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

IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1.	Mayfair 7086
ILA	Institute of Landscape Architects, 2, Guilford Place, W.C.1.	Holborn 0281
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institute of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, A.R.I.B.A., 71, Blandford Street, W.1.	Welbeck 4713
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1.	Abbey5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1.	Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, London, W.C.1.	Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

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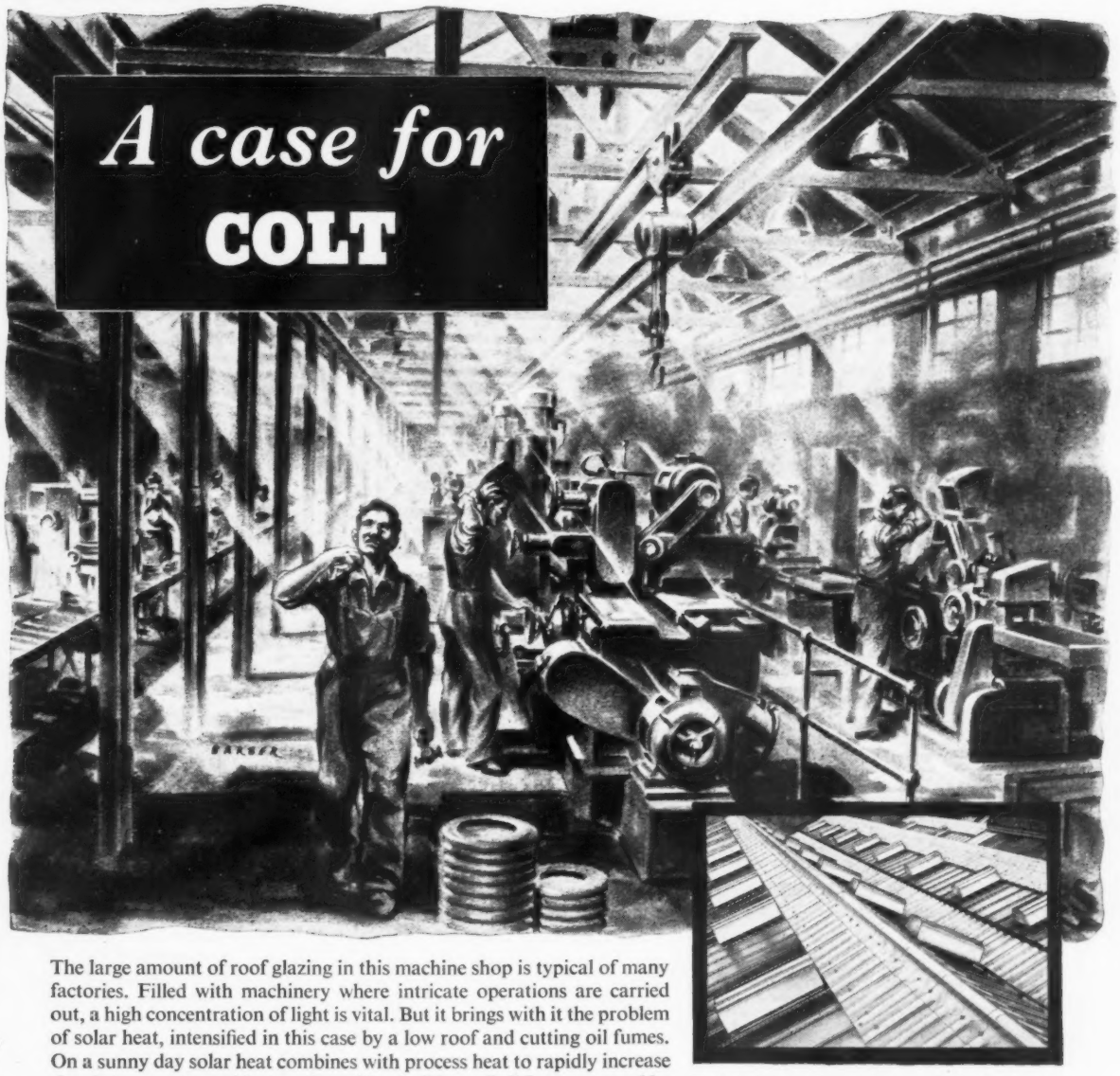

The large amount of roof glazing in this machine shop is typical of many factories. Filled with machinery where intricate operations are carried out, a high concentration of light is vital. But it brings with it the problem of solar heat, intensified in this case by a low roof and cutting oil fumes. On a sunny day solar heat combines with process heat to rapidly increase the air temperature; this, together with a build up of oil fumes trapped by the low roof, inevitably results in falling output and an increase in human errors and accidents. This is a typical case, calling for Colt Ventilation, and one that we have often met and overcome in our dealing with 9,000 major industrial and commercial organisations.

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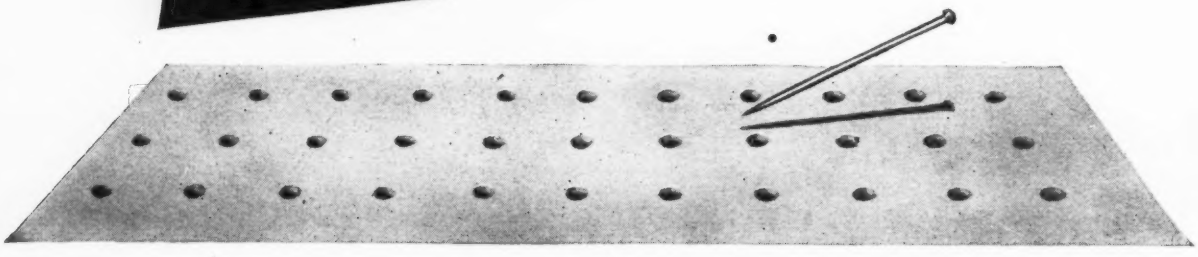

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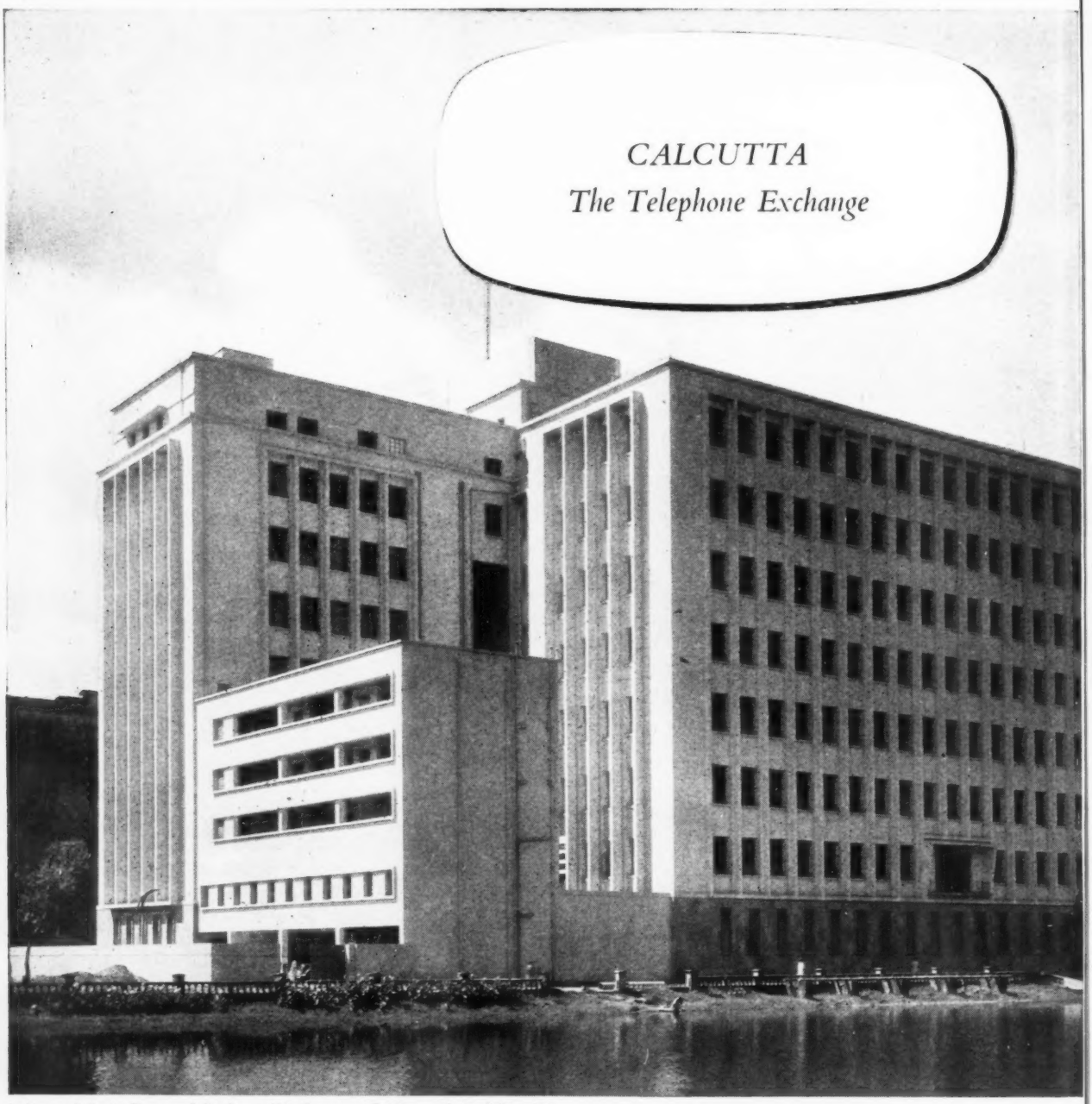

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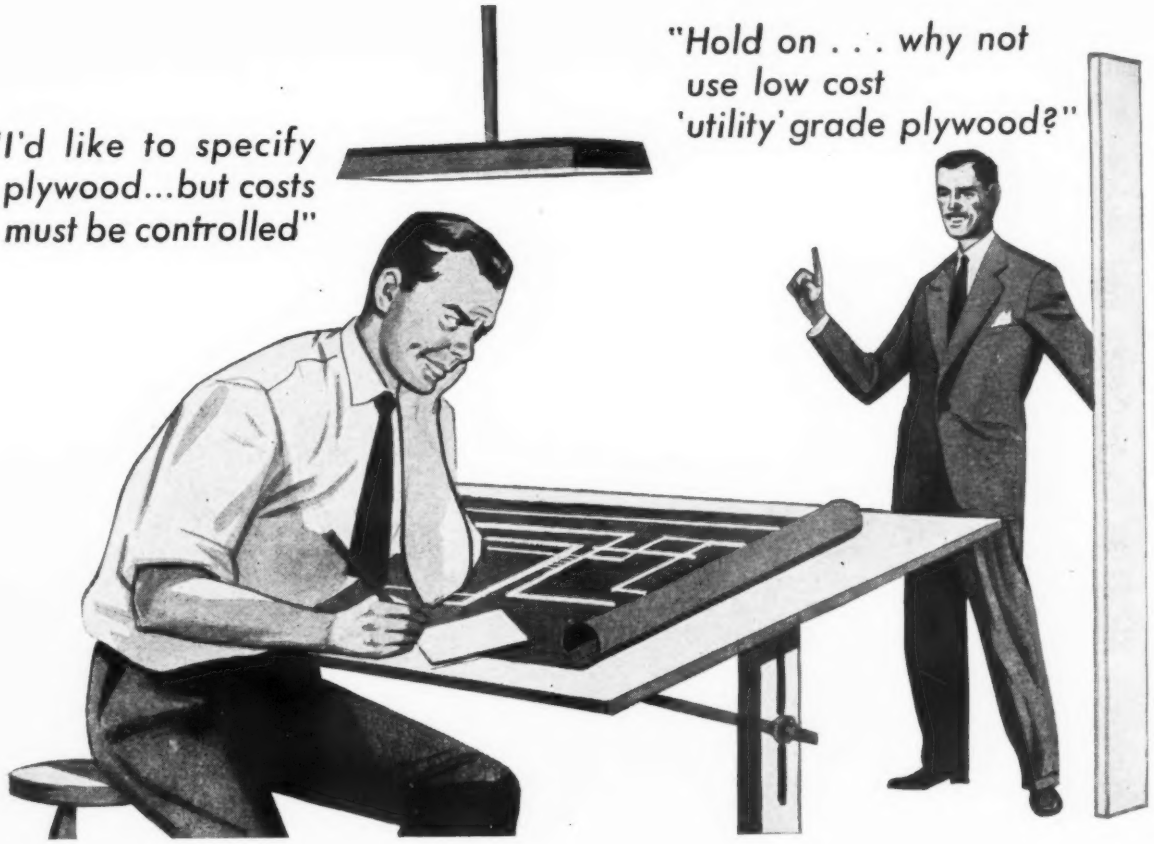

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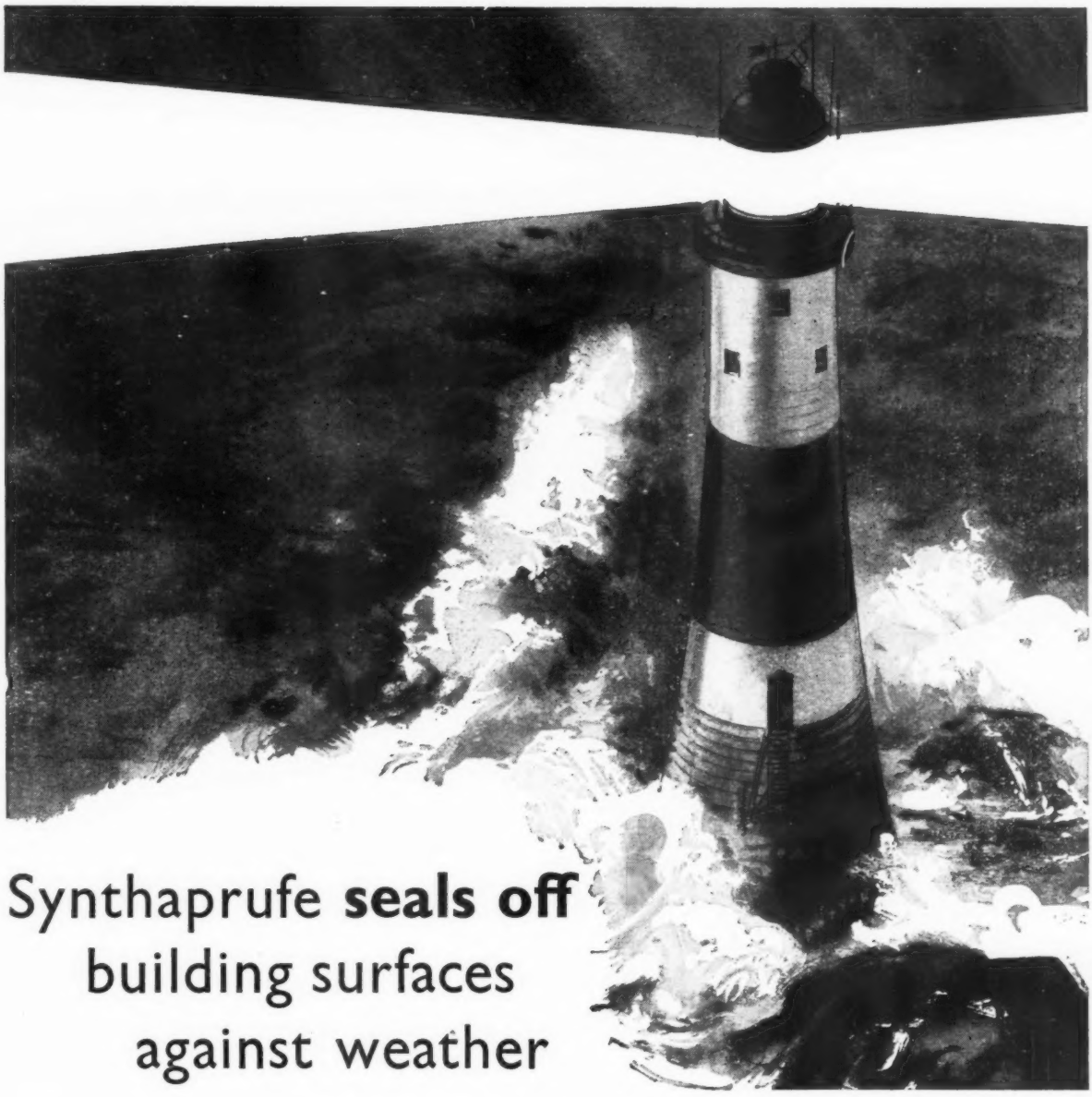

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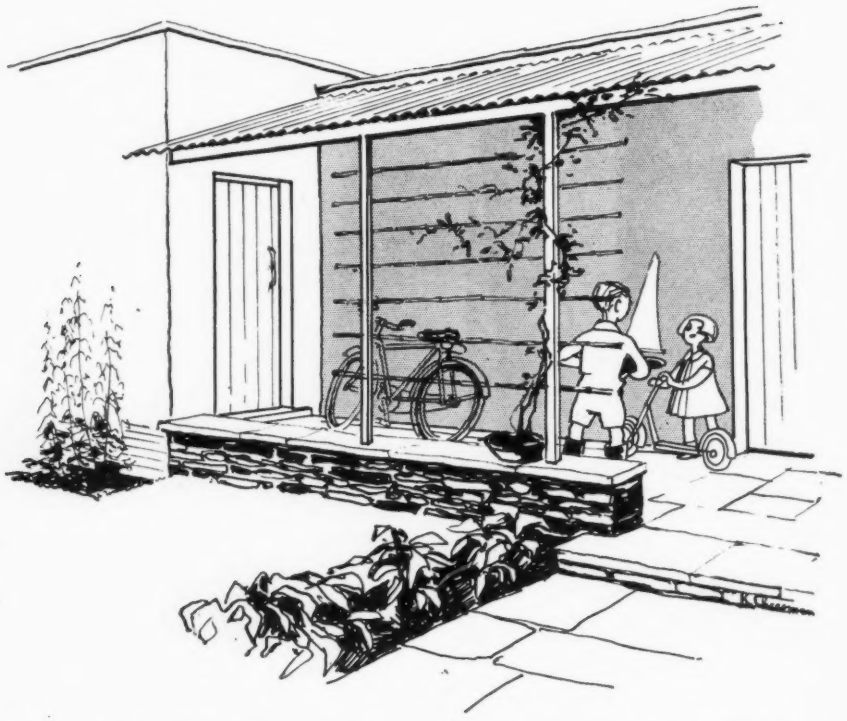
that's a light idea



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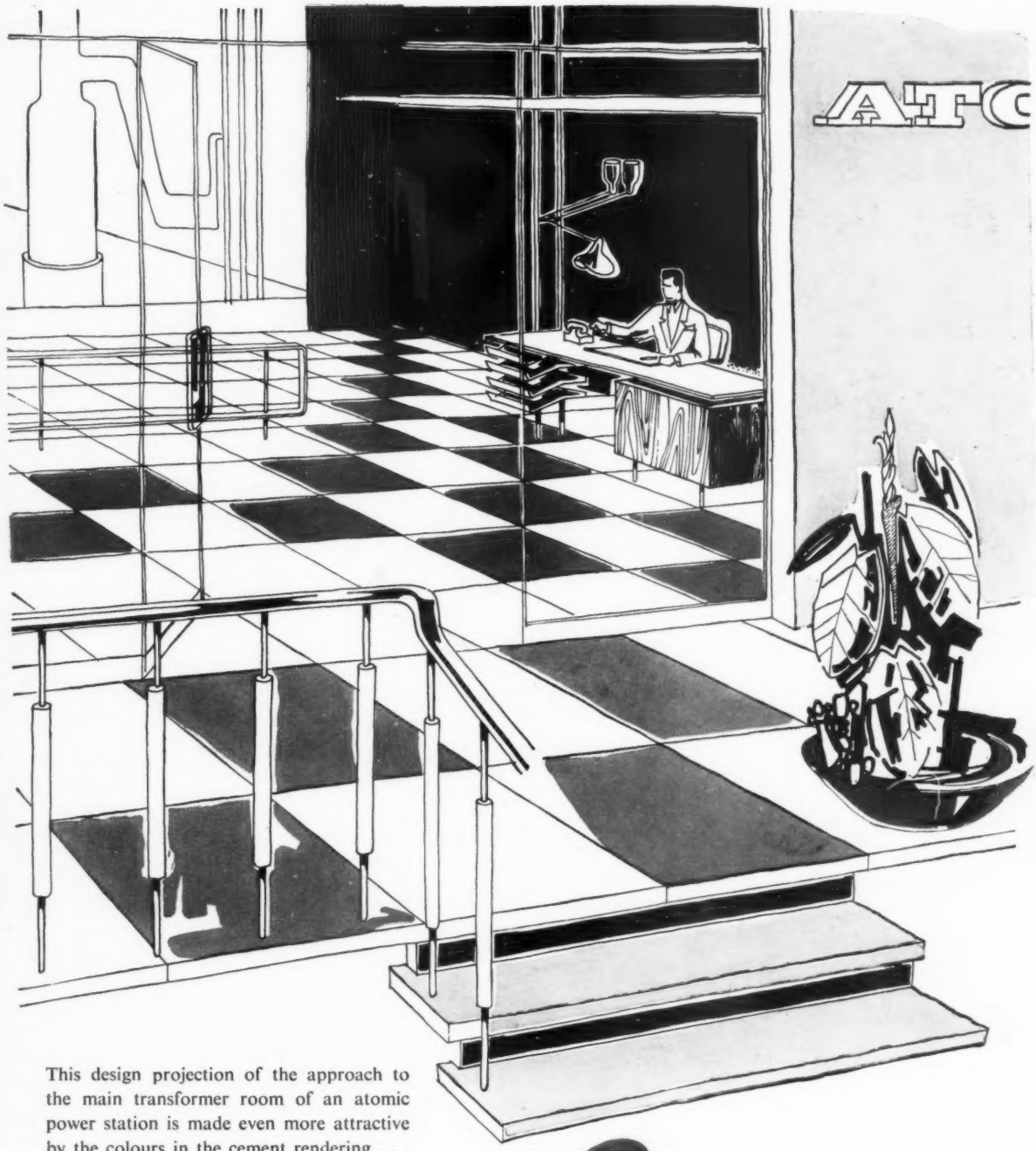

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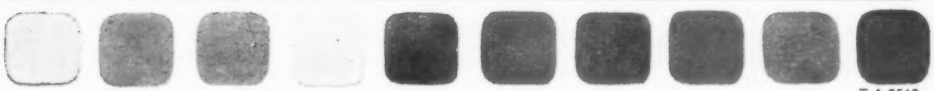

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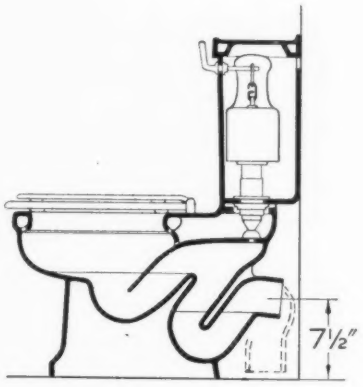

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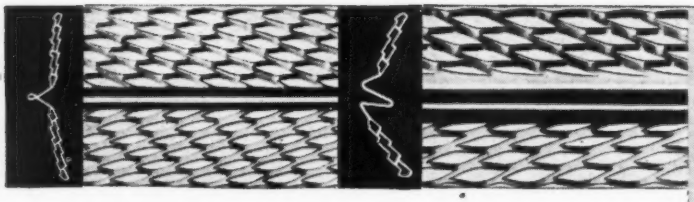

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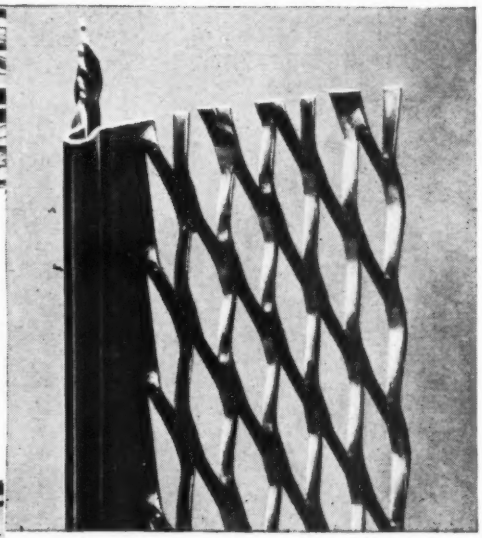

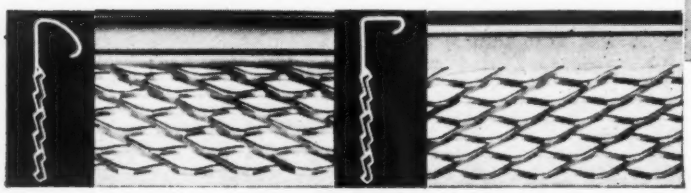

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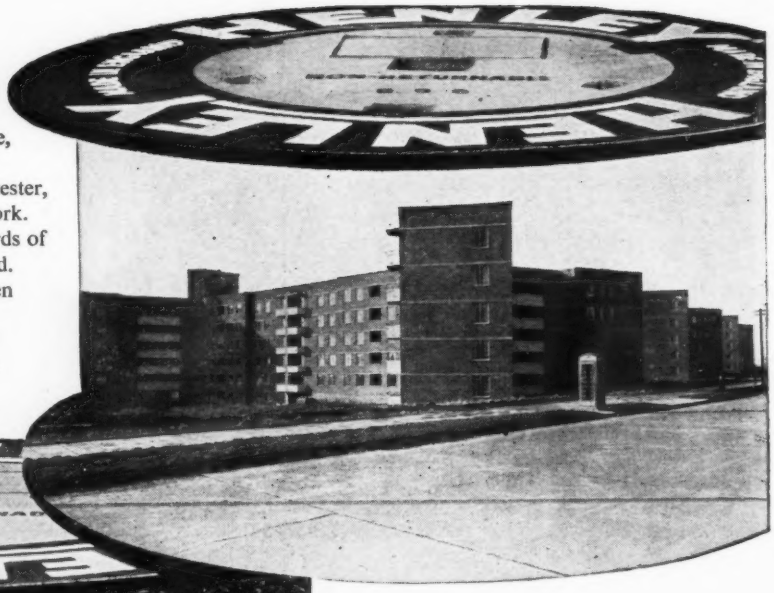

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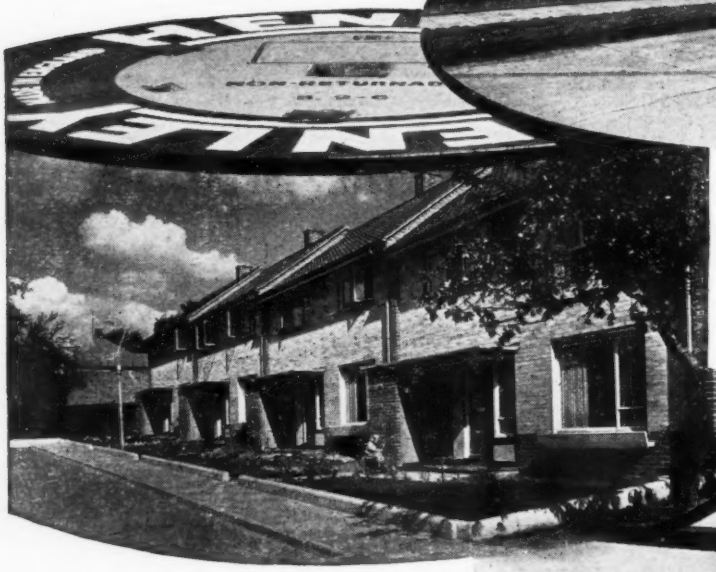

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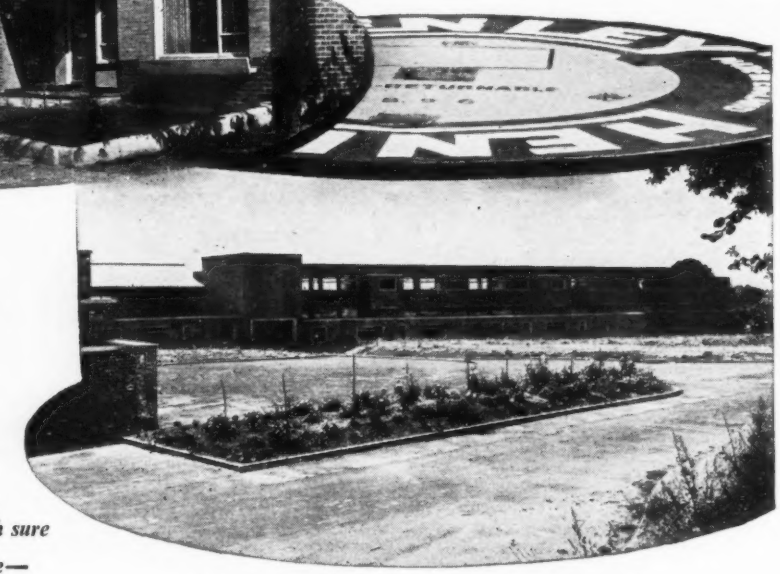

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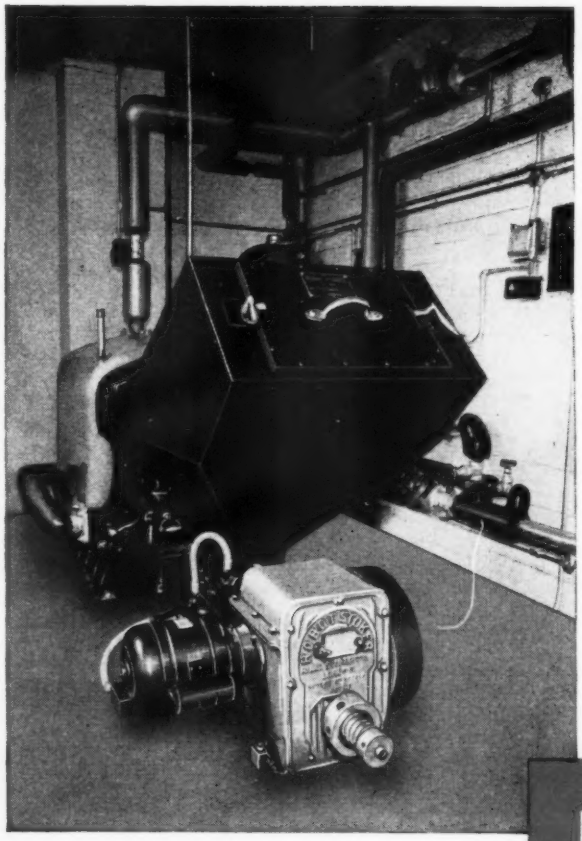

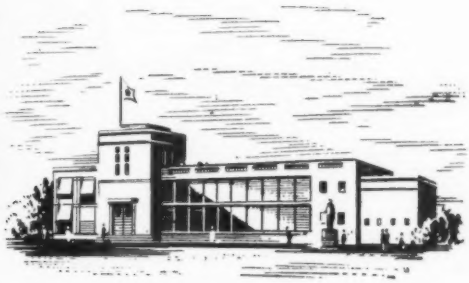

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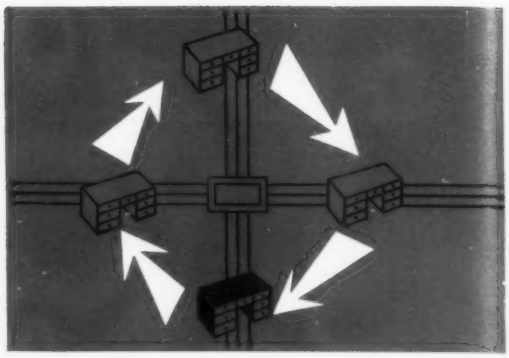
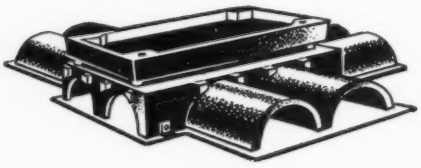
UNDERFLOOR DUCTS



For the internal distribution of light, power and communications

JUNCTION BOXES AND COMPONENTS



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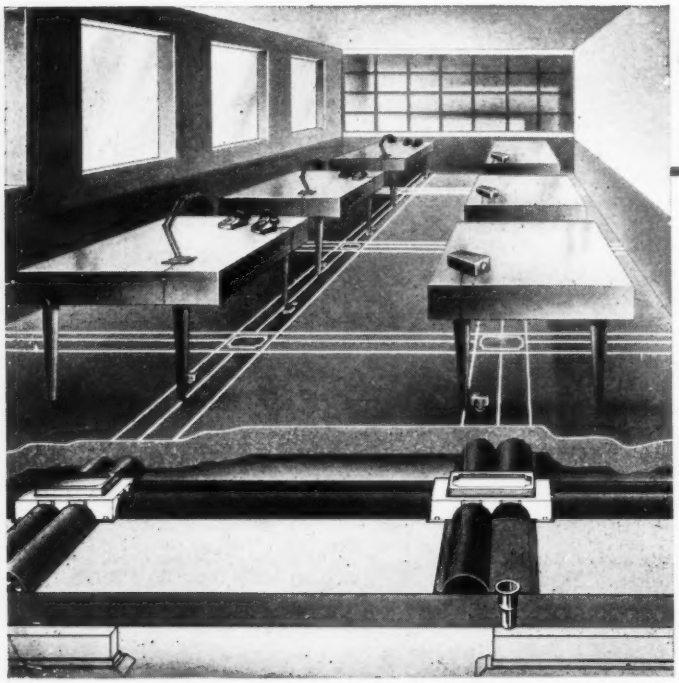
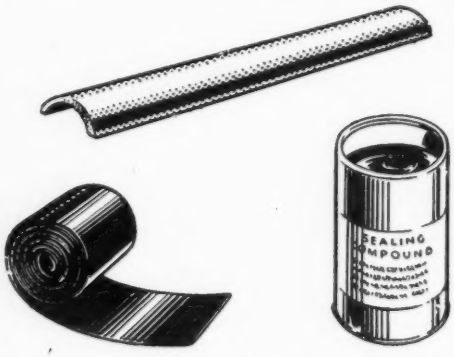


A typical arrangement of a twin underfloor duct system showing the inherent adaptability of Key Fibre Underfloor ducts.



We have illustrated above a 2 x 2 and a 3 x 3 Junction Box, together with a section of duct, the sealing compound and impregnated asbestos sheet used in the installation of Key Fibre Underfloor Duct Systems.

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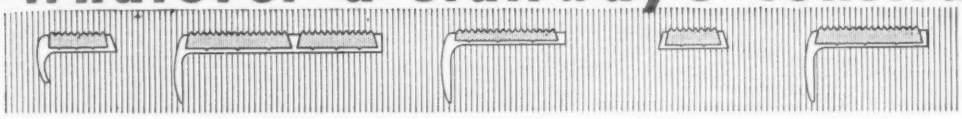
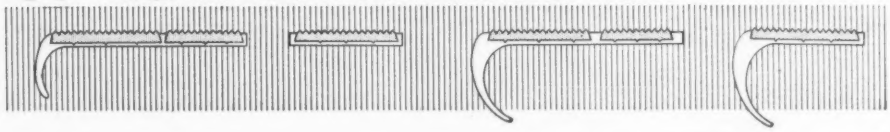
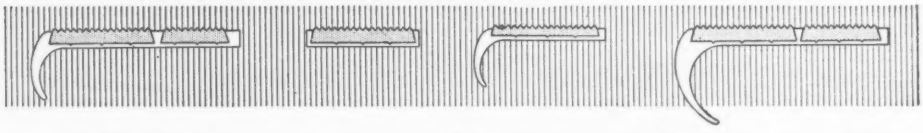


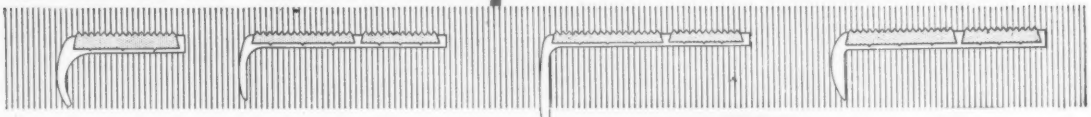
or curve...whatever



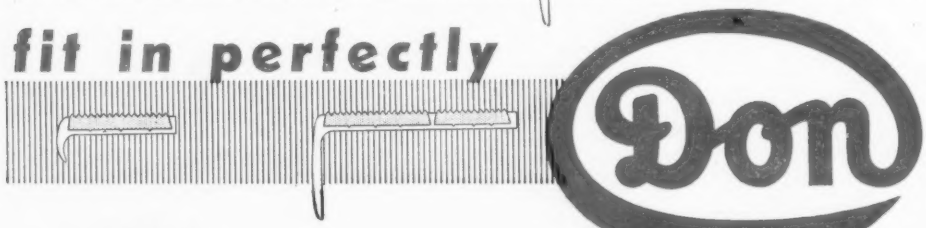
its colour scheme...there's



a DON non-slip stairtread to



fit in perfectly



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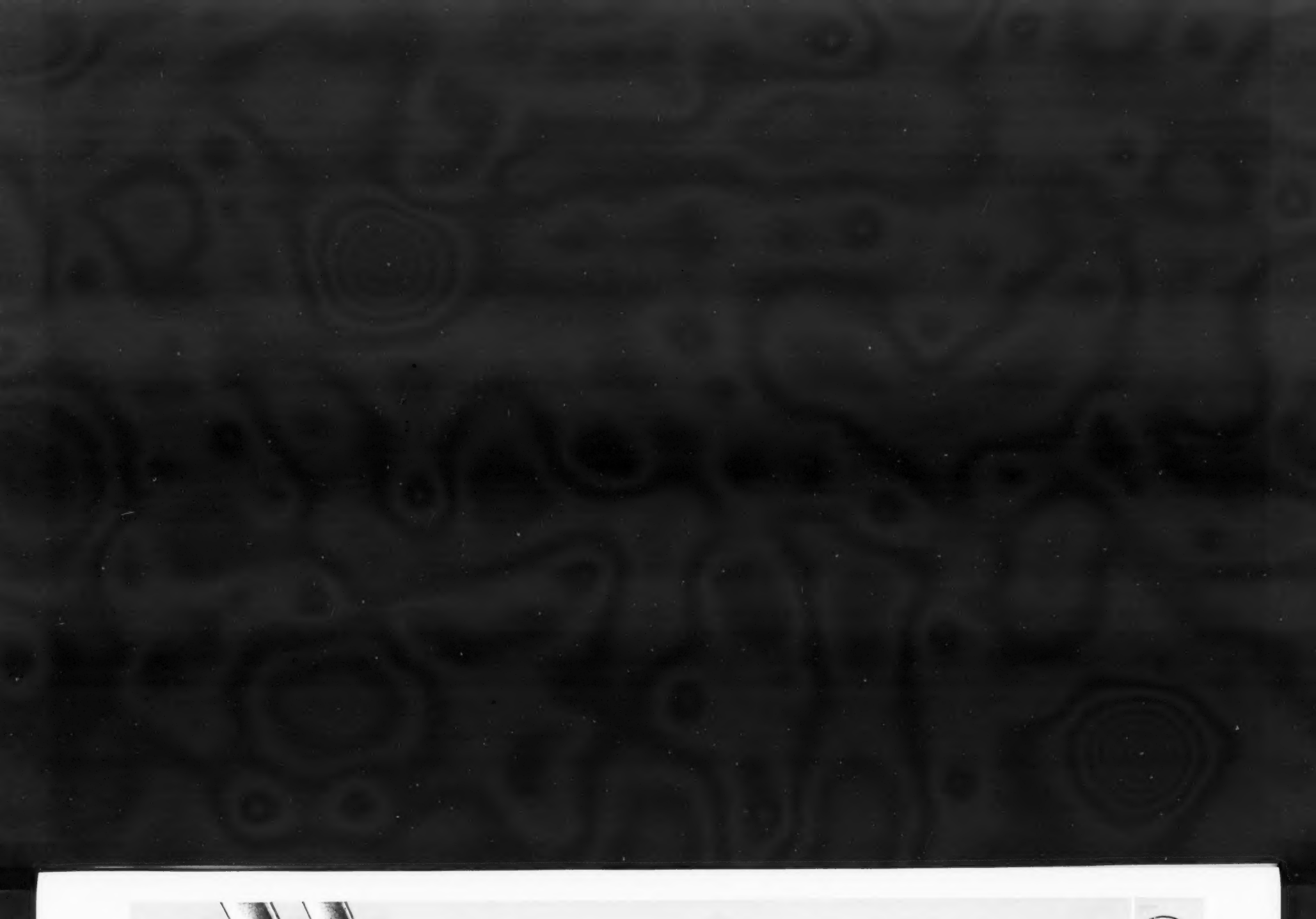

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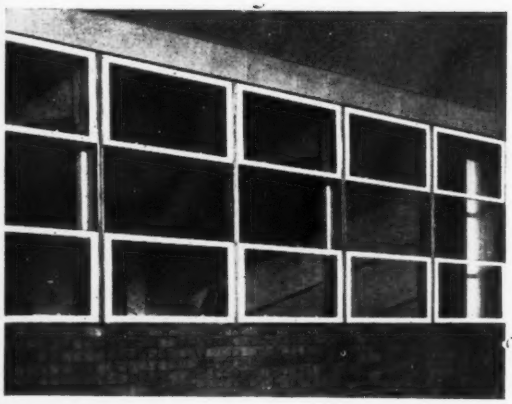
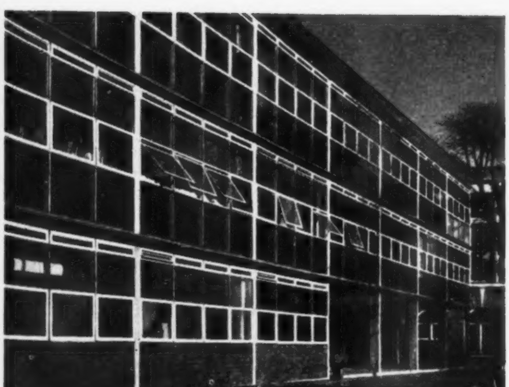


WINCILATE at Mayfield



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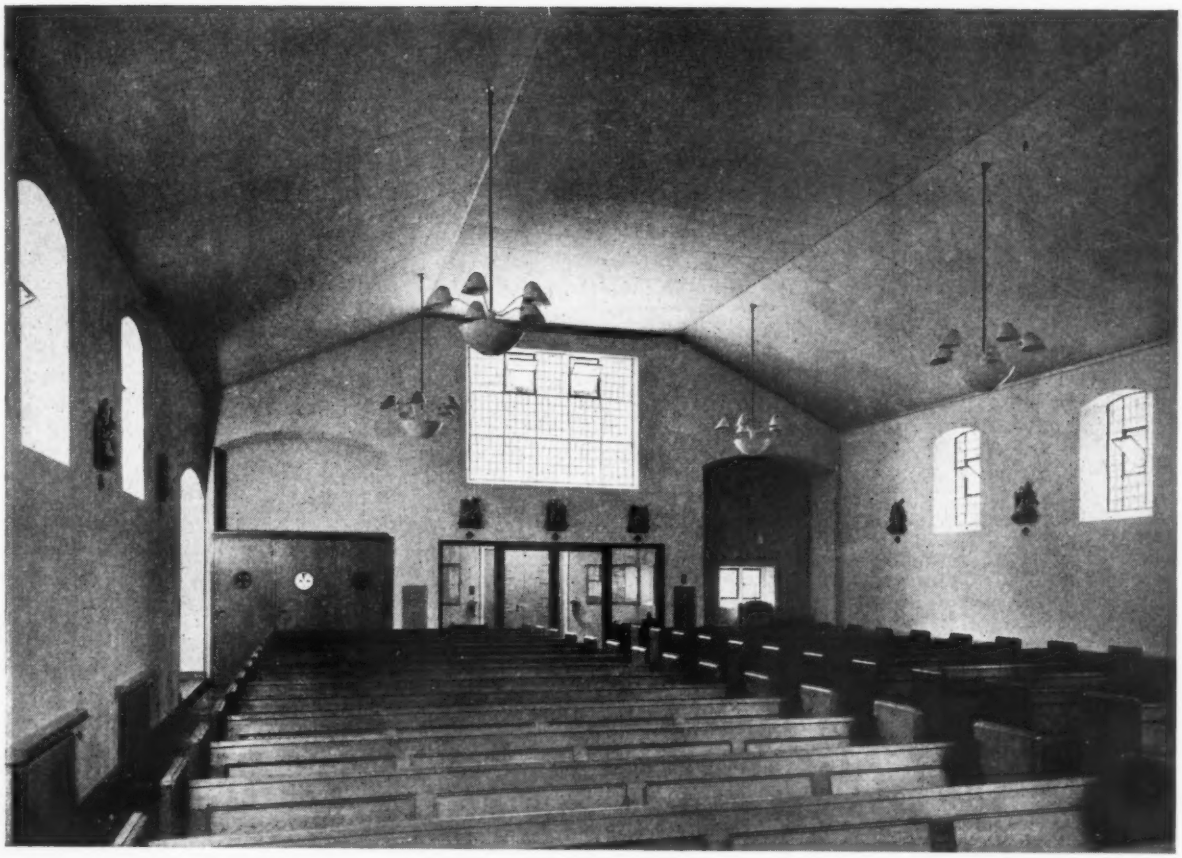

Church of Our Lady Queen of Peace, Richmond. Architect: F. G. Broadbent, F.R.I.B.A., of Messrs. H. S. Goodhart-Rendel and Partners.

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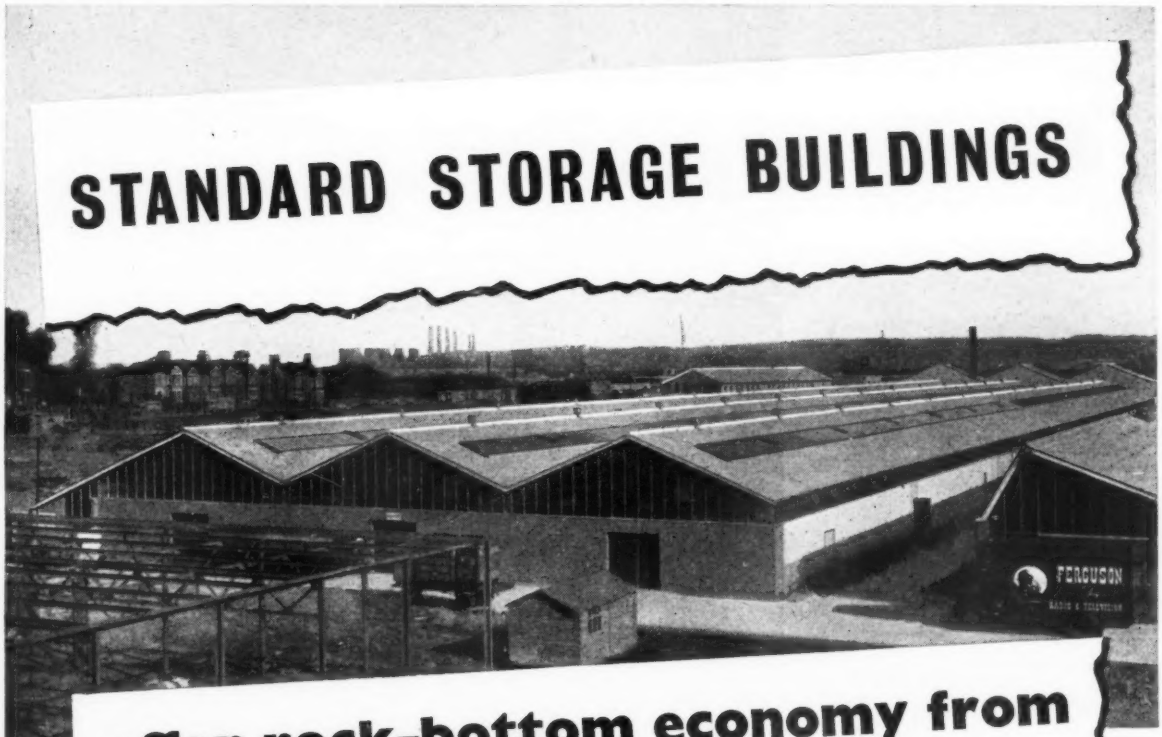

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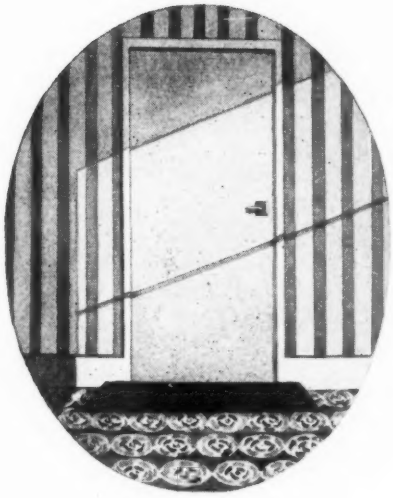

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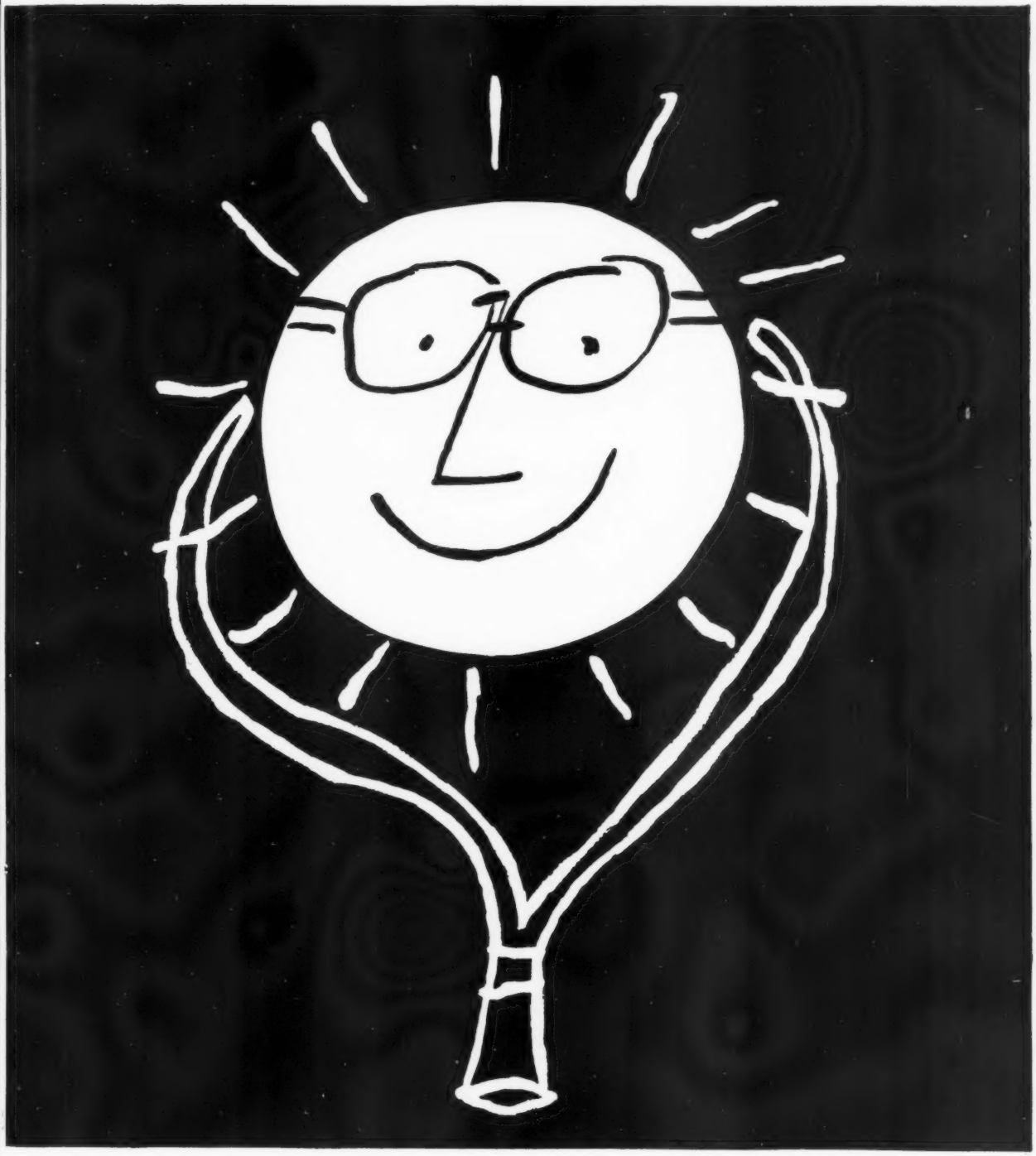

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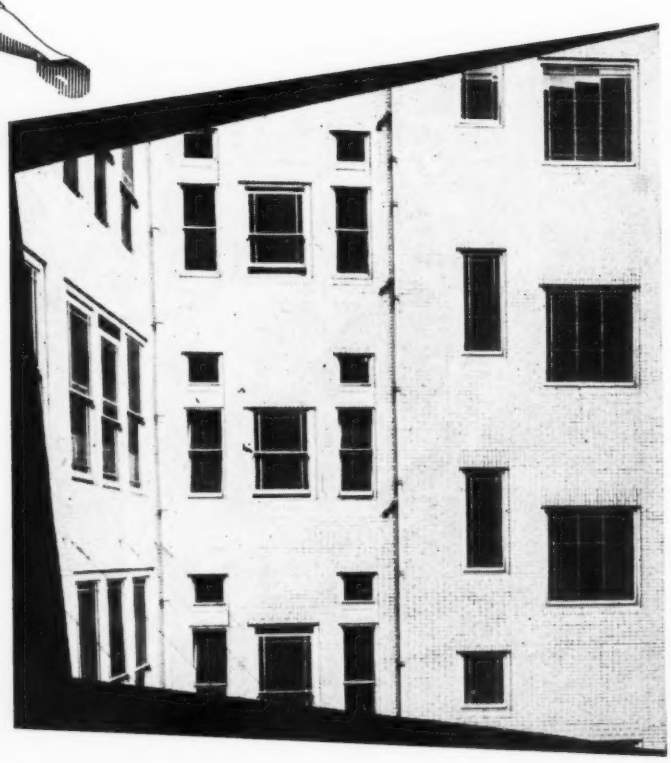

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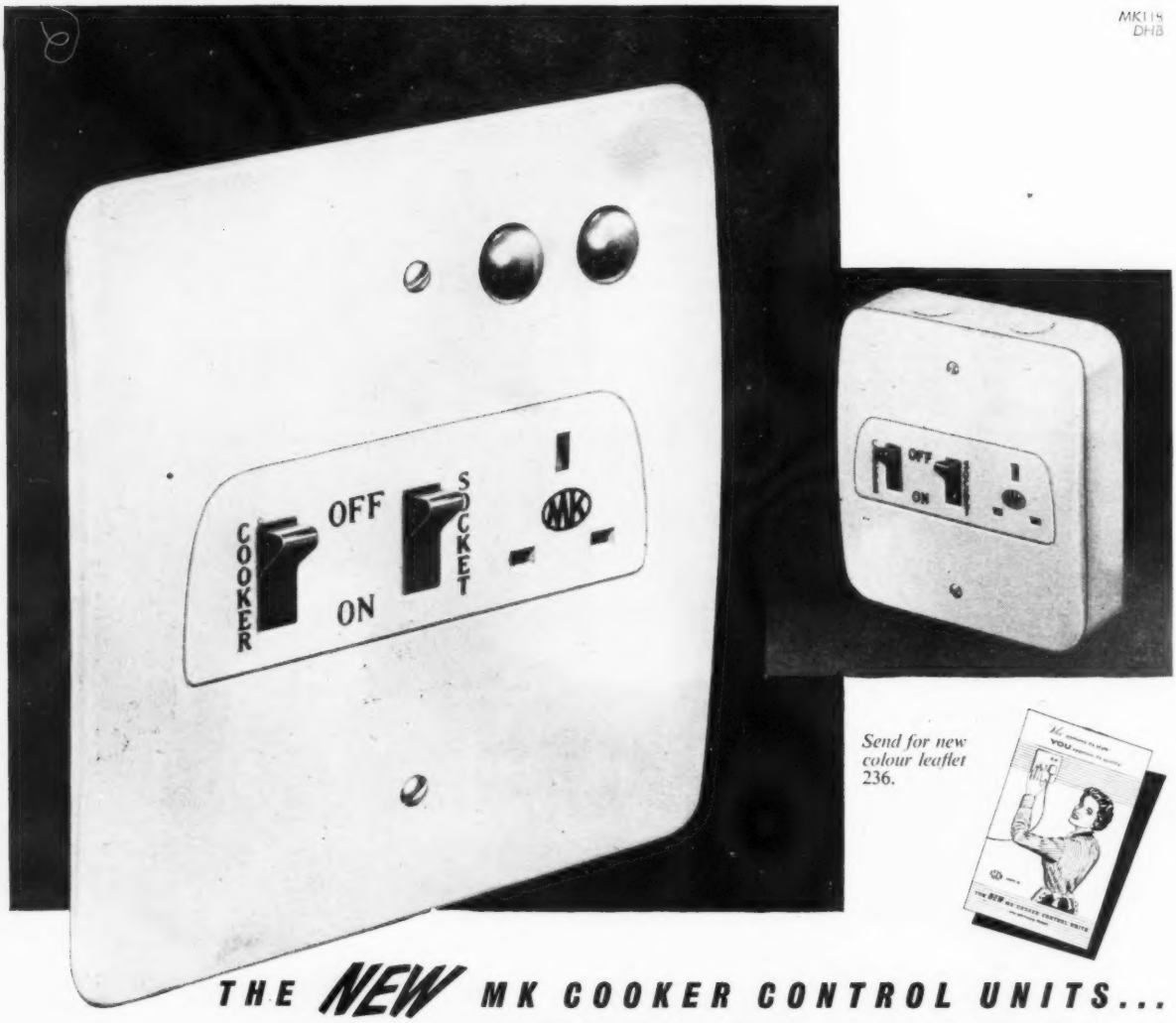

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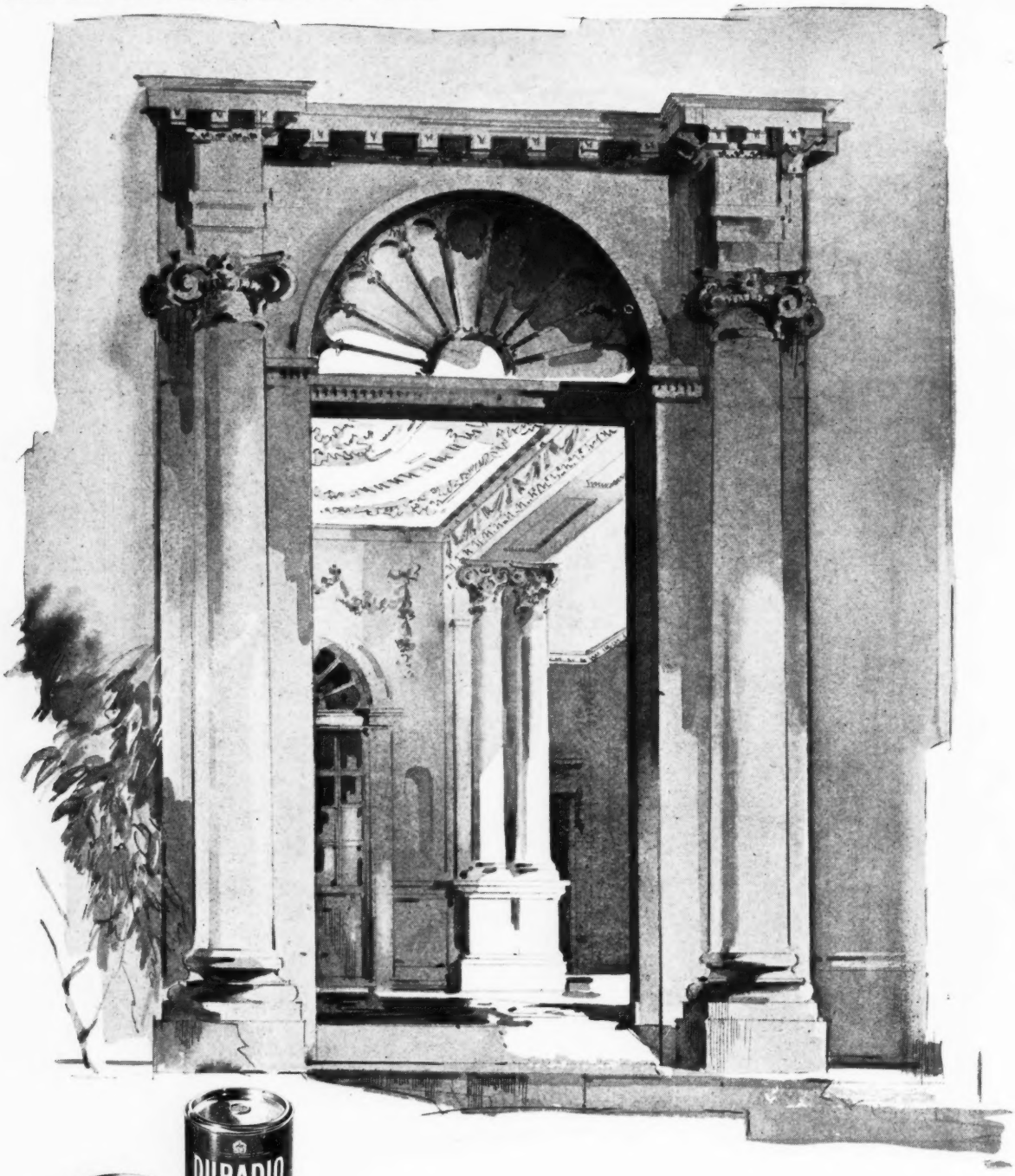

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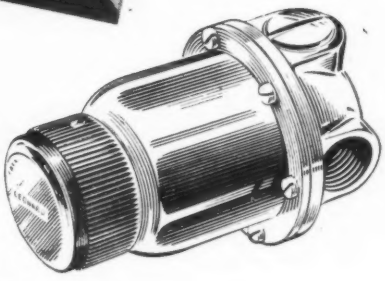

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Illustration on left shows ELLARD "Radial" Sliding Door Gear fitted to a private garage. Sliding doors are of great advantage in protecting cars against damage caused by accidental swinging of hinged doors. In addition, valuable working space is offered where it is most desired, at the entrance to the garage. Note also how ELLARD Door Gear provides easy access to and from the garage by a personal entry door. ELLARD "Radial" Sliding Door Gear is low in price and gives long service without maintenance. This gear is also suitable for the larger openings of commercial and industrial garages.

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ELLARD "Overdor" Gear, illustrated on right, represents the best method of operating an overhead type door, and it requires the minimum space, fixing time and maintenance. An entirely clear threshold is achieved, and both side walls are available for windows or shelves. "Overdor" Gear is designed for doors from 6ft. to 7ft. 3in. high and up to 200 lbs. in weight. The door is safely balanced and can be opened and closed with ease. The width of the door is not critical, but the construction should ensure that the door does not sag when in the raised horizontal position, and we suggest a maximum width of 10ft. The balance springs impose a compression force along the jambs, thus relieving the building of all stress until the door is raised, when less than half the weight of the door is supported by the twin top tracks. ELLARD "Overdor" is therefore especially suitable for lightly constructed buildings.

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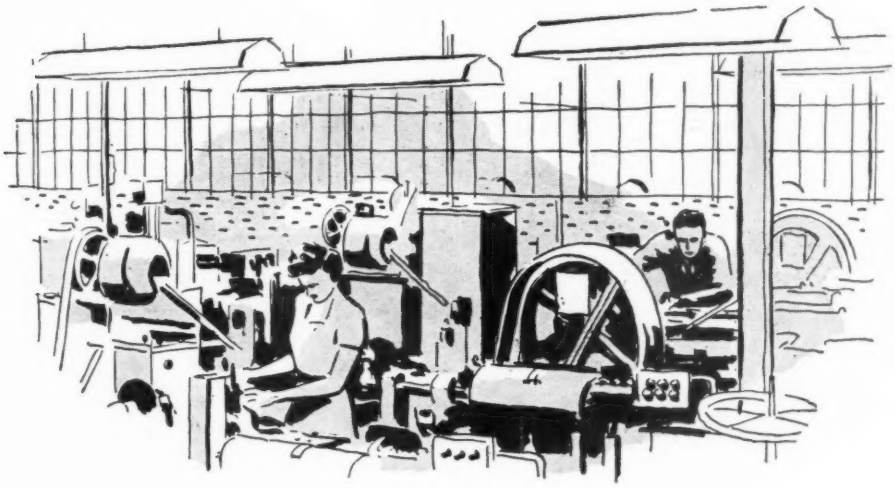

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Fairy tales for Architects — number two

Once upon a time there lived a King who had three sons all of whom were Chartered Architects. One day in the evening of his life he called them to his royal chamber. ' My sons ', he said, ' I am growing old and the time has come to decide who shall succeed me. It is a difficult choice to make and I have decided on a competition to settle the matter. Each of you shall prepare a scheme for a new palace and the author of the best scheme shall inherit my royal crown.' Whereupon he gave them each a set of conditions including a schedule of accommodation and some cost targets. The three sons went to their offices and worked hard for three months. They then returned to the King, each with a scheme for the new palace.

The eldest son had designed a fine Paladian palace in stone and marble.

' My son,' said the King, ' It will cost twice as much as I have in my treasury and take twice as long to build as I have years to live.' The second son had designed a romantic palace in the Stockholm Town Hall Style.

' My son,' said the King, ' with all these solid wet construction materials you have made no allowances for the changing needs of the royal household.' The youngest son had designed a light steel framed palace, clad in glass with the rooms in demountable dry partitions.

' My son,' said the King, ' this is the palace for me.'

The King was delighted with this palace. especially with the BRITISH WERNO PARTITIONS. His royal chamber had 12ft. high Werno panels faced in figured walnut. The banqueting hall was in Werno faced in striped sapele, and being easily demountable, it could be enlarged at a moment's notice for important royal occasions. The kitchens were in plastic faced Werno with louvre cut-outs for cross ventilation. The corridors were in hardboard faced Werno gaily treated in emulsion paint.

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Because of the low cost of installation the youngest son inherited not only the crown, but a flourishing royal treasury, and like all architects who use Werno he lived happily ever after.

The End

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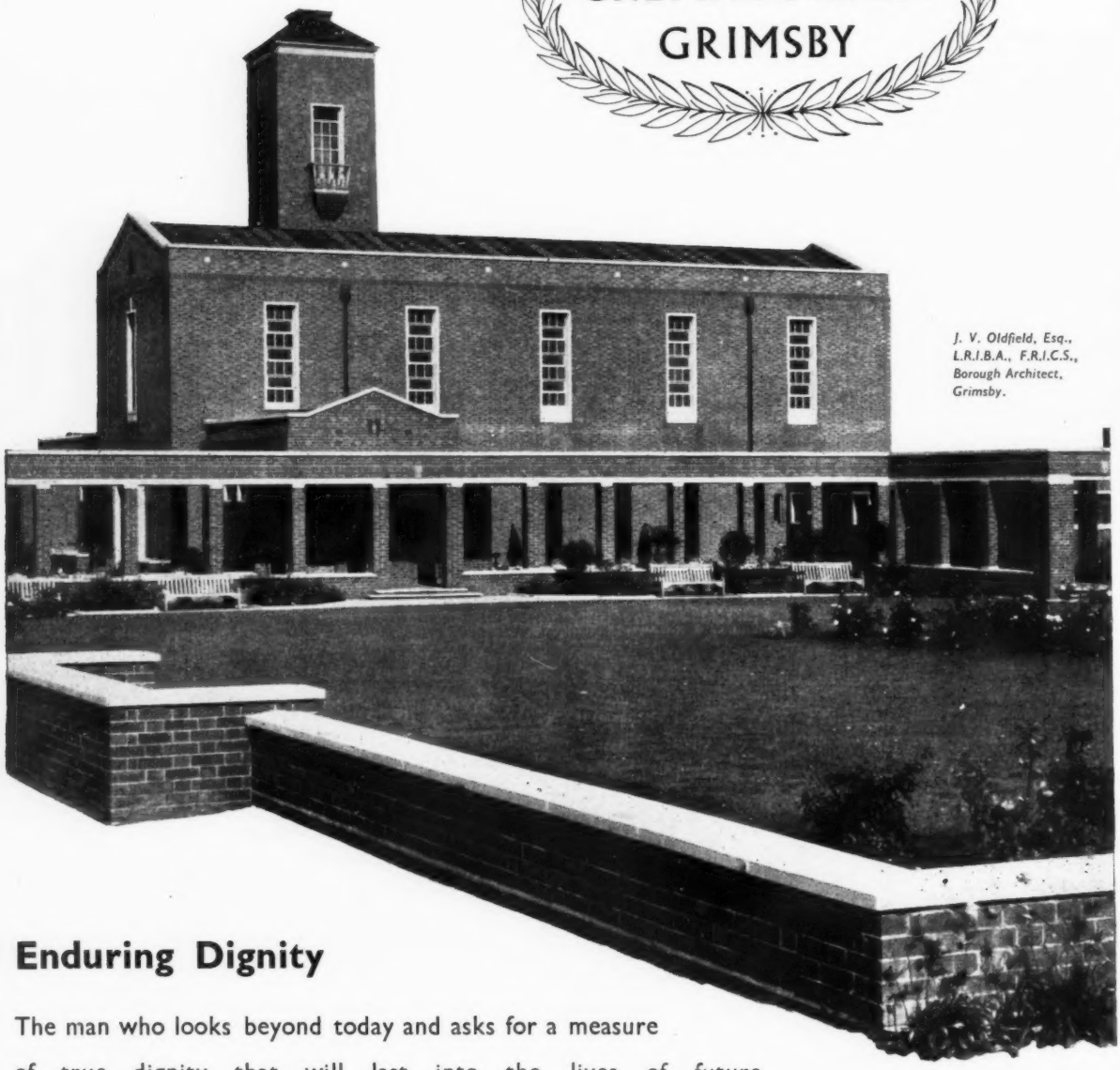

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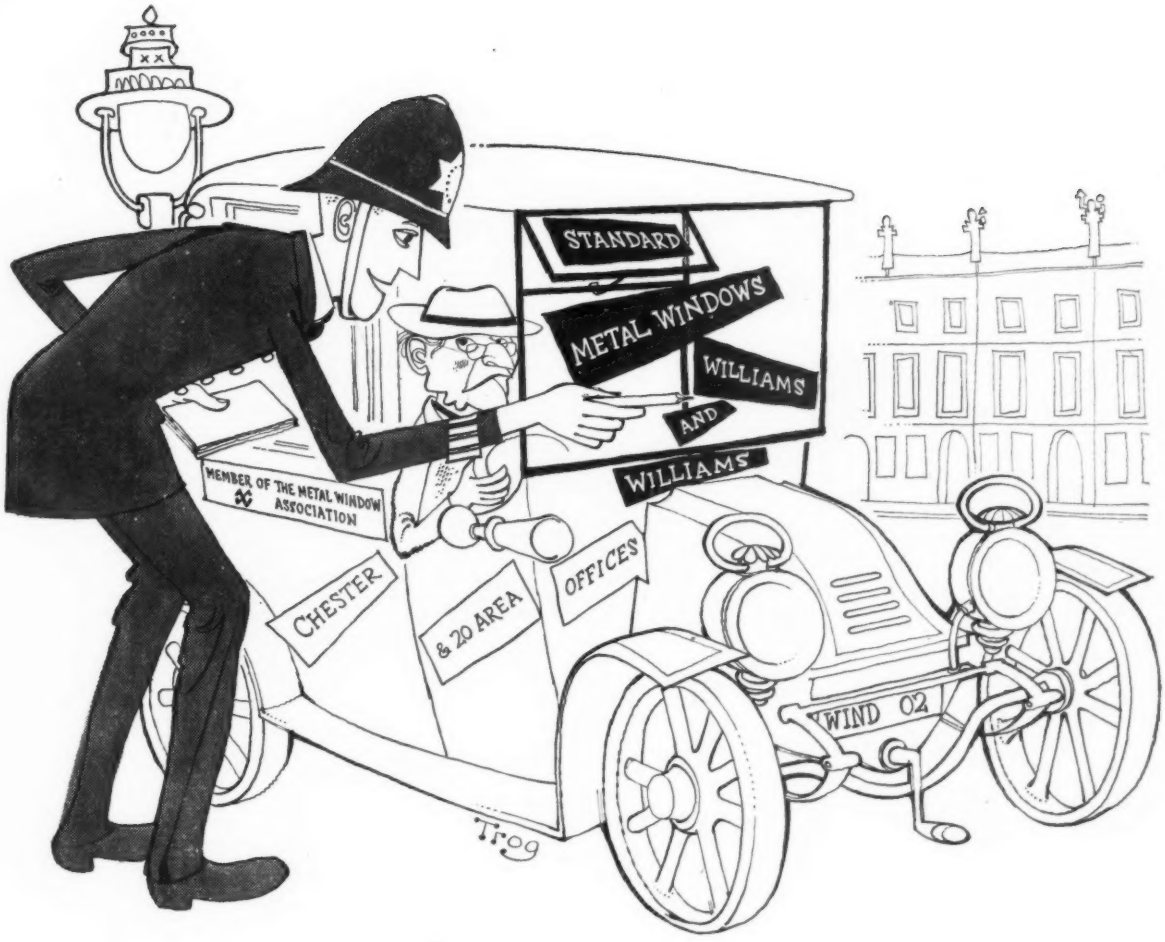
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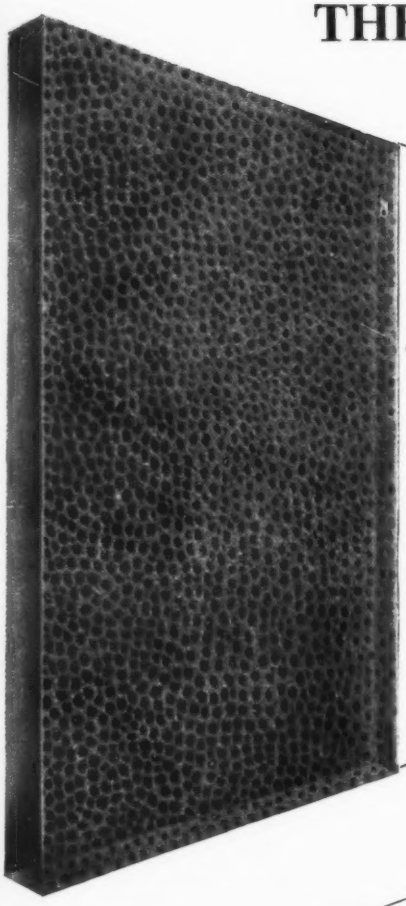

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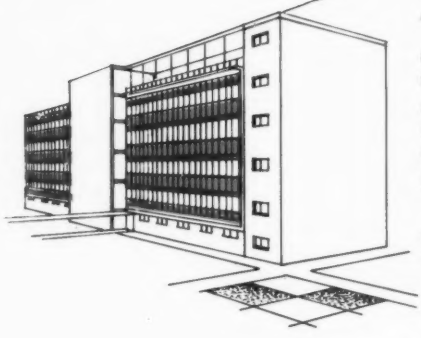

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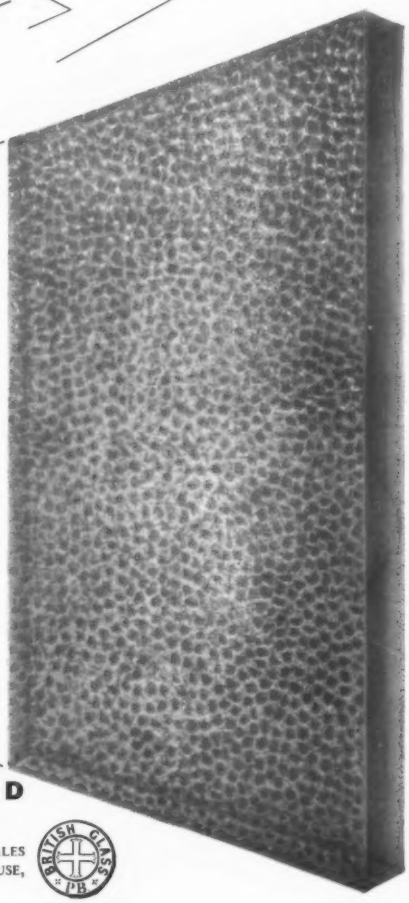

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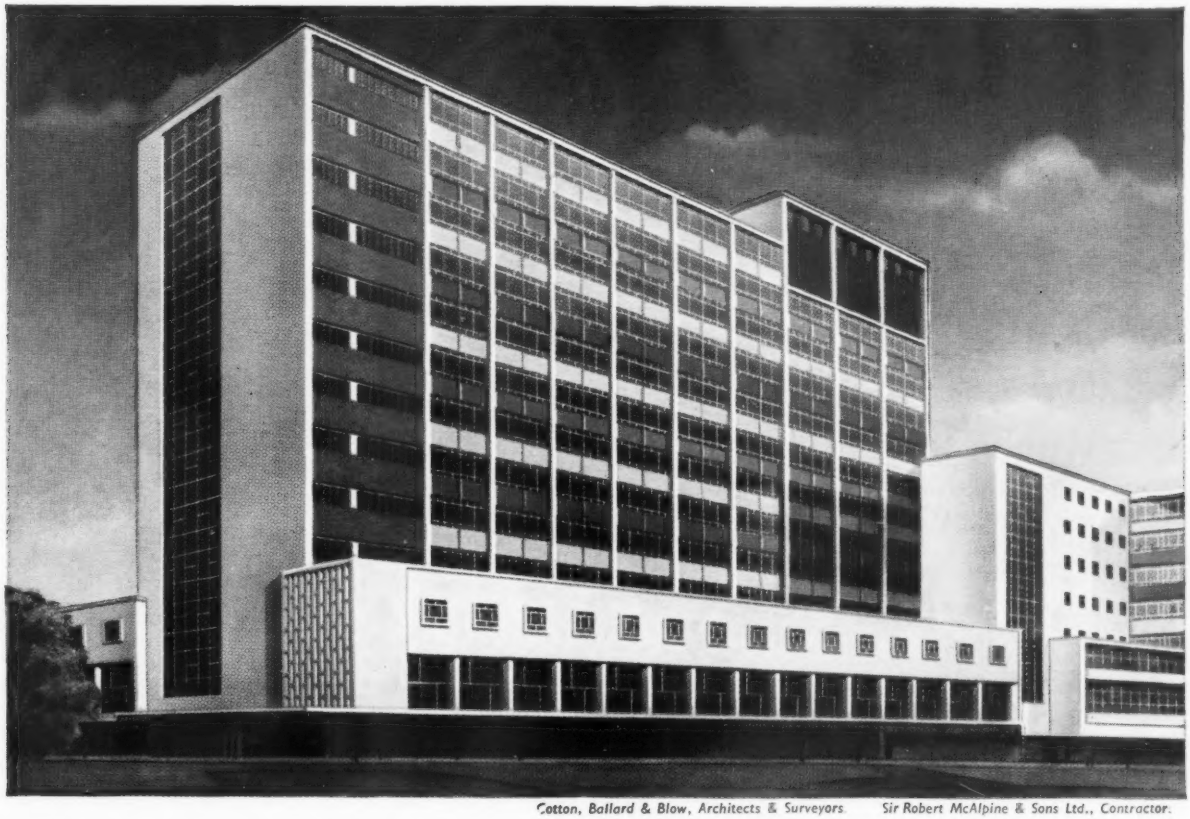

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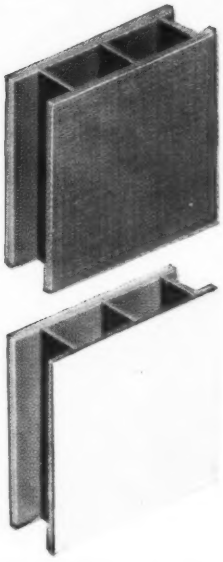

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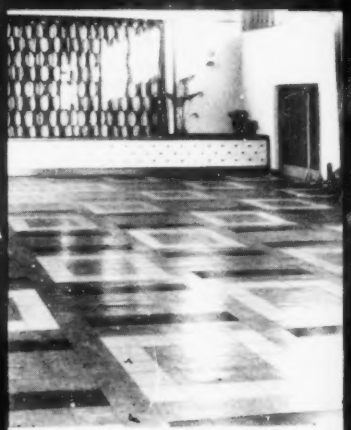
THE ARCHITECTS' JOURNAL
for July 26, 1956



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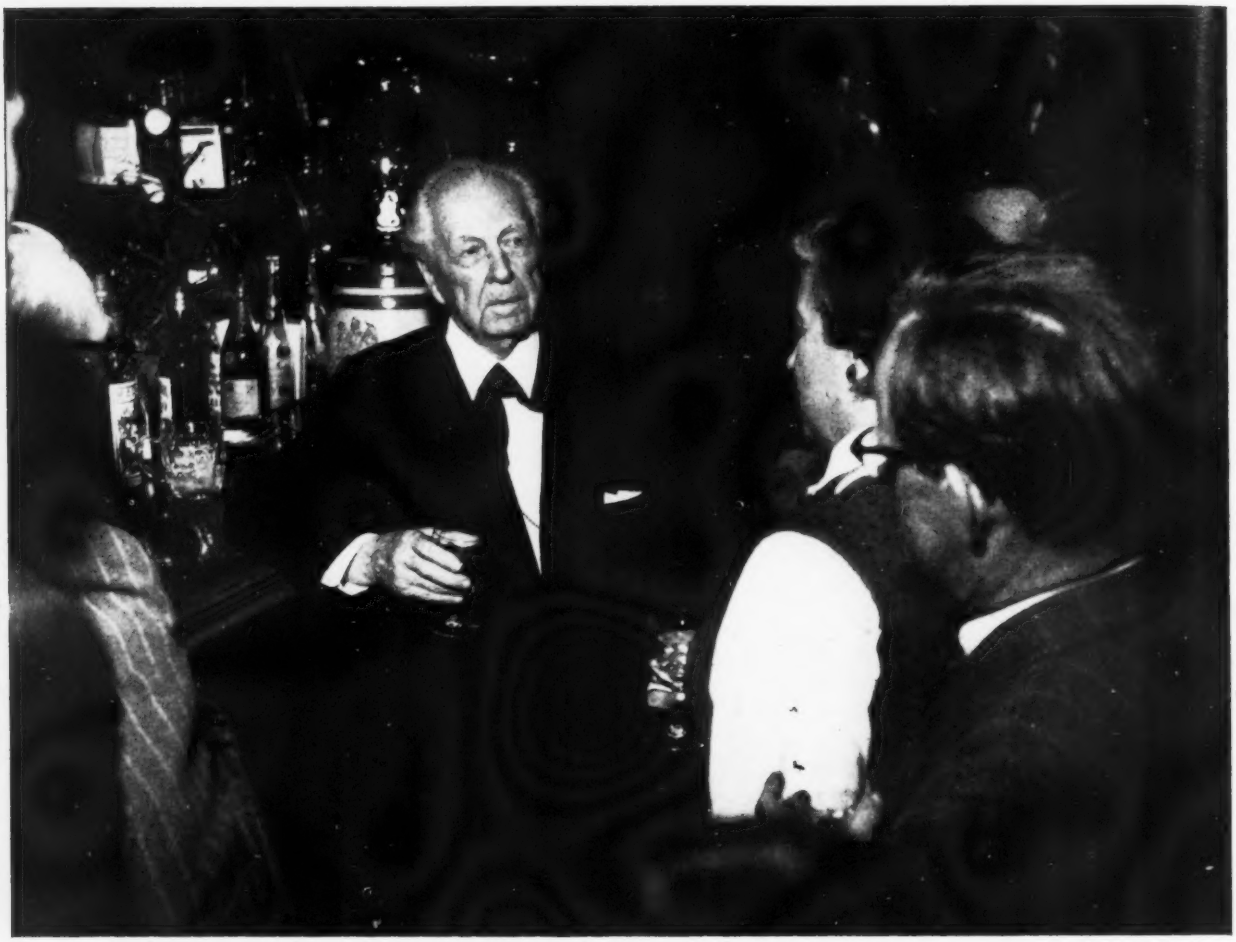
NOT QUITE ARCHITECTURE*

FROM TALIESIN TO SHEPHERDS BUSH

The JOURNAL *entertains—and is entertained by—Frank Lloyd Wright*

" My architecture is in four dimensions: remember I have told you this and cherish it." The speaker was Frank Lloyd Wright, the listeners were architects and architectural journalists, and the place was " The Bride of Denmark," the private gin palace of the Architectural Press. " Extravagant," said Mr. Wright, eyeing the varnished wood, the etched mirrors, the stuffed fish and all that make " The Bride " the apotheosis of the British pub. " Extravagant " repeated the Master, " but I can see how you boys couldn't survive without this sort of thing." Did he mean . . . ? There was not time to ask what he meant: the great Showman was warming up and definitions were falling so fast that his hosts and fellow-guests could barely catch them, let alone cherish them. But they will certainly cherish the memory of that hastily-arranged party, given to a near-nonagenarian who is almost a legend—a prophet who had just received an honour in his own country, a degree from Bangor University. Had we heard a rumour that he is not what he used to be ? We discarded it as his personality dominated —or should I say hypnotised—the room, and a young man present who was thought to be pathologically incapable of saying " sir " breathed that word with undisguised reverence. " Literature tells about man," said FLW, " but architecture presents him. What you get is the man, in spite of him, whatever he thinks he is giving you. You can see if he is phoney. Down the ages there has always

* But more so than usual this week.



Frank Lloyd Wright at the JOURNAL's *party in the "Bride of Denmark," the Architectural Press's private pub. On the left is Ove Arup. In the foreground are Max Fry and Jane Drew. Behind them are Mr. and Mrs. James Cubitt.*

been a style: architects have been able to hide. But in organic architecture you have the man: he cannot hide."

°

A pause. We could almost hear each other formulating questions and suppressing them. It was not that they were unanswerable; just that they would probably go unanswered, for the best qualification you can have to converse with FLW is to be a good listener. What was he saying now? "A great architect must have faith in humanity to make him a great humanist and open all the doors: architecture is the most prolific form of humanism." Somebody said "yes ah yes" too hastily; Mr. Wright graciously acknowledged this contribution to the discussion with a nod of his white head and went relentessly on. "You *listen* to music; you *look* at paintings but you *go into* a building. Architecture is an experience." The word "experience" reminded him of something distasteful. "Experience," he said, "is something critics do not have. They neither teach nor build. One of the most unfortunate visitations is to be a critic."

"What," said somebody, "do you think of so-and-so" (naming a distinguished American critic). The reply bounced back so quickly that we wondered if FLW could even have heard the question. "So-and-so," he said, "is a very unhappy man who, like modern civilisation, knows everything and understand nothing." A pause. "I like him though. But if I like people I don't like their work, and vice versa." "Do you like Henry Moore?" someone asked, and added, "he has some of your qualities." He must be a very great man," said FLW, with the assumed arrogance of GBS. "That," he added, "was said with a smile, but unfortunately the smile never gets into print."

°

"What do you think of Corb?" asked Jane Drew. And here there was no smile in the answer, which was as grim as it looks in censored print. "Why do you link me with that man? (All these names —Mies, Gropius—there are some others in it aren't there?) Why didn't he ever acknowledge where he got it from? He is a journalist, he belongs with reporters. The little geometrical shapes my mother gave me to play with are now called Modulor by Corb. . . ."

°

After a moment or two the smile came back and FLW dealt cheerfully with the defects of modern architecture, education, Saarinen's building for the US Embassy in Grosvenor Square, and the world generally. "Architecture in America," he said, "has been driven up a one-way street to a dead end. It was driven there," he added, "by the Museum of Modern Art, the Bauhaus and the cliques they have formed. Today publicity gives architecture its job. If you want to see how horrible publicity can be, look at Johannesburg. *Look at you! it will happen to you.*"

*

"I don't follow," said a brave soul. But the Master had changed the subject. "We want culture today, not education," he said. "Culture is inevitable, or else comes death. You can't educate an architect. I should quit if *I* tried to teach. In America our education is not on speaking terms with culture." Soon we were back at the "dead end." That was how Mr. Wright described "young

Saarinen's" building for the American Embassy—"a dead end for a one-way street. . . . When I was asked to do work here I felt I didn't know London well enough to design for it. If *that* is London, God help London."

*

The AJ's guest was at his most quotable when he turned from architecture to more general affairs. "Uncommon man," he complained, "is becoming unconstitutional. . . . America can now *see* the atom. So what? If *only* she could see William Blake." And best of all: "We never provided against the rise of mediocrity in high places."

*

And so it went on, speaker and audience tireless, until a telephone message from an agitated BBC broke up the party. The Grand Old Man of Architecture was shortly due to be interviewed on television's "Highlight." *Interviewed?* Well, we would see; in the meantime the highlight of the evening for me was driving Lloyd Wright to Lime Grove studios. On the way there he kept up a steady commentary on cars (he likes the "human scale" of little British cars which give "a better sensation of motion than America's moving platforms"), buildings (a scornful remark about Hyde Park Screen, a mere wince at the Farmers' Union in Knightsbridge, a joke about the "suicide tenements" in Earls Court) and the tendency for our Chairs of Architecture to be occupied by good experienced architects—a tendency that pleases him, in spite of his contention that architecture cannot be taught. Right in the heart of Shepherds Bush ("very pretty") FLW was met by a harassed-looking Lime Grove executive who led him away through a sordid-looking, pipe-infested passage. "Ah," he said to unamused ears as he ambled away, "I see the corridor is inextinguishable."

*

Half an hour later a pale-looking announcer introduced viewers to Frank Lloyd Wright. "Architecture," said FLW, "is going down a one-way street . . ."

"What do you . . . ?"

". . . a one-way street to a dead end. Literature tells us about man, architecture presents him." The great Showman was beginning again. Desperately the announcer managed to slip him a question. "Have you been influenced," he asked, with childlike innocence, "by other countries?" I stole quietly away. I wanted to savour that delicious moment. And I wanted also to meditate pleasantly on the conversation-stopper I could use at countless cocktail parties to come. "I was with Lloyd Wright," I would say, "in Shepherds Bush."

KENNETH J. ROBINSON

The Editors

CAN WE TRUST THE TRUST?

"THE trustees of the Historic Churches Preservation Trust have dissolved the trust's executive committee and constituted a new one." Don't be deceived by that demure statement: the fate of a lot of our most famous buildings could hang on it. What has happened, it seems, is that the former chairman of the executive committee, Mr. Bulmer-Thomas, has been doing his job too well. He could have become a rubber stamp for whatever schemes of financial expediency our ecclesiastical bureaucracy could think up. Instead, he has championed neglected churches in unfashionable styles (including Holy Trinity, Leeds) or on unfashionable sites (including St. Mary-at-Quay, Ipswich), and he has resisted the efforts made to take the control of the Trust's money (that is, *our* money) out of the hands of experts who do know what they are doing and put into the hands of diocesan advisory Committees who have often shown in the past that they do not know what they are doing. As a result the executive committee was dissolved and a new one formed, together with a new chairman. To quote Mr. Bulmer-Thomas: "My removal from the executive direction of the Historic Churches Preservation Trust brings to a head a difference with the Archbishop of Canterbury which has been growing for two years. It was in the summer of 1954 that he sharply criticized my efforts to save Holy Trinity, Leeds, and St. Mary's, Sandwich. He has been particularly annoyed with me for offering to find £3,000 out of my own pocket to save St. Mary's, Sandwich, which he regards as interference with his diocese."

It is a new and odd sin to try and preserve Christian places of worship that have been consecrated for up to ten centuries. The present situation is dangerous. None of the Ancient Monuments or Town Planning Scheduling legislation applies to churches: if Dr. Fisher wanted to remove Bell Harry in the interests of administrative efficiency, as being too expensive to keep up, there is no legal power to stop him. If a diocesan Committee wanted to demolish Boston Stump—"much too big for our needs"—sell the site for a fat sum and amalgamate the parish with the nearest Victorian chapel of ease, it could do that (and that is just what the Exeter Committee is trying to do now at Tiverton). At the time that churches were

excluded from the legislation, in 1913, an undertaking was given that they would be properly looked after: an undertaking which this generation of churchmen do not seem prepared to honour.

If the Church does not want these buildings, the State—i.e. the nation as a whole—does. If a church is declared redundant there can be no possible objection on the grounds of " state interference " to its being made over to the MOW instead of being demolished. It also seems fair to ask that it be made over free of charge, for we ought not to have to pay protection money on our heritage to those who ought to be safeguarding it.

DESIGN IS YOUR BUSINESS

The Council of Industrial Design and the BBC combined to produce a television film, shown last Wednesday, called " Design is Your Business." It was intended for the general public, who are presumed to know very little about design, and was a kind of supplement to Sir Hugh Casson's radio series " Journey Through Subtopia."

*

It was a fairly conventional film, running for half an hour and, needless to say, in the time allowed barely touched very seriously on the subject. There was a historical build-up, showing the alliance between enlightened patronage and hand-craftsmanship, leading to the problem of machine design in the democratic age. Sir Gordon Russell, Peter Shepheard, Robin Day and Jack Howe said a few things about the problems of design today and about designers' attempts to design for industry. And the film ended with a glimpse of things to come in the new town centre of Coventry.

*

Both the BBC and COID should be congratulated on such enterprise. But how much better it would have been if this was the first of a series—not merely a too-condensed single programme.

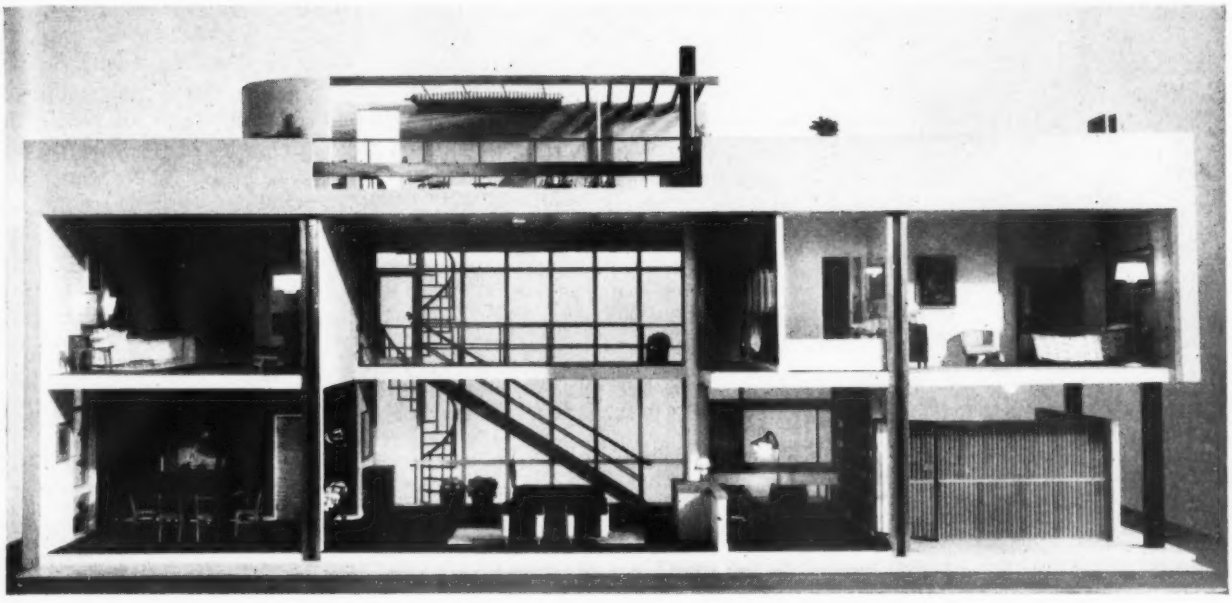
NOT WHAT, BUT WHERE AND HOW

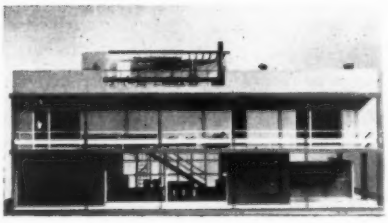
Did you notice, by the way, how the BBC slightly deadened the impact of Sir Hugh's Subtopia talks. The issues were mushed up in the announcements and in Programme Parade. " Is England becoming a desert of concrete, bricks and wire? " enquired the announcer's cultured voice, and this rhetorical question was the only indication of the substance of the programmes—implying that Subtopia is made of buildings. It would be equally relevant to enquire " Is England becoming a desert of grass, flowering shrubs, public seats and recreation grounds? "

*

After all, Subtopia is far less a matter of What, than of Where—and particularly How. This point was recognized by Sir George Pepler in a recent address to the Metropolitan Public Gardens Association, but he so hedged the point about with reservations (including all the standard highway-engineer excuses for lopping and felling

STYLES IN DECOR: PERIOD SUBTLETY, INTERNATIONAL BLEND, AND ARCADIAN *On the ninth floor of the Dorchester, London, designed by W. A. S. Lloyd, of W. Curtis Green, Son and Lloyd, are four new suites by four of " Britain's best-known interior decorators—Catharine Bray, Ronald Fleming, Eric Giles and John Siddeley." Left: one of Mr. Giles' rooms of which the Press blurb says: " the motifs of the 18th century may be seen in many subtle touches throughout." Below: one of the rooms by John Siddeley who (Press blurb again) has aimed at giving the rooms such a feeling and character " that they will blend with any type of personality occupying them. . . . Here he has had to design for perhaps a hundred personalities, coming from many lands; the experience has been lively and invigorating." Surprisingly, Mr. Giles has furnished a roof-garden summer-house with some good contemporary Danish chairs. Even more surprisingly, this is described as " a touch of Arcadia."* ASTRAGAL *could not agree more.*





ARCHITECT-DESIGNED ROYAL DOLLS' HOUSE. This is the Royal dolls' house which James Cubitt and Partners designed for the Princess Anne. (See note below.) At first the architects intended to design one based on a single-storey house they had been responsible for, but they realised that it would be too bulky. Their model was based, instead, on a two-storey house which they had designed (extreme right) for the chief librarian of the Gold Coast. This, they felt, linked it with the recent Royal visit to that part of the Empire.

trees) that it wasn't until a second reading of his text that ASTRAGAL felt at all sure on the point. Also, Sir George, like a lot of other people, seems to think that Subtopia is primarily an outrage on the rural scene, and he rather poohoohed the idea that high-density urbanism is one of the essential enemies of Outrage. There can be no doubt that where the Subtopia-fighters have got to go in and battle even harder is in convincing people that they are not just a branch of CPRE. ASTRAGAL feels that rather too many Lady Watercolourists and Good Earth Sentimentalists have got into the act, and have rather swamped one of the *Architectural Review* Outrage issue's basic intentions, which was to strike a blow for the preservation of urban England.

JAMES CUBITT, LUTYENS'S SUCCESSOR

Once in a generation—at the most—someone has the chance of designing a Royal doll's house. The last one, for Queen Mary, was the work of Sir Edwin Lutyens. And now Princess Anne has a modern doll's house, whose design was a gift from James Cubitt and Partners. The house, which is illustrated on this page, is electrically lighted and contains miniature working models of domestic equipment. It also has a fountain, a roof garden, running water and a radio. The architects had no control over the design of the furniture, which was made by the furniture manufacturer who made the house. The model, which is five feet long and is made so that the whole of the front can be lowered automatically to give access to the interior, is based on the design of a house for the chief librarian of the Gold Coast.

CHANGING BLOOMSBURY

Did you see the attack the architectural correspondent of *The Times* launched last week on what London University is doing to Bloomsbury? It was an attack that will be welcomed in the architectural profession, whose members have been uneasy for a long time about the fate of this classic example of urban planning.

*

ASTRAGAL himself has several times had the embarrassing experience of taking foreign visitors (who are familiar with Bloomsbury from the town-planning textbooks) along to see it in the flesh, and being asked indignantly why we are allowing its charm and character to be destroyed.

*

As *The Times* said, London University must expand, but expansion on that scale presents a rare opportunity of planning to preserve the architectural unity that has always been one of Bloomsbury's assets. Yet even the University and University College, two of the principal developers, do not seem to be working in concert. If the University claim, as I believe they do, to be looking further ahead than the present developments suggest, they should publish their plan for the whole area so that the public can see just what the future Bloomsbury is to be like. And University College should publish Professor Corfiato's design for their new engineering building so that the public can also see what kind of architecture the future Bloomsbury is to be given.

ART MADE TONGUE-TIED

Art is dead . . . And before you cancel your subscriptions let me explain that when I say Art I mean *Art*. Not nature's handmaid, the jealous mistress or whatever else my brighter readers call it among themselves, but the fortnightly *Art* which lived under the editorship of Bernard Denvir. This almost Pevsnerian connoisseur of Englishry, Eccentricity and Victoriana, founded the paper because there was clearly room for a competitor to the well-established *Art News and Review*. It has, nevertheless, run only a little over eighteen months, in spite of a lively — sometimes noisy — editorial policy, and it has never even dented the circulation figures of *AN & R*, which, indeed, have continued to improve. A pity, this demise, because there is room for an alternative voice on the passing world of exhibitions, art books, prizes and conferences, if only to shake *AN & R* out of sounding at times like a niece of that famous auntie in Printing House Square.

FIFTH YEAR QUANDARY

A colleague who visited the AA last week reports that the students are so *avant garde* that they are positively reactionary. Admitting to apathy, lack of personal discipline and not knowing what he wanted, one student, who was theoretically discussing the value of the Fifth Year programme, suggested the following answers to the problem of Fourth Year doldrums: an understanding of materials; the effect of British climate on building, and committing oneself to beliefs (" Believe, or you'll follow Saarinen down the drain ").

*

Another proposal was that after two years at school (whole time), students should work, preferably in groups, with practising architects " who should give two days a week at least " to teaching, discussing and criticizing the students' designs. A fourth speaker went further, and suggested that the only solution was to abolish schools. This completes the circle. As the indefatigable Sheila Tribe exerts every effort to provide at least part-time school training in the far corner of Cornwall—an effort which has been splendidly successful—the school-saturated London student recommends their abolition. Is he aware, one wonders, how hundreds of the older architects, starved of the cheap labour of articled pupils, would welcome such a move? Architects only learn their trade, said this student, by working in another architect's office. An inaccurate statement. Architects only learn their profession by their own experience. How they profit from their experience depends on the basic grounding in the arts and sciences which are best, and most easily, learnt in some system of whole-time training.

*

What these students would seem to be missing is contact with an architect in practice (why doesn't the AA insist on at least one of its staff carrying on his practice in 34-36, Bedford Square? (This is a suggestion Frederick Gibberd is said to have proposed before relinquishing his position as principal.) The students also need a much greater emphasis on technical efficiency; and a detailed acquaintanceship with costs, the correct accompaniment—with technique—to provide the essential discipline for architecture in a democracy.

INTERPRETED ART

Recently the JOURNAL showed the pleasant little showroom Farmer and Dark designed for Carter & Co. at their Poole works. One of the main exhibits is a mosaic on one of the walls. Designed by Hans Tisdall, it was executed in Carter's own mosaics to a special Carter technique by Carter's own mosaicist. In other words, a highly-skilled technician interpreted Tisdall's painted design in terms of mosaic—or so ASTRAGAL understands.

*

The same process is normally used in another slow, painstaking craft; that of tapestry-making. But are not both these duplications unnecessary? Cannot the technician be trained in design, or the artist trained in the craft? Can a perfect work of art be obtained by two men working apart? Doesn't the interest of mosaic depend largely on the angle and spacing of the individual pieces—subtleties which cannot be conveyed through the designer's sketches? While congratulating Carter's on their enterprise in encouraging mosaic in this country (the only other post-war example ASTRAGAL can recall is in Broadgate, Coventry), one would like to hear the views of the firm, the mosaicist and Mr. Tisdall on this point.

A CHANGE FROM COTMANS

Something you did not see if you went to Norwich for the architects' conference was the extraordinary gallery of Gothic paintings that belong in the church of St. Michael at Plea. These paintings have been up in London for a little time now, having a gentle face-lift, and they are now on show, as resplendent as the ravages of time and Cromwellian iconoclasm have allowed, in the Victoria and Albert (incidentally, if you add up the ASTRAGAL references to the V&A over the past three months you will get a pretty impressive picture of a live museum just about doing its nut, as the saying goes, in service to the public).

*

The panels are dated—following some crafty expertise by Mrs. Tudor-Craig—to the last decade of the fourteenth century and the second decade of the fifteenth. They strike a cheerful note, for the most part, of elegant piety, with plenty of sumptuous colour, gilding and well-bred facial expressions. As displayed by the V&A they are accompanied by " before," " during," and " after " pictures of the restoration and cleaning process, and photographs of other Gothic painting of the same period. To be seen, both for their intrinsic merits as pictures, which are considerable, and for their big talking-point—how much of a ruined picture (faces in particular) is it permissible to " reconstruct " for purely æsthetic reasons? The argument brought forward in this case, that they will be used in a retable, and should be rendered sufficiently life-like to serve their liturgical purpose, satisfies ASTRAGAL, but will probably cause some shouting in other quarters.

WANTED: GOOD MAN FOR GOOD JOB

Canterbury's loss is Cwmbran's gain. Hugh Wilson, after doing an uncommonly tasteful and diplomatic job of shoehorning modern architecture, which he believes in, into an old town, which he loves, is now to become chief architect to a New Town. It will be interesting to see how he copes with the very different problems of Cwmbran. It will be even more interesting to see if Canterbury can find an architect of his calibre and sensibility to replace him.

ASTRAGAL

LETTERS

M. Talbot, Student, A.R.I.B.A.

Stanley Milburn, F.R.I.B.A.

"Puzzled"

The Norwich Guide

SIR,—I am aware that the JOURNAL does not confine itself to traditional judgments when expressing its views, but some of the comments made by Ian Nairn in his article on Norwich (May 24) seem very strange, especially so his condemnation of St. Peter Mancroft. To prefer St. Giles, with its unhappy tower buttresses and poor base course, or St. George's Colegate, which has no base course at all, is very difficult to understand. Again, what evidence is there that the flushwork of St. Michael Costancy is Victorian? This is often quoted as a fine example of 15th century work.

I should be most grateful if he would substantiate his reasons for holding these views.

M. TALBOT.

Essex.

Ian Nairn replies:—

What I was trying to suggest in the Norwich guide was that neither size nor age nor virtuoso craftsmanship is the same thing as architectural value. This is something that has rarely been said in print about Norwich, so it probably does seem strange. I was looking at buildings at a whole, not trying to say either (*a*) how well they conformed to the rules of Gothic architecture conveniently thought up by the 19th century, (*b*) how wonderful the workmen must have been in the 15th century. To suggest that base courses are a Good Thing out-of-hand is as absurd as Pugin's hysteria over the length of chancels; and quite literally comparable to the 18th century academics' condemnation of the use of Greek Doric. It's the whole, not the parts, that matters. The buttresses of St. Giles are rough but earn their keep as a component in the sturdy build-up of unblurred square-cut masses: in St. George Colegate to talk of parts at all is meaningless because the harsh material, the angular massing and the spare detail are indivisible and have been used to create something greater than the sum of the separate parts, *i.e.* (sorry to mention it here) architecture. Provided that they were similarly integrated, I wouldn't care if it stood on ball bearings.

At St. Peter Mancroft there was far too much money to spend. Square tower with polygonal corner turrets—O.K.; square tower with polygonal turrets, then angle buttresses then the whole lot jumbled up behind a veneer of stone which blurs an already overworked idea—never. The only thing to do with a shape like that is to make a Gothic torrent like Malines; to create such a forest of vertical lines that the brain overlooks the blurring in the uplift (and even then, at Malines a recusant part of the brain says "well, all right this time, but I can see it's only a crafty conjuring trick really." Ulm is such a conjuring trick, and won't stand a close look: Freiburg-im-Breisgau isn't, it has the detail to match the mass—or rather, to be fused with the mass—and is one of the finest Gothic spires in Europe as a result). But St. Peter Mancroft doesn't attempt this: prevented anyway by the weakness and lack of vitality in its vertical lines and the number of fragmentary transomes sliding around the place; prevented doubly by Street's contemptible headpiece.

My comment that "most of the flushwork of St. Michael Coslany was Victorian" was based on my own observation of the texture and the statement in "Norwich Inheritance" that "most of the skilled workmanship we can see was done in the 1883 and 1896 restorations" which I see no reason to doubt. By the same principle almost all medieval detail could be called Victorian. I was using the visual criterion—which in this case is all that matters—of whether it looked Victorian or not. Even so, I imagine a lot of the design is conjectural. Mr. Talbot's penultimate sentence seems to me to summarise the three attitudes I was trying to fight—and which are particularly rampant in Norwich—in the demure guise of an AJ Conference guide—the reliance on authorities at second-hand—"often quoted," the confusion of craftsmanship with architecture—"fine example," and the suggestion that being a 15th century jumble instead of a 19th century one would somehow make it better.

St. Paul's Precinct

SIR,—I hope it is not too late to make a small comment upon the design of St. Paul's Precinct, and the development of the City of London in general. In studying the design and reading the many comments and criticisms, I consider very much too parochial a view is being taken of the problem, and that both in regard to the scheme for St. Paul's and the New Barbican scheme, too little regard is being paid to the result of these developments upon the outline of London as a whole.

I consider that London without the dominance of St. Paul's, as shown in Canaletto's famous picture, can very quickly develop into an architectural monstrosity such as has happened to New York.

I sincerely hope it is not too late for the Authorities to take the decision that no buildings within say half a mile of St. Paul's Cathedral should be more than four or five storeys high.

STANLEY MILBURN.

Sunderland.

St. Giles (top) and St. Peter Mancroft (above). These churches are discussed in the first letter, opposite.

Cut-Rate Housing

SIR,—I have read with interest the Comments in the AJ of July 12 about the "brainwave" emanating from the stately precincts of 66, Portland Place to provide house plans at "cut rates."

It appears that although the general body of subscribing members of the RIBA are still bound by the Institute's rules, the winners of this approved competition will be allowed to mass-produce house plans thus selected and, aided by the interest and advertisement given by the competition, dispose of their designs at bargain rates on a national scale.

With the rigid rules of professional etiquette enforced by the RIBA and the Registration Council, the unknown struggling architect endeavouring to commence a practice is hardly allowed to whisper that he is an architect and certainly not that he would like a few commissions. He has to rely on the magnetic effect of a small plate to draw the potential client up three or four (or more) flights of stairs to a dismal attic under the roof.

This is a "press button" age and although the more affluent architects on the Council of the RIBA may think it a "frightful bore" to set their staff to design and draft house plans of a small type, many others have to rely on such jobs to pay for the necessities of existence.

To make the proposal still more in keeping with this age of automation the next step could be that machines may be made available at suitable locations, so that on the insertion of the requisite coins in the appropriate slot, Plans such as No. 105(a) with Specification 105(b) or/and Quantities 105(c), with Planning Permission and Bye-Law Sanction together with Tenders from three building firms would be ejected.

This would bring the work of the "big boys" to the small man with the greatest of ease to both. After all, why should professional bodies safeguard the interests of their lesser known members in some remote district. Darwin years ago said that nature proved the theory of the "survival of the fittest."

It may occur to some persons to wonder if the Registration Council have agreed to, or can legally agree to, the Royal Institute instituting the scheme they propose, which it appears would allow certain architects to mass produce plans with the benefits of advertisement on a national scale and with the blessing of the RIBA.

If it is considered that the time of practitioners is not sufficiently compensated for the work entailed by the preparation of house designs for individual clients. While the fees are too high to in fairness attract the general body of architects the winning mass-produced plans should be available only to a member of the profession who could remit an agreed fee to the author of the design.

This would be on the same lines as the rule that only a qualified doctor is allowed to prescribe dangerous drugs.

"PUZZLED."

OBITUARY

Prof. Lionel Budden

We regret to announce the death, at Heswall, Cheshire, of Lionel Bailey Budden, who retired from the Roscoe Chair of Architecture at Liverpool University in 1952.

RIBA

Maintenance Scholarships

The RIBA announce that the following maintenance scholarships have been awarded for the year 1956-1957:—

An RIBA Houston Maintenance Scholarship of £125 per annum to H. M. Cummings, of Manchester.

An RIBA Houston Maintenance Scholarship of £100 per annum to C. J. Price, of Stone, Staffordshire.

An RIBA Houston Maintenance Scholarship of £125 per annum to Nicholas Wood, of London.

An RIBA 4th and 5th year Maintenance Scholarship of £60 per annum to Roman Halter, of London.

The Builder Maintenance Scholarship of £75 per annum to R. E. Osler, of London.

The Maintenance Scholarships previously awarded to the following candidates have been renewed:—D. S. Bremner (Aberdeen School of Architecture, Robert Gordon's Technical College—RIBA Houston Maintenance Scholarship of £125 per annum).

J. D. Connell (Department of Architecture, Northern Polytechnic—RIBA Houston Maintenance Scholarship of £125 per annum).

D. C. Sharp (Architectural Association, School of Architecture—The Ralph Knott Memorial Maintenance Scholarship of £45 per annum).

D. M. Smith (Department of Architecture, Northern Polytechnic—RIBA Houston Maintenance Scholarship of £125 per annum).

LCC

Office Building Danger

The prospect of growing congestion in the central London area, heavier demands on public transport, increasing traffic and car parking difficulties and a greater lack of balance between working and resident population is foreseen by the town planning committee of the LCC unless the present rate of office development in the central area is

WORK YOUR PASSAGE WITH

Although our holiday offer to students is now closed we are still looking to architects to help us find Working Details when they are holidaying abroad this summer. You may remember that we announced in the JOURNALS *for June 7 and June 21 that we will pay £8 8s. for*

STUDENTS SELECTED

1 Derek Parker, of Birmingham School of Architecture, receives £25 to go to Germany.
2 Charles Simon, of Manchester University School of Architecture, receives £35 to go to Dusseldorf and Karlsruhe.
3 John Peverley, of Canterbury College of Art, receives £20 to go to Blumberg and Cologne.
4 Robert Dewhirst, of Liverpool School of Architecture, receives £30 to go to France and Italy.
5 Nicholas Quennell, of the AA School, receives £15 to assemble details while in Rome.

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11 Michael Sadler, of Kingston School of Art, receives £30 to go to Denmark.
12 M. Andrews, of the Bartlett School of Architecture, receives £25 to go to Denmark.
13 Ruth Baker, of Cheltenham, receives £35 to go to Sweden.
14 George Barnes, of the AA School, receives £35 to go to Sweden and Finland.
15 Norman Gilroy, an architectural assistant in London, receives £20 to go to Zurich.

11

WORKING DETAILS

each Detail we publish (plus the cost of photography whether or not the Details are used). If you are going abroad and think you will have time to help us, please let us know in advance so that we can guard against the remote possibility of duplication. We received such a good response to our similar invitation to students (whom we agreed to pay a sum in advance plus £6 6s. for each Detail published) that we decided to pay out a larger advance sum than the £250 mentioned in our original announcement.

FOR THE AJ RESEARCH HOLIDAY WITH PAY

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6 John Hummerston, of the Northern Polytechnic, receives £20 to go to Holland.
7, 8 Robert Watts and Richard Padovan, of the AA School, together receive £20 to go to Rotterdam.
9 Norman Rye, of Canterbury College of Art, receives £20 to go to France.
10 D. Leadbetter, of Hammersmith School of Building, receives £25 to go to Denmark.

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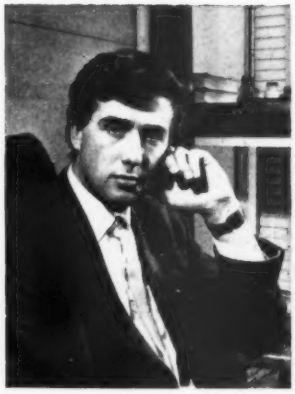

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reduced. There is the possibility, they state, that with so much office accommodation being provided, the demand has been more than met.

The committee, together with the City Corporation, carried out a survey in an area that is approximately the same as the London Transport Executive's central area for passenger census purposes. It showed that planning consents given between 1948 and 1955 for new office buildings and conversions would provide about 42 million square feet of new accommodation, or space for about 278,000 office workers.

The committee point out that the central area provides services to the public in the form of shops, showrooms, hotels, restaurants, and places of entertainment. These are already barely sufficient for the numbers of office workers, suburban shoppers, and visitors that use them daily and any further reduction in the area devoted to them would seriously affect the functions of London as the capital city. The committee discuss also the possibility of an increase in the resident population being encouraged.

They propose to initiate discussions with the MOH and with adjoining county planning authorities on a possible plan for office development for the whole of the London region. Their report, containing the results of the survey, will be considered by the LCC at their meeting tomorrow.

IWA

Canal Problems Discussed at Tenth Annual Meeting

The Inland Waterways Association held its annual dinner last Saturday at the Fellows' Restaurant of the Zoo, a special occasion (writes a correspondent) the tenth year of its remarkably successful development from a handful of enthusiasts to an influential body thousands strong. In the first speech, handsome Humphrey Atkins, M.P. and Secretary of the Conservative Party's Subcommittee on Canals, paid a tribute to the help the IWA had given his group; as one result, he said, it had done its part in stopping the closure of the Kennet and Avon Canal. Now it could do little more until the Bowes Committee presented its report. The outcome of that report, to which Parliament would attach great importance, would depend a great deal on the evidence submitted by the association.

Geoffrey de Freitas, looking more like a romantic poet than a hardened M.P., supported Mr. Atkins from his side of the House, saying that this was a non-Party matter. He believed that there were three million anglers in this country; he knew that in his Lincoln constituency at least 2¼ million of them sat on the banks on Sundays. Public opinion must be mustered, especially that of the anglers. He knew from experience the intense value of a pressure group. Fortunately such a group existed in the IWA.

Frank Carr, Director of the National Maritime Museum, founder of the Thames Sailing Barge Club and enthusiast about everything that floats, likened himself to an ancient lock gate and produced a parable about Noah who had had the courage to float a limited company when the rest of world had gone into liquidation. He pointed out that ours was the only country which did not value its canals. The Founder should be proud of the ten years' achievement of his association in fighting this attitude. It had now got a government committee to consider inland waterways seriously, and he did not under-rate the competence of that commission. The association should not over-emphasise or pour out too much scorn for that was bad politics. It must present a reasoned case to the committee. He concluded with Lady Godiva's happy remark made at the end of her journey: "At last I have reached my close."

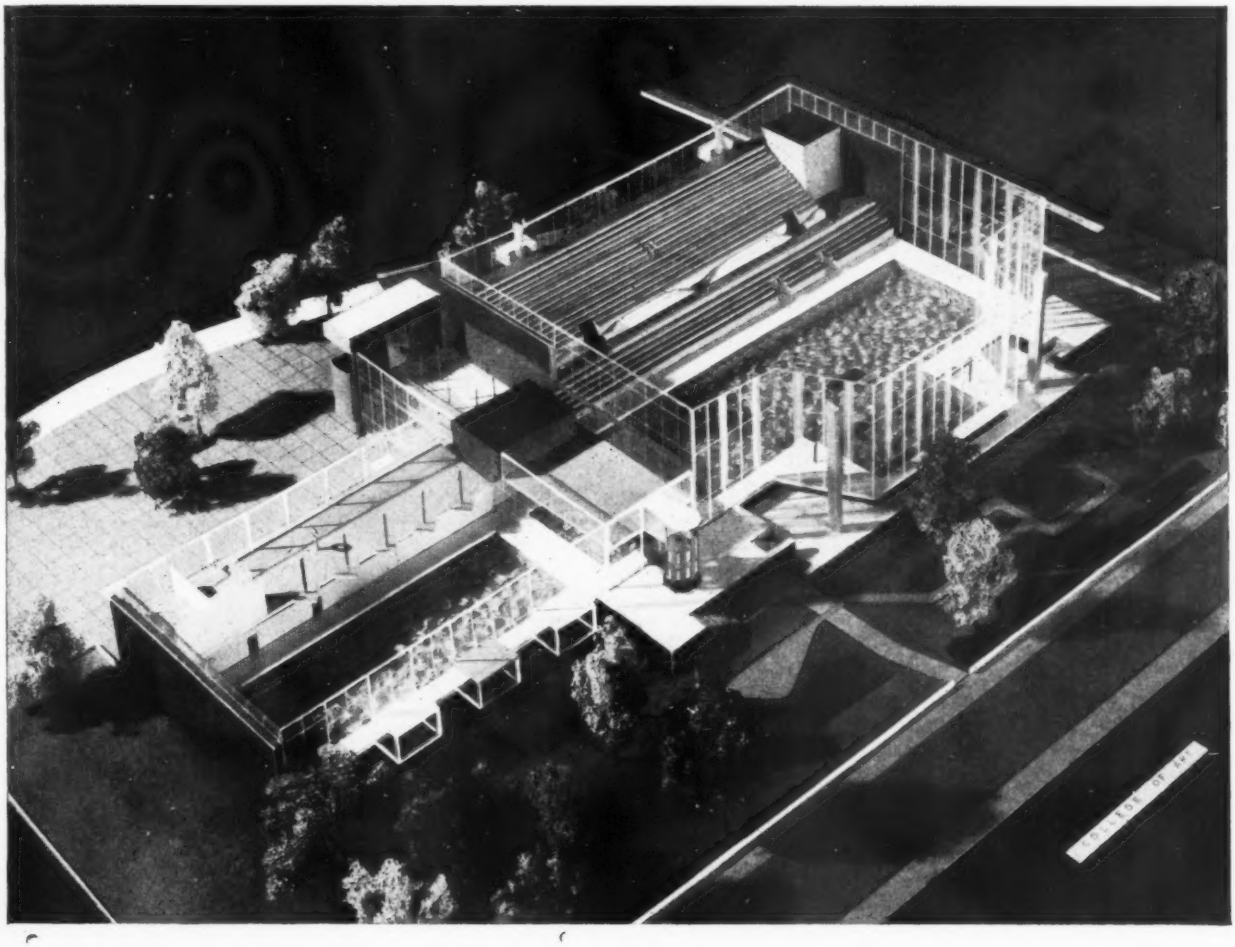
Sir Gerald Barry said that it was a shame not to use the great area of the inland waterways when the acres of this tiny isle were so rapidly shrinking. Those waterways which were no longer of much use to commerce should be used for pleasure; that part of Britain should not be allowed to become submerged in Subtopia.

Robert Aickman, Founder and Vice-president of the association, pointed out how absurd it was to assert that canal transport was not economical when the conditions did not provide a proper test; bad maintenance was making efficient operation impossible. A National Conservancy was needed with full powers to deal with every aspect of the waterways. He introduced Miss Margaret Rawlings as the last speaker. Her deep and moonlit voice set the right mood for the trip along the Regents Canal which concluded the celebations. Overheard on the bank: "Next year, can't we have some fireworks too?" As it should, this movement is becoming a cult.

It is with regret that we have received a complaint from Mr. W. A. J. Spear with regard to the particulars concerning him which appeared in our issue of the 31st May last, more particularly with reference to the late Mr. George Skipper to whom he was Articled. Time did not permit of our submitting a proof of the particulars to Mr. Spear before publication as we had promised to do and we desire to express our apologies for any annoyance which may have been occasioned to the relatives of Mr. George Skipper, the present firm of Skipper & Partners or to Mr. Spear.

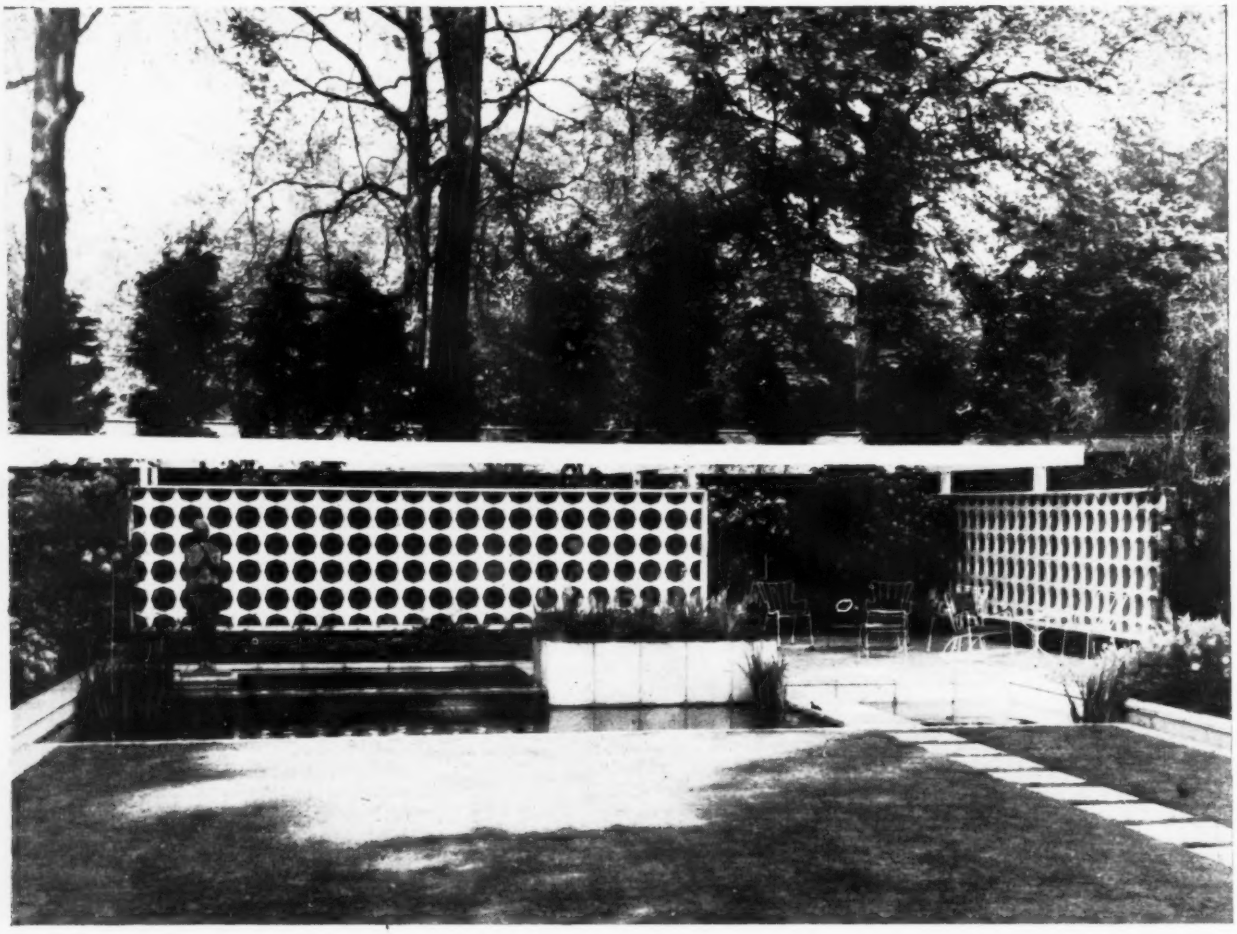
Another photograph of Frank Lloyd Wright being entertained by the JOURNAL *last Friday.* *(See also pages* 109-111.) *On the left is H. Whitfield Lewis, the LCC's principal housing architect. On the right are Fello Atkinson, Noel White (of the COID), Max Fry and Ove Arup.*

PROPOSED PUBLIC BATHS FOR COVENTRY



The proposed central baths designed for the Markets and Baths Committee of the City of Coventry by A. G. Ling, City Architect and Planning Officer, will replace previous baths destroyed during the war. The scheme, seen in the model photograph above, forms part of the comprehensive re-development of the central area of the city. Before the war there were five corporation swimming pools in the city, for a population of about 213,000. Since the end of the war only one pool, in Livingstone Road, has been available to serve a population now numbering 265,000, and increasing rapidly. This establishment is seriously overcrowded. The committee decided that it would be unwise to meet the demand on a decentralized basis, as this would inevitably lead to discrimination between districts and also national and international events could not be catered for. This led to the decision to form a central baths to provide for public use, national and international events, and for use by school children and clubs. The site of approximately 3½ acres is bounded by Cope Street, Cox Street and the River Sherbourne. Access to the main entrance will be from the north (top left in the model photograph). The main pool, centre right, will be 165 ft. long (international racing length) and T-shaped on plan. To the left of the pool will be a gallery for 1500 spectators. The small pool, 110 ft. long (bottom left), will be used for public and club swimming. Between the main pool and small pool is a restaurant, where there will be views of both these pools and the gardens to the south. Under the restaurant there will be a teaching pool, accessible direct from the main entrance. To the north of the small pool there will be a games deck, which can be converted into a dance floor by opening sliding-folding screens to one of the club rooms. The total estimated cost is £878,750, with a further £8500 for landscaping, pile foundations and part cost of car park.

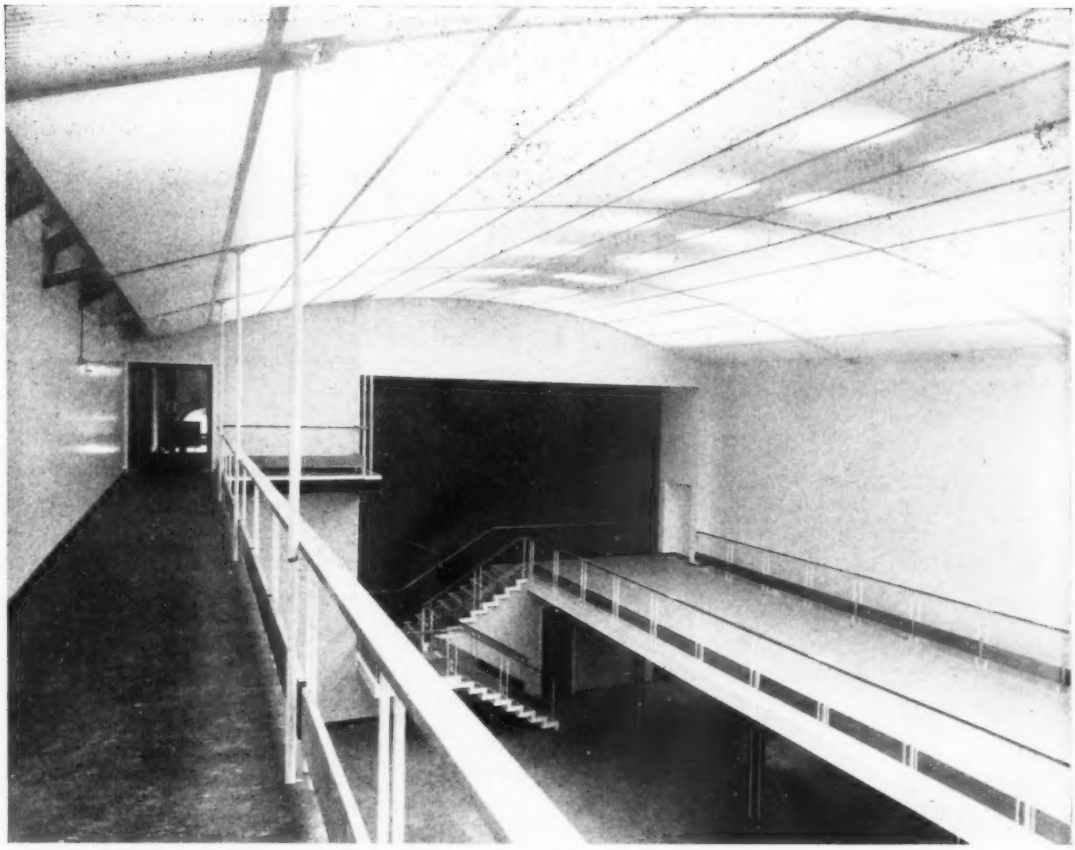
ARCHITECT-DESIGNED GARDEN AT CHELSEA FLOWER SHOW

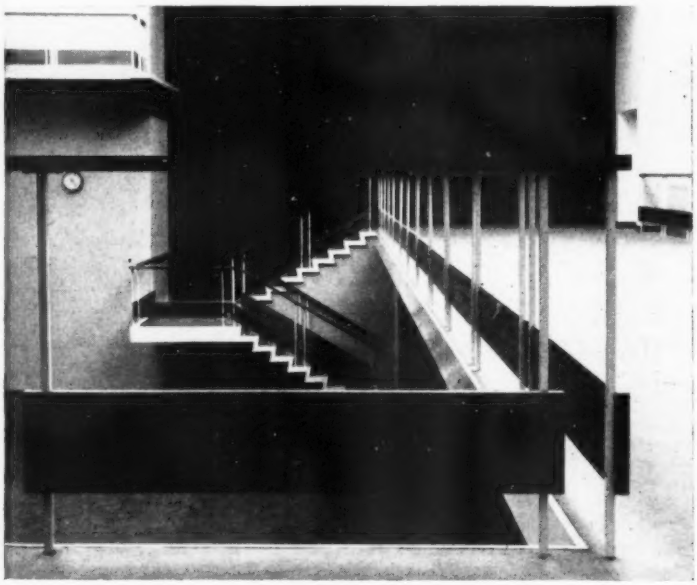


This garden was designed by D. A. W. Lovejoy A.R.I.B.A., A.I.L.A., for J. Cheal & Son. The designs of previous gardens exhibited at the Chelsea Flower Show by this old established firm have been anything but contemporary and it is to their credit that they accepted a scheme which is radically different from anything they have previously exhibited. They allowed the designer a free hand in the design and let him experiment with the garden to try to bring the art of landscape design in line with its allied arts. The most important feature of this garden is the precise relationship between the various components of the design. Although the terrace, lawn, pools and planting areas are four distinct features they have all been unified by the stepping stones and the elevated space frame. The stepping stones are 2 ft. square and spaced 5 in. apart (to acccommodate the average pace) and proceed at the same rhythm through both lawn and pool.

The star-patterned screens are made of resin-bonded plywood set in softwood frames all painted white, and the whole screen backed by removable panels which are painted in varying colours. The purpose of the screens is to illustrate the use of colour in the garden throughout the year. They are particularly effective in winter when there is little other colour available, and would also be extremely useful in screening unsightly development. The purpose of the elevated frame, other than aesthetic, is to provide support for any canopy that may be desired for the terrace and also for the side screens. The sculpture was very carefully chosen and was executed by Sydney Harpley of the Royal College of Art. It was considered desirable to incorporate some water movement into the design, and this was achieved by providing a drop of 6 in. between the two pools, and pumping water from the lower to the upper pool at the rate of 4,000 gallons per hour. Three distinct planting areas were provided—herbaceous, flowering shrubs and a background evergreen screen. A mowing stone surrounds the lawn to ensure ease of maintenance and clean, well-defined lines.

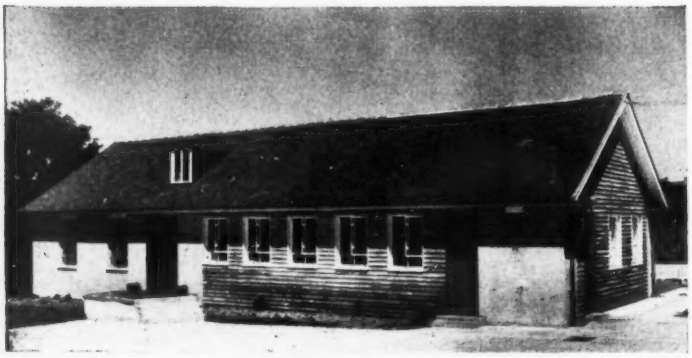
REDESIGNING OF MUSEUM OF HEALTH, LONDON





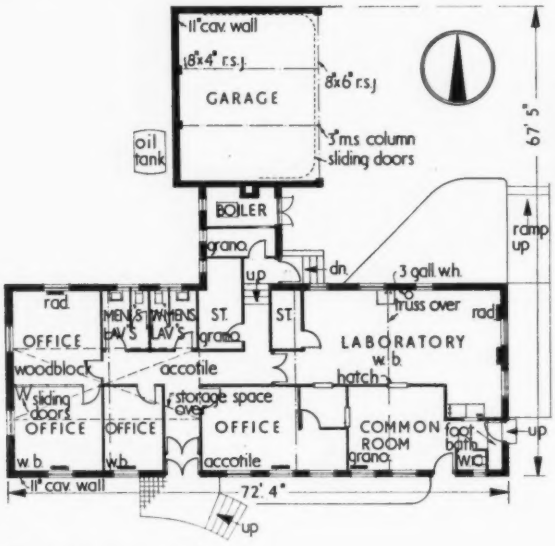
Sir Hugh Casson has redesigned the Royal Society of Health's museum in Buckingham Palace Road, S.W.1. The existing room (on the right) had two entrances from Buckingham Palace Road: one, at low level, direct to the ground floor of the Museum, and one directly above, at high level, leading to a narrow gallery running all round the room to form a central well. There was no direct connection between the two. The conversion involved the removal of three arms of the high gallery and the substitution of a lower, far wider, mezzanine-type balcony along one side of the Museum (photograph on left) linked by stairs at each end with both the ground floor general display space, and the high level gallery (left in top photograph). The balcony returns into the recess at the end to form the ceiling of the theatre on the ground floor and becomes a store above. A suspended ceiling of translucent plastic material hides the bare roof structure and gives more general diffused lighting to the Museum from the roof lights above. The new Museum now becomes a continuous circuit of display. Associate architect: R. A. Green. Consulting Engineer: R. A. Sefton Jenkins.

BUILDINGS IN THE NEWS



Cattle Breeding Centre, Devon

The extension to the Cattle Breeding Centre at Dartington Hall, Devon, which provides laboratory and administrative accommodation, was designed by Hening and Chitty. The office may be extended later into the roof space, now used for storing records, and extension is also possible at both ends of the building. Office space is made flexible by the use of folding partitions. Allowance had to be made for strict segregation of outside workers and laboratory staff, to avoid the carrying of animal infection, and departments communicate with each other through a series

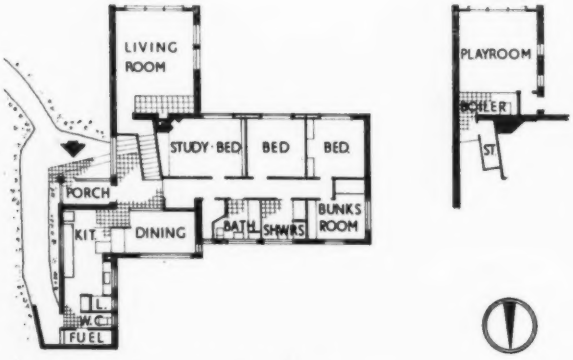


Floor plan [Scale: $\frac{1}{24}$" = 1' 0"]

of hatches. The load-bearing external walls are constructed of 11-in. cavity brickwork, finished outside with lime roughcast. The walls are partly clad with selected elm wall-boarding and the roof is covered with Cornish slates. The central heating installation includes an oil-fired boiler. The quantity surveyor for the building was Oswald E. Parratt and the general contractors were T. Brook & Co. Ltd.

House at Killowen, N. Ireland

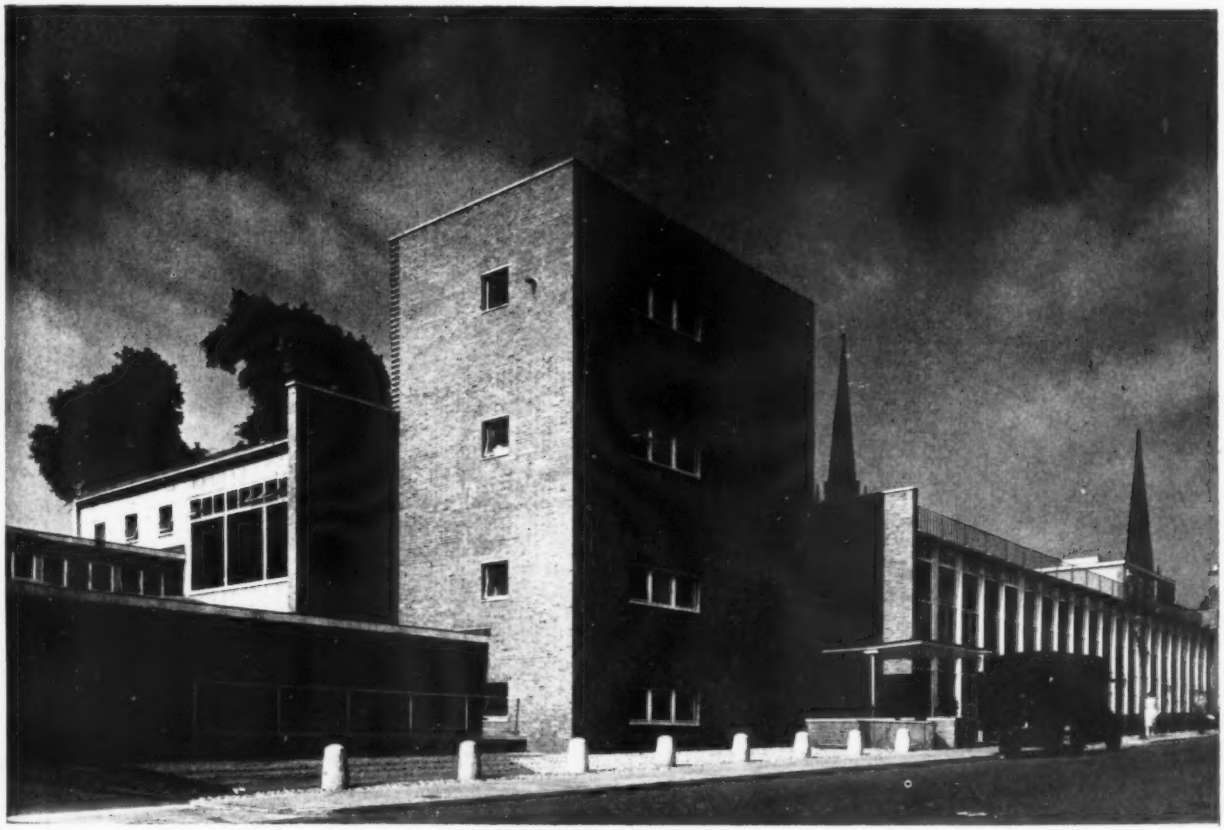
The character of this house at Killowen, Co. Down, designed by H. Lynch-Robinson and Robert McKinstry, was influenced, it is said, by modern Scandinavian design to remind the client's wife, who is a Norwegian, of her home country and to form a background for her small hand-woven textile industry. From the site, which is situated under the Mourne mountains between Rostrevor



Ground, first floor and lower ground floor plans [Scale: $\frac{1}{32}$" = 1' 0"]

and Kilkeel, there is an extensive view southwards over Carlingford Lough, which is best seen from the only first-floor room, the living room. The photographs show the house, above, from the road, and opposite page, from the

east. The construction is of 11-in. cavity concrete-block load-bearing walls, with a roughcast finish externally and an insulated plaster-board lining on battens internally. The roof and the south wall of the living room are finished with cedar shingles. The windows are timber-framed and the main living room windows are double-glazed. The house cost approximately £6,000. The general contractor was Major W. J. Hanna.



College of Art, Coventry

The building above, seen from Cope Street, is the first phase of the Central College of Art and Technology, Coventry, designed by the City Architect's Department (A. G. Ling, City Architect and Planning Officer; D. E. E. Gibson, his predecessor; D. E. Percival, formerly deputy city architect; J. C. Barker, principal architect, and A. R. Walker, architect-in-charge.) The college, together with a new library and art gallery, will form an educational precinct in the central area of the city, at an estimated cost of £750,000. Agreement has now been reached with the MOE for the commencement of the second instalment, at a cost of approximately £245,000, in 1957, and final plans to complete the college will form part of the 1958-59 building programme. The site is adjacent to that of the new Cathedral and includes a 19th century graveyard, which it is intended to retain as a small park open to the general public. It is hoped that public use of the grounds will stimulate interest in the work of the college. The first phase provides accommodation for the printing department of the college of art, which, together with the main entrance hall and locker rooms, occupies the ground floor. In the basement are a covered car park, approached by a ramp from Cope Street, general store rooms, boiler house and fuel stores. The first floor was planned as studios for the architectural and photographic departments, but the rooms are being used temporarily for painting, drawing, modelling, carving and pottery. The construction consists of a welded steel frame on a 20-ft. grid, with precast concrete floors and roof. The college will be illustrated fully at a later stage in the development.

Percy Johnson-Marshall, group planning officer of the LCC, recently visited Paris to see two exhibitions—" The International Festival of Architecture and Monumental Art " and the " Second International Building and Public Works Exhibition." In his letter to us he writes about these exhibitions and about other matters of architectural interest.

A LETTER FROM PARIS

By Percy Johnson-Marshall

It has been rather more than disappointing for a visiting architect to trudge the boulevards and the grandes avenues in a drizzle, with gusts of windy rain following him into the arcades of the Rue de Rivoli. But even in the rain the magnificent scale and dignity of the centre is inescapable—the planners had their way (and a big way it was), and even now, with the Citroens, Renaults, and Simcas in full flood, the central area of Paris copes far more efficiently with the traffic than does London, *and* they are building several more underpasses at the present moment. The great thing the improvers of the 19th Century gave Paris was space in the centre—space not only in the form of very wide avenues and boulevards, but space around and in front of all the public buildings, and on both sides of the river (I have often wondered what would have happened in London if Greenwich Hospital and Chelsea Hospital had been built on the South Bank, opposite the Palace of Westminster.) Take, for instance, the problem of an Air Terminal. Without any difficulty they were able to site it right in the centre, and to provide a large low level car and bus park with generous ramped approaches on the broad space between the Invalides and the river.

But, " what cooks? " as our transatlantic friends say, pouring out their Skymasters and Constellations into the gay but dollar-conscious city. If it is humanly possible, all architects, and especially those concerned with planning, should travel by air. Approaching Paris one sees the usual straggle of surrounding villages being devoured by a great wen, but, what is more interesting, one sees a number of large schemes of multi-storey flats at high densities, in various stages of construction, one scheme including five eleven-storey point blocks (and but an hour before the plane was nearly over Roehampton!). It was only later on, when discussing French housing problems with an architect from the French Ministry of Reconstruction and Housing, I learnt that there is a whole ring of these high density projects around Paris which are being built on what was once low density suburban straggle, and that the planning strategy is thus to enable the inner areas to be decongested. All around these schemes are, of course, the usual low density one-family detached houses, so that the residential areas will in fact be " mixed " in the end.

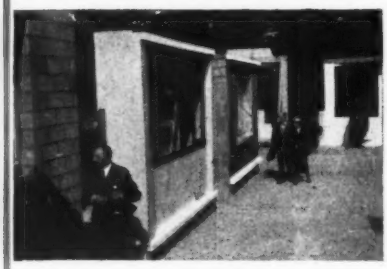
If one arrives at Orly the second thing one notes is the construction of the new airport buildings, which are of light steel construction with curtain wall cladding. They compare interestingly with other new airports, such as London, which looks so much more heavy and permanent in brick (forgetting all about that R.C. hangar, which is surely there for eternity), or Kastrup at Copenhagen, which is also of light construction; or again of Rio, which although it has plenty of glass and " chic," is good solid R.C. again. Surely, with such a rapidly changing phenomenon as air travel, the motto should be " keep it light, keep it flexible."

" The new airport buildings at Orly compare interestingly with other new airports, such as London which looks so much more heavy and permanent in brick. . . . Surely, with such a rapidly-changing phenomenon as air travel, the motto should be ' keep it light, keep it flexible.' "

Easily the most dramatic building now under construction in Paris is of course the UNESCO building, which as the recent JOURNAL progress photographs showed, is now structurally completed. And very exciting it looks, with its beautifully fashioned R.C. frame, the product of really high quality craftsmanship and precision shuttering. One end cross wall of the main office building is already completed in its rich travertine, and augurs well for a real Brazilian standard of finish. The structural design of the great hall is just at the moment most clearly displayed, and is both exciting and ingenious, but of course a real " one off " job, in the multiplicity of shapes. I hazard a guess that, whether this building makes good urban design sense or not, and it is at present too early to say, it will be the most visited building of 1957.

A subtopian scene in Paris. Cars littered all over the Place Vendome.

Just at the moment there are two Exhibitions on in Paris of architectural interest. The first, and much the less important, is in the Grand Palais. One would have written it of as " muddled mission " if one could discern any mission at all in it. It is called the International Festival of Architecture and Monumental Art. Scattered somewhat indiscriminately about the vast space of the great hall of the " Palais " are various pieces of sculpture, while around the side aisles are the architectural pavilions, some good, some bad, mostly indifferent. Of the French Government Departments, the Electricity Authority has easily the most exciting and plastically successful exhibits in a series of photographs of recent high dams, while the Post Office comes a long second with models and drawings of the new Television Centres. This main Centre in Paris, which is now under construction, is completely circular in plan form, and has an inner drum from which arises a tall but somewhat clumsy looking tower. Like nuclear establishments, these television buildings are something new in architectural problems, but none of these French examples gave me the feeling that a satisfactory form of expression has yet been evolved.



Top: the very modest British Pavilion at the Second International Building and Public Works Exhibition, which contained the only British professional exhibit—photographs of LCC planning and architecture and historic buildings owned by the National Trust. Centre: architectural models and pictures in British pavilion at the International Festival of Architecture Above: prefabricated wall cladding displayed in the French pavilion.

The British Pavilion was a most haphazard affair, with a collection of perspectives which might have come out of any Royal Academy Exhibition over the last twenty years, but also, surprisingly enough, models of Sheffield University buildings by Melvin, Gollins, and Ward; Rangoon University Hall by Raglan Squire, and the new Civic Centre of Plymouth by the City Architect, which at least showed that authorities and architects were prepared to send interesting material.

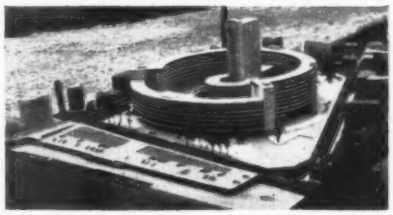
The other Exhibition is the Second International Building and Public Works Exhibition, being held at St. Cloud. This is something like our Ideal Home, Public Works, and Building Exhibitions all rolled into one, and set out, say, in Bushy Park. The most striking exhibits are the many forms of prefabricated wall cladding, from the lightest of aluminium and glass screens to complete built-up frame infilling or structural panels of up to 24 cm. thick and weighing up to seven tons. The uses of these various systems of prefabrication are very well demonstrated in the handsomely designed pavilion of the French Ministry of Reconstruction and Housing, where a number of models and progress photographs of Housing Schemes now under construction are displayed. All use prefabrication, either in the form of steel or R.C. frame with various types of panel infilling, or of complete wall and floor sections with in situ joints (as in the CAMUS system). It is interesting to see how the building methods have influenced the housing layouts—all the schemes, for instance, although on the outskirts of Paris, are of flats only, usually of eight- and five-storey blocks (they go to five without lifts), the five-storey blocks being of great length to facilitate constructional methods.

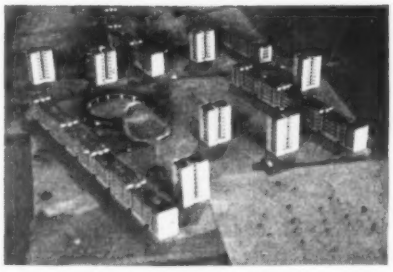
Quite a number of British firms were exhibiting their products at the Exhibition, but the only professional contribution came from the National Trust and the LCC, in the form of sets of photographs illustrating, on the one hand, a fine selection of Historic Buildings, and on the other, the well known Comprehensive Planning Schemes, Housing, Schools, and other work. The French Minister of Reconstruction and Housing, who, with his colleague the Minister of Works, opened the Exhibition, and whom I had the honour of meeting, expressed considerable pleasure and informed interest in these exhibits. It left me wondering whether a considerably greater effort could not be made by this country from a prestige point of view at important International Exhibitions of this kind. Perhaps the RIBA might be the organizing body to undertake such an obligation, since I gather that none of the Ministries was prepared to do anything.

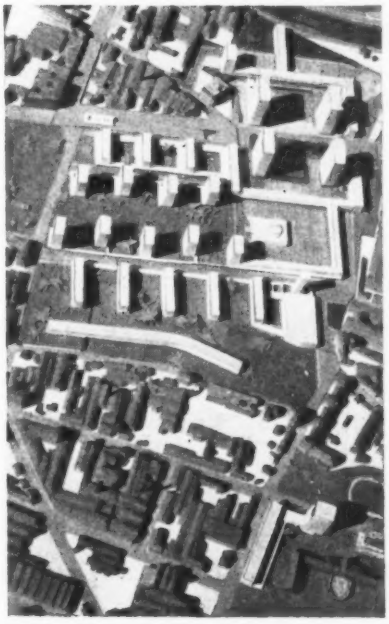
Before returning I had the good fortune to have an exposition (followed by a long argument, needless to say!) by Messrs. Bodiansky and de Chalendar on "la Dame Blanche," which is the New Town they are going to build on the northern outskirts of Paris. This is particularly interesting in that it is planned at a high density, and with flats only. My criticisms related mainly to the fact that it was so near to Paris as to constitute more a large suburb than a town in its own right, but it does continue the general policy of developing with a high density on the outskirts in order to decongest the inner areas.

Finally, one small, but striking little detail about Paris. The city is greatly enlivened by the innumerable posters one sees everywhere, advertising art exhibitions. The quality of these posters is of a high standard, and they give just that extra touch of colour and liveliness which a city needs. There are, admittedly, certain things which only certain cities can do. Wandering through the Louvre, for instance, one found a large temporary stage in the Old Court where they were unconcernedly rehearsing "Oliver Cromwell," and further east another temporary stage on the *place* in front of the Notre Dame, where a notice just said "Carpenter," and I never found out what it was referring to. But there are things London could do to brighten itself up without being self-conscious, and which might even divert some of the rich stream of dollar traffic from its elegant sister city.

Below: a model of the Paris Television Centre now under construction on a site by the Seine. The form is strikingly similar to that of the London Television Centre. The architect is M. H. Bernard. Centre: the new housing scheme at Aubervilliers which is also under construction. It consists of eight-storey point blocks and five-storey slabs and is prefabricated throughout. In the centre is a stadium and auditorium. Bottom: Pantin, a projected prefabricated neighbourhood on the eastern perimeter of Paris, which will have 2,000 dwellings. 811 are at present under construction.







THE INDUSTRY

From the industry this week Brian Grant reports on two thermal storage heaters, an air-conditioning unit, and an instrument for measuring moisture content.

ELECTRICAL HEATING

E. K. Cole Ltd., have just introduced two new thermal storage heaters which have ratings of 1½ and 2¼ kW. and are known as Thermostors. As is usual with heaters of this type, they are controlled by time switches, and accumulate their stored heat during off-peak periods, a charging time of 8 to 10 hours a night providing continuous heating throughout the following day. The heaters are fairly heavy, the two models weighing nearly 400 and 600 lb. each, but installation is comparatively easy, as the sectionalized heat storage blocks are of such size and weight as to be easily lifted and have special hand holds.

A safety thermal cut out is built into the lid of the casting to prevent overheating of the storage medium if the charging period should be prolonged, and for the same reason the top of the heater has been designed with a slope so that it cannot be used as a shelf. A screen and a spacer are available as extra fittings to reduce the temperature of the wall against which the heater is placed, and also to minimize blackening of the wall by air currents. The 1½ kW. unit is 26 in. wide, 30 in. high, and 11¾ in. deep, the larger model being 12 in. wider.

A recent addition to the Thermovent range of heaters is an improved type of radiant glass Thermopanel, in which the heating element is fused directly into a panel of rough-cast toughened glass. Only one model is produced but it can be used with different voltages at different loadings: the rating at 200 volts being 750 watts or at 250 volts, 1,100 watts. The Thermopanel is fitted to the wall by four screws and clips, a single retaining screw and clip locking it in position. (*E. K. Cole Ltd., Southend-on-Sea, Essex.*)

AIR CONDITIONING UNITS

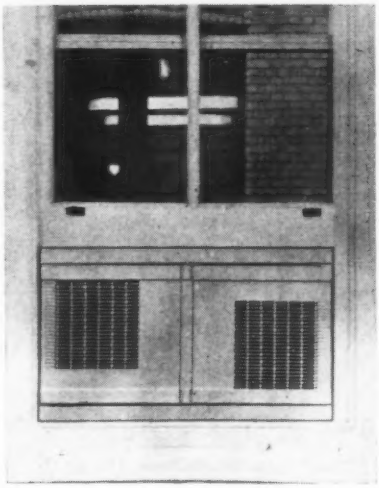
GEC has recently introduced a room air-conditioning unit which is available in four different versions to meet the varying demands of different climatic conditions. One model provides cooling only, another one cooling and 1,500 watts of electric heating, the third model provides cooling and a heat pump, and the fourth model combines all three, cooling, electric heating, and the heat pump. The units are so designed so that they can be installed flush with the inside wall face, or with the outside of the building, or in any intermediate position.

The air conditioning unit has a cooling capacity equivalent to 1 ton of ice melting within 24 hours, the equivalent of a heat extraction rate of 12,000 Btu per hour. The air conditioner re-circulates 350 cu. ft. of air a minute, but up to 65 cu. ft. a minute may be fresh air, drawn from outside through a damper in the bulkhead between the two units of the conditioner. This incoming fresh air is filtered and cooled before it is discharged into the room.

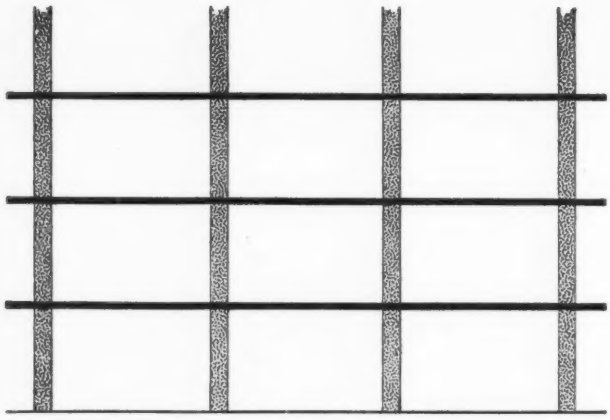
The model with 1,500 watts of electrical heating (V.3513) is intended to provide a small source of heat during sudden drops of temperature, particularly when humidities are high, as it is possible to de-humidify the air by running the compressor and fan, and using the heaters to warm the de-humidified air so that it does not become uncomfortably cold. The V.3514 model incorporates a reverse cycle heat pump and is intended for use where there is a marked contrast between day and night temperatures. Once the thermostat is set to the required temperature, the unit will automatically change over from cooling to heating and vice versa according to the rise or fall in temperature, maintaining constant conditions in the room regardless of the outside temperature. (*The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.*)

MOISTURE MEASUREMENT

Protim Ltd., who are manufacturers of wood preservatives, have recently introduced an instrument known as the Protimeter for measuring the amount of moisture in brickwork, plaster or timber. The meter can be carried as easily as a small camera, and the detector head, which consists of two-prong plug, is placed against the surface where dampness is present, a calibrated scale then recording the amount of moisture present.



Top: The new Ekco 'Thermostor' 1½-kW. model (type TS15). Above: the GEC air conditioner.



Structure q.p.

You do not expect to see "first and foremost" or "quickest and best" on structural engineers' drawings. But this is, in fact, what you have in the Plate System by Truscon. You can get your structure up in a much shorter time than you did before *(quam primum)* and your client, however non-technical, will be able to appreciate the flexibility of internal planning which the System allows on account of the fact that there are no beams. You can recommend it with complete confidence: you can be really proud of the finished job. The Plate System by Truscon will prove itself.

q.e.d. Truscon

technical section

There is also a secondary scale, calibrated to show whether a newly plastered area is dry enough for decoration. The price of the meter is 17 gns. and the manufacturers suggest that it should be particularly useful when investigating dry rot or other forms of attack, as it is very easy to determine the full area of damp surface. (*Protim Ltd.*, 356-368, *Evelyn Street, London, S.E.*8.)

The Protimeter being used to ascertain the source and extent of rising damp in a building where the ground floor boards and joists have been affected by wet rot and wood boring weevil.

INFORMATION CENTRE

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

10.150 design: building types

FISH SHOPS

Report of the Advisory Panel on the Improvement of Retail Fish Sales. (White Fish Authority, Tilbury House, Petty France, S.W.1. 1s.)

The greater part of this book comprises two appendices making recommendations for the design of fish shops and of fish and chip saloons. For fish shops the report favours the close-fronted as against the open shop for motives of hygiene and the substitution of wall counters for the old type central slab to give customers more room to move about. The floor should slope from front to rear (to avoid swilling water onto the pavement) and air blow systems are more effective than mist sprays for keeping off flies. Lastly refrigerated windows, slabs and cabinets are recommended. On fish and chip saloons it is interesting to learn that the volume of "take away" to "sit down" trade is in the proportion of about four to one. Anxiety is expressed regarding the converted front parlour type saloon, which is likely to contravene proposed hygiene regulations forbidding carrying food through living accommodation, and it is suggested that the whole of the ground floor should be given over to the saloon. No ruling is given on whether it is best to have a wall type range or island type range-cum-counter, but it is thought better to have two doors than one. The report is accompanied by specimen designs prepared by the National Association of Shopfitters, which are generally of poor quality. The report lacks technical information and the plans generally lack dimensions.

CLASSIFICATIONS

1 Sociology. 2 Planning: General. 3 Planning: Regional & National. 4 Planning: Urban & Rural. 5 Planning: Public Utilities. 6 Planning: Social & Recreational. 7 Practice. 8 Surveying & Specification. 9 Design: General. 10 Design: Building Types. 11 Materials: General. 12 Materials: Metal. 13 Materials: Timber. 14 Materials: Concrete. 15 Materials: Applied Finishes & Treatments. 16 Materials: Miscellaneous. 17 Construction: General. 18 Construction: Theory. 19 Construction: Details. 20 Construction: Complete Structures. 21 Construction: Miscellaneous. 22 Sound Insulation & Acoustics. 23 Heating & Ventilation. 24 Lighting. 25 Water Supply & Sanitation. 26 Services & Equipment: Miscellaneous. 27 Furniture & Fittings. 28 Miscellaneous.

18.181 construction: theory

DESIGN IN ALUMINIUM

Structural Aluminium. (Northern Aluminium Co. Ltd. 1956.) Structural designer's handbook, of interest to architects and engineers.

This handbook is quite different from those issued by the steelwork firms with which readers are no doubt familiar. The limited range of sections of B.S. 1161 are given for angles, channels, joists and tees, with tables for A.D.A. special section bulb angles and lipped channels. No tables are provided for

technical section

safe loads on beams or columns or built up members. The reason is perhaps the comparative infancy of aluminium as a structural material but to a large extent the material itself is more flexible than steel. Aluminium alloys as used in structural work combine a low weight with good corrosion resistance. They can be extruded to any shape by dies which are comparatively inexpensive when considered against the rolls required for a new steel section and thus allow the designer to mould the material so that it is disposed in the best manner to suit the structural theory. It is therefore quite useless to think of an aluminium structure as a substitution for steel members in a steel design. The disadvantage of aluminium is its low modulus of elasticity which leads to large deflections and instability of compression members. Nearly one third of the handbook is given to the theory of design in aluminium and an equivalent slenderness ratio is put forward as a consistent and direct method of dealing with the instability problems.

In addition to the design section there are sections dealing with the aluminium alloys, their fundamental characteristics and their available forms.

18.180 construction: theory

CONCRETE DESIGN

Design of Reinforced Concrete. Boguslavsky. (New York and London. The Macmillan Co. 1956. 42s.) Text book for architects and engineers.

The author is senior civil engineer of the well known Aramco Overseas Co. and formerly professor in charge of structural design at the School of Architecture, Georgia. His book as might be expected carries a reasonable balance of theory and practice. The book is presented in the usual American manner and is particularly easy to follow, the worked examples are made to stand out from the text. References are made throughout to the Code of the American Concrete Institute which differs from the British regulations in several ways so that tables referring to allowable loads, bar sizes and spacings are not applicable to design in this country. The basic material is there, however, and provides a standard for the student from first stages right up to University final examinations. In keeping with the majority of books headed "Reinforced Concrete" there is quite an amount of structural theory, retaining walls are considered though only for cohesionless soils and arch bridges are dealt with at some length. The moment distribution method is explained and a variation on it, the two cycle moment distribution, is given for cutting down work in the analysis of building frames. The last two chapters are interesting to students as they deal with maximum moments in frames and the design of a whole building. An introduction to prestressed concrete is given in a chapter of 30 or so pages. A direct and short method is provided for the design of eccentrically loaded columns both rectangular and circular in which tension develops.

9 DESIGN: GENERAL

more about flat costs

Last week we published a study of house and flat costs by James Nisbet. This week, Whittington, R.W., F.I.Q.S., chief quantity surveyor of Wates Ltd., responds with a further study, this time of local authority-standard houses and maisonettes.

James Nisbet's study was based on the cost analysis of a private house and the percentage analysis (converted by assuming a likely total cost) of eleven storey flats. This was the only evidence available* for such comparisons, and thus it limited conclusions to the isolating of points for closer investigation.

Richard Whittington's approach, being based on his own experience of building costs, is more "true to life". He takes the analysis of an average house and then, by "stacking" houses to make four and six-storey maisonettes, shows the effect of increasing height on the cost of each element. Thus comparisons between the two studies cannot be made. Figures show that over half the cost difference between houses and six-storey maisonettes goes on frame and services. But the author refers to the unfamiliarity of multi-storey work to the tradesman as one less tangible cause of high costs, and to the use of lifts serving "only four, or even two flats" as one of the more tangible causes.

* See AJ for April 28 and June 30, 1955.

James Nisbet's article is timely, and is a reminder of how little is known about the relative costs of different classes of domestic structure. His article is an attempt to tackle the question so widely asked, "Why are flats more expensive than houses?" In attempting to answer this, the greatest difficulty rests in the wide variety of designs in both layout and architectural treatment.

technical section

This confuses the inherent additional building costs with those resulting from planning and aesthetic considerations. The different architectural and structural treatment of multi-storey work must obviously have an effect upon costs, which can range from the meagre to the fabulous even within the limitations of Local Authority work. In order to simplify the problems which arise from the question, it is desirable to keep within the height of six storeys. Maisonettes, too, make a more satisfactory study as they occupy roughly the same amount of ground space as houses. They have a fairly similar layout on two floors and one can more readily visualise the effect of setting one house upon the top of another.

The analysis given here is an attempt to indicate *why* by showing *where* some of the more expensive work is to be found. Houses, and maisonettes in four and six storeys, are examined, the cost figures being broadly based upon dwellings with an area of 800 superficial feet and with three bedrooms. The four-storey block contains 12 dwellings, the six-storey 18. Each has balcony access. The figures illustrate, within their obvious limitations, the kind of costs encountered on Local Authority work in the provinces. They can, of course, only indicate the relative trend.

A similar trend will be found with flats, except that the increased cost with height up to six storeys is generally greater in total for flats than for maisonettes. Two of the reasons for this are: (*a*) the cheaper balcony access is less frequently found, (*b*) maisonettes are cheaper also by permitting timber intermediate floors to separate the bedrooms from the living rooms.

COMMENTS ON THE COST ANALYSIS

(printed on page 131)

Foundations

This includes the concrete ground floor slab. Although in the four-storey maisonettes the cost of the foundations is shared by two dwellings instead of one, the excavation is necessarily deeper. The concrete spread and depth is correspondingly increased.

Such a block of maisonettes occupies more ground area than a pair of houses. The ground floor level must however remain constant throughout, therefore on the average gently sloping site, a greater amount of site excavation and hardcore filling is needed which can well account for more than another £10 per dwelling.

External and Party Walls

The figures include brickwork, windows, lintols and cills. The cost changes chiefly by the introduction of scaffolding. One can only add that there seems generally to be an increase in the perimeter of flats and maisonettes with balcony access, as the tendency is to reduce the frontage and increase the depth over a similar superficial area. There is also a lower bricklayer output as one rises in height coupled with an increasing cost in safety precautions.

Reinforced Concrete Columns and Beams

The introduction of a frame in six-storey work is common enough. The external and party walls will then be no thicker than in the house. The frame serves of course to carry the access balcony, and this section is therefore included with the figures for the frame.

It may be argued with some justice that an independent frame is not a necessity on six-storey work. Load bearing brickwork or some simplified form involving cross-wall construction may well be cheaper where the plan permits. Somewhere, however, as the building rises in height a structural frame will usually enter into the calculations, the expense of which lies not only in its intrinsic cost but in the costly facing and decorative treatment often employed.

Suspended Floors

Concrete party floors between the maisonettes must now be added in. The cost here comprises concrete, framework and reinforcement.

Public Stairs and Balconies

The public access stair annexe is clearly additional cost. In six-storey work and over, two staircases are usually necessary. The effect of the balcony access upon the foundations, framework, party floors and electrical work is necessarily taken with those items. The intermediate landing and the balustrading is included here.

Roof

The figures include all carcassing, covering and ceiling joists. There is a tendency to reduce the pitch in multi-storey work and to introduce flat roofs. These are usually more expensive.

For this comparative purpose the roof is generally unaltered apart from its increase in area to cover the access balcony.

Internal Partitions

This would remain reasonably constant. The slight increase in the four- and six-storey will be due to the introduction of service and ventilating ducts.

Open Fires

This includes stack, fireplace and surround. The increase in cost with height is due to the fact that the stack must pass through each dwelling above, entailing additional brickwork.

Floor Finishings

The figures include the ground floor screed and a thermoplastic tiled floor generally. The suspended concrete party floors in the maisonettes have a sound insulating treatment comprising glass wool quilt with a "floating" floor of tongued and grooved boarding on battens.

Intermediate Floor and Internal Stairs

The timber floor between the bedrooms and living rooms is repeated in the maisonettes together with the internal stairs.

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APPROXIMATE COST PER DWELLING expressed as total cost, cost per square foot and percentage

	Two-storey house			*Four-storey maisonettes*			*Increase on house*		*Decrease on house*		*Six-storey maisonettes*			*Increase on house*		*Decrease on house*	
	£	*s. d. per sq. ft*	%	£	*s. d. per sq. ft.*	%	£	*s. d. per sq. ft.*	£	*s. d. per sq. ft.*	£	*s. d. per sq. ft.*	%	£	*s. d. per sq. ft.*	£	*s. d. per sq. ft.*
Foundations	100	2 6	6·7	75	1 10	5·0			25	8	70	1 9	4·7			30	9
External and party wall	330	8 3	22·1	345	8 8	23·1	15	5			360	9 0	24·1	30	9		
R.c. columns and beams				55	1 5	3·7	55	1 5			235	5 10	15·7	235	5 10		
Suspended floors				55	1 5	3·7	55	1 5			75	1 10	5·0	75	1 10		
Public stairs and balconies				75	1 10	5·0	75	1 10			110	2 9	7·4	110	2 9		
Roof	130	3 3	8·7	85	2 1	5·6			45	1 2	60	1 6	4·0			70	1 9
Internal partitions	45	1 1	3·0	50	1 3	3·4	5	2			60	1 6	4·0	15	5		
Open fires	60	1 6	4·0	75	1 10	5·0	15	4			95	2 5	6·4	35	11		
Floor finishings	50	1 3	3·3	62	1 6	4·2	12	3			65	1 8	4·4	15	5		
Intermediate floors and stairs	100	2 6	6·7	102	2 7	6·8	2	1			105	2 8	7·0	5	2		
Joinery	150	3 9	10·0	160	4 1	10·7	10	4			170	4 3	11·4	20	6		
Gas and electricity	40	1 0	2·7	65	1 8	4·4	25	8			75	1 10	5·0	35	10		
Plumbing	140	3 6	9·5	160	4 0	10·7	20	6			175	4 5	11·7	35	11		
Lift											160	4 0	10·7	160	4 0		
Plastering and decorations	135	3 5	9·0	140	3 6	9·4	5	1			150	3 9	10·0	15	4		
Drying cupboards				30	9	2·0	30	9			40	1 0	2·7	40	1 0		
Miscellaneous				15	4	1·0	15	4			25	7	1·7	25	7		
External services	100	2 6	6·7	100	2 6	6·7					100	2 6	6·7				
Preliminaries	114	2 10	7·6	144	3 7	9·6					160	4 0	10·7				
TOTAL	1494			1793							2290						
PER SQ. FT. FLOOR AREA		37 4			44 10							57 3					
VARIATION %			100·0			120·0							153·3				

Cost comparisons between two-storey house, four-storey and six-storey maisonettes. Figures show the cost of each element, per dwelling, and its percentage of the total. For maisonettes the increase or decrease in cost by comparison with the house, is also shown. Prices are averages, based on a number of schemes of local authority standard in the provinces, and relating to a floor area of about 800 sq. ft.

technical section

Internal Joinery

The figures include door frames, architraves, skirtings, kitchen fittings, shelving, etc. There is no reason to expect much variation here between house and maisonette. It must not be forgotten, however, that the very process of setting materials and components in a flat involves hoisting or climbing up stairs, and whilst the effect upon each element may be slight it may well add up in total to some £10 or more per dwelling.

Gas and Electricity

Although the charges made by the Gas Boards vary little, the increase in chases and ducts will have its effect with height. Electrical installations, however, rise considerably. First, it is customary to introduce conduit tubing in the floor screeds for the upper dwellings. Balcony and staircase lighting is demanded. It seems that where £25 is enough for a simple house, £50 or more is needed in multi-storey flats.

Plumbing

Externally, gutters and rainwater pipes will change but little. Internally, however, the rising main first has to reach the tank in the roof. The diameter will increase with the number of dwellings served. All down service pipes then have to pass through the two floors of each dwelling above. Waste stacks have to pass through the two floors of the dwellings below. The cost of sanitary fittings will remain constant.

Lift

At six storeys a lift is usual. Apart from the mechanical work, a shaft, pit and motor room are needed. Obviously the greater the number of dwellings served, the lower the cost per dwelling. Lifts are frequently found serving only four flats or even two. This could add a further £250 to £500 per maisonette. A second lift is customary above eight storeys.

Plastering and Decorations

Apart from the demands of the access balcony and stairs and the possibility, ignored here, of decorating exposed concrete surfaces, there will be little change with the rise in height.

Drying Cupboards

These, never needed on Local Authority houses, are certainly desirable in all flats and maisonettes.

Miscellaneous

In six-storey work and over, some new services are introduced. Dry rising mains, refuse chutes and lightning conductors will add another £15 per dwelling average.

T.V. is perhaps not a necessity but one frequently finds provision for aerials, perhaps somewhat illogically, in multi-storey dwellings but not in houses.

External Services

Variations in the cost of site works must of necessity be excluded from this analysis. It is quite impossible to suggest a "standard" or even a "reasonable" allowance, as so many factors influence the figures. It seems, however, that with greater space around multi-storey buildings, as much external work in roads foothpaths and sewers is demanded as on a housing site.

Preliminaries

This has been finally added in at 7½ per cent. of the total cost. The figure is purely arbitrary as it must vary with the size of the scheme.

It will serve as a reminder, however, that when comparisons of cost are considered and approximate calculations made, the effect of site overheads and insurances, etc., may well be overlooked. This can cause disappointment later.

OTHER INFLUENCING FACTORS

What happens over six storeys? The diversity in design has already been referred to. Duplication of lift, the introduction of central heating start to confuse the issue. There is, however, one other factor which should not pass unmentioned. The builder's craftsman in general is faster on housing work. There is a long tradition of housebuilding behind him. He can visualise in terms of "per dwelling" and not "per square yard" or "per foot." Everyone knows how soon he can get into the house and how soon he will be out. This makes for cheaper work. The craftsman understands his work in a house, one might add, almost without reference to the drawings! Absurd as this sounds, it is certainly true after the first house has been completed. The same cannot be said of multi-storey work.

For the future, cross-wall construction, large cladding components in timber, tiling or precast concrete are the most recent steps towards the maximum degree of repetition and simplicity. With this approach there is every hope of reducing these great variations in building costs, so many of which are undoubtedly capable of being solved.

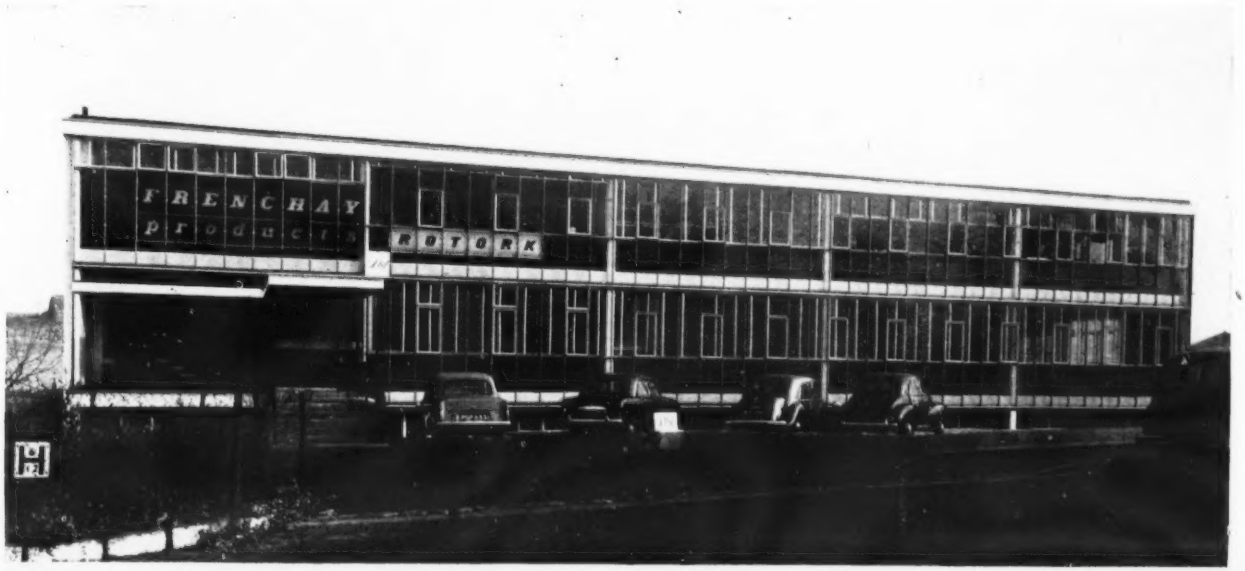
building illustrated

OFFICES

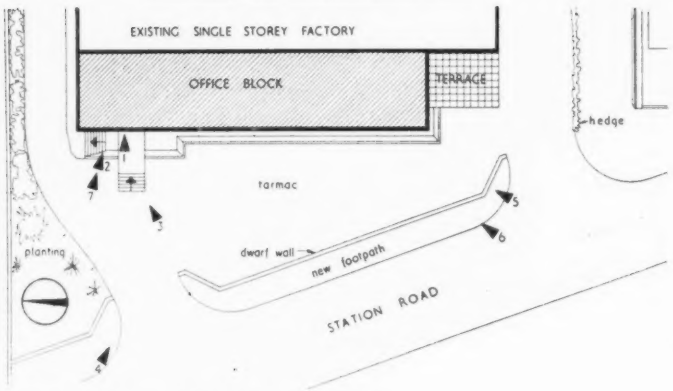
in STATION ROAD, KINGSWOOD, BRISTOL, designed by LEONARD MANASSEH and PARTNERS
assistant architect, BRYAN P. FIELD, assistant ALAN MASON, consulting engineer (structural) J. A. NEILL

This new office block at Kingswood, Bristol, was designed for Frenchay Products Ltd., an engineering firm who carried out the erection themselves. There was no contract, no specification and no bills of quantities. Apart from the few sub-contractors the clients employed their own small labour force throughout. Consequently it is not possible to publish a cost analysis.

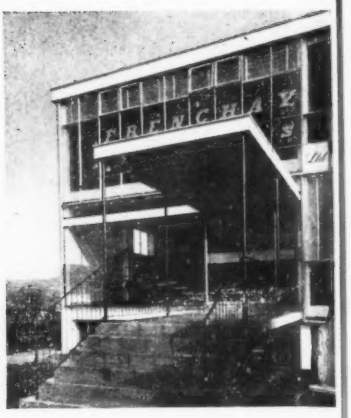
Below left (viewpoint 1): the company's name, in a blown-up version of Marina script, is etched into the stainless steel push plate of the toughened glass entrance doors. Bottom left (viewpoint 2): the curtain walling panels above the main entrance are of Bristol blue flashed glass with the lettering etched white and illuminated from behind. The glazed wall seen in this photograph was illustrated as a Working Detai in the JOURNAL for February 16, 1956. Below right (viewpoint 4): a general view of the main elevation, which is clad with aluminium-framed curtain walling conforming to a 2-ft. horizontal module. The opening lights and all fascias are painted white. The dwarf walls to sill height behind the curtain wall glazing are painted dark grey. The name of the associated company, Rotork, is in ruby red flashed glass with a white background.

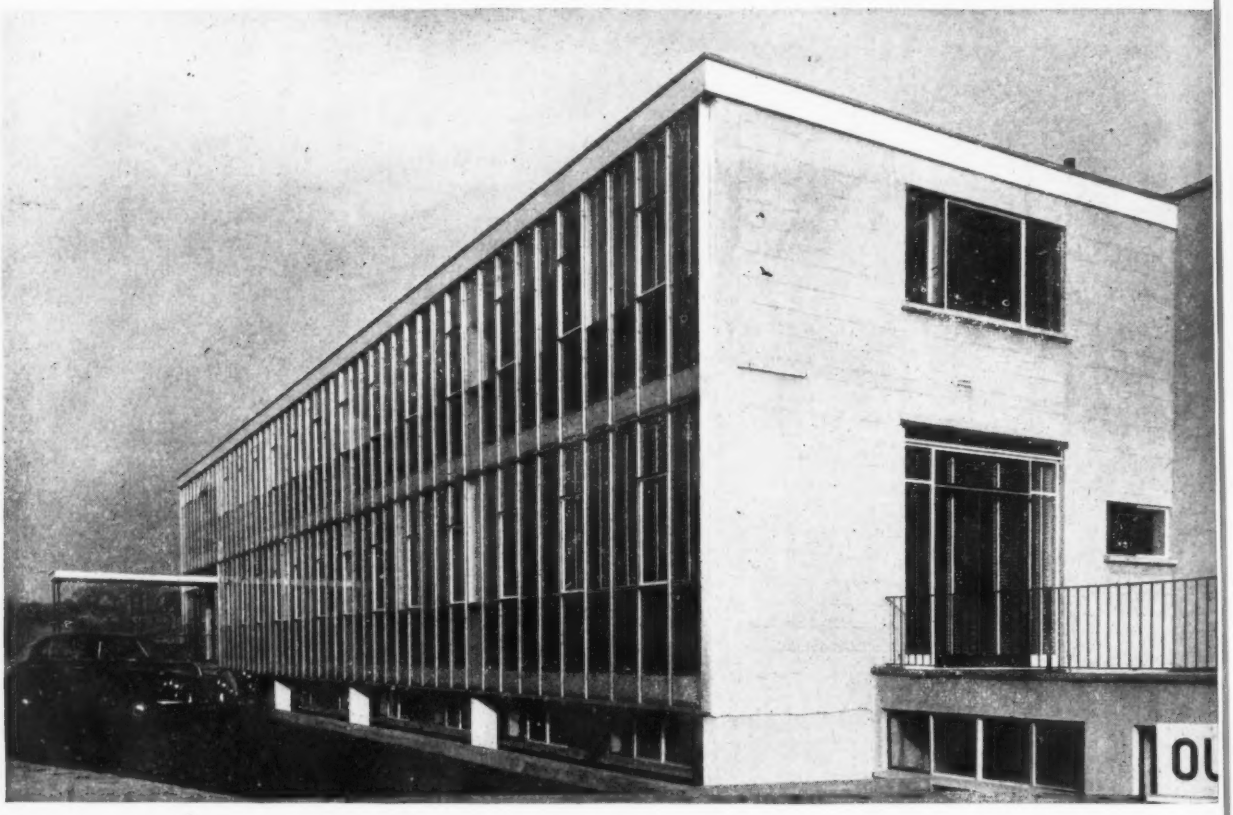


building illustrated

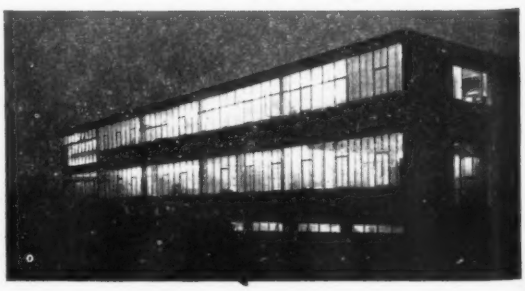


Key plan showing photographic viewpoints

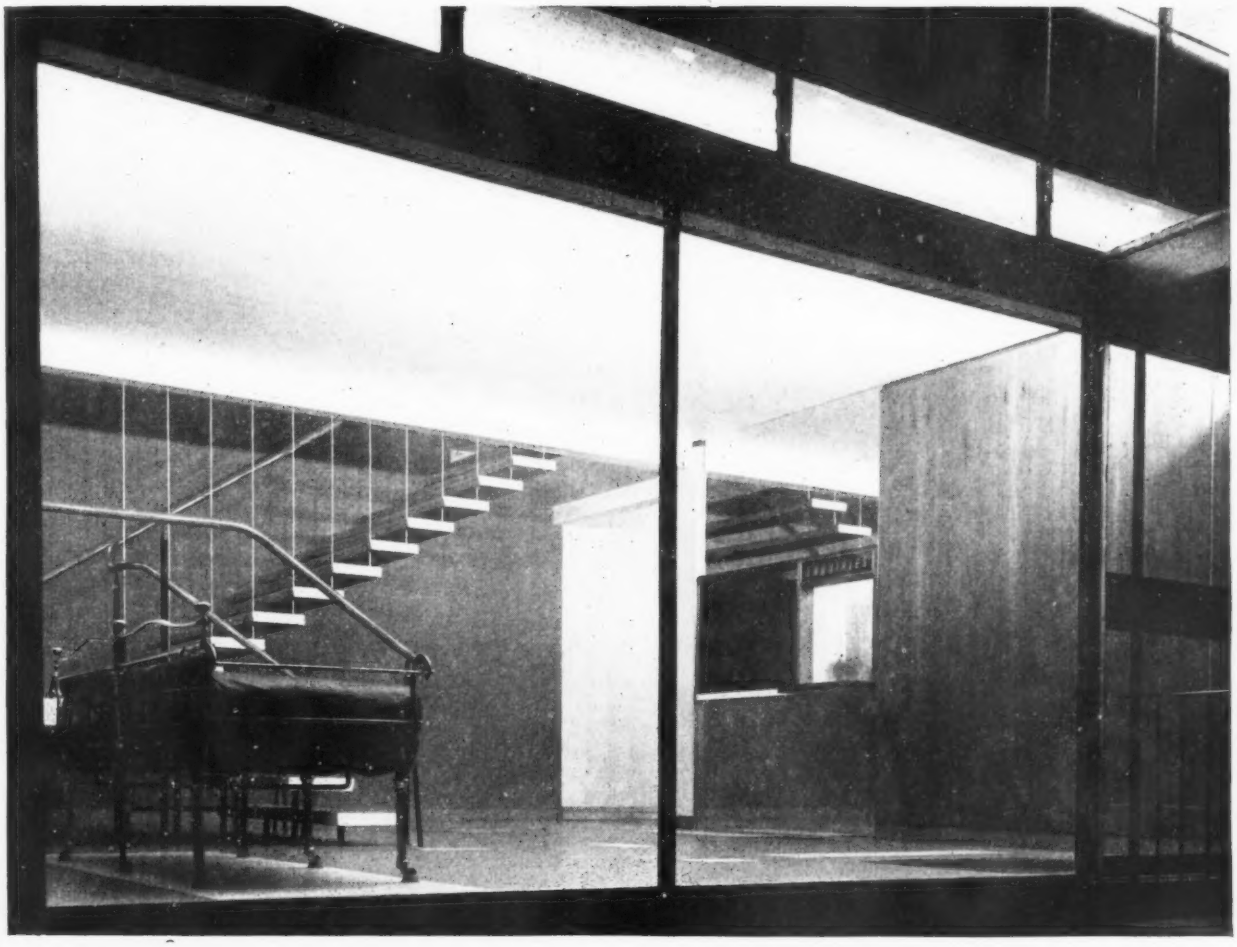


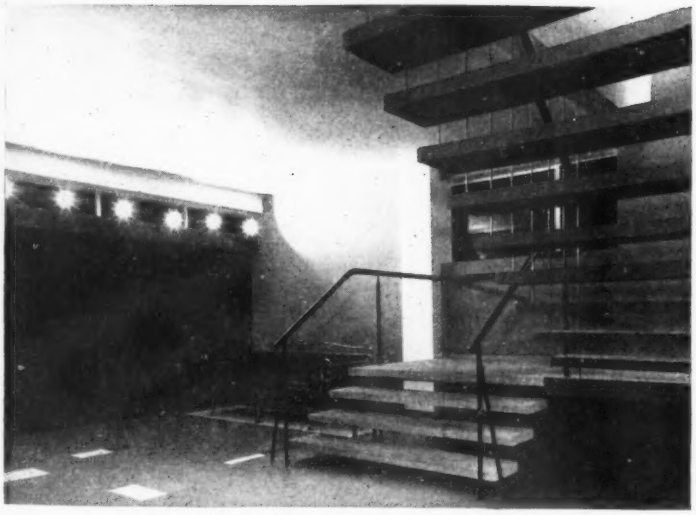


Top right (viewpoint 3): the main entrance is approached by a reinforced concrete bridge spanning the basement area and protected by a timber-framed canopy with a matchboard soffit painted white and supported on black painted steel tubes. The toughened-glass doors have stainless-steel push plates and the top and bottom rails are brass-finished satin chrome. The entrance doors were illustrated as a Working Detail in the JOURNAL for February 2. Above (viewpoint 5): a further view of the main elevation including the south return wall and terrace outside the board room. Where galvanized steel casements have been used fixed lights are painted white and opening lights black. The terrace doors have a blind box incorporated. The steel frame is on a 20-ft. × 16-ft. grid and the stanchions are carried clear of the basement panel walls which are painted dark grey. Right (viewpoint 6): the main elevation at night



building illustrated





Top (viewpoint 7): this photograph shows the entrance hall from the outside. The wall behind the staircase is dark green (Munsell Ref. 25 GY 4/2) and the ceiling pale blue. The entrance screen is veneered mahogany and wax polished. The enquiry hatch has a panel of neutral glass to one side through which the telephonist can be seen. Panels of mirror glass have been used above and below the hatch. The enquiries sign is in white on Bristol blue glass illuminated from behind. The partition wall to the enquiry office was illustrated as a Working Detail in the JOURNAL for February 16, 1956. Left (viewpoint 8): the reinforced concrete treads of the main flight of the staircase are supported by the wall at one end and by ¾-in. diameter stainless steel rod suspended from an RSJ trimmer beam at the other. On the lower flight the treads are screwed to 1¼-in. diameter mild steel tubes. The ends of the treads and landings are painted white. The 2-in. diameter mahogany handrail receives the minimum of support necessary from tubular steel standards. Internal reflector lamps on the window transom shine on to the ceiling and provide indirect light. The brass double-ended Regency couch is upholstered with dark green leather and is placed on a panel of white ceramic tiles. The background wall is a cadmium red (Munsell 75 R 5/11). This staircase was illustrated as a Working Detail in the JOURNAL for February 2, 1956.

OFFICES

at KINGSWOOD, BRISTOL

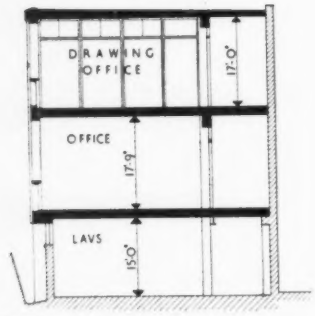
designed by LEONARD MANASSEH and PARTNERS

building illustrated

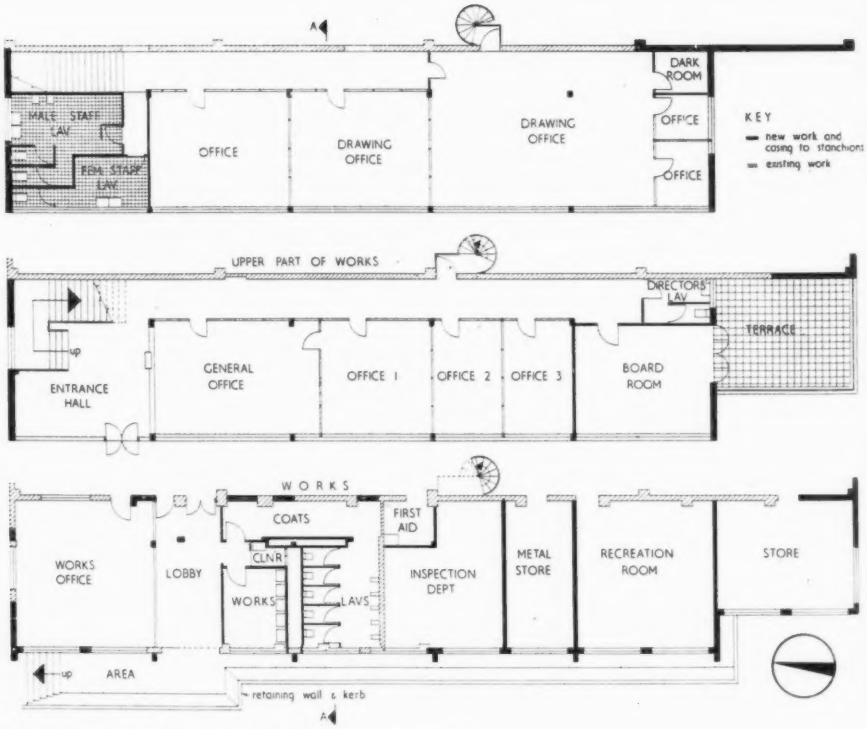
Left: apart from the red panel (75 R 5/11) below the pin-up and Georgian grey on two other walls, all colours in the board room are inherent in the materials used. To the left of the picture is a panel of black chalkboard from floor to ceiling. The ceiling is white. Behind the venetian blind double doors lead on to the terrace. Opposite page, top: the board room is dominated by a photo-mural of an Avro Vulcan, illuminated by concealed fluorescent tubing. The floor is carpeted. The Cuban mahogany table, which is 10 ft. by 5 ft. was specially designed by the architect. Opposite page, bottom: this photograph of the general office shows the storage wall at the end which forms a division from the entrance hall. To the right is the enquiry desk with its view through towards the staircase. The cloth velarium over the telephone operator's desk reduces the transmission of noise. The cupboard doors have now been painted in a composition of rectangles in four colours and white.

OFFICES

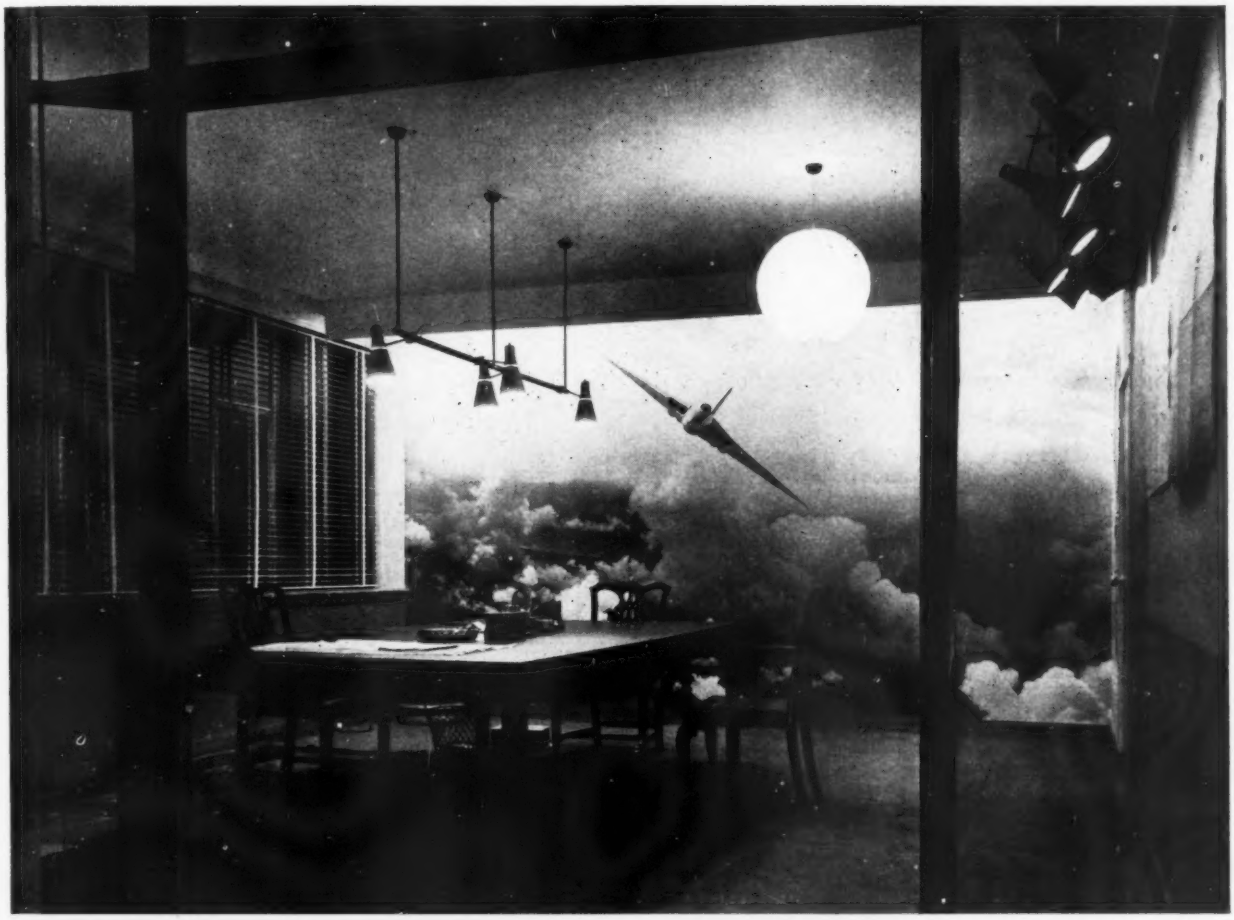
at KINGSDOWN, BRISTOL
designed by LEONARD MANASSEH
and PARTNERS

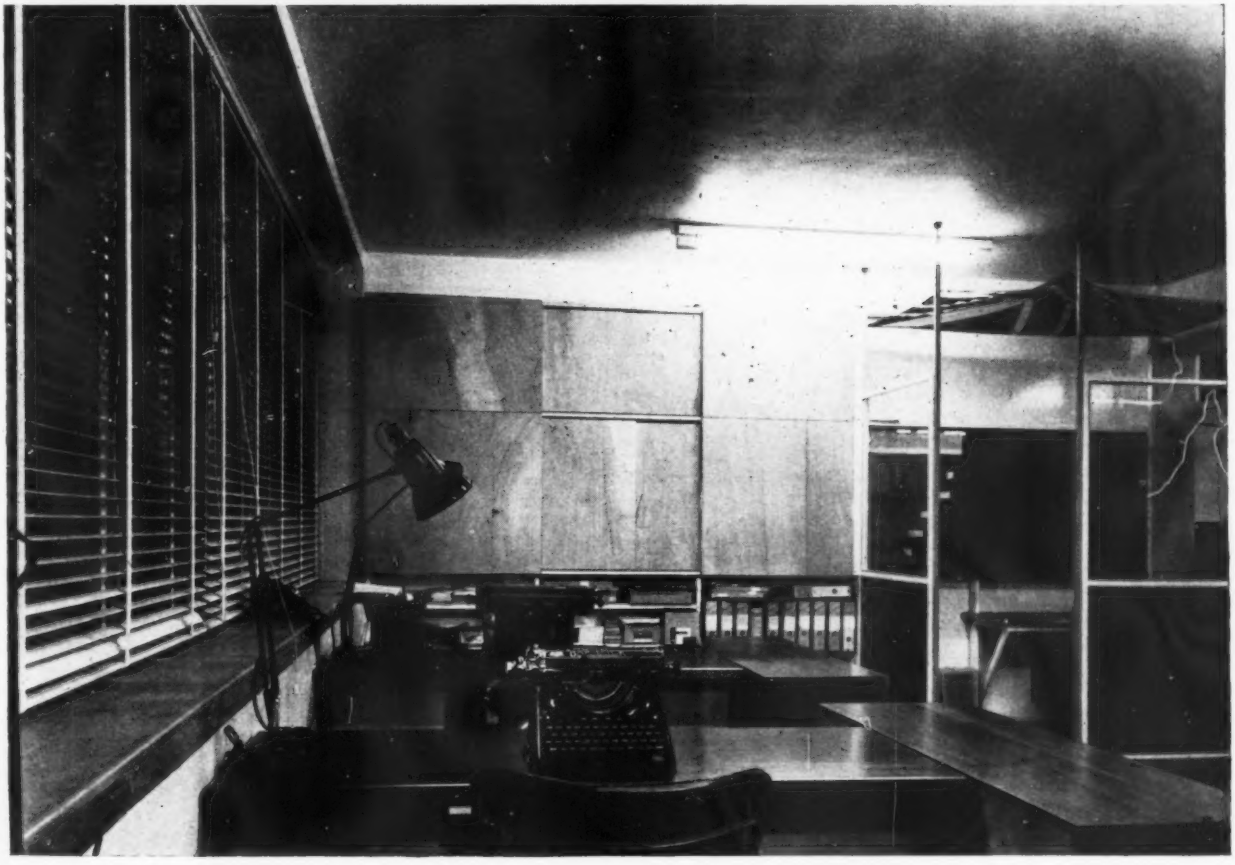


Section A-A [Scale: $\frac{1}{16}$" = 1' 0"]

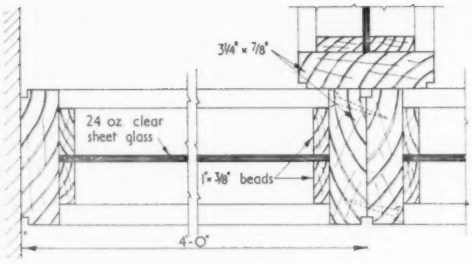


Basement, ground and first floor plans [Scale: $\frac{1}{8}$" = 1' 0"]

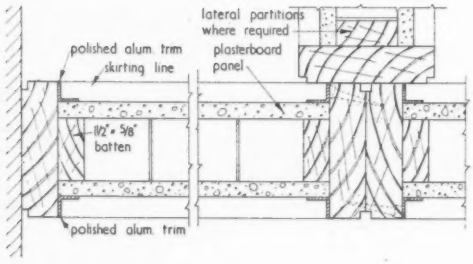




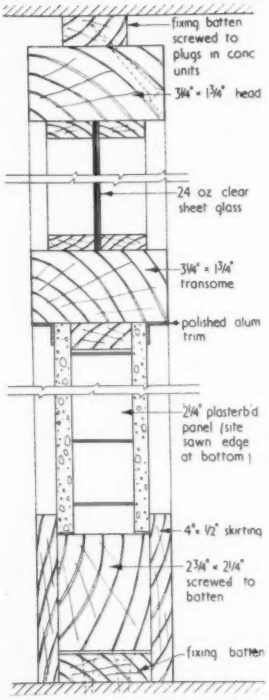
building illustrated



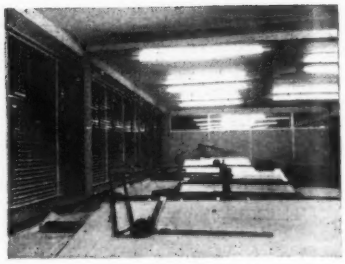
Plan above transome in office partition
[Scale: 3" = 1' 0"]

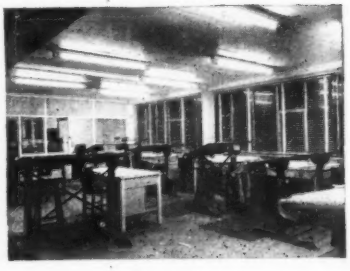


Plan below transome



Section through typical office partition [Scale: 3" = 1' 0"]





Top right: this view of the drawing office shows the 4-ft wide partition units, which can easily be taken down and re-erected elsewhere. They are framed in softwood with infillings of cellular plasterboard or glass as required. The column casings are painted yellow (Munsell 5 Y 8/11).

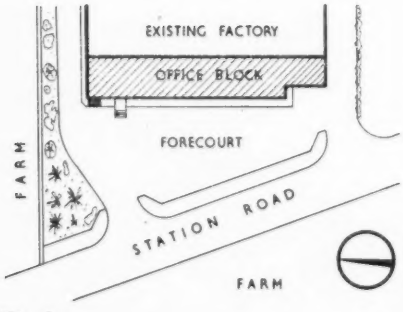
Above right: this photograph of the drawing office shows the partition units half-glazed and with doors. Lighting throughout the building is fluorescent except for the board room and entrance hall. On the first floor the concrete ceiling soffits are finished white with emulsion paint.

analysis

OFFICES

at KINGSWOOD, BRISTOL

designed by LEONARD MANASSEH and PARTNERS



Site plan

CLIENTS' BRIEF: their stated requirements

A permanent office block to house their offices, works lavatories, drawing office, and various ancillaries to the factory, to replace temporary buildings. The existing single-storey factory had been set back from the road to allow space for this building in front, which would tidy up the appearance of the works.

SITE: topography, surroundings, access, planting

The site is on the east side of Station Road, Kingswood. The rear of the site had already been developed as a factory. The site is surrounded by open country fringing a new light industrial area, with housing estates nearby. Access direct from Station Road. The clients have planted shrubs and trees beside the forecourt, but most of the unbuilt part of the site is required for vehicle access and parking.

PLAN: general appreciation and relation of units

Owing to the fall of the ground, works level is about 4 ft. below road level. Advantage was taken of this fact to place the works office lavatories, rest room, etc., in a semi-basement, part of which already existed. The ground floor (main office floor) is approached across a bridge spanning the basement area, and contains an entrance hall with waiting space, company secretary's office, offices for two directors and the board room and general office. The first floor has staff lavatories, the drawing office and some spare space which can be used for an extension of the drawing office or for instrument work. The terrace leading from the board room can be built over to form an extension of one bay if required at a later date, although this would have to be set back because of the building line.

MAIN CONSTRUCTION: general appreciation

Steel frame with precast prestressed concrete floors and flat roof. The structure is not carried on the existing concrete block wall which forms a gable at the end of the factory. Curtain wall to upper storeys of front elevation with brick or block back-up walls to sill level inside. Panel walls of hollow concrete blocks. Beams form upstands of which back-up walls are built, and next beam occurs along line of corridor partition.

analysis

STRUCTURAL ELEMENTS

Work below ground floor level: foundation type	*Location*	*Materials*	*Finish*	*Reasons and comments*
Strip	Under walls	Mass concrete		Medium clay subsoil
	Stanchion bases	Mass concrete		

External walls and facings	*Location*	*Materials*	*Finish*	*Reasons and comments*
Non-load bearing	Front elevation (except basement)	Curtain walling	Aluminium and glass	For external wall finishes see under " Decorations "
	Front elevation basement	9-in. concrete blocks	Emulsion paint on rendering	
	Elsewhere	11-in. concrete block cavity walls	Cement paint	
Retaining wall	Basement area	18-in. thick stepping back to 9-in. concrete blocks, cavities filled with concrete	Natural	To retain hardcore and earth fill for forecourt. Built battered to reduce thickness and give more light and air basement rooms

Frame or load bearing element	*Location*	*Materials*	*Beam spans*	*Column grid*	*Reasons and comments*
Beams and stanchions	Generally	Steel	20 ft.	20 ft. × 16 ft.	Grid size chosen to provide large uninterrupted spaces for division at will for offices. Grid size is multiple of 2 ft., the curtain walling module. Steel frame chosen to facilitate future alterations: r.c. open to same objections as for " upper floor construction " (see below)

Upper floor construction	*Location*	*Materials*	*Finish*	*Reasons and comments*
Precast units	First-floor offices	Precast prestressed concrete	Screed and linoleum terrazzo	Clients' small labour force would have taken a long time to pour as large an area of in-situ r.c. slab. Precast concrete provided a working platform, and prestressed units obviated secondary beams by spanning 16 ft. clear

Staircases	*Location*	*Materials*	*Finish*	*Reasons and comments*
(*a*) Main stair	Entrance hall	r.c. treads suspended by stainless steel rods		Height: floor to floor (*a*) 9 ft. 9 in.; (*b*) 8 ft.
(*b*) Stair to works	East side of block	Softwood		

Roof construction	*Location*	*Materials*	*Finish*	*Reasons and comments*
Flat	Throughout	Precast prestressed concrete box section	Lightweight screed and built-up felt roofing	Clients had insufficient carpenters to provide own shuttering for in situ r.c.
	Entrance canopy	Timber, m.s. tube supports	Painted matchboard soffit; built-up felt roofing on plywood	

Windows	*Location*	*Materials*	*Finish*	*Reasons and comments*
Standard frames	Generally	Galvanised standard steel	Oil paint	
Purpose-made frames	South wall of board room	Galvanised standard steel purpose-made	Oil paint	Metal box for roller blind
	In curtain walling	Aluminium	Oil paint externally, natural inside	
	Entrance hall	Galvanised steel, purpose-made	Oil paint	

External doors	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Works entrance	Softwood	Oil paint	
	Office entrance	Toughened glass		Special stainless-steel push-plates, engraved with name of firm to whole width of doors

Glazing	*Location*	*Materials*	*Finish*	*Reasons and comments*
Curtain walling below sills	West elevation	¼-in. cast glass		
Curtain walling	Elsewhere	Clear sheet glass		
	Entrance hall	¼-in. polished plate glass		

PARTITIONING

Internal partitions	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Boardroom, lavatories, etc.	4½-in. brickwork	Plaster and emulsion paint	
	Offices	Softwood, with glass and cellular plaster infilling. Partitions are made up in units 4 ft. wide	Oil paint and emulsion paint	Easily moved and re-erected

analysis

Screens	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Dividing entrance hall and general office	Mahogany framing. Mahogany-veneered panel. Plate-glass enquiry window. Neutral glass panel. Mirrors. Brass angle trims	Polished (wax). Polished (wax) Polished and lacquered	Provides enquiry window for the receptionist, and shelving in the general office for storage of files, books, etc.

WC doors and partitions	*Location*	*Materials*	*Finish*	*Reasons and comments*
	First floor and basement	1-in. blockboard	Oil paint	Readily made by clients' own labour, and economical

Internal doors	*Location*	*Materials*	*Finish*	*Reasons and comments*
Flush	Throughout	Ply-faced flush (standard skeleton cored)	Varnished	

Ironmongery to internal doors	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Throughout	White china knobs with mortice locks		

FINISHINGS

Floor finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Entrance hall, ground floor	Ceramic tiles		Durable, attractive colours
	Stores, etc., basement	Granolithic		
	Board room and offices, ground floor	Close carpet on screed. Linoleum on screed		
	Lavatories, first floor and basement	Terrazzo in situ		Readily washed down

Wall finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*
Internal	Basement and first floor offices	Fair faced bricks or blocks	Emulsion paint	
	Splash-backs in lavatories	Terrazzo		
	Elsewhere	Plaster	Emulsion paint	

Ceiling finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Basement and first floor	Concrete fair faced	Emulsion paint	
	Elsewhere	Plaster	Emulsion paint	

Decorations	*Location*	*Paint types*	*Munsell or other reference*	*Colour scheme and comments*
Internal walls and ceilings	Entrance hall	Emulsion	Green, GY 4/2 Red, 75 R 5/11	Ceiling: pale blue. Back wall: special dark green. Left wall: specially mixed red (almost cadmium)
	Offices generally	Emulsion and oil		Ceilings: white. Columns: yellow. Walls: Georgian grey. Woodwork: white gloss
	Lavatories generally	Emulsion and oil		White
	Directors' lavatory	Gloss oil		
Board room	Ceiling	Emulsion paint		Window wall: amber. Reveals: golden yellow. Flank walls: violet. Ceiling: scarlet Entrance wall: wallpaper
Board room	East wall	Emulsion paint		Photo mural
Board room	East wall	Emulsion paint		Red below pin-up panel
Board room	North wall	Emulsion paint		Photo mural
Board room	South and west walls	Emulsion paint		Light green
Externally	End walls	Cement paint		Light green
Stanchions	Front elevation at basement level	Cement paint		White
Front wall	Basement panels	Emulsion paint		Dark grey
Dwarf walls	Behind patent-glazing curtain walling	Emulsion paint		Dark grey
Columns	Behind curtain walling	Emulsion paint		Yellow
Fascia	Main roof	Gloss paint		White
Soffit	Canopy	Gloss paint		White
Opening casements	Generally	Gloss paint		Black
Fixed lights	Generally	Gloss paint		White
Railings	Main entrance at south end	Gloss paint		Black

analysis

SERVICES

Plumbing: external	*Location*	*Materials*	*Finish*	*Reasons and comments*
	R.W. goods; east elevation	Asbestos cement	Natural	

Rain water disposal	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Main roof	Asbestos hoppper-heads and r.w.p.'s at rear	Natural	Discharge into valley gutters of existing factory roof
	Terrace	Cast iron r.w.p. outlet	Coated	

Plumbing: internal	*Location*	*Materials*	*Finish*	*Reasons and comments*
Waste disposal	First floor lavatories	Cast-iron and galvanised steel	Paint	Purpose-made multi-branch fitting used
	Works lavatories (basement)	Galvanised tube and s.g.w. pipe		Pipework mostly concealed in duct

Hot water storage	*Location*	*Materials*	*Capacity*	*Reasons and comments*
Locally in each lavatory	First floor and basement	Electric thermal storage		

Cold water storage	*Location*	*Materials*	*Capacity*	*Reasons and comments*
				Mains pressure adequate, and water heaters are either of free outlet type or incorporate own c.w. storage

Plumbing: sanitary fittings	*Location*	*Materials*	*Finish*	*Reasons and comments*
	Generally	Fire-clay		Urinals are wall type to enable waste pipe to be kept high, as sewer is shallow

Heating installation: heat exchanger type	*Location*	*Materials*	*Finish*	*Reasons and comments*
Electric thermal storage	Generally			Heating load balances power factor of machines in works. A central heating layout has however been designed if the clients decide to adopt this in the future
Electric fan convector	Board room			

Water heater type	*Location*	*Fuel type*	*Stoking method*	*Reasons and comments*
Electric thermal storage	In each lavatory	Mains electricity		

Drainage: type of system	*Location*	*Materials*	*Finish*	*Reasons and comments*
One pipe, single stack	Generally	Cast iron and galvanised steel		All pipes within building and encased (except in basement)

Drain types	*Location*	*Materials*	*Finish*	*Reasons and comments*
Foul	Under forecourt	Salt glazed stoneware		Anti-flood valve fitted in last manhole as public sewer becomes surcharged in heavy rain
Surface water	North and south flanks	Salt glazed stoneware		To stream at back of site

Electrical installation source and type of fitting	*Location*	*Illumination level*	*Quality*	*Reasons and comments*
Reflector spotlight lamps	Entrance hall	Not measured		Indirect lighting reflected from ceiling
Tungsten	Board room			
Fluorescent batten on ceiling	Elsewhere	P.V.C.		Pull switches incorporated

Wiring and switching type	*Location*	*Materials*	*Reasons and comments*
Entrance hall and board room	Ground floor	Wiring in beam casings and hollow-floor beams; flush wall switches p.v.c. wiring on surface, pull switches embodied in light fittings. Lead-covered cable. In duct formed in edge of window board	
	Elsewhere		
GPO telephones	Offices		Easily tapped as necessary

Power supply type	*Location*	*How distributed*	*Reasons and comments*
Single-phase a.c.	Duct behind skirting of west wall in offices	P.V.C. wiring	Can be tapped at any point as required for space heating, etc.

Paved areas	*Location*	*Materials*	*Reasons and comments*
Terrace	South side	½-in. asbestos tiles on built up felt roofing	Foot traffic only
Forecourt	West side	Tarmacadam	Car parking and pedestrians

analysis

THERMAL INSULATION

Type	*Location*	*U-value (for roof construction complete)*	*Reasons and comments*
Lightweight screed	Roof	0·35	Simplest form of thermal insulation, smooth soffits of precast concrete roof units provide an adequate ceiling

SPECIAL ACOUSTICAL TREATMENT

Sound absorption material	*Location*	*Absorption coefficient*	*Reasons and comments*
Perforated fibreboard	General office	0·50	
Fibreboard partition, cloth velarium	Telephone operator's recess		To minimise noise in general office

FIRE

Structural precautions	*Grade of protection apparatus*	*Sprinklers*	*Reasons and comments*
1-in. r.c. to external steelwork	1/2 hour protection	None	To comply with building bye-laws
½-in. plaster on metal lath to internal steelwork	1/2 hour protection	None	To comply with building bye-laws

Planning precautions	*Access for fighting*	*Means of escape*	*Reasons and comments*
Generally	On three sides of building	Paved forecourt and roads	
Upper floors and basement		Via main door or via works	

TIME SCHEDULE

Drawings	*Work commenced*	*Work completed*	*Type of contract*	*Comments*
Begun April, 1953	December, 1953	Approx. June, 1955	None	Work was carried out by small labour force of own men

RATIOS

Area of enclosing walls / Total floor area	0·582 / 1	Area of windows (incl. ext. doors) / Total floor area	0·346 / 1
Area of solid wall / Total floor area	0·235 / 1	Total roof area / Total floor area	0·420 / 1

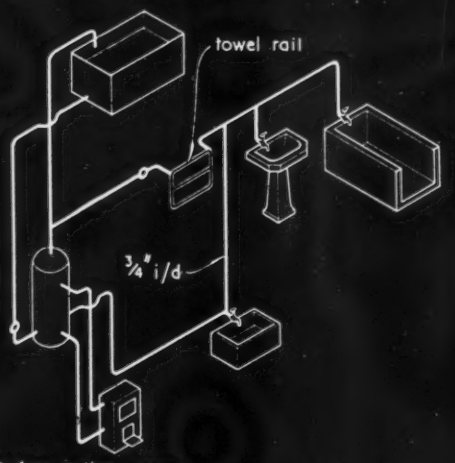
CONTRACTORS

The job was managed by the Managing Director personally (Mr. David Fry) supervising a small direct labour force. This personal atmosphere helped to maintain a high level of enthusiasm amongst all concerned. The Secretary to the company acted as contracts manager and placed orders for the sub-contracts which were all to nominated contractors. Some sub-contracts were put out to tender.

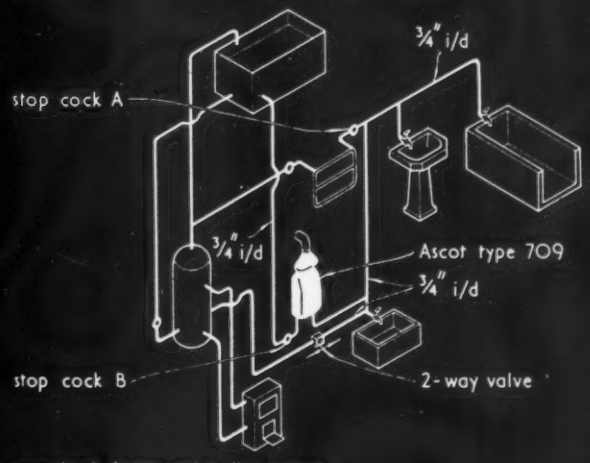
General contractors: Works Department, Frenchay Products Ltd. *Sub-contractors (structure): Special roofings and roofing felt:* William Briggs & Sons Ltd.; *tiles (floors, etc.):* Langley (London) Ltd.; *glass:* Pilkington Bros. Ltd. and Chance Bros. Ltd.; *patent glazing and curtain walling:* S. Warner & Son Ltd.; *structural steel:* Matthew T. Shaw & Co. Ltd.; *waterproofing material:* Alexander Maxwell & Co. *Sub-contractors (equipment): Electric light fixtures:* George Forrest & Co. Ltd. and General Electric Co. Ltd.; *electric heating:* General Electric Co. Ltd.; *plumbing:* Econa Modern Products Ltd.; *door furniture:* J. D. Beardmore & Co. Ltd.; *casements:* Crittall Manufacturing Co. Ltd. and S. Warner & Son Ltd.; *sanitary fittings:* Leeds Fireclay Co. Ltd. *Sub-contractors (decorations and specialities): Tiling:* S. Wren; *wallpaper:* Rightbown Aspinal Ltd.; *furniture:* Hille of London Ltd. (office furniture), Frenchay Products Ltd. (special furniture designed by architect); *sun blinds:* Tidmarsh & Sons Ltd.; *signs:* S. Warner & Son Ltd.; *paint:* Hadfields (Merton) Ltd. and Cement Marketing Co. Ltd.; *photo mural:* Carlton Artists Ltd.

WATER HEATING | UNITS | GAS

The Architects' Journal Library of Information Sheets 577. Editor: Cotterell Butler, A.R.I.B.A.

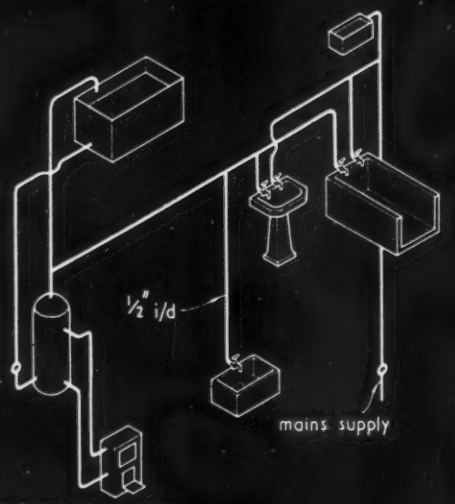


solid fuel boiler system

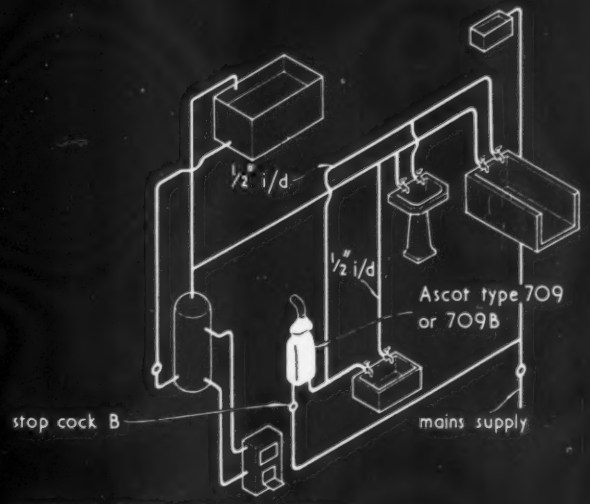


combined Ascot and boiler system

DIAGRAM 1 : INSTALLATION WITH SECONDARY RETURN AND TOWEL RAIL.

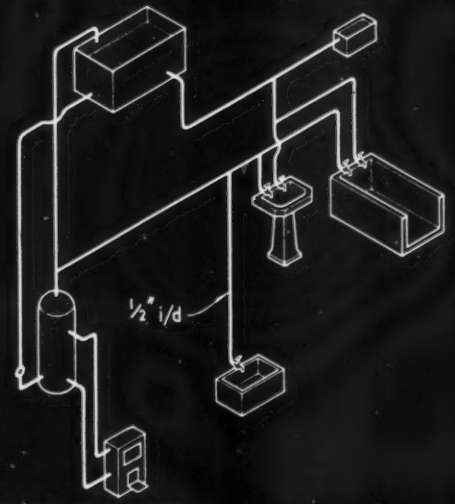


solid fuel boiler system

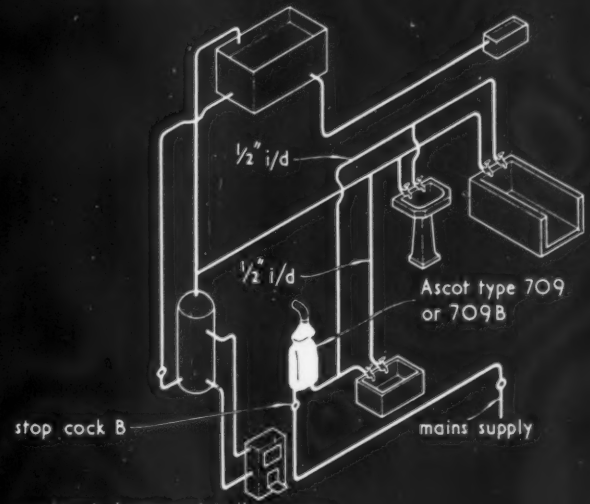


combined Ascot and boiler system

DIAGRAM 2 : MAINS CONNECTED HEATER – EXISTING MAINS COLD WATER SUPPLY TO BATHROOM.



solid fuel boiler system



combined Ascot and boiler system

DIAGRAM 3 : MAINS CONNECTED HEATER – EXISTING TANK COLD WATER SUPPLY TO BATHROOM.

·ASCOT· ALTERNATIVE HOT WATER SYSTEMS. Manufacturer: Ascot Gas Water Heaters Ltd.

32.C25 ·ASCOT· ALTERNATIVE HOT WATER SYSTEMS

This Sheet is a continuation of Sheet 32.C23, and describes three further alternative hot water systems combining the Ascot multi-point heaters Types 709 or 709B with solid fuel fired boiler systems.

All pipe sizes specified refer to internal diameter and relate to normal installations where the available head or pressure of water is adequate, and where the sizes and lengths of all piping are in accordance with standard practice. (See Sheets 32.C20 and 32.C22)

Diagram 1: Installation with Secondary Return and Towel Rail

Supply to the heater is from the cold water tank by means of a separate ¾-in. down service.
A two-way valve, situated in the secondary return pipe to the boiler, is connected to the heater outlet to give the alternative flows as shown. ¾-in. piping is run from the valve to the kitchen sink.

Where the existing hot water piping is of inadequate size additional piping may be necessary. See diagram 2 of Sheet 32.C23.

Stopcock "A" is required to isolate the towel rail and expansion pipe when the heater is in use.
Stopcock " B " is required for maintenance purposes and may remain open when the boiler is in use.

Ascot operation—Turn the two-way valve to the Ascot position.

Boiler operation—Turn the two-way valve to the boiler position.

Diagrams 2 and 3: Mains Connected Heaters

General considerations: Multi-point heaters acting as auxiliaries to a boiler system should only be supplied from the cold water main when:
1. It is impossible to ensure satisfactory service from all draw-off points utilising tank supply.
2. Permission has been obtained from the appropriate water authority.
3. There is no connection between the outlet of the heater and the boiler system.

Diagram 2—Existing mains cold water supply to bathroom: The mains cold water supply to the bathroom is disconnected.
The supply to the heater is taken direct from the main in ½-in. piping.
The outlet of the heater is connected by ½-in. piping to a second hot tap at the kitchen sink.
From this point an additional hot water service is connected to the cold water piping in the bathroom.
Stopcock " B " is required to turn off the cold water supply to the Ascot as necessary.

Ascot operation—Hot water in the bathroom is obtained from the cold taps. Cold water is obtained from the hot taps through the boiler system.

Boiler operation—Hot water in the bathroom is obtained from the hot taps. Cold water is obtained from the cold taps through the Ascot, the gas cocks of which must be turned off.

Diagram 3—Existing tank cold water supply to bathroom: The tank cold water supply to the bathroom is disconnected.
Procedure thereafter is the same as that for diagram 2, but care should be taken to ensure that the cold water piping in the bathroom is of sufficient weight to withstand the mains water pressure.

Central Heating Systems with Calorifier

Where the boiler system incorporates a central heating calorifier and secondary return, the complete installation should be considered as two separate systems each with its own cold water supply tank and expansion pipe. The system providing hot water for domestic and toilet purposes should be treated in the same way as the boiler system incorporating secondary return and towel rail. (See diagram 1.)

Calculation of Minimum Head Required for Particular Installations

The installation of heater Type 709 as an alternative to an existing boiler system often involves ensuring that the original piping is of adequate size for the available head and lengths of run. The head of water necessary for satisfactory operation is the total of the following individual losses calculated at the requisite average flow of 2 gallons per minute:

a. Loss for piping
b. Loss for bends and tees
c. Loss for stopcocks
d. Loss for taps
} See table below.

e. Loss for heater alone—6 ft. head at 2 gal./min.

The following table should be used to calculate the losses for a, b, c and d above at a flow of 2 gallons per minute.

Approximate Losses in Feet Head

Nominal bore	Per foot run of pipe	Bend	Tee	Stopcock	Tap
½ in.	·15	·10	·15	2·50	1·60
¾ in.	·02	·02	·03	·70	·50
1 in.	can be disregarded			·35	·25

Example of use of table.

Installation with
a. 25 ft. of ¾-in. piping, hot and cold.
b. 6—¾-in. bends and 1 ¾-in. tee.
c. 1—¾-in. stopcock.
d. 1—¾-in. tap.
e. Heater Type 709.

		Ft. Head
Loss for	a. —25 × ·02	·50
	b. — 6 × ·02 + 1 × ·03	·15
	c. — 1 × ·70	·70
	d. — 1 × ·50	·50
	e. — 1 × 6·00	6·00
∴ theoretical total head required is		7·85
Add allowance for subsequent increase in losses caused by scaling		1·00
Total minimum head necessary		8·85

Compiled from information supplied by:

Ascot Gas Water Heaters Ltd.

Head Office and Works: 255, North Circular Road, Neasden, London, N.W.10.
Telephone: Willesden 1234.
Telegrams: Gascot, Phone, London.

Branch Offices and Service Depots: Birmingham, Bournemouth and Glasgow.

Service Depots: Belfast, Bristol, Cambridge, Manchester, Oxford, Reading, Southampton, Sunderland, Stoke-on-Trent and Jersey.

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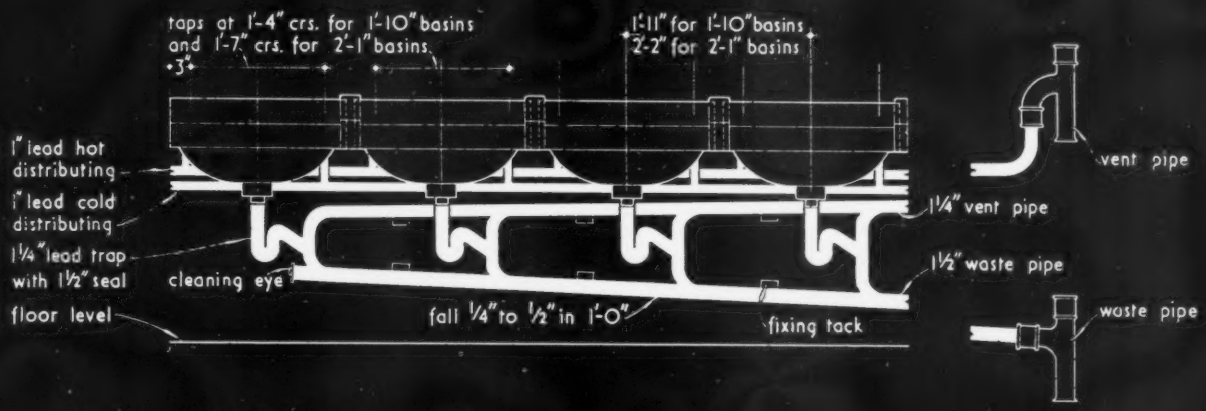
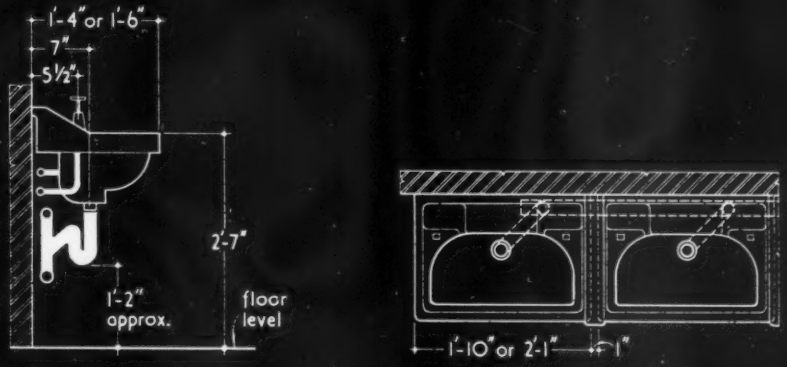
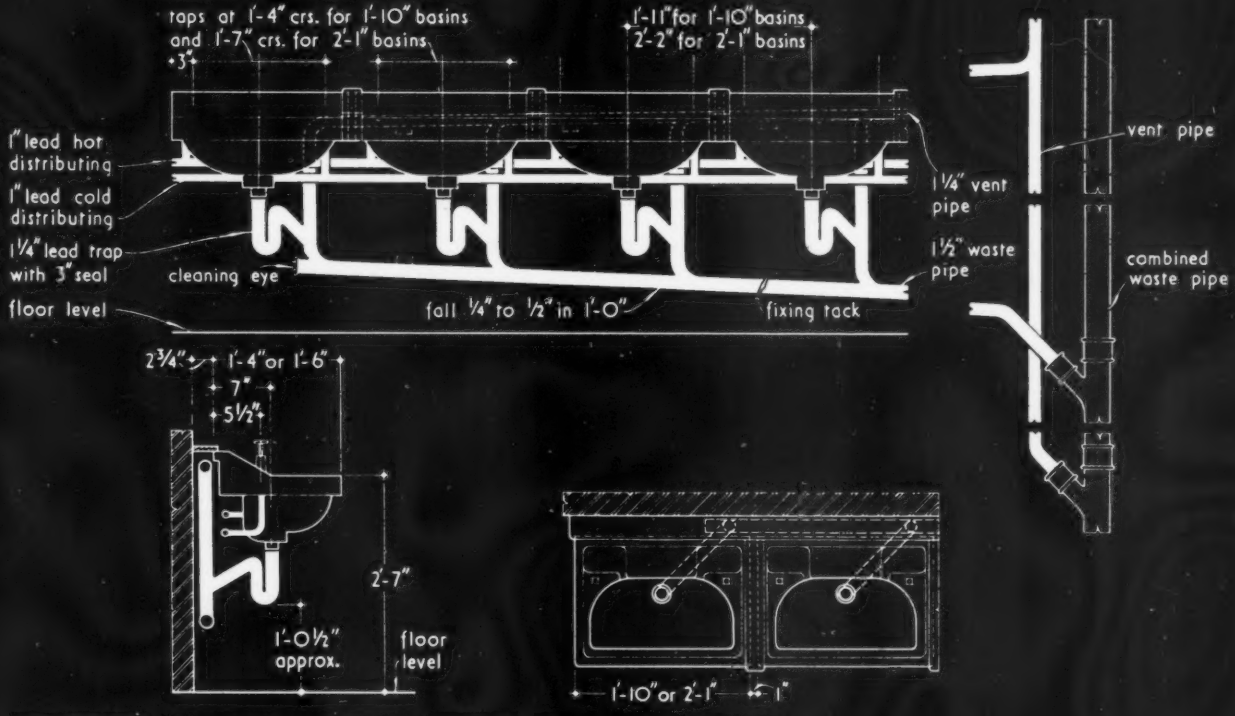




COMMON ARRANGEMENT WHERE CONNECTED TO SEPARATE WASTE STACK-PIPE.



ARRANGEMENT AS RECOMMENDED BY INSTITUTE OF PLUMBERS: SHOWN CONNECTED TO 'COMBINED' (ONE-PIPE) SYSTEM.

LEAD PLUMBING TO RANGES OF LAVATORY BASINS.

Compiled from information supplied by The Lead Sheet and Pipe Council.

Architects' Journal 26.7.56

33.C1 LEAD PLUMBING TO RANGES OF LAVATORY BASINS

This Sheet supersedes Sheet 33.C1, published 11.3.48, and sets out the general principles of lead plumbing to lavatory basins. Ceramic lavatory basins, in accordance with B.S. 1188 : 1944, are shown. Minor variations may be made to the plumbing shown for different types and sizes of basin.

Two arrangements of pipework are described. In both cases each basin is trapped and connected to a common waste pipe and each trap is ventilated and connected to the open air by a common vent pipe.

Common Arrangement where connected to Separate Waste Stack-pipe

This shows a commonly used arrangement.

Pipework generally: This is kept below the basins and as compact as is consistent with plumbing design and fixing requirements.

Waste: This is run to a fall of ¼ in. to ½ in. in 1 ft. and branch connections are made to give a slight bend in the direction of the flow.

Vent: This is run to a rise of ¼ in. to ½ in. in 1 ft. and is taken off the waste pipe at a point and in a direction so as to reduce the possibility of matter collecting in the mouth of the branch.

Traps: These may be either the P or Q type and of internal diameter equal to that of the waste pipe. They should provide a water seal of at least 1½ in.

Arrangement as Recommended by Institute of Plumbers: shown connected to "Combined" (One-Pipe) System

This shows an arrangement recommended by the Institute of Plumbers. (See their *Minimum Specification for the Installation of Soil, Waste and Ventilating Pipes.*)

Pipework generally: The arrangement differs from the previous method in that the vent pipe is run in a position above the waste overflow outlets of the basins. This eliminates the risk of the vent pipe acting as a waste pipe should this become blocked.

Waste: This is run to a fall of ¼ in. to ½ in. in 1 ft. and branch connections are made to give a slight bend in the direction of the flow.

Vent: This is run to a rise of ¼ in. to ½ in. in 1 ft. and in order to fix it above the waste overflow of the basin outlets the basins must be set forward from the wall (as shown in the detail), or the pipes chased into the wall.

Traps: These may be either the P or Q type and of internal diameter equal to that of the waste pipe. They should provide a water seal of at least 1½ in. but where the main stack system is of the "combined" (one-pipe) arrangement the water seal is required by the minimum specification to be 3 in.

Pipe Sizes

The recommended sizes for waste and waste vent pipes are given in the following table.

No. of basins	Waste pipe	Vent pipe
Pipes serving a single basin or two in range	1¼ in. i/d. 6 lb. per yd.	1¼ in. i/d. 6 lb. per yd.
Pipes serving 3-5 basins in range	1½ in. i/d. 7 lb. per yd.	1¼ in. i/d. 6 lb. per yd.
Pipes serving 6 or more basins	2 in. i/d. 10 lb. per yd.	1½ in. i/d. 7 lb. per yd.

i.e., the waste and vent pipes to each basin are 1¼ in. internal diameter and an increase is made in the size of pipes which also serve other basins.

Weight of Lead

The weights of lead recommended are as given in B.S. 602 : 1956 *Lead Pipes for other than Chemical Purposes.*

Hot and Cold Distributing Pipes

These are normally run behind the bowls of the basins. Branches are taken from the front faces of the pipes for ease of adjustment and connection. In the lower detail the pipes are required to pass over the vertical waste branches.

Control valves should be fitted to distributing pipes to each range of basins.

Distributing pipes should be supported at not less than 2-ft. intervals.

Further Information

The Lead Sheet and Pipe Council maintains a Technical Information Bureau which is available to answer questions and advise on technical problems dealing with this subject generally.

Compiled from information supplied by:

The Lead Sheet and Pipe Council.

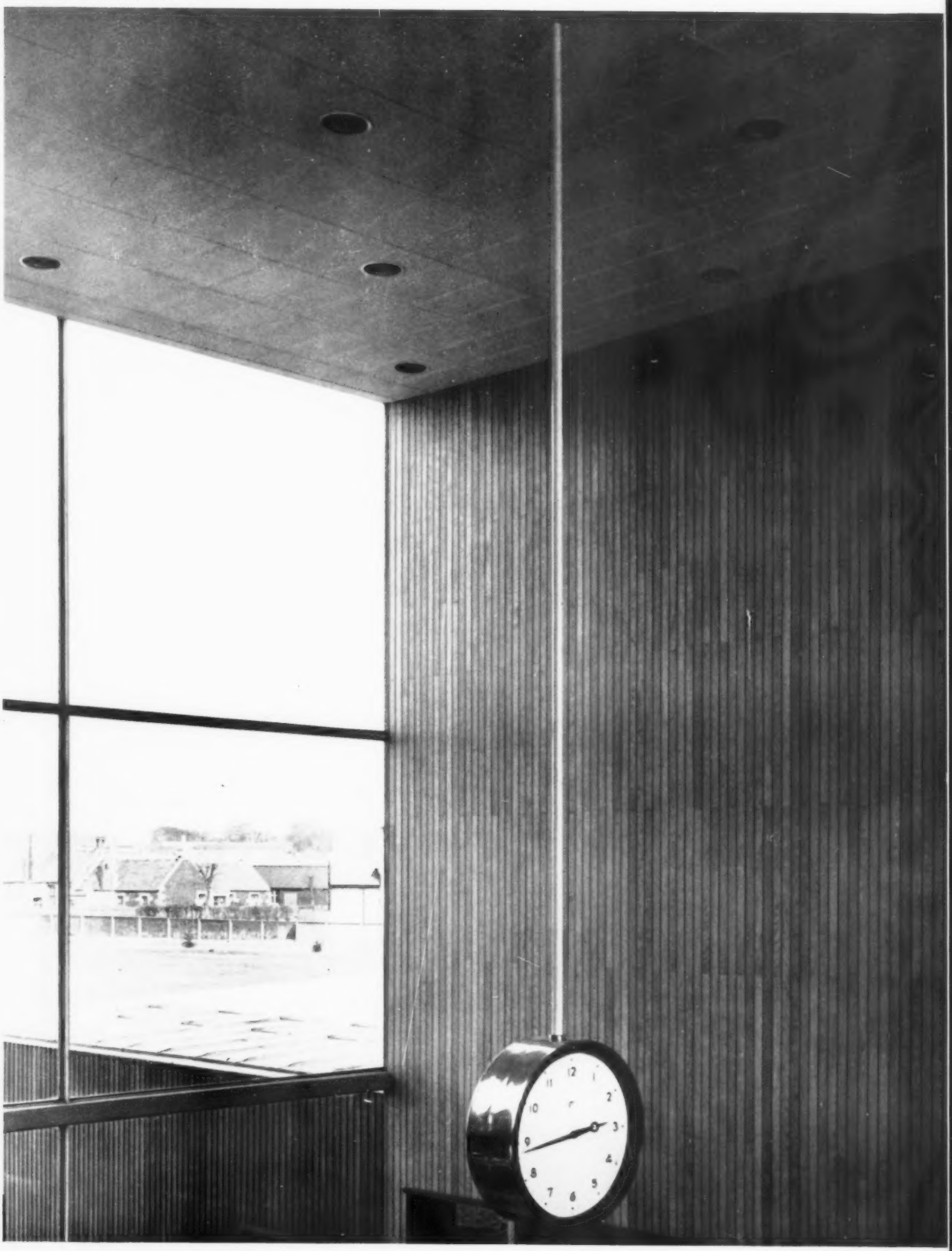
Address : Eagle House, Jermyn Street, London, S.W.1.

Telephone : Whitehall 4175.

working detail

CLOCK: TURNHOUSE AIRPORT, EDINBURGH

Robert H. Matthew, architect

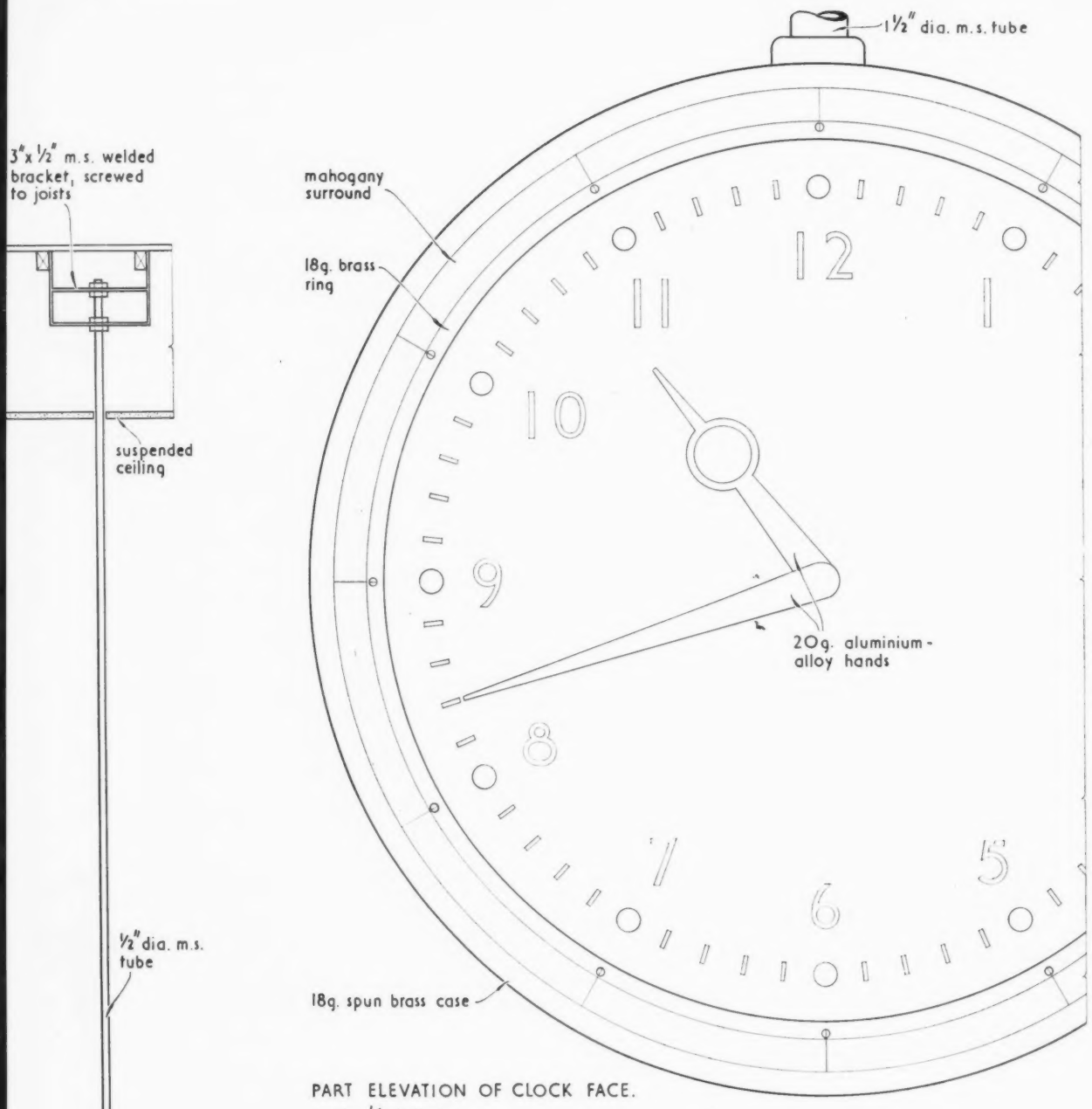


The clock face and hands are of aluminium, the m.s. tube which supports the clock and conceals the wiring is stove-enamelled and the clock casing is of spun brass, polished and lacquered.

working detail

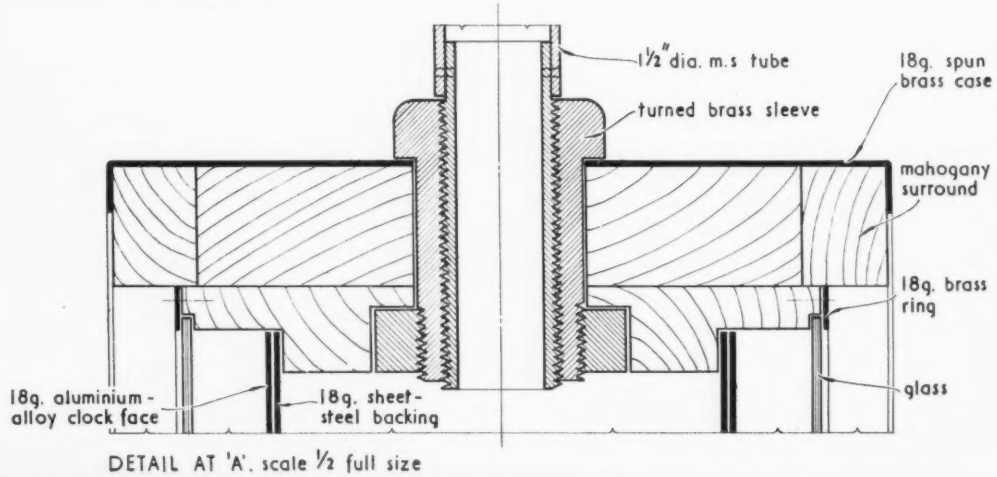
CLOCK: TURNHOUSE AIRPORT, EDINBURGH

Robert H. Matthew, architect



KEY ELEVATION.
scale ½" = 1'-0"

PART ELEVATION OF CLOCK FACE.
scale ¼ full size



DETAIL AT 'A'. scale ½ full size

News *continued*

NFBTE

USA Study Tour

The following is a statement issued by the NFBTE:

The fundamental factor in American housebuilding productivity appears to be the attention given to design which, based on an analysis of the requirements of the family, takes full account of the need for simplified constructional techniques to reduce costs. Some advantage in productivity might be obtained in Britain if more attention were given to this aspect of housebuilding.

This is one of the principal conclusions reached by a team of representatives of the Federation of Registered House-Builders who toured the United States last autumn to study American housing methods. Their report* has just been published by the National Federation of Building Trades Employers, to which the FRHB is affiliated.

The report gives an informative picture of housebuilding in the United States, where it is traditionally the function of private enterprise. Each of the six members of the team contributed his own impressions of what he had seen and the published report has been compiled from those impressions.

Another important point made by the team is that the American house is of lighter construction and built for a shorter life than the British home (which may reflect the attitude of Americans, who generally like change and variety and who do not always expect a house to be lived in by more than one generation, as the British do). The report says: "In Britain it is traditional to expect that a house will have a life spanning more than one generation of occupiers, although advances in standards of living and new equipment may make it out of date. It is doubtful whether our attitude towards housing standards can readily be changed, but the matter deserves further consideration."

The team also found that the standard of house heating and insulation accepted as normal in America is greatly in advance of the average in Britain and the comment is made that, "having regard to our further disadvantage in the matter of fuel costs, it is clear that close attention needs to be given to this aspect of new British housing." The success in practice of the simplified plumbing and lavatory equipment used in American homes also indicates that this is a lead worth following in this country.

Other conclusions reached by the team are:

Kitchen equipment and fitments manufactured in large quantity and relatively cheaply, with no purchase tax, are an outstanding feature of new American houses. Liaison between producers and housebuilders and house-designers is a valuable aid to meeting purchasers' requirements.

Modular co-ordination can be of great benefit in the mass production of houses if its possibilities are fully appreciated by designers, builders and materials producers.

The development of new shopping centres and the steps to overcome car-parking difficulties in shopping areas in American towns and new housing estates are of interest having regard to the serious problem which has developed in the larger cities here.

The American building operative works no harder than his British colleague, but the frequently greater effectiveness of his work is due to specialisation, mobility and the general acceptance of the need for high output.

The members of the FRHB team were: George W. Reed (president), of Messrs. George Reed (Builders) Ltd., London; C. R. Setter, J.P. (junior vice-president), of Messrs. Stone & Co. (Bristol) Ltd.; C. Douglas Calverley (past president), of Messrs. G. Calverley & Sons (Contractors) Ltd., Leicester; Robert O. Lloyd, O.B.E. (council member and past-president of the NFBTE), of Messrs. Lloyd & Cross Ltd., Bromborough, Cheshire; J. B. Ratcliffe (council member), of Messrs. Oliver R. Croudace Ltd., Caterham, Surrey; F. Stimpson (council member), of Messrs. Stimpson & Rollston Ltd., Wigston, Leicester.

*The report is published for the FRHB by the NFBTE, 82, New Cavendish Street, W.1, price 2s.

"The Federation's Strength"

"The building industry is allergic to controls, and as a national body we do not take kindly to regimentation from the centre. That is why we do not practice it ourselves." That is what Nigel Hannen, president of the NFBTE, told members at the half-yearly general meeting of the Northern Counties' FBTE, at Seaton Carew, last week.

"The strength of the NFBTE," he said, "is largely derived from the fact that our constitution is sufficiently elastic to allow each of the ten regions considerable latitude in adapting national policy to meet its own particular needs. We have never been foolish enough to think that what is good for, say, the South of England, is always good for Wales, the Midlands, or the North, and many of our advances nationally have been due to the pioneer work in the first place of one or other of our regions."

MOW

Apprenticeship Council

The Building Apprenticeship and Training Council, which since 1943 has advised the MoW on all matters concerning the recruitment, education and training of young persons for craftsmanship and management in the building industry, has had its final meeting and its functions have been taken over by the National Joint Apprenticeship Board of the building industry.

At a luncheon in London last week, given to mark the presentation of the final report of the Building Apprenticeship and Training Council, the Minister of Works, Patrick Buchan-Hepburn, said:

"It seems strange to think that vital as is the importance of the building industry to the life of our country—I think there are over a million operatives of whom more than half are craftsmen—that only such a comparatively short time ago, when the council was first set up in 1943, the condition of building apprenticeship and training, recruitment and education was to such a large extent unsatisfactory, unsystematic and haphazard. The degree to which gratitude must be felt for the Council's achievements can be measured by the thought of what a very different picture the building industry would present today if the Council had never existed. . . . While many and varied problems still remain to be tackled the torch can now be handed with confidence to the National Joint Apprenticeship Board of the industry itself, the BATC having well and truly laid the foundations."

The Minister paid a tribute to the work of Sir Malcolm Trustram Eve and Sir George Gater as former independent chairmen of the BATC, as well as to Sir Frederick Leggatt, the present chairman.

The BATC has issued four general reports and two special reports since it was appointed in 1943. It maintained a register of apprentices and awarded prizes and scholarships to apprentices. It was responsible for the Apprentice Master Scheme and secured the recognition for apprenticeship purposes of the training given at certain Home Office Approved schools.

HOLLAND PARK

Inigo Jones' Gateway

The temporary removal of the "Inigo Jones" gateway in Holland Park will become necessary in connection with the scheme for the provision by the Youth Hostels Association of a hostel based on the restored east wing of Holland House and a new building (designed by Sir Hugh Casson) to be erected on part of the grounds. Estimated cost of dismantling the gateway, its storage, repair and re-erection at a later date is £3,000, which will be reimbursed by a grant from the Ministry of Works on the recommendation of the Historic Buildings Council. This estimate does not include the provision of a suitable setting for the gateway, on re-erection, for which a scheme is being prepared.

Announcements

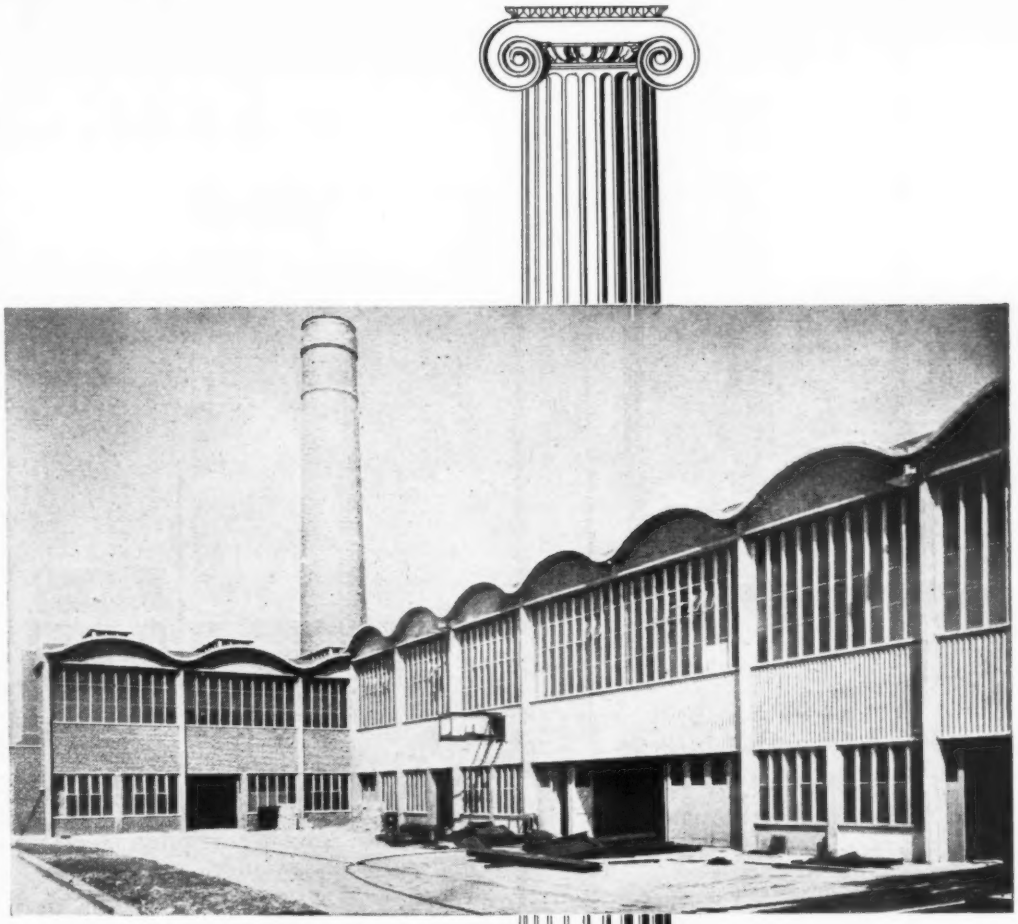
PROFESSIONAL

Hening & Chitty, F.R.I.B.A., have been appointed architects for the new administrative headquarters buildings of the Mortgage (IKARI) Bank, Baghdad. The firm is already working on housing schemes in the area.

A. J. Hodsdon Archard, F.R.I.B.A., and Ronald Hardy, M.B.E., B. Arch., A.R.I.B.A., announce that the Practice carried on between them under the name of Archard & Hardy has been dissolved by mutual consent with effect from June 30. In future Mr. Archard will practice from 20, Lowndes Street, S.W.1, and Mr. Hardy from 10, Gray's Inn Square, W.C.1.

TRADE

The National Joint Apprenticeship Board for the Building Industry has today confirmed the award of scholarships for Higher National Diploma Courses to the following registered apprentices: Christopher W. Green (apprentice carpenter and joiner), of 53 Court Farm Road, Mottingham, S.E.9, employed by Messrs. Higgs & Hill Ltd., London, and studying at the Bromley College of Art, Bromley, Kent. James T. Smith (apprentice bricklayer), of 34 Main Street, Balderton, Newark, Notts, employed by Messrs. Blighton & Clarkson, Newark, Notts, and studying at Nottingham and District Technical College. A further scholarship for a Higher National Diploma Course, sponsored by the Worshipful Company of Plaisterers, has been awarded to: John Christopher Watson (Apprentice Plasterer), of North View, Main Street, Thorner, Leeds, employed by Messrs. S. & W. Watson Ltd., Plasterers, 19 Manor Street, Leeds, and studying at Leeds College of Technology. These scholarships, each of which are valued at £800, are for a three-year full-time course, or for a four-year "sandwich" course (at the holder's choice) in the case of the NJAB direct awards, and for a four-year "sandwich" course in the case of the Worshipful Company of Plaisterers' Scholarship.



IONIC to... ...INDUSTRIAL

Illustration: *An example of Luxfer Reinforced Concrete Mullion Windows installed in the Charlton Refuse Disposal Depot for the Borough of Twickenham: Borough Engineer and Surveyor: A. S. Knolles, B.Sc., M.Inst.C.E., M.Inst.M., Cy.E.*

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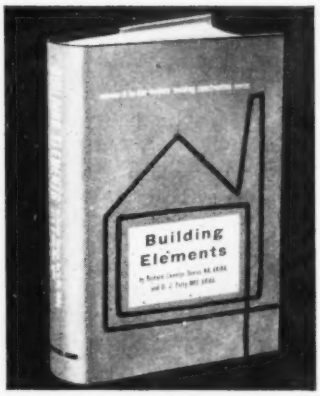
building elements by R. LLEWELYN DAVIES, M.A., A.R.I.B.A. and D. J. PETTY, M.B.E., M.A., A.R.I.B.A. Foreword by W. A. ALLEN, B.ARCH., A.R.I.B.A.



This Book deals with the structural elements of which a building consists, its walls, roofs, floors, windows, etc., and explains the functional requirements a building has to meet. It then describes how these requirements are met in the actual design of the various structural elements.

The book is divided into two parts, the first of which contains chapters on the requirements of building elements under the headings of Design and Expression; Weather Exclusion; Thermal Insulation; Sound Insulation; Fire Protection. In Part 2 chapters deal with the principal kinds of External Walls; Internal Walls; Roofs; Floors; Stairs; Flues and Fireplaces; Windows and Doors; which are in current use, and show how far and in what way, each of these elements fulfils the requirements described in Part 1.

Size: 8¾in. by 5⅝in., containing 384 pages including over 190 diagrams and halftone illustrations. 37s. 6d. net, postage 1s. 4d.

building materials by CECIL C. HANDISYDE, A.R.I.B.A. Foreword by A. H. MOBERLY.

This book provides up-to-date information on building materials in a form most useful to architectural students and practising architects. In addition to traditional materials, Mr. Handisyde deals with the many new materials which have come into use during the last twenty-five years, and takes full account of the very considerable amount of recent scientific research which has been brought to bear on both old and new materials. He examines thoroughly those problems of increasing concern to architects today—to what extent will alternative materials provide comfortable buildings, buildings that are warm and quiet and reasonably secure against fire, as well as being weatherproof and strong enough for their purpose.

Size: 8¾ in. by 5⅝ in. Containing 336 pages including 58 diagrams and halftone illustrations. Second edition, 30s. net, postage 1s. 3d.

structure in building by W. FISHER CASSIE, PH.D., M.S., F.R.S.E., M.I.C.E., M.I.STRUCT.E., and J. H. NAPPER, M.A., F.R.I.B.A., A.M.T.P.I. Foreword by W. A. ALLEN, B.ARCH., A.R.I.B.A.

Steel, concrete, aluminium alloys, etc., have revolutionised structural design, and although this field is largely an engineering one, today it is essential for the architect to understand something about it. No attempt is made in the book to give the formulae and methods of analysis and design used by the structural engineer; rather it provides the architect and student with mental pictures of how structures behave, for without the ability to 'feel' how forces act and react in the support of buildings, the architect cannot hope to put into practice the spatial conceptions of present-day architecture.

The book fills a gap in the literature on structural design and provides the architect with all the information he needs about systems of construction, their character, possibilities and limitations, to enable him to produce designs for new buildings with economy and imagination.

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THE ARCHITECTURAL PRESS 9-13 QUEEN ANNE'S GATE WESTMINSTER S.W.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.

HAYES AND HARLINGTON URBAN DISTRICT COUNCIL

Applications are invited for:—

(*a*) ARCHITECTURAL ASSISTANTS (PERMANENT) (two vacancies) within Grade A.P.T. II, *i.e.*, £595—£675 per annum. (*b*) SENIOR ARCHITECTURAL ASSISTANT (TEMPORARY) within Grade A.P.T. IV, *i.e.*, £710—£885 per annum, plus London weighting, in each instance, 21—25 years £20 per annum, 26 years and over £30 per annum. Candidates for (*a*) must have passed the R.I.B.A. Inter. Exam., good experience of housing work with local authority. Housing accommodation will be made available for one of these two appointments if necessary. (*b*) Must be a Registered Architect, have good general experience in design and construction in relation to municipal housing and other works, and capable of supervising large building contracts. Housing accommodation will be made available if necessary. 5-day week. Further particulars and form of application obtainable from the undersigned, which, when completed, must be returned as soon as possible.

GEORGE HOOPER.
Clerk and Solicitor.

Town Hall, Hayes, Middlesex. 1277

THE CORPORATION OF GLASGOW
ARCHITECTURAL AND PLANNING DEPARTMENT
ASSISTANT ARCHITECTS
PLANNING ASSISTANTS
CIVIL ENGINEERS
QUANTITY SURVEYORS

Vacancies exist for a number of assistants. Minimum qualification, Intermediate Examination of the appropriate professional body. Salary scale £580—£1,100 per annum, with placing according to age, experience and qualifications.

Form of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
City Architect and Planning Officer.

1685

BOROUGH OF CASTLEFORD
QUANTITY SURVEYING ASSISTANT

Applications are invited for the above appointment in the Borough Engineer and Surveyor's Department at a salary in accordance with Grade A.P.T. IV.

Applicants should hold a recognised professional qualification and should have had experience in the taking off and preparation of bills of quantities for housing and other building work. Experience in the preparation of estimates for such works would also be of advantage.

The appointment is superannuable and the successful applicant will be required to pass satisfactorily a medical examination.

If required, housing accommodation will be provided for a successful married applicant.

Forms of application may be obtained from the undersigned and must be returned not later than the 4th August, 1956.

Canvassing, either directly or indirectly, will disqualify.

E. HUTCHINSON,
Town Clerk.

Town Hall,
Castleford. 1721

CAMBRIDGESHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) ONE ASSISTANT ARCHITECT, Grade V (£795 × £35—£970).
(*b*) ONE ARCHITECTURAL ASSISTANT, Grade III (£640 × £25—£765).

(*a*) Applicants must be Registered Architects, and preference will be given to Members of the Royal Institute of British Architects. They should have a wide knowledge of modern school design and construction, the preparation of specifications and site supervision.

(*b*) Applicants should be Registered Architects, and preference will be given to Members of the R.I.B.A. They should have experience in the design and construction of public buildings, housing and modern schools, the preparation of specifications and of site supervision.

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

Applications, stating age, present salary, present and previous appointments, details of training and experience, together with one recent testimonial and the names and addresses of two referees, should be submitted to the undersigned, not later than 1st August, 1956.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge.
11th July, 1956. 1743

BASILDON NEW TOWN
CHIEF ARCHITECT'S DEPARTMENT requires:—

(*a*) ASSISTANT ARCHITECT, Grade IVB, £845—£960.
(*b*) ASSISTANT ARCHITECT, Grade IVA, £715—£845.
(*c*) JUNIOR ASSISTANT ARCHITECT, Grade VB, £580—£650.

These salaries are in the course of revision. Work on Town Centre, Housing or Factories. Experience and ability in contemporary design and preparation of working drawings required. For appointment (*a*) experience in contract supervision and management also required. For posts (*a*) and (*b*) professional qualification in Architecture required. For post (*c*) Intermediate R.I.B.A. required. All appointments superannuable and subject to medical examination. Accommodation available for renting. Applications (on special form obtainable from Chief Architect) to General Manager, Gifford House, Basildon, Essex, endorsed with the relevant appointment by Friday, 10th August, 1956. 1822

CITY OF PETERBOROUGH
APPOINTMENT OF ARCHITECTURAL ASSISTANT
Grade A.P.T. II

Applications are invited for the above appointment in the City Engineer's Department. Applicants must possess a sound knowledge of building construction and be capable of preparing working and detail drawings under supervision. Previous experience on school buildings will be an advantage.

Applications stating age, experience, details of qualifications, together with copies of three recent testimonials, should be sent in envelopes endorsed "Architectural Assistant" to Mr. L. H. Robjohn, M.B.E., A.M.I.C.E., City Engineer and Surveyor, Town Hall, Peterborough, to reach him not later than Tuesday, 7th August.

Consideration will be given to the provision of Council housing accommodation.

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

C. PETER CLARKE,
Town Clerk.

Town Hall,
Peterborough.
July, 1956. 1804

COUNTY BOROUGH OF BARNSLEY
BOROUGH ENGINEER AND SURVEYOR AND PLANNING OFFICER'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) SENIOR ASSISTANT QUANTITY SURVEYOR, Grades A.P.T. V-VI (£795—£1,080 per annum). The commencing salary will be fixed within this range, according to experience and qualifications.
(*b*) ASSISTANT ARCHITECT, Grade A.P.T. III (£640—£765 per annum). Commencing salary will be fixed within this range, according to experience and qualifications.
(*c*) ARCHITECTURAL ASSISTANT, Special Classes, Grade A.P.T. I-II, Special Grade (£530—£840 per annum), the grading to be fixed according to experience and qualifications as laid down in the N.J.C. Scheme for Special Classes of Officers (Architectural Assistants). The point of entry in any one of these grades may be fixed above the minimum.
(*d*) TEMPORARY ARCHITECTURAL ASSISTANT, Special Classes, for a period of about two years. Salary as for appointment (*c*).

For appointment (*a*) applicants should be suitably qualified, preferably A.R.I.C.S., and have had considerable experience in preparing Bills of Quantities and settling Contractor's accounts. The candidate appointed will be in charge of the Quantity Surveying Section of the Department.

Applicants for appointments (*b*), (*c*) and (*d*) should have completed their architectural training and be qualified or in process of qualifying. Appointments (*c*) and (*d*) are particularly suitable for students who have recently completed their Diploma courses.

HOUSING ACCOMMODATION WILL BE PROVIDED IF NECESSARY AND 50 PER CENT. OF REMOVAL TRANSPORT EXPENSES WILL BE PAID IN APPROVED CASES.

The appointments will be subject to (i) the Scheme of Conditions of Service for A.P.T.C. Staff; (ii) any other general conditions of employment in operation within the Corporation from time to time, and (iii) to one month's notice on either side. Appointments (*a*), (*b*) and (*c*) will be also subject to the Local Government Superannuation Acts, for which purpose the successful candidates will be required to pass a medical examination.

Applications, stating appointment applied for, age, present and previous appointments with dates, qualifications, experience, etc., together with the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, by Wednesday, 8th August, 1956.

Canvassing will disqualify.

A. E. GILFILLAN.
Town Clerk.

Town Hall, Barnsley.
July, 1956. 1771

LANCASHIRE COUNTY COUNCIL

DRAUGHTSMAN/WOMAN required at MANCHESTER. Salary, over 21 within £365—£510 according to ability and experience; under 21 by age scale giving £275 at 18, £330 at 20.

Applications giving age, qualifications, present appointment, experience, etc., and two referees to the County Planning Officer, East Cliff County Offices, Preston, by 7th August, 1956. 1808

CHESTERFIELD RURAL DISTRICT COUNCIL invite applications for the appointment of ASSISTANT ARCHITECT on Salary Scale A.P.T. I to special Scale (£530—£840) according to qualifications. The appointment is subject to the Scheme of Conditions of Service, to the Local Government Superannuation Act, 1937/54 and to the passing of a Medical Examination.

Assistance will be given in the matter of housing.

Applications, on forms to be obtained from the Engineer, Rural Council House, Saltergate, Chesterfield, should be returned to the Clerk of the Council in an envelope endorsed "Assistant Architect" by 20th August, 1956. 1823

BOROUGH OF WREXHAM

Appointment of:—

ARCHITECTURAL ASSISTANT

A.P.T. I Salary £530—£610 per annum

ENGINEERING ASSISTANT

A.P.T. II Salary £595—£675 per annum.

Applications are invited for the above appointments, candidates to supply details of qualifications, experience and the names of two referees. Housing accommodation available.

Further particulars from the Borough Surveyor, Bodhyfryd, 31, Chester Street, Wrexham. Applications to the undersigned by 13th August, 1956.

PHILIP J. WALTERS,
Town Clerk.

Guildhall,
Wrexham.
17th July, 1956. 1833

GOVERNMENT OF FIJI

TOWN PLANNING OFFICER

To prepare town and country planning schemes and advise central government and local authorities on planning practice and administration of town and country planning schemes.

Appointment on contract for 3 years, salary up to £1,441 per annum with prospects of post being made pensionable. Generous gratuity on completion of contract. Free passages not exceeding 4 adult fares. 4-5 days leave in respect of each completed month of resident service. Quarters, if available, at low rental.

Candidates between 30 and 45 must be A.M.T.P.I. and preferably in addition either A.R.I.C.S. or A.M.I.Mun.E. and have had at least five years' practical experience.

Write Director of Recruitment, Colonial Office, London, S.W.1, stating age, qualifications and experience, quoting BCD 62/49/01. 1830

ST. THOMAS' HOSPITAL, LONDON, S.E.1

Applications are invited for the following posts in the architect's department, for work on the design and construction of an extensive rebuilding scheme forming part of the south bank development.

(*a*) SENIOR ASSISTANT ARCHITECT—must be qualified, with experience in running large contracts. Previous hospital experience an advantage. This post will be one of growing responsibility as the office expands. Salary scale £890—£1,050.

(*b*) ASSISTANT ARCHITECTS (2)—A.R.I.B.A., a good knowledge of design and experience of preparing W.Ds. essential. Salary £780 × £3(30) —£870.

(*c*) ARCHITECTURAL ASSISTANTS (2)—R.I.B.A. Intermediate standard to R.I.B.A. Final standard. Office experience not essential. Salary from £550—£775, according to qualifications and experience.

(*d*) DRAUGHTSMAN OR WOMAN (1)—Salary £400—£550, according to experience.

Preference will be given to school trained assistants having an interest in contemporary design and construction. The posts are superannuable.

Apply in writing, or telephone stating age, qualifications and experience, to W. Fowler Howitt, A.R.I.B.A., 27, Paris Street, London, S.E.1 (WAT 4891/2). 1725

CENTRAL ELECTRICITY AUTHORITY

EAST MIDLANDS DIVISION

Applications are invited for the following position within the Division:—

SENIOR DRAUGHTSMAN (MECHANICAL) GENERATION (CONSTRUCTION) DEPARTMENT. VACANCY NO. 151/56/AJ.

Candidates should have experience on one or more of the following:—

(*i*) Design and layout of Power Station equipment, including turbo-alternators, boiler plant, coal and ash plant and general station auxiliaries.

(*ii*) H.P. and L.P. steam and feed pipework. Condensing plant and feed heating systems.

(*iii*) Conveyor plant coal handling systems and material handling of station auxiliary equipment.

Salary will be in accordance with Grade 5 (£700—£800 per annum) or Grade 4 (£810—£910 per annum) of Schedule D of the National Joint Board Agreement.

Closing date for receipt of applications, 9th August, 1956.

This appointment will be pensionable within the terms and conditions of the Central Electricity Authority and Area Boards (Staff) Superannuation Scheme.

Applications should be submitted on the official form AE6/ACT which may be obtained from the Divisional Establishments Officer, Central Electricity Authority, P.O. Box 25, Barker Gate, Nottingham, and returned to the undersigned. Please quote Vacancy Number.

L. F. JEFFREY,
Divisional Controller.

18th July, 1956. 1787

LANCASHIRE COUNTY COUNCIL

Vacancies exist for:—

ARCHITECTS, within scale £795—£970. There is a large and interesting programme of schools and other work of a general character.

QUANTITY SURVEYORS, within scale £880—£1,080. Applicants must have had a wide experience in the preparation of Bills of Quantities for major building projects of all types, and the successful candidate will be expected to take charge of large contracts from taking off to settlement of final accounts.

Application forms, from the County Architect, P.O. Box 26, County Hall, Preston, to be returned by Tuesday, August 7th, 1956, quoting Ref. A/AJ. 1812

URBAN DISTRICT OF FELTHAM

ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of an Architectural Assistant on the Council's unestablished staff at a salary within the National Scales, according to qualifications and experience, up to the maximum of Grade A.P.T. IV (£885 per annum) plus London weighting.

Forms of application, obtainable from the undersigned, must be returned accompanied by copies of two testimonials, not later than 28th August, 1956. Canvassing directly or indirectly will disqualify and applicants must disclose, in writing, whether to their knowledge they are related to any member of or the holder of any senior office under the Council

M. W. COUPE,
Clerk of the Council.

Council Offices,
Feltham, Middlesex. 1825

BUCKS COUNTY COUNCIL

Applications are invited for the following appointments in the County Architect's Department:—

ASSISTANT QUANTITY SURVEYOR, Grade VI, £880—£1,080 p.a.

ASSISTANT QUANTITY SURVEYOR, Grade V, £795—£970 p.a.

ASSISTANT QUANTITY SURVEYOR, Grade III, £640—£765 p.a.

JUNIOR ASSISTANT QUANTITY SURVEYOR, Grade II, £595—£675 p.a.

The appointments are superannuable and subject to medical examination.

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

Applications, on forms to be obtained from F. B. Pooley, County Architect, County Offices, Aylesbury, must be returned by 24th August, 1956. 1727

BILLINGHAM URBAN DISTRICT COUNCIL

Applications are invited for the undermentioned posts in the Engineer and Surveyor's Housing Department.

CHIEF QUANTITY SURVEYOR

Salary A.P.T. III (£640—£765 p.a.) according to qualifications and experience. Applicants must have had experience in the preparation of specifications, bills of quantities, settlement of final accounts and valuations for interim certificates.

JUNIOR ARCHITECTURAL ASSISTANT

Salary A.P.T. I (£530—£610 p.a.).

Consideration will be given to housing accommodation. Applications stating age, qualifications and experience, together with names and addresses of two referees must be delivered to the undersigned not later than noon on Thursday, the 9th August, 1956

FRED M. DAWSON,
Clerk of the Council.

Council Offices,
Haverton Hill,
Billingham. 1820

SLOUGH CORPORATION

ARCHITECTURAL VACANCY

A vacancy occurs for an ASSISTANT ARCHITECT on the Staff of the Borough Engineer.

Slough being a rapidly developing town, the resulting expansion of public services affords the opportunity of experience on a variety of architectural design work.

The vacancy is an excellent opportunity for an established assistant architect seeking a post to gain wider experience and have the chance of assuming responsibility for individual design work and the supervision and administration of contracts of varying sizes and types.

The salary will be Grade A.P.T. IV of the National Scales which commences at £710 and progresses to £885 per annum.

Those interested are invited to write, giving brief details of qualifications and experience, to the Borough Engineer, Town Hall, Slough, Bucks, with a view to meeting him at an early date for a discussion on the work of the Department and the prospects offered by the vacancy. 1819

COUNTY BOROUGH OF SOUTHPORT

ASSISTANT ARCHITECT

Special Grade—£690—£840 per annum

Applications are invited for the above appointment in the Borough Architect and Town Planning Officer's Department. Candidates should have had experience in School Design and Construction and must have passed the Final Examination of the R.I.B.A.

Application Forms may be obtained from the Borough Architect and Town Planning Officer, 99/105 Lord Street. Closing date for the receipt of applications is Saturday, 18th August, 1956.

R. EDGAR PERRINS,
Town Clerk.

1814

BOROUGH OF BEXLEY

ASSISTANT ARCHITECT

Salary—Grade A.P.T. IV (£710—£885 p.a.) plus London weighting.

Candidates should have passed the final examination of the R.I.B.A. and have had experience in housing, school and other building projects.

Forms of application with conditions of appointment obtainable from Borough Engineer, West Lodge, Broadway, Bexleyheath, to whom completed applications must be returned by Monday, 20th August, 1956.

Canvassing will disqualify.

ARTHUR GOLDFINCH,
Town Clerk.

1796

BOROUGH OF BRIDGWATER

BOROUGH ARCHITECT'S DEPARTMENT

APPOINTMENT OF QUANTITY SURVEYOR

Applications are invited for the post of Quantity Surveyor in the above Department, at a salary within either A.P.T. III (£640—£765) or Special Grade (£690—£840) according to qualifications and experience.

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

Consideration will be given to the provision of housing accommodation for the successful applicant, if married.

Applications, stating age, qualifications, training and experience, together with the names of two referees, should be sent to the Borough Architect, Town Hall, Bridgwater, by 18th August, 1956.

H. A. CLIDERO,
Town Clerk.

Town Hall,
Bridgwater,
Somerset. 1827

CUMBERLAND COUNTY COUNCIL

APPOINTMENT OF SENIOR QUANTITY SURVEYOR

A.P.T. GRADE VI (£880 × £40—£1,080)

Applications are invited for the above appointment in the County Architect's Department. N.J.C. Service Conditions. Post pensionable. Subject to medical examination.

Applicants should be A.R.I.C.S. (Quantities) or hold other equivalent qualifications, and be fully experienced in cost analysis, estimating, taking-off abstracting and billing, measurement of work in progress, and settlement of final accounts.

Applications, on forms obtainable from John H. Haughan, F.R.I.B.A., County Architect, 15, Portland Square, Carlisle, to be received by him not later than Wednesday, 15th August, 1956.

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

1835

SKEGNESS URBAN DISTRICT COUNCIL

DEPUTY SURVEYOR AND WATER ENGINEER

Applications are invited for the appointment of Deputy to the Council's Surveyor and Water Engineer at a salary of £850 rising by one increment of £35 and one of £40 to a maximum of £925 per annum.

Applicants must be Corporate Members, by examination, of either the Institute of Civil Engineers or the Institution of Municipal Engineers and must have had considerable experience in a Municipal Engineer's Department. Architectural and Town Planning qualifications or experience will be an advantage although not essential.

The appointment will be subject to the N.J.C. Service Conditions, the Local Government Superannuation Acts and the passing of a medical examination. It will also be terminable by one month's notice on either side.

Applications, endorsed "Deputy Surveyor," together with names and addresses of three referees, to be delivered to the undersigned not later than 10th August, 1956. Candidates should disclose relationship to any member or officer of the Council.

IVOR M. CULE,
Clerk to the Council.

Town Hall,
Skegness,
Lincs. 1811

CHISLEHURST AND SIDCUP URBAN DISTRICT COUNCIL

Area 8,957 acres. Population 86,000.

APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications invited for Architectural Assistant in the architectural section of the Engineer & Surveyor's department. Salary A.P.T. III (£640—£765 plus London weighting). Housing accommodation provided if required.

Preference to R.I.B.A. Intermediate examination.

Applications, with full details of training and experience, to Clerk, Sidcup Place, Sidcup, Kent. Closing date 17th August, 1956. 1805

CITY OF BIRMINGHAM PUBLIC WORKS DEPARTMENT

Applications are invited for the post of PLANNING ASSISTANT in the Redevelopment Section.

Preference will be given to applicants with some knowledge of the relocation of industry and experience in the Planning Office of a municipal authority.

Applicants should hold a University Degree in Geography or Economics or have passed the Intermediate Examination of the Town Planning Institute.

Salary Grade—A.P.T. III (£640—£765 per annum) in accordance with qualifications and experience.

The appointment is permanent, superannuable, subject to a medical examination and terminable by one month's notice on either side.

Applications endorsed "Planning Assistant" stating qualifications, age and experience, together with the names of two persons to whom reference may be made should reach the undersigned not later than 11th August, 1956.

Canvassing disqualifies.

HERBERT J. MANZONI,
City Engineer and Surveyor.

Civic Centre,
Birmingham, 1. 1785

COUNTY BOROUGH OF BURNLEY

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

SENIOR ARCHITECTURAL ASSISTANT, Grade IV (£710—£885), and

ARCHITECTURAL ASSISTANT, Special Grade (£690—£840).

Applicants for the Senior Post must be Registered Architects and for the other have the appropriate qualifications. Considerable experience in municipal building projects, including educational building is preferable.

QUANTITY SURVEYING ASSISTANTS, Grade II (£595—£675).

Applicants should have a sound knowledge of building construction and experience in the preparation of quantities and measurement of building work is essential.

Housing accommodation may be made available if required.

MAINTENANCE ASSISTANT, Miscellaneous Grade V (£560—£620).

Applicants should have a sound knowledge of building construction in all trades and practical experience in the repair and maintenance of buildings would be an advantage.

Forms of application may be obtained from the Borough Engineer, 22/24 Nicholas Street, Burnley, and should be returned to him not later than Saturday, 4th August, 1956.

C. V. THORNLEY,
Town Clerk.

1810

CITY AND COUNTY OF THE CITY OF EXETER

Applications are invited for the appointment of SENIOR ASSISTANT ARCHITECT on the establishment of the City Architect's Department; salary range between £690 and £885 per annum, according to experience.

Applicants must be Associate Members of the R.I.B.A. or hold equivalent qualifications, and preference will be given to those experienced in the design and construction of schools and civic buildings.

The appointment will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Acts 1937-1953. The successful applicant will be required to pass a medical examination.

Canvassing will disqualify, and applicants must disclose whether, to their knowledge, they are related to any member of the Council or to the holder of any senior office under the Council.

Applications, stating age, qualifications, previous and present appointments and salaries, full details of experience and the earliest possible date when available, should be sent to H. B. Rowe, F.R.I.B.A., A.M.I.Struct.E., City Architect, Municipal Offices, Exeter, not later than 4th August, 1956.

C. J. NEWMAN,
Town Clerk.

Exeter.
July 1956. 1809

CITY OF PETERBOROUGH
APPOINTMENT OF QUANTITY SURVEYOR
CITY ENGINEER'S DEPARTMENT

Applications are invited from suitably qualified Quantity Surveyors for the above appointment at a salary in accordance with Grades II and III A.P.T. (£595 per annum rising by annual increments to a maximum of £765).

Applicants should have wide experience including taking off bills for new schools.

Any further information can be obtained from the City Engineer and Surveyor (Mr. L. H. Robjohn, M.B.E., A.M.I.C.E.).

Consideration will be given to the provision of Council housing accommodation.

Closing date for receipt of applications Tuesday, 7th August.

C. PETER CLARKE,
Town Clerk.

Town Hall,
Peterborough.
July, 1956. 1802

SOUTH EASTERN GAS BOARD
ARCHITECTURAL ASSISTANT
Architect and Surveyor's Department,
Katharine Street, Croydon

Candidates must have a sound architectural training and be able to prepare specifications. Salary within the range £700—£780 p.a.

Applications in writing, quoting reference V16/615 and giving full details should reach the undersigned within ten days after the publication of this notice.

R. J. McCRAE,
Personnel Manager.

Katharine Street,
Croydon. 1807

CARSHALTON URBAN DISTRICT COUNCIL
TOWN PLANNING ASSISTANT, Engineer and Surveyor's Department. Salary within the range of A.P.T. Grades III-IV (£670—£915). The Council are prepared to pay the maximum of Grade A.P.T. III (£795) to candidates with suitable experience who have passed Intermediate T.P.I. and are prepared to take Final; transfer to Grade IV immediately on qualification.

The Council will assist the successful applicant in the provision of housing.

Applications on forms obtainable from the undersigned must be returned with names of three referees not later than the 13th August, 1956. Canvassing will disqualify.

C. H. DURRANT,
Clerk of the Council.

District Council Offices,
The Grove,
Carshalton, Surrey.

METROPOLITAN BOROUGH OF PADDINGTON
APPOINTMENT OF DIRECTOR OF HOUSING AND BOROUGH ARCHITECT

Applications are invited for this appointment on the salary scale £2,125 per annum rising by annual increments of £55 and one of £50 to £2,395 per annum. Commencing salary according to ability and experience.

Candidates must be Associates or Fellows of The Royal Institute of British Architects and possess considerable experience and organising ability.

The person appointed will be responsible to the Council for the work of the Housing Department (including the Management section) and for advising on all architectural and planning matters.

The conditions of service will be in accordance with the recommendations of the Joint Negotiating Committee for Chief Officers of Local Authorities; medical examination; superannuation, and terminable by three months' notice on either side.

Applications with full information, including age, qualifications, experience, particulars of present and past appointments and salaries, and the names of three referees, are to be received by me by 22nd August, 1956.

Canvassing will be a disqualification.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington, W.2.
19th July, 1956. 1805

LANCASHIRE COUNTY COUNCIL

Applications are invited for the following permanent appointments:—

(*a*) STRUCTURAL ENGINEERS (1) within the salary scale £960—£1,080; (2) within the salary scale £865—£970.

(*b*) ELECTRICAL ENGINEERS (1) within the salary scale £960—£1,080; (2) within the salary scale £690—£765.

(*c*) HEATING ENGINEERS (1) within the salary scale £960—£1,080; (2) within the salary scale £865—£970.

(*d*) EQUIPMENT ENGINEERS: within the salary scale £780—£885.

Applicants for:—

(*a*) should be corporate members of the Institution of Structural Engineers and have had a wide experience in the design of structural steel and reinforced concrete framed structures. Applicants for position (1) must have held a senior position as a designer, and industrial experience will be an advantage;

(*b*) (1) should be corporate members of the Institution of Electrical Engineers or have passed the qualifying examination for such qualification, and have had a wide experience in the design of electrical light and power installations in all classes of buildings, and should have had industrial experience;

(*b*) (2) should have obtained the National Certificate and have had a good experience of electrical installation work;

(*c*) must be corporate members of the Institution of Heating and Ventilating Engineers and have had a wide experience in the design of all types of heating and ventilating, cold water and gas installations for all types of buildings. Applicants for the senior appointment should have held a responsible position, with an industrial background as an added qualification;

(*d*) should be corporate members of an appropriate Institution and have had experience in the specification, purchase and installation of equipment common to laboratory and engineering workshops of Technical Colleges.

Application forms from the County Architect, P.O. Box No. 26, County Hall, Preston, to be returned by 7th August, 1956, quoting position for which applying, and reference AJ. 1813

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Contract: 5 years in first instance.

Pay: Rs. 1,600 × 100—2,000 p.m. plus £30 p.m. overseas allowance. Starting point according to qualifications and experience. 1R.=1s. 6d. Free passages and medical advice.

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No restriction on domicile or nationality, but the terms of engagement for Pakistan Nationals are in some respects different from the above.

Application forms and further particulars from the Recruitment Officer, Education Division, Pakistan High Commissioner, 39, Lowndes Square, S.W.1. 1795

BOROUGH OF DARTFORD

ARCHITECTURAL ASSISTANT required. Salary Grade A.P.T. II-III according to experience and qualifications. A plusage rate of £20 or £30 per annum according to age is also paid.

N.J.C. Service conditions. Medical examination. Housing accommodation will be provided if required.

Apply, stating full particulars and giving names of three referees, to the Town Clerk, Council Offices, Dartford, not later than the 10th August, 1956. 1818

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A Modern flat can be rented by the successful applicant.

Form of application, which is to be returned not later than Tuesday, 7th August, 1956, can be obtained from the Borough Engineer, Town Hall, Chiswick, W.4.

W. F. J. CHURCH,
Town Clerk.

Town Hall,
Chiswick, W.4.
12th July, 1956. 1790

BOROUGH OF PRESTWICH
BOROUGH ENGINEER'S DEPARTMENT—STAFF

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Salary: A.P.T. IV (£710 per annum, annual increments of £35 to a maximum of £885 per annum) for both, which are permanent and superannuable.

Further details and application forms to be obtained from the undersigned. Forms to be returned not later than Saturday, 18th August, 1956.

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Town Clerk.

Town Hall, Prestwich. 1839

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The Corporation reserves the right not to accept the lowest or any tender received.

The General Manager.

Hemel Hempstead Development Corporation,
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(Salary range £550 to £820 per annum.)

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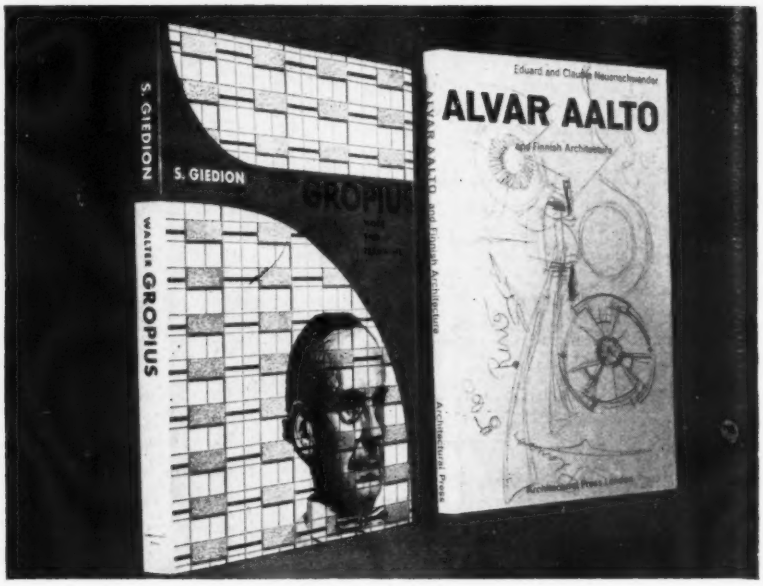

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