepared in accordance with appropriate specification previously given. See also general notes.<br>Cement paint and colour washes, if in sound condition, should be re-coated with Murac P.E.P. thinned with an equal quantity of water for the first coat. If there are signs of flaking, the old cement paint should be completely removed. Murac P.E.P. should not be applied on exterior walls previously oil-painted. | 1st coat: Murac P.E.P. thinned with water as required, dependent on absorbency of surface.<br>2nd coat: Murac P.E.P. |

# 38.D2 'MURAC' P.E.P. PLASTIC EMULSION PAINT

**This Sheet** describes Murac P.E.P. plastic emulsion paint which is suitable for internal and some external surfaces. The table gives specifications for its application to old and new surfaces and should be read in conjunction with the following notes.

## General

Murac P.E.P. is an emulsion paint based on the latest manufacturing techniques in that field. The polyvinyl acetate plastic medium is free from oil and non-oxidising and the paint contains 100% of primary pigment. It is exceptionally easy to apply, non-toxic and leaves no smell. It does not normally require special primers or undercoats. It dries with a matt dull sheen and can be re-coated in 1 to 2 hours. These qualities make it particularly suitable for use in factories, hospitals, hotels and schools, where the minimum disruption of normal activities is essential. Murac P.E.P. is suitable for almost all interior decoration, but should not be used over existing non-porous sufaces (such as those previously oil-painted) in rooms subject to severe condensation. It is suitable for the exterior treatment of walls, but because it is itself semi-porous should not be specified for exterior woodwork or metalwork. Such surfaces require the maximum protection that only a full gloss finish can give.

## Preparation and Priming of Surfaces

Surfaces to be treated must be dry, clean and free from powdering or loose particles. Particular care should be taken to ensure freedom from oil or grease. Where there are traces of mould on masonry, brickwork, concrete or rendering, they should be removed with scraper or wire-brush and washed down with a fungicide. Murac P.E.P. will withstand mild efflorescence, but heavy efflorescence will later disrupt the film. Where there are signs of efflorescence the surface must in no circumstances be washed, but the deposit removed by dry brushing and the first coat of Murac P.E.P. thinned with water to take up the absorbency.

Murac P.E.P. requires no special primer, but the first coat should be thinned with sufficient water to prevent its being completely absorbed by the surface treated and to facilitate brushing. Normally 1 pint of water added to each gallon of paint is sufficient to give a satisfactory result, but on very absorbent surfaces it may be necessary to thin with any quantity up to an equal volume of water. Thinning to the latter extent is recommended where there is an existing surface of distemper. These instructions apply to all surfaces except bare metal and exterior woodwork.

*Woodwork:* Normal new interior woodwork may be painted with Murac P.E.P. thinned with about 25% water for the first coat, followed by the normal consistency. Very hard woods, such as teak, should not be treated with Murac P.E.P. Where old paint has been removed by blow-lamp, water-soluble stains from charring may occur: this can be overcome by the use of Bristol Lead Primer 525/1 which should be allowed to dry 16 hours minimum before Murac P.E.P. is applied. Old paint may be removed with Ripping Paint Remover, the surface washed with white spirit and then treated as new woodwork. Where old paint is sound, specifications given in table for Flat or Gloss Paint should be followed. Murac P.E.P. is not recommended for exterior woodwork.

*Metal surfaces:* These should be clean and free from grease. On ferrous metals all loose rust should be removed and any remaining rust treated with Bristol Phosphate Rust-inhibiting Solution. This should be followed by two good coats of Bristol Anti-rust Primer 570/21: owing to the permeability to water vapour of Murac P.E.P., great care should be taken in carrying out the priming. Aluminium and similar non-ferrous alloys should be given two coats of Chromate Primer for Aluminium 570/7, allowed to dry quite hard before the Murac P.E.P. is applied. Murac P.E.P. should not be applied on metalwork, even when primed as described, in rooms subject to severe condensation, or on exterior surfaces.

## Colours

Murac P.E.P. is available in 20 basic colours. The standard colours may be mixed and a chart is available showing 100 additional colours so produced. The paint should never be mixed with ordinary oil paints and oil stainers should not be added. A range of special stainers is available for use with Murac P.E.P.; for providing eggshell or semi-gloss finishes Murac P.E.P. Clear Glaze may be obtained.

## Maintenance

When dry, Murac P.E.P. is as hard and durable as oil paint and may be washed and scrubbed as necessary.

## Further Information

The manufacturer maintains a technical advisory bureau which may be consulted on colour schemes and techniques of paint application.

*Compiled from information supplied by:*

**John Hall and Sons (Bristol and London) Ltd.**
**Address:** Hengrove, Bristol 4.
**Telephone:** Whitchurch 2162.
**London Office:** 1-5, St. Pancras Way, London, N.W.1.
**Telephone:** Euston 2262.

# CONCRETE | PRESTRESSED | APPLICATIONS



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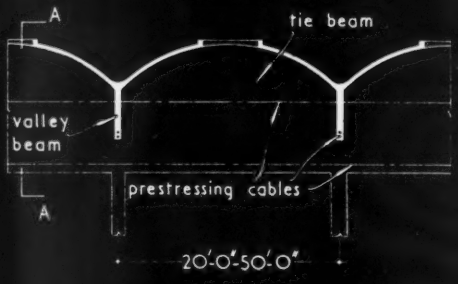
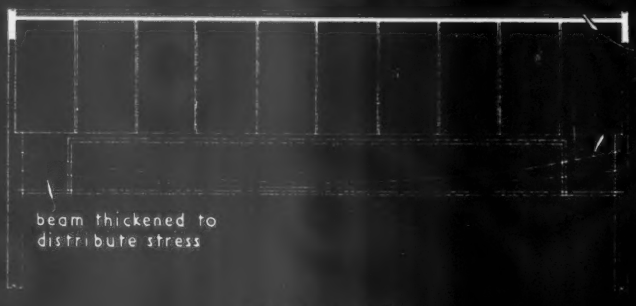
longitudinal section at A - A

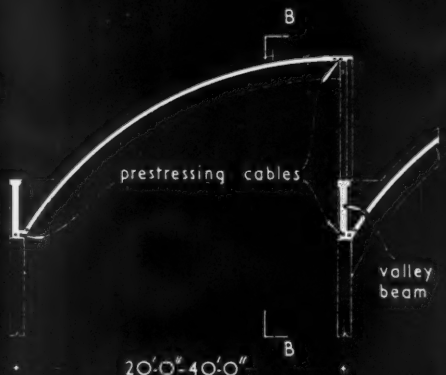



cross section

BARREL VAULT.

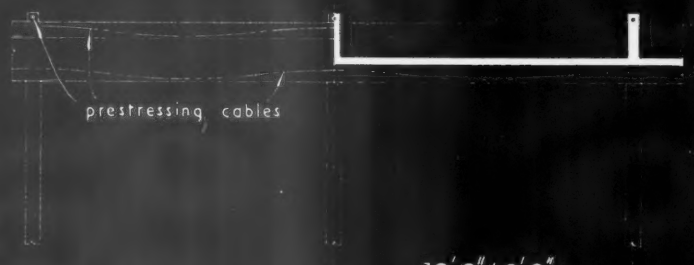



longitudinal section at B - B

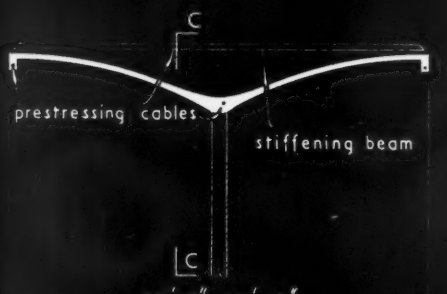



cross section

NORTHLIGHT ROOF.

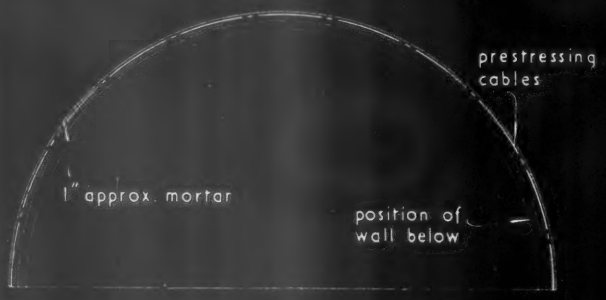



part elevation and longitudinal section at C - C

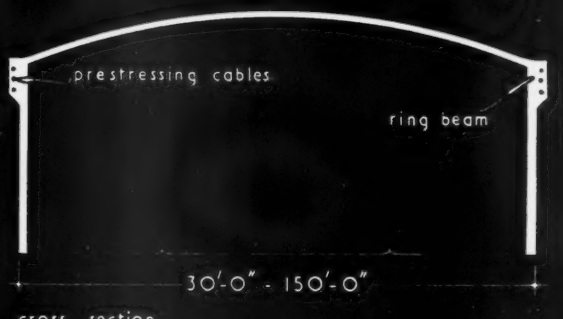



cross section

PLATFORM ROOF.




part plan




cross section

DOME.

## PRESTRESSED CONCRETE : SHELL ROOFS.

Compiled from information supplied by Stressed Concrete Design Limited.

# 6.B1 PRESTRESSED CONCRETE : SHELL ROOFS

**This Sheet,** which is the second of a series outlining the principles and applications of prestressing, describes prestressed concrete shell roof structures. It should be read in conjunction with Sheet 6.A1 which deals with the principles of prestressed concrete.

## General

The same reasons influence the choice of shell roof construction over other forms whether the shell is prestressed or not, the effect of prestressing being to make longer and wider spans an economic possibility. Of shell roofs in general it may be said that they give a wider clear floor space, that they make for better lighting conditions, that they provide no ledges where dust may collect and that they require very little maintenance.

The first of these advantages is much enhanced by prestressing. With normal reinforced concrete the amount of reinforcing steel in the valley beams becomes inconveniently large where the spans exceed 75 ft. The use of prestressing enables full advantage to be taken of the maximum strength of the concrete and steel which can be economically provided at the site; consequently, the size of the valley beams themselves may be reduced and the smaller area of steel gives more room for concrete. In addition, the prestressing cables are so arranged that they apply a positive upward force on the structure, opposing the applied dead and live loads. Hence, the prestressing reduces the movements in the shell and naturally reduces the amount of reinforcement required in this part as well as in the valley beams.

As there is nothing new about the materials or labour used in shell roof construction, any contractor competent to carry out normal reinforced concrete work can do the job. However, it should be remembered that for the shell itself considerable quantities of scaffolding and formwork are required. Unless these can be used a number of times on the same site this form of construction will prove fairly costly.

*Lighting:* Up to 25% of the area of a shell roof can be cut out to provide for roof lighting, preferably near the crown of the shell, or alternatively dome rooflights may be distributed over the roof area, provided that they are reasonably clear of the edges.

*Expansion joints:* Since long-span roofs are subject to appreciable movement due to temperature changes, care should be taken to insert expansion joints wherever brickwork and glazing butt against the main structure.

## Applications

*Barrel vault:* The diagram shows normal barrel vault construction with the prestressing cables incorporated in the valley beam. If the soffit of the valley beam is flat, the cables may be carried upwards towards the ends to give the required uplift. The upward-curved valley beam illustrated enables the prestressing cable to be kept in a straight line, which aids placing and stressing of the cable. The tie beams at the ends of the barrel vault have been shown with prestressing cables but normal reinforcement may be used with equal effect.

*North-light roof:* The diagram shows a northlight roof where the cables are arranged at the top of the shell and in the valley beams. If the cables are placed in the shell itself it may be necessary to thicken the shell slightly to give the required cover to the prestressing wires. It is important to employ a cable form in which the friction is reduced to a minimum. The valley beam is thickened in the region of the supports to distribute the stress concentration.

*Platform roof:* Structurally the platform roof is a variant of the above forms. The introduction of prestressing permits increased spans with a reduction of column supports and stiffeners.

*Dome:* Wires are stressed round the ring beam to take the "hoop" tension produced by dead and live loads. This beam is prestressed after the concrete in the dome has been placed. The prestressing force tends to lift the dome off its shuttering, making it easier to strip. After tensioning, the cables are protected by 1 in. approx. pneumatically-applied mortar. This form of construction is particularly suitable for roofing concrete tanks of 30 ft. diameter or more.

## Further Information

Stressed Concrete Design Limited maintains a department which is available to answer questions and advise on technical and design problems dealing with this subject generally.

*Compiled from information supplied by:*

**Stressed Concrete Design Limited.**
**Address:** Lynton House, 54, South Side, Clapham Common, London, S.W.4.
**Telephone:** Macaulay 3391/2.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The significant thing about even such a city as Plymouth is that the number of houses built since the war just about matches the number required today; and there are no signs of the need diminishing.

A comparison between Analyses of the 1953 Housing List (Table 9) and the current rate of building (Table 10) is very revealing, and we can see that Bristol's large annual output is sufficient to meet only about one-tenth of the current demand, though this may be somewhat exaggerated; Canterbury's output is just over one-third of the current demand, Coventry's about one-sixth, Exeter's about one-seventh, and Hull's, again, about one-sixteenth.

Clearly some considerable thinking is needed on how to plan for the future: on how the housing list is likely to maintain itself; on what effects the present policy for improving old dwellings may have.

The scale of the present housing campaign is sharply outlined by looking at the Analyses in another way. Compare current rate of building (Table 10) with number of dwellings in 1939; Coventry, for instance, is building at a rate which will produce in 30 years as many dwellings as the city had in 1939 (that then was the size of about four new towns put together!)

## TABLE 11: HOUSING: POST-WAR EXPANSION IN THE CITY

With the tables on Central Area Rebuilding, we were looking inwards into the city; we were looking at the manifestations of the wounded heart struggling to attain its old vigour, but in the meanwhile great activity has been occurring on the extremities of the body, which in every case has pushed out its urban tentacles on several sides. In some cases so far, that the chief impression of post-war building is of housing estates, loosely connected satellities to their parent body, but without yet a life of their own. To get the measure of this expansion one has only to compare Table 11 with Table 9: for instance, Bristol by 1971 plans to build on its periphery one-fifth of the number of houses it had pre-war, and many more beyond its boundary. Canterbury has shown an exceptionally high rate, two-thirds of the 1939 figure will be added to the periphery by 1971. Coventry will add from between one-third to one-half. Hull and other cities are more reasonable in that their ratio is limited to about 1:5. (Apart, that is, from building off-shoots or satellites in other authorities' areas.)

**DATA**
A Table indicating the extent of post-war expansion of the City by showing approximately the number of dwellings which are likely to be built in the outer areas between 1945 and 1971

**ANALYSIS**
Relating the number of dwellings to be built in the outer areas to per 100 of 1949 population

| City | No. of Dwellings to be built in outer areas | No. of Dwellings to be built |
|---|---|---|
| Bristol | 22,000* | 4·9 |
| Canterbury | 5,000 | 19·7 |
| Coventry | 25,000 | 9·8 |
| Exeter | — | — |
| Hull | 14,410* | 4·8 |
| Plymouth | 12,400* | 6·4 |
| Portsmouth | 12,000 | 5·2 |
| Southampton | 9,920 | 5·6 |

* Houses within the present City Boundary or within Boundary Extension, but not including overspill. The overspill figures are as follows:

| | | |
|---|---|---|
| Bristol | 16,000 dwellings | |
| Hull | 9,030 | ,, |
| Plymouth | 4,000 | ,, |
| Portsmouth | 12,000 | ,, approx. |

## TABLE 12: HOUSING: SLUM CLEARANCE

Now, we look inwards again at an aspect of the programme which is coming to life slowly: slum clearance. We asked the Planning Officers a number of questions about their Slum Clearance and House Improvement programmes. The interest of their answers is more in what they don't say than what they do. We asked how many slum dwellings are expected to be cleared by 1971—Table 12 gives their replies so far as they could be given.

Among the five cities for which data are available, Hull clearly has the worst problem of all: it has three times the number of houses to clear as it has built post-war. Portsmouth comes second on the list.

We asked, too, if such clearances would include all dwellings now reckoned as slums or near-slums. In three cases the answer was Yes. Bristol added the comment that their estimate was based on the assumption that any house reaching the age of 100 years by 1971 would be worn out, but allowance was made for a proportion of the houses being of a more substantial type which could be expected to have a longer life than this, and Bristol has a good many.

We asked, under the powers of the 1949 Housing Act, whether the City Council has improved any old houses? The answers were a unanimous No. But again Bristol commented: "The Council have, however, acquired 120 houses which have either been converted into flats or have been improved to the standard contemplated in the Housing Act, 1949. The resultant dwellings have been let at rents which cover the cost of conversion or improvement and, therefore, in no case has there been any grounds for applying for Exchequer contribution.

A further question was—Generally, has the Council any policy for improving substandard houses not liable for slum clearance and expected to have at least another 20-30 years of life?

**DATA**
A Table indicating the extent of the slum clearance programme by showing how many slum dwellings are expected to be cleared by 1971

**ANALYSIS**
Relating the number of slum dwellings to be cleared to per 100 of 1949 population

| City | Number of Slum Dwellings to be cleared | Number of Slum Dwellings to be cleared |
|---|---|---|
| Bristol | No figure | — |
| Canterbury | No figure | — |
| Coventry | 1,200 | 0·5 |
| Exeter | 800 | 1·1 |
| Hull | 15,469 | 5·2 |
| Plymouth | No figure | — |
| Portsmouth | 7,000 | 3·0 |
| Southampton | 2,500 | 1·4 |

Bristol replied, "There is no set policy but the Council are prepared to purchase, under Part V of the Housing Act, 1936, suitable houses offered by the owners which can be made fit. In addition, the Housing Committee controls a considerable number of older houses standing on land purchased for housing sites, taken over from other Committees or acquired in various ways, many of which have been or will be improved. The Committee are also contemplating certain improvements to the majority of 14,500 Council houses erected between the wars which lack modern amenities such as hot water supply, modern grates, etc.

Canterbury replied: "Improvement Grants to owners. Further policy not yet settled."

Coventry is willing to make grants but no applications had been received which were eligible.

Hull is enforcing repairs and where possible making improvements under the Public Health Act, 1936, and Section 8 of the Housing Act, 1936.

Then we asked "Has an estimate been made of numbers of working-class houses which are likely to be suitable for improvements?" The replies were two: Coventry estimates 1,500; and Bristol considers that there may be 20,000 suitable for repair.

The next question was: "Have you in your City substantial numbers of other types of houses which are deteriorating because of lack of upkeep?" There were five answers Yes; three No.

Our last question was, "If so, has the number been estimated?" The answers were unanimously No.

## TABLE 13: SCHOOLS: POST-WAR BUILDING

The post-war school-building programme has been one of the finest features of post-war Britain. Table 13 shows what the selected cities have done quantitatively in this way and though the view is a little confused by the variations between the form of data presented, the general picture is clear enough. By and large a school place has been provided for every dwelling built post-war, though Coventry has done exceptionally well, numerically, in achieving nearly two school places built for each dwelling. Nor is this latter a mere statistical arrangement for from Table 13 Coventry's record shines out. The other impression is that cities that have done best in other directions have taken a lead in school-building.

DATA
A Table indicating the extent of post-war school building programme by showing number of school places which have been provided since the war and the number which are in the course of construction

ANALYSIS
Relating the number of school places provided and in course of construction to per 100 of 1949 population

| City | Provided | In Course of Construction | Provided | In Course of Construction |
|---|---|---|---|---|
| Bristol .. .. .. | 9,870 | 4,540* | 2·2 | 1·01 |
| Canterbury .. .. | 2,190† | 450 | 8·6 | 1·8 |
| Coventry .. .. .. | 15,570 | 5,020 | 6·1 | 1·97 |
| Exeter .. .. .. | 2,850‡ | 240 | 3·8 | 0·3 |
| Hull .. .. .. | 5,710§ | 2,560 | 1·9 | 0·9 |
| Plymouth .. .. .. | 9,810‖ | 1,870 | 5·1 | 0·97 |
| Portsmouth .. .. | 5,415 | 980 | 2·3 | 0·4 |
| Southampton .. .. | 8,360¶ | 1,980 | 4·7 | 1·1 |

* Bristol: Does not include any temporary accommodation and huts.
† Canterbury: Permanent building, 1,280; conversions and extensions, 470; H.O.R.S.A., 440, and temporary building for further education, 450.
‡ Exeter: Figures for new schools only.
§ Hull: In addition, 3,150 temporary places.
‖ Plymouth: Permanent, 7,810; Semi-permanent, 2,000; Total, 9,810 (excluding 1,000 permanent places by permanent reinstatement of war-damaged schools).
¶ Southampton: Includes temporary and permanent accommodation.

## TABLE 14: FACTORIES: POST-WAR BUILDINGS

The fifth side to the programme counterbalances some earlier views: now we see the reverse side of the picture. In this instance Hull dominates the table, but the figure is swollen by the large areas demanded for storage. The total area of 3,810,000 square feet exceeds by almost a million square feet the industrial floor area destroyed during the war. A more balanced picture is presented by Coventry and Exeter, who have each done pretty well. It is interesting to see how Plymouth and Portsmouth have more or less equal records; fittingly, residential Canterbury comes bottom.

Had we been writing pre-war we should have included a sixth aspect to the cities' building programmes: Public Buildings of all kinds, but this is a side which has been so neglected since the war that it wasn't worth having a table to give a view.

The foregoing, then, is a picture sketched, however imperfectly, of the panorama of the Bombed Cities rebuilding. It has given us a measure of their achievements; a no mean achievement either when one thinks of it in terms of over 51,000 houses, which is the equivalent of about three new towns, and almost 60,000 school places having been provided, apart from work finished and work in progress to the value of about £20,000,000 (as regards shops and office mainly) on the reconstruction of central areas, by the eight cities described in the tables. What shows forth so clearly from the tables is that up to now the building effort, as opposed to planning and negotiation, in the central areas, has formed proportionately only a small part of the total achievement. Whether a greater effort could have been made would require a study of the national capital investment policy, which is not the purpose of this article, but assuming the system of priority adopted by this country has been right, the implications are important. The reconstruction of the heart of the cities is only one among many programmes of rebuilding and new building and adaptation which each of these cities has to continue to face for a long time. In time, as we mention later, this system of priorities may have a decisive bearing on the development of the town centres themselves.

DATA
A Table indicating the extent of industrial building since the war by showing how many square feet of factory floor space has been provided and the number of square feet in the course of construction

ANALYSIS
Relating the number of square feet provided and in course of construction to per 100 of 1949 population

| City | Provided Sq. ft. | In Course of Construction Sq. ft. | Provided Sq. ft. | In Course of Construction Sq. ft. |
|---|---|---|---|---|
| Bristol .. .. .. | No information | | — | — |
| Canterbury .. .. | 32,000 | 20,000 | 126 | 79 |
| Coventry .. .. .. | 2,022,500 | 250,000 | 795 | 98 |
| Exeter .. .. .. | 595,600 | 100,000 | 788 | 132 |
| Hull .. .. .. | 3,810,000* | 290,000 | 1,279 | 97 |
| Plymouth .. .. .. | 731,851 | 112,990 | 381 | 59 |
| Portsmouth .. .. | 710,000 | 278,000 | 309 | 121 |
| Southampton .. .. | 320,181 | 96,474 | 180 | 54 |

* Includes industrial warehouses, grain mills, timber storage sheds.

## some comments by the planning officers

Before we put down a few impressions of the relative success which has been attained qualitatively, it is worth pausing to look at some comments which the Planning Officers have sent us in reply to some questions we asked in support of those on progress.

The following notes give an idea of how far the Planning Officers are satisfied with the present administrative and financial background and at what points they find frustration.

We asked: "Have there been any special local factors which have affected the rate of central area rebuilding?"

By and large, the answers shewed that central area rebuilding has been delayed through difficulties over compulsory acquisition of land; length of time required for negotiations where a complete change of location is entailed; a shortage of labour has been felt in some instances; and universally, progress has been held back, as everyone knows, by the paucity of building licences available.

Our next question: "Have you any views on the working of the 1944-47-53 Town and Country Planning Acts in respect of the Central Area and the City generally?"

Hugh Wilson, of Canterbury, it may be said, speaks for all when he wrote, "1947 Act appears to be working reasonably well from the points of view of physical planning, but the vital problems of compensation and betterment have not been solved. Unfortunately, the two aspects of planning—development and finance—must be interconnected and the present outlook is unsettled. Much will depend on the quality of vision displayed by the Central Government."

A further question was: "What, in your opinion, are the deficiencies in legislation?"

From Canterbury and Coventry came the comment that the financial arrangements tend to be harsh in their effect on Local Authorities; Canterbury voiced the fear that through the failure of development charge proposals in the 1947 Act, the abandonment of the collection of betterment leading to the Government's new proposals might result in an unreasonable burden on Local Authorities.

Plymouth added that Section 19 procedure (obligation to purchase land on refusal of permission in certain cases) forces acquisition in advance of requirements even when properties are subject to compulsory purchase orders.

The final question was: "After your experience over the last few years both in building and in letting new buildings, are you finding any new problems arising—whether of finance or of any other matter?"

Canterbury finds compensation problems much to the fore and sums up its experience, which has been gained in the process of rebuilding Canterbury's Central Area by developers on land which has been made available to them by the Corporation on 99 years' lease. The compensation problems, which are sometimes serious and which are having a detrimental effect on planning, are:—

Land Tribunal "generosity" to claimants—the costs of current land site acquisitions are based on the current value of the area, which is sometimes enhanced by the improvements already carried out by the Local Authority at great expense. The arrangement between the War Damage Commission and the Local Authority for "cost-of-works" building is not always proving an advantage to the Local Authority. The Local Authority relieves the War Damage Commission of part of their burden by paying notional cost of reinstatement at present-day values to claimants and only receives in return "value payments" based on 1939 values and "up-lift" from the Commission.

(The War Damage Commission, apparently, is generally the gainer by this arrangement, which can lead to the scrapping of plans for modern lay-out.)

The disposal of land by large multiple firms to investing bodies and their subsequent lease back to the original Vendor, both at unrealistic figures above market price, is helping to make purchase for planning by the Local Authority impracticable.

Exeter comments on the high cost of building; how, because of the present high cost of building, Local Authorities find it difficult to get a wide variety of trading in the central areas.

*Commercial Road, Portsmouth. Most of the buildings on the right side of the street are post-war, save for a block in the centre. On the extreme right is Dolcis, Ltd., one of four shops with a common elevation. The co-ordinating architect was Ellis E. Somake, in conjunction with Clayton and Black and Partners, Hillier, Parker, May and Rowden, and L. Lewis Reynish.*

How the return to higher rates of interest on loans, due to national financial policy, has meant that the war-damaged cities are bearing a disproportionate part of the burden without any compensatory factor. Mention is also made of how the nationalized public utility services are making high charges for services in the re-development areas, much of which, before nationalization, would have been borne by the utility services themselves.

Canterbury is finding that high building costs and interest rates tend to raise rents to an uneconomic level, beyond the reach of most local traders. In this respect building costs appear to be more important than ground rents. The use of upper floors of shop premises is causing problems, in those cases, where the additional space over the shop tends to be redundant (a problem which we have found occurring, as we noted in our surveys, elsewhere).

Portsmouth is experiencing the problem that the cost of building is now deterring many would-be developers.

As to the cause of delays in the speed of rebuilding, Exeter pointed out that the Ministry's policy of giving consent to the disposal of individual sections of the central area rather than

giving consent for larger areas has, in many cases, been the cause of delay to developers ready to begin.

The same City also points out the delays to re-development due to lack of co-ordination between Government Departments. For example, consent to dispose is granted by the Ministry of Housing and Local Government, but consent for the construction of development roads is issued by the Ministry of Transport, which is often delayed, with a consequent loss of up to two years' ground rent. It adds that in view of the slow progress of building in the earlier years, grants made to help the cities on their way should be more generous, e.g., the initial period of five years should be automatically extended to eight years.

On the speed of building, Coventry finds in practice that as re-development proceeds it increases in intensity and is likely to continue to do so. The main problem encountered is the niggardliness of the Ministry and their capital allocations. (Since this was written the 1954 Allocation doubling the general issue of licence has improved things all round.)

Lastly, on a point of amenity, Plymouth states that large stores should have to provide private parking facilities. (A commendable view.)

## a summing-up

The value of the statistical review which we have made is that it provides a factual background to our perspective; we have seen how in their basic economies and natures, the cities vary widely; a comparative analysis of what they have done is thus only of value if it is tempered with the knowledge of their different characteristics. We have seen, too, how much has been done and how much remains to be done. We have also noticed that some cities are not expecting to speed up their rate of building, even if, presumably, licences were to be abolished. We have also seen that in some cases it just isn't true to say that re-building has scarcely begun. Certainly in all cases sufficient has been done to create at least a powerful precedent for the future.

Is the precedent a good one?

To answer this is extremely difficult: we might hedge and say that there are so many complicating elements that it is well nigh impossible to answer it. But if we are told to answer directly in a few words we would have to reply that on the whole the quality of re-building is very disappointing. Our chief impression is that the schemes in the main constitute a series of pedestrian-like improvements. There are occasional sparks but the general level of design tends to be "milk-and-water," where it is not rather confused in its aspirations. In the end, behind all this, there is a nagging sense that the schemes are too often ignoring the revolution in the ways of life which is going on around us and that reconstruction represents a very half-hearted attempt at anticipating conditions in the future.

It is possibly significant that the most vivid recollection one has of true architecture is of a particular type of building, one never found in a central area—namely the school. Particularly those in Coventry (by the Architects' Co-partnership; by Gear, Neel and Thomas; and by the MOE with the City Architect) and, of course, Lyons and Israel's school at Southampton. These strike one when seen in their location, as unaffectedly and satisfyingly contemporary in their design, form, construction and plan. These buildings are the outcome of a clear programme and a sympathetic union between architect, client and builder and, moreover, the projects were untrammelled by delaying and confusing external influences of any kind.

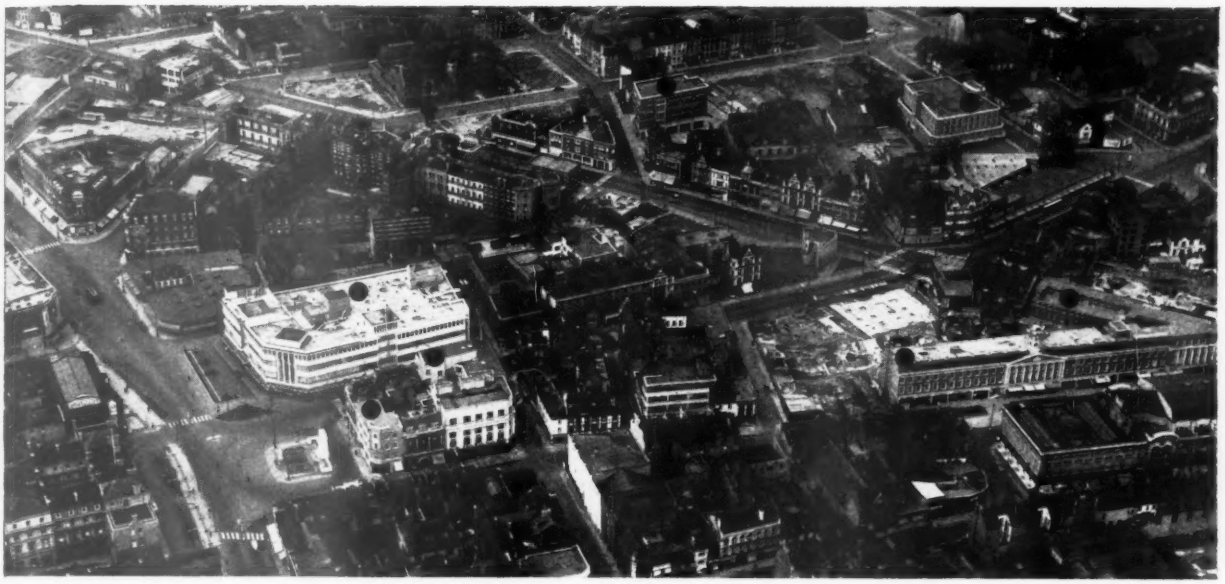
In other fields, both Hull and Coventry Architects' Departments have produced good old peoples' homes. And, among shops, Somake's designs for Dolcis shoe shops in Canterbury, Bristol and in Portsmouth are recalled as rare examples of good designing. With this firm, there is obviously a client who believes in the sales-attracting value of stimulating design and is prepared to allow their architect his head. The result is a contribution to the whole vicinity. With these particular shops we find an expression of the range of opportunities available to the contemporary designer being used to the full; it has led to what one might almost describe as a modern vernacular design which in its appeal seems to attract many and brings to the shopping street that element of bizarrishness and suggestion of life, colour and movement which is such an intrinsic part of the traditional notion of a shopping-place.

By contrast we cannot forget that there is emerging, in some of the new multiple stores, usually only a little further down the same shopping way, the counterpart of the mammoth factory assembly lines. These new stores generally have two distinguishing features: a rather dull façade, which will frequently have been the outcome of painstaking negotiations between the architect and local authority, having at pavement level wide glass doors leading the shopper into its principal characteristic feature, a cavernous and colourless interior. These interiors have few vertical obstructions: the suspended first floor construction allows an uninterrupted arrangement for the endless lines of standard counter illuminated by a uniform layout of globular or egg-crate shaded lights. The achievement may be a perfect expression of organization and method, but the aesthetic opportunity of developing a human layout has been missed.

It is curious that the two kinds of firms—shoe shop and department store—who each must firmly believe that they know what the customer likes—should follow such contrary ways. Both kinds of store appear to prosper.

It may be a pure coincidence, or there may be a solid basis for why it should be so, but there is a striking difference between the level of design of the new permanent shops and the temporary ones; with the latter the architects' programme was simple and the ensuing building quite often possesses an atmosphere of vigour, colour and the general sense of busyness which suggests activity and prosperity, and is altogether pleasing. While with the new permanent buildings one gets the impression that only too frequently the architects have been overwhelmed by frustrations of all kinds, allied with problems of finance, leading to a building which is, at best, humdrum and lifeless.

Of housing—which, when these towns were visited, was almost entirely confined to outlying estates—there was little which did not fall into the standard pattern of local authority housing throughout England. Largely over-roaded and roundabouted, the even lines of semis and terraces were hygienically disposed about the once open countryside. And while creating neither an urban nor a country atmosphere the houses are largely just what the tenants want and, of course, vastly better, in the main, than the grim attempts at housing now being made



*The central area of Hull. The black spots show: above left, a department store for Hammonds by T. P. Bennett & Son, and below it, left and right, offices in Paragon Square by Elsworth Sykes & Co. and offices in Jameson Street by C. Cowles Voysey and John Brandon-Jones. Centre, top, offices and showrooms by Roper-Spencer and Hall. Below, right, a block of shops and offices built by Ravenseft Properties, Ltd., and designed by Donald Hamilton, Wakeford & Partners. Top right, department store, designed by F. J. Horth and H. Andrew.*

by spec. builders. One housing estate, however, does stand out above all others—the Tile Hill Estate, Coventry. This, if the present standards can be kept or improved upon, will be most frequently referred to as a real contribution to the design of housing estates in the years to come.

By and large, in the ordinary shopping street there is a sense that we have seen all this before, except that the general tone of façades is one of parade-ground respectability, honest virtues, architecturally, appear to have gone out of fashion with low-down vulgarity. With the resuscitation of the old-fashioned shopping street, essentially mediaeval in its origin, there is normally no money available and, in any event, the sympathy of the times is against the embellishment of the exterior. The interest of the street only becomes really vital where outside-inside are integral, as with Somake's design of Dolcis shops. Otherwise the rather bleak exterior of a modern building only comes to life in an area which has been laid out afresh on contemporary lines, Broadgate; Coventry, being the chief example. It may not be exaggerating to say that the best effects of modern building are likely to be found not so much in the rather cramped sites of the shopping areas as on the fringes of the central areas where more spacious sites have been found for technical colleges, e.g., that in Hull by Gibberd, or in local government complexes, as in Coventry by Gibson, where the architect may achieve that combination of abstract building massing and urbanity in the layout of the setting which seems to be such an essential part of expression in modern architecture.

We also noticed that the typical shopping street may be the outcome of modern methods of negotiation and finance but is scarcely one of advanced modern building technology.

Another impression is that frequently the financing of the new shopping areas is a dual operation between the local authority on the one hand, and on the other, multiple stores and investment trusts. The local trader appears to have a difficult time; particularly in view of the high cost of building, a condition not lessened by the cost of paying for protracted negotiations by the professional advisers, however justified this may be.

It really does seem that some attention should be given to the local trader, unless all new enterprise not well-backed financially is to be curbed in central areas, in the form of the provision of standard small shops, much like the temporary shop, or a definite market area where new businesses will first see the light of day. The Coventry Council are trying an experiment for industry which might well be a good precedent for the retail trade.

Linked with this problem of providing for the small shop is the curb being put on architects' liking for height in buildings in central areas, as a consequence of the tendency for a small demand for office accommodation over new shops—at any rate at present prices. All this suggests that a definite part of the central shopping areas should be low and small in scale akin to an old-fashioned street market.

By and large, the outcome of the architects' work in the shopping areas is not a cause for satisfaction; one feels that too often the architects have been the victims of forces outside their control: planning and administrative machinery steadily grinding on its way, the weight of financial interests, and the high cost of building. But in spite of this, one of the most hopeful auguries for the future is the " Triangle Trust " project in Hull where some owners of land, together with the City Corporation, have got together and collectively they have agreed to pool their individual interests and have jointly commissioned a single building—albeit a dull one—to serve their united purposes. On a smaller scale but in a rather different way, in Southampton a co-ordinating architect has been commissioned to tie together several adjoining building ventures. These experiments suggest that although the resulting architecture may not always be of the front rank, architects both in public and private practice could do more, as Sir David Eccles suggests for the City of London, by way of getting together, first pooling their experience, re-examining their objectives, and then agreeing on what would be a

*Coventry's blitzed centre is dominated by Broadgate House centre right, with below it the new stores of Marks and Spencer and, on the right, Woolworths, which mark the line of the new shopping precinct. On the left of the photograph is the new Owen-Owen stores (architects, Rolf Hellberg and Maurice Harris). Above is a perspective of a new hotel, designed by W. S. Hattrell and Partners, which will complete the south side of Broadgate.*

reasonable method of working together to achieve the development of a particular area.

To turn from the central areas to the cities as a whole, we have already seen how the main activities have been taking place on the fringes; in time the slum clearance schemes will gain momentum, the activities will turn inwards again, but also, at the same time, major building operations will be happening in some cases much further afield, dealing with the overspill problem on sites sometimes many miles from the city itself. All this great activity, however, will be taking place in the context of Britain being, compared to former days, a poor nation. There is likely to be little money available for the joys of architecture: the church steeple, or the modern equivalent, and other features which contrast with the humble mass of building, and thus give definition to the form of the urban landscape, and an outlet to people's aspirations beyond mere utility. In our review of development plans we have found the sponsors rightly concerned with the fundamental task of achieving a city balanced in the location of its housing, its workplaces, its areas of schools and recreation, though there has been a tendency to reduce the latter in favour of finding immediately available housing sites. But the vision required for seeing what kind of city all this activity is likely to lead to has not been noticeable.

Now that the development plans have weathered the excitements of the public enquiries and are being given the Minister's approval, it is time that attention should be moved beyond studying the means to an end—vital as this is—to thinking again more on the end itself, socially and aesthetically.

The place of good design in society does not have to be argued in this journal but in civic life the argument has still to be carried forward strongly. If this is to be done successfully, architects, as a profession, must be sure of their ground. The question is, are we?

Within the framework of mid-20th Century Britain and its rearguard struggle for survival as a first-class industrial and commercial Power, yet a country which in the eyes of many people overseas has achieved so much in its social building enterprise, do we know, as architects, where we are going?

One of the curious things that we have noticed in our surveys is the tendency to regard town evolution fundamentally in static terms of time and space, especially as regards the central areas even though major changes may be in progress elsewhere. We suspect that this may be a dangerous illusion. We suggest that the central areas, especially of larger cities, of the order of 200,000 upwards, and more especially in maritime cities whose centres are so often eccentrically placed, may only be at the beginning of a radical change in their status. In former days when cities were more compact there was only one heart to a city and everyone recognized it; in its functions it was commercial, industrial, residential and recreational. The losses through war damage and the delays in re-building have done much between them to deprive the central areas of some of their former status. Today certain things are happening. The cities are creating offshoots, sometimes many miles away; people in peripheral suburbs are finding through the rising cost of travelling that their journeys to the city centre must now be budgeted for; the central areas are steadily losing their residential population and are mainly becoming a daytime venue for the commercial and retail trade and office workers. It is thus no longer the day and night cynosure as earlier. In addition, the confined spaces of the town centres catering for pedestrian and wheel traffic are frequently too restricted, as we have mentioned, for the best modern layout and, without such layout, good contemporary architecture becomes impossible to achieve. Elsewhere in the city new centres of activity: hospitals, university colleges, major industries, and even, in the maritime cities, the docks and shipyards—are growing, and will continue to do so. People's interests frequently will be towards these other centres and their contact with the town centre may only be an occasional one.

All this suggests that the status of the central areas is changing from its old premier role to becoming only one among several centres of equal importance in the city. The implications of this are by no means immediately apparent, but that they will be far-reaching is certain.

# TECHNICAL SECTION

Soon after the 1944 Education Act, it became clear that the traditional building trades were incapable of meeting the programme laid down, and that the remedy for this situation lay in the use of industrialized building methods. The Technical Working Party of 1948, in recommending the 40 in. module, envisaged such development, but, despite the well known exceptions among local authorities, it became evident that to invoke effective results, the Ministry itself would have to conduct the work. Hence the setting up of the MOE Development Section and, later, the Wokingham school (reported by Stillman and Eastwick-Field in a series of articles in the JOURNAL beginning October 16, 1952). Now, as part of the West Sussex CC secondary school programme, a second project is in mid-contract at Worthing, which we describe in the article below. The design is the result of a two-year collaboration (between the MOE, the Pre-Stressed Concrete Company and the contractors) in which the " Intergrid " system was produced. The cost of development is not fully represented in the cost of the school, the contractors being granted proprietary rights of the system in return for their financial risk. But already they have several other " Intergrid " jobs in hand, not all of them schools. This manner of organizing architect-contractor collaboration can, as the results show, be a fruitful one. It is not so very different from the present kind of contractual relationship and it is thus useful and appropriate in the present phase, although it may fall short of the future ideal of complete partnership.

**This week's special article**

## 20 CONSTRUCTION: COMPLETE STRUCTURES
### moe's "intergrid" system in use at worthing

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

*In their Wokingham school the MOE architects developed a light steel frame which has since passed into general use. This same team has now been working on a prestressed concrete frame which is being used for the first time in a secondary technical school at Worthing. This week we are giving a brief account of this new system of framing (which is called the " Intergrid ") before giving a fuller technical report in a later issue.*

The " Intergrid " system which forms the structure of this school illustrates quite remarkably the change wrought by pre-stressing on the characteristics of concrete work.

In situ work has always involved high shuttering cost and uncertain quality of concrete; pre-casting has precluded structural continuity—an intrinsic virtue of the material—and has made for bulkiness. But here the use of pre-stressing has brought about a considerable thinning of members, and has made possible a virtually monolithic floor structure

which is yet built-up of small units, shop pre-cast and thus of high quality.

The result, as one might expect, approaches the characteristic forms of steel frame construction, and as at present developed can be used up to four storeys in height.

### THE SYSTEM

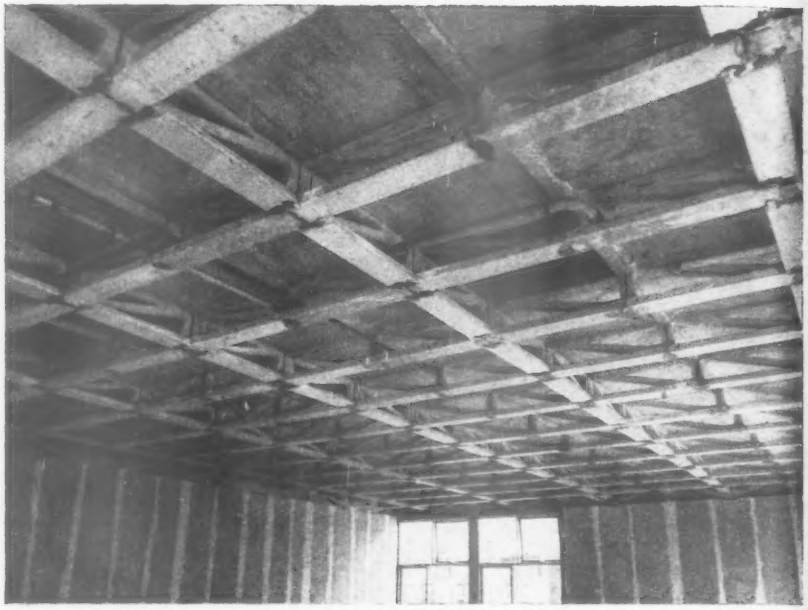
The system is worked out on a 40-in. planning grid with 4½-in. × 6-in. pre-stressed columns at 6-ft. 8-in. or 10-ft. centres along the boundary of a planning bay. "Fish-belly" r.c. pin-ended boundary beams rest on the columns and on these in turn rests the two-way span floor grillage of intersecting primary and secondary beams 12¾ in. deep. The decking consists of 40-in. square unreinforced slabs with dished soffits, 2¾ in. thick at the edges. Maximum spans (with square bays) are 33 ft. 4 in. for floors, and 40 ft. for roofs.

The system is put up without scaffolding, the columns being erected in small portable scaffold frames, the beams being hoisted by a mobile crane.

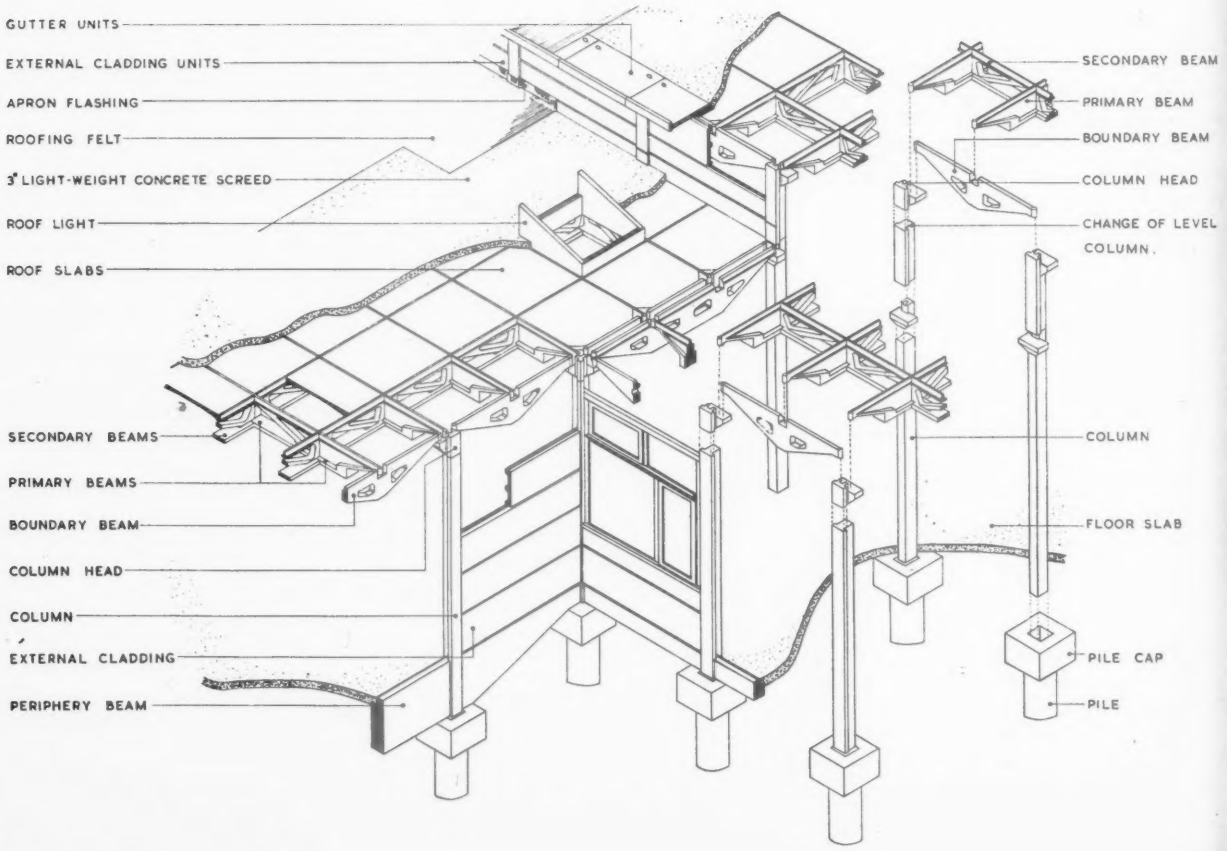
Such, briefly, is the basic idea of the system.

### BEAMS

Both primary and secondary beams are built up from 40-in. (nominal) long units which have a broad bottom flange. Primaries have grooves in the top of



*Above: Completed roof (or floor) structure. The primary beams span from right to left. Below: The "Intergrid" system. The roof (and floor) beams are on a 40-in. grid, columns at 6 ft. 8 in. or 10 ft. spacing, beams being supported by separate projecting corbel units on the columns.*



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BEAM

AM

BEAM

EAD

LEVEL

AB

# When Tommy came marching home . . .

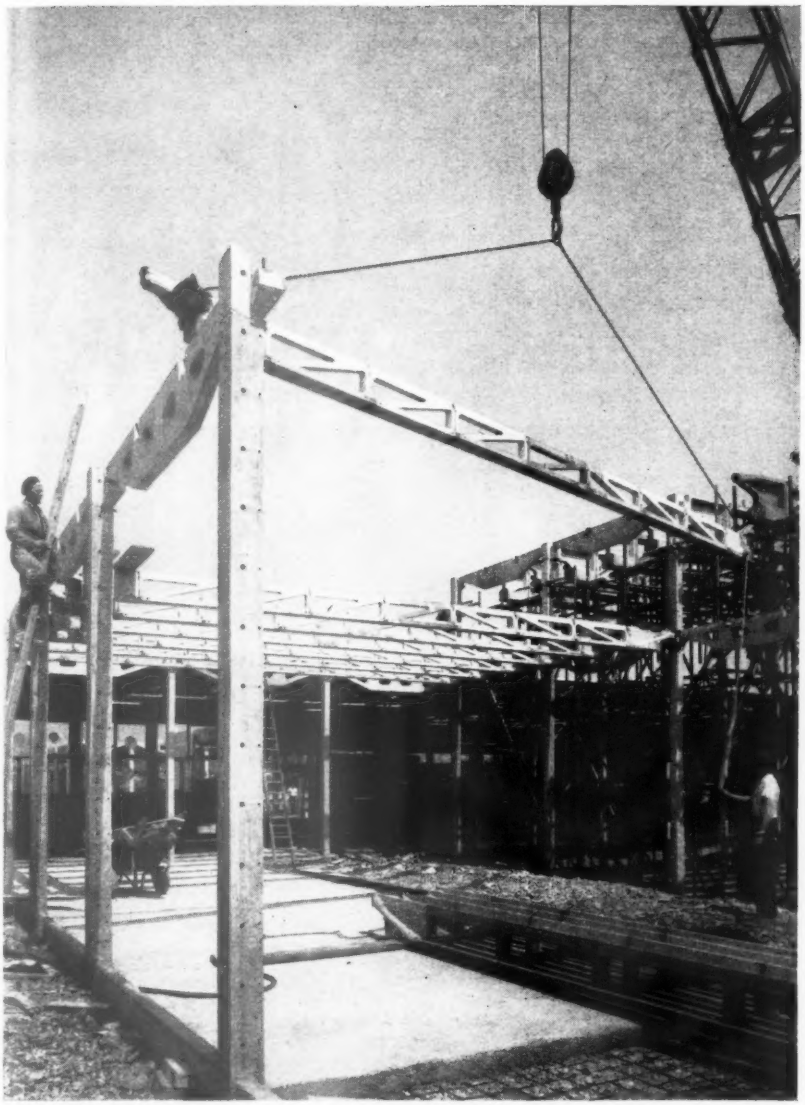
In 1918, when the students returned to the University Union in Manchester, they might have noticed that the stairway had been fitted with Ferodo Stairtreads. At that time there were between 500-700 students, but as the years went by the number of feet tramping up and down the stairway grew, until in 1953 the student body had reached the 6,500 mark.

Recently it was decided—after 36 years of continuous traffic—to renew the Ferodo Stairtreads. Today the University Union of Manchester have, of course, a wide range of types and colours from which to choose, but the same Ferodo tradition remains . . . a guarantee of long, safe service.

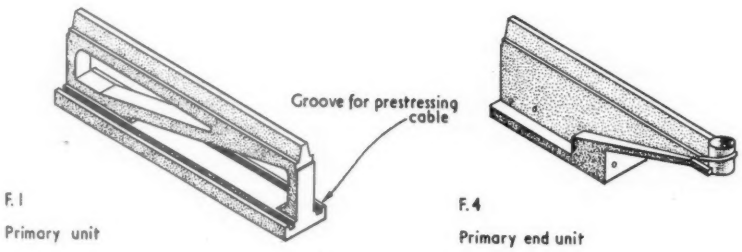
*This is a photograph of one of the actual Stairtreads which was in continuous use at the University Union Building in Manchester for 36 years.*

**FERODO** *Non-slip* Stairtreads

FERODO LIMITED · CHAPEL-EN-LE-FRITH · *A Member of the Turner & Newall Organisation*

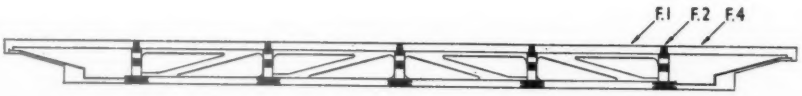


*Above: Primary beams being hoisted into position after stressing at ground level. Below: Primary beam units. The end unit is cut back to give space for a Freyssinet two-wire jack. Right: Typical external wall column and 10-in. high corbel head to carry beams.*




F.1
Primary unit

F.4
Primary end unit




Primary Beam Assembly
jointed and post tensioned on ground

Multiples of 3'-4" units up to 40'-0" span

this flange for the pre-stressing wires and are assembled and stressed on the ground before hoisting into position. For speed, ciment fondu is used in the joints. The secondaries have grooves in the *edges* of the flange and are placed one by one between the erected secondaries, their ends being scribed to fit (glazing bar fashion). They are then wired up and stressed, the wires passing through holes in the primaries, just below the primary wires. The flanges of both primaries and secondaries stop about 12 in. short of the boundary beams on which they rest to provide space for the Freyssinet two-wire jack. The lattice formation of beams allows, of course, an easy passage for services, even for heating mains, so that there are no floor trenches on the job for this purpose.

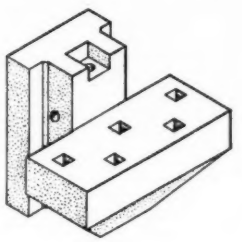
To form roof lights, pre-cast 40-in. square kerbs are used in place of the decking units.

### COLUMNS

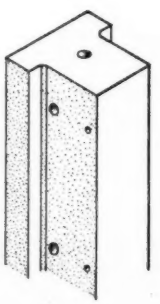
These are made in lengths which vary by multiples of 10 in. which is appropriate to the arrangement where two roofs or floors of differing heights adjoin. Bearing of beams on the column is by means of a separate projecting corbel unit of which there are various types according to the number and direction of the beams to be carried. The corbel unit is fixed to the column by a concealed bolt on the axis of the column, and upper and lower column lengths join with a dowel connection.

### CLADDING

Junctions between floors and wall columns, and between columns from one storey to the next, are assumed to be pin-jointed. Thus the concrete cladding

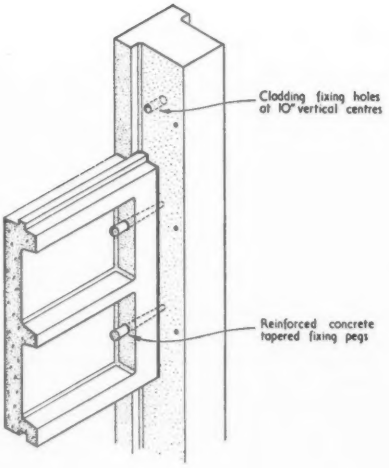


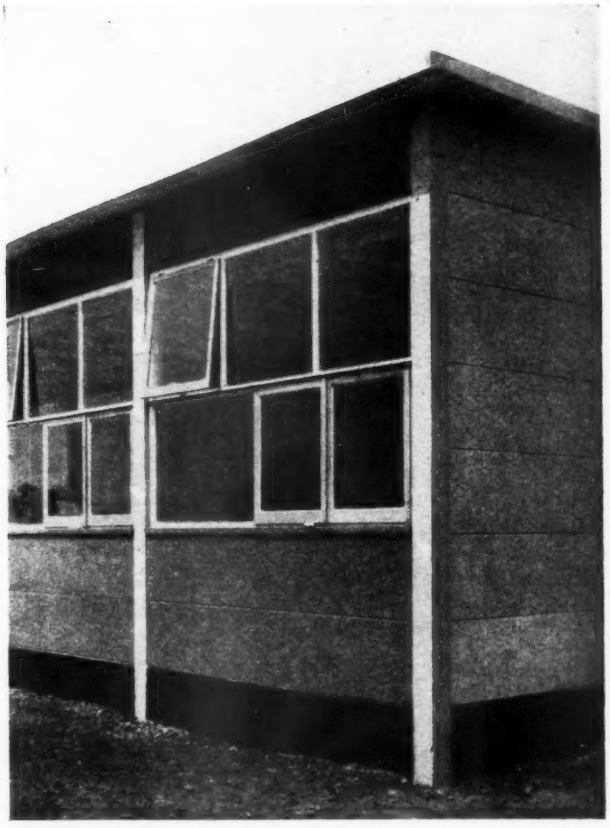
H1



C1

External wall column



*Above: Cladding unit from inside. A mastic impregnated asbestos cord is passed down the column rebate to provide a watertight joint. Right: Black granite and Derbyshire spar panels in position. Panels are generally 1 ft. 8 in. high and joints are left unpointed on the face.*

units have a structural function in providing stiffness in the system, analogous perhaps to that in "stressed-skin" joinery fittings.

External columns are rebated, the cladding units (6 ft. 8 in. or 10 ft. long $\times 1\frac{1}{4}$ in. thick) being positioned from inside. They are pressed against a mastic impregnated asbestos cord passing down the reveal of the rebate. The units are fixed by reinforced concrete plugs driven through thickened flanges into holes in the columns at 10-in. centres. Various surface finishes are used: Derbyshire spar and white cement; calcined flint and shingle; granite in ciment fondu; producing a white, brown and black finish respectively. Standard lengths of unit are used for internal and external corners.

Internal wall skins are Bellrock plaster panels leaving a 1-in. cavity in the wall.

EAVES

There is a 40-in. long pre-cast eaves unit giving a 12-in. overhang, which is tied back by a double-ended hook bolt passing under the ends of the beams. The two ends of the hookbolt pass up through holes in the ends of adjoining units, the bolt heads being covered by the roof screed of 3-in. thick foamed slag concrete.

The "Intergrid" system is the joint work of the MOE (chief architect, S. A. W. Johnson-Marshall), the Prestressed Concrete Company and Messrs. Gilbert-Ash (who are the proprietors of the system).

## 25 WATER SUPPLY AND SANITATION
### drainage systems

*On May 13 we dealt here with questions of internal plumbing. This week we turn to external drainage; an investigation of current practice which has been made in recent times is reported below.*

A Committee was formed in 1951 to investigate present practice in drainage systems. Its members represented the Institution of Sanitary Engineers, the Building Research Station, the Institute of Plumbers and the Sanitary Inspectors' Association, and they have now presented their findings. The information given was obtained from local authorities, both urban and rural, and relates for the most part to housing. Main sewers were not investigated.

The broad picture of current practice and opinion is anything but consistent, and while the variety must reflect the differing circumstances in different parts of the country, it also reveals the absence of any theoretically firm criteria

in design or precise knowledge of performance.

The following is a precis of the report:

SIZE AND FALL

The number of "separate" and the number of "combined" systems among those investigated, was about equal, although some separate systems allow a little rainwater into the soil drain where the sewage plant can take it, for the sake of economy in drain length. There appears to be increasing use of the private sewer, also for economy—in reducing the number of main sewer connections.

Difference of opinion about capacities and gradients is astonishing. The most pessimistic authority demands a 6 in. drain for more than one house, but at the other extreme there was a case where twenty houses discharged satisfactorily into a 4 in. pipe at 1:70 fall. The latter would seem nearer the mark. A field test at another scheme of discharging simultaneously all the appliances in twenty houses which connected to a 4 in. pipe at 1:40 only filled the drain to 2 in. depth. The shallowest gradient found was 1:238 on a 6 in. pipe taking about fifty houses. Hydraulic depth was $\frac{3}{4}$ in. and velocity less than 1 ft./second. Over its two years life the system had worked without trouble.

The Committee reports a growing opinion among authorities that McGuire's rule (4 in. 1:40, 6 in. 1:60, 9 in. 1:90) gives a steeper fall than is necessary, and their conclusion is that —"Both 4 in. and 6 in. pipes can be used to take discharges from a considerably greater number of dwellings than has been common practice" and that "Conventional gradients (based on the McGuire rule) may be considerably reduced without detriment to working efficiency, provided a good standard of workmanship is maintained in laying and jointing the pipes."

BLOCKAGES

The interceptor is losing favour, it appears. A statistical correlation shows that while there is no increase in the number of blockages in districts where shallower falls are allowed, there is an increase where interceptors are insisted upon. Indeed about 44 per cent. of all blockages occur at interceptors. The cost reduction of omitting these devices is a factor that now affects practice, it seems. The Committee concludes that —"The disadvantages of using intercepting traps on new work now outweigh the advantages." Among the commoner causes of blockage quick bends figure prominently.

A list of offending objects in nuisance order, is given:

| | % of total |
|---|---|
| Sanitary towels: ... ... | 37 |
| Newspaper: ... ... ... | 23 |
| Rags: ... ... ... | 11 |
| Grease: ... ... ... | 5 |
| Various: (anything from bricks and cutlery to jam jars and roller skates!) | |

It is estimated that about 60 per cent. of all blockages are due to "mis-use" (which presumably means both stupidity and mischief) and that the annual cost of clearing drains for the whole country is around £500,000.

One interesting finding, the reasons for which are not immediately obvious, is that blockages at junctions nearly always occur in the branch pipe close to the junction, not in the junction itself.

The commonest method of blockage clearance is by rodding, although plunging is used to a considerable extent. While some authorities believe 24 ft. to be the maximum efficient roddable length, others give 300 ft. One third of the replies suggested over 100 ft.

INSPECTION CHAMBERS

Here again, practice varies, 73 per cent. of authorities ask for 9 in. brickwork for manholes, the remainder allow $4\frac{1}{2}$ in. down to 3 ft. depth. A majority disapprove of internal rendering, because it might drop off and block the drain. Only two out of twenty-two authorities use pre-cast concrete chambers to any extent. Nor is there unanimity on the debated question of location. Only a few now insist on an I.C. at *every* bend and junction; of these, one specifies it on both soil and rainwater drains, one on soil only, and one on private sewers only. Other authorities require I.C.'s:—

| | authorities |
|---|---|
| at every bend ... ... | 7 |
| at every 90 deg. bend (incl. in above) ... ... | 4 |
| as dictated by site conditions ... ... ... | 18 |
| use rodding eyes to replace I.C.'s ... ... ... | 7 |

TESTING

There is a variety of opinion on this subject too. Most authorities use both smoke and water test. The time for which the latter must be held on the test ranged from 3 minutes to 1 hour, the extreme pessimist requiring 2 to 4 hours. Similarly the test pressure varied from 6 in. to 8 ft. head. Few authorities appear to test inspection chambers. The Committee's conclusion is that—"There is a need for the standardisation of tests on drainage systems throughout the country."

There are two compelling needs which emerge from a reading of the report. First the need for consistent requirements throughout the country, and secondly the need for investigation to elicit a firm theoretical basis for pipe sizes and falls.

There are, of course, the irregularities of workmanship, intermittent flow and the effect of bends and junctions on velocity. But such problems are inherent in technical design and have been solved before—most recently in the case of internal soil and waste plumbing.

## INFORMATION CENTRE

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

12.58 materials: metals

**ALUMINIUM BOLTS, SCREWS, ETC.**

*Aluminium Fixing Accessories.* B.S. 2465: 1954. (British Standards Institution. 2s. 6d.)

Hook bolts and nuts, drive screws, washers for roof sheeting, roofing bolts and nuts and gutter bolts. Type of alloy, dimensions, strength requirements.

14.68 materials: concrete

**GRAVEL AGGREGATES**

*A study of single-sized gravel aggregates for roadmaking.* Road Research Technical Paper No. 30. (HMSO. 1954. 1s.)

Summary of results of tests on 294 samples of single-sized gravel, together with information on modes of occurrence, distribution, classification and methods of production, and the main requirements for single-sized gravels for use in different forms of road construction. Applies equally to reinforced concrete aggregate.

The investigation was carried out as part of a survey of gravel production to obtain data needed to help in drawing up the new British Standard for single-sized gravel aggregates (BS 1984:1953).

In many parts of Great Britain gravel is the cheapest local aggregate, but in the past a high proportion has been sold either "as dug" or after processing only by washing and removing the sand. Increasing knowledge of the properties required in road-making aggregates has led to a demand for closely graded "single-sized" aggregates. These can be remixed to give more accurate control over gradings for normal concrete or coated macadam, or can be used singly or in combination with a controlled proportion of fines in gap-graded concrete, granular road bases, stone-filled asphalt or surface dressings.

22.68 sound: insulation-acoustics

**CATHEDRAL ACOUSTICS**

*Cathedral Acoustics.* Hope Bagenal. Journal of the R.I.B.A. April, 1954.

The article gives the substance of a paper read before the Acoustic Group of the Physical Society. Mingled with a wealth of description of the functions of the Church are useful comments on planning and detail design aspects of cathedrals. Some radical departures from traditional cathedral planning and acoustics are proposed to satisfy present day requirements. Architects are strongly urged to plan for loudspeakers from the earliest stages in the design but

# Lloyd roof insulation saves £100 per week

## Cuts capital spending, too


Since 1946 the roof of the Betterwear Products factory at Romford has been lined with ½" Lloyd Insulation Board fixed by the Lloyd Talon System. During these years, building extensions have almost doubled the floor area, yet the factory is still heated by the same plant using the same amount of coal as was needed before the expansion. Lloyd Insulation has saved heavy capital expenditure of more than £2,500 on extra heating plant and is regularly saving about £100 a week in winter fuel bills.

### Increased comfort helps to increase output

Before insulation, this corrugated northlight building was very difficult to heat to 60°F in winter, while the summer temperature often rose to 92°. Now, extremes are ironed out and a comfortable working temperature is easily maintained throughout the year.

Yet another advantage of Lloyd Insulation is that dust, which formerly entered freely through eaves and ridge, is now trapped by the roof lining. It no longer falls on the operatives below or spoils their sometimes delicate work.

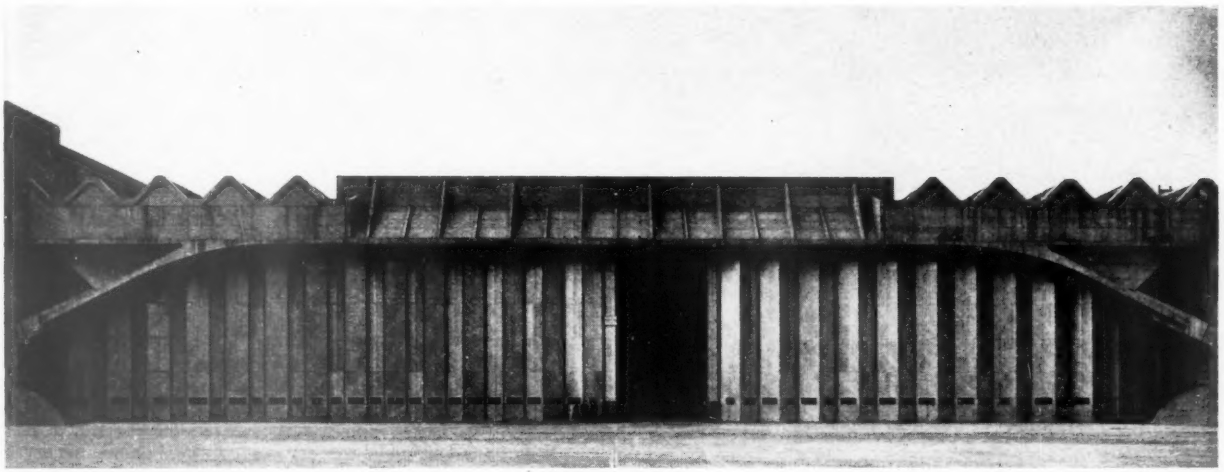
*Full information about Lloyd Insulation and its applications are freely available from*

**BOWATERS BUILDING BOARDS LIMITED**

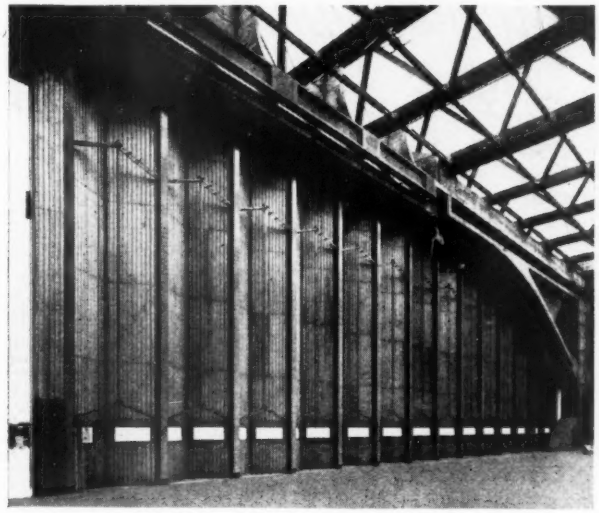
BOWATER HOUSE, STRATTON STREET, LONDON, W.1. *GROsvenor* 4161

*A member of the Bowater Organisation*

# SLIDING AND FOLDING ALUMINIUM ALLOY DOORS



*This pair of sliding and folding aluminium alloy doors covers an opening 300 ft. long and 46 ft. high in the large hangars now being built at London Airport for BOAC to the design of Sir Owen Williams & Partners. The doors were designed and made by Head Wrightson Ltd., and slide back in two halves from the centre, each of the meeting mullions containing a 4-h.p. electric motor and the necessary opening mechanism. Flexible wire cables run across the head of the opening and in a channel at the bottom, these cables being taken round the driving pulleys in the two mullions and moving the doors in the required direction. The door leaves consist of two main hollow extrusions with H-section cross members and diagonal bracing, and are faced on both sides with "Mansard" pattern aluminium sheeting, the insulation consisting of glass fibre resin bonded slabs. The total weight of the two doors is less than 50 tons. Six wicket doors are provided for staff access, and these are electrically interlocked so that the main doors cannot be used unless all the wickets are shut. The total time required to open or close the full 300 ft. length is three minutes, and provision is also made for hand operation if the current supply should fail.*



not to expect such systems to obviate the need for close attention to the acoustical design of the building. The suggestion for the use of multi-source sound reinforcement (in the form of pendant loudspeakers) should be regarded only as a second best to column units (line sources) properly installed. The former system, however successful from the intelligibility viewpoint always results in the destruction of "speaker presence," a loss which can ill be afforded if the evident aims of the writer are to be best served.

### 25.107 water supply and sanitation
### BALLVALVES

*Floats for Ballvalves (Plastics) For Cold Water.* B.S. 2456: 1954. (*British Standards Institution* 2/6.)

Cross refers to B.S. 1212 for Ballvalves, Materials, lifting power of floats, bosses, Testing, Table of sizes of float for ½, ¾, or 1 inch B.S. 1212 Ballvalves.

### 25.108 water supply: sanitation
### ONE-PIPE DRAINAGE

*Design Factors for One-Pipe Drainage.* A. F. E. Wise. (Royal Sanitary Institute Journal. April, 1954.)

Account of main factors causing loss of seal in traps. Considers simultaneous discharge of appliances. Standards of performance are suggested with 3-inch seal traps but the immediate practical effect to architects is somewhat difficult to follow. Interesting information on the comparatively innocuous nature of drain gas is given. (See Technical Section 13.5.54.)

### 25.109 water supply: sanitation
### CORROSION: STEEL GUTTERS

*Protection Against Corrosion for Pressed Steel Guttering.* Building Materials Digest, June, 1954.

Brief but interesting and useful article dealing with a problem of considerable importance on factory buildings, especially in areas of heavy atmospheric pollution. Chipping and wire brushing is an insufficient preparation. A method for simple in situ chemical treatment is described which concludes with a final finish in smoke-stack quality bitumen paint.

### 26.111 services equipment: miscellaneous
### LIFTS

*The Planning of Lift Installations in Commercial Buildings.* P. T. Fletcher. (Journal R.I.B.A., May 1954, and Architects' Journal of 29.4.54.)

A most useful presentation of up-to-date information on lifts in Commercial Buildings, giving the results of investigations on calculation of passenger load requirements, the factors affecting lift carrying capacity, including the shape of a lift and stop and door closing times, the workings of collective control passenger and attendant operation, the size and position of motor rooms and safety and maintenance.

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

**ENQUIRY FORM**

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

.....

.....

.....

*Please ask manufacturers to send further particulars to :—*

*NAME* .....

*PROFESSION or TRADE*

.....

*ADDRESS* .....

.....

8.7.54

# Announcements

W. H. Watkins, Gray, FF.R.I.B.A. & Partners, have removed from 19, Grosvenor Place, to 57, Catherine Place, Palace Street, S.W.1 (Tel.: Victoria 7761).

The British Plaster Board (Holdings) Ltd. have made a new film entitled "Gypsum in Building," which describes the correct method of using Gypsum Plaster in two-coat work, of mixing and applying acoustic plasters, and of erecting plasterboard partitions.

Thorn Electrical Industries Ltd., Midlands' Sales Office of the Atlas Lighting Division has moved to new premises at 23, Sheepcote Street, Birmingham, 15. (Tel.: Birmingham Midland 5291.)

R. G. Hull, manager of Northern Aluminium Co.'s Manchester Sales Office has retired. He has been succeeded by D. A. Corbett-Thompson who was formerly on the staff of the Company's London Sales Office.

F. J. Baynes & Co. Ltd. (Heating and Ventilating Engineers), have moved to larger premises at Northampton House, St. Paul's Road, N.1. (Tel.: Canonbury 5811-4.)

D. J. Venning has been appointed district supervisor to a further office in Glasgow for Honeywell-Brown which will be at 26, Blythswood Square, Glasgow.

C. V. Miller has been appointed to the board of directors of Nu-way Heating Plants Ltd., of Droitwich, where, for several years, he has been sales manager.

R. C. Flook, 100, Garthorne Road, Forest Hill, S.E.23, sales manager for southern England for Dimplex Ltd., can now be contacted at Forest Hill 9830.

Keith N. Hillas, managing director of W. N. Hillas & Co. Ltd., Hull, was elected Chairman of the Timber Development Association at the Annual General Meeting of the Association.

The Institution of Production Engineers have moved to 10, Chesterfield Street, London, W.1. (Tel.: Grosvenor 5254/9.)

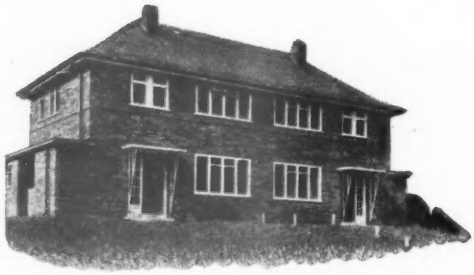
The Association of Heating, Ventilating and Domestic Engineering Employers recently celebrated their 50th anniversary with a dinner at the Savoy Hotel, at which Sir Walter Monckton, the Minister of Labour and National Service, was the guest of honour. In complimenting the Association for a good record in industrial relations, Sir Walter suggested that there was considerable scope in the field of technical research, and instanced the specialised problem of dust suppression in foundries.

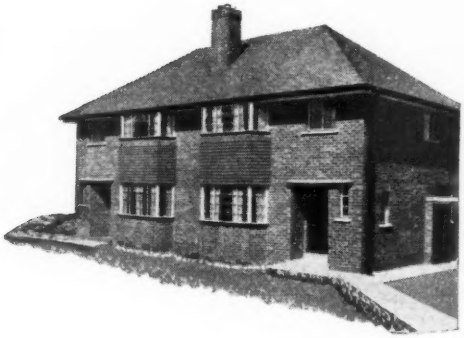
Ashwell & Nesbit Ltd., branch office at Glasgow, has moved to 15, Fitzroy Place, Sauchiehall Street, Glasgow, C.3 (Tel.: City 6951-2).

John Creek, who joined Fibreglass Ltd. as general sales manager in 1952, has been appointed to the board. He is also director of F. A. (Membranes) Ltd.

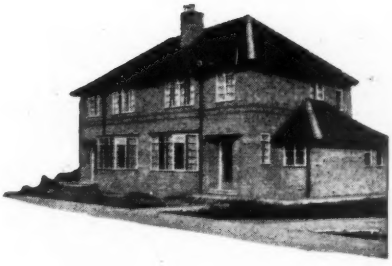
Concrete Ltd., have changed their Hounslow telephone number to Hounslow 2323. Under this number are grouped their many lines so that callers will automatically be put through to a free line. It is hoped that this re-arrangement will relieve the congestion which has occurred in recent months.

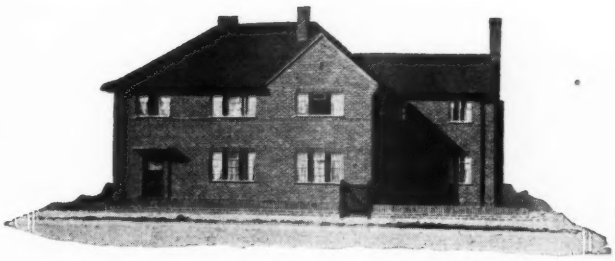
F. W. Joyce has been appointed manager of the Household Appliance & Domestic Equipment Department of the Liverpool Branch of The General Electric Co. Ltd, under the general managership of G. L. Butler.

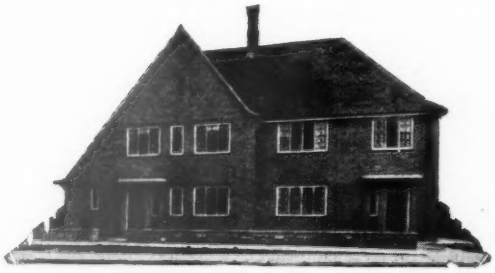


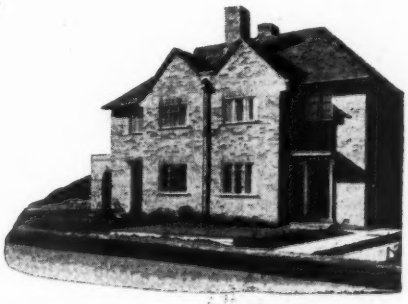


# Avoid Monotony in Housing









# Build in BRICK

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

# CLASSIFIED ADVERTISEMENTS

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

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

## Public and Official Announcements

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

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

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS are required for drawing office work in London and various Regional Offices. Candidates must have had at least three years' architectural training, some experience in an architect's office, and be of Intermediate R.I.B.A. standard.

London salary scale per annum: £420 (at age 21) to £670 (slightly less in the provinces). Starting rate up to £580, according to age and experience. Although unestablished, these posts have long-term possibilities and promotion prospects, and competitions are held periodically for establishment.

State age, nationality, and full details of training and experience, to W.G.10/CA5 (F), Ministry of Works, Abell House, John Islip Street, London, S.W.1. 2892

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD.
REGIONAL ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments on the permanent staff of the Regional Architect, generally in accordance with the conditions of P.T.B. Circular No. 19.

SENIOR ASSISTANT ARCHITECT. Salary grade: £875×£30—£1,025, plus London weighting allowance. Applicants must be Associate Members of the Royal Institute of British Architects, and have had sound practical experience of the planning and construction of hospitals and public buildings, and be capable of carrying through projects from commencement to completion.

ASSISTANT QUANTITY SURVEYOR. The commencing salary will be within the grade £600×£25 (7)×£30 (3)—£865, plus London weighting allowance. Applicants must be Associate Members of the Royal Institution of Chartered Surveyors (Quantity Surveying Branch), and have sound practical experience in the estimating and analysis of prices, working up and taking off of quantities for small contracts, and also of checking contractors' accounts.

Applications, stating age, experience, qualifications, present appointment and salary, together with the names and addresses of three referees, to be sent to the Secretary (S.2), South-West Metropolitan Regional Hospital Board, 11a, Portland Place, London, W.1, marking the envelope "Architectural Staff." not later than 23rd July, 1954. 3114

WEST SUFFOLK COUNTY COUNCIL.

ASSISTANT ARCHITECT. N.J.C. service conditions. Salary: £695-£760 (A.P.T., VI). Post pensionable; medical examination. Applicants should have had at least two years' office experience. Application forms, obtainable from the Clerk of the County Council, Shire Hall, Bury St. Edmunds, to be returned by 17th July, 1954. 3065

COUNTY BOROUGH OF BOOTLE.
SCHOOL BUILDING PROGRAMME.

Applications are invited for the following two appointments:—

ASSISTANT ARCHITECT, A.P.T., VA (£650-£710 per annum).

ASSISTANT ARCHITECT, A.P.T., IV (£580-£625 per annum).

Preference will be given to those having considerable experience on the design and planning of schools.

The appointments will be of a temporary nature, but for a minimum of three years.

Application forms are obtainable from the Borough Surveyor, Town Hall, Bootle, to whom they should be returned by Friday, 16th July, 1954.

HAROLD PARTINGTON,
*Town Clerk.*
3165

BOROUGH OF ANDOVER.
ARCHITECTURAL ASSISTANTS.

Applications are invited for the appointment of Two Architectural Assistants in the Borough Surveyor's Department, graded in A.P.T., IV or V, according to qualifications and experience. One Assistant will be engaged primarily on housing, and the other appointment will be temporary only, but for a period of at least two years, primarily for the design, etc., of extensions and alterations to the Council's Guildhall and associated projects.

Applications, giving the names of two referees, to be sent to me by noon on 20th July, 1954.

J. F. GARNER,
*Town Clerk.*

"Beech Hurst," Weyhill Road,
Andover, Hants. 3211

NEW TOWN OF CWMBRAN (MONMOUTHSHIRE).
CLERK OF WORKS.

Applications are invited for the above Superannuable post of Clerk of Works in the Chief Architect's Department, to supervise the erection of permanent Houses and other Buildings, including setting out, levelling, measuring up, and keeping records.

Commencing salary will be £525, rising by increments of £25 to £575 per annum.

Housing accommodation will be made available in suitable cases or otherwise lodging expenses in accordance with the Corporation's scale will be allowed for a limited period to married men.

Applications, which should state age, experience, present and former employment (with salaries), together with the names and addresses of two referees, should reach the undersigned by not later than 21st July, 1954.

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

Victoria Street, Cwmbran, Mon. 3212

CITY AND COUNTY OF KINGSTON UPON HULL (CITY ARCHITECT'S DEPARTMENT).
EDUCATIONAL BUILDING PROGRAMME.
TEMPORARY STAFF.

Applications are invited for:—

(*a*) QUANTITY SURVEYORS, Grade VII, A.P.T. Division (£730-£810 per annum). Applicants should be fully experienced in taking off quantities in all trades. (*b*) QUANTITY SURVEYORS, Grade V, A.P.T. Division (£620-£670 per annum). Applicants should be fully experienced workers-up.

Housing accommodation will be provided for successful married candidates.

Application forms, to be obtained from the undersigned, are to be returned completed within 14 days of the issue of this advertisement.

ANDREW RANKINE,
*City Architect.*

Guildhall, Kingston upon Hull. 3189

CITY AND COUNTY OF KINGSTON UPON HULL.
TOWN PLANNING DEPARTMENT.
APPOINTMENT OF PLANNING ASSISTANTS (TWO).

Applications are invited from suitably qualified persons for appointment to the above-mentioned posts in Grade A.P.T., VI (£695-£760 per annum).

Candidates should have had experience in surveying, the preparation of plans for road improvements, and the design of neighbourhood units.

Forms of application may be obtained from the undersigned, and should be returned not later than Monday, 19th July, 1954.

H. F. ALSTON,
*Town Planning Officer.*

Guildhall, Kingston upon Hull. 3190

CRAWLEY NEW TOWN.

CRAWLEY DEVELOPMENT CORPORATION require a DRAUGHTSMAN, on salary scale £370-£490 p.a., with experience in an Architectural office. Contributory superannuation. Application forms from Chief Architect (Vacancy), Broadfield, Crawley, Sussex, are returnable by 26th July, 1954.

C. A. C. TURNER,
*Chief Executive.*
3191

OFFICE OF THE RECEIVER FOR THE METROPOLITAN POLICE DISTRICT.

Applications are invited for temporary appointments as DRAUGHTSMEN in the Architect and Surveyor's Department to deal with the construction of Police houses and flats, stations and section houses.

Rate of pay: £420 (at age 21) to £670 (men) and £590 (women).

Hours: 44 per week.

Annual leave: 24 days.

Application forms from the Chief Clerk, Architect and Surveyor's Department, New Scotland Yard, S.W.1, for return by Friday, 23rd July, 1954. 3192

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for appointment of ARCHITECTS, permanent staff on A.P.T., Grades VI, V, IV and III. Duties in connection with the erection of schools. N.J.C. scheme of conditions and pensionable posts. Application forms and details of the appointments from the County Architect, St. Mary's Gate, Derby, by 17th July. 3180

METROPOLITAN BOROUGH OF CAMBERWELL.
DEPUTY BOROUGH ARCHITECT.

Salary: £1,150×£50 to £1,350. Qualification required: A.R.I.B.A. No housing provided. Local Superannuation Act. Application form from Town Clerk, Town Hall, Camberwell, S.E.5. Closing date: 21st July, 1954. 3179

CHESTERFIELD RURAL DISTRICT COUNCIL invite applications for the appointment of ASSISTANT ARCHITECT, on salary scale I-V (£490-£670), according to qualifications. The appointment is subject to the Scheme of Conditions of Service, to the Local Government Superannuation Act, 1937, and to the passing of a medical examination.

All possible assistance will be given with housing accommodation.

Applications, on forms to be obtained from Mr. J. B. Wikeley, M.Eng., A.M.I.C.E., Barrister-at-Law, Engineer and Surveyor to the Council, should be returned to the Clerk of the Council, Rural Council House, Saltergate, Chesterfield, by 20th July, 1954. 3164

ROYAL TECHNICAL COLLEGE OF EAST AFRICA.

(*Principal*: MAJOR-GENERAL C. BULLARD, C.B., C.B.E., B.Eng., M.I.Mech.E., M.I.E.E.)

Applications are invited for the post of
HEAD OF THE DEPARTMENT OF ARCHITECTURE.

The College, established under an autonomous Governing Council by the Royal Technical College of East Africa Act, 1954, is being built in Nairobi as the main instrument in British East Africa of higher technical and commercial education, to cater for students of all races. Teaching will be up to professional level in technical and commercial subjects, with strong supporting departments of science and arts. Mainly residential, the College is expected to contribute substantially to the social and cultural as well as the economic development of the region.

Candidates should be F. or A.R.I.B.A., preferably with degree or equivalent diploma, and should have senior experience in a Technical College, University or professional school. In the present early stage of development, organisation and equipment will be first requirements. It is hoped to appoint Lecturers and Assistant Lecturers early in 1955 and to accept first students later that year.

Salary scale (including temporary c.o.l.a.): £1,850×£50—£2,050 p.a., or slightly lower for transferred staff wishing to retain Col. Govt. pension rights. (Scale quoted is for staff who would contribute to proposed College pensions scheme or maintain existing rights under, *e.g.*, F.S.S.U. or Ministry of Education, with College paying employer's contribution.) Appointment would be made for one tour of 24-36 months in first instance with view to permanency. Partly furnished house or flat will be provided, rent £150 p.a. Staff may be required to live in hotel in first instance, and would receive allowance towards additional expenses. Free first class passages to and from Kenya will be provided for person appointed and wife, and up to equivalent of one adult fare for dependent children under 21. Leave on full salary at rate of 4 days for each month's resident service.

Write for further information to SECRETARY, Advisory Committee on Colonial Colleges of Arts, Science and Technology, 1, Gordon Square, London, W.C.1. Closing date for applications (6 copies), 20th July, 1954. 3166

ARCHITECTS AND MAINTENANCE SURVEYORS IN GOVERNMENT DEPARTMENTS.

The Civil Service Commissioners invite applications for pensionable posts for about 15 ARCHITECTS and 19 MAINTENANCE SURVEYORS.

Candidates must be at least 25 and under 35 years of age on 1st June, 1954, with extension for regular service in H.M. Forces and up to two years for permanent civil service. Every candidate must be a Registered Architect (by examination) or a Registered Architect, who since registration has passed any professional examination in Architecture recognised by the Architects' Registration Council of the United Kingdom as qualifying for registration under the Architects (Registration) Acts. For the post of Maintenance Surveyor the Commissioners will also accept Corporate Membership of the Royal Institute of Chartered Surveyors (Building Section) or candidates who have passed a degree or other examination necessary for obtaining Corporate Membership.

London salary scale (men), £650 (at age 25) to £1,000. Starting salary up to £900 at age 34 or over on entry. Prospects of promotion. Salaries of next higher grades are £1,000-£1,320 and £1,375-£1,575. Somewhat lower for women and in the provinces.

Further particulars and application forms from Civil Service Commission, Scientific Branch, 30, Old Burlington Street, London, W.1, quoting No. S60-51/54. Application forms to be returned by 31st August, 1954. 3182

COUNTY BOROUGH OF BARROW-IN-FURNESS.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
SENIOR ARCHITECT.

Applications are invited for the permanent post of Senior Architect, Grade VII (£735-£810 p.a.), at a salary of £810 p.a. Candidates must be Associates of the Royal Institute of British Architects.

It is possible that the Council will allocate a Corporation house for the post, subject to the merits of the case being satisfactory to the interviewing Committee.

Further details and forms of application may be obtained from the Borough Engineer and Surveyor, Town Hall, Barrow-in-Furness, to whom applications must be returned not later than Monday, 19th July, 1954.

LAWRENCE ALLEN,
*Town Clerk.*

Town Hall, Barrow-in-Furness. 3163

COUNTY BOROUGH OF CROYDON.
ASSISTANT ARCHITECT.

Applications are invited from Ass.R.I.B.A., possessing a sound knowledge of local authority general architectural work, including conversions and preparing estimates and specifications.

Salary: A.P.T., V/VI, £620-£760 p.a., plus London weighting (£30 p.a. at age 26 and over).

Applications on forms from the Borough Engineer, Town Hall, Croydon, must be submitted to him by the 21st July, 1954.

E. TABERNER,
*Town Clerk.*
3170

THE NORTH-WESTERN ELECTRICITY BOARD.

APPOINTMENT OF PERMANENT ARCHITECTURAL ASSISTANT (3rd ASSISTANT ENGINEER), CONSTRUCTION SECTION, CHIEF ENGINEER'S DEPT., AREA BOARD HEADQUARTERS, MANCHESTER, 8.

Applicants should at least have passed the Intermediate Examination of the R.I.B.A., and preference will be given to Associates of this Institute. They must have had experience in the design and construction of modern buildings, and be capable of site surveying, preparation of sketch schemes, working drawings, and details for large office and depot projects, and have had some experience of site supervision and contract administration. They will be required to work under the immediate direction of an Architect.

Ability in contemporary design and sound constructional knowledge are essential, and applicants should be capable of giving instructions in specification form for the taking off of Quantities.

Salary scale: £649-£883 p.a., Class AX/EX Grade 5, N.J.B. Conditions.

APPOINTMENT OF ASSISTANT QUANTITY SURVEYOR (TEMPORARY) (GENERAL ASSISTANT ENGINEER), CONSTRUCTION SECTION, CHIEF ENGINEER'S DEPARTMENT, AREA BOARD HEADQUARTERS, MANCHESTER.

The duties will consist of general assistance in the preparation of Bills of Quantities, and particularly in abstracting, billing and site measurements, and in taking off and preparing final accounts.

Preference will be given to applicants who have passed or are about to enter for the Intermediate Examination of the R.I.C.S.

The appointment will be for a minimum period of 18 months, with a possible month by month extension thereafter.

Salary scale: £501-£639 p.a., Class AX, Grade 8, Schedule "C," N.J.B. Conditions.

Applications for the above posts to Establishment Officer, The North-Western Electricity Board, Cheetwood Road, Manchester, 8, by 17th July, 1954. 3205

STROOD RURAL DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of an Architectural Assistant in the Engineer and Surveyor's Department, at a salary in accordance with Grade IV (£580-£625).

Candidates must have passed the Intermediate Examination of the Royal Institute of British Architects. Must have had experience in the design of Council Houses and other public buildings, and be capable of preparing working drawings and specifications, and supervising work in progress.

Any motor transport required in connection with the appointment will be provided and maintained by the Council.

The appointment is subject to the National Scheme of Conditions of Service, to the provision of the Local Government Superannuation Act, 1937, and to the successful candidate passing a medical examination, and to termination on either side by one calendar month's notice in writing.

Consideration will be given to providing house accommodation to the successful candidate if, in the opinion of the Council, it is warranted.

Applications, giving the names of two referees to whom reference may be made, endorsed "Architectural Assistant," should be received by the undersigned not later than first post on Friday, the 16th July, 1954.

Canvassing, either directly or indirectly, will disqualify.

A. E. STROUD,
*Clerk of the Council.*

Council Offices, Frindsbury Hill, Strood, Kent.
30th June, 1954. 3203

BOROUGH OF SWINDON.
ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Borough Architect's Department, at a salary in accordance with A.P.T., Grade IV (£580-£625 per annum), in connection with a large development programme for the Expansion of the Borough.

Applicants must have had experience in housing and general architectural work of a Local Authority, and must have passed the Intermediate Examination of the Royal Institute of British Architects.

*Housing accommodation* is available.

Applications, on forms to be obtained from the Town Clerk, Civic Offices, Swindon, must be returned not later than 19th July, 1954. 3178

CITY OF WINCHESTER.

Applications are invited for the post of ARCHITECTURAL ASSISTANT in the City Engineer's office. It is essential that the applicant should be a neat and accurate draughtsman, and should have had previous experience in an Architect's office. Salary and terms of appointment will be in accordance with Grade A.P.T., III, of the National Scales, and will be subject to the Local Government Superannuation Act, 1937.

Applications, stating age and details of experience, together with names and addresses of two referees, should be addressed to the undersigned and reach this office not later than Monday, 19th July, 1954. Canvassing, either directly or indirectly, will disqualify.

R. H. McCALL,
*Town Clerk.*

Guildhall, Winchester.
28th June, 1954. 3155

BRITISH ELECTRICITY AUTHORITY.
MIDLANDS DIVISION.

ARCHITECTURAL DRAUGHTSMEN are required in the civil engineering section of the Construction Department at Wolverhampton. N.J.B. service conditions, superannuable appointments, salaries within Schedule D, Grade 5 of the Agreement, £567 to £671 per annum.

Applicants should have had a sound technical education and practical experience in the layout and design of large buildings, canteens, office blocks, and similar constructions, preferably associated with generating stations. Appropriate qualifications an advantage.

Apply, quoting Vacancy No. 697MD, on form AE6, available from the Establishments Officer, 53, Wake Green Road, Moseley, Birmingham, 13, by 17th July, 1954. 3156

METROPOLITAN BOROUGH OF WOOLWICH.
BOROUGH ENGINEER'S DEPARTMENT.

SENIOR ARCHITECTURAL ASSISTANT required. Grade VIII (£785-£860), plus London weighting. A.R.I.B.A. or equivalent essential. Superannuation scheme. Medical examination.

Application forms from Borough Engineer, Town Hall, Woolwich, S.E.18, to be returned to the Town Clerk by 17th July, 1954.

Canvassing disqualifies. 3159

COUNTY BOROUGH OF HUDDERSFIELD.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of QUANTITY SURVEYOR, Grade IV. Salary: £580-£625.

Housing accommodation will be provided for the successful applicant, if required.

Post superannuable, subject to medical examination.

Applications, suitably endorsed, together with the names of two referees, should reach the Borough Architect and Planning Officer, High Street Buildings, Huddersfield, not later than 19th July, 1954.

HARRY BANN,
*Town Clerk.*

Town Hall, Huddersfield.
July, 1954. 3181

BOROUGH OF LUTON.
APPOINTMENT OF VALUATION ASSISTANT.

Applications are invited for the above appointment. Salary: A.P.T., VIII-IX, £785-£960.

Candidates should be Chartered Surveyors, and have considerable experience in all branches of work. Experience in quantity surveying an advantage. Housing accommodation can be made available, if required.

Applications, stating age, qualifications and experience, and names of two referees, to be sent to Borough Engineer, Town Hall, Luton, by 3rd August, 1954.

A. D. HARVEY,
*Town Clerk.*

Town Hall, Luton.
2nd July, 1954. 3219

NORTH RIDING EDUCATION COMMITTEE.

Vacancy for ASSISTANT ARCHITECT, Grade A.P.T., V. Salary: £620, rising by annual increments to £670. Candidates must be Associate Members of the R.I.B.A. Previous experience may be taken into account in fixing commencing salary. L.G. Superannuation Act. Send stamped address envelope for form and particulars. Closing date for applications: 24th July, 1954. Canvassing disqualifies. F. Barraclough, County Hall, Northallerton. 3220

BASILDON DEVELOPMENT CORPORATION.

Applications are invited for the following posts on the staff of the Chief Architect/Planner, Noel Tweddell, A.R.I.B.A.:—

(*a*) Grade II PLANNER, salary £1,135-£1,340.
(*b*) Grade III ARCHITECT, salary £860-£1,110.
(*c*) Grade IVB ASSISTANT ARCHITECT, salary £760-£860.
(*d*) Grade IVA ASSISTANT ARCHITECT, salary £660-£760.
(*e*) Grade VB JUNIOR ARCHITECTURAL ASSISTANT, £560-£610.

The successful applicant for post (*a*) will take charge of the planning and design team for the immediate development of the New Town Centre to serve a population of 80,000. Candidates must have had a good architectural training, and town planning qualifications are desirable. Experience of this type of work is essential.

The successful applicant for post (*b*) will be required to take charge of a group in the Housing Section, and must have considerable experience in design and supervision of large housing contracts and all stages of contract management to completion of final accounts.

The applicants for posts (*c*) and (*d*) must have experience in house design, preparation of working drawings, and supervision of contracts. Experience in Town Planning will also be available to suitably qualified applicants.

Applicants for posts (*a*) to (*d*) must have a professional qualification in Architecture.

The commencing salary within each grade will be in accordance with experience and ability. All appointments are subject to the provisions of the Local Government and Other Officers' Superannuation Act, and medical examination.

House accommodation in the New Town may be available.

Applications must be made on the special form (obtainable from the Chief Architect) to the General Manager, Basildon Development Corporation, Gifford House, Basildon, Essex, by 20th July, 1954, and the envelope endorsed with the relevant appointment. 3221

ARCHITECTURAL ASSISTANT required by the GOVERNMENT OF KENYA, P.W.D., for one tour of 40/48 months in the first instance. Salary scale (including present temporary allowance of 35 per cent. of salary): £904, rising to £1,134 a year. Commencing salary according to war service and experience. Gratuity of 13½ per cent. of total basic salary drawn during contract. Outfit allowance £30. Liberal leave on full salary. Candidates must be capable of working up sketch designs and preparing full working drawings for various types of Government buildings. Actual experience in an Architect's office and a sound knowledge of building construction are essential. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience, and quote M2B/30661/AG. 3222

BATTERSEA BOROUGH COUNCIL require ARCHITECTURAL ASSISTANT, A.P.T., III-IV. Applicants must have reached Intermediate standard R.I.B.A. L.G. Supn. Act. Application forms from Borough Engineer, Town Hall, S.W.11. Closing date: 26th July. 3224

## Architectural Appointments Vacant

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

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

ASSISTANT, with practical experience, required immediately in small London office. Good draughtsman, with sound knowledge of construction and specifications. Apply J. N. Heath, 15, New Bridge Street, E.C.4. Telephone: Central 1651. 3218

ASSISTANT (at Intermediate stage) required for Architects' London office engaged in major works of restoration and construction of Schools and Colleges. Appointment offers excellent opportunities for supervision of works and calls for a candidate with initiative. Salary £350-£450 per annum. Box 2974.

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS and Draughtsmen or women required in busy office in the Home Counties. Some experience essential. Large varied practice. Please state experience and salary required. Box 2137.

ASSISTANT required. Qualified or approaching Final, and with experience. Immediate requirement is for large-scale and interesting work. Valuable experience for keen man. Watson, Johnson & Stokes, Victoria Square, Birmingham. 2958

A SENIOR ARCHITECTURAL ASSISTANT required, full experience in preparation of Working Drawings, Details, and supervision of office and Industrial Buildings in the London Area. Good knowledge of construction and design essential. Apply in writing giving full particulars of qualifications, age, experience and salary required to Box 9829.

ECCLESIASTICAL ARCHITECT has vacancy for an ASSISTANT of Intermediate Standard who would be interested in old and new church work. Lawrence H. Bond, 11, Elmer Street, Grantham, Lincs. 2650

CLIFFORD TEE & GALE, F./F.R.I.B.A., require ARCHITECTURAL ASSISTANT, Intermediate standard, for industrial work in their office at 43, Frederick Road, Birmingham, 15. Five-day week. 3002

RILEY & GLANFIELD require one SENIOR ASSISTANT ARCHITECT for work on Churches, Private Houses, Factories, Shops, Flats, etc. CHA. 7328. 2967

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

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS required immediately in private office in Midlands. Should be quick, accurate draughtsmen with sound knowledge of construction and detailing. Please write stating age, when available, experience and salary required to Box 3050.

ARCHITECTS' ASSISTANTS required by a large Chain Store organisation. Commencing salary £600 to £750 per annum, according to experience. Staff canteen. Pension scheme. Write Box AJ 333, LPE, 110, St. Martin's Lane, W.C.2. 3048

REQUIRED at Company's Head Office, Guildford, ARCHITECTURAL ASSISTANT, A.R.I.B.A. Varied work, mainly factory. Five-day week. Salary by arrangement. Box 3076.

ARCHITECTURAL Assistant required immediately, inter-final standard. Interesting and varied work, including schools, hotels, estate development and domestic. Apply stating experience and salary required, to Ruddle & Wilkinson, F./L./A.R.I.B.A., Architects, Long Causeway Chambers, Peterborough. Telephone No. Peterborough 5248/9. 3047

ARCHITECTURAL ASSISTANT (Intermediate standard) required in small but busy private practice at Southbourne, Bournemouth. Write, stating experience and salary required, to Box 3183.

FARMER & DARK require qualified ARCHITECT, with contemporary outlook, and 3-5 years' experience. Work mainly industrial and commercial. Apply, giving age, training, experience, present salary, and names of two referees, to Romney House, Tufton Street, S.W.1. 3052

JUNIOR ARCHITECTURAL ASSISTANT required. Salary £350/£400 p.a. or according to experience. Apply giving full particulars to Frederick Gibberd, 8, Percy Street, W.1. 3078

ASSISTANT ARCHITECT required. Salary £500 p.a. or thereabouts according to experience. Apply giving full particulars to Frederick Gibberd, 8, Percy Street, W.1. 3079

SENIOR ASSISTANT required with all round experience, preferably school/industrial. Constructional design ability. Salary up to £750 p.a. according to experience. Immediate written applications to Read and McDermott, F.R.I.B.A. 18, High Street, Maidstone. 3080

ARCHITECTURAL STAFF required for wide range of work in Architects' Department of George Wimpey & Co. Ltd., Hammersmith. Salaries £500-£900 per annum dependent upon experience and ability. Appointments will be on a permanent basis. Applications giving brief particulars of experience and qualifications to be addressed to Staff Architect, George Wimpey & Co. Ltd., 27 Hammersmith Grove, W.6. 3083

OPPORTUNITY for keen ARCHITECTURAL ASSISTANT in small office in S.E. London, should be good draughtsman, Intermediate standard, with experience in a private office. Brief details of age, experience, and salary required to Box 3103.

ARCHITECTURAL ASSISTANTS required immediately. Should be experienced and good draughtsmen. Salary according to experience. Apply in writing, giving full particulars of qualifications, age, experience, and salary required to Deacon & Laing, 9, St. Paul's Square, Bedford. 3051

ASSISTANT ARCHITECT required for Liverpool city office. Permanent position for keen man. Salary: £750 per annum. Apply Box 3185.

WEST END office, with varied practice, requires male ARCHITECTURAL ASSISTANTS, having a contemporary outlook and some experience in office block and shop design. Salary: £550-£600 p.a. Details (age, experience, previous employment, etc.), to Box 3186.

ARCHITECTURAL ASSISTANTS required for busy Glasgow office working 5-day week. Salaries from £450 to £650, according to age and experience. Write, giving full particulars, Box 3187.

ASSISTANT for general practice in Midlands. One about to finish 3- or 5-year School course suitable. Box 2960.

ARCHITECTURAL ASSISTANT, between Inter. and Final R.I.B.A. standard, required in Reading office of Chartered Architects. Applicant must be capable of preparing working drawings, details, and specifications. Salary: £500 to £550. All details to Box 3214.

ARCHITECTURAL ASSISTANT, with sound domestic construction knowledge, required in private Architects' office. Houses, halls, churches, housing, shops and offices, etc. Specification writing essential. Apply, giving age, training, experience, salary required, and reference, to A. J. & L. R. Stedman, F./A.R.I.B.A., 36, South Street, Farnham, Surrey. 3197

ARCHITECTURAL DRAUGHTSMAN required by a Leeds Company with a substantial and world-wide business in prefabricated buildings allied to traditional building and civil engineering. Applicants must be neat and accurate draughtsmen, preferably of Intermediate standard. The work is varied, and good opportunities are open to the man with imagination and initiative, prepared to devote effort to learning the technique of prefabrication. Pension scheme in operation. Reply, stating age, experience, and present salary, to Cawood Wharton & Co., Ltd., 1A, Cavendish Road, Leeds, 1. 3198

EXPERIENCED ARCHITECTURAL ASSISTANT required immediately by North London firm of Architects with busy practice. Salary: £550 to £600. Reply, stating age, qualifications and experience, to Box 3199.

IMMEDIATE vacancy for capable ASSISTANT, accustomed to working with minimum supervision, occurs in Westminster practice. Practical knowledge and capability on the drawing board secondary to qualification. Salary by arrangement. Reply Box 3217.

J. D. & B. Y. TETLOW, A./A.R.I.B.A., A./A.M.T.P.I., require qualified ARCHITECTS with flair for contemporary design. Salary up to £470. Write Bank Chambers, 1, Bird Street, Lichfield, Staffs. 3216

SENIOR ASSISTANT, with some years' office experience required in busy and varied practice in Reading. State experience and salary required. Box 3204.

ARCHITECTURAL ASSISTANTS required immediately, London office. Good salary and prospects. Write, with particulars of age, qualifications, experience, and salary required, to Box 611, c/o 7, Coptic Street, W.C.1. 3148

ARCHITECTURAL ASSISTANTS required immediately for busy practice in W.C. London area. Write, stating age, experience, and salary required, to Box 3144.

WANTED immediately in office of A.R.I.B.A. dealing with domestic work for a London housing company, ARCHITECTURAL ASSISTANT, of above Inter. R.I.B.A. standard, able to prepare designs, working drawings and specifications. Salary up to £650 p.a., according to experience and capabilities. Pension scheme. Box 3146.

WEST END Firm of Architects require JUNIOR staff, with office experience. Capable working drawings. Salary: £350-£500 per annum. 5-day week. Box 3145.

SENIOR ASSISTANT required in Architect and Surveyor's Department of a large Brewery Company in London. Applicants should be neat and accurate draughtsmen, possess a sound knowledge of construction, and have had good experience in industrial work, including the layout of plant. Reply, stating age, experience, past and present appointments, and salary required, to Box 3147.

ARCHITECTURAL ASSISTANT, between Inter. and Final R.I.B.A. standard, required in Reading office of Chartered Architects. Applicants must be capable of preparing working drawings, details, etc. Apply in writing, giving full particulars, age, and salary required, to Box 3149.

ARCHITECTURAL ASSISTANTS required immediately for housing, schools and industrial work. First-class draughtsmen, with knowledge of contemporary design and construction. Salary scale: £500 to £800 per annum, with placing according to age and experience. Pension and profit sharing schemes in operation. Apply in writing, stating age, training and experience, to The Scottish Construction Co., Ltd., Sighthill Industrial Estate, Edinburgh, 11. 3151

SENIOR ASSISTANTS to Partners required by busy professional firm in London. Must be experienced and capable of all draughtsmanship, and carrying out commercial and industrial projects from sketch plans to completion of buildings. Salary about £1,000, according to ability and experience. Pension scheme available where applicable. Apply Box 3167.

REEMA CONSTRUCTION, LTD., Milford Manor, Salisbury, require:—
(1) YOUNG ARCHITECT. To train for development work in the Reema system of precast concrete construction applied to housing and other buildings. £500 a year minimum.
(2) DRAUGHTSMEN. Additional Draughtsmen required. Sound experience of building details for work on precast concrete prefabricated housing and other buildings. Up to £600 a year. 3154

WANTED, for London, competent ASSISTANT. Good draughtsman. Box 3215.

ARCHITECTURAL ASSISTANT required by large Midlands Brewery Company. Experience of property maintenance and alterations to licensed premises will be an advantage. Please reply, giving details of qualifications, age, experience, and salary required, to Box 3153.

ARCHITECTURAL DRAUGHTSMAN required by large Cinema Circuit in London. Applicant must be over 21 years of age and capable draughtsman, with knowledge of modern building construction and finishes. The appointment is permanent and pension scheme, canteen, 5-day week, and other amenities are available. Write, stating age, details of training and experience, and salary required, to Box 3157.

GOOD salary offered to keen ARCHITECTURAL ASSISTANT of Intermediate standard; small office in North London area; must be good draughtsman and have good general experience in a private office. Reply with brief details of experience, age, etc., to Box 3158.

ARCHITECTURAL ASSISTANT required for Estates Department. Applicants should have sound practical knowledge and previous office experience. National Service completed. Interesting industrial and commercial work. Write, stating age, brief details of experience, qualifications, salary required, etc., to the Estates Surveyor, Spicers, Ltd., 19, New Bridge Street, London, E.C.4. 3160

MALE ARCHITECTURAL ASSISTANTS required urgently. All grades up to £600. 35-hour week. Write full particulars, Lanchester & Lodge, 10, Woburn Square, W.C.1. 3161

CLIFFORD TEE & GALE, F./F.R.I.B.A., require ARCHITECTURAL ASSISTANT, for industrial work in their office at 43, Frederick Road, Birmingham, 15. 5-day week. 3162

JUNIOR ARCHITECT ASSISTANTS required by busy professional firm in London. Excellent prospects and varied experience. Apply Box 3168.

ARCHITECTURAL ASSISTANTS.

THERE are vacancies for Architectural Assistants at the Head Office of the Architects' Department, Ind Coope & Allsopp, Ltd., The Brewery, Burton-on-Trent, and at the Regional Offices situated in London and Oxford. The positions are considered suitable for applicants recently qualified or students nearing the required standard for the Final Examination, and who have had good general experience in design and construction.

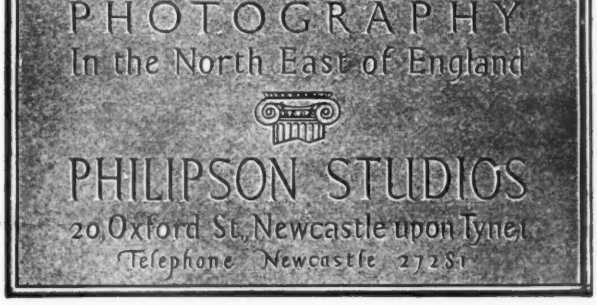
The Department has a considerable and interesting programme in hand. The appointments will be to the Temporary staff, at a commencing salary of £550-£650 per annum, according to qualifications and experience.

A 5-day working week is in operation, and successful applicants would be expected to reside in the district in which the office is situated.

Particulars of training, experience, past and present appointments and qualifications, together with testimonies, stating age and whether married or single, should be sent to the Chief Architect, Ind Coope & Allsopp, Ltd., The Brewery, Burton-on-Trent. An indication should also be given as to which office would be preferred. 3177

ARCHITECTURAL ASSISTANT, of Intermedium standard and with good experience, wanted for general practice 10 miles from London. Work includes Schools, Housing and Hospital schemes. The successful applicant would be required to take up the appointment on 1st October, 1954. Apply by letter, giving age, full details of education and experience, and salary required, to Tooley & Foster, Chartered Architects, Midland Bank Chambers, Buckhurst Hill, Essex. 3174





ARCHITECTS' ASSISTANTS (Senior and Junior) required for Newcastle-upon-Tyne office. Interesting varied practice. Ability to work independently desirable, with ample scope for initiative in design and administration throughout. Apply to J. Walton Taylor & Son, St. James' Building, Gallowgate, Newcastle-upon-Tyne. 3175

ARCHITECTURAL ASSISTANT wanted, with some years' experience in provincial offices, for interesting and varied work. Salary fully up to ability. Superannuation and bonus schemes in operation. Full details to F. J. Lenton & Partners, F./A.R.I.B.A., Stamford, Lincs. 3173

ARCHITECTS, London, S.W.1, require ASSISTANT, preferably qualified, to whom work on country houses, historic and otherwise, would be congenial. Office experience and good draughtsmanship essential. Write Box 3172.

JUNIOR ASSISTANT required by East Anglian Architect. Salary: £350-£400. Send details of experience, age, etc., to Box 3171.

## Architectural Appointments Wanted

B.ARCH.(LIV.), A.R.I.B.A., 17 years' varied experience, seeks stable position of responsibility, with scope for initiative and future prospects in private practice, or with company. Salary by arrangement. Box 3073.

CHIEF ASSISTANT, A.R.I.B.A. (36), 17 years' varied experience, including schools, hospitals, university buildings, housing, seeks responsible post in small progressive practice in Southern England. Salary: £850-£1,000. Box 3094.

CHIEF ASSISTANT (37), R.I.B.A., Final pt. 2, requires position at home or abroad, or willing to travel. Experience in Industrial, Commercial and Private practice. Write Box 3207.

A.R.I.B.A. (33), 8 years' varied experience private practice, seeks progressive position in London or Windsor, Weybridge, Staines, Slough area. Salary by arrangement. Box 3208.

YOUNG qualified ARCHITECT requires an executive position or Junior Partnership. Box 3206.

ARCHITECT (33) wishes to purchase an established practice in the City of London, partnership or outright, from a member who would be retiring in the course of a few years, and who would like to hand over the principal responsibilities beforehand. Principal could advise on an agreed salary after retirement. Highest references given. Box 3209.

## Other Appointments Vacant

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

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

VACANCY arises for Articled Pupil (Architectural or Building Surveying) in City Firm. Box 1730.

DISPLAY and Exhibition Design. Vacancy for ASSISTANT capable of carrying out contemporary graphic design, presentation sketches, working drawings and brief specifications. Permanent position for experienced, imaginative designer. Details of past experience and specimens to Mrs. Sandilands, c/o W. M. de Majo, 33, Jubilee Place, S.W.3. 3138

PLUMBING SURVEYORS REQUIRED. Keen, energetic, and practical men, with some administrative experience (or who can be trained), will be considered for surveying substantial Plumbing Contracts and later to assist in Estimating and Contract Management. Must be able to drive, prepared to travel. Write, with full details of ability and experience, to Cooper Plumbing Co., Ltd., Lowdham Street, Carlton Road, Nottingham. 3086

A NEAT and accurate DRAUGHTSMAN or DRAUGHTSWOMAN required for busy general practice in London. Working drawings and detailing. Salary by arrangement. Apply Box 3085.

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# Alphabetical Index to Advertisers


| | PAGE |
|---|---|
| Adams, Robert (Victor), Ltd. | lxxii |
| Adhesive Dry Mounting Co., Ltd., The | lxxix |
| Adshead Ratcliffe & Co., Ltd. | — |
| Aidas Electric, Ltd. | xx |
| Aluminium Union, Ltd. | — |
| Architects' Benevolent Society | lxix |
| Architectural Press, Ltd., The | xxxviii, lxix, lxx, lxxii, lxxiv, lxxvii |
| Associated Metal Works (Glasgow), Ltd. | lxxiv |
| Automatic Pressing, Ltd. | lxviii |
| Baldwin, Son & Co., Ltd. | lxxiv |
| Banister, Walton & Co., Ltd. | — |
| Barking Brassware Co., Ltd. | lxxiv |
| Batley, Ernest, Ltd. | lxxiii |
| Beckett, Laycock & Watkinson, Ltd. | lxxi |
| Benham & Sons, Ltd. | lxxiv |
| Booth, John, & Sons (Bolton), Ltd. | — |
| Boulton & Paul, Ltd. | li |
| Bowaters Building Boards, Ltd. | lxiii |
| Bowker, S. O., Ltd. | lxxx |
| Briggs, Wm., & Son, Ltd. | xii |
| British Aluminium Co., Ltd. | — |
| British Insulated Callender's Cables, Ltd. | — |
| British Paints, Ltd. | — |
| British Plimber, Ltd. | ix |
| British Trolley Track Co., Ltd. | xxvii |
| Broad & Co., Ltd. | lxvi |
| Brown, Donald (Brownall), Ltd. | lxx |
| Cafferata & Co., Ltd. | v |
| Callow & Keppich, Ltd. | xlviii |
| Celotex, Ltd. | — |
| Cement Marketing Co., Ltd., The | — |
| Central Drawing Office | lxxiv |
| Chloride Batteries, Ltd. | x |
| Clark, James, & Eaton, Ltd. | xxxv |
| Clarke, Ellard Engineering Co., Ltd. | — |
| Colt Ventilation, Ltd. | — |
| Colt, W. H. (London), Ltd. | — |
| Compactom, Ltd. | lxiv |
| Copperad, Ltd. | lxvii |
| Costain, Richard, Ltd. | lxi |
| Crittall Mfg. Co., Ltd. | — |
| Denny, Mott & Dickson, Ltd. | — |
| Doulton & Co., Ltd. | xxviii |
| Downing, G. H., & Co., Ltd. | xxv |
| Dunbrik, Ltd. | lxxiii |
| Dunlop Rubber Co., Ltd. | — |
| Dussek, Bitumen & Taroleum, Ltd. | lxxxi |
| Edison Swan Electric Co., Ltd., The | xxxi |
| Econa Modern Products, Ltd. | lxxiii |
| Eeto Insulations | lxix |
| Ellis School of Architecture | lxxviii |
| Engravers' Guild, Ltd., The | l |
| Ferodo, Ltd. | lx |
| Fibreglass, Ltd. | — |
| Finlock Gutters, Ltd. | xlvi |
| Flavel, Sidney, & Co., Ltd. | xxiv |
| Foyle, W. & G., Ltd. | lxxix |
| Franki Compressed Pile Co., Ltd., The | — |
| Frenger Ceilings, Ltd. | — |
| Furse, W. J., & Co., Ltd. | lxxix |
| Gas Council, The | xli |
| Gaskell & Chambers, Ltd. | xxxii |
| Greenwood's & Airvac Ventilating Co., Ltd. | ii |
| Gyproc Products, Ltd. | xliii |
| Gypsum Mines, Ltd., The | xl |
| Hall, Robert H., & Co. (Kent), Ltd. | lxx |
| Hangers Paints, Ltd. | l |
| Harper, John, & Co., Ltd. | xv |
| Harvey, G. A., & Co. (London), Ltd. | lxvi |
| Hathernware, Ltd. | lxxix |
| Hawkhead Bray & Son, Ltd. | xl |
| Henderson, P. C., Ltd. | lvi |
| Hille, S., & Co., Ltd. | xxii |
| Holophane, Ltd. | — |
| Holoplast, Ltd. | — |
| Hope, Henry, & Sons, Ltd. | lviii |
| Hydran Products, Ltd. | vi |
| Ibstock Brick & Tile Co., Ltd. | lxii |
| Imperial Chemical Industries, Ltd. | — |
| Industrial Engineering, Ltd. | xliv |
| International Correspondence Schools | lxxix |
| International Paints, Ltd. | xi |
| Jenson & Nicholson, Ltd. | xiv |
| Jones, T. C., Ltd. | xviii |
| Kahn, E., & Co. | lxxiii |
| Kay, William (Bolton), Ltd. | liv |
| Kingfisher, Ltd. | xiii |
| Kinnell, Chas. P., & Co., Ltd. | lxxix |
| Kwikform, Ltd. | — |
| Laing, John, & Son, Ltd. | — |
| Lead Sheet & Pipe Council | — |
| Leeds Fireclay Co., Ltd. | liii |
| Limmer & Trinidad Lake Asphalt Co., Ltd. | — |
| London Brick Co., Ltd. | lxv |
| MacAndrews & Forbes, Ltd. | lxxxi |
| McCarthy, M., & Sons, Ltd. | lxxix |
| Mallinson, Wm., & Sons, Ltd. | — |
| Marley Tile Co., Ltd., The | — |
| Meta Mica, Ltd. | xxxviii |
| Metropolitan-Vickers Electrical Co., Ltd. | lii |
| Midland Electric Mfg. Co., Ltd. | xvi |
| Mills Scaffold Co., Ltd. | lxxxii |
| Myton, Ltd. | lv |
| National Association of Putty Manufacturers | lxx |
| National Coal Board | iii |
| National Federation of Clay Industries | lxv |
| Neuchatel Asphalte Co., Ltd. The | xxxvii |
| Northern Aluminium Co., Ltd. | iv |
| North British Chemical Co., Ltd. | liv |
| Packard & Ord, Ltd. | lxxi |
| Parker, Winder & Achurch, Ltd. | — |
| Penfold Fencing & Engineering Co., Ltd. | — |
| Permanite, Ltd. | lxxi |
| Philipson & Son, Ltd. | lxxvii |
| Pickerings, Ltd. | xix |
| Pilkington Bros., Ltd. | — |
| Prodorite, Ltd. | — |
| Pynford, Ltd. | xlviii |
| Radiation Group Sales, Ltd. | viii |
| Rawlplug Co., Ltd., The | xlii |
| Redpath, Brown & Co., Ltd. | — |
| Robertson Thain, Ltd. | xxi, xxviii |
| Rownson, Drew & Clydesdale, Ltd. | lxxi |
| Ruberoid Co., Ltd. The | — |
| Rubery Owen & Co., Ltd. | xxxiv |
| Rycroft & Co., Ltd. | ii |
| Sankey, J. H. & Son, Ltd. | — |
| Sealanco (St. Helens), Ltd. | xxvi |
| Sealocrete Products, Ltd. | xxxvi |
| Shurdcrete, Ltd. | lxviii |
| Sign Service | lxxix |
| Silexine Paints, Ltd. | — |
| Small & Parkes, Ltd. | xxiii |
| Smith & Rodger, Ltd. | lxviii |
| Smith's Fireproof Floors, Ltd. | xxii |
| Solignum, Ltd. | lxviii |
| Sommerfelds, Ltd. | xlii |
| Spencer, Lock & Co., Ltd. (Royal Board) | lxxix |
| Stramit Boards, Ltd. | — |
| Thermalite, Ltd. | xxxiii |
| Thompson, John (Beacon Windows), Ltd. | — |
| Thorp, John B. | — |
| T.I. Aluminium, Ltd. | lix |
| Tiffin, H., & Son, Ltd | lxxii |
| T.M.C. Harwell (Sales), Ltd. | xlix |
| Treetex, Ltd. | xvii |
| Tretol, Ltd. | xxix |
| Trianco, Ltd. | lii |
| Troughton & Young (Lighting), Ltd. | vii |
| United Paint Co., Ltd., The | lxvii |
| Val de Travers Asphalte, Ltd. | — |
| Venus Pencil Co., Ltd., The | xxxvi |
| Walker, Crosweller & Co., Ltd. | xlvii |
| Ward & Co. | lxxix |
| Ward, Thos. W., Ltd. | xxx |
| Warerite, Ltd. | lxxix |
| Williams & Williams, Ltd. | xxxix |
| Wood, Edward, & Co., Ltd. | — |


For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Education, Legal Notices, Miscellaneous Property, Land and Sales, lxxv, lxxvi, lxxvii, lxxviii.

PAGE
iii
lxv
xxxvii
iv
liv
lxxi

lxxi
lxxvii
xix

xlviii
viii
xlii

i, xxviii
lxxi

xxxiv
ii

xxvi
xxxvi
lxviii
lxxix

xxiii
lxviii
xxii
lxviii
xlii
lxxix

xxxiii

lix
lxxii
xlix
xvii
xxix
lii
vii
lxvii

xxxvi
xlvii
lxxix
xxx
lxxix
xxxix

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