THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St.,W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1.	Holborn 3411
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland	
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DOT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Welbeck 1781
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)	
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GPDA	Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2, Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266

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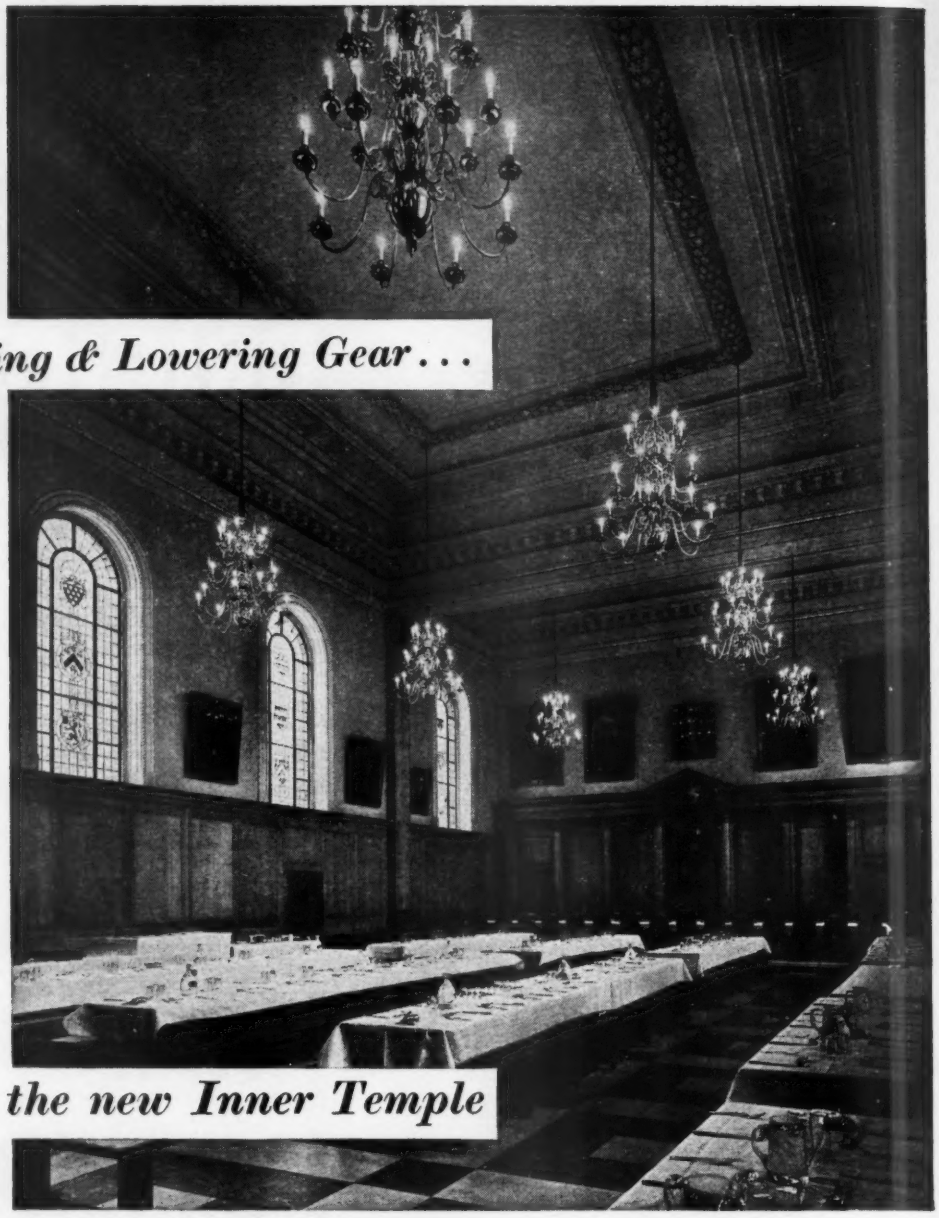

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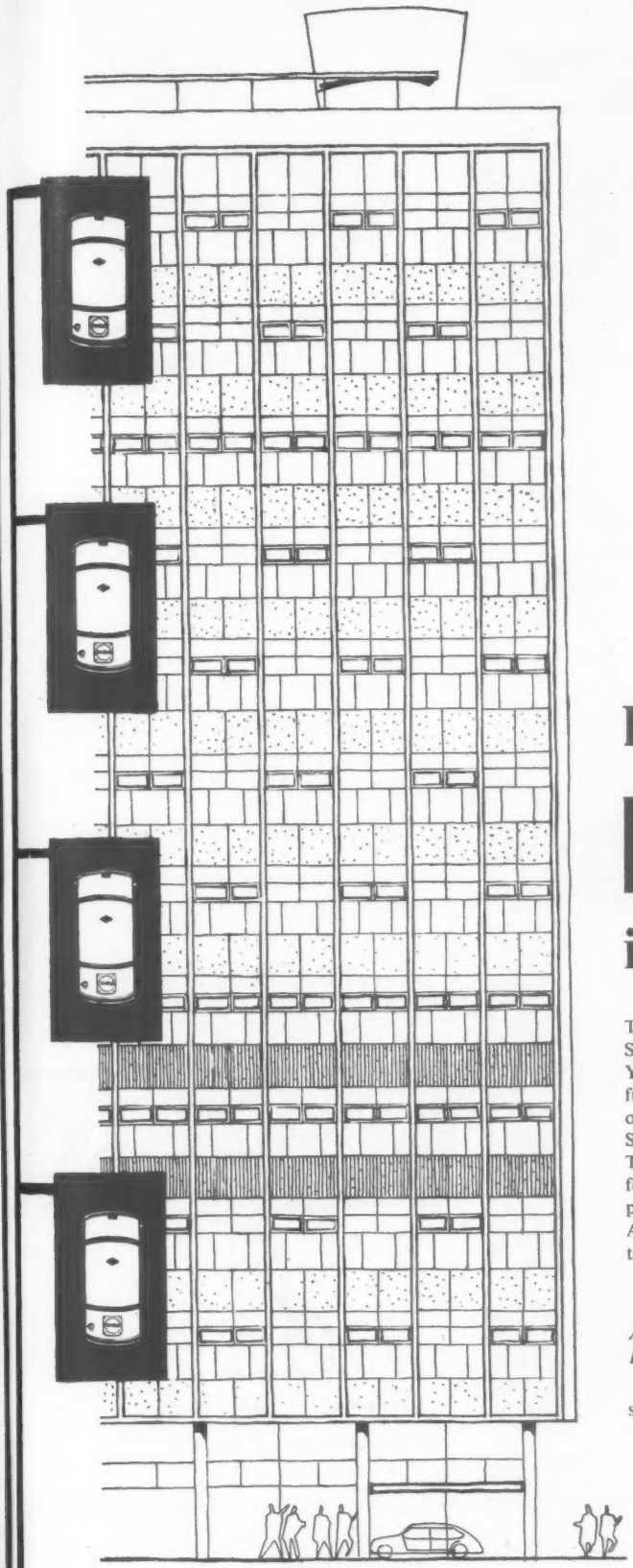

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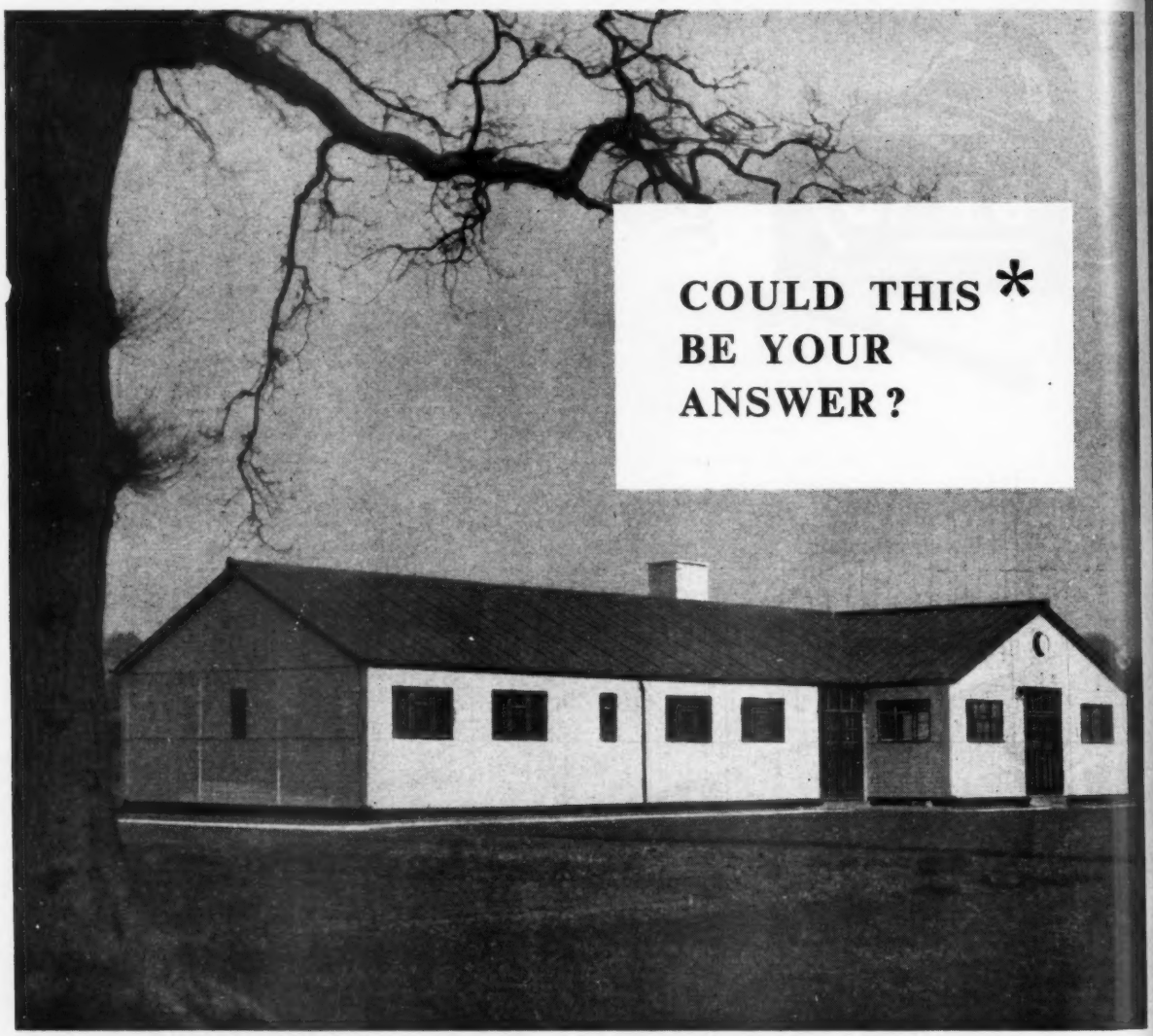
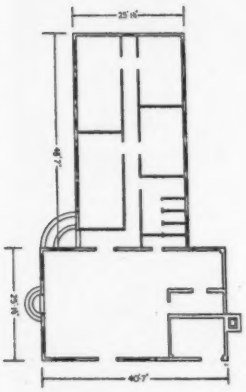


Photograph by courtesy of the Westminster Medical School.



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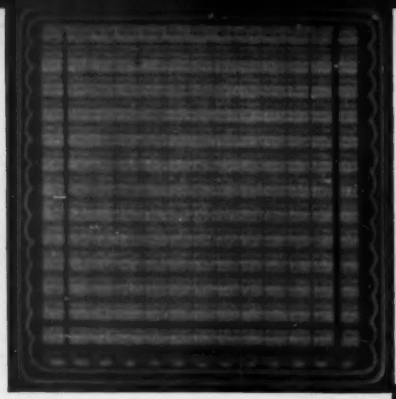

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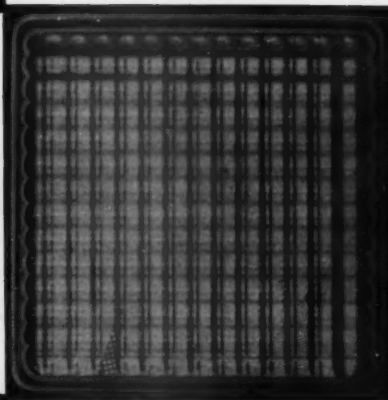

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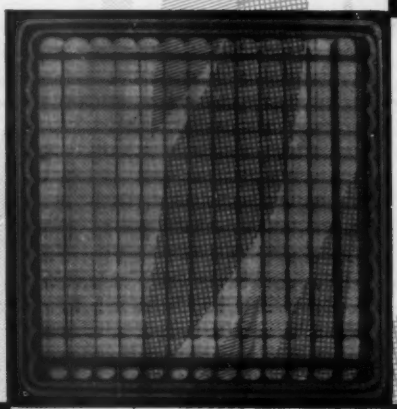

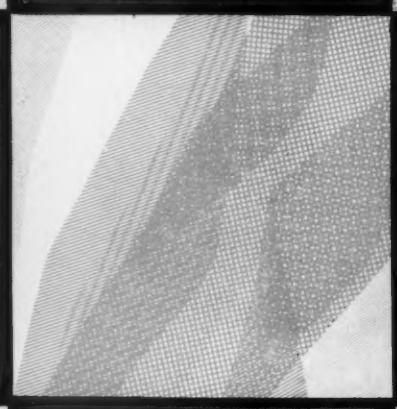

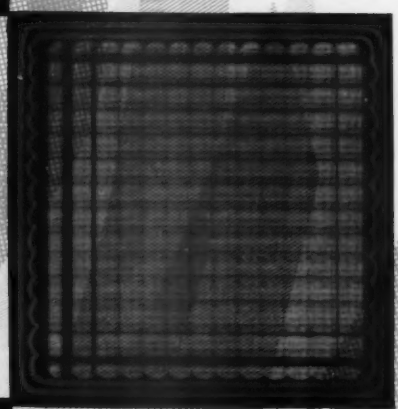

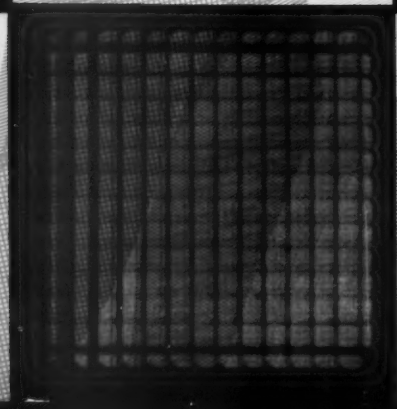

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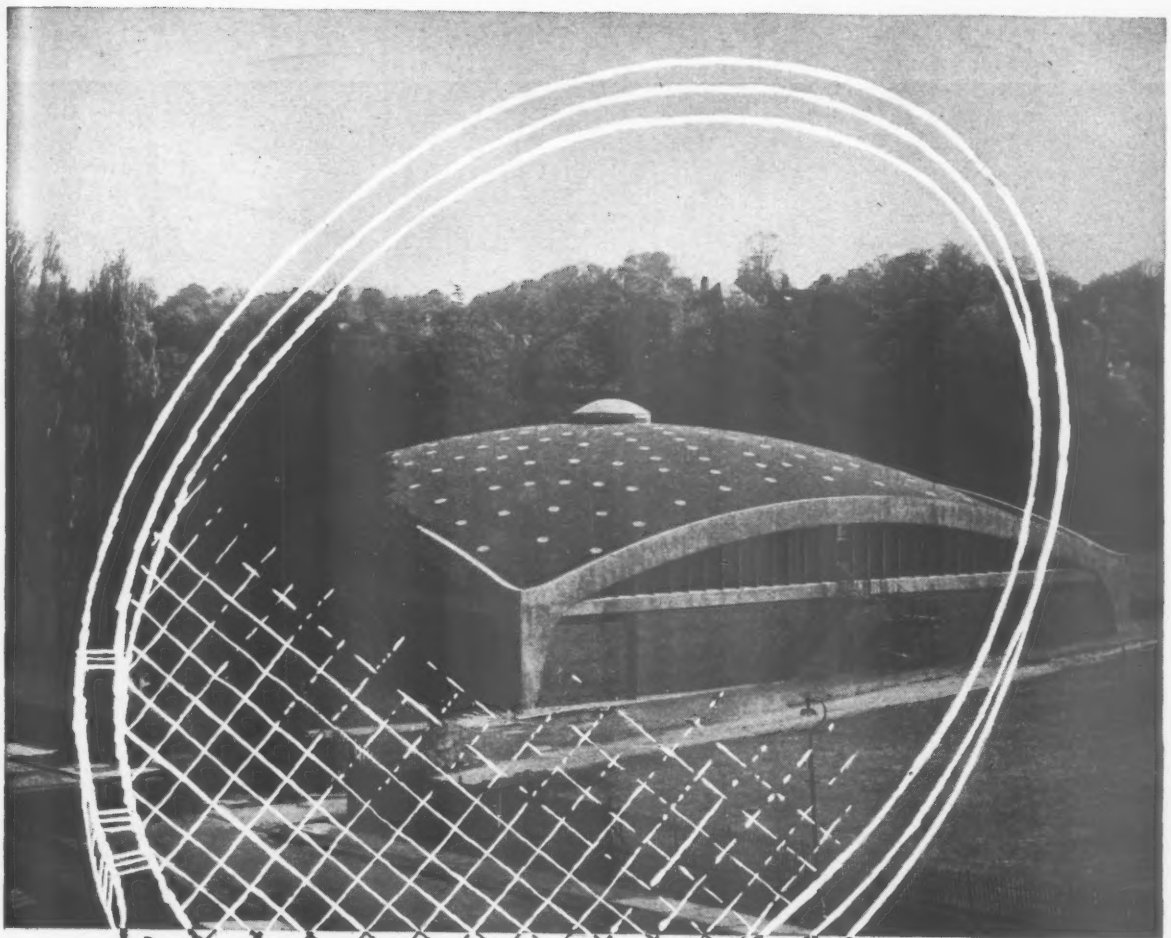

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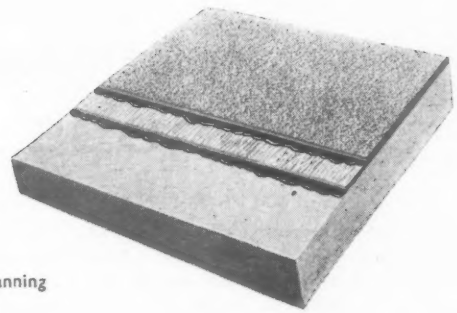

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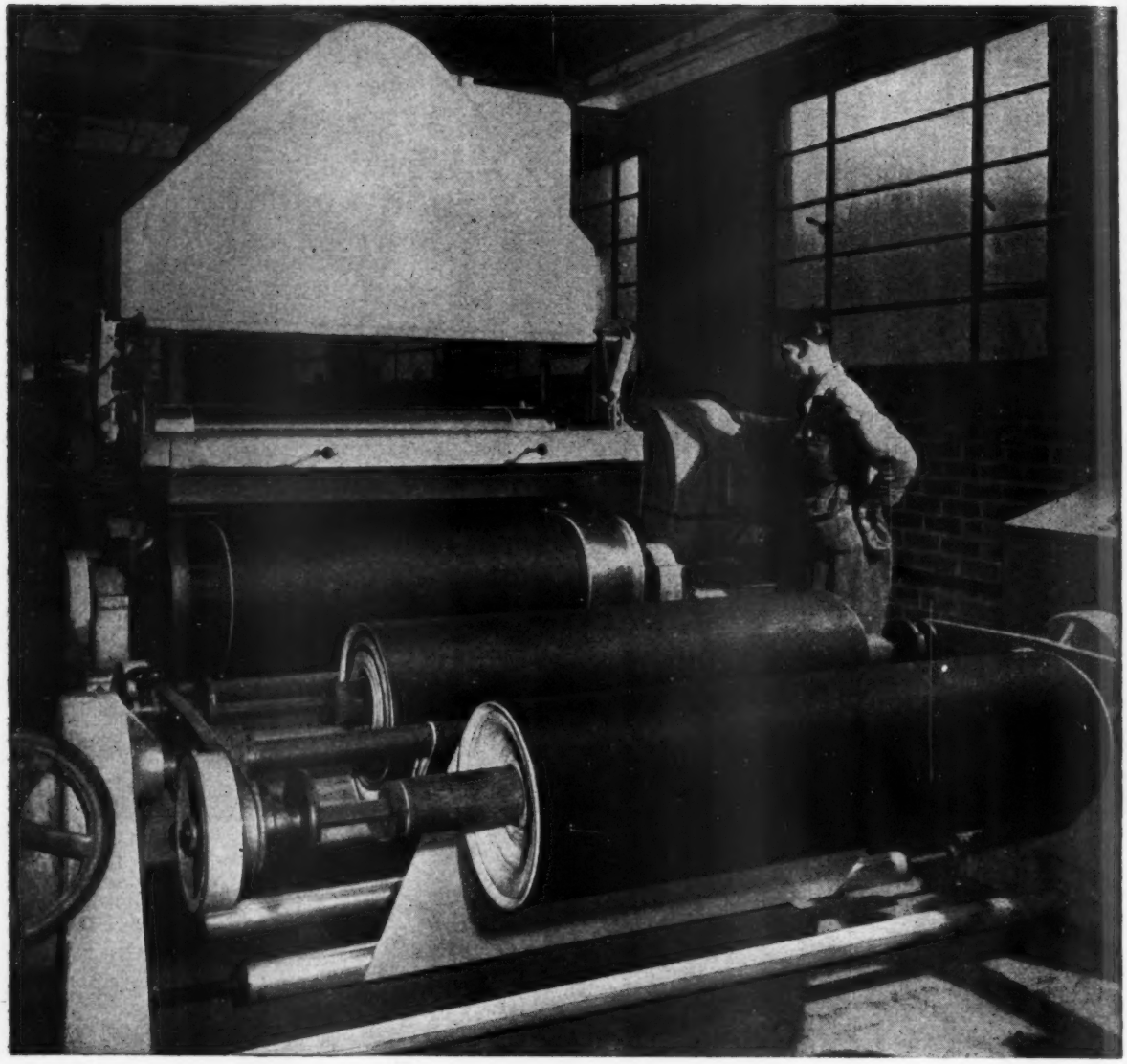
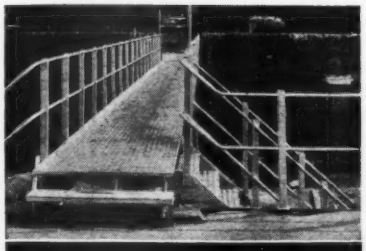
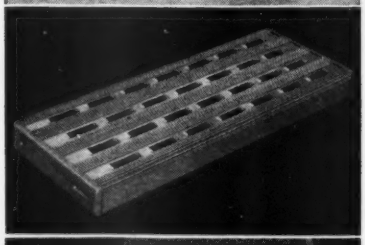
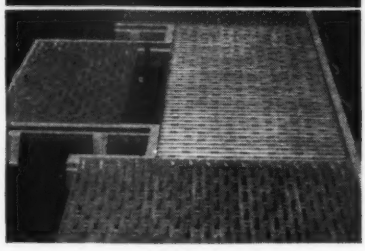


P.V.C. embossing unit for leathercloth or coated fabric. Picture by courtesy of the Belstaff Manufacturing Co. Ltd.

Head in the clouds







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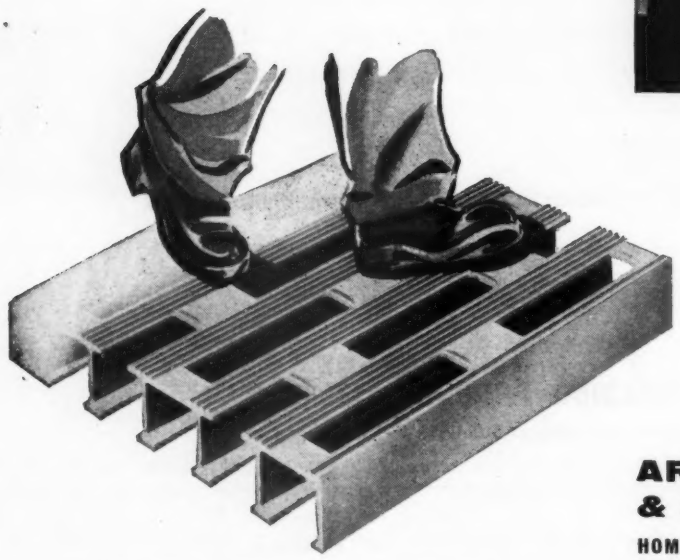

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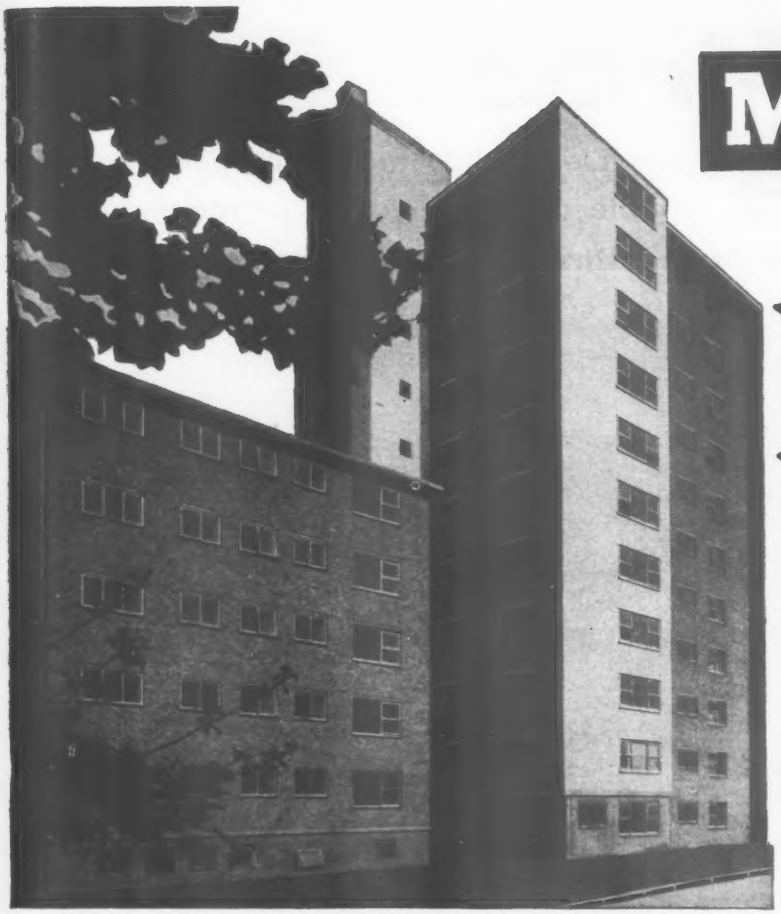

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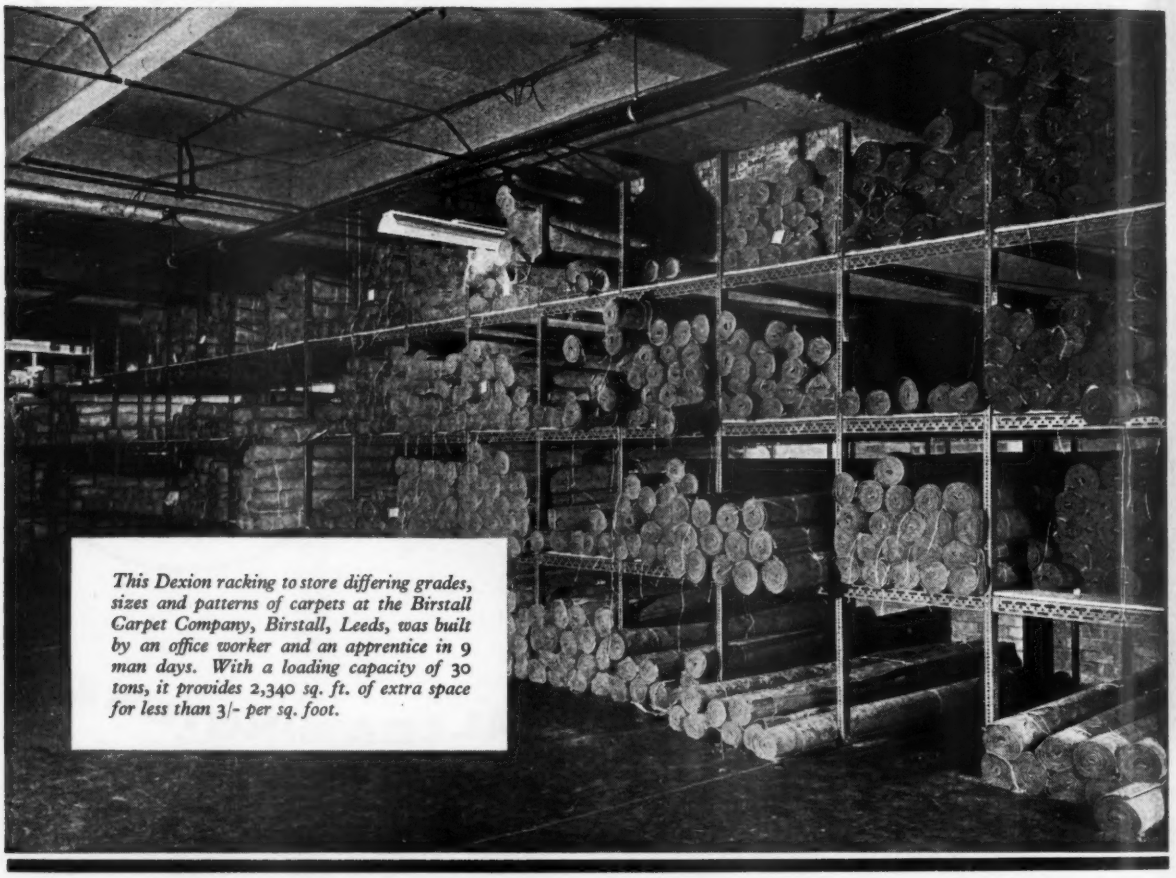

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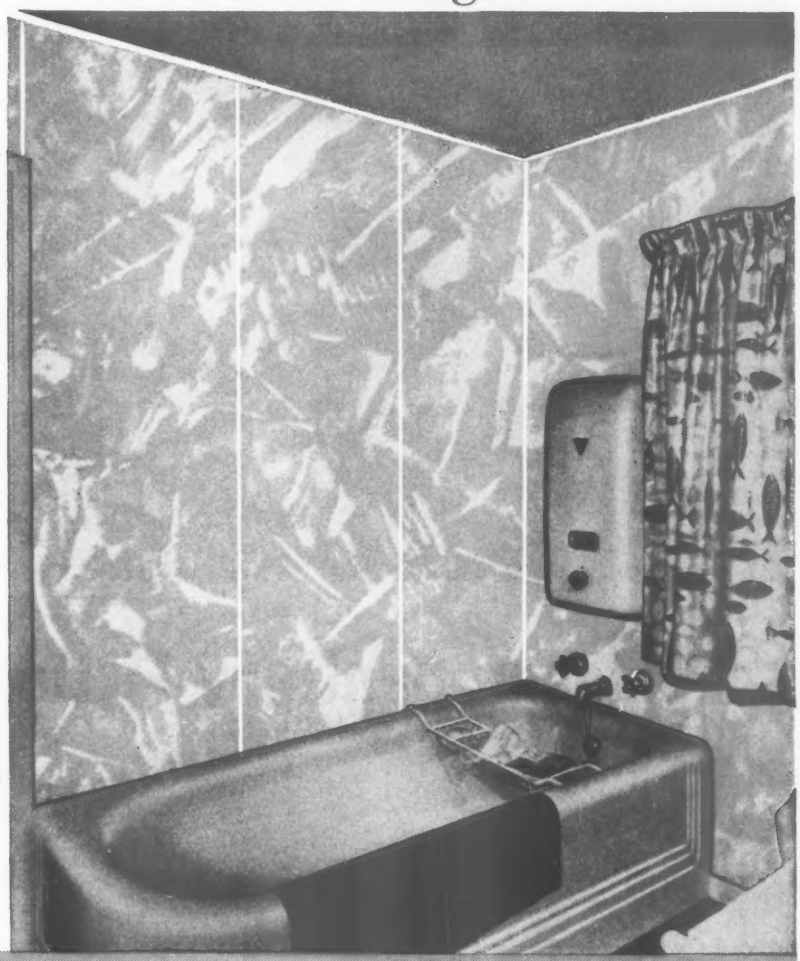

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One of the most recent contributions to the modern development of the City of London is Gateway House in Watling Street, E.C.4, administration centre of The Wiggins Teape Group. Throughout this fine modern building the appointments, furnishings and equipment are of the latest design. The heating, for example, is provided almost exclusively by Crane Radiators. Of the Crane "Pall Mall" type there are forty 30″ high units and six hundred 24″ high units; of the Crane 24″ Wall Type there are sixty. Crane Radiators are made in cast iron, are efficient and dependable. As well as doing a first-class job of maintaining a comfortable temperature everywhere, harmonising unobtrusively with their surroundings, they give long, hardworking service, free of maintenance costs.

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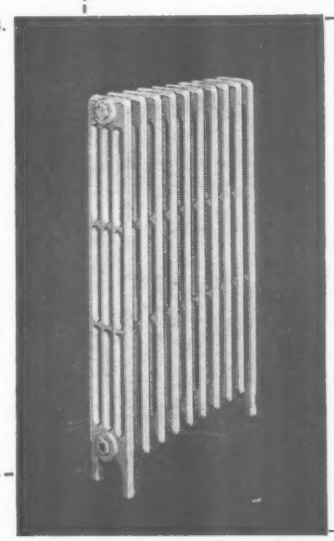

*

Above

GATEWAY HOUSE
Watling Street, London, E.C.4.

OCCUPIER
The Wiggins Teape Group

BUILDERS
Trollope & Colls Ltd., London, E.C.2.

HEATING ENGINEERS
Young, Austen & Young Ltd., London, W.C.1.

ARCHITECTS
Trehearne & Norman, Preston & Partners, London, W.C.2.

Left

The Crane "Pall Mall" 4-column cast iron radiator, 5⅝″ wide.

*

CRANE HEATING EQUIPMENT

B22

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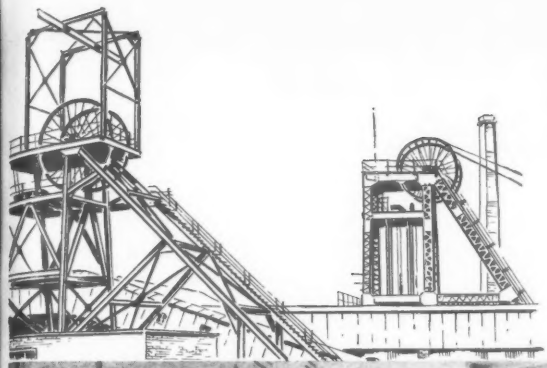
Branches: Birmingham, Brentford, Bristol, Glasgow, London, Manchester.



Of major importance to miners

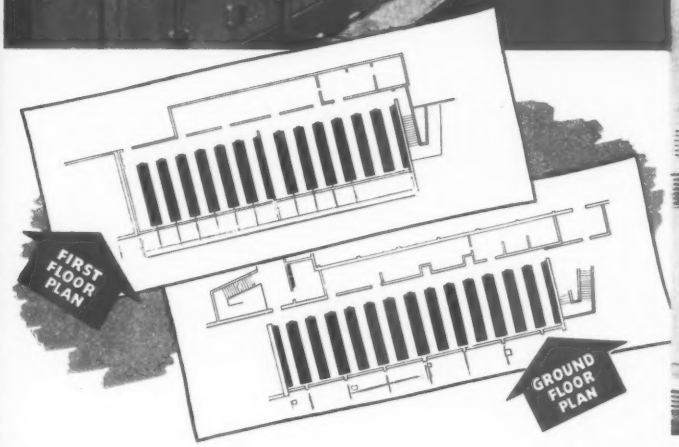
The pithead baths installation at Pye Hill, Nottingham, includes personal lockers, in pairs, for each miner, each pair numbered and opening with one key. This enables clean and working clothes to be kept separately, a point much appreciated by the men.

The lockers, supplied by Rubery Owen, make full use of the available space, being erected in two tiers on the ground and first floors.

The installation consists of 2,610 8ft. to 10ft. high two-tier lockers arranged in 192 double-sided 3ft. nests of twelve lockers and 31 single-sided 3ft. nests of six lockers. It includes 24 double-sided end feeds, two single-sided right-hand end feeds and five single-sided left-hand end feeds. The lockers are plenum heated.

Rubery Owen specialise in locker accommodation for such ablution schemes in mining, foundry, nuclear and heavy engineering industries. A range of standard lockers for protection of personal belongings in office, factory, schools, and many other institutions is also available.

Photographs by kind permission of the N.C.B.



locker installation at Pye Hill Colliery by RUBERY OWEN

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Tel: Wrexham 3566-8 *Member of the Owen Organisation*

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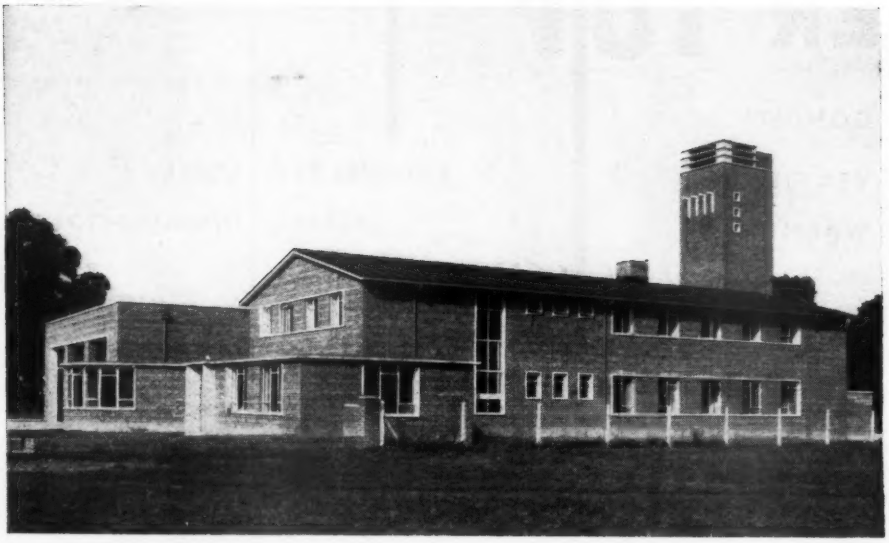

NEW FIRE STATION,
HIGH STREET, CRAWLEY.

Architect:
F. REGINALD STEELE,
F.R.I.B.A., Dist.T.P., F.R.I.C.S.
M.T.P.I.
County Architect for West Sussex.

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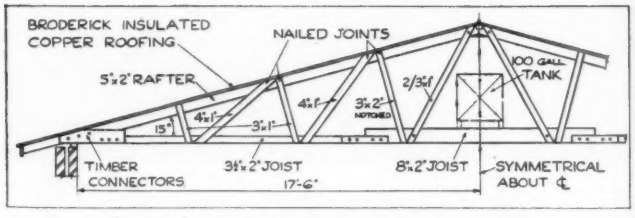

Detail of trussed rafters supporting water tanks.

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THE ARCHITECTS' JOURNAL

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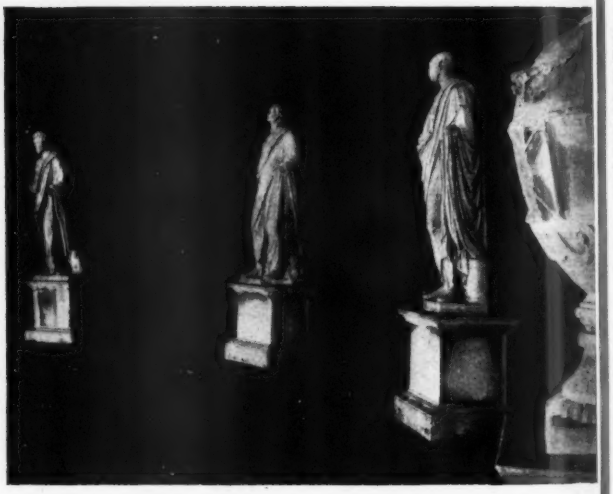
NOT QUITE ARCHITECTURE

HOIST-YOURSELF PETARD KIT

Kenneth Robinson recently wrote a couple of wistful paragraphs in *Design* magazine, telling how a top furniture designer demonstrated on TV a chair (below) embodying many common faults of contemporary design. Barely had he finished explaining to viewers that he had designed it himself to embody just those faults than they were ringing up to know where they could buy it.

*

Shed no tears. The man who pulls this gag has only himself to blame if it backfires. It's nearly ten years since Serge Chermayeff told us the sad tale of the students who set out to make ugly sculptures and found they couldn't. Personally, I don't believe that Robin Day could design a bad chair even if he didn't try—and all he did here was



Lights On at Chiswick House

Six years ago the Ministry of Works began the restoration of the badly neglected Chiswick House. Last week, on the 24th, it was opened to the public. £100,000 has been well spent in restoring both Burlington's supreme example of Palladianism in England and Kent's rich, profuse and almost baroque interior decorations as nearly as possible to their original state—even down to the unexpected colour schemes—which promise to be a subject of controversy. On the evening of the 25th the twenty-first birthday party of the Georgian Group was celebrated, appropriately, at the villa when the building, as well as the garden, buildings statuary and some of the old cedar trees, were floodlit for the occasion. The effect was enchanting and it is good to know that the floodlighting is to be permanent. To help visitors the Stationery Office has now issued an admirable booklet (price 1s. 6d.) about the house and gardens, written by John Charlton and illustrated by Gordon Cullen in his characteristic and charming manner. Top, the villa floodlit. Above, left, the Rysbrack statue of Inigo Jones at the base of the entrance steps. (It is balanced on the other side by a Rysbrack statue of Palladio.) Above right, the ghostly arc of worthies which terminates the avenue of cedars at the rear of the building. See also ASTRAGAL's comment on page 149.

to design a chair that was good by somebody else's taste; there must be compelling reasons why those "faults" are so common.

*

This moral tale has corollaries. Lurking around the low end of the Top Twenty is a "big-voice ballad" rejoicing in the title of "The Shrine on the Second Floor." It comes from a current West End caper called *Expresso Bongo*, which is widely believed by Top People who never listen to pop music to be a slashing satire on Tin Pan Alley. It could only be so regarded in coteries with such blunted minds that they can't distinguish between satire and imitation—the circles where you have only to make a face like Nye Bevan and everyone to the right of Gaitskell folds up in hysterics.

*

"Shrine," commonly taken to be the most trenchant mickey-take in the show, is actually only the most accurate imitation, accurate enough to make a fair vehicle for a pop vocalist, though not imaginative enough to get him to the top of the Top Ten. The real laugh of *Expresso Bongo*, according to the St. Martin's Lane grape-vine, is that its success depends largely on that section of the public that comes because it likes the music.

*

It's happened before, of course. *The Isle of Capri*, that *ad nauseam* success of the late 'thirties was, according to legend, written as a protest against the "vulgarity" of pop music, but earned its author a pile of the fastest and most embarrassing bucks in the business. More recently, on the literary front, there has been *l'Libertine*, which started life as a series of cod quotations from a spoof production-line historico-sexual novelette, and finished up as a genuine production-line historico-sexual novelette.

*

The Rock can be Knocked, pop can be mocked, devastatingly, but in its own terms. The biggest dents in the stature of figures like E. Presley and L. Donnegan have been made, entirely in pop terms, by the egregious Stan Freberg, who adds to acidulated accuracy of imitation a goon-show inversion of the inner logic of the Hit Parade, such as a wandering egg-head like Wolf (Bongo) Mankowitz could never hope to command. You have, to coin a phrase, to speak the language, and you have to get a long way inside before you can do that in tones of authority.

*

So, if you are a Top Person, born to the purple of society or the academic circus, go easy on the condescending fun. Satire is a sword with a sharp handle anyway, but you face an extra risk in the present state of the pop market. Rock 'n' Roll's latest one-horned, one-eyed, flying visitor from outer space is a snob as well, with highly selective tastes—it eats only Purple People.

REYNER BANHAM

The Editors

BUILDING RESEARCH 1957

THE architect receiving the BRS Annual Report will ask himself "How useful to me are these many and diverse activities?" Inevitably a research institution tends towards the analytical. The training of those who take part in it fits them for specialization. This inherent tendency in the personnel throws very grave responsibilities on those who direct such establishments, for theirs is the job of counteracting it. It is their business to ensure that the complementary process of synthetising is given an equal say; of making sure that the results of analysis are always being compared and that the broad human objectives are being obtained. An examination of recent Building Research Reports, while revealing a welcome and growing emphasis on synthesis, also suggests that the specialist point of view has too great a say in the determination of BRS policy. BRS work in recent years is characterized by two different kinds of study. There is that which is concerned with one sort of energy, be it heat, light or sound, and with the way in which various materials filter it; then there is the operational study concerned to find out what is the most expeditious way of building a certain class of structure. No-one would question the usefulness of either of these studies. But to the architect (who is by nature the antithesis of the specialist) they raise certain questions. To the first, for instance, he will say that it is useful and necessary to isolate the different kinds of energy, but in practice the architect has to deal with all kinds at once. It is no use buildings letting in an ideal amount of light if they can only do so by letting out too much heat. Why are there no studies in building climatology in this country? This is critical now when traditional norms are being abandoned. His criticism of BRS operational studies is that they are directed exclusively to the builder's side of the problem. They assume that the architect will go on designing the same kind of structure and are concerned only with finding the cheapest way of putting it up. A case in point is the important study in "alternative methods of house construction" which has just been completed. To limit the problem in this way is to pose it incorrectly, for it may well be that the development of new building techniques should compel the architect to think again about his designs. These two fundamental weaknesses spring from a single cause: that there are not enough research architects having their say in the formulation of research programmes.

YES, BUT HOW?

The 1957 report of the Building Research Station is a very useful summary of research and development in hand or completed, and no doubt every thorough practitioner will study it carefully. But how helpful it would be if, after each item had been summarized, the title of the full report was given, so that those interested could read the whole story. For instance, BRS say they found that building time could be halved when they assisted the architects and a contractor in drawing up a building programme for a secondary school. What, one wonders, was the original building time? The answer to this and other questions should be made available to all who are interested in speeding up the building process.

LORDS AND COMMONERS

Undeterred by the caution from one of our contemporaries about "back-seat driving," ASTRAGAL makes no apology for returning to the problems to be considered by the RIBA Constitutional Committee. One of the ways the RIBA is different from other professional associations is that a lot of the Associates show they think themselves to be a cut above the Fellows, and therefore refuse to become Fellows. Several architects have become Fellows recently only under pressure —because of an academic appointment or a wish to be eligible for office in the RIBA.

*

This last point is the concern of the Constitutional Committee. Why shouldn't the honorary offices in the RIBA be open to any Fellow, Associate or Licentiate? If, in fact, the best men are nearly all Fellows, then nearly all the offices will almost certainly be held by Fellows. There are, of course, both Fellows and Associates who could make a mess or a success of any office. Look at the list of Associate members of Council and you will see the absurdity of declaring them ineligible for office.

WHO SUES?

The ABS Insurance Agency Ltd. says a striking increase has taken place both in number and size in the claims made against architects for professional negligence. Apparently many of these claims prove to be without foundation. But is the increase in unsuccessful claims alone? Or are more architects being sued *successfully* for professional negligence? If they are, is it because they are being more negligent, or because building owners and their solicitors are more diligent in prosecuting their claims?

*

It is obviously prudent for architects to insure against such claims, because substantial legal costs can be incurred in rebutting a claim that has no foundation. If the architect loses, he may, of course, pay not only damages, but the legal costs on both sides. Even if he wins he cannot hope to recover all his costs. If claims for negligence are becoming more common, the architect will surely want the same help from his professional organization as the doctor gets from his.

ITALIAN LEERER

The other day a less-than-top person showed me a gossip note in his *Daily Express* about Prince Pier-Francesca Borghese, who is apparently a hard working Italian architect. This architect has more than an exotic name and a title. He has a ravishing strawberry-blonde wife called Ella Fudge, a castle in Tuscany, a face like Cary Grant's, and a scathing way of talking about clients. "I loathe working for private people," he is quoted as saying. "They are so difficult. The sort of person I wouldn't mind working for is the one who comes to me and says, 'I have a wife, four children, three servants, two dogs and six pigeons. I have 10,000 lire to spend. Build me a house!' But who does that? Instead, they buy a lot of magazines, flick through them and choose a house by somebody like Lloyd Wright. And do they go to Lloyd Wright for the house? Oh dear no. They go to somebody else with the photograph, and say 'I want something like that.' Would they go to Balmain with a picture of a Dior model and ask for a copy? They would not dare. But with an architect they think they can get away with it."

*

Although my clients never come forward with anything as enlightened as a picture of a house by Wright, but always with one by you-know-who, I agree entirely. No doubt it sounded much nicer in Italian. However, even in Italy a house with two servants for 10,000 lire sounds too cheap—but maybe the prince was mis-quoted. In recognition of bravery in face of the enemy ASTRAGAL has already started a Borghese Fan Club.

FIRST TO THE SUMMIT

In the flurry and excitement of the Middle East crisis and the Grand Old Duke of York-style advance to the Summit, the Moscow correspondents of British newspapers seem to have overlooked the meeting of the International Union of Architects in Moscow last week. But the man at the centre of things, the ebullient, omniscient and ever present Mr. Khrushchev, not only noticed the existence of the Congress but found time to receive Professor Robert Mathew, who was in Moscow as a vice-president of the IUA and one of the two RIBA delegates. Cleeve Barr, who cables this information, says that Mr. K. used the occasion to deliver some strong criticisms of the Moscow architects—not, one must say, without good reason—and agreed to the need for a bigger exchange of students. The Soviet government has also issued a special stamp for the Congress which, Cleeve says, was a great success.

*

Cleeve Barr, who includes among his many talents a workable knowledge of Russian (acquired in wartime service in Persia), will be reporting the conference and his visit to the Soviet Union in a

The London Architecture Bronze Medal has been awarded for these Flats in Cheyne Walk, Chelsea, to Armstrong and MacManus: see "Strange Award—Stranger Criticism."

coming issue of the JOURNAL. ASTRAGAL never doubted that his articles would be fascinating to read: now that Mathew has beaten Macmillan and Eisenhower to the Summit he doubts it less than ever.

STRANGE AWARD—STRANGER CRITICSM

How does the special RIBA jury decide which building should receive the London Architecture Bronze Medal? This year it was given to the building shown above—a four-storey block of flats in Cheyne Walk, Chelsea, by Edward Armstrong and Frederick MacManus. This seemly little design is a rather tame successor to the LCC's Ackroyden estate, the Pimlico housing, or the Bousfield School—especially when there is such work as the Golden Lane flats, or Roehampton, in the offing.

*

However, ASTRAGAL doesn't join forces with Hugh Plommer, who criticizes the flats in the *Daily Telegraph* for not being more in keeping with the Georgian houses alongside. Mr. Plommer says that the flats appear to have walls several feet thick, and that the individual balcony "is all ready to display the washing which its design immediately suggests." His snobbishness is equalled only by his complete incomprehension of construction.

UNFAIR TO THE SLAYED?

Action painting is *not* violent and primitive, but lyrical and sophisticated; it is *not* wildly spontaneous, but carefully pondered and based on preliminary sketches. Lawrence Alloway, who emphasized this at the ICA recently, did so with a modesty suited to a man dismantling an edifice he had helped to build. Apparently oblivious to the thunder of collapsing aesthetic systems at the Slade and the Royal College, he went on to explain that Action painting was Art, just like any other kind of painting, and furthermore that it wasn't at all clear just who was an action painter; not Pollock apparently, not Kline, not any of the people who have been discussed as action painters by everybody (Alloway included) in this country.

*

After this hatchet job—which was all part of Mr. Alloway's talk on painting in America—there wasn't much for the audience to say. Mention was made, however, of the very close viewpoints from which Action paintings (to use an old-fashioned term) are meant to be seen. It seems that some of these wall-size pictures are meant to be seen close to, and in environments composed entirely of other such pictures. This, clearly raises problems for architects *(a)* designing galleries for such pictures to be seen in, and *(b)* trying to use such pictures in interior designs.

CHISWICK HOUSE

Cruelly unkind weather could not altogether spoil the glamour of the scene at Chiswick on Friday night when the Georgian Group celebrated its 21st birthday with a reception in Lord Burlington's villa—only the day after the Ministry of Works had completed (and very beautifully completed) its six-year task of restoration.

*

Angus Acworth, the Group's hon. secretary, had arranged for the villa to be flood-lit for the occasion, and well was the trouble he had taken rewarded. The lighting brought out its perfect, jewel-like quality and emphasized the crispness and refinement of the 18th-century stonework. Through the windows could be seen the rich colouring and gilding of walls and ceilings and the paintings and sculpture that originally adorned the villa, which have now been brought back from Chatsworth.

*

For those who wanted to do more than stroll round the villa on the lawns, looking forward to the time when the Ministry of Works will have restored the garden buildings also (or, for too much of the evening, nip across to the refreshment tent in the drizzling rain), there was a fascinating exhibition in the basement, consisting of prints and drawings from Chatsworth and elsewhere of the original villa and its park, the documentary evidence on which the Ministry's scholarly work was based.

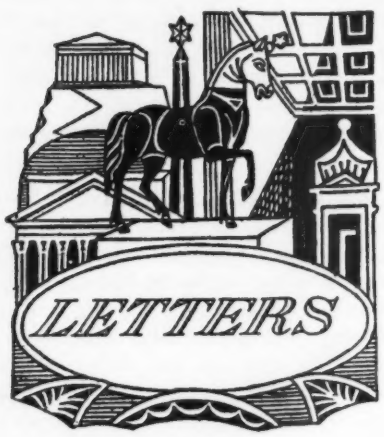
*

No building sums up the Georgian characteristics better than Chiswick House, and this was an occasion that will be remembered for another 21 years.

LONDON GUIDES

Once you have fought your way past the cover, the inside of *Pitkin's "Pride of London"* guides proves to be a remarkably full half-crown's worth of close-packed text and five or six dozen legible pictures (often from specially taken photographs), all in a sensible functional layout. A new one covers Windsor Castle with great thoroughness and visual sensibility, and gives architects' names. Other Pitkins cover the Tate and National Galleries, Hampton Court, Buckingham Palace, sundry cathedrals and country houses. They are well worth the money and there is no need to look out for them because those pseudo-rococo covers are visible at a range of 100 yards.

ASTRAGAL



Robert D. Gay, A.R.I.B.A.

D. N. Chester, Warden, Nuffield College

Walter Bor, A.R.I.B.A., A.M.T.P.I.

Robert E. Fawcett, Student R.I.B.A.

Peter Scher, A.R.I.B.A.

Robert Gardner-Medwin, F.R.I.B.A.
Professor, Liverpool School of Architecture

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Roger A. Burgess, A.R.I.B.A.

Mrs. Miriam Wornum

Basil Spence, Howard Lobb, F/F.R.I.B.A.
President and Hon. Secretary, Architects' Benevolent Society

No Architectural Advice

SIR,—I noted with interest your recent review of the new covered tennis courts at Wimbledon (AJ, July 10). This must be the first new building to be built solely for tennis in this country since the war, although I understand the court floor is of a traditional open-air hard court construction and not of the accepted indoor tennis type of wood strip or the more recently developed p.v.c.

Although I have the greatest regard for C. J. Pell and Partners and their structural answer to the problem I must record my opinion that the absence of architectural advice is all too evident in the final solution.

Some years ago I undertook research into the design of covered tennis courts, and visited in consultation the distinguished Swedish architect and tennis player, Gustaf Lettstrom, who at that time probably knew more about tennis hall design than any other architect.

The Wimbledon solution appears to offend both my findings for conditions in this country and those of Lettstrom in Sweden. In solving this problem the engineers seem to have been preoccupied with their economic and structural problem. Very little consideration seems to have been given to the tennis player. The problems of intensities of light confronting him when he serves the ball or traces a high lob from the far end have been ignored. I wonder how many times the disc-like domes will be "hit" in error, and how often the ball will be lost in the innumerable high-glare spots. The presence of a large area of window at the ends of the court above the dark walling can only be most disconcerting in tracing the ball in flight. The ceiling should present an overall background of colour and light, and the "far-ends" should always be of constant opaque colour.

The artificial lighting is also questionable and amazing. A fluorescent tube is without doubt a glare spot in itself, but in such a pattern, when seen from the base-line of one court at Wimbledon, how can it but present an uneasy background to the ball. A. H. Neeld, electrical consultant, and I both reached the conclusion in 1954 that the most effective way to artificially light a tennis hall was to provide a long strip of fluorescent light along the sides and the length of each court and so diffused so that at no one time could the player see a tube. Lettstrom also employs this system after much patient investigation. To place unprotected fittings along stress lines is purely a "gimmick" and would provide little satisfaction to the tennis player. Sources of light must be so arranged to obtain quiet unbroken backgrounds for serve, smash, volley and ground strokes.

The glare difficulty has caused so much confusion that many continental halls now rely completely on well-controlled artificial light.

ROBERT D. GAY.

London.

Nuffield College

SIR,—My attention has been called to the note about the Nuffield College buildings in your issue for June 26. This note misrepresents what was said by His Royal Highness The Duke of Edinburgh, for it leaves his sentence unfinished. The full sentence from his speech reads: "This must be by far the rashest remark ever made in this City where a new building or even a new road cannot be contemplated without arousing a furious storm." The Duke's speech at this point was very good humouredly interrupted by Lord Nuffield who said that he was referring to the Western approach to the City and not, of course, to the City as a whole.

As regards the cost of the building, there are a large number of adjustments to be made before the cost per place can be compared with the figure suggested by the UGC Committee on Residential Hostels. There is quite a large Library and other general purpose rooms, including a number of rooms for research assistants, office staff, etc. Even so it was never our intention to put up a building to conform to £1,500 per place. The Founder wished to have a building in stone and as he was providing the money I see no reason why he should not have his way.

As for the merits of the building, you are entitled to have your opinion. I find it a little strange, however, that that opinion should apparently be based on photographs and reports in a local newspaper and that it should have to be supported by reproducing photographs so poorly and so drearily, unlike the level of photography reached in your advertisements.

D. N. CHESTER.

Oxford.

Czechoslovakia At Brussels

SIR,—I found your Brussels Exhibition number of May 29 very useful during my recent visit to the exhibition. Though one might well disagree with the amount of publicity accorded to some pavilions at the expense of others, your descriptions of and comments on buildings and exhibits were generally very fair, with one notable exception—the Czechoslovak Pavilion.

I consider the treatment you accorded to this pavilion both unfair and ill informed. To start with, I cannot agree that the pavilion has been executed in a coarse idiom. While one may be critical of some details, *e.g.*, the tapering base of the external columns, I thought that on the whole the pavilion had been designed with considerable skill and refinement.

It seems that your reviewer could not have spent much time on this pavilion since he misinterpreted one of the more outstanding features, *i.e.*, the treatment of the solid walls. These are not, as he claims, rendered outside but consist of lightweight foam glass panels with amber glass pressed into the surface in form of mosaics. I found these panels remarkable for two reasons: 1. They show how the highly developed Czech glass industry contributes towards the solution of a particular building problem. 2. The visual effect of this treatment results in a sparkling golden texture which is both rich and interesting, particularly when illuminated by bright sunshine or floodlighting.

With regard to the interior, I formed the impression that it is one of the most logically arranged and sensitively handled of the whole exhibition. In fact, this pavilion, contrary to your advice, should not be missed but studied with some care.

WALTER BOR.

London.

SIR,—Having visited Brussels a short time ago I wish to offer you my congratulations upon the issue of the JOURNAL covering the fair. This was most helpful (*a*) in the appreciation of the structures and (*b*) in the efficient way one could navigate from one to another without being side tracked.

I hope this may act as a reminder to those intending to visit the "Expo" not to forget the relevant copy.

ROBERT E. FAWCETT.

Clacton-on-Sea.

Rationalize Architects' Pre-Education

SIR,—Two of your correspondents (AJ, July 17) discussed my ideas and the Oxford Conference Report together; naturally I cannot answer for anything in the latter.

At present intending architects are neglected in secondary education. They tend to become attached to arts or science stream classes. However, while subjects taken are basic to courses pursued later at universities by arts and science students, these subjects are abandoned by the intending architect when he enters a School of Architecture and he will then start his own studies from scratch. My suggestion is to create a third stream suitable for intending architects and some others not catered for under the present system. This is what I meant by specialization. I never suggested, as John Ollis thinks, that specifically architectural training should be given in secondary schools. The A.S.T. Course is, I maintain, a rational and advantageous adaptation of the existing system. Intending architects must attend secondary schools and all the subjects needed for the A.S.T. Course are already taught there. My plea is simply for rationalization.

Despite John Gilmour's interest I will not indicate which two subjects intending architects should pass at A level. I would like to see the A.S.T. Course established for this purpose and have enumerated some of the subjects it would comprise. I do not think there is any risk of over-specialization. Indeed we are suffering at the moment from lack of specialization, *i.e.*, inadequate training. Passes in only two subjects would be required but of course several subjects would be studied. John Gilmour may be right in saying that the O level covers most

of the knowledge needed by Architects in science subjects, but the point is they are not required to take science. For example, Latin, Greek and English Literature would still statisfy the RIBA.

John Ollis falsely attributes to me the assumption that potential architects and artists are "likely to be good at exams." Let me assure him they would only have to pass them—as they do now. The examination system is so well established that to suggest abandoning it seems to me a waste of time. I agree with him that it is not perfect, but no alternative system would be either, and I challenge him to produce any evidence to show that architects, artists or any other group are prone to be either "good" or "bad" at exams. It is impossible to justify his statement that there would be a "serious wastage of exceptional talent especially among artists."

Architecture courses are too long because time is wasted first through delayed specialization, and second through too much "presentation" drawing work. The course is already longer than that of most other professions. This would not matter if the new "A.R.I.B.A." was an educated, highly trained and fully competent architect with only the last refinements of practice left for him to acquire. But it is we who are worried about our training methods and professional status, not doctors, engineers, lawyers, etc.

I must agree, however, with John Ollis's criticisms of the Oxford Conference Report. The "recommendations" are vague enough for "implementation" to be conveniently delayed until forgotten. Of course there is no need for the RIBA to wait for a theoretical master plan. More important still there is no need for individual schools to wait for the RIBA. They have ample freedom, and that is why all my own suggestions for improving architectural education have been specifically *practical* ones. They could be adopted tomorrow if the school staffs cared. This is in contrast to Percy Johnson-Marshall's Faculty of Building, entailing action (of all things) by the RIBA, University Senates, etc., and also proposals such as "that the 'old' teachers and professors be flushed out of the schools . . ." (*Architecture and Building*, February, 1958). This proposal has all my sympathy, despite its quaint language, but it is not a practical one.

PETER SCHER.

London.

Research At Liverpool

SIR,—May I make a slight correction to ASTRAGAL'S note on "town-gown" research at Liverpool (AJ, July 24), which I think was gleaned from a statement by Mr. Hudson Davies in his speech at the opening of an exhibition of students' work. Mr. Davies said that he looked forward to joint research between his firm (Pilkington's and Fibreglass) and our Building Science team at the University. This is at an exploratory stage, but it is true that during next session we hope for a post, not necessarily a fellowship, for an architect to work for a year on lighting, servicing and structural problems in the design of factories and workshops. There will also be opportunities in other fields.

There is an annual fellowship available at Liverpool for research in subjects contributing to progress in architectural practice, and the M.ARCH. degree mentioned by ASTRAGAL was recently instituted to encourage work of this kind. Research extended over two years may also lead to the higher degree of PH.D. From next Session onwards there will be excellent opportunities for individual or team research in association with the specialist engineers and scientists in the newly organized Building Science Department which is closely associated with the School of Architecture.

ROBERT GARDNER-MEDWIN.

Liverpool.

University Standards

SIR,—I feel prompted to say something about P. F. Smith's letter (AJ July 10) concerning the high rate of failure in a certain university school because I feel the problem to be different from that of the Bartlett.

In the first place a man is awarded a degree not only because he is considered competent but also because he has a certain maturity which will enable him to carry out his work efficiently as well as meet the demands of the world without frustration.

This maturity and indeed the greater part of a student's education, whilst at a university, is gained from his fellow students and his entry into a full "university life." Thus to blame the standard of teaching is, in the main, casting a reflection on the students themselves.

The rate of failure is usually for one or two reasons. Either a student is full of book-learning and has no knowledge of application, in other words he is not mature enough to balance his own opinions against others and has insufficient experience to call upon; or he is one of the unfortunate many who just manage to scrape into a university and then find the freedom and high pace to much for them.

For the latter it might be better had they taken a less strenuous course and they are indeed frequently advised so to do; yet they can come back to the year again with the consequent prolonged and repeated mental anguish. For the former, it is obvious that a year or two "practical" break or the raising of the entrant age is the better solution.

DEREK POOLE.

London.

Hyperbolic Paraboloids

SIR,—The hyperbolic paraboloid is the third of the great inventions for spanning space. The beam and the arch have names that are eminently simple and satisfactory but what are we to do about this latest system?

It would be unfortunate if we were condemned to continue to trip over and tangle with the present term which is inelegant, difficult to pronounce, difficult to spell, wasteful of time and incomprehensible except to a select few.

I suggest hypoid.

W. W. J. TROLLOPE.

London.

RIBA Subscription Rebate

SIR,—You may be interested to know that the RIBA have replied to signatories of the recent petition asking for a reduced subscription for RIBA members living in the provinces. They claim "that this does now operate in effect. Allied Societies receive a rebate amounting to one quarter of members' subscriptions for those members resident in the provinces who are members of Allied Societies. The payment of this rebate in bulk tends to conceal the fact that it does, in fact, amount to a differential rate on individual subscriptions."

As a signatory I have replied asking the following two questions.

Firstly, how can members who are not also members of an Allied Society be claimed to be paying a reduced subscription, when, as I understand it, no part of their subscription goes to Allied Societies?

Secondly, how can members who are also members of an Allied Society be said to be paying a reduced subscription, when in fact they pay the full subscription to the RIBA, and in most cases an additional subscription to the Allied Society.

J. VINCENT.

Birkenhead.

"Why Use An Architect?"

SIR,—As an architect who has spent much of the past two years studying management and work study techniques. I was interested in John Carter's comments in his article "Why Use an Architect?" (AJ, July 10).

The management consultant certainly has a valuable selling point in his percentages and graphs, showing as he does a positive financial proof of his worth, and it is this proof which is usually required by a client in industry. In very few cases has the aesthetic aspect of the design been considered as a fundamental, except where it has been used as advertising matter.

Much can be done by the architect to improve this situation, particularly if he makes the effort to learn something of these techniques, of which space planning (*i.e.* flow diagrams, etc.) form only a small part. The economical evaluation of materials and structural systems must be considered in a detailed and scientific manner so that the facts can be tabulated and expressed clearly. Then the client will appreciate this information given him in his own language.

One small point: I have seen some very illuminating results produced by a work study on an architect's office!

ROGER A. BURGESS.

W. Heswall.

Grey Wornum

SIR,—I would be most grateful for any letters, anecdotes, or reminiscences from friends and co-workers of Grey Wornum, C.B.E., F.R.I.B.A., to help complete his biography on which I am working. I am especially interested in the years 1914-1923.

Any material should be sent to me care of the Secretary, RIBA, 66, Portland Place, London, W.1.

MIRIAM WORNUM.

London.

ABS Centenary Appeal

SIR,—May we thank you for your interest and the detailed description which you have given to Frenchlands Hatch which was so well illustrated in your issue of July 24.

The completion of the first part of this scheme is the result of the Centenary Appeal which was first launched eight years ago. There are enormous demands for accommodation and it is the earnest wish of the Trustees to carry on with the whole scheme and to complete the project. Stage 2, which would provide a further six houses, requires another £15,000.

May we appeal through you to the profession to help raise this sum—£1 from every member on the Register would give us the total cost and the year's running expenses. Surely this is not too much to ask?

BASIL SPENCE.
HOWARD LOBB.

London.

DIARY

Lightweight Domes and their Structures. Interview with Buckminster Fuller by Reyner Banham. On the BBC Third Programme. 8.20 p.m. AUGUST 1

Japanese Art Treasures. Exhibition at the Victoria and Albert Museum. Monday, Wednesday, Friday and Saturday, 10 a.m. to 6 p.m.; Tuesday and Thursday, 10 a.m. to 8 p.m.; Sunday, 2.30 a.m. to 6 p.m.

UNTIL AUGUST 17

The Principal of the Southend School of Architecture, J. M. Scott, and five other members of the staff have contributed this article, in which they critically examine the report of the Oxford Conference on Architectural Education.

THE OXFORD CONFERENCE CRITICIZED

"Several Fundamental Questions Ignored"

The recent report of the Conference on Architectural Education has caused surprisingly little comment in the architectural press. We consider that a subject of such fundamental importance should be keenly discussed, and would like to use your columns to welcome the report and to make a number of points which arise from it.

Reform in this field is long overdue, and the fact that the RIBA Council has taken immediate action as a result of the report must be regarded as progress indeed. But while we recognize the value of what the report contains, detailed study leads to the conclusion that there are several fundamental considerations, some included in the excellent terms of reference, of which the report makes little mention. We feel that it would have been of considerably greater value had it defined the aspects requiring further consideration, but about which the Conference did not make recommendations.

It may be that this was due to lack of agreement, or to the large numbers of members present, the extremely varied constitution of the conference, coupled with the limited time available, and that the Board of Architectural Education is well aware of this. On the other hand there may be a danger that if further discussion is lacking, the RIBA Council will feel that in accepting the report it has done all that is necessary in the field of education.

Many of the suggestions in the report will, if implemented, be of great assistance. We strongly applaud the clear statement in favour of full-time training and the suggestions for raising the standards of entry and providing post-graduate courses.

But no picture of the form that architectural education should take (as distinct from the institutions in which it should occur) emerges from the report nor any indication of the standards by which an architectural training should be judged. These are not points of detail unsuitable for consideration at the conference. No assessment of any course of architectural training can be made until these standards exist.

The question of standards is, of necessity, bound up with the architect's function in society, and professional status will depend on his discharge of that function. It is difficult to avoid the thought that the conference, consciously or not, was influenced by considerations of status, since its conclusions were in many instances foreshadowed in the paper "Some Thoughts on Professional Status" (*RIBA Journal*, January, 1958). This would be a case of the cart before the horse. If architects are able, their status is assured, although excessive numbers may depress income levels. The conference clearly recognized and commented on the increase in the number of architects, and it is a pity that they were unable to define more fully the new "high standard of training envisaged" and to couple it with a policy for the logical control of recruitment to the profession.

The findings of the conference on the needs of the community seem to have been limited to comments on the numbers qualifying. If architects are to be trained to fulfil their true function in society, some definition of this function is required. We would hesitate to dogmatize on this point. However, Sir Eric Ashby made an important observation on this subject at a recent RIBA symposium. He said, "The purpose of University buildings is not to ornament the landscape; it is to keep members of the society, together with their books and equipment, warm, dry, and adequately illuminated. . . . If the architect can make the building beautiful, so much the better." We feel that this statement must be accepted basically, although it does less than justice to the full function of the architect as a creative artist. Until the profession accepts and discharges these basic obligations to the community, architecture can never reach its full stature.

In this light the proposed split between architects and technologists is alarming. It runs completely contrary to the present trend of architectural development which is tending to give technical considerations their rightful place. It ignores the fact that an office composed of architects and technical draughtsmen is unsuited to the nature of architectural work where everything is touched by design.

It may well be that varying levels of architectural qualification are desirable, but none of them should exclude some training in design.

An equally alarming suggestion is that the technologist should be of a lower standard of educational attainment. With the rapid increase in technical complexity taking place at present this conception, if not already out of date, will very soon be so.

We believe that architects and others concerned with building should be brought into a close relationship, particularly during their training. The silence of the conference on this point is doubly surprising in view of the recent statements in the architectural press (particularly the article on "A Faculty of Building" by Percy Johnson-Marshall, (AJ June 10, 1958).

A common initial course would allow students of varying aptitudes to develop their talents in the most appropriate way, and avoid the wastage and misapplication of talents occurring at present.

It is in any case an illusion to consider the education of architects except in relation to the training of those with whom they will have to deal.

Another important conclusion of the conference was that the minimum standard of educational attainment at entry should be raised to two passes at "A" level in the G.C.E., and this appears to have been seen as a panacea. While we welcome the suggestion, it does not seem of itself to be enough. If it were, there should be evidence that schools at present accepting students only at this educational level are producing better graduates than the others.

A great deal of detailed work is required to establish the form and content of architectural training suited to present needs. The RIBA is the body which must accept full responsibility in this respect.

This inevitably raises again the question of standards at the qualifying level, on which the conference made no recommendation. Unless the raising in entry standards is coupled with a higher qualifying standard, it is difficult to refute the inference that a number of those who at present qualify as architects would be excluded by an arbitrary academic entry standard, so that the

The new dining room and lounge bar at St. Pancras station, intended primarily for first-class passengers. The work was carried out under the direction of S. P. Smith, Chief Works Officer, British Transport Hotels and Catering Services. A modern cafeteria is to be built for the hoi polloi. *One hopes it will not achieve so discordant and restless an effect as that seen below. The central panel is of Italian ceramic tiles in which blue and dark yellow predominate. The leather seats are red, yellow and bronze, the wallpaper on the right grey with yellow and black pattern, the curtains predominantly dark green, and the panels above the bar are sky blue and lavender.*

remaining ones gain in status by rarity rather than by increased competence.

In addition to the establishment of a qualifying standard, some means of selection for architectural students is an urgent necessity. For a technological course a standard based on educational attainment and intelligence can suffice, but this cannot be the case in architecture where other facilities are needed. Undoubtedly, in a group of higher intelligence, the best designers may be better and the worst designers not as bad as those from a less gifted group, but this cannot be made an excuse to avoid the responsibility of selection. To fail the student after a year if he lacks the special aptitudes required is an admission of failure by the system rather than the student. Reluctance to do this often results in the retention of mediocre students. The problem could be largely solved by the initial course mentioned above.

The suggested development of post-graduate studies is a welcome step forward in a sadly neglected field. Teaching isolated from its natural background of advanced study must inevitably become mechanical and dull. The RIBA must accept a fundamental responsibility not merely to recommend that research should take place but to initiate, co-ordinate, and support actively institutions and individuals undertaking it.

PETER BURBERRY,
D. M. CORDER,
B. H. LOXSTON,
S. C. READMAN,
J. M. SCOTT,
R. J. TURNER.

LIVERPOOL UNIVERSITY

"An Exciting Generation"

A. Hudson Davies, a director of Pilkington Brothers Ltd., managing director of Fibreglass Ltd., and a member of Liverpool University Council, was the principal speaker at the Liverpool School of Architecture's exhibition of students' work. He said:

This has been an exciting generation for architecture as much as for science and for social change—indeed they are all part of the same climate and react together. In architecture it seems to me entirely good that the feeble, tired copying of old styles of the pre-war years is gradually coming to a stop. The architect of sensibility and of conscience cannot bear any longer to dress up steel and concrete as if they were stone and wood, and he sees no point in blowing up domestic Georgian in the 20th century to the scale of a cliff. It is still done alas! as you can see in London and other places too, but the new man feels, with new materials and new needs, he's got to find a fresh imaginative way of building, even if for a time some good elements of tradition go overboard with the bad.

We were very slow in this country. The trend was obvious abroad for more than 20 years before the war, but only a handful of architects here began to use the new approach. Some of those pioneers of modern architecture in this country were pupils of Professor Reilly, trained in Liverpool University.

It is different now. No one before the war would have expected that by the 50's the work of British architects in the new towns, in schools, in theatres, in concert halls, and in some universities, would catch the interest of the world. We can be depressed about the general level of achievement in building and in planning: we can be deeply sorry for some wasted opportunities: we ought to be bitterly ashamed about Subtopia, but don't let's be too discouraged—there is also more and more good work every year. To mention one landmark, as it seems to me, the Holford Plan for the surroundings of St. Paul's was accepted by the City of London—which at one time looked absolutely hopeless.

It isn't only the architects who have brought this change, but the client too. You sometimes hear complaints that all clients today are committees who vote down imaginative work. Yet those anonymous people in town halls, in company board rooms—even in Senates—they are changing too. Most of us are prepared at least to stop and think before we give way to shock when confronted with unfamiliar shapes in architecture, painting, and even sculpture. More of us now see transition as opportunity, not as disaster. Naturally there is controversy—that must be welcomed as a sign that people really care what is done. Indifference is what really hurts.

RIBA

Final Examination

In the Final RIBA Examination held from June 18 to 27, 140 of the 325 candidates passed; 93 passed the whole examination and 47 passed Part 1 only. 185 candidates were relegated.

GLASGOW COMPETITION

College of Further Education

The Corporation of the City of Glasgow (Education Department) invites architects resident in Great Britain to submit in competition designs for the new Langside College of Further Education. The assessor is F. R. S. Yorke. The premiums: First, £3,000; second, £2,000; third, £1,000.

Conditions may be obtained between August 25 and September 9, on application to: The Town Clerk, Architectural Competition, Langside College, City Chambers, Glasgow, C.2. The last day for questions is September 30, 1958, and for submitting designs December 8, 1958. The deposit of £2 will be returned on receipt of *bona fide* design or return of competition documents at least four weeks before date for submitting design.

AA

Tropical Course

Applications are invited from post-graduate students of architecture and qualified architects with interests in building in the tropics for the next six-month full-time course in Tropical Architecture. The fee for the course is £120. Studentships for the amounts shown have been donated by the following firms: Yorkshire Imperial Metals Ltd., two studentships each of £50; John Laing & Son Ltd., two studentships each of £50; Crittall Manufacturing Co. Ltd., one studentship of £50.

Applicants for studentships should write to the Principal, 36, Bedford Square, W.C.1, before Wednesday, August 6, 1958. The course includes lectures by specialists on specific aspects of Tropical Architecture, Housing and Planning at 5 p.m. on Mondays, Wednesdays, and Fridays. The lecture course is open to architects and others at a fee of £12 10s. per term.

BRITISH PRODUCTIVITY COUNCIL

Work Study Day

The AJ was quoted by a lecturer at the recent Work Study Day organized for the building industry by the British Productivity Council. The "day" was part of the Council's campaign to get the techniques of management more widely adopted and was for representatives invited from the RIBA, RICS, the builders, sub contractors and materials producers and distributors organizations.

The passage quoted was from "Why use an architect?" (Not Quite Architecture, July 10) in which the writer described a BPC film of the replanning of an ironmonger's shop—by a Methods Study Officer. This suggested that although management experts are unlikely to set up as architects, their analytical approach to planning and circulation problems may commend itself to clients more than the architect's "intuitive," pragmatic approach. The BPC speaker used the quotation to support his case that the questioning attitude (what, where, when, who and how?) fundamental to management expertize should begin at the drawing board. Techniques were described of observing and recording operations and movements of men, machines and material to identify unbalances or idle time in the procedures. Typical of the questions raised by lecturers were: why do architects still use non-standard drawing sizes, hand-drawn borders and hand-lettered titles? Why do bricklayers, when starting on a new lift, take bricks from the *top* of the pile to lay them at foot level—and when finishing, take bricks from *foot* level to lay them at chest level? Why cannot bill pages be printed on transparent paper for easy copying by the tenderer for his sub tenders? A film was shown of improvements in the process of hot dip galvanizing and the string diagram method of plotting the walking distance of a man on a site (a pin on the plan at each change in direction and thread looped round them) was demonstrated.

The aim of the work study day was to spread the "message" of work study to all sections of the industry. Those invited were for the most part the already "converted" so that contributions from the floor tended to amplify rather than question what the lecturers said. It was unofficially reported that the film on work study in building, being made by the London Building Productivity Committee is making good progress and should be completed before the end of this year.

ARCUK

Higher Fees Approved

By an Order dated July 15, 1958, the Privy Council have approved amendments to Regulations 36 and 37 of the Architects' Registration Council for the United Kingdom, raising the admission fee from 10s. to £1, the Annual Retention Fee from £1 to £1 10s., and the sum prescribed by way of penalty under Section 13(5) of the Architects' Registration Act, 1931, from £2 to £3. The increases operate from January 1, 1959.

ABS

Ball 1958

Old China is the title of the theme for the 1958 Ball which will be held at Grosvenor House on Wednesday, December 10. Tickets will cost £2 12s. each and application forms will be included in the October *RIBA Journal*. Double tickets for architects only and their partners will be available for balcony tables at £4 4s. Tickets can be reserved now by applying, with cheque, to C. J. Epril, 55, Pall Mall, S.W.1.

SUFFOLK

Bronze Medal

The Suffolk Association of Architects propose to award the RIBA Architectural Bronze Medal for a building or group of buildings erected in Suffolk between January 1, 1955, and December 31, 1957. Nomination forms may be obtained from L. J. Grigg, County Architect's Department, County Hall, Ipswich, and must be returned with photographs or drawings by September 1.

George Grenfell Baines contributes this report on a stimulating conference held recently at Liverpool on "Training and Education for the Building Industry." It was organized jointly by the Liverpool Regional Federation and the North Western Federation of Building Trades Employers. Guests and guest speakers came from Yorkshire; some 64 builders and teachers of building were present.

TRAINING AND EDUCATION

Architects As Builders See Them

The pattern of the conference consisted of a morning session when problems concerning recruitment, organization and technique were outlined; afternoon proceedings consisted of three group meetings when educational, industrial and architectural interests were discussed in the light of what the morning session had revealed. The conference concluded with a symposium and general discussion initiated by the three group leaders, amplified by pertinent questions from the hall and further comments by the morning speakers. Altogether an extremely effective procedure for developing ideas.

Any complacency which members of the building industry might have enjoyed just before arriving at Liverpool was rudely shattered by A. G. P. Elliott, Chief Personnel and Training Officer, Simon Carves Ltd., Stockport, a Member of the Council of Institute of Personnel Management, who gave some startling figures on trends that might indicate the future of the industry.

Out of 223 North Cheshire boys who are going to work this year for the first time the 30 who came to building were all from secondary modern schools. When, towards the end of the war, the Navy applied aptitude tests to 97,000 of its young sailors, the aptitude of those who had been in building was undeniably less than that of people who had worked in other industries. From an enquiry made by Manchester University on where school children go, it was noted that boys tended to move away from building when they knew more about it and towards engineering, when they knew more about that. This year it was expected that some 1,400 National Certificates would be awarded to building students as against 9,000 to engineering students; although there are nothing like six times more people in engineering than building. The inference must be obvious, and is further reinforced when it is realized that there is a reduced standard for mathematics in the National Certificate for building.

The higher ranks in building were described as being drawn from people who are mainly graduated craftsmen. This is changing, particularly in the case of big firms, though as yet only two universities offer degrees in Building Science and it does not appear that managerial courses are well supported. Mr. Elliott quoted a recent article by Derek Senior in the *Manchester Guardian* stating that "In the last 50 years there had been little or no change in building methods," whereas techniques in engineering had been almost revolutionized.

He seemed fully aware of the difficulties in drawing comparisons between building and engineering, yet he pointed out that it was very much easier to make progress from the shop floor to the top in engineering than in building. He did not know of many instances where building craftsmen could move readily into design, yet in the case of his own firm he had found that selected craftsmen could rapidly be trained to become effective draughtsmen, paying them £13 per week while training. To reinforce the importance of this, Mr. Elliott quoted from the Manchester University report that apparently, when parents advise children on careers a chance of progress was rated 14 times more important than high starting wages.

Speaking of the chances of progress in the building industry, Mr. Elliott drew attention to the gap between the "thinkers" and the "doers" which was almost entirely peculiar to building. Among the architects he noted a "rigid professionalism" rather than a "flexible specialization." His comment on the recent recommendation of "full time training for all" was that unless this were very carefully organized it would merely widen the gap between thinkers and doers to the point of creating a vacuum, "which something will fill in the next 10 years." He was not specific about what would fill the gap though the implication must be that organizations like his own were ready to provide the necessary—it is significant that his firm is advertising for architectural assistants in the JOURNAL. "Architects," said Mr. Elliott, "may dislike the sort of architecture which engineers produce, but they can't ignore it, and as more and more engineers produce more competent building, neither will society. It will be futile then for architects to complain that ground has been cut away from them. You cannot cut the ground from under the feet of an ostrich with its head buried in the sand."

No one reading this will be surprised to hear that these remarks were greeted by gusts of laughter in which the one architect present felt compelled to join. More of this could be reported. It was all salutary and refreshing, but one concluding note of Mr. Elliott's contribution will be of interest to architects.

He emphasized the importance of selection, stating that it is possible to select people for all branches of building much more quickly than in a six months' (or, obviously, in a twelve months') probationary period. In building, 70 per cent. of those who started the National Certificate course failed to complete, yet in his firm only 3 per cent. failed to achieve their goal; naturally selection plays an important part in this record of success.

Papers on technical and organizational developments in the building industry were given by P. M. Shepherd, Chairman and Managing Director of F. Shepherd and Son Ltd., York, and J. Hancock, Managing Director of George Longden & Son Ltd., Sheffield. Mr. Shepherd spoke of the "fantastic" number of materials entering the industry, amounting to 100 per annum, not including old materials being used for new purposes, as timber in laminated construction and glass replacing brick. He spoke of the tendency towards grouping materials in components to reduce site work and in general noted that all these developments were characterized by less tolerance in materials, requiring more dimensional accuracy in building. Like Mr. Hancock he had noted that many of the new materials were not proving themselves to be all their originators claimed, and Mr. Hancock, who obviously has his feet on the ground, defined his firm's attitude to new materials as "treating them all as bad until they found that they were good." "Does it last?" both builders asked, commenting that it was far too easy to sell things to architects. Needless to say, this raised another laugh!

Why use specialists?

It is evident that the increasing use of specialists, part of which develops from the increase in engineering services in buildings, and part from multi-fabricated components, is causing serious organizational problems, and it was asked by both builders, "Why do architects use specialists? Is it because these people do some of the design work for them, and if so, ought architects to know more about the design of specialists' work if they are to maintain their position as leaders of the team?" It was agreed by Mr. Shepherd that in his experience a good architect could frequently take a specialist product and improve on it. Both builders admitted a special problem of inspection connected with specialist work. They queried whether traditional Clerks of Works trained in the traditional crafts were really capable of inspecting specialist work, and asked if it might not be better if the builder were responsible for inspection as in other industries. Both complained that specialists did not always employ the best of labour, but much of what they had to say here touched more on human problems in the industry than education. A pointer for architectural education however is that the subject of human relations should be a final year or post-graduate study.

That building should be something more than a mere product of technique was particularly emphasized by Mr. Hancock whose wholesome views on this aspect brought a nice balance into the scientific and rather highly charged atmosphere which had been generated. He put his feelings in his own way, but a way that no architect would fail to understand. "I want to see buildings you can rub your hands down. You can't rub your hands down curtain walling. I want happiness in building and a love for it."

Mr. Hancock believes in "going 50 per cent. for efficiency, because I could still do a lot with the other 50 per cent. Efficiency is not all, building must have individuality if it is really to do its job."

Questioned as to what proportion of work his firm did for architects, he thought about 60 per cent. Mr. Shepherd thought 90 per cent. They both agreed that with some architects their work was a joy, but both supported Mr. Elliott's view that there was far too great a gap between those who design buildings and those whose job it is to produce them, and they hoped that the group studying architectural interests would be able to tell the meeting later what they thought about bridging this gap.

The study group concerned with architectural interests contained one university professor, seven teachers of building from technical colleges, two builders and an architect. They were generally in agreement about the gap. "Architect and builder did not rub shoulders enough." It was said the gulf began in the early years even in the technical colleges where young architects and builders came together.

The architect's facility to draw, his generally better standard of intelligence and training resulted in an immediate pulling away from some of the very men with whom he would have to work, and on whom he would have to rely later on. Possibilities of learning together were explored but it was agreed that differing standards of general education would create definite problems which must be appreciated. For example if entry to the profession is to be university standard then the only people going into building with whom the architect could "rub shoulders" would be potential managers. Even here "direction" could create educational difficulties; whereas, for example, the architect usually takes "liberal" subjects, potential managers and engineers take science and similar subjects. However it was unanimously agreed that these difficulties must be accepted and every possibility taken of learning together in such matters as building practice and building appreciation.

"Too academic"

Perhaps the most important subject this group discussed was that of full time training. No one was against full time training but, asked everyone, "where will this full time training take place and when?" Said Mr. Hancock the builder, "university men take a long time to recover." There was almost general condemnation of spending the whole of the time in the school. Far too much time was spent on drawing in architectural schools, it was said, and not enough on "thinking," on science subjects, on public relations, on actual practice. Unless architects were brought into closer contact with the actual production of building then it was difficult to see how the gap between them and their fellow workers in building could fail to increase, while real inspiration for design would decrease. One good suggestion was that for his practical experience (soon to be two years) the young architect should go not into an architect's office but into the industry, either as an assistant clerk of works or foreman, or as setter out and assistant in actual production on the site, and in contractors' workshops, costing offices and so on. One speaker questioned whether the intensified atmosphere of a job or shop being run on lines that have to be profitable was really good for learning. Would it be better, he asked, to go into the technical college workshops, which would of course provide another field for learning together.

Finally, on the question of learning together it was not only agreed by the group, but later by all present at the conference, that the more post-graduate and discussion courses of this kind that could be organized for learning together, the better.

One consequence of the "rock and roll" system of construction developed by Donald Gibson and his team at Nottingham was the standardization of components—and of drawings for the consortium of local authorities who share in the system. This has promoted the development of standardized unit quantities—translated into punched cards for the machine production of bills of quantities. The method has been developed by J. E. Cooke, A.R.I.C.S., of Bridgewater and Coulton, chartered quantity surveyors, who describes below how it works. This development is similar to that described by H. M. Stafford, whose article on Standardized Quantities we published on April 18, 1957.

THE ELECTRONIC QS AND UNIT QUANTITIES

How Mechanical Billing of Quantities Works

There is nothing revolutionary about the idea of Unit Quantities and, other than simply outlining their nature, no attempt will be made here to explain the technicalities of what is merely another facet of the quantity surveyor's job. The fact that punched cards and electronic calculating equipment have now been used successfully for this particular method of preparing quantities is, perhaps, something of an innovation and therefore will be dealt with briefly. The really important question is how the architect, and his client the building owner, can benefit from the use of these methods now that they have been brought into practical use.

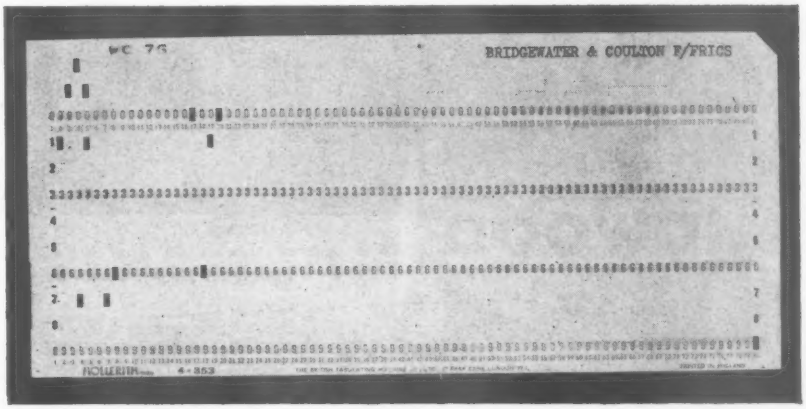
Readers may care to be reminded of the normal way in which bills of quantities are prepared. Very briefly, there are three stages—taking off, abstracting and billing. In the taking-off stage, all the items of work making up a building are measured in considerable detail and recorded in the order in which the taker-off comes across them whilst working through the drawings. This means that the items are not in any sensible order and that similar items are scattered haphazardly throughout the dimension sheets. In order to unravel this tangle the items are extracted from the dimension sheets and transferred to the "abstract." They are written into the abstract in the required order or sequence, all dimensions of similar items being entered under their common heading. Totals of quantities under the different items are also cast up on the abstract and so one is left with a document from which it is a comparatively simple matter to do the "billing" or compiling of the actual bills of quantities as the architect knows them. In contrast to the normal method of taking-off quantities, the successful preparation and subsequent use of unit quantities depends to a great extent upon the way in which the architect prepares his detail drawings. The method under discussion here has been based upon experience gained whilst working on the CLASP* system of construction, it may be useful therefore to look a little more closely at the drawings which have been prepared in connection with this particular system.

Standard detail drawings

The standard detail drawings which have been produced by the Nottingham archi-

*Consortium of Local Authorities School Programme.

One of the punched cards for machine billing. It contains the information that detailed quantities for 10 *no. windows, type* 189, *modified to Coventry requirements are needed.*



tects, in collaboration with Derby County and Coventry City, form a considerable achievement in themselves, and merit far more attention than has previously been given to them. They are divided into groups or sections, S1, S2, S3 and so on, each section dealing with a particular aspect of the construction. So, S5 deals with the external screens (or windows) and the sheets containing the various details within this section are numbered S5/1, S5/2, etc. Staircases, partitions, ceilings, plumbing, all have their sections and the grouping is thus maintained. Wherever possible within the details, items are coded or referenced. This applies right through from the simple coding of individual items such as concrete cladding units, in-filled panels or steel members to the coding of the actual composite units into which these items may be built. As an example, complete staircases are coded and it is simply their code number which appears on the job drawing and nothing else.

All this adds up to a very important fact with which we are concerned in discussing unit quantities. Stated simply it is this—The sectionalizing and coding has produced detail working drawings of component parts, these parts being composed within clearly recognizable limits. And from the details of these clearly defined components it has been possible to translate the idea of unit quantities into a reality.

Unit quantities

Simply speaking, Unit Quantities are no more than small "packaged" units of quantities for individual parts of a whole; in other words they are small bills for a complete window, a staircase, or anything else of a similar nature. The parts for which these unit quantities are prepared we call "components" and, although some of the things we choose to call by this name would not come under the definition set out by the JOURNAL some years ago (AJ, August 27, 1953), the word generally fits our need; particularly as a specific label becomes necessary when electronic calculator methods are introduced. Some of these components for which unit quantities have been prepared are as follows: external glazed screens, roof deck units, roof lights, complete staircases, cladding units, internal partitions, etc. Work *between* components (*e.g.*, between window and tile wall cladding detail) is treated as a "component," unit quantities being measured for it too. There are, therefore, unit quantities for a large number of different sorts of fixing and junction details such as these. Work below ground is in the nature of a "one off," but if reinforcement mats could be standardized and coded these could be done by unit quantities too.

From this it will be seen that, instead of measuring the usual mass of detail during the taking-off stage of preparing the quantities, it is only necessary to measure a component as a single item by its code or reference, thus—20 windows code 224. It is then just a case of enlarging 20 times the previously prepared unit quantities for this particular component 224 into the abstract and so into the main bills; and to speed up this process electric calculating equipment has been introduced.

Electronic data processing

Having prepared the unit quantities, the data contained in them is transferred to punched cards and so a library of information is created from which it is possible to obtain detailed answers at any time. The answers required are, of course, the detailed consolidated quantities of the collection of simple items (20 windows to be 224, etc.) which the taker-off prepared when doing his measuring. To obtain these answers, the punch cards, along with the information that 20 of this, 10 of that, etc., are required, are all fed into the machines and mechanical sorting and electronic calculations provide us with a detailed consolidated schedule of quantities for as many components as may be required.

Once the unit quantity data have been punched on to the cards, which is quite a speedy process, the time taken in actually computing the answers is very small and is done completely automatically. All the necessary extending, timesing, checking and tabulating is done automatically and the answers come from the machines printed ready for embodying into the main BQ. The printed "copy" from the machine requires some sorting into order before things go to the typists for cutting stencils.

Advantages of the method

Initially, a lot of time has to be spent in preparing the unit quantities in order to build up a useful store of information; just as it has been necessary to devote time to preparing the standard details. However, once this library of information has been created the advantages of its use soon become obvious. In addition, the use of mechanical methods of computing has the advantage of making for considerable savings in time and, by removing the human element from the operation, of reducing the possibility of errors and consequently obviating a lot of laborious checking of manuscript work.

The greatest advantage, however, lies in the universal nature of the unit quantities once they have been prepared, for they can be made available to anyone who may need quantities for components which have been dealt with in this way. It is only necessary to prepare a schedule showing the quantity of each component required, from which a detailed consolidated schedule of quantities can be provided. This consolidated schedule can then be embodied into the main BQ. Certain minor adjustments may be required, such as the substitution of obscure glass where clear glass has been measured in the unit quantities, but these are easily dealt with and, in fact, are routine operations in a quantity surveyor's work.

Another advantage lies in the basic cost information which one is able to collect and make available to the architect to assist him either in the planning of a scheme or in the future development of a system. For instance, it has already been possible to provide members of the Local Authorities' Consortium with schedules showing the comparative cost of complete window units as built into the job; and the cost of other similar components can easily be arrived at. This allows immediate cost comparisons to be made at the design stage, virtually on the drawing board. Coupled with the information gained from cost analyses it should also make for more accurate estimates at the earliest conception of the job.

Flexibility

Any system of measurement by means of unit quantities must never be so rigid as to deter the architect from developing his ideas and altering his detail drawings. It must, in fact be completely flexible and be able to cope with all modifications and amendments which are likely to arise. Fortunately, this is possible and a recent considerable modification to the external glazed screens of the CLASP has been quite easily absorbed. As a result, unit quantities are now available for either the original or the modified Coventry version of these screens. In other words, a modification does not necessarily make the work put into any previous unit quantities abortive. This flexibility has been tested even further by successfully taking the modification just mentioned through into the stage of measuring Variation Orders, where omissions and additions have to be contended with, and at the same time having the data processed and the answers obtained from the electronic calculating equipment.

Conclusions

The very high degree of standard detailing achieved by the CLASP team, while it may be anathema to some people, does, it seems to me, fall in with the need of our times where building programmes having the slightest element of repetition about them are concerned.

Basically, the situation is one where, a system of construction having been devised, the use of standard type components is made available to the architects of quite a number of Authorities for them to assemble as they think best. Whilst it gives the architect freedom, within certain broad limits, to design the layout of his building and allows him the choice of a fair range of elevational treatments, at the same time it relieves him of the necessity of preparing all the detail drawings. So a large amount of repetition and duplication of effort is avoided, making for a considerable saving in both time and money.

It seems to me that the efficient and economic working which the system creates sets a challenge to the rest of the professions in the industry. An attempt has been made to meet this challenge by devising a system of measurement which not only takes the standard detail drawings and converts them into standard unit quantities but which then makes use of all the latest electronic calculating and punched card equipment to speed up the process and increase the efficiency of the service which the architect, in displaying his own efficiency, has every right to expect.

Architects : C. C. Shaw, B.ARCH., F.R.I.B.A., *Borough Architect.* Matthew Maybury, A.R.I.B.A., *Deputy Borough Architect (now Borough Architect)*
Contractors : Carlton Contractors Ltd.

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CRITICISM

The architects reply

In last week's JOURNAL J. M. Richards discussed a house near Cowes, on the Isle of Wight, designed by James Stirling and James Gowan. This week we print the architects' replies to the points made by Mr. Richards.

The living room, looking towards the fireplace.

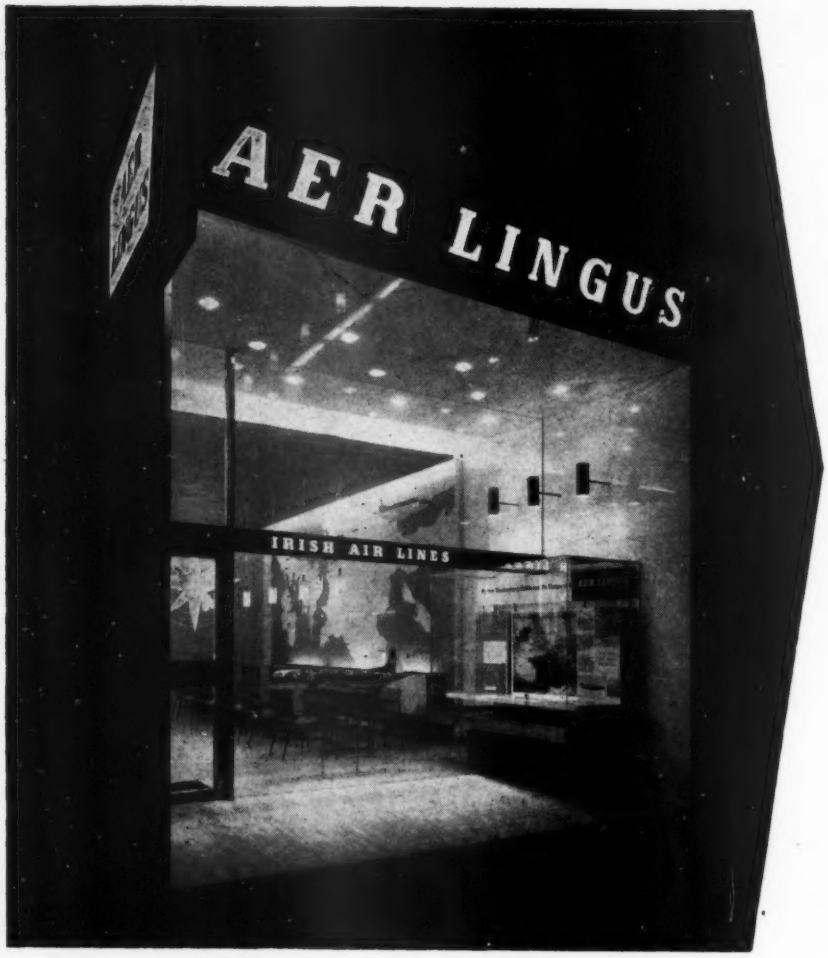
In reply to J. M. Richards' critical observations, we would like to say that the design was not based so much on a modular system as he described, but on a very simple structural technique; brick pier, timber trimmer and standard roof joists in conjunction with a series of repetitive window and door elements. Internally, the structural clarity is maintained by using concrete blocks for the non-loadbearing internal partitions.

Of the point "one has the slight feeling that room shapes may have been forced into a schematic lay-out" and "this arrangement of the fireplace does not enable it to serve as the social focus" the first is true in as much as all the rooms have an integrated order which, however, is flexible enough to permit a reasonable variation of sizes, the plan in fact having five distinct room shapes. The fireplace is located in the centre of the living room, which is the best position for space heating, but its location in a 10 ft. width does limit the number who can sit around it, although it can accommodate this particular family. Of the point "the corridor is rather cramped . . . by the studio it is not well lit" it is fair to say that all the dimensions of non-habitable spaces are an absolute minimum, but we think the corridor is quite well lit by fanlights over the bedroom doors. A formal concept does tend to result in an oversimplification of the problems involved. The requirements of a particular room become secondary to the whole and specialized needs may be subdued to express the ideogram; the achievement of a balance being the architect's prerogative.

When designing a one-off house for minimum cost (in this case £2,800) in terms of the small builder, any deviation from the most conservative techniques results in a rejection or a high tender. In effect, one is limited to two materials, brick and timber. The result is a solution essentially based on manual methods, inevitably sub-mechanistic.

Any validity which the house has lies in the relationship of the principal elements and on the issue of the refinement of junctions of materials which J. M. Richards considers we may have been right in disregarding, we now think otherwise. Where timber boarding is laid at right angles to brickwork it appears to run into the walling. Internally, the floor boarding thus appears to support the brickwork and the ceiling to terminate it. This is a visual illusion and occurs in spite of the conclusion being illogical, in fact, the opposite of what actually happens. The remedy may be to curtail the ceiling boarding or to introduce a transitional element so that the brickwork is distinct and primary. In the case of the fireplace, where we agree with J. M. Richards that it appears to float on the floor, we now think that it should have been raised on a concrete hearth. This would also improve the uncertain relationship between the flush hearth tiling and the boarding, which also has the practical disadvantage that washing the tiling removes the polish from the flooring.

We are relieved that J. M. Richards found his visit worth while even though the occasion was accompanied by a torrential downpour.



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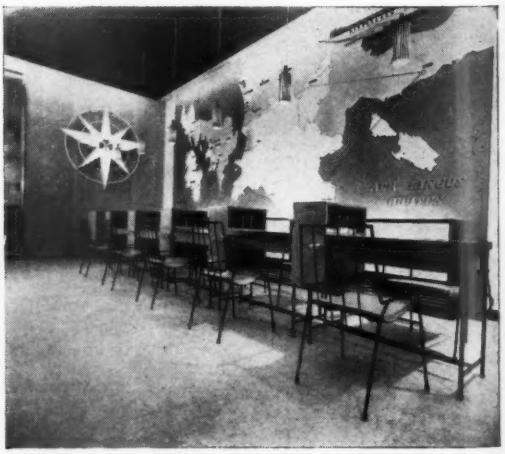

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technical section

THE INDUSTRY

This week Brian Grant describes a new roof light, two new floor polishes, a door closer and a sink cabinet, and landscape architect G. P. Youngman describes a method of grassing recently introduced in this country.

Double-glazed roof lights

The Velux roof light is a double-glazed horizontally pivoted window in which the two frames are of Swedish pine, all external surfaces being protected with 12-gauge zinc having welted edges and soldered lapped corners. The window can be turned through 135 degrees for cleaning from within, and the two frames are hinged together for the same reason. Five sizes up to a maximum of 61½ in. wide by 55 in. high have been standardized, but purpose made jobs can be supplied. The windows can be fitted to any type of roof with a pitch of not less than 30 degrees. *(The Velux Co. Ltd., 167, Victoria Street, London, S.W.*1.)

Floor polishes

Two new polishes, Tilegloss and New Tileseal have been introduced for the maintenance of non porous surfaces such as thermoplastic tiles, lino, vinyl and rubber floors. It is claimed that Tilegloss has a high resistance to dirt and marking by rubber soles and that any marks can be removed by light rubbing. Before these polishes are used it is necessary to remove all dirt and traces of other polish. This can be done with type 53 cleaner, a concentrated solution which is diluted with water. (*Floor Treatments Ltd., Wycombe House, Amersham Hill, High Wycombe, Bucks.*)

Door closers

The illustration on the right shows the new Strongarm door closer, which seems quite a clean piece of design. Fixings are very largely concealed, or inaccessible, so that it is suitable for glass doors. (*The Armstrong Patents Co., Beverley, Yorks.*)

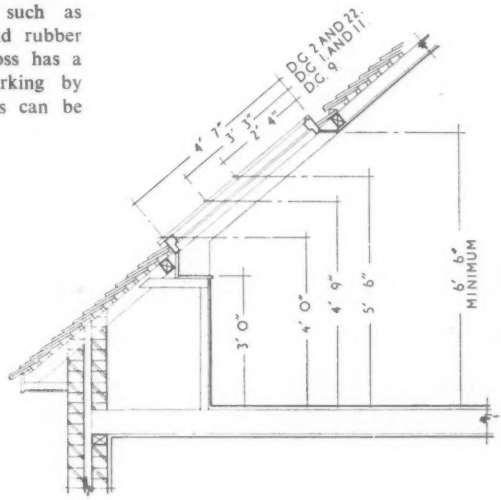
For the small kitchen

The ND 36 sink cabinet is only 18 in. deep and 36 in. wide and costs only a little over £20, with a porcelain enamel sink and draining board unit. The steel cabinet is stove enamelled in green, blue, cream or white and the frame and doors can be in contrasting colours. For an extra £6 you can have a stainless steel sink. (*Leisure Kitchen Equipment Ltd.*, 149, *Regent Street, London, W.*1.)

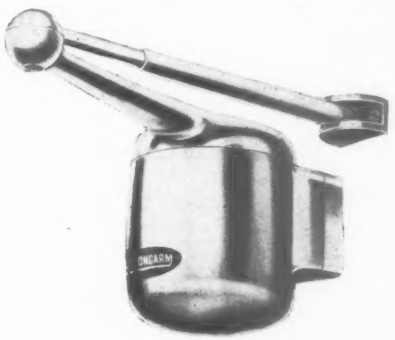
Emerald Velvet grass

Emerald Velvet grass is too recent an introduction into this country for any final verdict on its merits to be given as yet; for although it has had three years on trial it has only been marketed this year. Of the conventional methods of grassing it may well replace turfing and, for small areas, seeding; but it is unlikely, because of cost and unsuitability, to replace seeding for large areas such as playing fields and housing sites. Because of its soft, springy texture it is unsuitable for tennis, bowls or cricket and seems unlikely to stand the hard wear of other games. This resilience, on the other hand, makes it more pleasant to walk on than the thickest of pile carpets.

The grass, first developed in the USA and since then used widely there and in Scandinavia, is a mutation of the species *Agrostis stolonifera*, a type which spreads by shoots running underground. It is sold in the form of clusters of these runners or offsets packed in polythene bags. These are planted normally at 1-ft. centres and partly covered with



Details of the five sizes of the double-glazed roof lights made by the Velux Co. Ltd.



Above, the Strongarm door closer and below, the ND36 sink cabinet.

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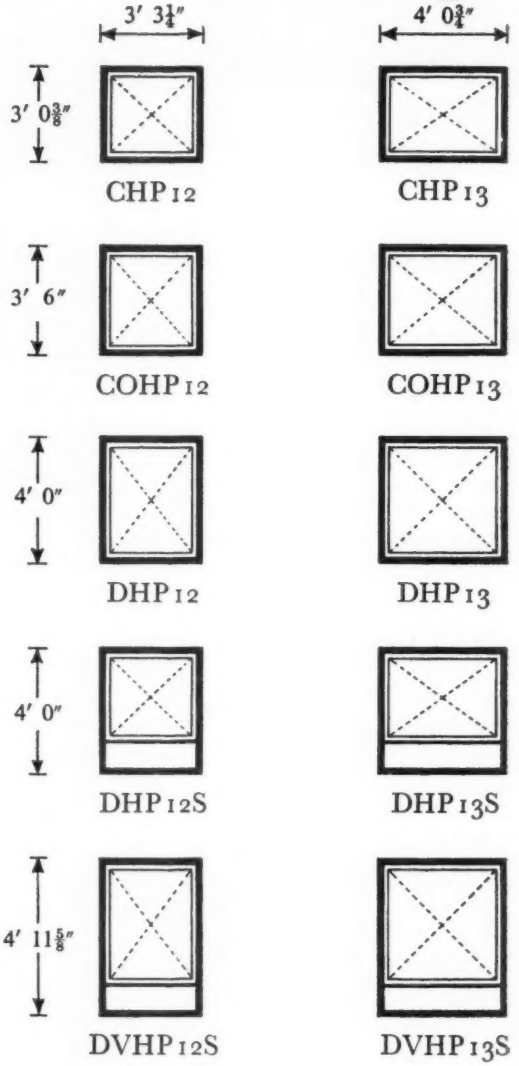

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technical section

soil about 1 in. deep. Firm planting is essential, and watering in dry weather until the offsets are well rooted in the soil. If managed properly the runners spread rapidly and, planted in the spring, should have made by the end of the summer a completely close sward much denser than seeding could produce. Once it has done so the grass ceases to spread so vigorously and, provided the edges of a lawn are kept trim in the normal way, does not invade adjoining planted areas. This rapidity of dense cover is one of its advantages. The others are that it can compete with the coarser weeds (an experimental lawn was planted three years ago directly into an area thick with docks, thistles and ground elder merely scythed over and it is now practically weed free): that it can be established in only an inch or two of topsoil: and that it needs mowing not more than once a month. Compared with seeding, therefore, it may lead to economies in cultivation and site preparation, especially where supplies of topsoil are short; but it will still be essential, for perfect appearance, to get the surface soil truly graded. Even a slight bumpiness causes an unevenness in the cutting of the grass which produces an unpleasant patchiness in the colour of a lawn. Compared with seeding also it gives an economy in maintenance.

It has to be remembered that the grass as sold is a plant, and like any other plant will die if allowed to dry out. Unopened containers must be kept in a cool place: the offsets, once containers have been opened, must not be left exposed to sun and drying winds: and after planting the watering in dry weather must not be omitted. This season's not uncommon complaints probably arise from neglect of these elementary horticultural precautions, as well as from retailers' carelessness in leaving containers to stay too long unused or to stand in too hot a corner of their shops. Freshness of the offsets can be ensured by ordering them direct from the suppliers; and this obviously is to be recommended.

The grass costs £1 for a container holding sufficient offsets for 100 sq. ft. set out at 1-ft. centres. It is difficult to compare this precisely with conventional forms of grassing, as so much depends on quality of turf and seeds mixtures and on rates of sowing. For small areas it is roughly much the same as turf and between two and three times seed: that is to say for materials only, for there is no experience yet of labour costs. For large areas there is a considerable economy, perhaps up to 50 per cent, to be derived from bulk purchase (just as for grass seed), for which special quotations will be given by the suppliers. Large orders are despatched in containers holding sufficient offsets for about 220 sq. yd., and phased despatch can be organized. The main factor, however, determining the cost of a particular job would be the spacing of the offsets. There is nothing sacrosanct about 1 ft. centres: the impatient, if wealthy enough, can plant more closely and the impecunious, if patient enough, can plant more widely. (*Emerald Velvet, Grimsby, Lincs.*)

CLASSIFICATION FOR TECHNICAL ARTICLES AND INFORMATION CENTRE

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.

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.

10.169 design: building types
SCHOOLS

The New School. Alfred Roth. (1957 edition. Girsberger, Zürich. Sw. Fr. 360.)

In any international collection of Works of Art it is always interesting to see who and what is representing Great Britain. For Alfred Roth's first Edition of *The New School* published in 1950 the team was Gropius and Maxwell Fry with Impington; Yorke, Rosenberg and Mardall with Stevenage; and Clarke Hall with Richmond. The first two have now been dropped. But Clarke Hall survives in the 1957 Edition with Cranford School, Hounslow and he is joined by Aslin with the Garston Day Nursery; Claydon and Foy with High Lawn, Bolton; the Ministry of Education with Wokingham and Powell and Moya with Mayfield.

The new edition is larger than the old. Thirty-one schools are illustrated as against 21 in the old and the veteran Crowe Island of Perkins and Will, Amsterdam Open-air School of Duiker and Roth's own delightful Kindergarten in Wangen are all seen again. The larger number of schools, however, are not an advantage. The schools are less fully illustrated than in the first edition and there is no very clear pattern in their selection. One gains the impression that the development of educational theory and practice is extraordinarily uneven in the different countries and that architects have produced very little order out of the chaos of post war trial and error. There is, for instance, a horrible new Japanese school at Tokyo by the Architectural and Building Branch of the Japanese Ministry of Education, which repeats all the mistakes of the off-the-peg factory-made schools of the 1940's, while Ernest Kump in his charming Hillsborough School in California, has produced an almost Oriental atmosphere of simplicity by his dextrous use of traditional materials.

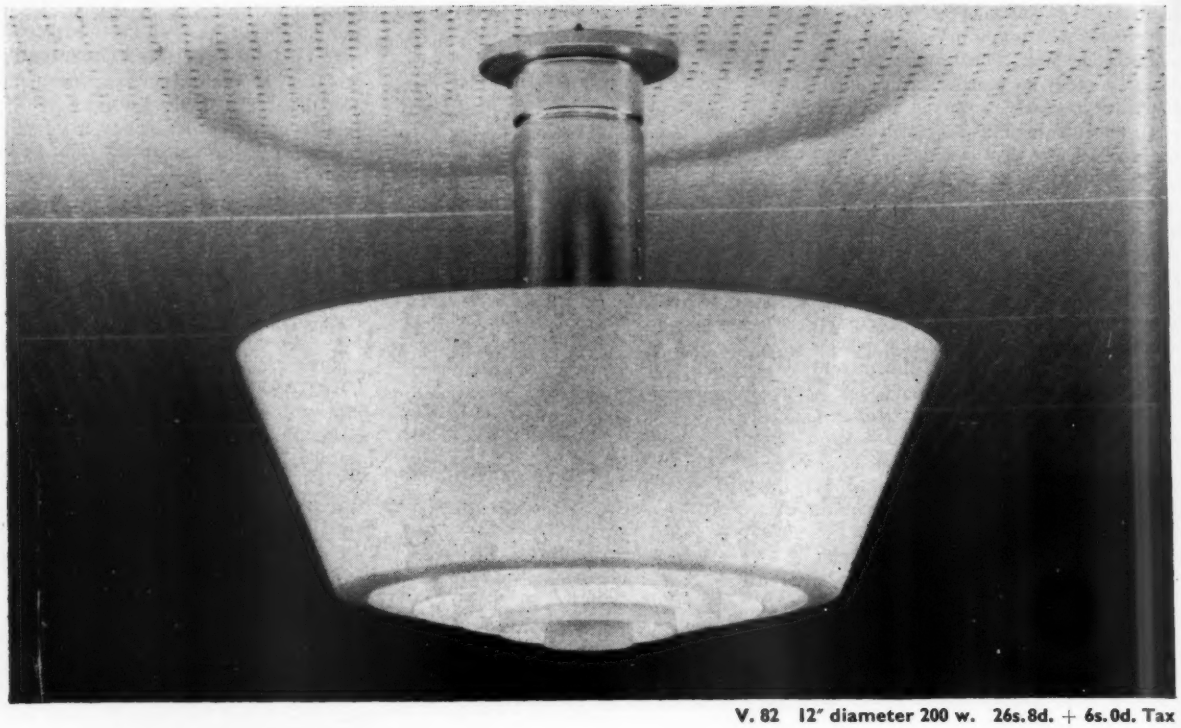
To help one judge the merits of each school Roth has given a detailed description of its aim and purpose, its site and construction and materials. This has been translated into French and German so that the book will have as wide a public as possible. It is an interesting fore-taste of the European free trade epoch, when no doubt all technical literature will appear in three languages. One can only hope that by that time the translation will be more adept. In this edition some of the descriptions of English schools appear to have been re-translated from the German. Powell and Moya are alleged to have found "The economical result of construction left funds available for a thorough and painstaking interior finish."

But in spite of these criticisms, this book is a most complete piece of fact finding in the architectural field. It represents an accurate picture of serious recent school building throughout the world. Is it too much to ask that in the next edition Roth will produce some sort of international yardstick to judge the relative success or failure of these experiments and their value to the generations to come?

17.113 construction: general
BUILDING TEXTBOOK

New Ways of Building. Edited by Eric de Maré (3rd revised and enlarged edition. Architectural Press. 45s.)

When it first appeared ten years ago, this book was described in the Foreword as "a refresher course in the most recent developments and also as a kind of appendix to the conventional, standard works of building construction." Since then it has been twice re-edited: once in 1951 and again this year. These re-editings have meant much more than altering the photographs, and we may fairly say that the original intention is preserved. This latest edition contains *inter alia* an excellent re-writing of the section on steel by a new author, Dr. H. Gottfeldt, and a lucid account on how to calculate brickwork. "New ways of building" is interpreted throughout as "new ways in which you may use materials in building," and not as "new ways of getting a building put up:" there is, therefore, little (outside the brickwork section) to be found on site equipment, and little also on the relative economy of different methods of construction. This is hardly the fault of the Editor or of his contributors, for where in the technical literature of today is such vital information to be found? If such an interest can be incorporated in future editions its usefulness, already substantial, will be multiplied many times.



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technical section

26 SERVICES AND EQUIPMENT
electric signs, 1

Electric signs, though they play a disproportionate part in the total appearance of a building, have not had as much attention from architects as they deserve. One reason for this is perhaps that reliable information about them is difficult to get. We print this week the first of two articles on this subject by Gordon Ford, who is the managing director of a signmaking firm. In this first article he discusses matters general to all types of electric sign: the industry which makes them, the regulations to which they must conform, and the survey which should be made before a sign is put up. In his second article he will discuss the major variations of electric signs in greater detail.

The electric sign is a feature in modern commercial buildings which has suffered unjustly from the feeling among architects that it is, at best, a " necessary evil." We are concerned here only to point out that if it is an evil on occasion, this is largely due to the fact that electric signs have been developed without the benefit of serious consideration from the architects. If the architect will not himself deal with the sign, someone else will do so, and will fix it to the architect's building, often with deplorable results.

The object of these articles is to give the architect enough information, not to design the sign entirely by himself, but to take an intelligent interest in the matter. In this way he should be able to exert his influence to good effect, and to ensure that the sign will not be at variance with his conception of the elevation.

The signmaking industry

Before embarking on a description of the different types of sign it is necessary to say something about the different types of firm who will be prepared to undertake signwork.

Among signmakers proper there are three broad categories. Firstly, there is the specialist manufacturer who makes only one particular type of sign, which is normally patented. Next, there is the large well established firm who undertake most types of signwork, and who operate on a nationwide basis. Lastly, there is the small local firm who will also undertake most types of work, but who will be dependent on the large firms for the supply of much of their equipment. In addition to these categories of signmaker, both shopfitters and electrical contractors will gladly undertake work of this kind, although few of them are actually equipped to make neon signs themselves. In choosing from among these five types of supplier, the architect must remember that signs by their nature have a limited life and that maintenance and not the provision of new signs is the backbone of the industry. Even when a sign is well made it is wise to expect an annual expenditure on maintenance of 15 per cent. of the first cost. It is important, therefore, that whoever installs a sign should be prepared to maintain it, and that maintenance should be taken into account from the beginning.

Generally speaking, only signmakers do maintenance; while the work is, of its nature, intricate and specialized, frequently involving the use of high voltage equipment which is beyond the scope of the average electrician.

If it is decided to go to a signmaker it is also important that he should be given the complete contract for the work, as it is virtually impossible to ascertain liability when one man supplies and another does the fixing. Though it seems unfortunate to insist so much on the mortality of electric signs at the beginning of this article, it is also wise for the building owner to take out insurance against damage by storm and accident, with additional third party cover if desired. The usual rate is 55s. per cent. per annum, and bearing in mind the fact that the breakage of a single tube will cost five or six pounds, it is well worth it.

Types of sign

Electrically, signs fall into two classes: cold cathode signs which require high voltages (that is, exceeding 650 volts) and then all the other types—hot cathode fluorescent, mercury vapour, tungsten which operate from ordinary mains voltage, with chokes or ballast units in some cases.

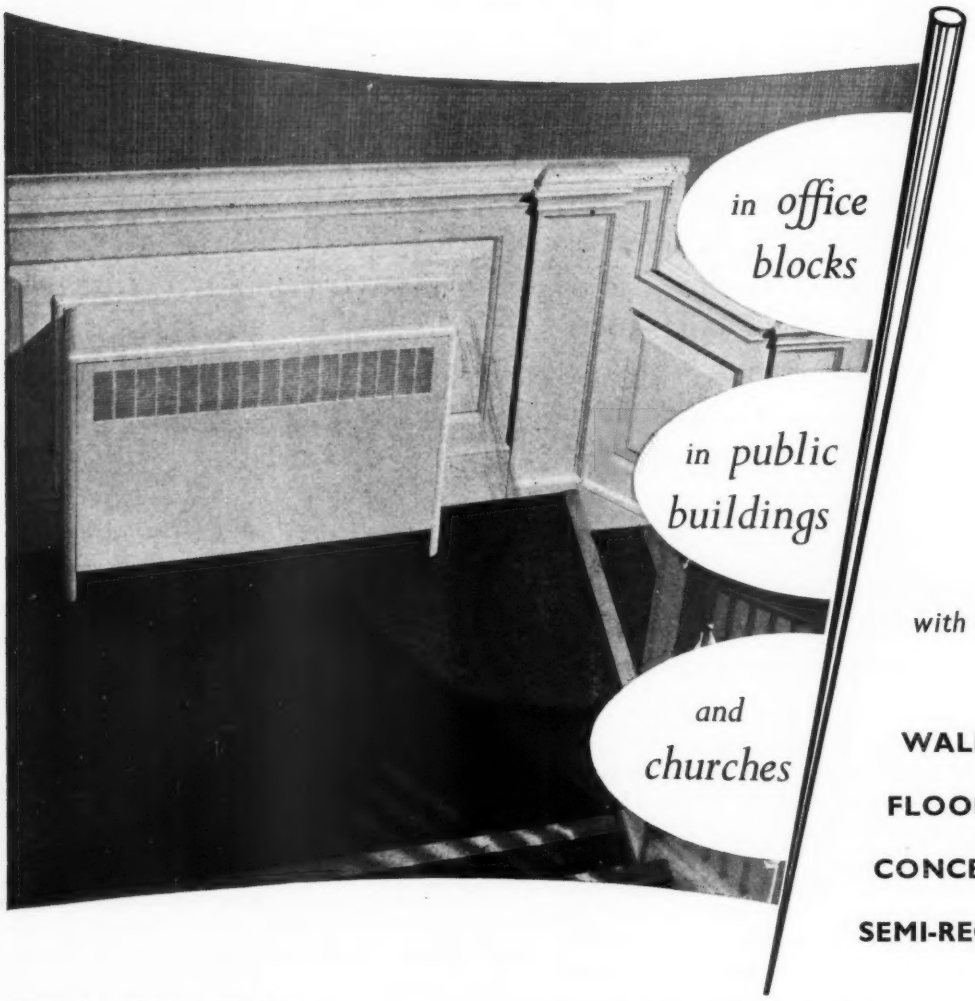
From the point of view of design there are also two main classes: those in which the light source is clearly visible and actually forms the letter of the sign, and those where the light source is fully or partially concealed. These two types of classification nearly coincide, since only cold cathode tubes can be formed into letters. They do not fully coincide, however, since cold cathode tubes are a useful light source for general purposes, and may well be used to illuminate signs in which the light source is concealed.

This latter group may be further subdivided into two categories: firstly, where the source is in front of the sign and is throwing light back onto it, like a floodlight, and secondly, where the sign takes the form of a series of illuminated boxes with an opaque, or translucent front in which the letters appear either in outline or silhouette.

Cost

It is no easier to give average cost figures for signs than for any other kind of specialist work, since so much depends on factors which vary enormously, such as

Fitting into the scheme of things . . .



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FLOOR TYPE

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technical section

the distance of the site from the works, the height above the ground, and, of course, the quality of materials and workmanship. It is possible to say, however, that the order of cost of a neon shop sign in single line red or green tube with 12 in. high letters is £6 a letter inclusive of transformers and wiring, a figure which could be lowered to £4 for letters 6 in. high and raised to £10-£11 for letters 2 ft. high. Further, a sign covering a 30 ft. frontage will work out in the region of £150. We cannot be more specific than this, though we will try in the course of these articles to indicate the broad effect on cost of the different decisions which must be made.

The survey

Before considering the design of a sign it is most important to make a survey of the street in which it is to be placed. This survey will be concerned with two factors: the power of other light sources in the area (whether other signs or street lamps) and their colour. It is important that a sign should not be outshone by its neighbours to the extent that it will appear dim by contrast. It is also important that their colour should not be such as to prevent the eye from seeing the new sign in the colour which is intended. This last is a common cause of trouble, since the eye, when confronted with a large mass of one colour will adjust itself to that colour to such an extent as to affect the appearance of another one adjoining it.

Thus, if there is a large red sign on an adjoining site and you erect a smaller or less powerful orange sign, then your sign will look not orange, but yellow. Certain colours have a more powerful effect than others, and for a yellow sign to affect an orange sign it would have to be very much brighter. If the large adjoining sign happened to be yellow, and also large and bright, then your orange sign would look red, or perhaps, tangerine. This may not matter, but it is as well to be prepared. The street lighting itself affects the way the eye will see the sign. If the street lighting employs the bluish mercury vapour lamps, blue tubes should be avoided. If the street lighting employs yellow sodium lamps, gold tubes should be avoided. The question of relative brightness or strength of signs often raises delicate problems. Shopkeepers are apt to assume that it is always a good thing to outshine your neighbours, but this is not necessarily so, for competition in brightness may in the end prove of advantage to nobody. In effect, the brightness of a new sign will be determined chiefly by the nature of the shop itself, for there are certain types of shop for which a high level of illumination would be inappropriate. Nevertheless, the brightness of adjoining signs is one of the factors which must always be taken into account in deciding a policy, for it is clearly important that the chief impression of a new sign on a passer-by should not be that it is dimmer than its neighbours: if it cannot be as bright, then it should be of a different kind altogether. In practice, brightness varies within wide limits according to the age of the tube, and exact figures do not matter very much. A signmaker can usually tell the order of brightness of adjoining signs by eye, or failing this, a lightmeter can be used. In choosing a colour it should be remembered that red, yellow and orange penetrate the atmosphere far better, and are therefore more legible at a distance than blue, green or white. For instance, a letter 24 in. high is legible, if red, at 524 ft., if blue at 395 ft., and if green at 340 ft. A possible exception to this rule is fluorescent green. This is extremely intense and has a good penetrating power, although as with all fluorescent powders, its effectiveness depends on the choice of background.

Planning permission

Another hazard which must be faced early is that of planning permission. This can be a very arbitrary affair, and very annoying. If a record were taken of all planning decisions concerning lighting it would reveal clearly how arbitrary this kind of control can often be. At times control appears to be based on little more than that in such-and-such area the Planning Officer likes red but does not like blue, and that in some other area the Planning Officer likes blue but detests red. Some Planning Officers prefer vertical signs and others insist on the wording reading horizontally. The actual powers of Planning Authorities derive from Statutory Instrument No. 1613: The Town and Country Planning (Control of Advertisements) Regulations, 1948, and allow applications to be refused only on the grounds of amenity or public safety. One point to be noticed is that though the display of illuminated signs in general needs "express consent," there is no need to obtain this consent if the sign is *inside* a shop window. One of the advantages of going to a local signmaker is that he will be able to tell what has been recently refused and permitted in the area. As with other forms of local authority consent, much trouble and anxiety can be avoided if the authorities are consulted early.

Regulations and standards

Neon tubing involves the use of high voltages and installations must therefore conform to stringent safety regulations which are designed to minimize the risks both of fire and shock.

The British Standard, Electric Signs and High Voltage Luminous-Discharge-Tube Installations, BS 559:1955, covers not only the electrical requirements but also the construction of the sign. In addition, of course, the electrical installation must comply with the IEE Regulations, 13th edition.

The more important requirements laid down in the IEE Regulations are as follows:

1. There must be a lock switch controlling the supply to the transformer. This is to enable the electrician servicing the signs to be able to switch off and take the key away, so that the sign cannot possibly be switched on by accident while he is working on it.
2. There must be a fireman's switch on the exterior of the building to enable the sign to be turned off in the event of fire. The switch must be mounted underneath,

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technical section

or as close as possible to, the sign, and in the absence of a special agreement with the fire brigade to the contrary, should be at a height of not more than nine feet from the ground. The switch must be painted red, and be clearly labelled.

3. A "Danger—High Voltage" notice must be displayed, and all parts of the sign which are accessible, excluding the tubes themselves, other than in the neighbourhood of the terminals, shall be provided with screens of earthed metal or insulating materials.

A sign on the front of a building which is not accessible from windows or the ground is excluded from this provision.

Materials and construction

A short summary of the requirements of the British Standard for the construction of letters is as follows:

1. *Letters made of solid teak or other hardwood of a not readily combustible type.* Letters shall be made of material not less than ¼ in. thick, and unless stiffened or fixed at 24-in. centres larger letters must be of the following thicknesses:

Letters over 3 ft. in height: 1 in. thick
Letters over 5 ft. in height: 1½ in. thick

Letters over 6 ft. 6 in. in height must be made of metal unless stiffened at 24 in. centres.

2. *Letters made of plywood.* Panels up to 6 ft. × 4 ft. may be made of material $\frac{3}{16}$ in. thick provided that the edges are supported.

Panels over this size shall be at least ¼ in. thick.

3. *Metal letters.* Flat metal letters without additional strengthening shall not exceed 24 in. in height, and shall be made of not less than 20 s.w.g. materials (0·036 in. thick).

Flat letters larger than 24 in. shall be stiffened or fixed at not more than 24-in. centres.

Where metal letters are built up from channels or H section material the British Standard lays down that the flanges shall be not less than 1 in. deep for letters up to 24 in. in height, not less than 1½ in. deep for letters between 24 in. and 48 in. in height, and not less than 2 in. deep for letters above 48 in. in height.

4. *Sheet and plate glass.* The British Standard lays down detailed requirements for the thickness and type of glass to be used in varying circumstances. The details need not concern us here, except to note that a heavier weight of glass is required for panels which deviate by more than five degrees from the vertical.

5. *Acrylic plastics.* The British Standard permits the use of this class of material where not otherwise prohibited by Local Authority Bye-Laws or regulations.

Where used, such plastics must be spaced at least 2 in. from any exposed metallic current carrying part, and must be spaced at least ¾ in. from the discharge tube if within 6 in. of the electrodes.

If the edge of this plastic is within 3 in. of an exposed metal current carrying part it must be protected by close fitting metal for at least ⅜ in. from the edge, unless the current carrying part is provided with an earthed screen.

The most commonly used plastic is methyl methacrylate polymer, marketed under the name Perspex. It is generally satisfactory, provided that it is used in sheets of sufficient thickness—large sheets of ⅛ in. thickness may buckle in the sun. Perspex fades to some extent, but this is an even, gradual process and is not particularly noticeable unless covering screens are removed and an unfaded section is exposed.

Perspex letters must be cleaned regularly with a special cleaning paste to remove static electricity. Letters which have been fixed with Perspex adhesive cannot be removed without damage as the joint is extremely effective. This ease of jointing, plus the absence of danger from broken fragments has given Perspex an overwhelming advantage over glass for sign construction.

The design of lettering, and the different relationships between the light source and the body of the letter will be discussed in the next article. There is, however, one general point to be made here: all letters must be designed in such a way that it is easy to get at the tubing and remove all the metal parts for cleaning and repainting. An electric sign is not something which can be erected once and left to look after itself. Its life and efficiency, and even its appearance, depend on steady and conscientious maintenance. If, for some reason, this is difficult to carry out, the sign will suffer.

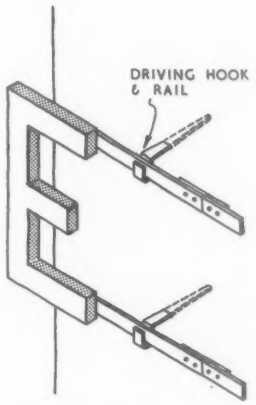


Fig. 1. Method of fixing by driving hook and rail.

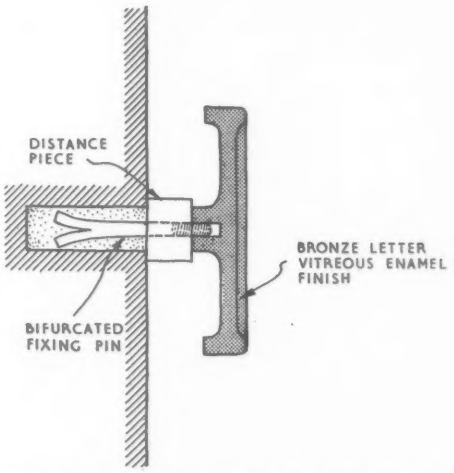


Fig. 2. Attachment of bronze letter to supporting structure.

technical section

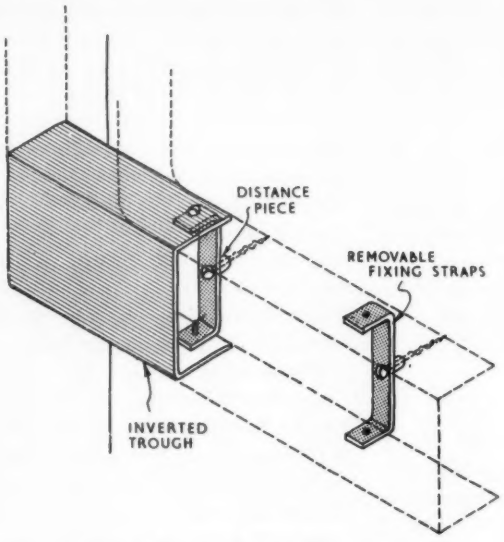


Fig. 3. Fixing of inverted trough letter by cross straps.

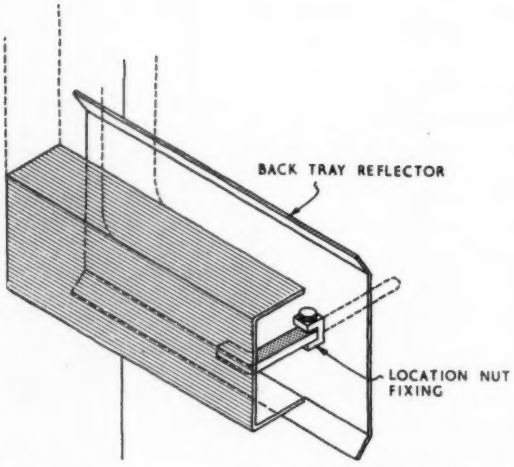


Fig. 4. Fixing of inverted trough letter using location nut.

Fixing

The method of fixing the sign must be considered right from the start. There are, for instance, certain types of material which are used a great deal for backings, but on which it is extremely difficult to obtain a fixing. Such materials are hard baked brick and precast concrete slabs with flint facing. It is also important to remember that the sign must be fixed well clear of the backing so that any dust or deposit forming on top of the letters cannot be washed down during rainy weather and stain it.

Plain, unilluminated letters may be fixed by means of a rail secured on driving hooks, see Fig. 1, or, if made of bronze or vitreous enamel, by means of a bifurcating pin formed on the back of the letter and grouted into the building, as shown in Fig. 2.

Lettering which carries neon tubing requires something more elaborate. Such letters are normally of trough section: an "*inverted trough*" letter is one having a flat face with the sides returning backwards to the wall. If the letter is so made that the sides project forward of the flat portion it is referred to as a "*trough letter.*" There are two methods of fixing trough sections. The first is shown in Fig. 3. Cross straps are fixed to the sides of the letter by means of Kalon or similar brass or alloy screws, and these straps are previously drilled to receive screws or bolts which are threaded through distance pieces before being screwed to the wall. The cross straps may also carry supports for the neon tubing, in which case the sequence of operations is (*a*) to secure the fixing straps to the backing, (*b*) to fix the tubes to the straps, and (*c*) to fix the letters to the straps. Alternatively, the letters and tubing may be independently fixed to the backing.

The second method of fixing trough type letters is shown in Fig. 4. This employs a bolt terminating in a location socket which is driven into the backing. A locator pin is then inserted into the socket and secured with a grub screw.

Whichever method of fixing the sign is used, the neon tubes themselves are wired to an insulated holder which may be of glass, plastic or porcelain. The wire used must be of nickel, and not, as is so often the case, copper fuse wire. The British Standard lays down that fixings, whether of letters or backings, should be at not more than 2 ft. centres.

Strength of fixings

The British Standard requires that in calculating the strength of sign structures all loads to which it is liable to be subjected, including its own weight, shall be taken into account. Such loads should include the effects of wind, ice and snow, and the design should allow for a wind pressure in any horizontal direction of not less than 20 lb. per sq. ft., with an additional pressure of 10 lb. per sq. ft. on all parts of the sign which project above the general roof level. On the sea coast, and in other exposed situations, allowance should be made for a wind pressure of at least 40 lb. per sq. ft.

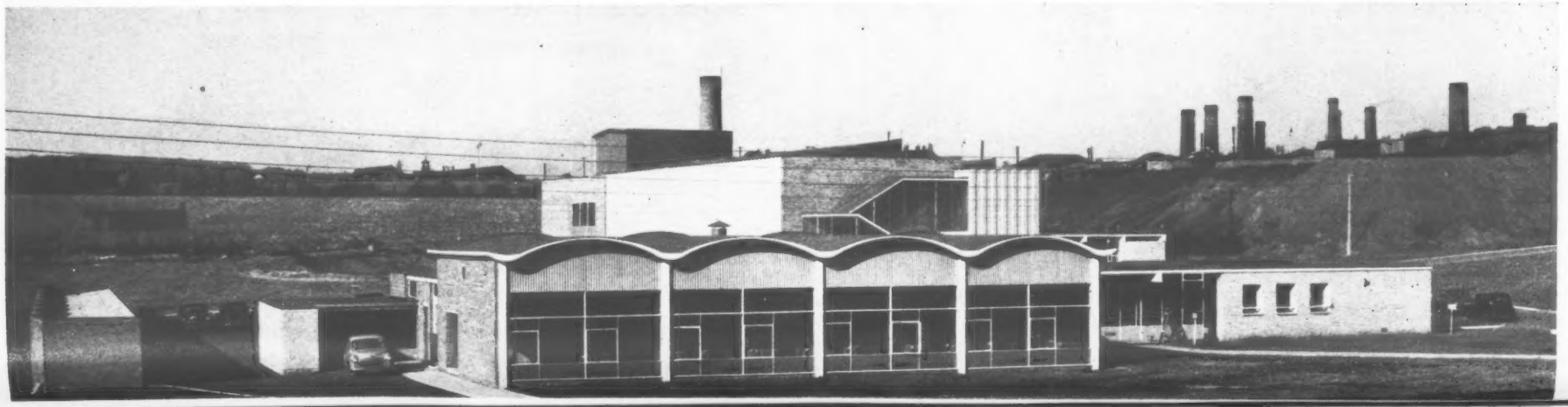
building illustrated

PITHEAD BATHS

at PYE HILL COLLIERY, JACKSDALE, NOTTS; for the NATIONAL COAL BOARD, EAST MIDLANDS DIVISION; designed by ELIE MAYORCAS in collaboration with H. S. BARNETT, N.C.B. divisional architect; architects-in-charge K. L. MAGGS and L. E. TATUM; assistant architects P. SAINSBURY, H. CLAMP, C. V. H. ROBINSON; consultants (structural) H. C. GRIFFITHS, (heating) A. D. SHADBOLT, (electrical) R. S. HOLT; J. A. SIMCOCK, N.C.B. divisional quantity surveyor; W. MATTHEWS, assistant quantity surveyor

This well planned and easily run building caters for 1,332 miners. In addition to showers, lockers and lamp room it contains a canteen and a medical treatment centre. It is the second pithead baths to be analysed. The first was at Dudley, Northumberland (AJ, August 22, 1957).

The pithead baths from Selston Lane, with the canteen in the foreground.



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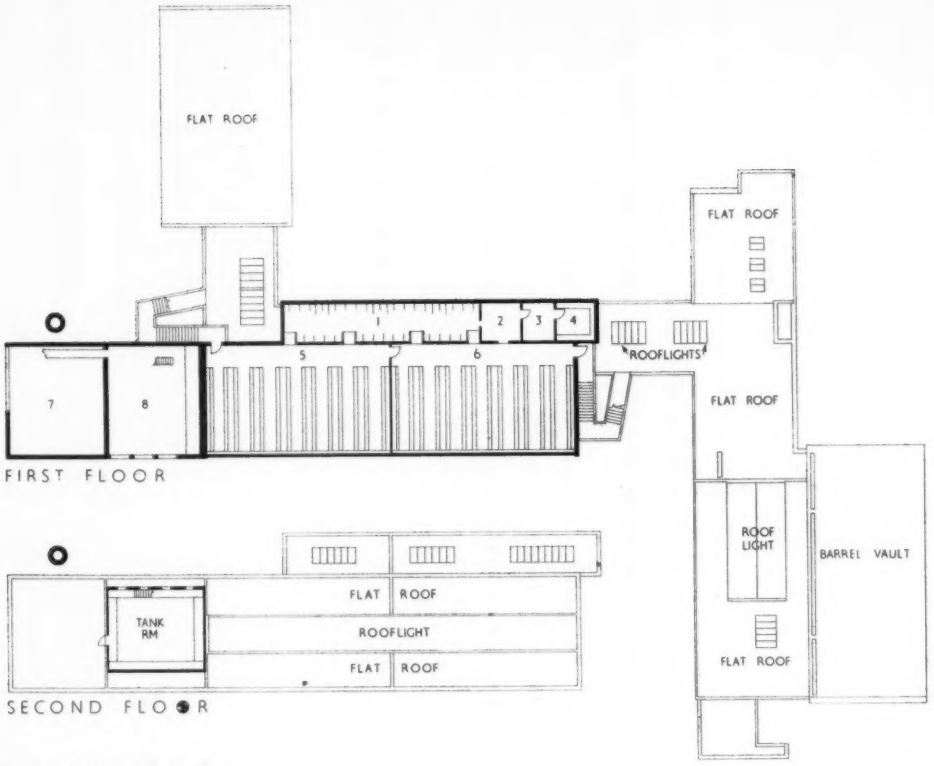
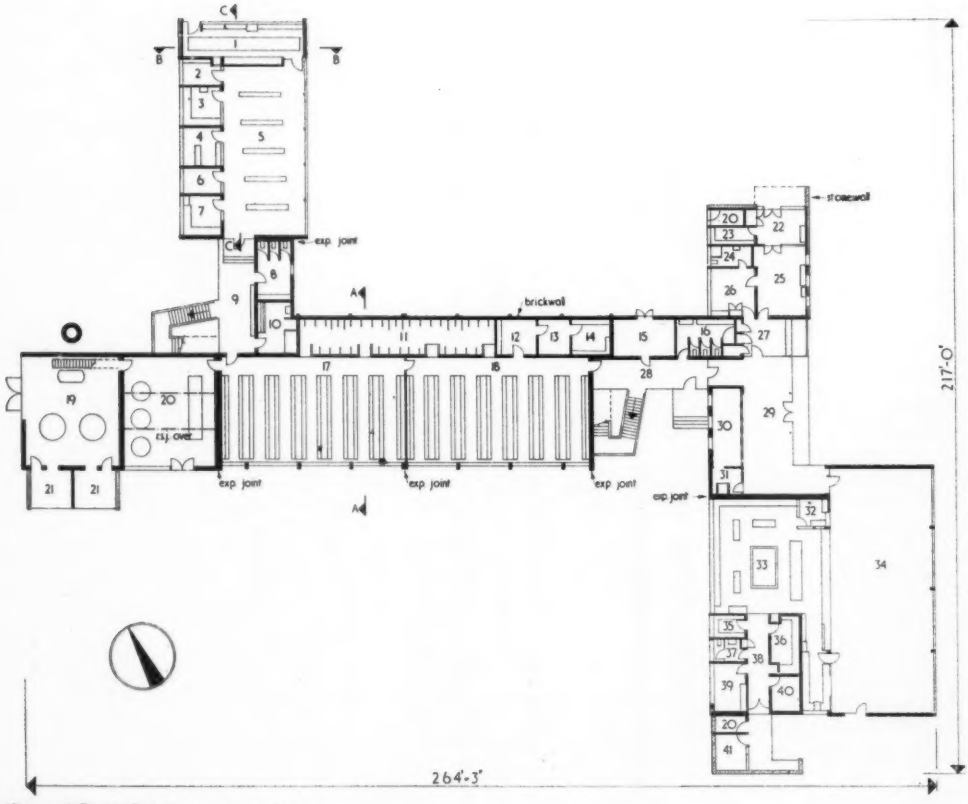


Key: first floor

1. Shower room
2. Attendants' room
3. Switch room
4. Attendants' store
5. Pit locker room
6. Clean locker room
7. Upper part of boilerhouse
8. Plenum room

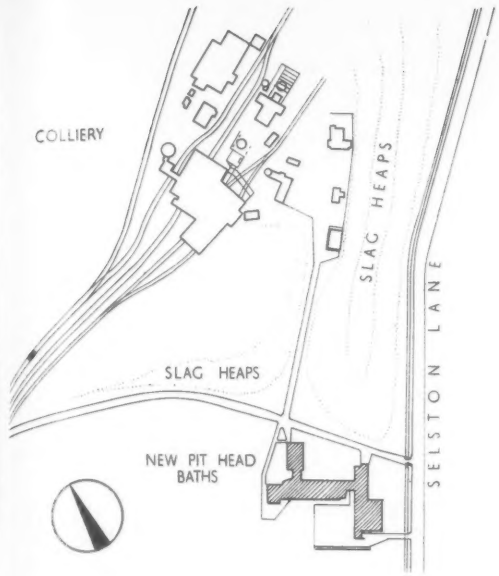
First and second floor plans



Key: ground floor

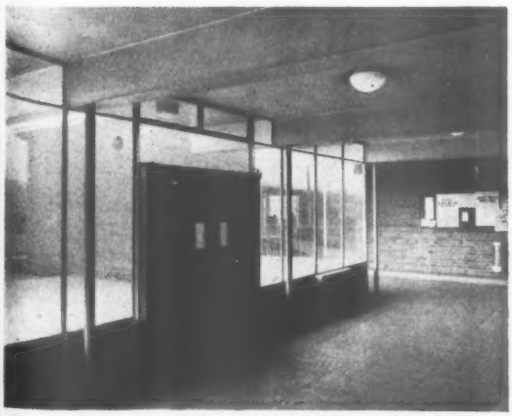
1. Boot brushing room
2. F.A. store
3. Repair room
4. Flame lamp room
5. Lamp room
6. Head lampman
7. Service room
8. Pit lavatories
9. Bottle filling lobby
10. Officials' bath
11. Shower room
12. Attendants' room
13. Switch room
14. Attendants' store
15. Transformers
16. Clean lavatories
17. Pit locker room
18. Clean locker room
19. Boilers
20. Calorifiers
21. Fuel store
22. Stretcher lobby
23. Medical store
24. Doctor's cloaks
25. Treatment room
26. Doctor's room
27. Waiting room
28. Side entrance lobby
29. Main entrance lobby
30. Pay office
31. Enquiries
32. Supervisor
33. Kitchen
34. Canteen
35. Vegetable store
36. Dry store
37. Staff lavatories
38. Kitchen entrance
39. Staff cloakroom
40. Cold store
41. Crate store

Ground floor plan (Scale: ¼" = 1' 0")



Site plan

The various blocks are so connected as to form a continuous functional plan. The miner entering the building may make use of the canteen or medical treatment room and then proceed through the other spaces carrying out an orderly sequence of operations as he goes. First he can consult the noticeboard for official, union and social announcements; then into the clean locker room, where he leaves his clothes in his own locker and walks through to the pit locker room, where his working clothes and rubber boots are stored, again in a separate locker. Both types of locker are individually connected to the plenum air conditioning system housed above the calorifier room. From pit locker room he goes to the bottle-filling lobby and so to the lamp room, where he collects his own headlamp and gas-warning lamp. On his return he enters the boot-brushing room, which is sensibly placed on the colliery side of the site, and then reverses the above procedure, except that he takes a shower and once a week calls at the pay office in the main entrance.



The main entrance (shown above) is a busy place, and in shape and layout copes well with its various tasks.

analysis

CLIENT'S REQUIREMENTS

To provide a modern pithead bath installation, including provision of a canteen, medical treatment centre, self-servicing lamp room, large car park and cycle store. The buildings to provide accommodation for 1,332 men, with separate " clean " and " pit " locker rooms and a total of 63 showers, together with baths, attendants' rooms, " clean " and " pit " lavatories, separate officials' bath, boot brushing and greasing room, miners' bottle-filling lobby, boiler house, calorifier and plenum rooms. The canteen to provide seating for 200 men, with a modern kitchen equipped with refrigerated store, staff rooms, etc.

The medical treatment centre to provide waiting room, treatment room, recovery room, sister and/or doctor's consulting room and a medical store. The canteen and medical treatment centre were required to lead off the " clean " (main) entrance.

The lamp room to provide self-servicing lamp racks for 1,200 lamps, electrically run by battery cells, head lamp-man's room, oil lamp room (some of the miners use oil lamps to detect fire-damp), etc.

SITE

The site is rural, looking on to Selston Lane, Jacksdale, with a pleasant, undulating outlook to the south-east. The rear half of the site has a fall of approximately 10 ft. and the front portion is reasonably flat, terminating in a stream which follows the road, and overflows in severe wet weather.

The siting of the new bath had to be some distance from the pit head and man-riding shafts owing to the presence of large slag heaps between the main colliery buildings and the area of land available for the new project. The ground on its lower slope was waterlogged, so the building was set back from the road as far as possible and an extensive system of land drainage was incorporated in the design in order to " moat " the area of ground on which it stands.

PLANNING AIMS

Accommodation required was made up of components radically different in use and in size, and this complicated the aim of a simple plan form and structure.

These building units consist of: (*a*) bath house (shower and locker rooms, etc.), (*b*) boiler house and its ancillaries, (*c*) lamp room, (*d*) canteen, and (*e*) medical unit. The plan articulates these elements. Points of entry and exit were dictated by the main approach road and the secondary access road to the colliery (approximately at right angles to the former), and by the location of the mine shafts. The design and plan arrangement of heating equipment, calorifiers, plenum system and water storage tanks were basically to a standard NCB unit layout. The locker rooms were planned to use NCB standard steel clothes lockers, which are heated and disinfected by the plenum system. These units are made up into island banks, placed back-to-back and two units high, connected at high level to the main plenum ducting at the end of each bank. By making these banks of maximum length the number of connections and length of ducting, etc., are minimized. The locker and shower rooms were required to be as near as possible to the boiler house, calorifier and plenum rooms in order to reduce heat losses and length of trunking, etc.

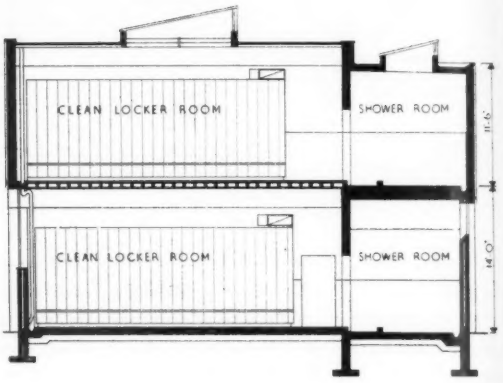
MAIN CONSTRUCTION

The structural design was influenced by the desire to achieve maximum natural lighting in the most economical manner.

In order to minimize the evident risk of unequal settlement,

building illustrated

The colour scheme is generally subdued but is enlivened in the main entrance and canteen (left) by areas of strong colours. Here the end wall has bottle-green tiles. Surfaces generally are hard.



Section A-A [Scale: $\frac{1}{8}$" = 1' 0"]

Below, the pit locker block. The ground and first floor plans of this block are virtually the same. On the upper floor advantage has been taken of the possibility of providing generous top light, and windows are therefore unnecessary. Cladding to the upper floor is 9-in. brick faced with asbestos sheeting on battens. On the right is the link from the main entrance, on the left is the boiler house.

analysis

owing to proximity of mining, the building has been sub-divided structurally at convenient junctions in the plan and built as independent units with carefully detailed expansion joints between each block: *e.g.*, owing to its undue length the bath house proper is built in two halves, necessitating double piers and beams between the " clean " and " pit " locker rooms. After investigating several systems of construction, it was found cheaper to use load-bearing brick walling on continuous strip reinforced concrete foundations wherever possible. Precast prestressed concrete beams were supported on blue brick piers over the 30-ft. span of the locker rooms, with precast r.c. hollow beam units at first-floor level and aluminium decking with cork insulation at roof level. The shower rooms, which are subject to excessive steam, have r.c. hollow beam units (concrete being less subject to corrosion by steam) supported direct on to brick walling, the span being short to form both floors and roofs. Roofs over single-storey units and in places less subject to corrosion by steam consist of r.c. beams, supported generally on brick walling or tubular steel columns with aluminium decking and cork insulation.
The canteen is a monolithic reinforced concrete frame with shell concrete barrel vaults forming the roof.

SUMMARY

Tender date:	May 1953.
Contract started:	August 1953.
Contract completed:	August 1955.
Number of men:	1,332
Floor area:	23,064 sq. ft.
Net cost (excluding site works):	£102,395
Net cost per man:	£76 17s. 6d.
Net cost per sq. ft.:	88s. 9d.
Gross cost (including site works):	£112,500

	Cost per sq. ft.	s	d
Preliminaries and contingencies		1	8¾
Work below ground floor level		6	6¾

R.c. continuous inverted tee-beam foundations to the two-storey works and wherever the nature of the ground made them necessary. R.c. strip foundations elsewhere, the proportion being roughly 50-50.

STRUCTURAL ELEMENTS

Frame or load-bearing elements — 4 11

The single-storey work is mainly load-bearing brickwork, with the exception of the canteen, which is a monolithic reinforced-concrete frame with shell concrete barrel vaults forming the roof.
Two-storey locker rooms have blue brick piers at 15-ft. centres from ground to first floor, supporting precast prestressed concrete beams at first-floor level with similar beams at roof level, supported on 9-in. brickwork. Light steel frame to tank room.

External walls — 6 0¾

Generally 13¾-in. solid and 11-in. cavity brick walling with NCB " Desford " or " South Leicester " facings. Local stone (white Mansfield) walling to medical treatment centre.
Asbestos-cement cladding to first-floor locker and shower rooms. Cladding to tank room in aluminium decking and fluted asbestos-cement sheeting.

Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}68}{1}$

	s	d
Windows and external doors	3	10½

Steel rust-proofed metal windows, louvres and external doors.
Pressed metal sills to windows.

Ratio: $\frac{\text{windows and doors}}{\text{floor area}} = \frac{0{\cdot}32}{1}$

Upper floors	1	11½

Generally precast r.c. hollow beam units with flat soffits, 10-ft. span supported on brick walling and 15-ft. span supported on prestressed precast r.c. beams.

Staircases	4¼

Two *in-situ* r.c., 4 ft. 6 in. wide, with a total rise each of 14 ft.
One in mild steel with chequer plate treads, 3 ft. wide, with total rise of 25 ft.

Roof construction	6	11¾

Generally aluminium decking, supported on the concrete beams with three-layer bituminous felt roofing on cork insulation, finished ½-in. granite chippings.
Roofs of shower room and medical treatment centre, kitchen and " clean " entrance in precast reinforced concrete hollow beam units with 1-in. woodwool insulation, three-layer bituminous felt roofing and ½-in. granite chippings.
R.c. barrel vaults over canteen with three-layer felt roofing.
Area of each type: decking, 742 sq. yd. Barrel vault, 280 sq. yd. Concrete, 563 sq. yd.

Roof lights	1	3

Generally monopitch lantern lights in aluminium patent glazing, continuous over first-floor locker room.
Number of lights, 13. Total area, 1,721 sq. ft.

Glazing	8¾

Polished Georgian wired to main entrance doors and screens.
Georgian wired cast glass to roof lights and louvres to plenum room and boiler house.
Elsewhere, 32-oz. clear sheet.

Total of structural elements	**26s 1½d**

PARTITIONS AND FITTINGS

Internal partitions	4

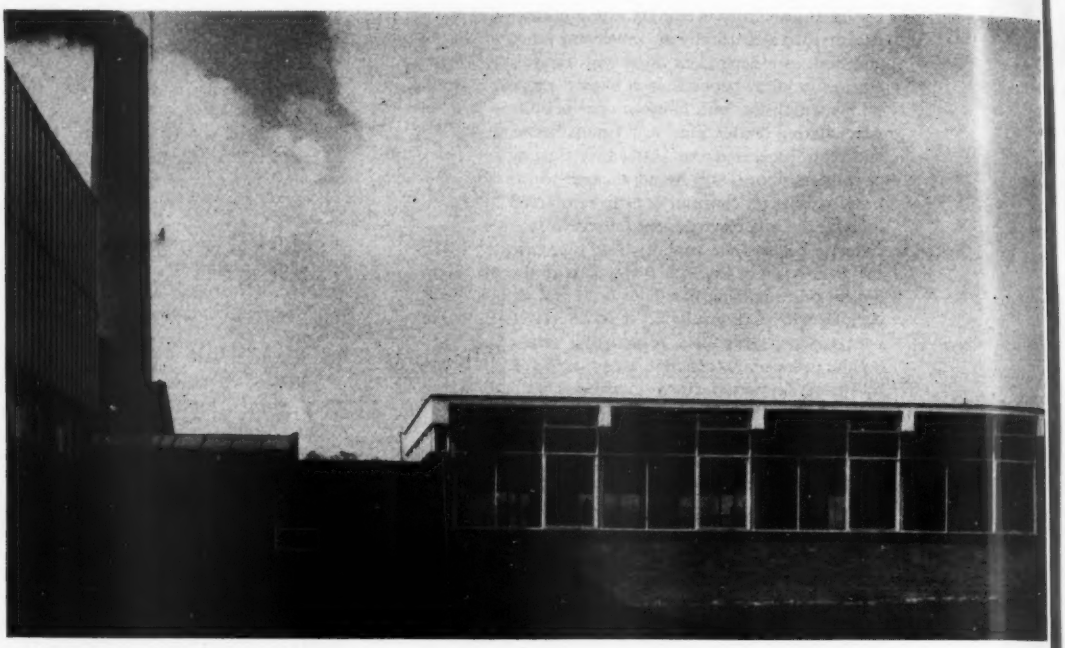
Generally half-brick walls in sand-lime bricks, flush pointed both sides for direct application of decorations. Approximately 617 sq. yd.

Screens
Cost included under windows and external doors.
Rust-proofed steel frames and kicking plates with wired glass.

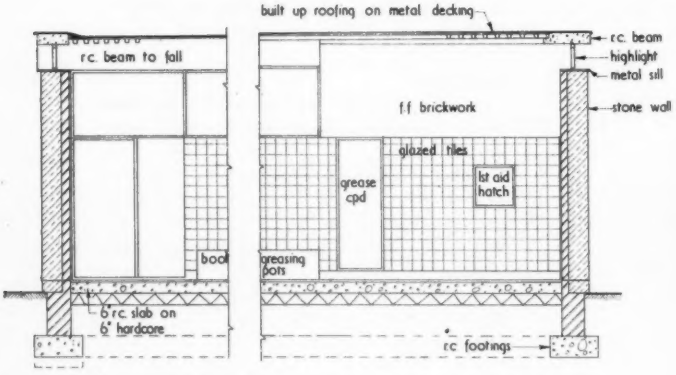
Internal doors	8¾

Rooms subject to heavy traffic: framed flush doors faced with 24-gauge galvanized steel sheet on both sides, all edges sealed with ⅛-in. zinc strip, screwed and soldered.
Others: framed flush doors veneered mahogany or birch.

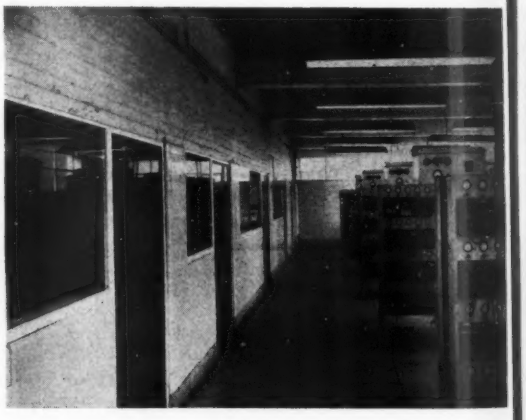
building illustrated

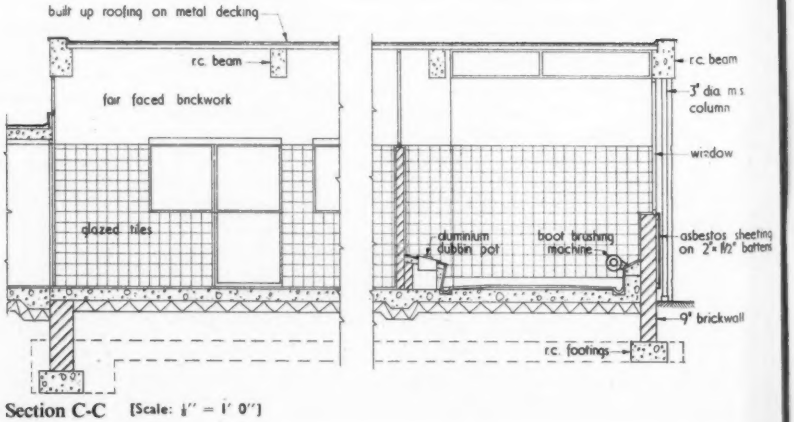


The lamp room (above, and below right) is the last link in the train of operations. Here each miner has his own lamp which is stored in an automatic charging rack. Here also lamps are inspected and repaired and oil and electric gas-warning lamps are stored. The aluminium roof decking with its vapour barrier, cork insulation, 3-layer felt and granite chipping finish is proving most satisfactory. No condensation problems have been experienced.



Section B-B [Scale: ¼" = 1' 0"]





Section C-C [Scale: ¼" = 1' 0"]

analysis

	s	d

Type of door	*Single*	*Double*
Metal-faced doors	25	2 pairs
Flush doors	23	2 pairs
Framed ledged and braced	3	2 pairs
Framed and glazed hardwood		1 pair.

Ironmongery 7½
All BMA including indicator lettering, floor springs, door checks, etc.

Fittings 3 3
Shelving, work benches, cupboards, canteen equipment, cafeteria counter, with tea and coffee stills, etc.

Total of partitions and fittings 4s 11½d

FINISHES

Floor finishes 3 11½

Type of finish	*Area in sq. yd.*	*Price per sq. yd.*
12-in. × 12-in. precast terrazzo tile paving laid in 4-ft. squares subdivided with ¼-in. ebonite strip	650	
9-in. × 9-in. × ⅛-in. thermoplastic tiles	75	
1-in. mastic asphalt in locker rooms, bath house and tank room	1,100	20s
Granolithic in boiler house, calorifier room, stairs, landing, lamp room, boot brushing room, etc.	450	9s 6d

Wall finishes 2 11½
In locker rooms and bath house, fairface brickwork in sand limes, flush pointed, with 6-in. × 6-in. glazed tile dadoes, 4 ft. 6 in. and 5 ft. high respectively.
Elsewhere, fairfaced brickwork in sand limes, flush pointed, except canteen and medical treatment centre, which are finished plaster throughout with tiled dadoes in certain areas. Boot brushing room tiled to door height.

Ceiling finishes 3
Fairface concrete to shower rooms, etc., including ground floor locker rooms.
Canteen and medical treatment centre, plastered.
Elsewhere, aluminium decking left exposed.

Roof finishes
Cost included under roof construction.
On metal decking, 1-in. cork insulation (2-in. over first-floor locker rooms) with three-layer bituminous roofing finished ½-in. granite chippings.
On concrete roofing, ½-in. screed on 1-in. wood-wool with felting, etc.; as above.

Decorations 1 0½
Externally: woodwork and metalwork, gloss paint; fairfaced concrete, chlorinated rubber enamel.
Internally: anti-condensation in shower rooms; wood and metalwork, gloss paint; walls and ceilings (fairfaced brickwork, fairfaced concrete and plaster), emulsion paint.

Total of finishes 8 2½

SERVICES

External plumbing 2½
9-in. × 6-in. aluminium box gutters with built-up metal decking roof to 4-in. cast-iron rainwater pipes. Aluminium flashings. 4-in. cast-iron r.w.p.s. to all concrete flat roofs.

Heating and ventilation 21 10
Two vertical multi-firetube solid fuel automatically fed boilers of 4,380 lb. per hour steam capacity from and at 212 deg. F.
Internal temperatures:
Pit locker room, 75 deg. F. (6 changes per hour)
Clean locker room, 70 deg. F. (6 changes per hour)
Bath and miners' shower rooms, 75 deg. F. (8 changes per hour)
Lobbies, lavatories and boot brushing room, etc., 55 deg. F. (3 changes per hour).
Locker rooms have plenum system; elsewhere, pressed steel convector cabinets.
Ventilation system in shower and locker rooms by extract fans.

Sanitary fittings 5½
White glazed fireclay.

Type of fittings	*Number of each type*
Lavatory basins	4
Range of two lavatory basins	1
24-in. × 18-in. × 10-in. sinks	5
30-in. × 18-in. × 10-in. sinks	5
24-in. × 21-in. × 10-in. shelf sinks	2
30-in. × 30-in. × 7-in. shower trays	2
Range of three bottle-filling troughs	1
Range of three w.c.s	1
High level w.c.s	5
24-in. × 21-in. drainers	2
30-in. × 18-in. drainers	1
Toilet roll holders	8
9-ft. 7-in. urinal slab	1
10-ft. 8-in. urinal slab	1

Hot and cold water installation and internal plumbing 1 9½
Calorifier room: calorifiers. Light gauge copper tubing with compression joint and capillary type fittings to all wastes, overflows, cold water service, swilling down service, and hot water service, including cold water tank.
24 hours supply. 16,000 gal. capacity with cast-iron waste pipes.

Electrical installation 6 6½
In areas subject to steam, m.i.c.c. cable on surface.
Elsewhere, v.i.r. in conduit.

Type of point	*Number of each type*
Lighting	214
Plug	31
Fan	25
Clock	3
Bell	3
Low voltage	4
Motor	9
Heavy duty	4

All with their switchgear distributing boards and local sockets and switches.

analysis

	s	d
Lifts or other mechanical services, equipment, etc. Plenum heated metal clothes lockers; boot brushing machines; boot greasing equipment; safes; lightning conductors; tables and chairs; vacuum plant; lifting gear; attendants' equipment; instrument cupboards, etc.	10	8
Total of services	41	5¼
Drainage Salt-glazed stoneware pipes throughout, except cast iron in concrete under the building. Seconds quality pipes to surface water with outfall to stream. BST quality pipes to soil drain to discharge in local authority's sewer. Brick and concrete balancing tanks and manholes.	1	6¼
External works Tarmacadam and road works, paths and precast concrete pavings, external water services and main. Construction of reinforced-concrete bridge over stream. Lighting standards and cables. Car park and cycle store.	7	0¼
Total per sq. ft.: £102,395 (net cost excluding external works) =	88	9
23,064 sq. ft. (floor area measured inside external walls)		

COST COMMENTS

This scheme being the second pithead bath to be analysed, it is interesting to see whether the costs follow the same pattern.

The main consideration in both schemes is the provision of extensive and complex service requirements together with fittings, and an inspection of the analyses show how closely related are these costs, *i.e.* Pye Hill 44s 8d, Dudley 47s 6¾d. These elements in both schemes are nearly half the total cost of the whole.

Examination of the structural costs to see whether there is any link between the two is rather difficult due to the more varied requirements at Pye Hill which incorporate a canteen and a medical centre. These two sections are of different construction, which tends to distort any direct comparison.

It is interesting to see, though, that the roof construction taken overall over both Pye Hill and Dudley are 6s 11¾d and 6s 10d per sq. ft. out of the total structural cost of 34s 4d and 41s 9¾d respectively; the main items at Pye Hill being in foundations and structural frame elements. The Pye Hill boiler house, baths and locker room areas (which are similar in layout to those at Dudley and incorporate similar hard-wearing surface treatments), cope with twice the number of men and differ in floor area, but should show the same overall structural costs.

CONTRACTORS

Clerk of Works: T. Dodsley. *General contractors:* M. J. Gleeson. *Sub-contractors: Heating, ventilation, and hot water installations:* J. Jeffreys & Co. Ltd. *Electrical installation:* H. T. Hazzledine Ltd. *Reinforced concrete construction:* Trussed Concrete Steel Co. Ltd. *Metal windows:* C. E. Welstead Ltd. *Locker installation:* Rubery, Owen & Co. Ltd. *Aluminium decking, insulation, and bituminous roofing:* William Briggs & Sons Ltd. *Boot brushing machines:* Gummers Ltd. *Steelwork to staircase enclosures:* Light Steelwork (1925) Ltd. *Chemical injection apparatus:* Candy Filter Co. Ltd. *Roller shutters:* Shutter Contractors Ltd. *Kelvinator built-in cold room:* L. Block & Co. *Servery counter:* Sumerling & Co. Ltd. *Lightning conductors:* A. W. Elliott (Steeplejacks) & Co. Ltd. "*Accotile*" *and cork flooring:* Fitchett & Woollacott Ltd. *Steel reinforcement, precast concrete beam units, and prestressed precast concrete beams:* Matthews & Mumby Ltd. *Structural steelwork:* T. C. Jones & Co. Ltd. *Aluminium greasing pots:* Gummers Ltd. *Vacuum cleaners and trolleys:* Sturtevant Engineering Co. Ltd. *Pumping equipment:* Rhodes, Brydon & Youatt Ltd. *Steel door frames:* Morris Singer Co. Ltd. *Ironmongery:* Childs Constantine & Co. Ltd. *Venetian blinds:* J. Avery & Co. Ltd. *Cycle racks and parking blocks:* Stelcon (Industrial Floors) Ltd. *Oil circuit breaker panels:* M. & C. Switchgear Ltd. *Transformer:* South Wales Switchgear Ltd. *Water storage tank:* Mather & Platt Ltd. *Floating orifice for balancing tanks:* William E. Farrer. *Canteen cooking equipment:* Simplex Electric Co. Ltd. *Lettering:* Dales (Lettering) Ltd. *Chubbs wall safe:* Lewis & Grundy. *Canteen furniture:* M.B.C. Industries (Upholsterers) Ltd. *Waste-paper bins:* Milners Safe Co. Ltd. *Wall thermometers:* C. F. Casella & Co. Ltd. *Kelvinator refrigerator:* L. Block & Co. *Attendants' equipment:* James Farquharson & Sons Ltd. *Fire extinguishers:* The Pyrene Co. Ltd. *Mirrors:* Woodhouse & Co. Ltd. *Steel storage units:* Sankey Sheldon Ltd. *Stair treads:* Stelcon Industrial Floors Ltd. *Special decorative paints:* Chemical Building Products Ltd.

building illustrated

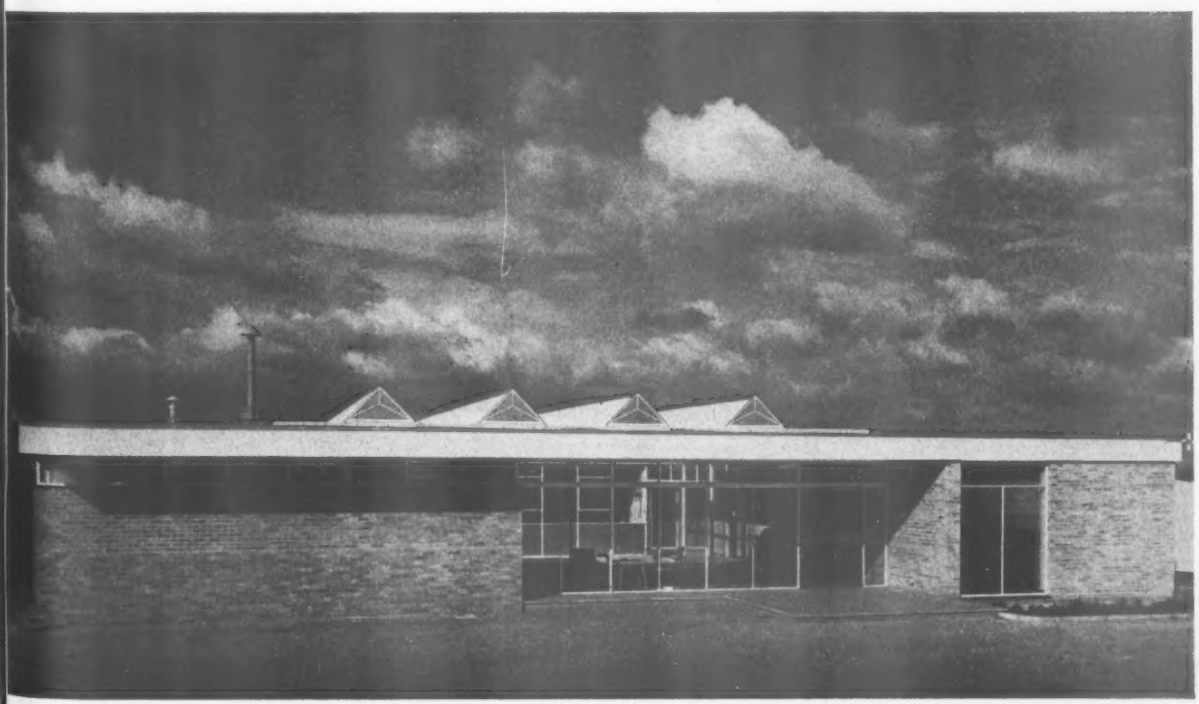
Factory and offices in Old Wareham Road, Poole, Dorset

FACTORY and OFFICES

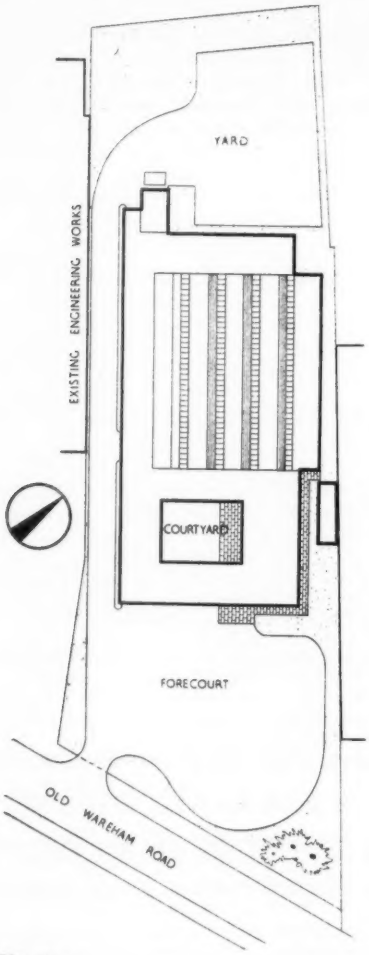
for BRITISH DIAMOND WIRE DIE CO. LTD. in OLD WAREHAM ROAD, POOLE, DORSET designed by FARMER and DARK; partner-in-charge E. M. C. BUTCHER; assistant architects P. J. C. DURLING, I. C. CASE, I. T. KIDD; quantity surveyors F. C. DEMEY and PARTNERS

The JOURNAL publishes this small factory at Poole with more than usual approbation, because it is a model for the kind of workplace which should be provided by light industry. The production area has a clean, pleasant atmosphere achieved by skilful detailing of structure, and the straightforward but charming character of the entrance area to the offices is in marked contrast to the showiness so often associated with "prestige accommodation."

The main entrance from the forecourt.

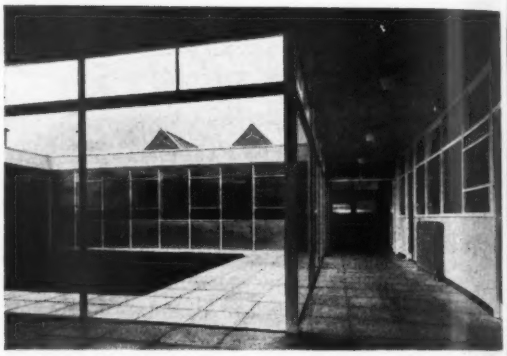


building illustrated



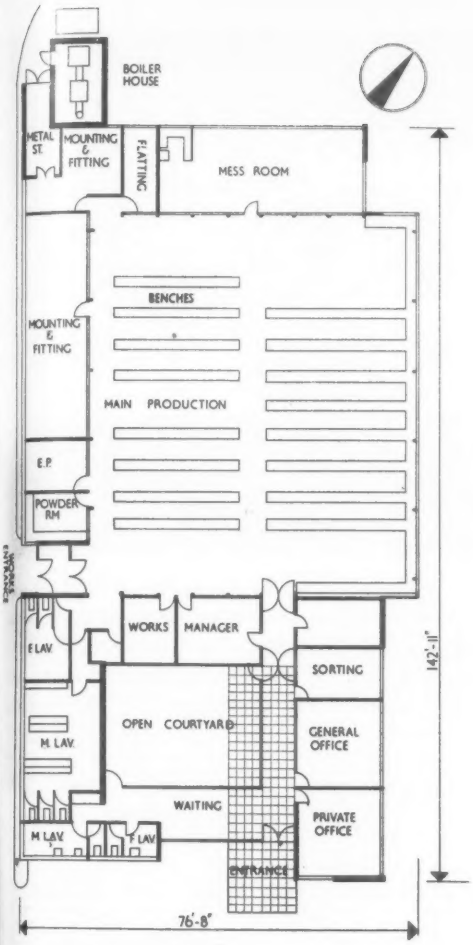
Site plan

The site is a long narrow plot and since a future road-widening scheme will cut off 35 ft. at one end, the space available is only just sufficient to contain the factory with its necessary service road, yard and turn-around. Within this severe limitation a very workable plan has been evolved. The main production area is surrounded on three sides by a slightly lower single-storey building containing the offices, lavatories, ancillary workshops and mess room.



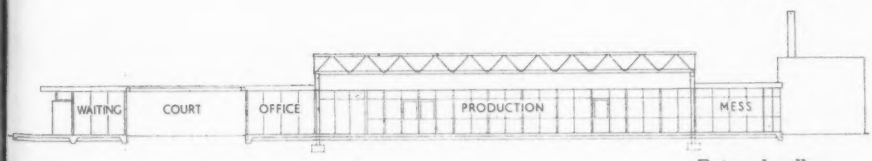
The photograph below shows the main entrance. The roof of the lower building has a wide overhang at this point, and the entrance wall is entirely glazed between the brick return walls of the offices on the right and the lavatories on the left. Beyond this glazing is a waiting space for visitors which looks into a small courtyard (above) through another glazed wall. From here a corridor leads past the offices to the production area.

analysis



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

The roof of the offices, lavatories, and other ancillary spaces is of timber decking units supported mainly on loadbearing walls. The floor of the entrance area is of 20-in. square precast concrete flags. The placing of this paving, the overhang of the roof, the use of floor-to-ceiling glazing and simple planes of brickwork are the elements which contribute mainly to the strong architectural character of the entrance area. This building demonstrates very well that it is the skilful handling of basic architectural elements, not the prolific use of expensive materials or "exciting" structural gimmicks, which can produce the best results in buildings of this kind.



Long section [Scale: $\frac{1}{32}$" = 1' 0"]

CLIENT'S REQUIREMENTS

The clients manufacture dies used for extruding wire, which are made by piercing diamonds with either a very fine drill or by an electrical process. These are then mounted. The clients required 1. a main production area with good daylight and artificial light; 2. Ancillary engineers' shops and process rooms; 3. a works canteen; 4. office accommodation; 5. lavatories for works and office personnel.

PLANNING AIMS

The site is narrow and orientated approximately east and west, and the main production area and ancillary rooms fill the entire usable width. North-east glazing to space frames gives an even distribution of light and wood wool slabs were used to reduce the noise of the machinery. The clients required the interior to have no dust catching ledges and a minimum of joints in the floors. Continuous fluorescent light fittings mounted low above benches gave the necessary level of lighting for intricate operations. The canteen is separated from the production area by a glazed screen and has extensive views to the east. The offices are arranged round an open courtyard and some are separated from the production area by a glazed screen, giving good control of the production area and works entrance. The whole works is built on one storey. The number of employees is approximately 45.

SUMMARY

Ground floor area: 9,552 sq. ft.
Total floor area: 9,662 sq. ft.
Type of contract: RIBA with quantities.
Tender date: October 19, 1956.
Work began: November 12, 1956.
Work finished: August 23, 1957.
Final contract price of foundations, superstructure, installations and finishes: £31,689.
Final contract price of external works, and ancillary buildings: £2,719.
Total: £34,408.

	cost per sq. ft.	s	d
Preliminaries and insurances		2	0½
Contingencies, nil.			
Work below ground floor level		5	4
Mass concrete bases for columns. Strip foundations for 11-in. cavity walls and concrete edge beams under full height glazing. Un-reinforced concrete slab to floor.			

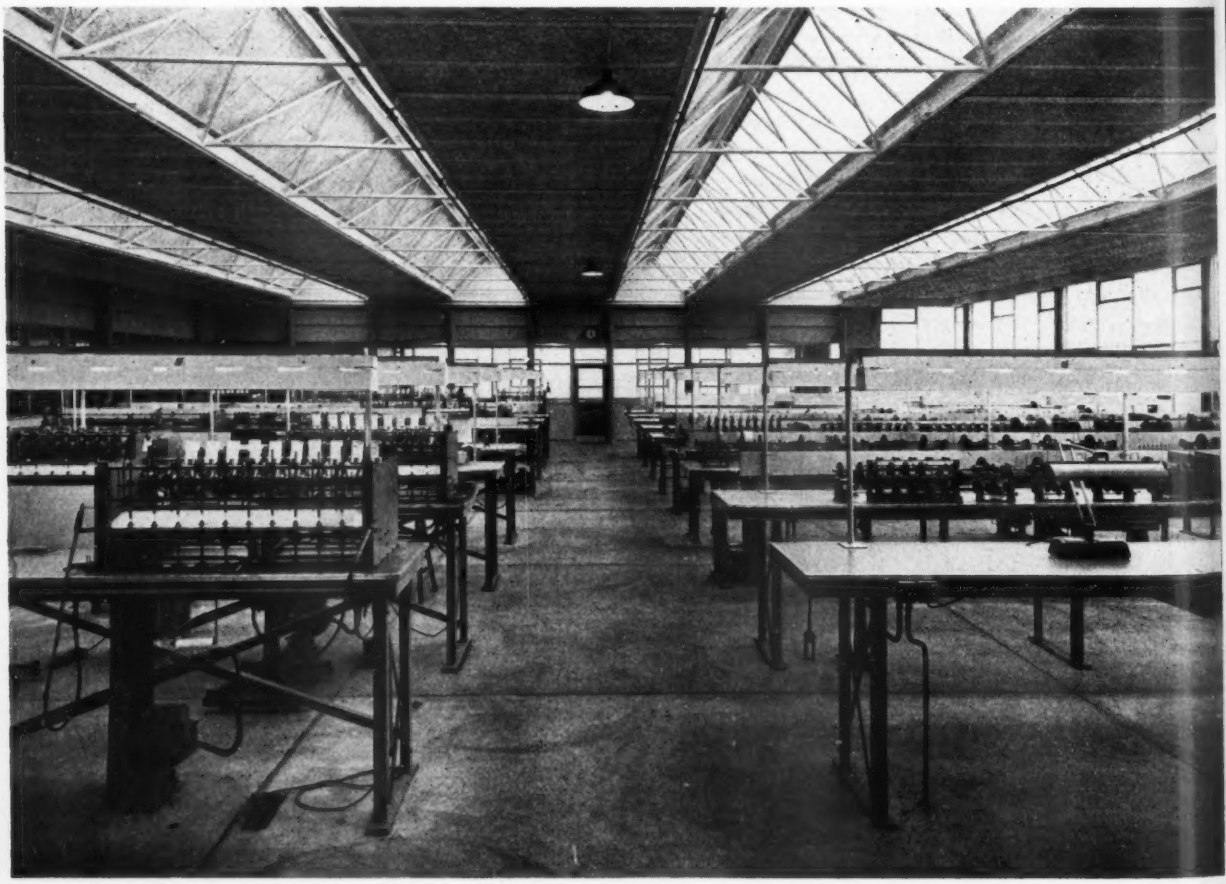
STRUCTURAL ELEMENTS

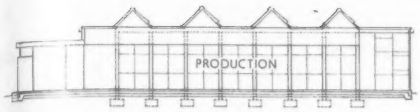
Frame or load-bearing element		3	8½
Workshop: 5-in. steel tubes supporting space frames. Offices and ancillary areas: load-bearing 11-in. cavity brickwork.			
External walls			7½
11-in. cavity wall, inner skin of sand limes. Slate sills under high level windows. Continuous full height glazing and faced asbestos panels.			

Ratio: $\frac{\text{solid walls}}{\text{floor area}} = 1:4{\cdot}7$

building illustrated

Above: the exterior of the mess room at the north-west end of the factory. Externally it is clad with a simple type of curtain wall consisting of medium duty "universal" steel window sections with standard coupling mullions and aluminium-faced asbestos panels below sill level. The offices, small workshops and the north-east side of the production area are similarly clad. Interior screen partitions are of plastered hollow clay blocks to sill height, with timber-framed glazing above. Below: the interior of the production area, looking towards the mess room. The roof is constructed of steel space frames with chords of rolled sections and tubular struts. (see Working Detail, AJ May 29). Reinforced wood-wool slabs span between these and also form the decking of the south-west slope: the north-west slope is covered with patent glazing. The clean detailing of this roof, unlike that of many factory roof constructions, enhances the quality of the daylight coming through it. Such roofs should be taken into account in the present controversy over "windowless factories" (see AJ July 17, 1958) since they provide excellent evidence against those who maintain that roof-lighting has "no psychological value."

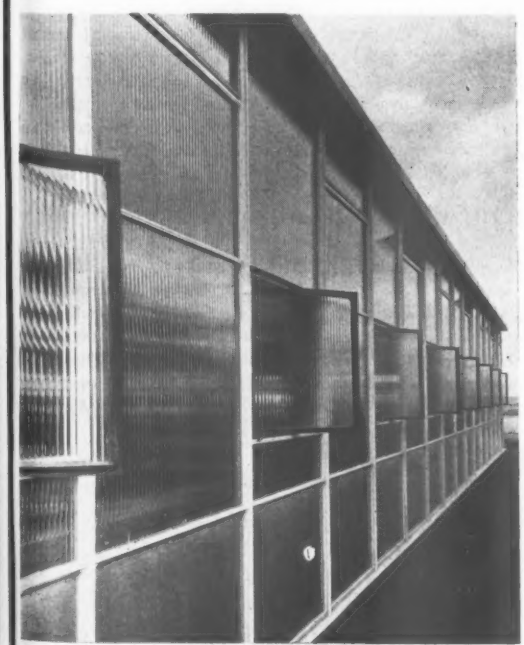




Cross section through production area [Scale: $\frac{1}{32}$" = 1' 0"]

The space-frame roof is supported on 5-in. tubular steel columns. The floor is of a special granolithic screed with joints kept to a minimum, and contains hot water coils for heating. There are also high-level anti-condensation pipes. The fluorescent lighting is bracketed off the benches; a very high level of illumination was required by the nature of the work.

The photograph above shows another view of the production area, looking north. The windows on the north-east side are glazed with broad-reeded glass, as they look onto an adjacent site (below).



analysis

	s	d
Windows	5	1½
Galvanized steel medium universal sections with cruciform couplings and tubes for angle returns.		
Ratio: $\frac{\text{windows}}{\text{floor area}} = 1:3 \cdot 1$		
External doors		5½
Main entrance: double swing armour plated.		
Works entrance: pressed steel.		
Elsewhere: framed, ledged, braced and battened.		
Ratio: $\frac{\text{doors}}{\text{floor area}} = 1:91 \cdot 1$		
Roof construction	12	10½
Workshop: 4 triangular welded steel tube space frames with small section tees between, carrying 3-in. reinforced wood wool slabs. Area: 4,800 sq. ft.		
Offices and ancillary areas: patent timber decking. Area: 4,700 sq. ft.		
Roof lights	1	3½
No. of lights: 4 runs of patent glazing, one side of each space frame.		
Total area: 1,152 sq. ft.		
Glazing		11½
Workshop, offices and courtyard: continuous full height with aluminium faced asbestos panels to sill height. Broad reeded glass.		
Entrance and waiting area: plate glass continuous full height.		
Lavatories and ancillary workshops: continuous high level.		
Total of structural elements	**25s**	**0½d**

PARTITIONS AND FITTINGS

Internal partitions			9
Type of partition	*Area of each type*		
4½-in. fairfaced	1,921 sq. ft.		
4½-in. plastered sand limes and hollow clay block	119 sq. ft.		
Screens		1	7½
Above hollow clay blocks to sill height, fully glazed with top hung vents. Area: 964 sq. ft.			
Internal doors			8½
In screens: half glazed.			
In partitions: ply faced flush to offices. Hardboard elsewhere.			
In lobbies: fully glazed.			
No. of single doors: 26. No. of double doors: 4 pairs.			
Ironmongery			8½
Anodized aluminium lever handles.			
Fittings		2	4½
Benches in workshop: rigid angle iron frames glued to floor, with plastic-faced chip board tops. Davitts supporting fluorescent bench lights at low level.			
Cloakrooms: lockable open wire type hangers.			
Total of partitions and fittings		**6s**	**1½d**

analysis

FINISHES

s d

Floor finishes 3 10¼

Location	*Type of finish*	*Area in sq. ft.*
Office and waiting area	Resin bonded chip board tiles	1,242
Main entrance	Concrete paving slabs, 20 in. square	898
Lavatories	Quarry tiles	229
Workshops etc.	Special grano screed	7,293

Wall finishes 1 7¾
Fairfaced brickwork and plaster.

Ceiling finishes 7
Insulation board in 3-ft. 4-in. modular size in offices and low level ceilings. Construction exposed elsewhere.

Roof finishes 2 1
3-layer built-up bituminous felt with white spar finish.
Area: 9,700 sq. ft.

Decorations 9¾
Emulsion paint to plaster and wood wool ceiling slabs.
Gloss paint on all woodwork and metal windows.

Total of finishes 8s 11¼d

SERVICES

External plumbing 8½
Vitreous enamel gutters and rainwater downpipes.

Hot and cold water installation 1 1¼
Unit electric heaters in lavatories and canteen.

Sanitary fittings 10¼

Type of fitting.	*No. of each type.*
Lotus type w.c.s	7
Lavatory basins	9
Urinals	6
Drinking fountains	2

Heating and ventilation 8 0½
Under-floor heating by hot water coils with high level anti-condensation pipes in workshops.
Hot water radiators in offices and lavatories.
Convector heater to waiting area.
Under-floor heating is supplied from an oil-fired boiler.

Gas installation 6
54 points bring supply to benches for industrial use.

s d

Electrical installation 4 11½

Type of point	*No. of each type*
Low level fluorescent bench lights	107
Tungsten lights	56

A miniature busbar trunk system feeds engineering equipment and is conduited to the benches.

Total of services 16s 2¼d

Drainage 1 10½
Salt-glazed stoneware.

External works
Tar-macadamized approach and car park; r.c. post and chain link fencing.

Total per sq. ft. of floor area

$$= \frac{£31{,}689 \text{ (net cost excluding ext. works)}}{9{,}662 \text{ sq. ft.}} = 65\ 7$$

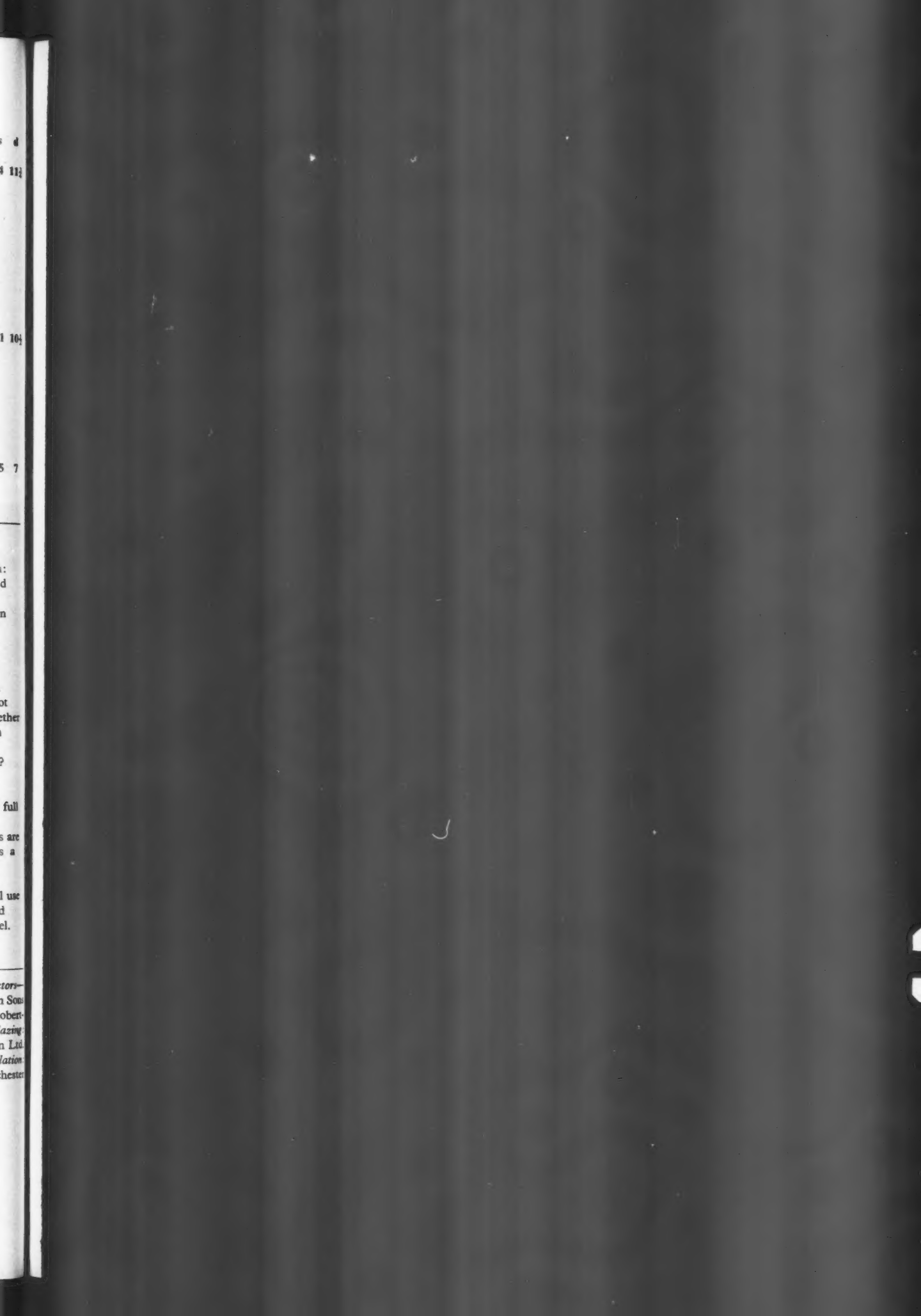
COST COMMENTS

Certain elements in the cost analysis shows clearly the client's requirements in the factory area:
1. High natural and artificial lighting value resulting in: (*a*) high roof light cost over the workshop area at 1s 3¼d per sq. ft. of floor area; (*b*) electrical installation at 4s 11¼d per sq. ft. floor area containing large proportion of fluorescent fittings.
2. A dust free and easily cleaned surface is achieved by use of special flooring treatment at 3s 10¼d per sq. ft. floor area.

It is interesting to note that the areas of administration and workshop are nearly equal, but the analysis does not show whether the cost is spread proportionately or whether the forms of construction are costing the same for both sections; for example, is the roof to the workshop as economical as the roof to the remainder of the scheme? A reliable guide to the factors affecting cost is essential when planning similar composite schemes and analysis can be of considerable use especially when the full details of a particular scheme under consideration are known. In this project the dissimilar user requirements are so integrated that nowhere could it be said that there is a clean cut division possible between low cost factory areas and high cost administration areas as is normally the case when planned as individual blocks. In fact full use has been made of services, interrelated screen walls and circulation to keep the cost down to an economical level.

CONTRACTORS

General contractor: Dust & Vick Ltd. *Sub-contractors—Steelwork:* J. R. Smith & Sons Ltd. *Roofing:* H. Newsum Sons & Co. Ltd. *Felt roofing:* Ruberoid. *Flooring:* Haskell Robertson Ltd., Southern Tiling. *Windows and patent glazing:* Henry Hope Ltd. *Heating:* Mumford, Barley & Preston Ltd. *Electrical installation:* Aish & Co. Ltd. *Gas installation:* Southern Gas Board. *Fural roofing and slate sills:* Manchester Slate Co. Ltd. *Fibrous plaster:* E. Wilcox.



working detail

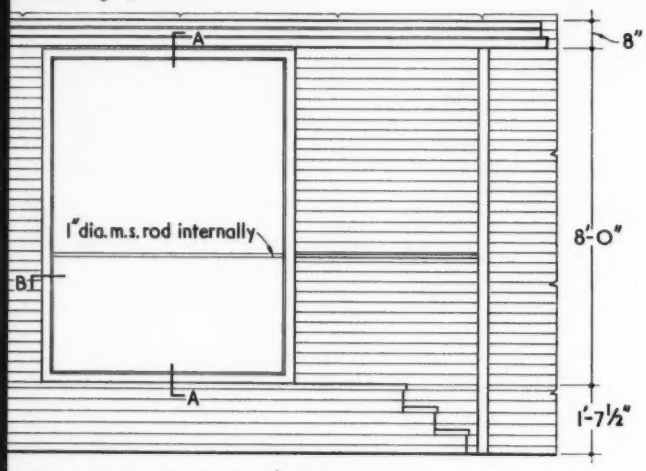
ENTRANCE DOOR: FACTORY IN LONDON, E.8

Walter Segal, architect

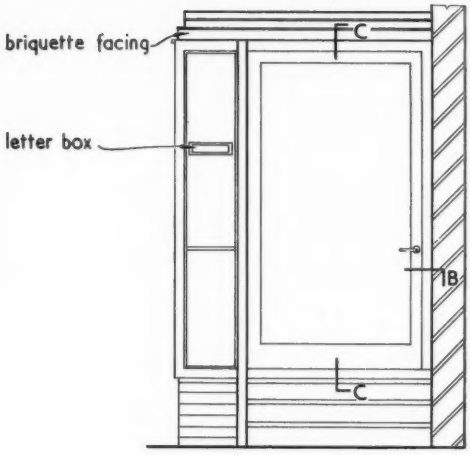
There are a number of departures from conventional construction in this detail which combine to give it a particular visual quality. Note the use of a 3-in. r.c. slab, faced with briquettes and surmounted round the edge by a diminutive wood "parapet"; also the projection of the granolithic floor finish to the outside face of the wall.

ENTRANCE DOOR: FACTORY IN LONDON, E.8

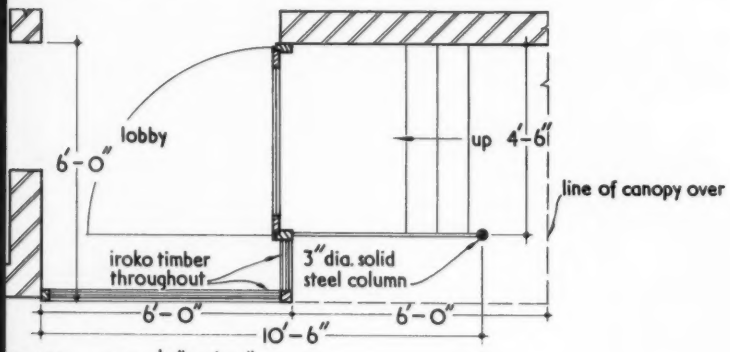
Walter Segal, architect



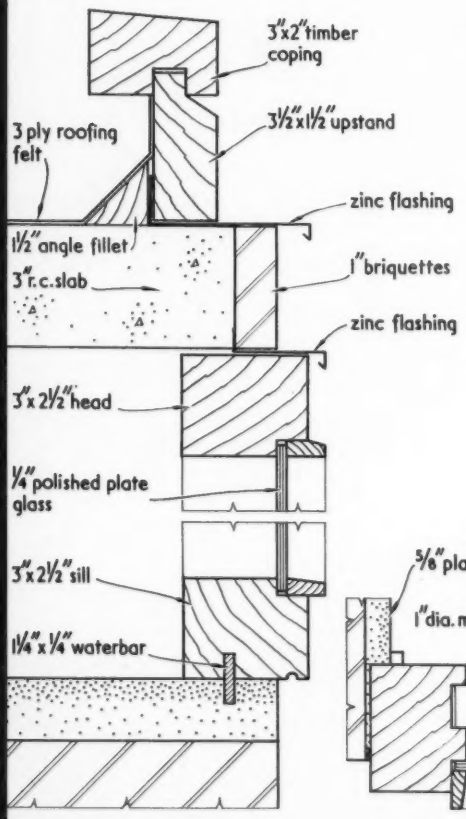
SIDE ELEVATION. scale ¼"=1'-0"



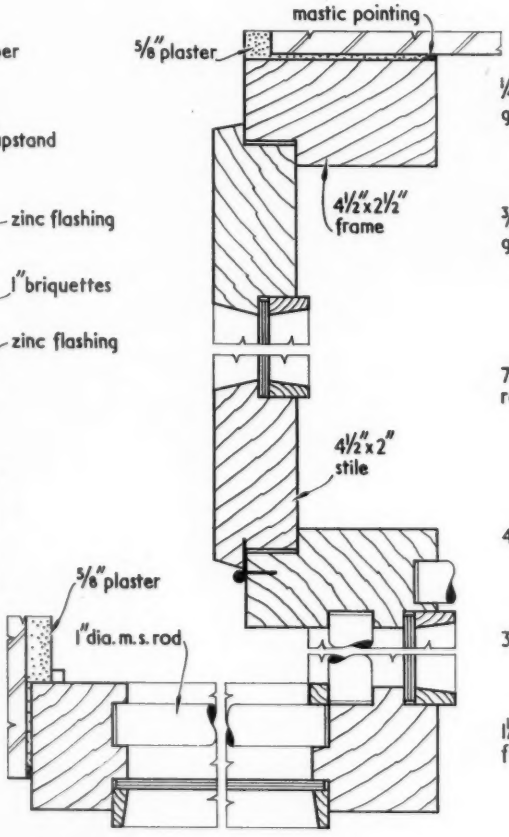
ENTRANCE ELEVATION.



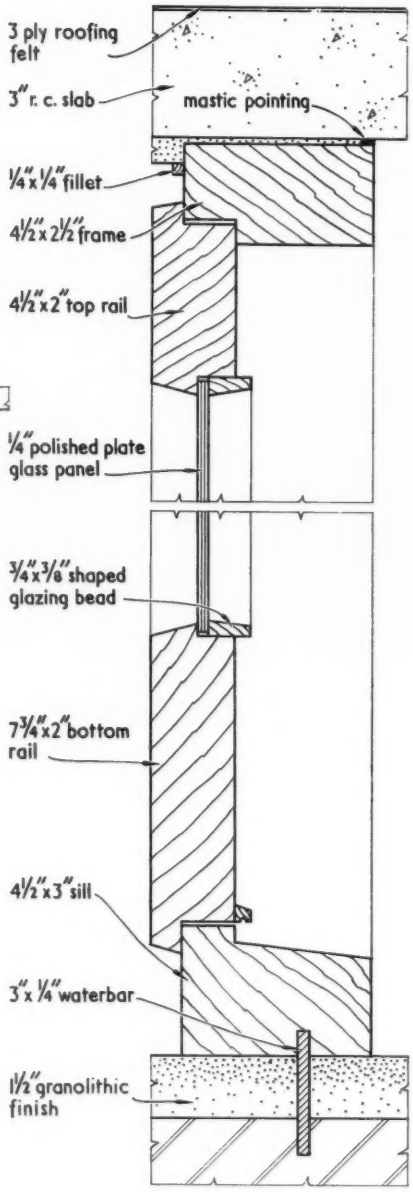
PLAN. scale ¼"= 1'-0"



SECTION A-A. scale ¼ full size



PLAN B-B.



SECTION C-C.

MONITOR ROOF: FACTORY IN LONDON, E.8

Walter Segal, architect

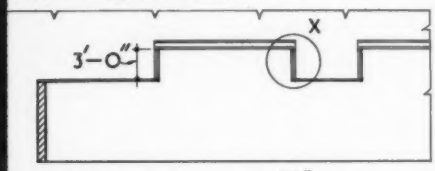
This monitor truss is an excellent example of how, by using common unspecialized components intelligently, a result can be produced which is neater and cheaper than using more elaborate products which the industry offers for this purpose. The 38-ft. span trusses which form the sides of these monitors are made from 3 in. by 3 in. by ¼ in. angles, 1½ in. by 1½ in. by ¼ in. tees, and steel rods (which vary in diameter between ½ in. and ¾ in. according to their position). Note the welding of an additional strip of angle to the bottom boom to support the woodwool slabs.

working detail

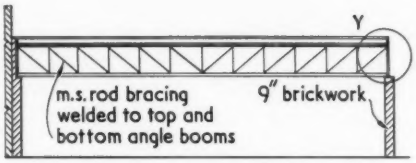
ROOFS AND CEILINGS: 50

MONITOR ROOF: FACTORY IN LONDON, E.8

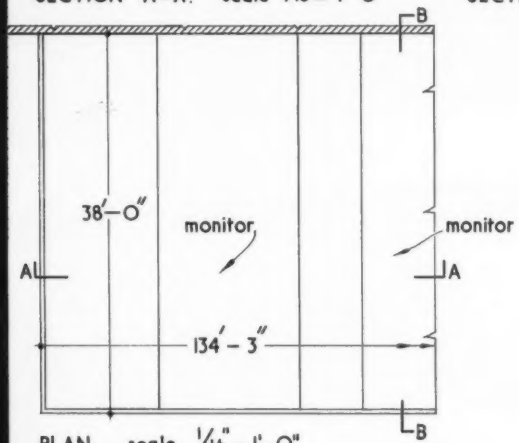
Walter Segal, architect



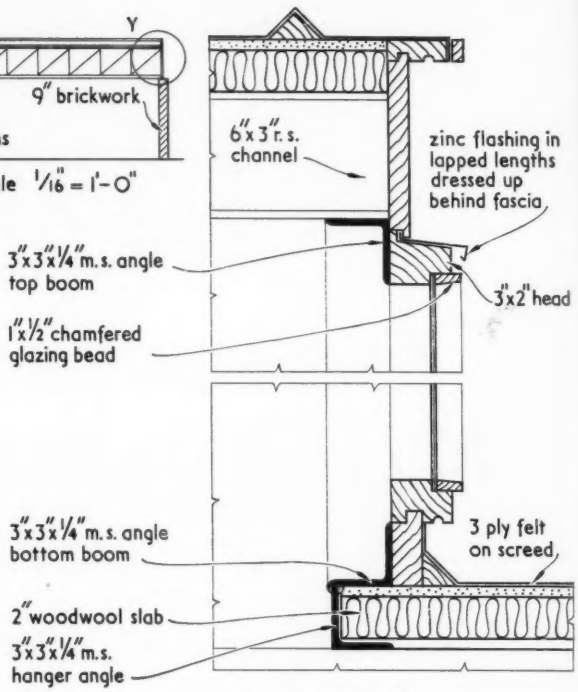
SECTION A–A. scale 1/16" = 1'–0"



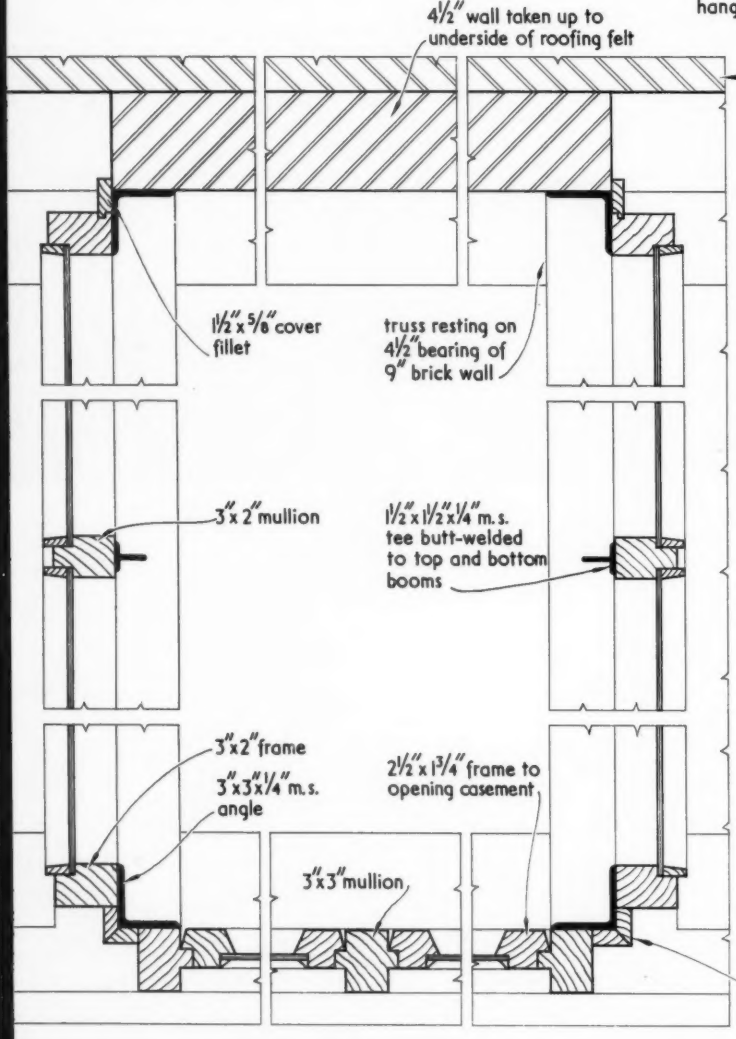
SECTION B–B. scale 1/16" = 1'–0"



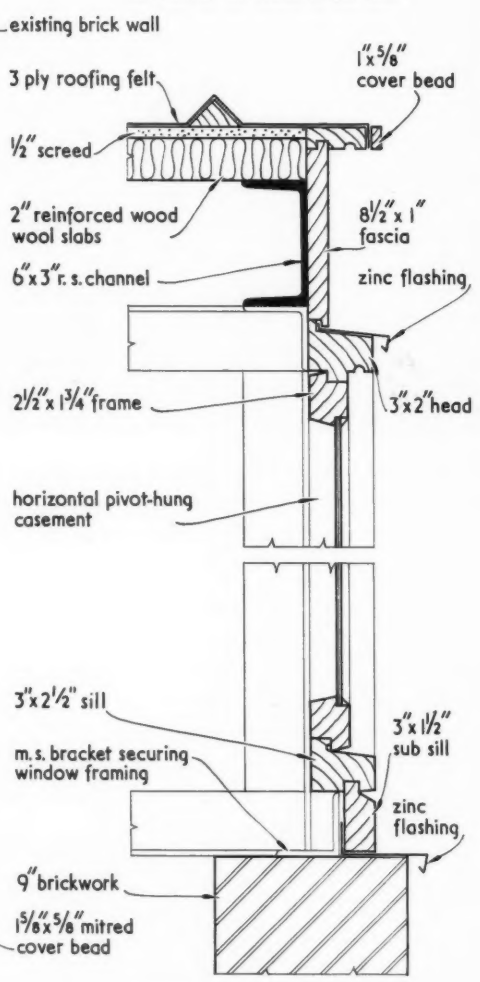
PLAN. scale 1/16" = 1'–0"



DETAIL AT X. scale 1/8 full size



PLAN OF MONITOR. scale 1/8 full size



DETAIL AT Y. scale 1/8 full size

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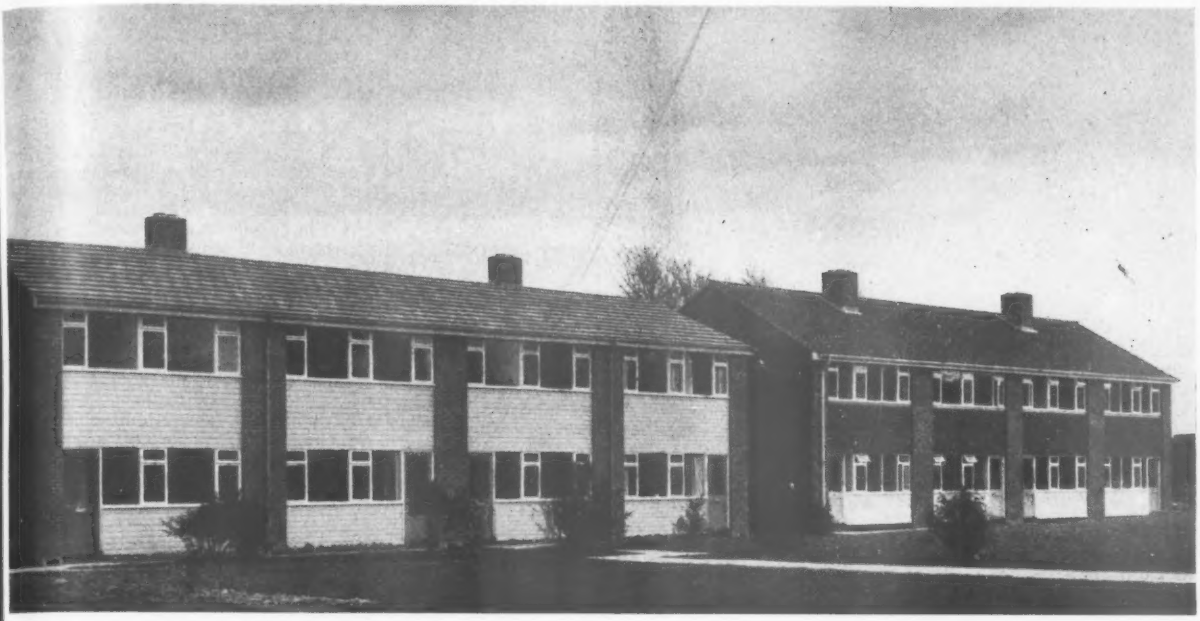
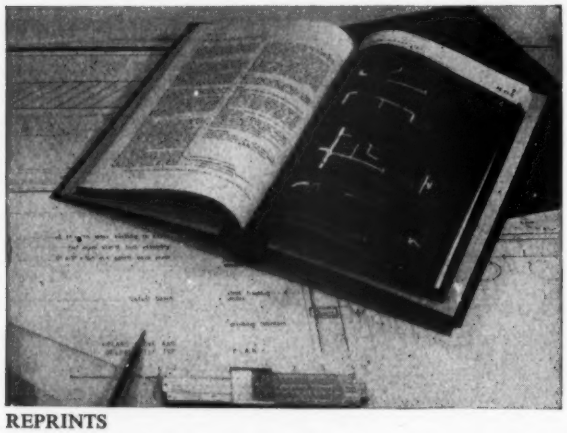


The photograph above shows two typical blocks of standard houses built by Carlton Contractors Ltd. at Chessington, Surrey. This firm are now offering an "off-the-peg" housing service to local authorities and it is claimed that a 3-bedroom house of the type illustrated can be built for a price of £1,100 inclusive of all external works. The consultants are: Stanley Bragg & Associates, architects; R. T. Day & Partners, quantity surveyors; F. J. Brand, structural engineer.



THE LIBRARY OF INFORMATION SHEETS COMPLETE TO JUNE, 1958

REPRINTS

All Information Sheets published since the new series was started in October, 1947, have been reprinted. Specially-designed binding cases to hold approximately 100 Sheets may be obtained at the price of 6s. 0d. each. (Postage 1s. 1d.)

Individual Sheets may be ordered (3d. each) Readers requiring sets or individual Sheets should fill in the form below. Sets in classified order (without binders) are available as follows:

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Announcements

PROFESSIONAL

Edward Craven, A.R.I.B.A., M.T.P.I., has changed the address of his Lincoln office to 11a, St. Mary's Street, Lincoln. The telephone number remains Lincoln 10671.

Christopher Gotch, A.R.I.B.A., has resigned as Chief Assistant Architect to the Herts. County Council and will commence practice from September 1 as Christopher Gotch & Associates, 160, Ballards Lane, Finchley, N.3 (Finchley 0480) where he will be pleased to receive trade literature, etc.

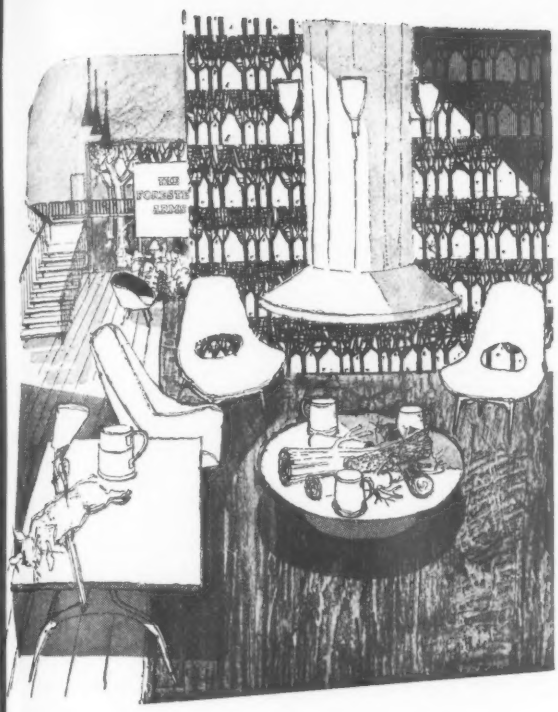
TRADE

Leaderflush (Doors) Ltd. have appointed Alexander MacKenzie & Co. Ltd., 35/40, Haddington Place, Edinburgh 7 (Waverley 7666) to act as sole distributors of Leaderflush doors for Midlothian, Westlothian, Eastlothian, Fifeshire, Kinross-shire, Clackmannanshire, Peebles-shire, Selkirkshire, Roxburghshire and Berwickshire.

G. L. Badge, who has had over 30 years active experience in the Metal Window Industry holding posts with leading national undertakings, has been appointed a senior Technical Representative for the Metal Window and Curtain Walling Division of Aygee Limited. He will have responsibilities covering the London and Sussex areas.

Econa Modern Products Ltd. announce that R. E. Letts, who has been their Technical Design and Sales Manager for the latter part of the ten years that he has been with them, has been elected to the Board of Directors.

F. E. Holmes has now joined the Board of Hayward & Martin Ltd.



Haywards wallpaper "Avenue" No. 530. Drawing by Susan Soord

A SERVICE FOR ARCHITECTS

ARCHITECTS CONCERNED WITH THE SPECIFICATION OR DIRECTION OF DECORATIVE SCHEMES ARE INVITED TO USE THE FACILITIES OFFERED BY OUR ARCHITECTS' DEPARTMENT

Though the primary purpose of the ARCHITECTS' DEPARTMENT is to give advice on the use of wallpaper it is also able to deal with enquiries concerning the use and choice of paints and fabrics.

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THE ARCHITECTS' DEPARTMENT
THE WALL PAPER MANUFACTURERS LIMITED
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MANCHESTER 3

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Cricket? Cricket? Never thought I'd live to see the county clubhouse turned into a Crystal Palace.

Reed Millican of course?*

No need to ask. Whole place reeks of 'em. 'Specially the bar. Must admit those "Old Masters" mirrors in pink and blue and gold showin' "W.G." and Co., stirred old memories.

Where's Featherstonehaugh?

Gone to telephone Newcastle 28383 . . . tell 'em it's sacrilege.

Think they'll worry?

Why should they? Chairman wrote Millican last week . . . everyone delighted . impeccable taste . . . asked him to accept honorary membership.

Pair of spectacles for Featherstonehaugh, eh?

* .. ARTISTRY IN RM GLASS

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room unit AIR conditioners

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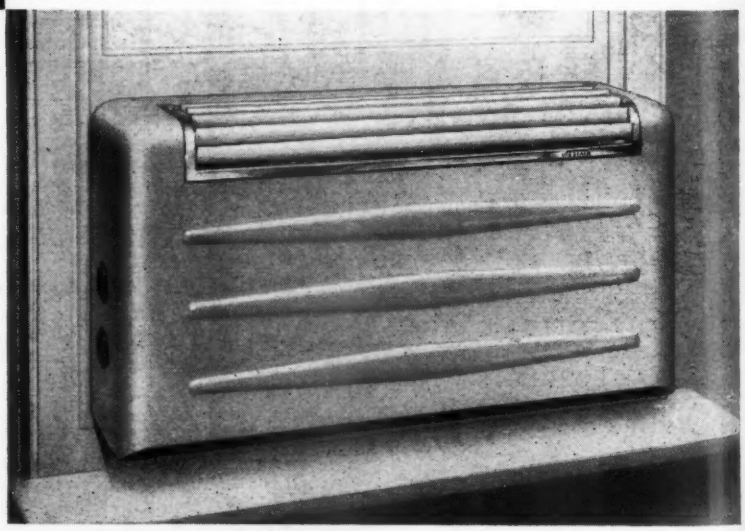
The 1.5 Model, illustrated, carries out cooling, heating, filtering, extraction and re-circulation, and is one of a range of units designed to cover all requirements. A free-standing dehumidifier unit is also available.



Westair units have been installed by The General Post Office, Babcock & Wilcox Ltd., The Metropolitan-Vickers Electrical Co. Ltd., British Tabulating Machine Co. Ltd., Guys Hospital, C. T. Bowring & Co. Ltd., Remington Rand Ltd., English Electric Co. Ltd., Stewarts & Lloyds Ltd., etc.

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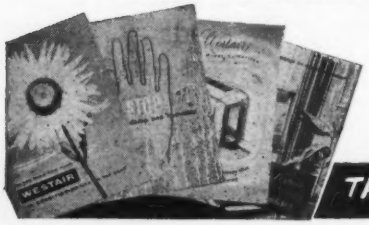

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Cloth	Masonry	Wood, etc.
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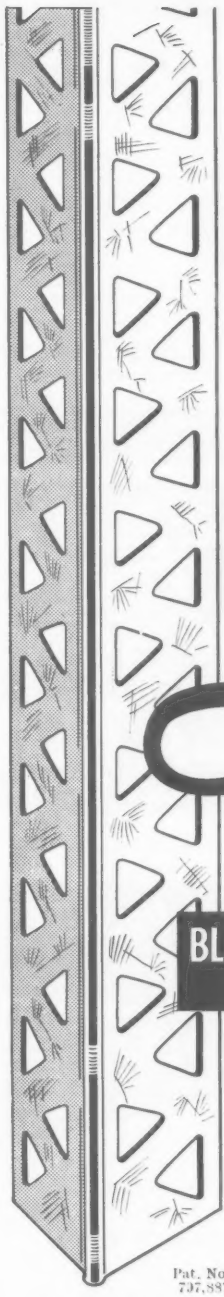

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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Public and Official Announcements

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

BOROUGH OF SOLIHULL
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
LANDSCAPE ARCHITECT, A.P.T. GRADE IV

Applications are invited for the above appointment of Landscape Architect, A.P.T. Grade IV (£1,025 × £50 to £1,175), in the Department of the Borough Engineer and Surveyor.

Applicants should be Members of the Institute of Landscape Architects, and have considerable experience.

The appointment is subject to the provisions of the Local Government Superannuation Acts and of the National Scheme of Conditions of Service, and to one month's notice on either side.

Half the reasonable cost of removal expenses will be paid at the end of six months' service and where applicable housing accommodation will be provided.

Applications giving names and addresses of two referees should be forwarded to Mr. C. R. Hutchinson, B.Sc., A.M.I.C.E., Borough Engineer and Surveyor, 90, Station Road, Solihull, Warwickshire, not later than Friday, August 15th, 1958.

W. MAURICE MELL,
Town Clerk.

16th July, 1958. 1026

KUMASI COLLEGE OF TECHNOLOGY
(*Principal* : W. E. DUNCANSON, PH.D., D.SC., F.INST.P., A.M.I.E.E.)

Applications are invited for the posts of:—

(a) SENIOR LECTURER in ARCHITECTURE.
(b) SENIOR LECTURER in TOWN PLANNING.
(c) LECTURER in TOWN PLANNING.
(d) LECTURERS / STUDIO MASTERS in BUILDING TECHNOLOGY

in the School of Architecture, Town Planning and Building.

The School prepares students for the Intermediate Examinations of the R.I.B.A. and of the T.P.I., and negotiations are at present in progress between the School and various bodies in London concerning the Building Technology course for which it is hoped to make arrangements similar to those of the Architects and Town Planners.

SENIOR LECTURESHIPS: Qualifications: Associate Membership of the appropriate Institute; at least 5 years' practical experience and preferably at least 2 years' teaching experience. Senior Lecturers will be required to assist the Head of Department in organizing and conducting the Architecture/Town Planning courses and will be expected to take considerable responsibility.

LECTURERS: Qualifications: for the Town Planning post—Associate Membership of the T.P.I.; for the Building Technology posts—Associate Membership of the R.I.B.A. or equivalent qualification; at least 3 years' practical experience and preferably at least 1 year's teaching experience.

Appointment may be accepted on contract for 5 years or on pension or arrangements to continue policies initiated under the F.S.S.U. Scheme might be made by the College.

Contract salary scale: £2,040 × £72—£2,328 p.a. (Senior Lecturer); £1,230 × £60—£1,950 p.a. (Lecturer), plus a gratuity payable at end of contract at the rate of £12 10s. 0d. for each month of satisfactory service.

Pensionable and F.S.S.U. Salary Scale: £1,580 × £60—£1,940 p.a. (Senior Lecturer); £925 × £50 —£1,625 (Lecturer). Points of entry according to experience.

Children's allowances up to a maximum of three at the rate of £50 p.a. per child up to 10 years and £100 p.a. per child over 10 years in full-time education up to 21 years. Annual leave with free return first-class passages for the member of staff and, conditional on a minimum stay in West Africa, for his wife and up to three children under 17 years. Bungalows with basic furniture at low rental are provided. Income tax low.

Applications (6 copies) giving age, qualifications, experience and the names of three referees should be sent to The Council for Overseas Colleges, 12, Lincoln's Inn Fields, London, W.C.2. Closing date 15th August, 1958. 1053

HAMPSTEAD BOROUGH COUNCIL

Invite applications for the following appointments on the temporary staff of the Housing Architect's Department:—

TWO ARCHITECTURAL ASSISTANTS, Grades A.P.T. I/II and Special (£575—£725; £725—£845; £750—£1,030; plus London weighting); commencing salary according to qualifications and experience. Grades I/II—Intermediate R.I.B.A.; Special—Final R.I.B.A.

Applications giving training, experience, previous appointments and the names of three referees to the Town Clerk (AJ), Town Hall, Haverstock Hill, N.W.3, by 14th August, 1958. No housing provided. 1049

KUMASI COLLEGE OF TECHNOLOGY
(*Principal* : W. E. DUNCANSON, PH.D., D.SC., F.INST.P., A.M.I.E.E.)
SCHOOL OF ARCHITECTURE, TOWN PLANNING AND BUILDING
BUILDING RESEARCH GROUP

Applications are invited for two research posts, one at SENIOR LECTURER level and one at LECTURER level.

The Building Research Group will deal with a wide field of research in Ghana in subjects allied to Building and Town Planning.

Applicants should be Associates of the Royal Institute of British Architects, or Associate Members of the Town Planning Institute or possess an equivalent graduate qualification. The successful candidates will be required to take up their posts in January.

Appointment may be accepted on contract for 5 years or on pension or arrangements to continue policies initiated under the F.S.S.U. Scheme might be made by the College.

The contract salary scales are:—£2,040 × £72 —£2,328 p.a. (Senior Lecturer); £1,230 × £60— £1,950 p.a. (Lecturer), plus a gratuity payable at the end of the contract at the rate of £12 10s. 0d. for each month of satisfactory service.

Pensionable and F.S.S.U. salary scales:—£1,580 × £60—£1,940 p.a. (Senior Lecturer); £925 × £50 —£1,625 p.a. (Lecturer). Points of entry to the salary scales according to experience.

Children's allowances up to a maximum of three at the rate of £50 per child up to 10 years and £100 per child over 10 years in full-time education up to 21 years.

Conditions of service include annual leave with free return first class passages for the member of staff and, conditional on a minimum stay in West Africa, for his wife and up to three children under 17 years. Bungalows with basic furniture at low rental are provided. Income tax low.

Applications (6 copies) giving age, qualifications, experience and the names of three referees should be sent to The Council for Overseas Colleges, 12, Lincoln's Inn Fields, London, W.C.2. Closing date 15th August, 1958. 1052

BOROUGH OF GRANTHAM
CHIEF ASSISTANT ARCHITECT

Applications are invited for the above appointment in the department of the Borough Engineer and Surveyor at a salary within Special Grade (£750—£1,030) with car allowance. Applicants must be Registered Architects with good general experience, and be capable of preparing and supervising all building schemes undertaken by the Corporation. Experience of dealing with bye-law applications submitted to the Local Authority would be an advantage. Housing accommodation will be available to the successful candidate, if required. The appointment is subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts, the passing of a medical examination, and is terminable by one month's notice on either side. Applications, stating age, qualifications, training and experience, previous and present positions, together with two recent testimonials, should be received by the Borough Engineer and Surveyor, Guildhall, Grantham, not later than Wednesday, 6th August, 1958.

JOHN F. GUILE,
Town Clerk.

Guildhall,
Grantham.
19th July, 1958. 1050

LEEDS REGIONAL HOSPITAL BOARD

Applications are invited for two appointments as ASSISTANT ARCHITECT (Salary scale £700/£1,015 per annum). Commencing salary dependent upon relevant practical experience, but the additional increments granted will not be more than the number of years by which the officer's age exceeds 23.

Applicants must be Associate Members of the R.I.B.A. Experience in hospital planning an advantage.

Applications, giving age, experience and the names of two referees to the Secretary, Park Parade, Harrogate, by not later than 16th August, 1958. 1055

ANTRIM COUNTY COUNCIL
PLANNING ASSISTANT

Applications are invited from holders of a qualification in Planning and/or Architecture for the position of PLANNING ASSISTANT in the Council's Planning Department. Salary Scale A.P.T. Grade IV (£1,025—£1,175) subject to deductions under the Local Government (Superannuation) Act (N.I.), 1950.

Applications, together with the names and addresses of two persons to whom reference may be made, must be delivered to the Secretary, County Courthouse, Crumlin Road, Belfast, not later than 30th August, 1958. 1065

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for: (1) ARCHITECTS, Grade III, starting salary up to £1,090 a year. (2) ARCHITECTURAL ASSISTANTS, starting salary up to £860.

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

Application form and full particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, the County Hall, S.E.1, quoting ref. AR/EK/36/58. (1428) 1074

CITY OF WAKEFIELD
APPOINTMENT OF ASSISTANT ARCHITECTS
SPECIAL GRADE (£750 × £40—£1,030 per annum)

Applications are invited for the above superannuable appointments, the commencing salaries to be fixed in accordance with qualifications and experience.

Applicants must be A.R.I.B.A. and preference will be given to those having municipal experience.

The Authority has a full and interesting Building programme and these appointments offer good opportunities to qualified Architects seeking experience in design and construction.

Housing accommodation will be provided if necessary.

Applications stating age, qualifications and experience, together with the names of two referees, to be sent to the City Engineer, Town Hall, Wakefield, by the 15th August, 1958. 1076

COUNTY COUNCIL OF ESSEX
COUNTY PLANNING DEPARTMENT

Applications invited for the following posts:—

(1) ASSISTANT AREA PLANNING OFFICER, Special Grade (£750—£1,030) at Braintree. Applicants should be Corporate Members of the Town Planning Institute or other comparable professional institute and have had wide experience in development control. Applicants should also be experienced in the preparation of development plans for county towns and large villages, and be able to assume control of a small Area Office of eleven persons during the absence of the Area Officer.

(2) PLANNING ASSISTANT, A.P.T. Grade I (£575—£725) at Romford. Applicants will be required to carry out duties in connection with development control and must be experienced in sketch design and layouts for housing and industrial estates.

Medical examination. Superannuation.

Application forms from County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, to whom they should be returned by 12th August, 1958. 1079

BOROUGH OF WREXHAM

Applications are invited for the following appointments:—

(1) ARCHITECTURAL ASSISTANT. Salary A.P.T. II (£725 to £845).
(2) CHIEF ENGINEERING ASSISTANT. Salary Specialist Grade (£850—£1,030).

Forms of application and particulars obtainable from Borough Surveyor, 31, Chester Street, Wrexham. Housing accommodation if required. Applications to the undersigned by first post Monday, 18th August, 1958.

PHILIP J. WALTERS,
Town Clerk.

Guildhall,
Wrexham.
July, 1958. 1075

HOLLAND COUNTY COUNCIL invite applications for the following appointments:—

(*a*) QUANTITY SURVEYOR—Special Grade, £750—£1,030.
(*b*) QUANTITY SURVEYING ASSISTANT—Grade A.P.T. II, £725—£845.
(*c*) ARCHITECTURAL ASSISTANT—Grade A.P.T. II, £725—£845.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, the N.J.C. Scheme of Conditions of Service, and a medical examination.

Forms, obtainable from the County Architect, should be returned to the Clerk of the County Council, County Hall, Boston, Lincs., by 18th August, 1958. 1077

DERBYSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

STRUCTURAL ENGINEER required. The salary for a suitably qualified person will be in the range of £750 to £1,030 per annum. Candidates should possess a basic knowledge of the design and construction of all types of building structures and foundation works. The person appointed will be required to assist the Engineer responsible for all such work carried out by the department. He should also have a knowledge of the design of buildings in an area liable to mining subsidence. National Joint Council conditions of service. Pensionable post. Canvassing disqualifies. Application forms from the County Architect, County Offices, Matlock, to be returned by 14th August, 1958. 1051

CORPORATION OF THE CITY OF ABERDEEN
TOWN PLANNING DEPARTMENT

Applications are invited for the post of ASSISTANT (Development Control) in the Salary Grade £880 to £955 per annum. The post is superannuable and appointment thereto is subject to the passing of a medical examination. Further particulars of the post are obtainable from the Director of Town Planning, 5, Bon-Accord Crescent, Aberdeen, with whom applications should be lodged on or before 16th August, 1958.

J. C. RENNIE,
Town Clerk.

Town House,
Aberdeen.
22nd July, 1958. 1059

AUSTRALIA—UNIVERSITY OF ADELAIDE
BUILDINGS OFFICER

The University invites applications for appointment as Buildings Officer. A candidate should be a graduate in Civil or Structural Engineering, or in Architecture or Architectural Engineering, or in Building Technology.

The salary scale is £A2,100—£A80—£A2,500, with superannuation on the F.S.S.U. basis.

Potential candidates should obtain a statement about the appointment from the Registrar or from the Secretary of the Association of Universities of the British Commonwealth, 36, Gordon Square, London, W.C.1.

Applications giving the particulars indicated in the Statement should reach the Registrar, University of Adelaide, Adelaide, South Australia, not later than August 31, 1958. 1081

NORTHUMBERLAND COUNTY PLANNING DEPARTMENT
SENIOR PLANNING ASSISTANT
SPECIAL SCALE (£750—£1,030)
DEVELOPMENT PLAN SECTION

Salary according to qualifications and experience.

Application forms and further information from County Planning Officer, County Hall, Newcastle-upon-Tyne, 1. Closing date 16th August, 1958. 1082

COUNTY BOROUGH OF DONCASTER

Applications are invited for a post of ARCHITECTURAL ASSISTANT in the Borough Architect's Department at a salary in accordance with the A.P.T. Div. Grade I (£575—£725 by £30 increments).

Applicants must have passed the intermediate examination of the R.I.B.A. or its equivalanet at a recognised school of architecture.

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

Application forms may be obtained from the Borough Architect, L. J. Tucker, Esq., A.R.I.B.A., F.I.Hsg., 15, South Parade, Doncaster, to whom they must be returned by 10 a.m. on Monday, 25th August, 1958.

H. R. WORMALD,
Town Clerk.

1, Priory Place,
Doncaster.
24th July, 1958. 1083

Tenders Invited

6 lines or under, 15s.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

DENBIGHSHIRE COUNTY COUNCIL
EDUCATION COMMITTEE
COLWYN BAY GRAMMAR SCHOOL
PROPOSED NEW EXTENSIONS

BUILDING CONTRACTORS desirous of submitting a tender based on Plans and Bills of Quantities for PROPOSED NEW EXTENSIONS (comprising Five Laboratories, One Library, Staff Rooms and Ancillary Accommodation; in Traditional Brick Construction with Reinforced Concrete Structural Frame) at THE GRAMMAR SCHOOL, COLWYN BAY, are invited to forward their names, together with a deposit of £3 3s. 0d. (three guineas) (returnable on receipt of a bona fide tender) to Mr. R. A. Macfarlane, County Architect, Grove Park, Wrexham, not later than Friday, the 1st day of August, 1958. Deposit cheques are to be made payable to the "Denbighshire Education Committee" and crossed "Midland Bank Ltd." The lowest or any tender will not necessarily be accepted nor will any allowance be made for estimates. Bills of Quantities will be despatched to interested Contractors on or about the 7th August and tenders are to be delivered to the undersigned by 9 a.m. on Wednesday, the 27th August, 1958.

W. E. BUFTON,
Clerk of the County Council.

County Offices,
Ruthin. 1048

Architectural Appointments Vacant

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

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

APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects, capable of preparing working drawings from preliminary details. Five-day week in operation. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9585

ARCHITECTURAL ASSISTANTS required. Five-day week. Salary range £600—£750 per year. Write full particulars age, experience, salary, etc.—R. H. Gallannaugh, L.R.I.B.A., 54, Queen Anne St., London, W.1. 9900

GOLLINS, MELVIN, WARD & PARTNERS, owing to staff leaving for Army Service, have vacancies for school-trained ASSISTANTS interested in the design of University and Hospital buildings. Five-day week, quarterly bonuses, pension scheme. Telephone WEL 9991 for appointment. 9958

TREHEARNE & NORMAN, PRESTON & PARTNERS have a vacancy for a SENIOR ASSISTANT. Salary according to experience and qualifications. Apply: 83, Kingsway, W.C.2 (HOL 4071). 9942

TWO ASSISTANTS wanted by progressive London Office with wide variety of interesting work. Must have had office experience and be capable of taking a leading position under an Associate Partner. This year's holiday by arrangement. Salary range £700—£850 according to experience. Write Box 9929.

SENIOR ARCHITECTURAL ASSISTANT required in Architect's Department of London Brewery Company. Must be good draughtsman. Write stating age, qualifications, experience, salary required. Box 9932.

F. W. WOOLWORTH AND CO. LTD. Architects Department, Kensington District Office. Applications are invited for the following appointment:—

ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard, capable of carrying out surveys, preparing sketch schemes, working drawings and details.

The appointment is pensionable, five-day week. Dining room facilities. Application stating age, experience, qualifications and salary, to District Architect, F. W. Woolworth & Co. Ltd., 26/40, Kensington High Street, London, W.8. 9972

SENIOR and INTERMEDIATE ASSISTANTS required immediately with experience in private practices for full and interesting programme in medium sized office. Full particulars and salary required to Deacon and Laing, Chartered Architects, 65, Goldington Road, Bedford. 9935

F. W. WOOLWORTH AND CO. LTD. Architects Department, Kensington District Office. Applications are invited for the following appointment:—

JUNIOR ASSISTANT to prepare working drawings from sketch plans, etc., etc.

The appointment is pensionable, five-day week. Dining room facilities. Application stating age, experience, qualifications and salary, to District Architect, F. W. Woolworth & Co. Ltd., 26/40, Kensington High Street, London, W.8. 9973

ASSISTANT required by progressive Office, West End. Minimum Intermediate R.I.B.A. Interest in Interior Design and Exhibitions an advantage. High standard of freehand sketches and perspectives required. Salary from £700 according to experience and ability. Reply to Box 1089.

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EXPERIENCED DRAUGHTSMAN, conversant with detailing for shops, showrooms and offices, required by design organization. Please write giving age and experience. Box 1084.

ARCHITECTURAL ASSISTANT, up to R.I.B.A. Intermediate standard, required at Guildford. Varied work, mainly factory. Five-day week. Salary by arrangement. Box 1086.

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POWELL & ALPORT require ASSISTANT of Intermediate or Final standard in their Croydon office. Write giving particulars to 106, George Street, or phone CRO 3564. 1088

EXPERIENCED SENIOR ASSISTANTS required to take charge of Contracts with minimum supervision. Medium sized office. General practice with present emphasis on local authority housing. Apply in writing only, stating age, qualifications, experience and salary required, to: Thomas Sibthorp, F.R.I.B.A., A.R.I.C.S., A.M.T.P.I., 10, Manchester Square, W.1. 1003

RONALD WARD & PARTNERS require ARCHITECTURAL ASSISTANTS with contemporary outlook, and willing to use own initiative. Salary range £600 to £900. Congenial working conditions. Five-day week. Apply: 29, Chesham Place, Belgrave Square, S.W.1. Telephone: Belgravia 3361. 9999

JUNIOR ASSISTANT required in busy West End practice. Good opportunities for obtaining all round experience. Write giving age, salary required, etc., Box 1002.

NORTH WALES—SENIOR ASSISTANT ARCHITECT required in Mold Office of F. C. Roberts, B.Arch., F.R.I.B.A. Intermediate qualification and sound practical experience essential. Approx. salary £800, for suitable person. Write, giving details of experience and present salary, to Earl Chambers, Mold. 1024

ARCHITECTURAL ASSISTANTS with experience of contemporary work and administration required. C. H. Elsom & Partners, 10, Lower Grosvenor Place, S.W.1. VIC. 4304. 1021

ARCHITECTURAL ASSISTANT required of R.I.B.A. Intermediate to Final standard, preferably someone keenly interested in a high standard of present-day architectural design and prepared to "muck-in" on all tasks in a busy small medium size practice. Salary by agreement, pension scheme available. Apply stating age, qualifications and experience to Brierley, Syme and Leckenby, 10, Lendal, York. 1058

ASSISTANT ARCHITECT, qualified and experienced, required by Wolverhampton Office of expanding practice. Five-day week. Apply: Diamond, Hodgkinson and Partners, 31, Queen Street, Wolverhampton. Telephone 21404. 1001

BOURNVILLE VILLAGE TRUST. A vacancy exists for a SENIOR ASSISTANT ARCHITECT with good experience in public and/or private practice. Salary range £1,000—£1,300. Interesting and varied work. Pension Scheme. Apply, stating age, qualifications, experience, present post and salary, and names of two referees, to the Chief Architect, Bournville Village Trust, Estate Office, Oak Tree Lane, Birmingham, 30 1056

ARCHITECTURAL ASSISTANT required. Good Draughtsmanship and London office experience essential. Apply, stating experience and salary required, to Percy V. Burnett Partners, 12, Bloomsbury Square, London, W.C.1 for the attention of Mr. D. W. Burford. 1031

WANTED to purchase provincial practice or partnership South of line The Wash and Gloucester. Experienced and keen. Box 1080.

ASSISTANT required of Finals standard with at least four years' office experience by busy office engaged mainly in industrial and commercial work. Luncheon voucher scheme, five-day week. Apply Eric Firmin & Partners, Thavies Inn House, Holborn Circus, E.C.1. Telephone City 8811. 1057

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ASSISTANT. Building and Development Company, Head Office, S.W.1, require a general assistant. Applicants between the ages of 25/35 should be capable architectural draughtsmen and surveyors, with a knowledge of Town Planning and Local Authority requirements. For the right man there are excellent opportunities. Letters, stating salary required, should be addressed to the Managing Director, Box 1043.

SENIOR AND INTERMEDIATE ASSISTANTS required immediately in Liverpool private practice. State full particulars and salary required. S. Stevenson-Jones, A.R.I.B.A., 11, Old Hall Street, Liverpool 3. 1042

WANTED in London office of A.R.I.B.A. engaged on work for Housing Company, ARCHITECTURAL ASSISTANT, Intermediate R.I.B.A. standard. Experience in preparation of Sketch Designs, Working Drawings and Specifications essential. Salary according to experience and capabilities. Box 1067.

JUNIOR ARCHITECTURAL ASSISTANT required in City Office. Five-day week. Salary £350 to £500. Apply Box 9996.

EXPERIENCED ARCHITECTURAL DRAUGHTSMEN required for office in EPSOM, Surrey. Preference will be given to those who have passed the Intermediate examination of the R.I.B.A. Five-day week; pension scheme. Apply in writing to Personnel Manager, W. S. Atkins & Partners, 158 Victoria Street, S.W.1. 1040

DEPARTMENT OF HEALTH FOR SCOTLAND: The Architectural Division which covers work on housing, hospitals, schools, local authority buildings, agricultural colleges and State institutions and includes development work, has vacancy in Edinburgh for an ASSISTANT ARCHITECT (non-pensionable post). Salary range £780—£1,215. Write Establishment Officer, Department of Health for Scotland, St. Andrew's House, Edinburgh, 1, for application form. Closing date Friday, 29th August, 1958. 1054

JUNIOR ARCHITECTURAL ASSISTANTS required in City Office. Varied Practice. Candidates should at least have reached Intermediate standard. Box 1045.

BUCKINGHAMSHIRE firm of Architects within thirty miles of London with a varied practice, require an ARCHITECTURAL ASSISTANT at Final R.I.B.A. standard. Five-day week. Salary according to age and experience. Please write giving full particulars to Box 1068.

MEN of Ideas required for our Design Group to work on interesting new projects. Generous salary for real talent. Apply The Secretary, Sir John Burnet, Tait & Partners. MUSeum 7299. 1069

FAILED R.I.B.A. EXTERNALS? Experienced ASSISTANTS required for small West End office working on varied and interesting projects. Reply giving hopes and reasons to Box 1070.

EXPERIENCED JUNIOR ASSISTANT required for work on varied and interesting schemes, mainly contemporary, including some large-scale projects. Good salary offered to suitable applicant. Please send brief details in confidence to Arthur Farebrother & Partners, 99, Seymour Grove, Manchester 16. 1071

YOUNG, progressive Baker Street firm require ASSISTANTS with Intermediate and three years' experience, for varied work from shopfitting to estate layout. Write with details of age, experience and salary required, to Box 1066.

ARCHITECTURAL ASSISTANT required. Intermediate standard or thereabouts for varied and interesting work. Write stating age, details of experience and salary required to Shepperdson & Dixon, 2, Museum Street, Ipswich. 1064

VERNER REES, LAURENCE & MITCHELL require an ARCHITECTURAL ASSISTANT who has at least three years' office experience. Please write to 51, Queen Caroline Street, W.6. 1063

ARCHITECTURAL ASSISTANT required with office experience. Applicants, who should be at or approaching Intermediate stage, should send details of education, training, and past employment, to Louis de Soissons, Peacock, Hodges, Robertson & Fraser, 12, Baring Crescent, Exeter. 1062

ARCHITECTURAL ASSISTANT required by a large and busy office in the South West. R.I.B.A. Final standard. Varied practice with scope for initiative. Pleasant working conditions. Salary according to qualifications and experience. Box 1061.

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Premiums: 1st—£3,000.
2nd—£2,000.
3rd—£1,000.

Last day for submitting design—8th December, 1958.

Last day for questions—30th September, 1958.

Conditions may be obtained between 25th August and 9th September, on application to:

The Town Clerk,
Architectural Competition, Langside College,
City Chambers,
Glasgow, C.2.

Deposit: £2—which will be returned on receipt of *bona fide* design or return of competition documents at least four weeks before date for submitting design. 1047

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31.7.58

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