THE ARCHITECTS' JOURNAL

standard contents

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

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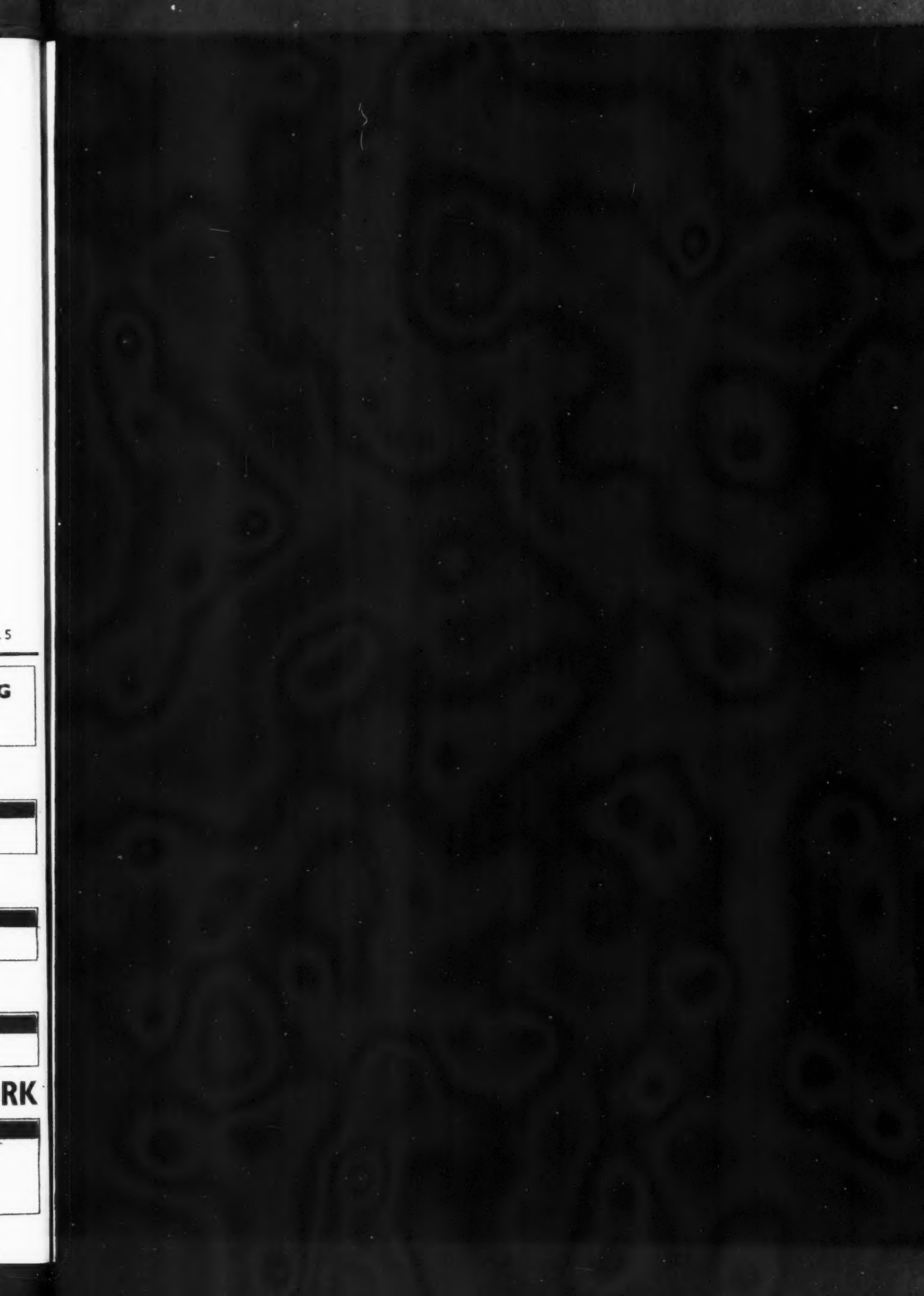
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
APRR	Association for Planning and Regional Reconstruction. 34, Gordon Square, W.C.1.	Euston 2158-9
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Welbeck 9738
ASB	Architectural Science Board of the Royal Institute of British Architects, 66, Portland Place, W.1.	Langham 5721
AScW	Association of Scientific Workers. 15, Half Moon Street, Piccadilly, W.1.	Grosvenor 4761
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 9, Conduit Street, W.1.	Mayfair 8641/6
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13.	Perivale 6869
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Flaxman 7766
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
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Euston 5385
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. Millbank, S.W.1.	Whitehall 5140
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Borough Architect, Town Hall, Newport, Mon.	Newport 3111
CAS	County Architects Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7. Zurich, Switzerland.	
CID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Whitehall 6322
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUJC	Coal Utilization Joint Council. 13, Grosvenor Gardens, London, S.W.1.	Victoria 1534
CVE	Council for Visual Educatio. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Wor[illegible], Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Assoc[illegible]tion. 13, Suffolk Street, S.W.1.	Whitehall 0540
DOT	Department of Overseas Tra[illegible]e. 35, Old Queen Street, S.W.1.	Victoria 9040
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. 8, Buckingham Palace Gdns., S.W.1.	Sloane 2837
FASSC	Federation of Association of Specialists and Sub-Contractors. 21, Tothill Street, S.W.1.	Whitehall 9696
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
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. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FOB 1951	Festival of Britain 1951. 2, Savoy Court, Strand, W.C.2.	Waterloo 1951
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 4041
FS (Eng.)	Faculty of Surveyors of England. Buckingham Palace Gdns., S.W.1.	Sloane 2837
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts, 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215



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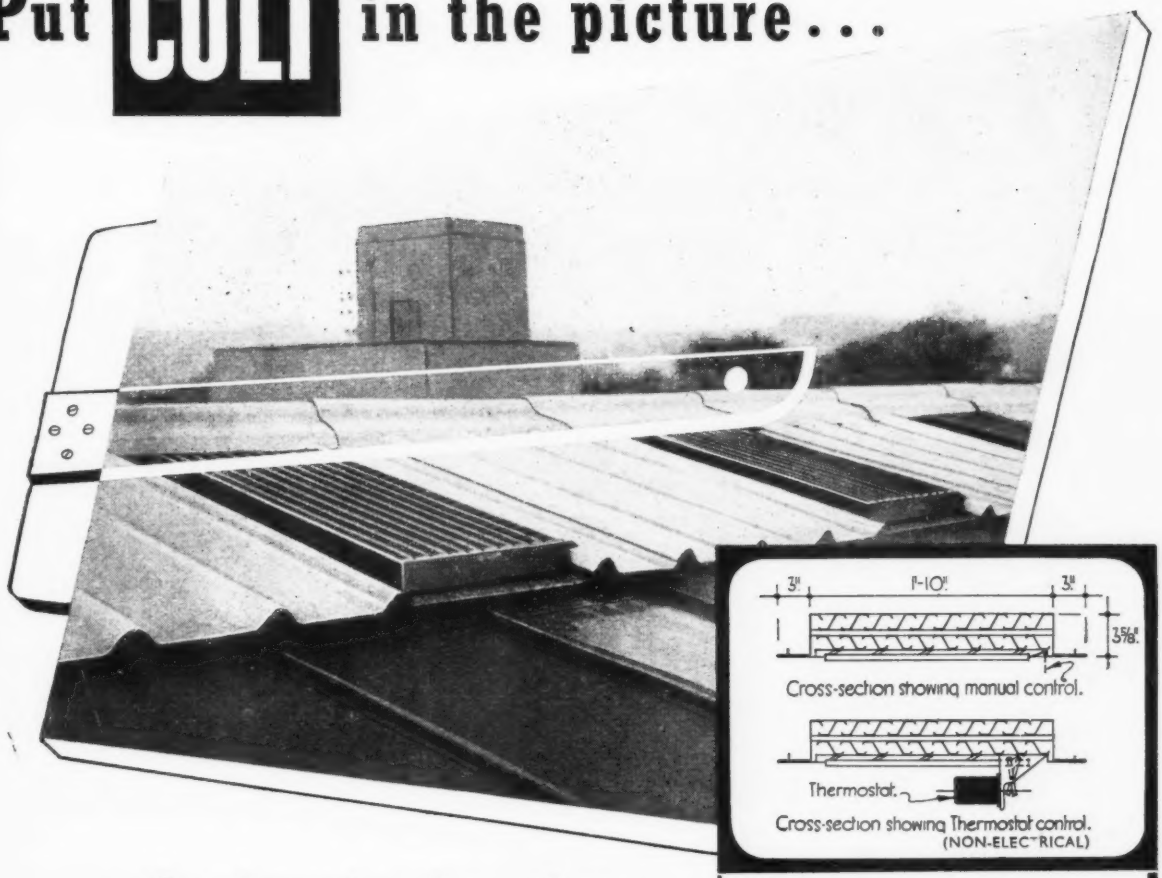

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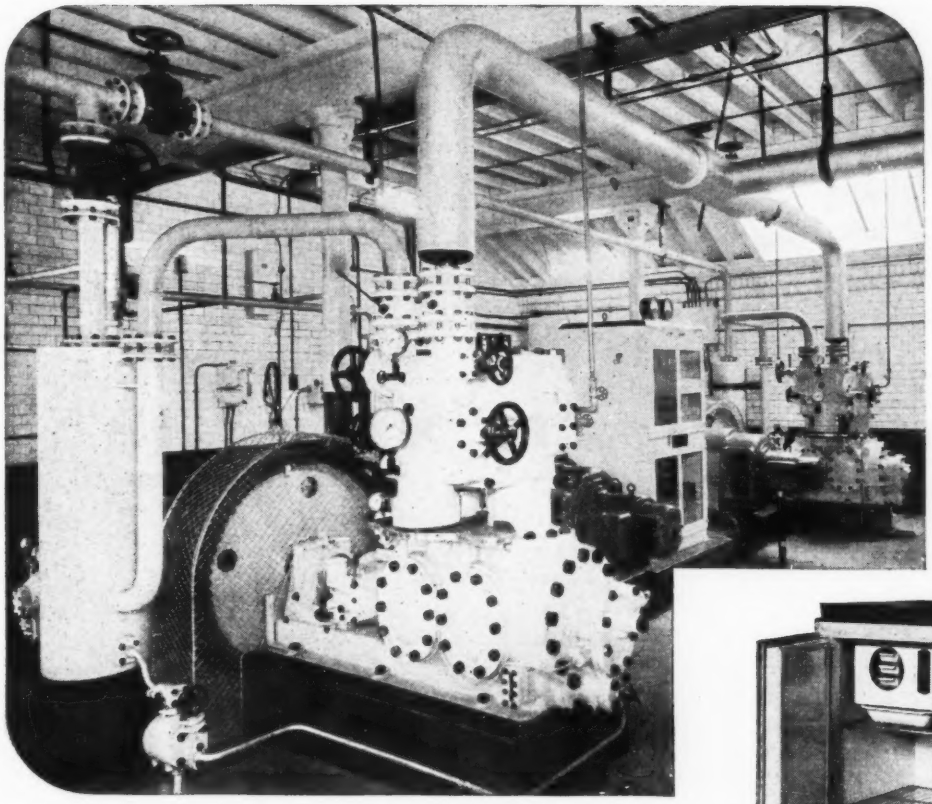

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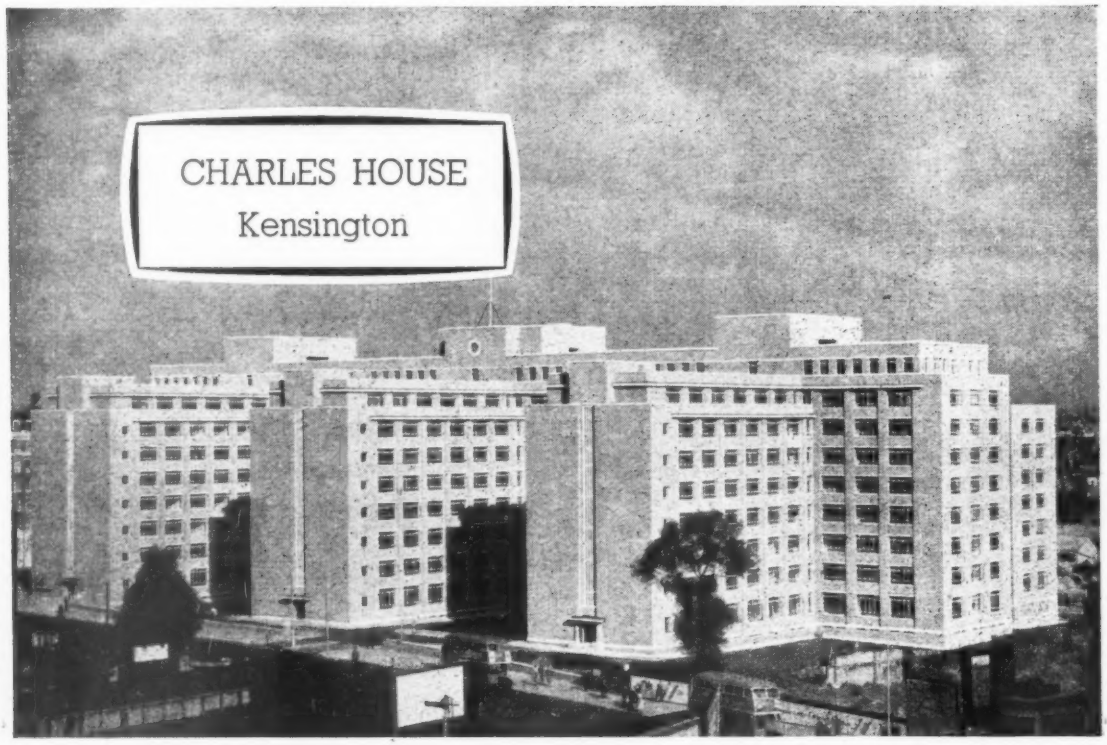

Architect · Arthur S. Ash, F.R.I.B.A.

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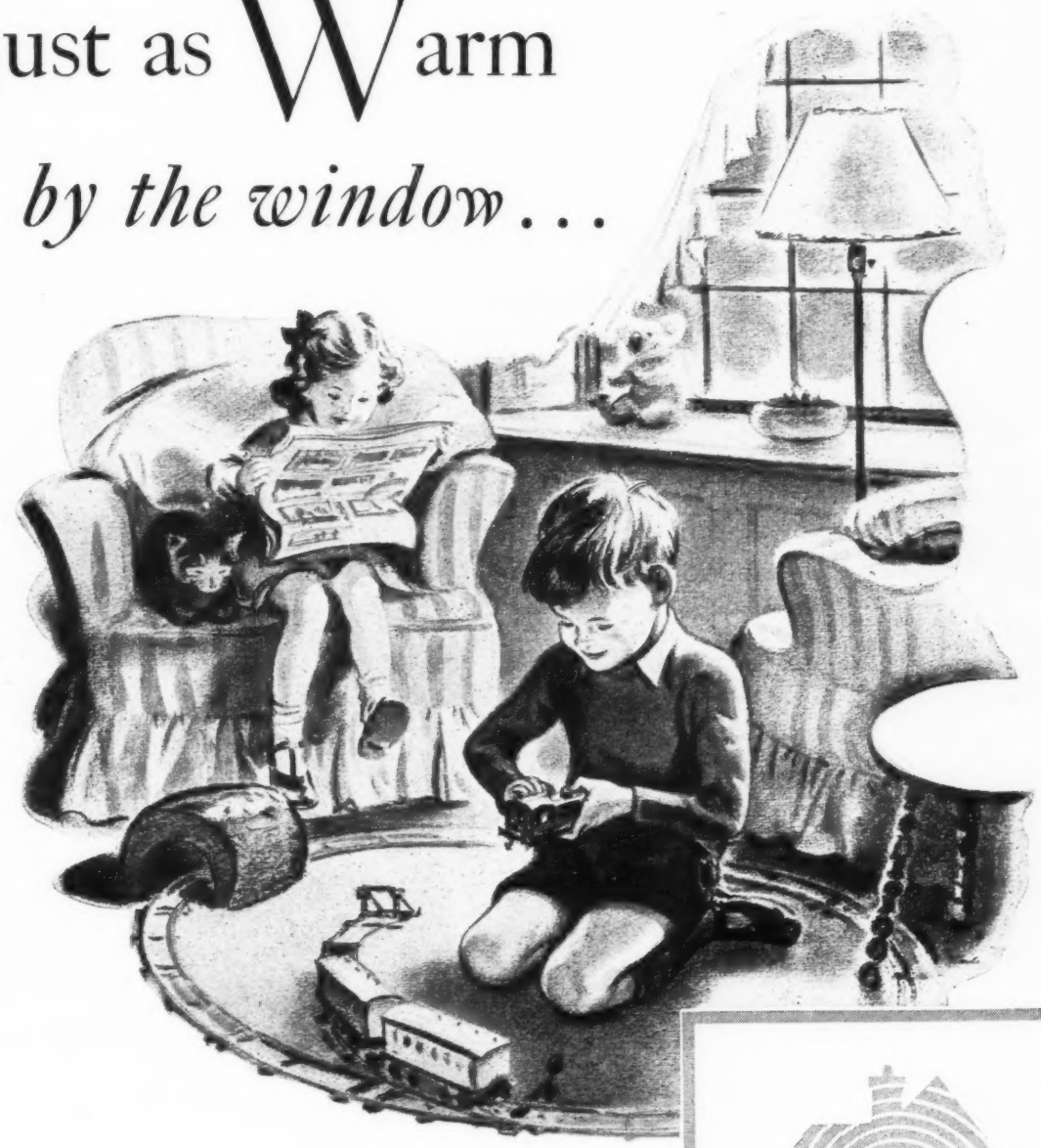

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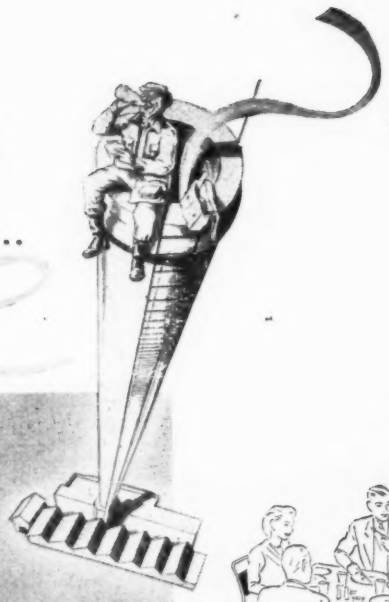

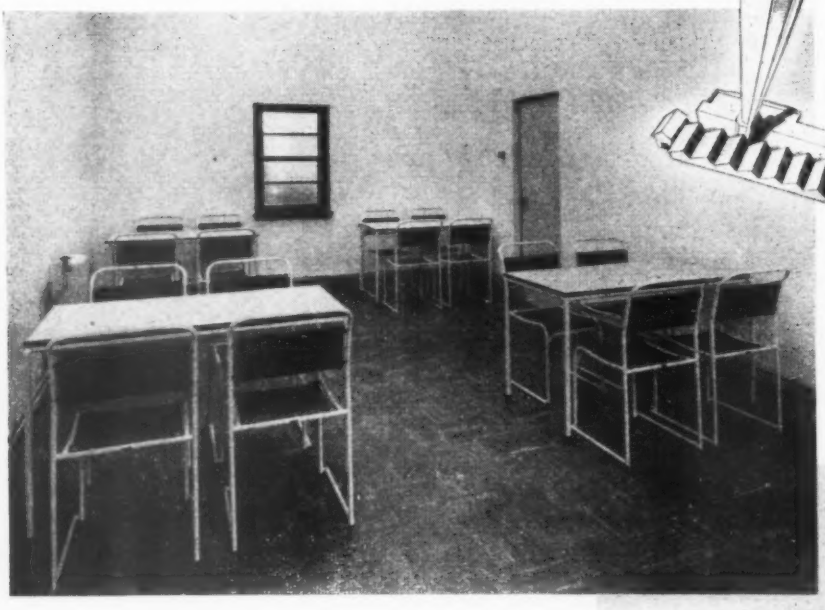

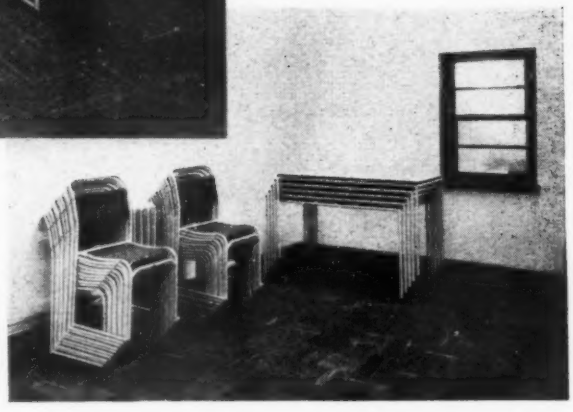

THE days when employees ate sandwiches at desk or bench are rapidly becoming past history. More and more the trend is towards the provision of comfortable canteens where flagging energies are renewed to maintain the high rate of production which modern conditions demand.

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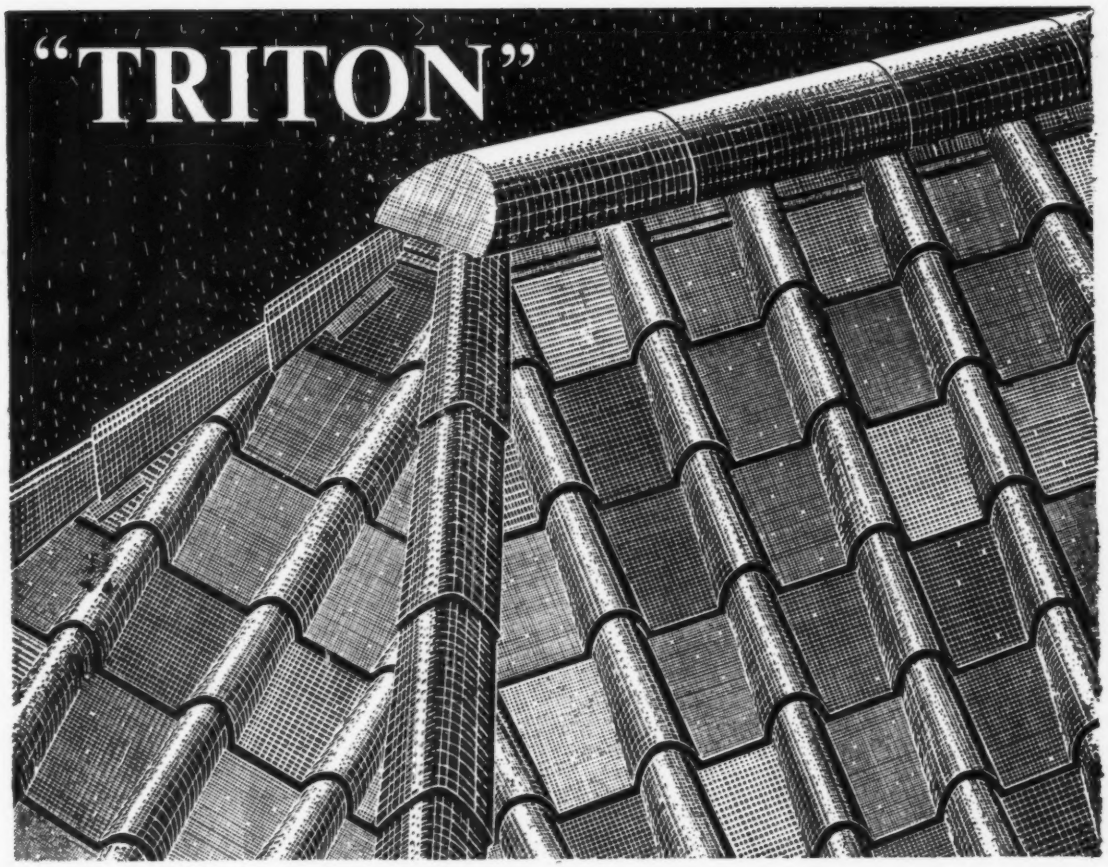
BIRD'S-EYE VIEW of an unusual scheme designed by R. Myerscough-Walker in Marley Floor Tiles. An entrancing conception such as this is not an everyday occurrence, but the laying of Marley Floor Tiles certainly is—over 100 million are now in use because of their economy in first cost, comfort, durability and cheerful good looks.

Cock o' the walk

The Marley Tile Company Limited, London Rd., Sevenoaks, Kent. Sevenoaks 2251-8 MARLEY



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WH 27

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Here is a case in which CARTER TILES have been used in a rather unusual manner to give an atmosphere of dignity and restraint to a building of some historic interest. The black 12" x 8" tiles extend from the ground to the top of the third storey. The commemorative panel is in modelled faience.

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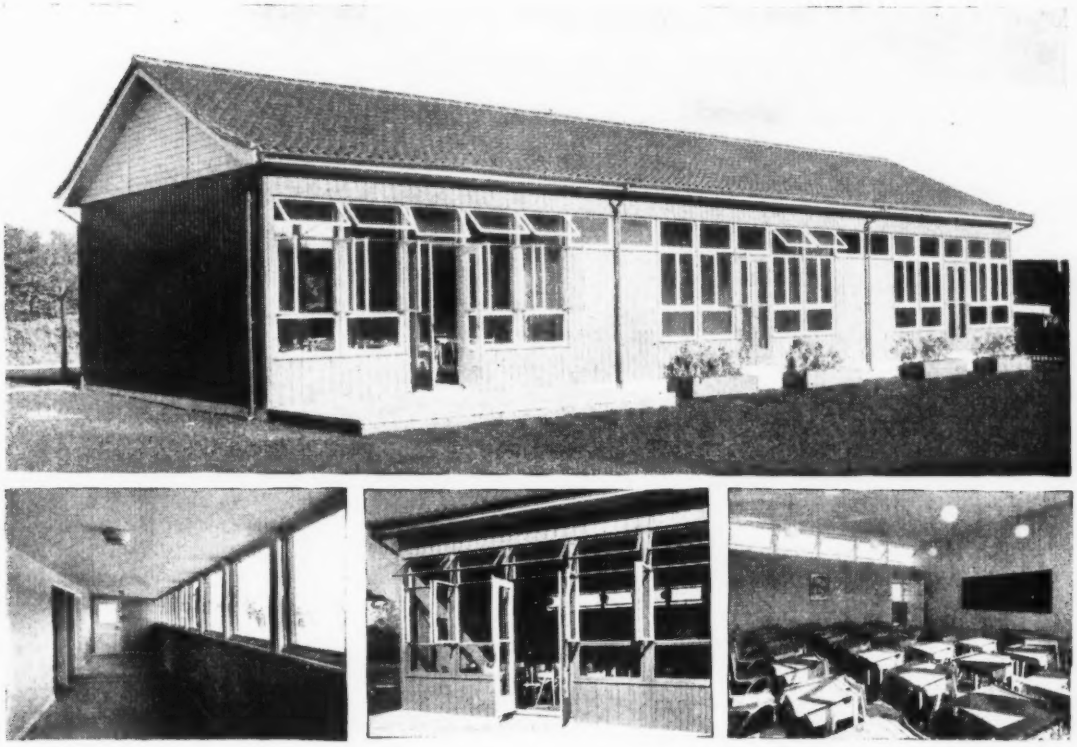

In the present restricted economic circumstances the only way in which the school building programme can continue to develop without loss of standards or amenities is by the use of some form of prefabrication.

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The photographs above show a Medway Mark II Classroom block with cloaks and corridor. Flat or pitched roof systems are available from a single classroom to a complete school.

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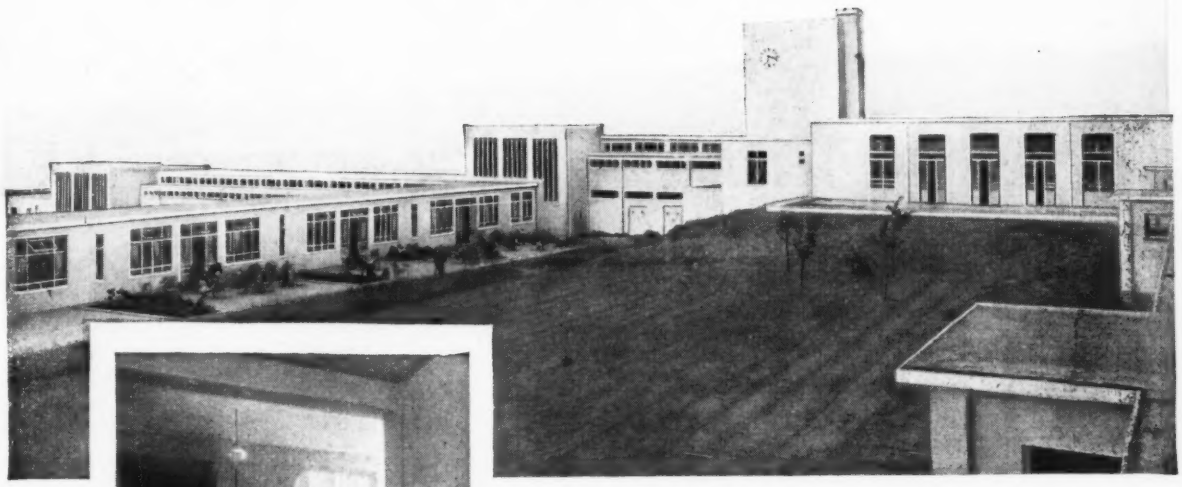

This new primary school for 840 children near Brighton occupies a site of over 13 acres.

It was designed by D. J. Howe, M.I.C.E., M.I.Mun.E., Borough Engineer and Surveyor, in collaboration with P. Billington, A.R.I.B.A., A.M.T.P.I., School Architect for the Borough of Brighton Education Committee.

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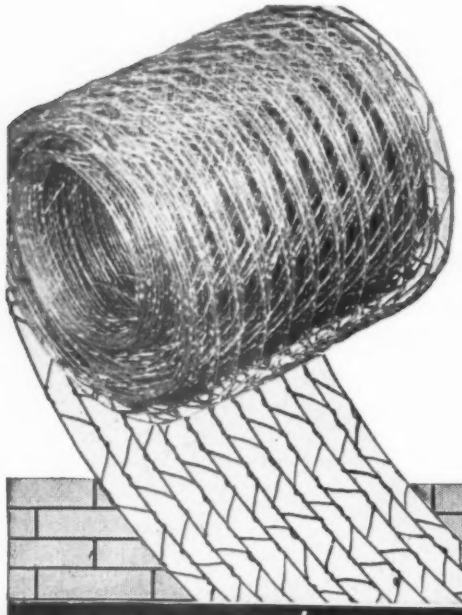

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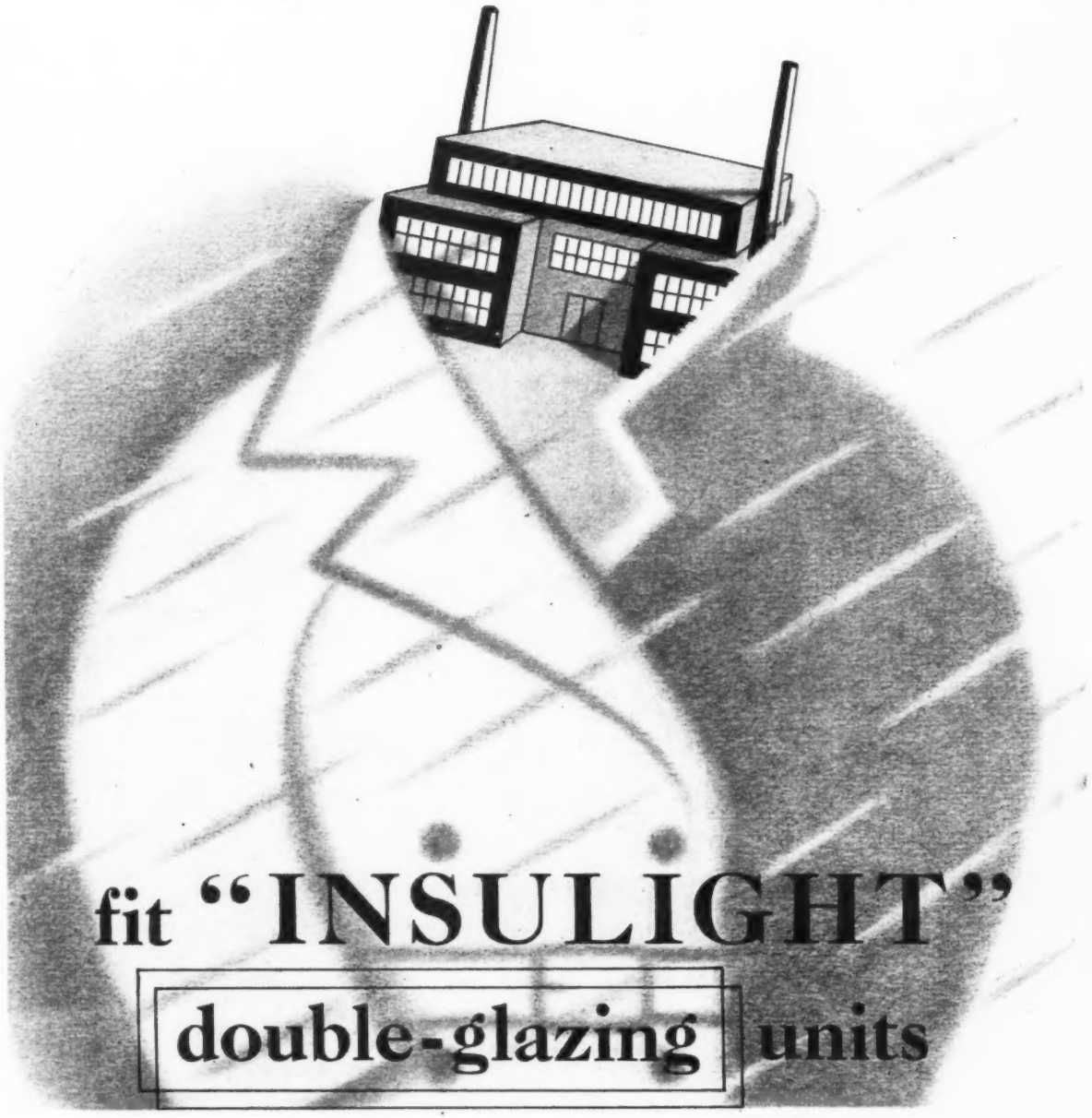

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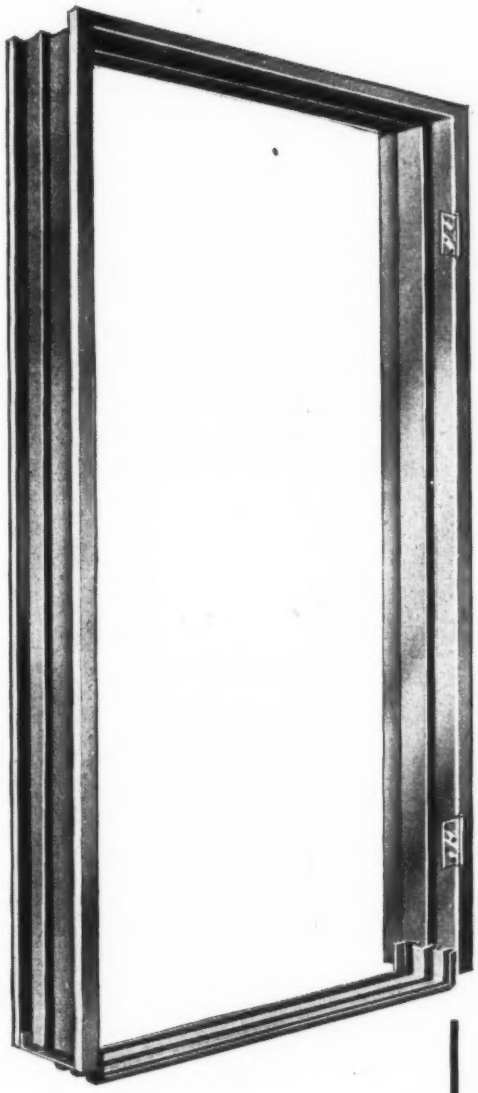

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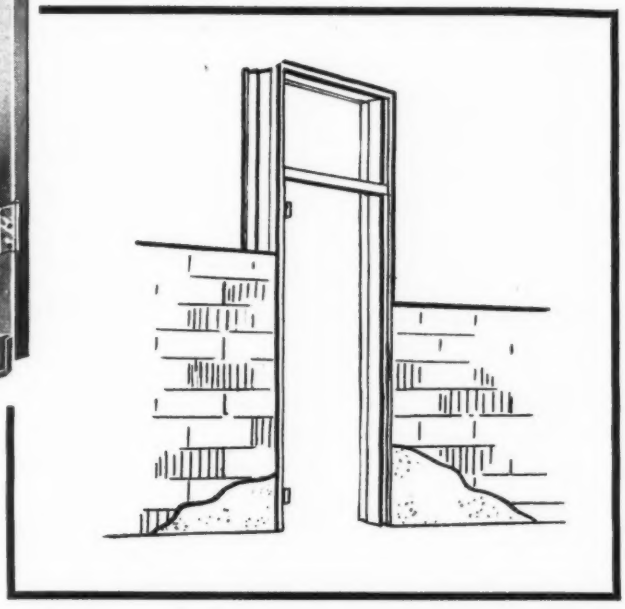

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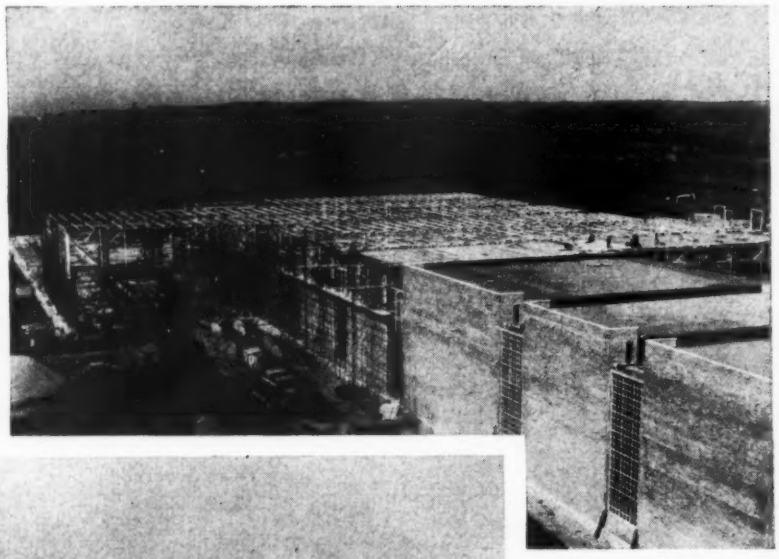
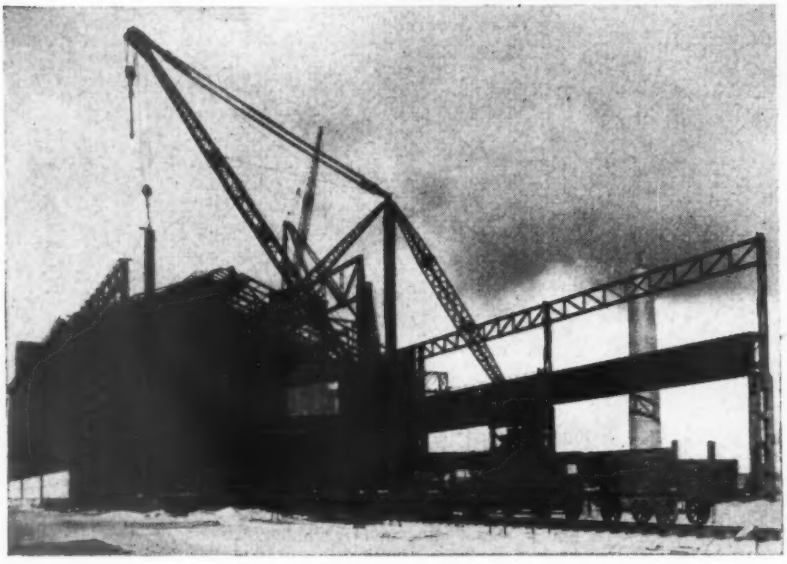
W. S. Atkins & Partners.



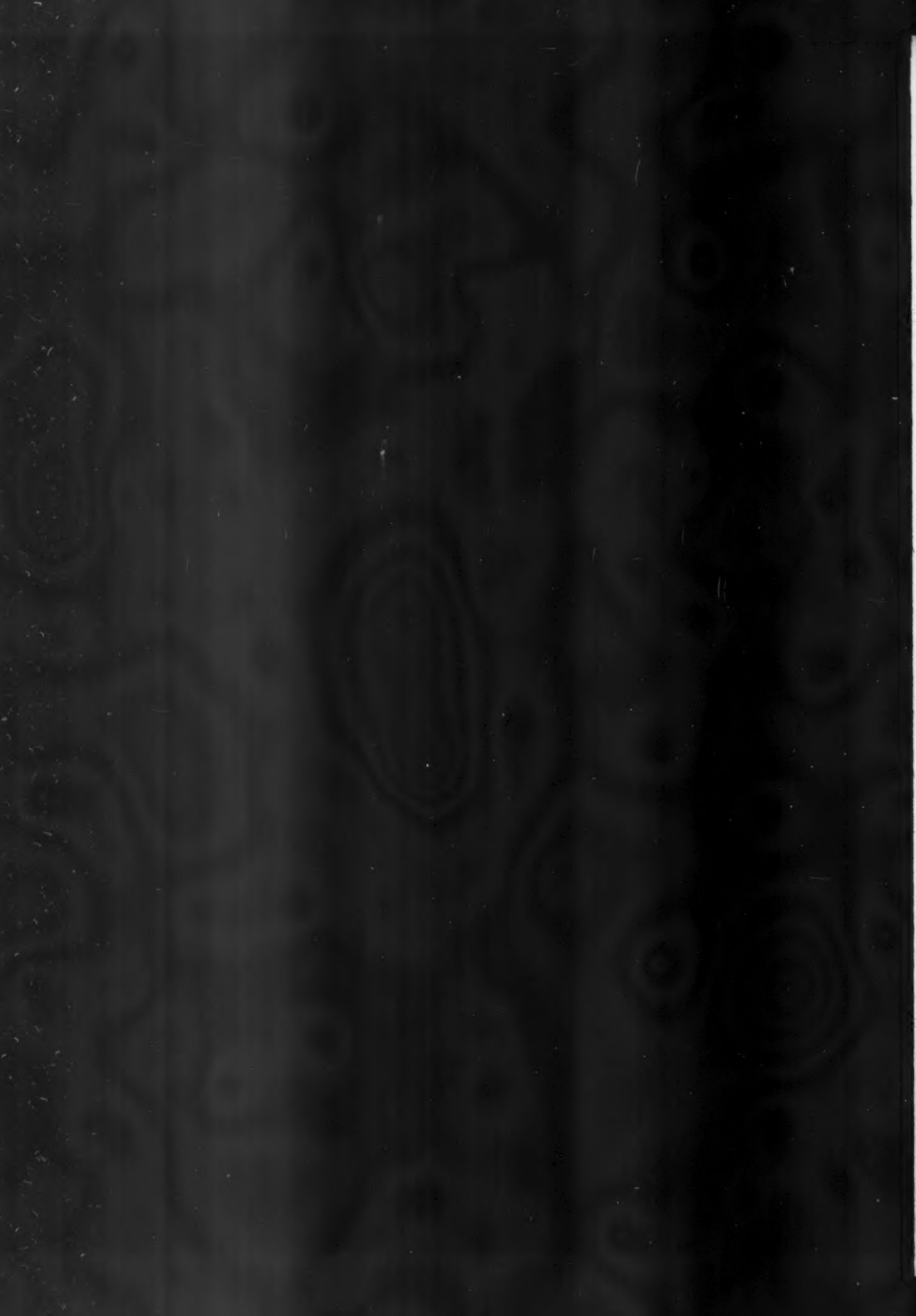


SHOTTON:
Steel plant buildings
for John Summers
& Sons Ltd.

Designed, fabricated and erected

by

DORMAN LONG



AJ

THE ARCHITECTS' JOURNAL

No. 2930 26 APRIL 1951 VOL 113

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A SITE BETTER THAN EXPECTED

Last week the Press was let loose on the South Bank exhibition site. ASTRAGAL went along, of course, and after seeing how much many of his fellow journalists appeared to be enjoying the luxury of the Press room (see illustration on page 503), the only feature of the Exhibition to be really completed, deduced that the evening and morning papers would publish fairly kindly accounts of their reporters' visit. It was not surprising, of course, that the *Evening Standard* maintained its childish dislike of the whole affair. If the radar transmission scheme had not broken down, it said, the message the public would have sent out to the world would have been: "Sack the lot!" The *Standard's* sister paper, the *Daily Express*, was more reticent. Its reporter announced that the size was petty, the architecture was a muddle of styles, the art was commercial (though not shoddy) and it was a pity that the Skylon was held up with wires instead of "some wonderful magnetic device." But the writer generously added that he reserved judgment.

*

He did not question whether or not the Exhibition would be ready on time—a point discussed in most papers. The *Daily Worker*, in a eulogy headed "It's a Grand Festival," stated categorically that the exhibition, which "portrays the achievements of the ordinary people," would be finished on schedule, "the last nut and bolt in place, the last lick of paint dry and glossy." The *Worker*'s correspondent, who referred to "exhibits which make you stop and pay a silent tribute to British skill and craftsmanship", and was particularly impressed by a machine "that lights up the eyes of engineer and textile worker alike" (surely an ingenious, if unnecessary, device), had more confidence that the Exhibition would be ready on time than any other reporter. The *Daily Telegraph* said that it would probably be 95 per cent. ready, and quoted an official who believed that the men were making a final spurt because their wives had recently visited the site and had probably told them to "finish the job quickly." The *Times* announced cautiously that "much work remains to be done, but it probably amounts to no more than can be accomplished before opening day." And the *Daily Mirror* seemed confident (in its article headed "Nearly Ready and it's First Class") of "that date on May 4 being kept."

*

Few reports included appraisals of the architectural styles of the Exhibition buildings. It was interesting, therefore, to read the account by the representative of the *Liverpool Daily Post*—a paper which seems to take an intelligent interest in architecture. The general layout, said the writer, seemed to tend towards an appearance of incoherence; there was something fragmentary about it all. He was more impressed by other pavilions than by the Dome although "they incline on the whole to a 'modern' manner which is already looking a little out of date; a rather fussy manner." I know what he means; but I'm not going to attempt any comments at this stage. My feet are still aching.

PELECANUS PEVSNERI

I see that the third Pelican edition of Nikolaus Pevsner's *An Outline of European Architecture* is on the bookstalls.* How many hundreds of thousands of copies already sold that may represent, I don't know; but it must mean that quite a few people have read something worth reading about architecture at least once in their lives. This is an occasion on which the great British public is to be congratulated.

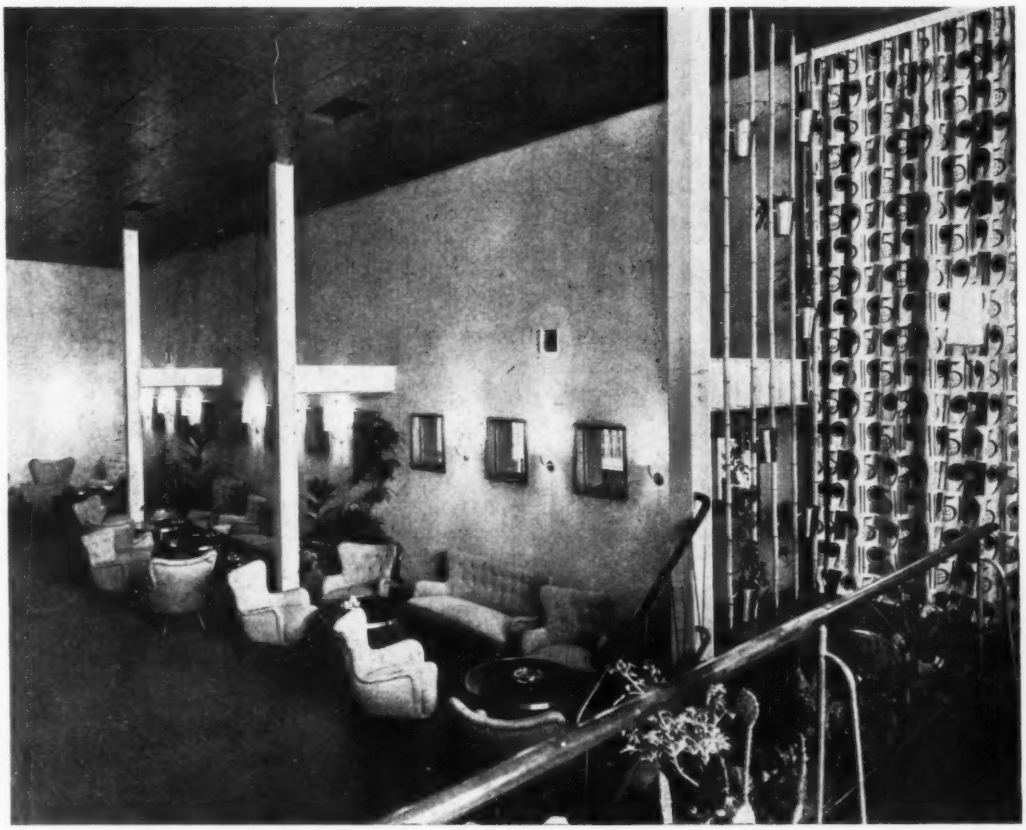
*

"The present edition" says the Professor in his foreword, "is almost identical with the library edition of 1948"; he then immediately lists more than a dozen additions to the text as if they didn't count at all. The illustrations too have been increased to 64. But this remarkable, fat Pelican is as digestible as ever.

A MANGLED VERSION

I was impressed by the results of a recent competition for a small house which are published in the current issue of the *Architectural Forum*. And I was even more impressed by the total

* Penguin Books. 3s.



Part of the Press Room in the Regatta Restaurant, on the South Bank Exhibition site, designed by Misha Black (Design Research Unit). See note on page 501.

of the prize money, $57,000, (about £20,000), which was contributed by private enterprise builders and by producers of materials and equipment.

*

Incidentally, I hear that the submitted drawings were put through a steam-heated mangle on arrival. An excellent idea. But unfortunately one competitor had pasted cut-out lettering on his drawing and this was whisked off by the mangle roll and transferred to the next entrant's drawing. Which just shows that you can't be too careful.

CLEANER CAMBRIDGE

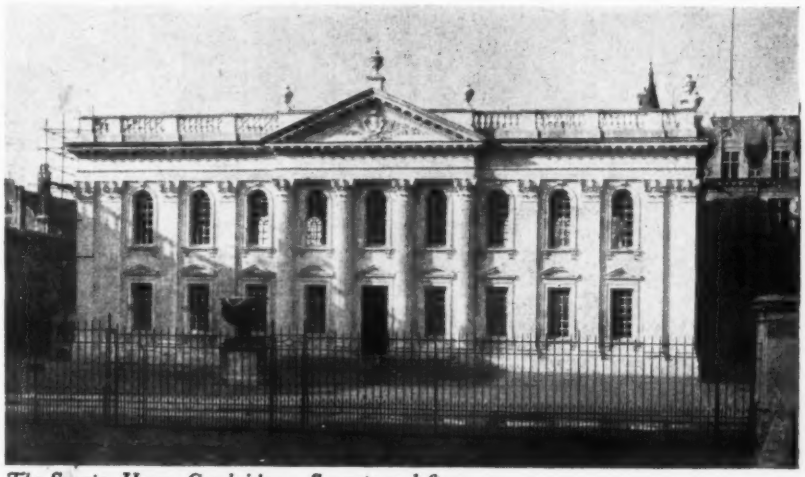
On a recent visit to Cambridge I was impressed by signs of Festival in what —now that the borough of Cambridge has become a city—the inhabitants of Mill Road and Chesterton doubtless refer to as the University Quarter. At least I liked to think that they were signs of Festival.

*

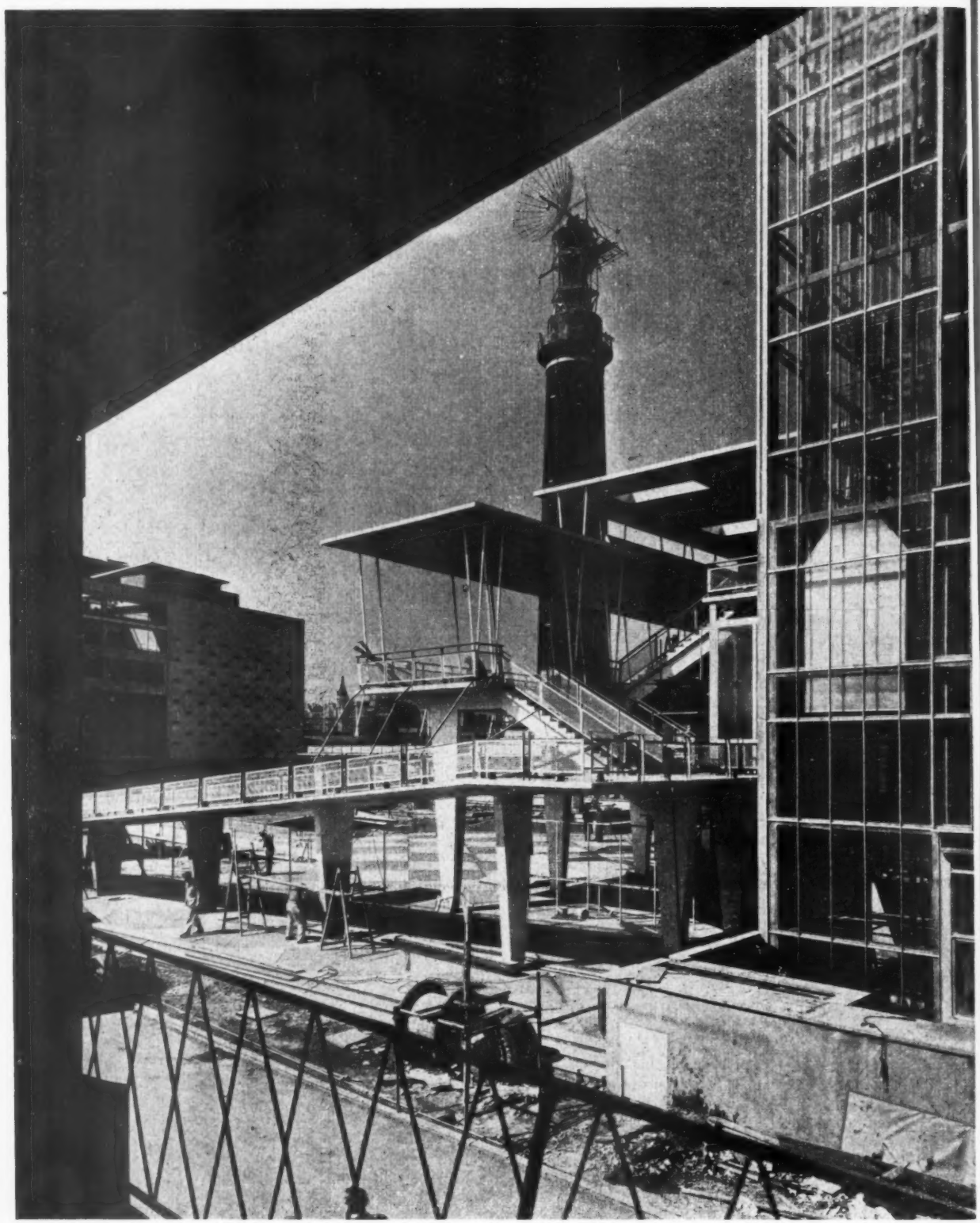
The most conspicuous, by a long way, was the dazzling whiteness of the newly cleaned Senate House. As every Londoner knows, soot has a pretty way with Portland stone, and I am not altogether sorry that the Senate House won't stay like this for ever. Still, the effect is spectacular enough while it lasts.

*

The front of the Old University Library, next to the Senate House, was also undergoing a clean. I cannot give a complete report on similar activities in the colleges. But I did notice that the west side of the hall at Trinity was being restored. (Full marks to whoever is responsible for retaining the weathered urns on the classical feature added by Wren to match the library opposite.) At King's, where the cleaning of the interior of the chapel was finished some time ago, emphasis has shifted from clean buildings to clean boots; in other words, the path around the first court has been paved. This is an innovation which will commend itself even to those who have remembered their goloshes, for with its cobble verges the new pavement is a most handsome piece of floorscape. Full marks in this case (I understand) to H. Myles Wright.



The Senate House, Cambridge. See note on left.



Nearing the End of the Beginning

Last week the ban on visiting the South Bank Exhibition site, which has been imposed for nearly a month, was lifted for two days. As a result, we are able to publish, above, and on pages 508-511 of this issue, the last photographs to be taken of the exhibition buildings under construction. The next illustrations of the exhibition will, if all goes well, be of it in its final, finished form, and will be appearing in the JOURNAL for May 17 and 24. The ideas and designs of a number of architects, developed over the past two years, are thus nearly ready for inspection and appraisal. It will be interesting to see, when the curtain goes up on the grand transformation scene, on May 3, if this exhibition will have as marked an effect on public opinion and taste as did its predecessor of one hundred years ago. Above, the Shot Tower, beyond the entrance stairway which leads down from Waterloo Bridge.

UNSIGHTLY SITE

Piccadilly, perhaps more than any other of the main West End streets, has an air of sophisticated gaiety combined with a certain dignity. It possesses all the cosmopolitanism of a capital City, yet remains essentially English. It is distressing, therefore, to find that the advertising boys seem bent on doing their worst to reduce it to a continuation of Coventry Street.

*

And the first question one asks oneself is whether this is not exactly the sort of thing that the powers to control advertisements under the 1947 Planning Act were designed to stop. The LCC have delegated their powers to the Metropolitan boroughs, but for the present we must not blame the Westminster City Council for permitting the blot on Piccadilly, because it was an already established advertising site when the Act came into force.

*

A hoarding on the corner of Swallow Street grows more and more like a miniature Coney Island. I was mildly amused by the steaming pudding that appeared about Christmas time and I was intrigued to find that the squirrels which followed, popping up and down behind tree trunks, were operated by two unfortunate gentlemen riding bicycles behind the scenes. But I am not in the least amused by the latest poster to appear on this site. We are faced with a mock up of ye oldiest, worldiest, Tudoriest Inn since British Railways took a hand in the game. From the centre protrudes the enormous head and shoulders of a St. Bernard dog with a cask of brandy on his chest.

*

It seems incredible in this Festival year that people are prepared to plague Piccadilly with such a piece of vulgarity. Established sites come up for review on July 1. I hope Westminster City Council won't hesitate then to ban advertising on this spot altogether.

*

And if Hennessy's want to earn credit with the public, what a fine gesture it would be if they were to remove the advertisement before they have to.

ASTRAGAL

The Editors

THE ARCHITECT AND TAX REFORM

THE present series of reports from the Tucker Committee on various aspects of income tax, and its incidence and effects on both business and the professions (the first report is summarized on page 512), is of great importance to the architect in private practice. The problems he faces are, of course, common to all the professions. He has to save for his retirement. And he has to deal with problems arising from business expenses, changes in partnership and the payments he makes for pupils. But, with the possible exception of the stockbroker, no other professional man has to face the possibility of such wide fluctuations from one taxation year to another in his apparent income for each year.

Now the Tucker Committee is not the Treasury. It may not alter the law and there is no guarantee that its recommendations will ever be incorporated in a Finance Act. But the Lord Chancellor has given a half-promise that tax reform will come. He has introduced a Bill to consolidate the existing statutes dealing with income tax and has said that he regards this as an essential preliminary to any reform of the law itself. In such a matter as tax reform professional associations can, of course, be of great service. The professional body can give the Treasury, through the Committee, the facts of professional life, and it is not likely that these facts are unheeded. It is encouraging to learn that the RIBA, which has submitted evidence to the Committee, is making every effort to ensure that the hardships of the architect in private practice are laid before it. And it is to be hoped that the profession itself will continue to give the association information which will strengthen the case for tax reform.

BRITAIN WAIVES THE RULES

In a report issued by international housing specialists—members of the Housing Sub-committee of the Economic Commission for Europe—following the conference held by the Sub-committee at Geneva last month, it is emphasized that " urgent housing needs should not be sacrificed because of the current international situation."

It is ironic, therefore, that the international situation is being used as the reason for the withdrawal of British delegates from the Housing Sub-committee at the end of the conference. But perhaps " withdrawal " is not the right word. As a ministry official has explained, the delegates have not been withdrawn ; it has simply been decided that " as things are at the moment they do not undertake to be present at future meetings."

Now this Housing Sub-committee was formed so that comparative studies on housing developments in all the countries represented might be prepared. Have we learned so much that we can afford to jink our responsibilities in this way? A ministry official has answered that question. When the Sub-committee was formed, he explained, the items on the

agenda for discussion and research were practical and immediate problems. Now, however, investigations were branching off towards matters concerning general building and planning, and Britain did not undertake to deal with problems which were not of an urgent nature.

At first that seems a reasonable argument, however much one may deprecate the Molotovian principle of waiving the unwritten rules of international collaboration to suit oneself. But what are these less urgent matters that are to be considered at future sessions of the Sub-committee? According to the report issued after the recent conference there are two main items on the agenda. The first is a comparative study of the techniques and the cost of housing services. (Since when has this not been an important factor in the important task of reducing housing costs?) The second is the international standardization of building materials.

Perhaps standardization *is* a subject needing less immediate attention than matters such as comparative studies of the costs of traditional and non-traditional methods of house building, or of requirements relating to strength and stability—subjects which are still being considered by members of the Sub-committee. Even so, it is too important a subject to be made an early victim in the weeding out process of the re-armament drive. After all, how much of the national expenditure, in money and man-power, goes into this work of representation on the ECE panel? Surely very little. In trying to save a fraction of her expenditure Britain is losing her prestige, if nothing else. We repeat the phrase published in the Sub-committee's report: "Urgent housing needs should not be sacrificed because of the current international situation."

BELFAST

Results of Ulster Competitions

The winners of the competitions for a recreation centre and a seaside hotel sponsored by the Royal Society of Ulster Architects, Belfast, and assessed by Desmond Fitzgerald are as follows:—

Recreation Centre: First prize (£100), A. H. Martin, of Belfast; second prize (£50), F. A. Evans, M.INST.R.A., of Banstead, Surrey; third prize (£25), C. F. D. Dunbar, of Belfast; honourable mention, E. W. MacDonald, B.ARCH., A.R.I.B.A., A.M.T.P.I., of Lanarkshire, Scotland.

Seaside Hotel: First prize (£200), Patrick Horsbrugh, A.R.I.B.A., of Battersea Park, London; second prize (£100), J. E. Clarke, A.R.I.B.A., and C. Munro, A.R.I.B.A., of Belfast; third prize (£50), Noel E. Campbell, A.R.I.B.A., and John Wilkinson, A.R.I.B.A., of Coleraine, Co. Derry.

(See illustrations on page 512.)

COVENTRY

"Competitors have 500 to 1 chance against them"

If only 400 people submitted designs in the competition for a new Coventry Cathedral, more than 80 man-years would have been spent on the task, said Rolf Hellberg, the chairman of the Coventry Society of Architects, at the society's annual dinner on April 13. Was it worth it from the architect's point of view? he asked, pointing out that there were odds of more than 500 to 1 against an architect winning the competition. It was only worthwhile, he said, in competitions of supreme importance. When applied to lesser buildings, national competitions involved too great a total effort and too great an expense to be warrantable. Competitors should be limited to regions and localities. There should also be local competitions of a different type for specific and urgent problems such as the low-cost house. Local authorities should give close examination to the possibility of holding local competitions.

DIARY

The Landscape Work for the South Bank Festival Site. Peter Shepheard. At 28, King Street, W.C.2. (Sponsor, Students' Planning Group.) 6.15 p.m. APRIL 26

Architectural Teachers' Conference. At RIBA, 66, Portland Place, W.1. 10 a.m. APRIL 28

AGM. At 66, Portland Place, S.W.1. (Sponsor, RIBA.) 6 p.m. MAY 1

Housing London's Millions. Lady Pepler. At 28, King Street, W.C.2. (Sponsor, TCPA.) 6.15 p.m. MAY 2

FOB South Bank Exhibition. Daily 10.30 a.m. to 11.30 p.m. Sundays 12.30 a.m. to 11 p.m. MAY 4

This week the MOE has issued its fourth Building Bulletin. It is on cost analysis. Any attempt by officialdom to introduce a system by which costs can be broken down and compared, merits congratulation and detailed study. Below we reproduce the comments of both an architect and a builder. The JOURNAL *is prepared to publish such analyses, made by local authorities and their architects of school building costs when designs for schools are illustrated in these pages, in order to further the opportunity for drawing comparisons.*

MOE BULLETIN: 4

Reviewed by Cleeve Barr and Frank Russon.

Cleeve Barr It is no accident that the MOE which, in the last two or three years, has done so much to stimulate new ideas in school planning and design, should now produce a Bulletin on a new approach towards a technique of costing. New structural techniques produce not only new ideas in æsthetics, and in plan forms, but influence also the routines of office organization, of the kind of drawings produced and of the kind of costing system required.

Before the war, in a period of comparative price stability and also of comparative uniformity in structural method and the uses of materials, the architect had, in the approximate price per foot cube for various classes of buildings, some rough basis which

allowed him, with a little experience, to know more or less where he stood. Admittedly, this was only very approximate but it did enable one to know that, given a similar type of building with similar finishes and equipment to one already completed, one could work within an overall sum to a certain cube figure.

Rapidly changing prices, shortages of materials and the use of substitutes, and the development of quite new materials and techniques have made approximate estimating all very difficult. The Ministry's Bulletin No. 4 attempts in effect to provide a more scientific basis for approximate estimating. It will find ready readers amongst architects and surveyors engaged not only upon school buildings, but throughout the profession. It will also cause many quantity surveyors to raise their eye-brows, and may cause a storm in that profession.

The Bulletin contains only eleven pages of text, plus five Appendices, one of which, a specimen cost analysis of a priced bill for a primary school, is reproduced here. The text describes "a method of analysing costs and some of the purposes which the results of the analysis can serve. . . . Costs are relative, and to study only the total cost of a school serves little to show why the building costs what it does." The study of costs aims at breaking down total cost for the purposes of (*a*) *cost analysis—i.e.* a post-mortem, to find out how much has been spent on each element of the building and where the architect has been relatively economical or extravagant, and (*b*) *cost planning—i.e.* using this information in planning other buildings to ensure a proper balance between all elements of the building, within the limits of the maximum sum allowed and the minimum amount of space consistent with design requirements. In others words, by following this method, one should never find oneself in the position of the unhappy architect, who discovered, only too late, that ministerial economies had left him with a very good structure but no finishings at all.

The first part of the method of cost analysis recommended by the Ministry is the break-down of the fully-priced bill of quantities into *elements*, or component parts of the building. There is a chapter describing in detail how this should be done. A list of the elements is shown in the appendix reproduced here and another appendix describes in detail which items should be included in which elements, *e.g. External walls and facings*—(the enclosing walling to the school building and the finish on the external face. It does not include the finish on the internal face, which is included in wall finishings)—brick walls, including facing bricks, rendering, etc., plinth and string courses, sills, lintols, copings, thresholds and steps, cavity trays over openings, canopies.

The second part of the analysis is the break-down of the nett cost of the buildings into a price per square foot of floor area, measured inside the external walls. The use of cost per school-place is rejected as a yardstick for this purpose because it is insufficiently detailed. Cost per foot cube is also rejected "since two buildings, providing identical accommodation in terms of superficial area, but differently designed or constructed, could give widely different volumes in terms of cubic feet." The term "floor area," I think, might have been modified to "useful floor area," since there will be a big difference in the area of floor space occupied by, say, structural internal cross-walls in 9 in. brick and by light steel stanchions. However, this is a refinement.

The final step is to work out the cost of all the individual component *elements* of the building as fractions or percentages of the total cost, and to express these each in terms of cost per sq. foot of floor area. The table reproduced here shows such a break-down for a school costing 55 shillings per square foot, with the detailed equivalent costs per square foot of floor area for each component element of the building.

Other appendices give a specimen abstract showing how the break-down into costs of component elements is made, and also definitions of *nett* cost and *gross* cost.

The purpose of cost analysis considered as "post mortem" is fairly obvious and extremely unattractive, but considered as *cost planning* the whole subject becomes alive, interesting and creative. "The architect needs to know how much he can afford to spend on any particular element *before* he incorporates it in his design . . . in short, the costs which cost analysis assigns to each element of a building can after appraisal and comparison, be used as a basis of cost targets . . . Schools must be built within fixed cost limits . . . £140 per place for primary schools and £240 per place for secondary schools . . . a decision must first be taken about the number of square feet per place to be provided and the cost per square foot at which the architect will aim to build . . . (say) 49 square feet per place and a cost per square foot of 55 shillings . . . He will thus be able to estimate the total cost of the building. The cost per square foot of 55 shillings must then be distributed between the *elements* (on a basis of previous analyses, and allowances for any special new elements) . . . The cost of elements so obtained (at a cost per square foot of floor area) . . . must then be translated into cost per square yard or other unit of measurement (for this element) . . ."

For example, consider the element, "internal partitions." Assuming in the proposed new school a floor area of 50,000 square feet, and, from previous analyses, an amount of one shilling per foot of floor area for partitions, the total amount allowable will be £2,500. From the new sketch plans the actual quantity of partitions is, say, 4,000 yards super. Then the allowable cost of partitions, other things being equal, will be £2,500 divided by 4,000, that is 12s. 6d. per yard super.

Here the cynic may interject that one might have used the yard super price of partitions in the last scheme and left it at that anyway—but, the value of the idea is surely in this—one may very much want to try out some new kind of partition at, say, 17s. 6d. per yard super. One knows therefore immediately exactly what extra on the whole scheme is involved, and one can systematically go through all the other "elements" to see where, if anywhere, an equivalent saving can be made.

"The more compactly a building is planned, the less costly it is likely to be. Theoretically, a perfectly square plan will be the most economical of all . . ." Should it not be "a perfectly circular plan"? However, one gets the idea. Appendix 1 shows how to arrive at a method of roughly checking the cost implications of one plan shape as opposed to another. In the example given, a sprawling plan shape requires an area of enclosing walls, for a given floor area, 9 per cent. greater than a compact plan, giving a figure of 5s. 5½d. per square foot of floor area for the external walls in the sprawling plan as compared with 5s. only in the compact plan.

Nothing is said of the fact that if external walls are reduced, internal walls must be increased *pro rata* to provide the same area of enclosed floor space. Although they are much less costly (only 1/10 in the table here—surely a very low ratio) some compensating factor should have been introduced.

It may be objected that the method is too approximate to be of much value, and that unless used with great skill and discretion it can mislead an architect into thinking that, for example, with a flick of his pen he can halve the cost of his external walls. Certainly it is no short cut for lazy minds, and the willing co-operation of a qualified surveyor is essential to the idea. The MOE is to be congratulated in having created a team of architects and quantity surveyors, and having itself tested in practice this co-operation *at the design stage* which is the basic idea of this Bulletin. If it goes further and stimulates surveyors to think constructively in terms of costs of building component elements, instead of exclusively in terms of prices of materials and labour, it will have done a great work.

This Bulletin has been produced at a time of desperate economic entrenchment and there is no doubt a good deal of economic compulsion behind it. On the other hand it suggests a method of cost analysis and cost planning at design stage which could be most valuable to architects at any time, especially in the development and application of new materials, and the replacement of traditional building by new techniques.

SPECIMEN COST ANALYSIS

(In Shillings per Square Foot of Floor Area)

COST ANALYSIS

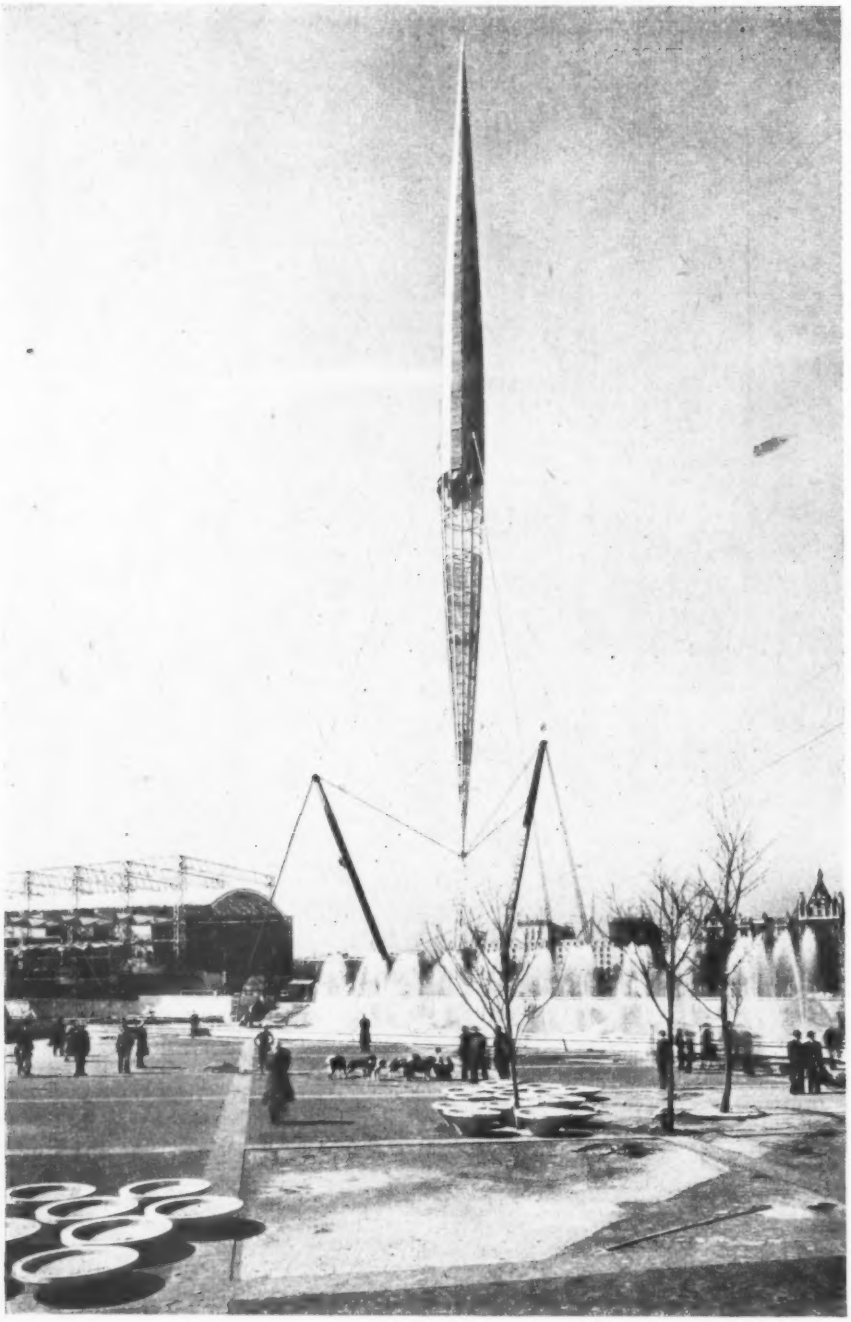
Name of school	Blank Road School, Blanktown
Type of school	Three Form Entry Infants
Number of places	360
Floor area (square feet)	17,640
Number of square feet per place	49
Nett cost per square foot (as below)	55/-
Nett cost per place	£134 15s. 0d.
Gross cost per square foot (as below)	59/10d.
Gross cost	£52,773
Tender date	November, 1950

Elements	*Cost per sq. ft. of floor area*
Preliminaries and insurances	2/9
Contingencies	1/6
Work below ground floor level	4/-
External walls and facings	9/6
Internal partitions	1 -
Frame	Nil
Upper floor construction and staircases	Nil
Roof	5/8
Rooflights	
Floor finishings	4/-
Wall finishings	1/3
Ceiling finishings	1/3
Metal windows and doors (external)	4/-
Doors (internal)	0/6
W.C. doors and partitions	0/5
Cloakroom fittings	0/8
Built-in fittings	0/4
Fittings	1/3
Ironmongery	0/6
Plumbing (external)	0/2
do. (internal)	0/11
do. (sanitary fittings)	0/11
Gas installation	0/3
Electric installation	2/3
Heating installation	4/6
Kitchen ventilation	Nil
Drainage	2/-
Glazing	0/5
Decorations	2/-
Playgrounds and paved areas	3/-
Nett cost	55/-
External works	4/10
Gross cost	59/10

Frank Russon

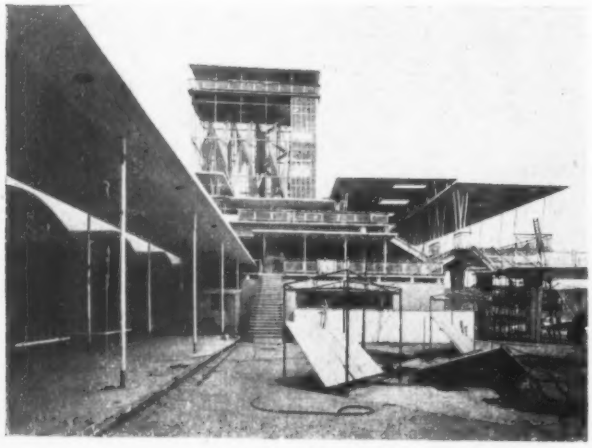
The MOE's Building Bulletin No. 4 is an excellent document. There is, of course, nothing new about pricing or building by the square foot. (Before the war many builders prepared tenders in this way.) But the MOE has recommended something more than this. It suggests that local authorities, or their architects, should divide the estimated cost of a school building into its separate elements—walls, floors, windows, services, etc.—and express these costs in terms of cost per square foot of floor area. MOE could then check estimates at a glance by comparing the figures submitted with those already prepared for completed schools. In this way it would know immediately if materials or construction methods proposed were too expensive.

It would be a good thing if all architects were to adopt a system similar to that described in the bulletin for general construction work—particularly for buildings of a repetitive character. (It will be necessary for the effects of variations in floor to ceiling height and the use of different methods of construction to be considered in more detail.) Valuable data would be obtained, architects would be able to give their clients more accurate estimates and, in general, building costs might be reduced.

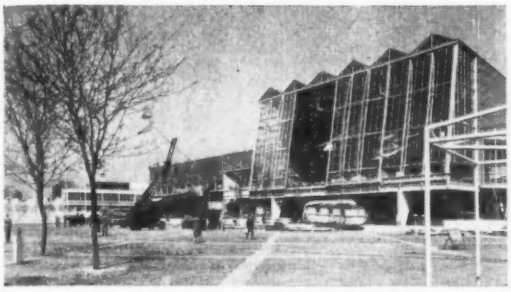


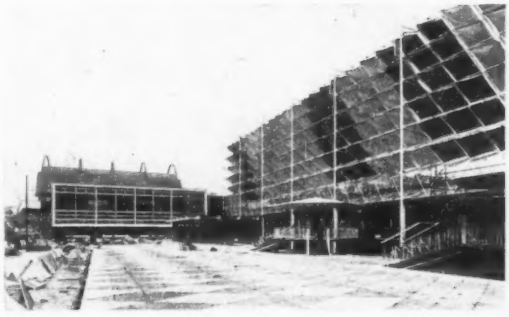
FESTIVAL OF

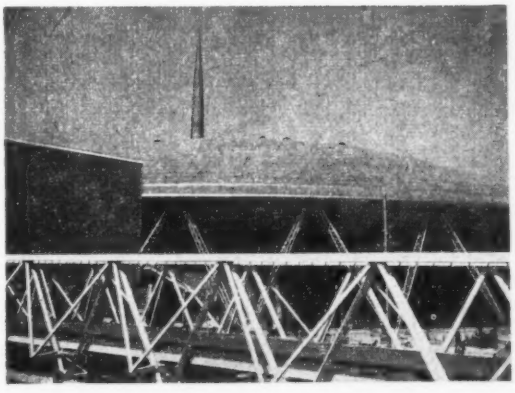
The buildings on the South Bank exhibition site are now rapidly nearing completion. Even the Skylon (architects : Powell and Moya ; consulting engineer : Felix J. Samuely) the last major feature to be started, is finished and the picture on the left of this page gives an idea of the sense of spaciousness which has been achieved in parts of this very constricted site. Below left, the ramps and stairs of Waterloo Bridge Gate, with beyond, the 80-ft. high viewing platform (architects : Fry, Drew and Partners). Below, Waterloo Gate, the entrance from Waterloo Station (architect : Gordon Tait of Sir John Burnet, Tait and Partners ; consulting engineers : Freeman, Fox and Partners.) Opposite page, reading in descending order on the left hand side : the Transport Pavilion (architect : Arcon ; consulting engineer : Felix J. Samuely). The 60-ft. screen which runs beside York Road on the southern side of the site, with, at its foot, information kiosks (architects : The Architects Co-operative Partnership), and, in the distance, Waterloo Gate. The Dome of Discovery (architect : Ralph Tubbs ; consulting engineers : Freeman, Fox and Partners) viewed over a tubular steel bridge which leads from the Minerals of the Island Pavilion (architects : The Architects Co-operative Partnership ; consulting engineers : Ove Arup and Partners) to the Power and Production Pavilion (architects : G. Grenfel Baines, in collaboration with H. J. Reifenberg ; consulting engineer : Felix J. Samuely. The rock and earth formations surrounding the Land of Britain Pavilion (architect : H. T. Cadbury Brown). Sea and Ships (architects : Basil Spence and Partners ; consulting engineers : Freeman, Fox and Partners). Opposite page, top right, a detail of the Transport Pavilion. Bottom right, a detail of the Sea and Ships Pavilion.

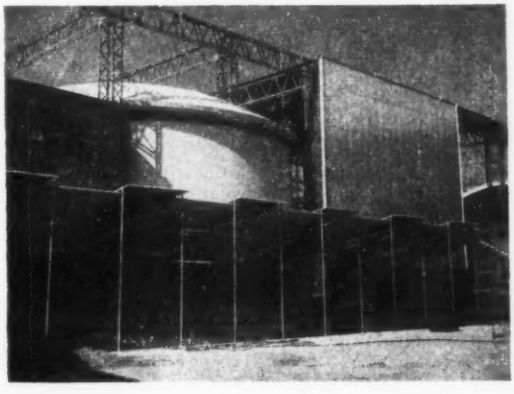


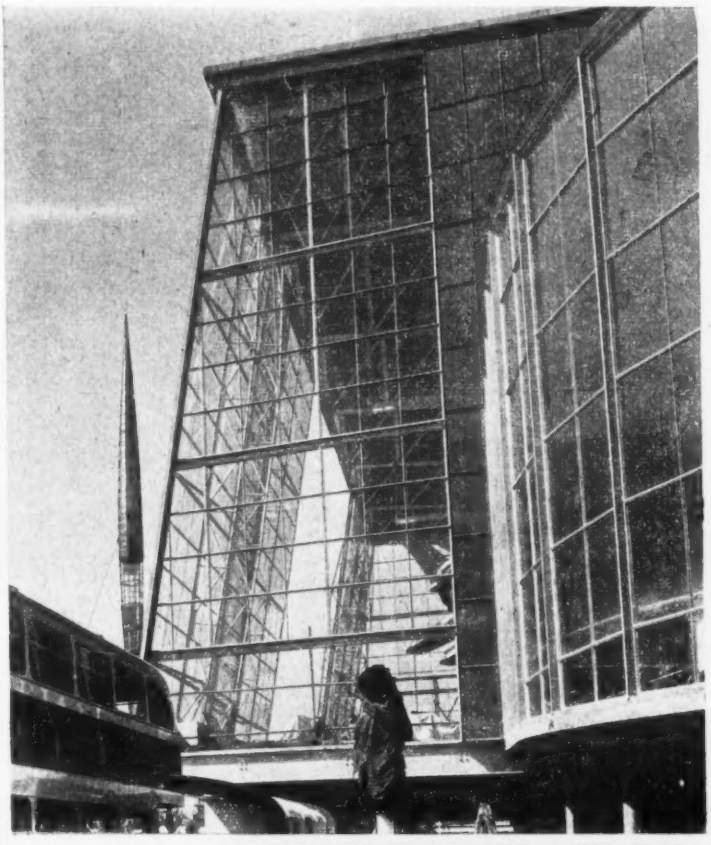
BRITAIN : SOUTH BANK EXHIBITION NEARS COMPLETION

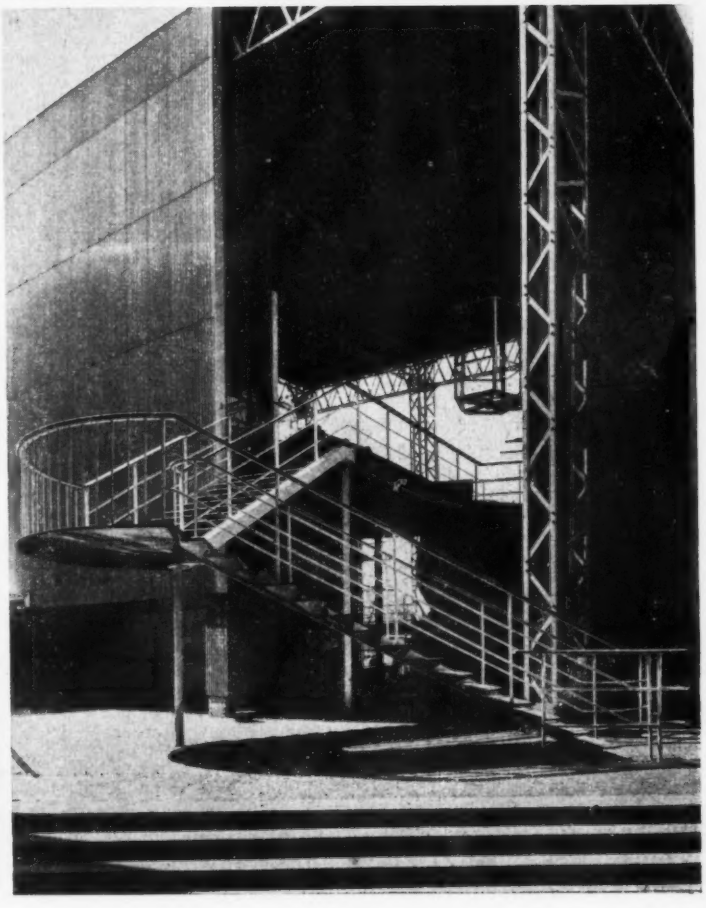




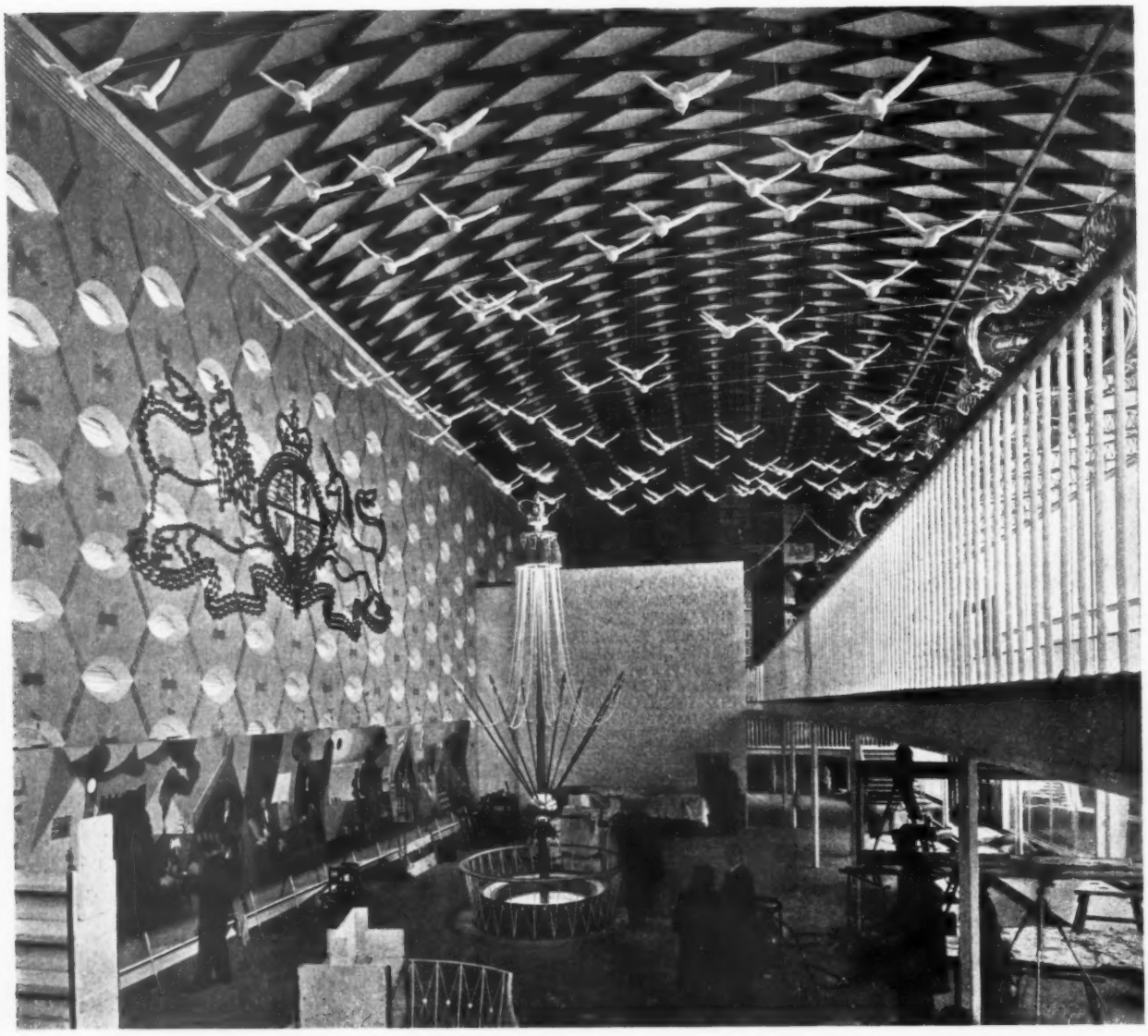






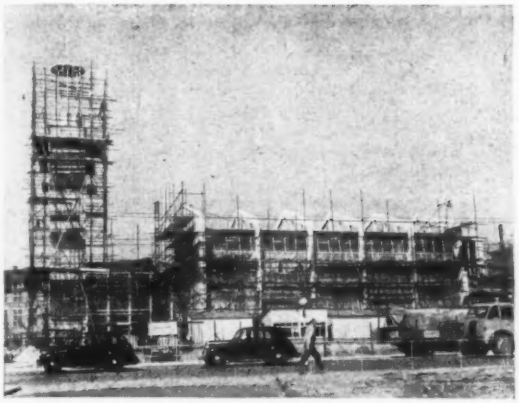


FESTIVAL OF BRITAIN : PROGRESS ON THE SOUTH BANK

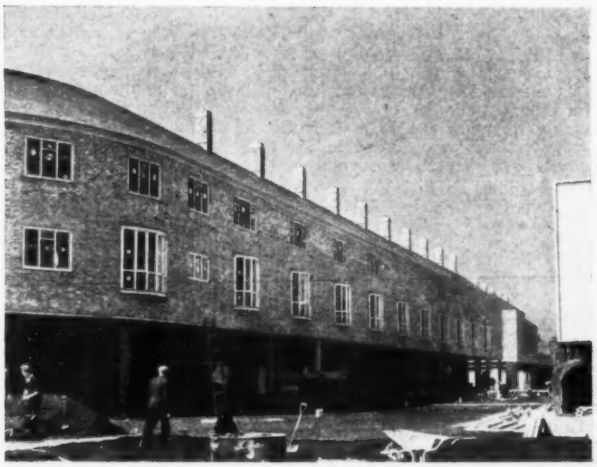


Above, and left, the interior and exterior of the Lion and the Unicorn Pavilion, designed by R. Y. Gordon and R. D. Russell ; consulting engineers : R. T. James and Partners. Below, the Royal Reception suite (architects : The Architects Co-operative Partnership ; consulting engineers : Ove Arup and Partners.)

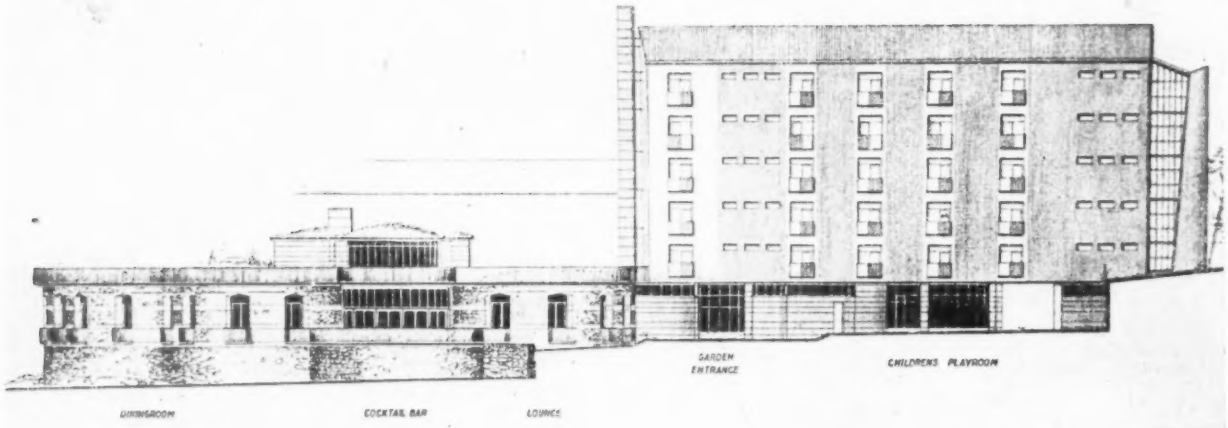
AND AT THE LANSBURY LIVE ARCHITECTURE EXHIBITION

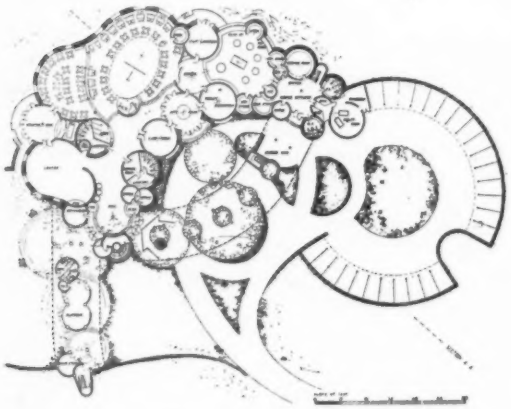


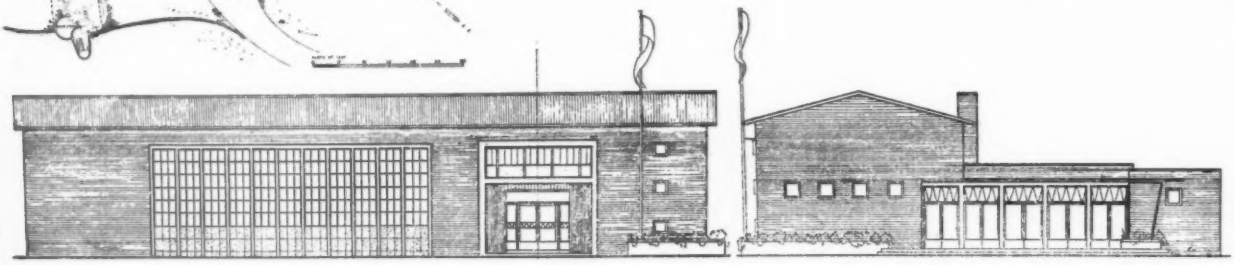
Photographs showing the progress made on buildings in the exhibition of architecture at Lansbury. Above, Congregational Church (Architects: C. C. Handisyde and D. R. Stark). Right, the exhibition entrance, with the vertical feature beyond, designed by John Wright. Below, Ricardo Street Primary school (architects: Yorke, Rosenberg and Mardall.) Bottom, two views of the new shopping centre (architect : Frederick Gibberd).



ROYAL ULSTER SOCIETY'S COMPETITIONS: WINNING DESIGNS.







Above : main elevation of first prize winning design (£200) by Patrick Horsbrugh, A.R.I.B.A., of Battersea Park, London, in a competition for a seaside hotel (not to be built), sponsored by the Royal Ulster Society of Architects and assessed by Desmond Fitzgerald. Left : plan of ground floor ; the dotted lines show the position of the six-storey block. Below : left, west elevation of design for recreation centre (not to be built) which won first prize (£100) for A. H. Martin, of Belfast, in a competition sponsored by the same society and also assessed by Mr. Fitzgerald ; below, south elevation of the same scheme. A list of the other prizewinners in these two competitions is given on page 506.

ERNEST WATKINS

The Architect and Current Affairs

Architects in private practice will be interested in the recently published report of the Committee on Trading Profits which has given eighteen months of investigation to the possibility of introducing reforms of the income tax and surtax laws. (Architects are subject to the same rules as the trader.)

The Committee did not recommend any change in the basic year of assessment. This is normally the year preceding the year of assessment (*e.g.* tax on the profit for the year ending December 31, 1949, was paid in the financial year ending April 5, 1951), although there are exceptions—the profits of the first three years and last two years of a business, when the assessment may be made on the actual profit in the year of assessment.

The main point considered by the Committee was the unfairness with which each year is treated as a watertight affair for surtax purposes. Many businesses (as architects will know) may show great differences in profits from one year to another. The Committee suggested that the regulations should be amended (for earned income only). A person or partnership, they said, should be able to have surtax for a particular year adjusted so that the total amount payable in the five years would be equivalent to the total payable if the business income had been the same each year. For instance, if the taxable income is £3,000 per annum for four years and £12,000 in the fifth year then under the present system the surtax for the four years is £450 (at £112 10s. per annum) and the surtax for the fifth year is £3,037 10s. Under the revised system only £1,887 10s. would be payable in the fifth year.

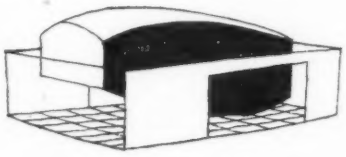
Individual partners may find their payment of tax complicated by the fact that partners have options entitling them to treat a change in the composition of the partnership as equivalent to the end of one business and the beginning of another. The committee recommends that: (1) Allocation of tax between individual partners should follow the allocation of profits in the year of assessment (this for practical reasons). (ii) On a change in the partnership, the cessation and commencement provisions should apply unless all the partners and former partners elect otherwise (in effect, this would reverse the present option). (iii) Continuing partners should be entitled to carry forward against tax former losses whether options exercised or not. (iv) Additional liabilities on cessation provisions should be recoverable from former partners personally.

The Committee also recommended that the six year limit for offsetting losses should be abolished; that a provision should be made that a loss in a closing year could be carried back against the profits of the three preceding years and that a business loss on a cessation should be a permissible deduction from a non-business income in the next year. The Committee recommended no change in the matter of lump-sum payments which, in fact, represent earnings over previous years, save that provided by their suggestion for the averaging of surtax liability. The Committee's reasons for this reluctance to advise a change were mainly based on administrative considerations.

The Committee made a number of specific recommendations for the increase in the range of expenses that may be set against

profits for tax purposes, including, for instance, a fair proportion of the expense of a house in which some business activity is carried on, the costs of tax appeals, premiums and allowances paid on behalf of employees, the costs of a lease of business premises, and so on.

A separate committee is considering what changes in tax regulations should be suggested to allow the individual to obtain the relief from tax for savings against old age that is automatically given to those who are members of a group pension scheme. The results of this committee's work will certainly be of interest to a great many professional men.



ROYAL FESTIVAL HALL: II

The final progress report (dealing with the furniture) by John Eastwick-Field and John Stillman

Amongst the many other new and unfamiliar things to be seen at the Festival Hall is the furniture, some of which has been designed by the architects, and some by Robin Day, A.R.C.A., F.S.I.A., in consultation with the architects. The descriptions of some of the individual pieces which we give later in this article are intentionally restricted to matters of technical interest, but it should be added that the designers have considered them in every respect for their suitability to form part of the whole "æsthetic" of the building.

Before describing this furniture, in particular, we have attempted to summarize the ideas which underlie the design of modern factory produced articles, and which have found expression in much of the furniture under discussion. Special designs have not been made in order that they should be exclusive to the Royal Festival Hall, and, in fact, some of the chairs may later be in general production.

We have not attempted to include, in this article, a description of the fabrics and other furnishings, which have been specially designed by the architects, and which are of great interest.

William Morris and the arts and crafts movement did much to show how the design of everyday things, which had become debased and superficial in the Victorian era, could be improved by a revised interest in hand crafts. At the same time the movement must have contributed to the failure to appreciate, of all but a few of those responsible for the design of furniture and other everyday things, that, not only was machine production inevitable for economic reasons, but that the machines would be capable of producing different, and possibly better, articles, if only the designers would abandon their old prejudices. As so often happens, even now, designs which had been suitable for hand-made goods were sent to the factories for mass reproduction.

It sometimes happens that the machine process is, in fact, merely a mechanized version of the hand process. Certain power looms are basically the same as hand looms, and hand woven material can be faithfully and economically reproduced in large quantities. Furthermore it is not always easy to differentiate between what is handsome and what is machine made. The individual craftsman may legitimately use powered tools and the quality of the article may still depend upon his own skill: conversely, machine-produced articles, which depend entirely upon the machine for their quality, may still need to be assembled by hand.

It is only logical that when an article is wholly machine produced, as may happen, for instance, in a moulded plastic radio cabinet, the design should not reflect traditional forms and techniques. Even when only some machine processes are used, an entirely different approach to design is necessary if the finished articles are not to be inferior imitations of the original hand made article. In joinery and furniture making, for instance, some of the joints which are fundamental to hand production cannot, as yet, be so well made by machines, despite the accuracy which can be obtained by machine-cut joints for conventionally framed furniture. Machine cut mortice and tenons, for example, are liable to contain cavities due to the circular cutting actions of the machines.

In a similar way, the materials which are appropriate to hand crafts are not always as suitable for use in machines, where uniformity of quality is desirable. Natural wood has an established reputation for its workability and other fine qualities, but whilst the individual craftsman is able to reject any unsuitable pieces, this is less easily done on the production line: on the other hand, there are many excellent materials which, though less suitable for working by hand, are sufficiently uniform to make them better raw material for use in machines.

If one considers the auditorium chair designed for machine production by Robin Day, in association with the manufacturers, one finds that no part of it could easily be made by hand, and the main materials used are steel, aluminium, foamed rubber, plywood and fabric. Even in the design of the less complicated chairs, the choice of materials is not restricted to such an extent as it was in traditional furniture. The result has been that instead of being made throughout in hard wood, different materials have been used for each major component—steel for frames which take the main stress and knocks, foamed rubber on a thin, shaped ply base for seats which bear the main weight, and formed veneered ply for backs and arms.

Obviously, a design conceived with these considerations in mind will look very different from what one is accustomed to seeing. Since mass production depends on a large market, and retailers, who fear that new ideas will not be acceptable to the general public, resist innovation in design, there is no commercial incentive to abandon designs for which they have a ready sale. As a result of propaganda by the Council of Industrial Design and others, there has, however, been an increase in demand for what is known as "contemporary" furniture. One hopes that this genuinely represents an improvement in taste, but most of the furniture sold has been aptly described as "Regency *via* Sweden *via* Scotland." It does not perhaps represent any significant advance in manufacturing technique.

What is remarkable is that this struggle to achieve more logical designs, which has been going on for quarter of a century, has taken so long to achieve its objects. H. McG. Dunnett's review of post-war furniture, published in the "Architectural Review" March 1951, illustrates examples of advanced design from many countries, but most of them are prototypes or frankly experimental. Nevertheless, in this country a limited number of pieces embodying the machine æsthetic have been commercially successful, and amongst these are the popular and efficient steel tubular stacking chairs, the range of cast, aluminium-framed furniture designed by Ernest Race, and some recent school furniture produced by the Educational Supply Association and others.

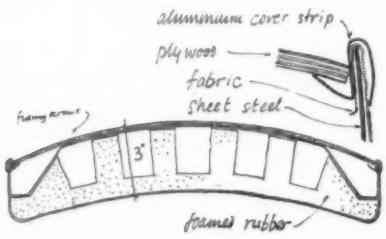
In America, furniture which makes no compromise with tradition is becoming acceptable to the public, examples being the moulded plastic and steel framed chairs of Eames and Saarinen. Three of the chairs designed by Robin Day for the Festival Hall used preformed ply wood as part of the structure. Although the shape of the pre-formed shells looks complicated and sculptural, none of the curves are compound, but are single curved planes arranged at various axes to each other. Slight compound curves can be produced at comparatively low cost by distortion of wood fibres. The processes involved in the production of the Eames pre-formed plywood chairs is not as yet practised in this country, but similar curves were achieved for the Mosquito aeroplane by expensive methods involving "tailoring": that is, cutting each layer of veneer in each shell to a different and complex shape.

Some of the most interesting pieces of furniture specially designed for the Royal Festival Hall are described and illustrated on the following pages.

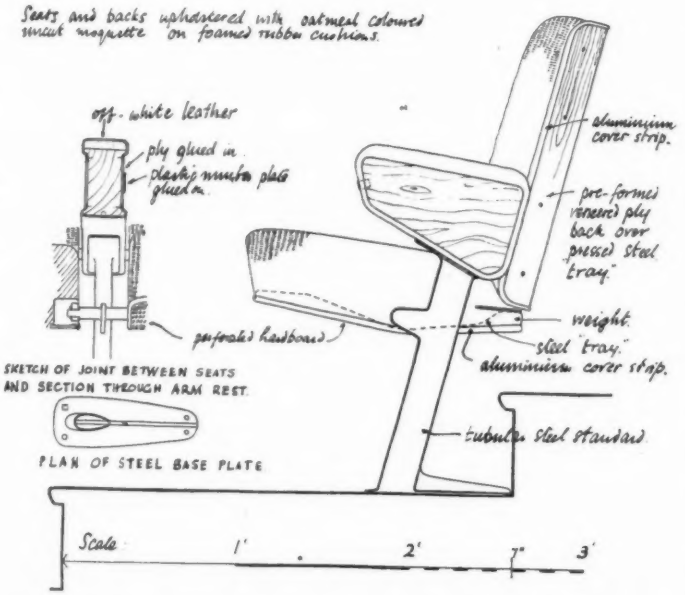
THE AUDITORIUM CHAIR

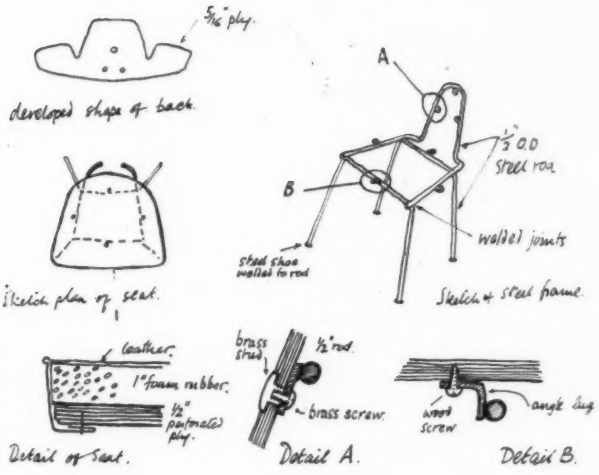
designed by ROBIN DAY

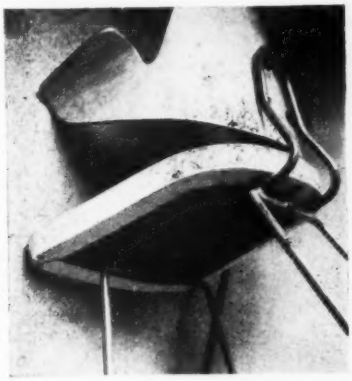
The technical requirements in this design were to provide a chair of which about 3,000 could be produced at a reasonable cost, complying with theatre regulations, and giving the degree of comfort which is necessary for a long period of sitting. The materials used for covering and upholstery had to be durable, and, in particular, the dimensions had to be such as would enable the depth of the steppings to be kept to a minimum. This latter consideration meant that the thickness of the back of the seat (see sketch below) had to be as small as possible. The depth of the seat is of little consequence in this respect since the length of the human leg remains constant irrespective of the dimension of the chair seat. For acoustic purposes the underside of the chair is made of a perforated board, backed with rock wool so as to absorb sound when the seat is tipped up. The numbering of the seats is so arranged as to be visible at right-angles to the gangways. A further requirement was that certain seats should be provided with socket outlets for hearing aids, and this was one reason why a tubular support was chosen. The outlet can be seen in the front of the arm rest in the drawing. The photograph of the components, bottom left, includes the metal tray containing the back cushion, the plywood panel, the aluminium strip, and the upholstered seat.



SECTION E DETAIL OF BACK



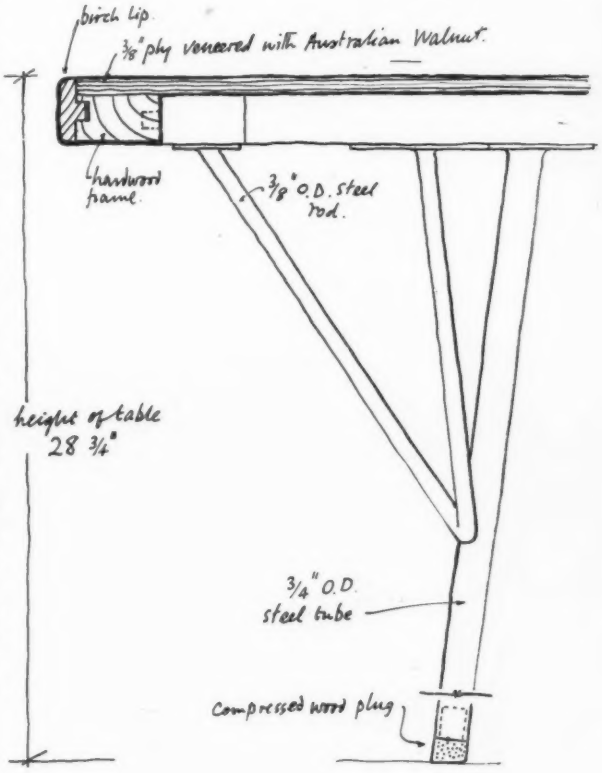


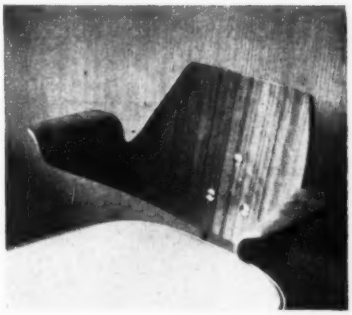


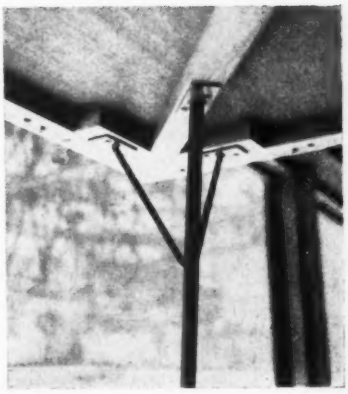
DINING TABLE AND CHAIRS

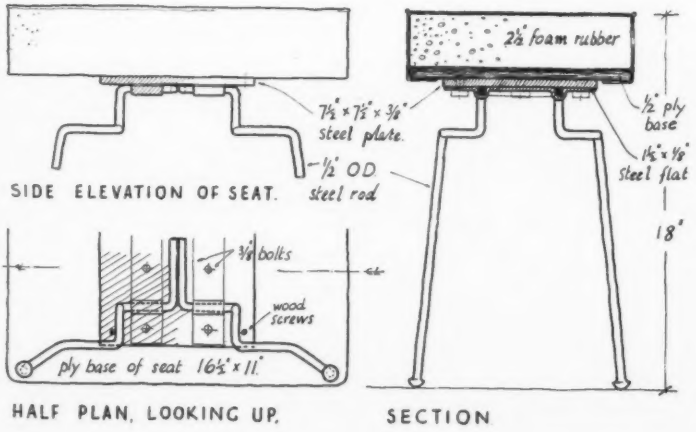
designed by ROBIN DAY

The slender legs of the chairs contribute not only to economy in production, but also to the feeling of lightness and transparency which is expressed throughout the building. The legs of the tables will not normally be visible, since it is proposed to use table cloths. All the legs of this furniture have been stove enamelled to a rigid specification. Although the chairs do not stack, they can be placed seat to seat, one on another, to make room for cleaning; this is exceptional in arm chairs and is made possible by the cantilevered arm seats. The height of the seats of the chairs is approximately 17½ inches and the height of the tables is 28¾ inches, both of which dimensions are slightly lower than the standard in this country. There are two types of table, one 3 feet square, and one 2 feet 6 inches in diameter. The photographs and drawings show the principle of construction of these tables and chairs.









POWDER ROOM STOOL

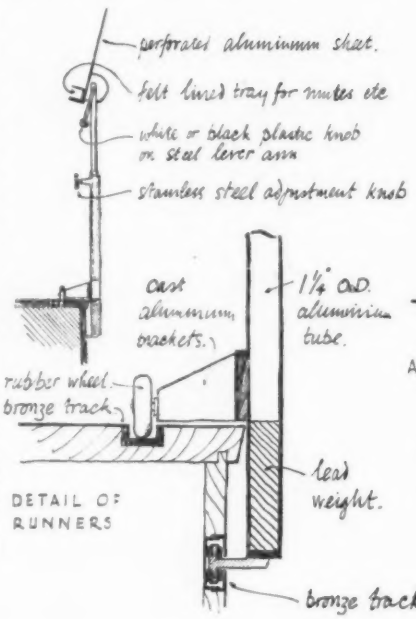
designed by the ARCHITECTS

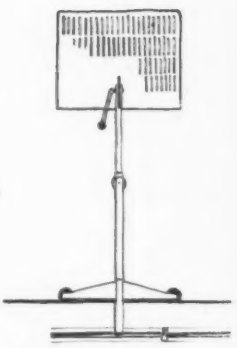
This shows a further use of solid steel rod for legs with a somewhat different method of attachment to the underside of the plywood seat. Lightness and elegance is achieved by the bends in the rod.

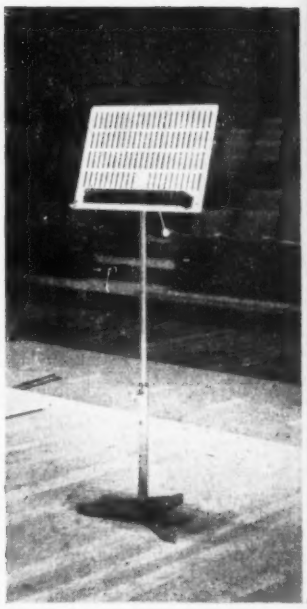
MUSIC STAND

designed by the ARCHITECTS

There are two main variations to this special design. One is free-standing, with weighted cast aluminium tripod base, and the other embodies an entirely new idea in the arrangement of its support. As can be seen from the drawing, it is supported on two wheels and a guide running in tracks along the fronts of the steps of the platform. One of the advantages of this arrangement is that the standard can be 6 inches or 7 inches further forward than it could be, if it had the normal tripod support, thus increasing the effective space. The photograph shows one of the free-standing type.



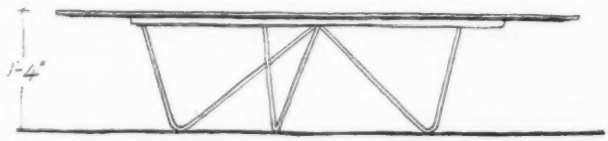




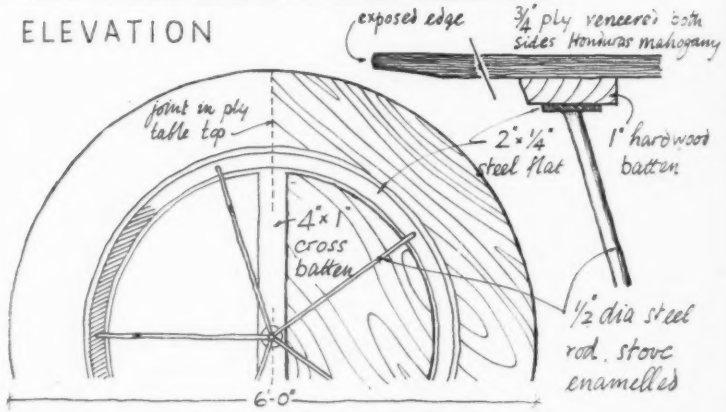
COFFEE TABLE

designed by the ARCHITECTS

A small number of these tables is to be used in the foyer. Because of their large diameter, the plywood top had to be in two pieces, and it was not possible to screw the metal frame direct to them, as has been done in a smaller table also designed by the architects. The method of support will give an interesting pattern when seen by the public ascending the staircase, an aspect not usually considered. The sketch shows the elevation and, below it, a part plan, looking up, together with a detail.



ELEVATION



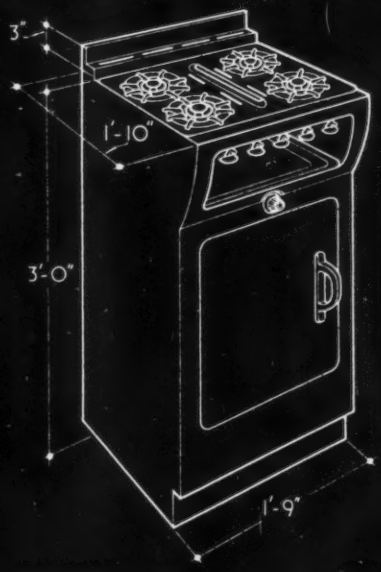
STACKING CHAIR

designed by ROBIN DAY

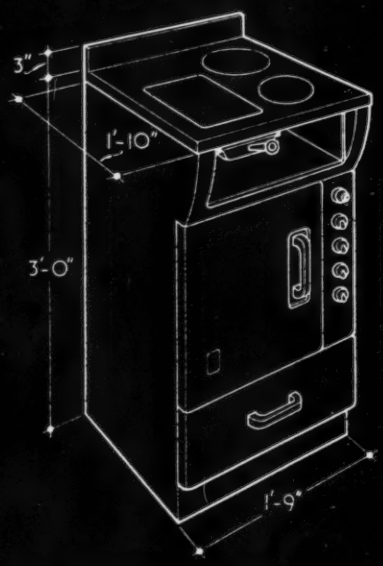
Photograph of the stacking chairs, some of which are used by the orchestra. The principle of construction is similar to that used for the dining chairs which are described in this article, and the seats are covered with a woven plastic cloth.

SPECIALISED FITTINGS | KITCHEN UNITS

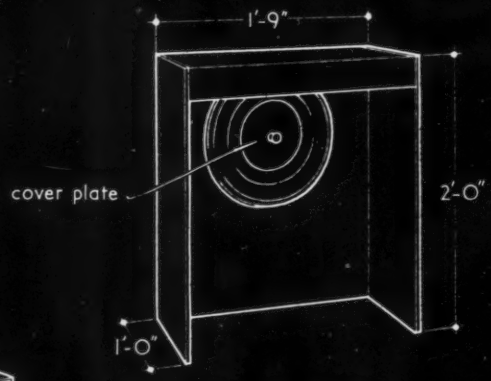
The Architects' Journal Library of Information Sheets 309. Editor : Cotterell Butler, A.R.I.B.A.



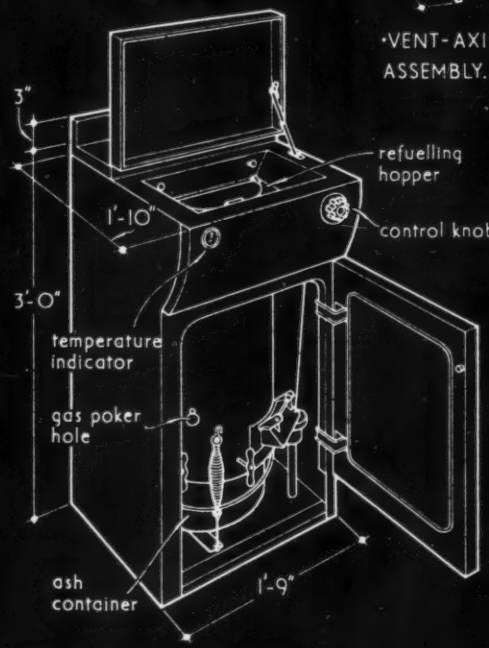
·FLAVEL· GAS COOKER.



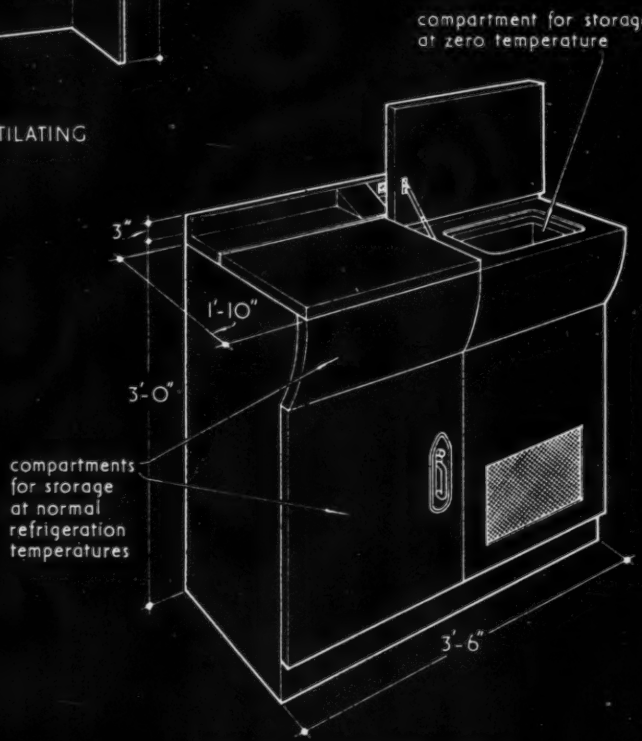
·REVO· ELECTRIC COOKER.



·VENT-AXIA· VENTILATING ASSEMBLY.



·HAZEL· DOMESTIC BOILER.



·DUAL FREEZE· REFRIGERATOR.

·ENGLISH ROSE· GAS AND ELECTRIC COOKERS, VENTILATING ASSEMBLY, DOMESTIC BOILER AND REFRIGERATOR. Manufacturer: C.S.A. Industries Ltd.

43.E16 'ENGLISH ROSE' GAS AND ELECTRIC COOKERS, VENTILATING ASSEMBLY, DOMESTIC BOILER AND REFRIGERATOR

This Sheet, the second of two describing the English Rose range of kitchen equipment, deals with the Flavel gas cooker, Revo electric cooker, Vent-Axia ventilating assembly, Hazel domestic boiler and Dual Freeze refrigerator. Other English Rose kitchen equipment—floor cabinets, sink units and wall cupboards, which are designed to match the above—is described on Sheet 43.E15.

'Flavel' Gas Cooker

Hot-plate : The hot-plate consists of a one-piece pressing, vitreous-enamelled black, with removable cast iron pan rests and safety locking taps.
Hot-plate burners : There are four neat burner rings and a grill burner. Aerated burners may be supplied if required.
Oven : The side linings are of acid-resisting vitreous enamel on cast iron with embossed shelf positions. The inside dimensions of the oven are 1 ft. 2 in. wide by 1 ft. 4¾ in. high by 1 ft. 2 in. deep. Burners are of the neat type but aerated burners may be supplied if required.
Fittings : The cooker is fitted with a Thermotap (combined oven tap and heat control) and removable oven bottom. Accessories include two grid shelves, cake tray and meat tin. The bottom spillage tray is fitted with a stainless steel kicking strip.
Cooker side plates : One or both of these may be omitted if other English Rose units are installed at the side or sides of the cooker.

'Revo' Electric Cooker

Hot-plate : This consists of a 10½-in. by 8-in. grill boiler and two boiling plates—8-in. and 6¼-in. diameter. The loadings are 2·2, 1·8 and 1·0 kW respectively.
Oven : The oven interior is removable for cleaning and the inside dimensions are 1 ft. 0¼ in. wide by 1 ft. 1¼ in. high by 1 ft. 1¼ in. deep. The loading is 2·2 kW.
Fittings : The cooker is fitted with a Revostat automatic oven regulator. Accessories include an enamelled grill pan with adjustable wire grid, two grid shelves and a meat tin.
Heated drawer : A heated drawer for warming plates is fitted at the bottom of the cooker. The inside dimensions are 1 ft. 4 in. wide by 5 in. high by 1 ft. 1½ in. deep and the loading 0·25 kW.
Total loading : The total loading is 7·2 kW and the cooker is available for A.C. only in the following voltages : 200/210, 220/230, 230/240 and 240/250.

'Vent-Axia' Ventilating Assembly

Construction : The air extractor is mounted in a plastic and aluminium wall fitment to match the English Rose wall cupboards illustrated on Sheet 43.E15. A cover plate is supplied for fitting into the extraction aperture when the fan is not in use.
Air displacement : 8,000 cu. ft./hr.
Loading : 25 watts.
Aperture : The extractor requires a hole in the wall 6⅝ in. min. diameter.

'Hazel' Domestic Boiler

A detailed description of the domestic boiler is given on Sheet 43.E14. Operation and maintenance are exactly the same except that when cleaning the flue of the English Rose Hazel domestic boiler, the hopper back plate has to be removed to provide access to the flue box.

'Dual Freeze' Refrigerator

Accommodation : The refrigerator has been designed for the storage of foods and drinks at normal refrigeration temperatures and of frozen foods at zero temperature. One half of the cabinet accommodates foods at normal refrigeration temperature in two compartments having a total capacity of approximately 5 cu. ft. The upper and lower compartments have white vitreous-enamelled interiors. There are two rubber-mounted stainless wire shelves in the lower compartment and one in the upper. The upper compartment, which is accessible by means of a lift-up top, is for the storage of bottled liquids.
The other half of the cabinet contains the condensing unit and, above, a bright tinned copper container of approximately 2 cu. ft. capacity, accessible by means of a lift-up top, for keeping frozen foods at zero temperature.
Condensing unit : This is of the air-cooled open type, complete with compressor fitted with a ¼-h.p. motor, 50 cycles, A.C. 200/250 volts and double bank condenser.
Operation : All compartments are thermostatically controlled.
Insulation : The refrigerator is insulated with hermetically sealed cork.

Finish

All units are stove-enamelled cream, pastel green or white; working tops and kicking strips are in highly polished stainless steel.

Compiled from information supplied by :

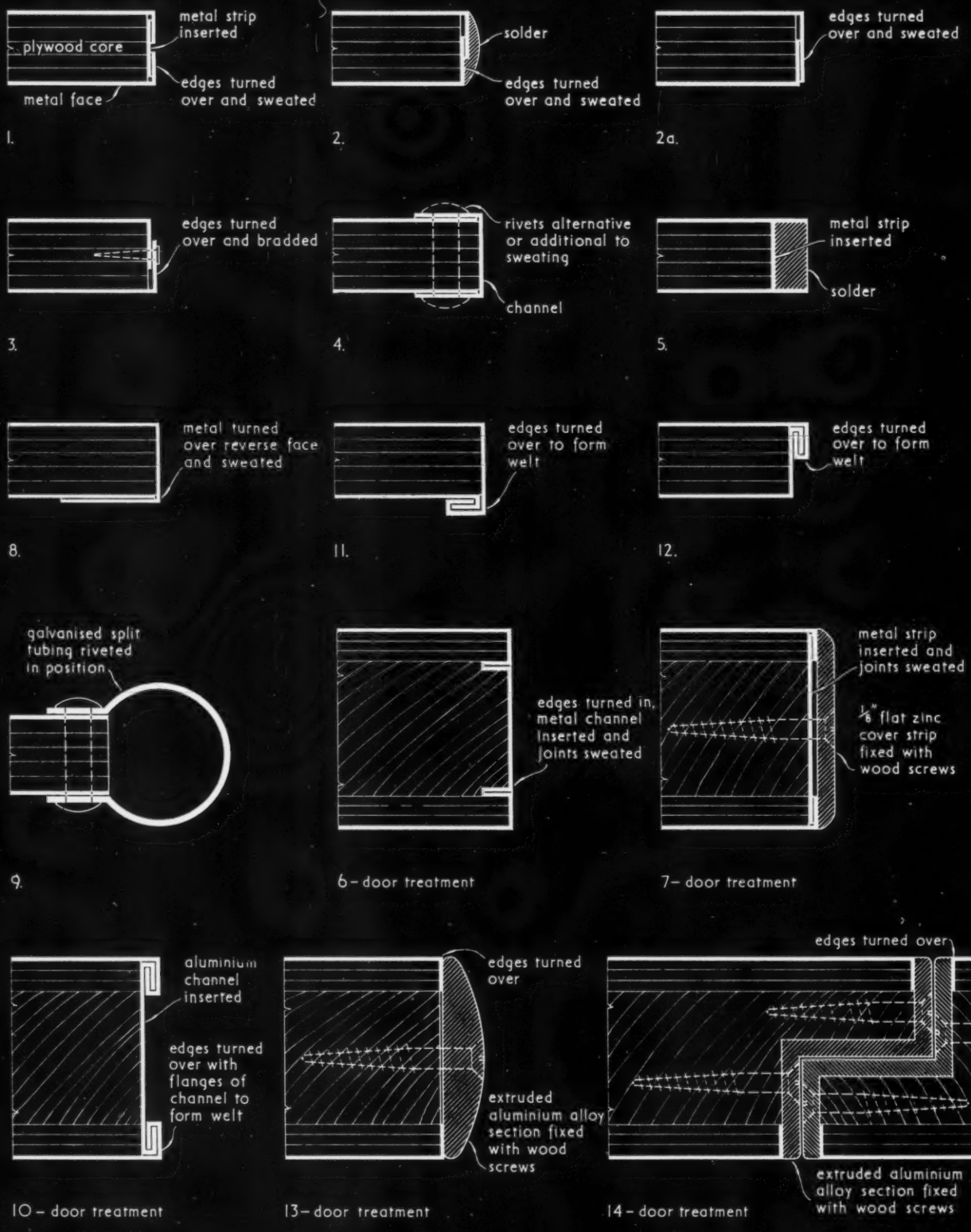
C.S.A. Industries, Ltd.
Address : Warwick, England.
Telephone : Warwick 500.
Te egrams : Conscrew, Warwick.

SHEET MATERIALS | METAL-FACED PLYWOOD

The Architects' Journal Library of Information Sheets 310. Editor: Cotterell Butler, A.R.I.B.A.

15.Z1

REVISED 26.4.51



·FLEXOMETAL· STANDARD TYPES OF SEALED EDGE: CLASSIFIED ACCORDING TO MANUFACTURER'S TYPE NUMBERS. (scale full size) Manufacturer: Flexo Plywood Industries Ltd.

15.Z1 FLEXOMETAL: STANDARD TYPES OF SEALED EDGES

This Sheet supersedes Sheet 15.Z1 published 12.8.48. It describes Flexometal (metal-faced plywood) and illustrates standard types of edge finish for doors and free-standing panels. Sheet 15.Z2 gives examples of panel jointing and built-up sections.

Material

The material consists of a plywood core with thin sheets of metal cemented under hydraulic pressure to one or both faces with a special adhesive. Metal facings available include galvanised steel, aluminium, copper, bronze (gilding metal), stainless steel, monel metal, anodised aluminium, zinc, brass, lead and tinned copper.

Weights

The standard weights of panels available for different metal faces are given in the following table. Thicknesses available range from $\frac{1}{8}$ in. to 1 in. Panels over 1 in. thick can be made to suit requirements. Unlimited areas may be obtained in any metal facing by the use of welted and sweated joints.

Overall thickness	Weight per sq. ft. (lb.)			
	Galvanised steel facings		Aluminium facings	
	Single sided	Double sided	Single sided	Double sided
3mm. ($\frac{1}{8}$in. nom.)	1·08	1·70	0·66	0·86
4mm. ($\frac{5}{32}$in. nom.)	1·16	1·79	0·74	0·95
6mm. ($\frac{1}{4}$in. nom.)	1·47	2·09	1·05	1·26

Thermal Conductivity

The thermal conductivity of Flexometal is almost the same as that of wood. $\frac{1}{4}$ in. Flexometal has 2,000 times the thermal insulation value of 22 gauge mild steel.

Although the conductivity of the metal facings is high the fact that the greater proportion of the material is timber and is protected from moisture ensures its maintaining a maximum resistance.

For comparative purposes the thermal conductivity of mild steel is 348·36, and timber 1·0 B.Th.U. per sq. ft. per hour per deg. F. difference per inch thickness.

Stiffness Factor

The stiffness factor (EI) of $\frac{1}{4}$ in. Flexometal with galvanised steel on both faces is 14,000.

Edge Finishes

The illustrations show standard edge finishes for double-sided Flexometal. With single-sided Flexometal the metal is left overhanging and folded over $\frac{1}{4}$ in. on to the back.

Finish

Steel facings are zinc-coated to resist rusting and the zinc coating is treated to hold paint.

Other metals are matt or bright polished.

Compiled from information supplied by :

Flexo Plywood Industries Ltd.
Address : Flexo Works, S. Chingford, London, E.4.
Telephone : Silverthorn 2666 (8 lines).
Telegrams : Flexoply, Easphone, London.

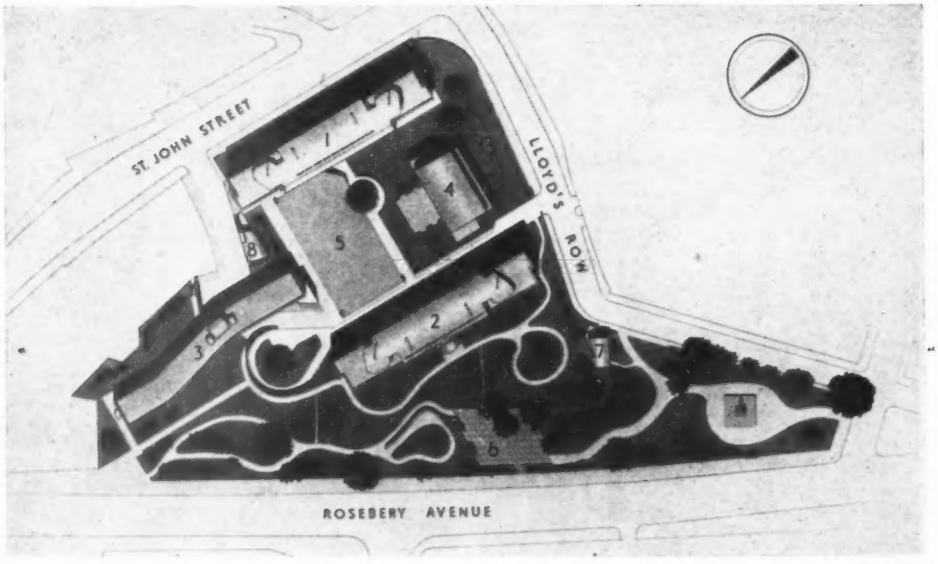
FLATS

on the SPA GREEN ESTATE, FINSBURY, LONDON, E.C.I.
designed by TECTON
executive architects LUBETKIN and SKINNER
consulting engineers OVE ARUP and PARTNERS

The site for the three blocks of flats illustrated in the following pages is in a prominent position on the east side of Rosebery Avenue, near the Finsbury Town Hall, and opposite the headquarters of the Metropolitan Water Board and the Sadler's Wells Theatre. It was in 1937 that the Borough Council decided to demolish slum property bordering a narrow public garden known as Spa Green, but work was held up by the war, and in 1945 the scheme was fundamentally redesigned due to the County of London Plan and the fact that certain property which the Council had been unable to acquire before the war had been demolished by bombing.

West facade of the four-storey block.

D



KEY

1 and 2. Eight-storey blocks.

3. Four-storey block.

4. Proposed Nursery School.

5. Playground.

6. Terrace.

7. Electric sub-station.

8. Heating chamber and refuse disposal plant.

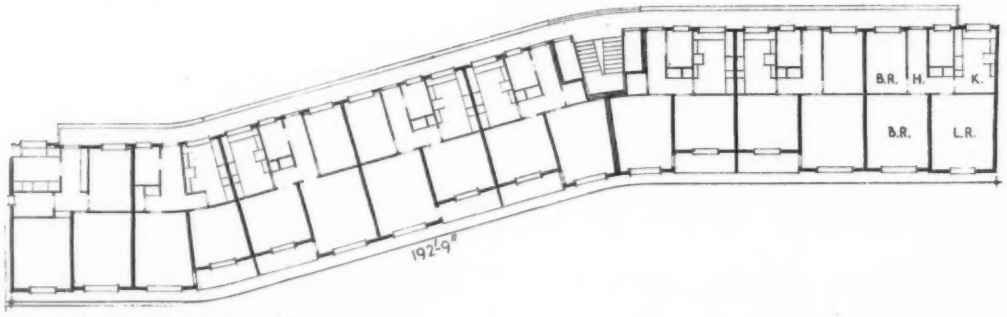
Site plan

FLATS

on the SPA GREEN ESTATE, FINSBURY
designed by TECTON

SITE.—The main axis of the blocks is north and south to gain the maximum sunlight and relate the scheme to the street plan. The low, four-storey block, which has a curved plan, is intended to form a link in scale between the surrounding terraces of Georgian houses and the two tall eight-storey blocks and make an informal transition from one to the other. In the 17th century the site consisted of pleasure gardens, which gained their popularity from the Chalybeate spring, the waters of which were claimed to have remarkable medicinal qualities. The area is 1·7 acres, on which there are 129 flats.

Plan of 3-room flat in 4 storey block [Scale: $\frac{1}{8}$" = 1'0"]



Plan of 4-storey block [Scale: $\frac{1}{8}$" = 1'0"]

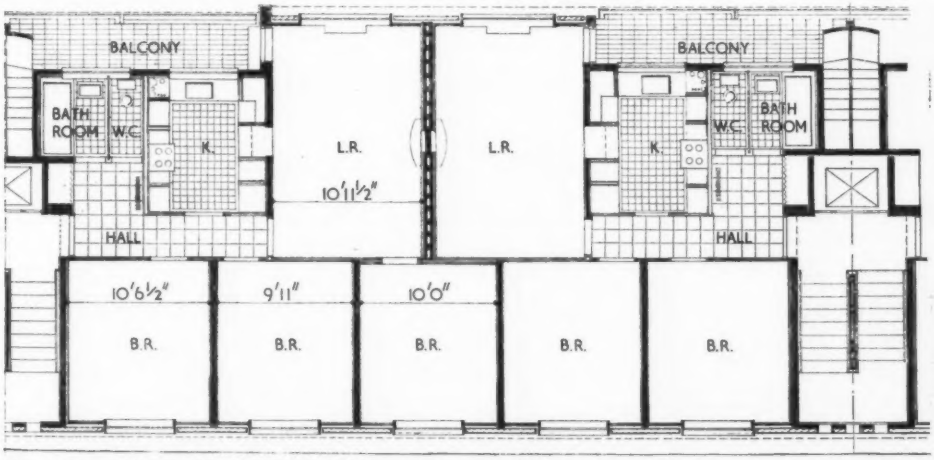
Below, west and south facades of 4-storey block looking north-east. The small building, bottom right, is the refuse disposal plant.

PLAN.—The tall blocks, which each contain 48 flats, have staircase access and lifts, each serving two flats on each floor. In the four-storey block there is balcony access from one central staircase. The basis of the internal planning is the rigid segregation of bedrooms and living rooms on opposite sides of the blocks. Enquiries have shown

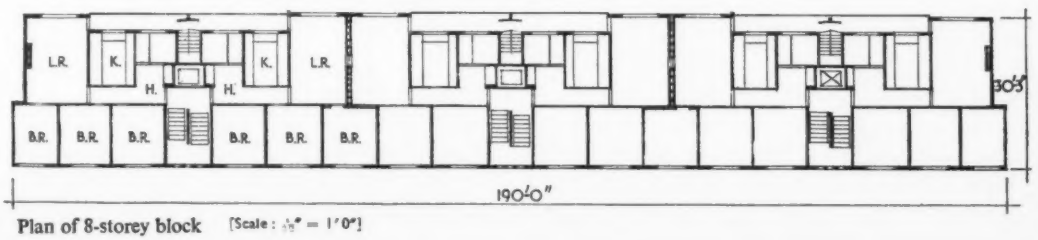
Above, one of the eight-storey blocks, looking north-east across Spa Green gardens.

that most families prefer bedrooms of a more or less uniform size, such as have been used in this scheme. Living rooms and kitchens are connected by hatches with double doors. Balconies are accessible from living rooms and can be supervised from kitchens.

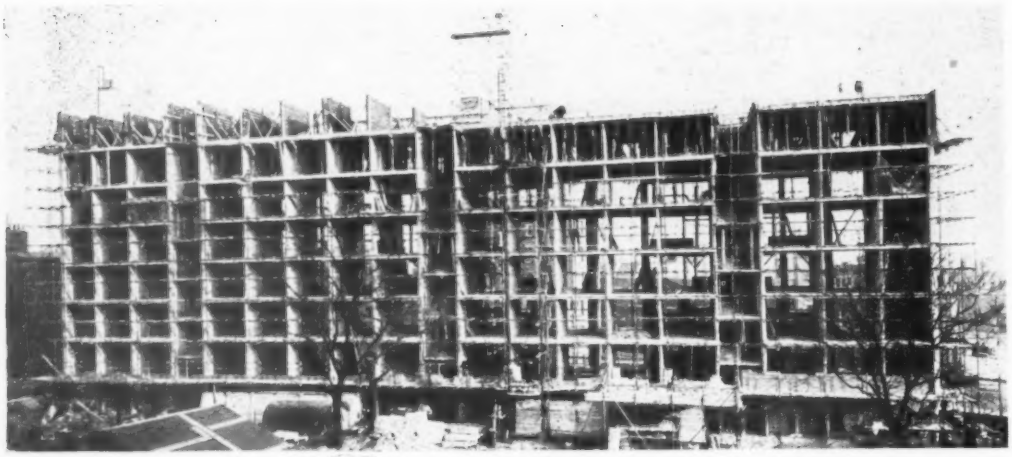
CONSTRUCTION.—So far as is known, the monolithic box frame type of construction was used for the first time in England at Spa Green. Apart from economy, the main advantage is that differential settlement is counteracted by replacing the stiff longitudinal beams by a continuous slab with stiffened edges. In addition, absence of beams and stanchions simplifies planning. The reinforced concrete cross walls are 5 in. to 7 in. thick, and the floor slabs 4½ in. The two tall blocks are cut into four separate parts structurally by vertical expansion



Plan of 3- and 4-room flats in 8-storey block [Scale : $\frac{1}{16}$" = 1' 0"]



Plan of 8-storey block [Scale : $\frac{1}{16}$" = 1' 0"]

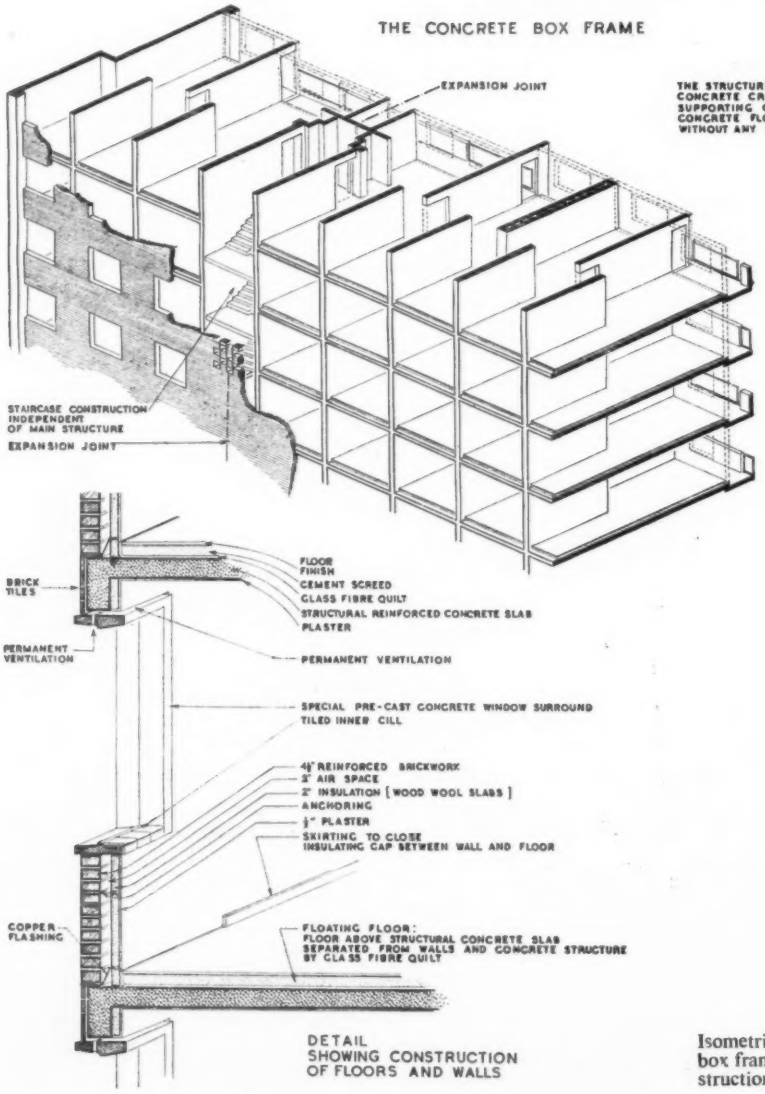


Left, progress on box-frame construction for one of the eight-storey blocks.

FLATS

on the SPA GREEN ESTATE, FINSBURY
designed by TECTON

joints, which are arranged to separate lifts and staircases from the rest of the structure to ensure good sound insulation. The stairs and landings are cantilevered from a central concrete spine and are not supported along their perimeter. Shuttering is an important factor in this type of construction and



Isometric projection showing box frame method of construction

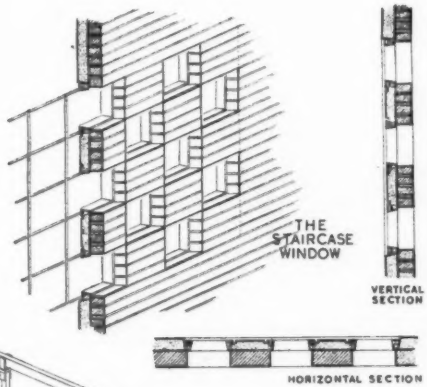
Right, east facade of one of the eight-storey blocks looking in the direction of Rosebery Avenue. The dispersal opening for air passing through the wind roof can be seen above the eighth floor.

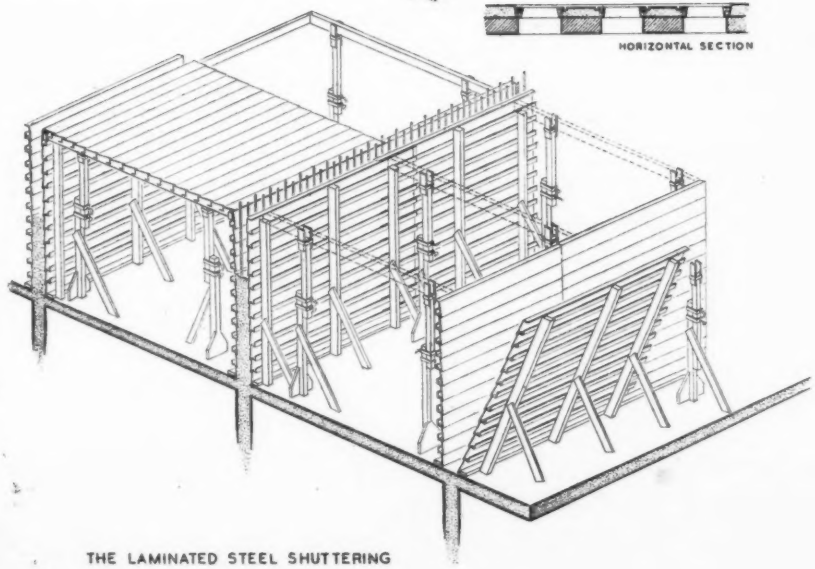
here a Danish system of Z-shaped 10-gauge steel sheets was used. This shuttering overlaps to form a continuous surface. Continuous raft foundations are used due to the poor subsoil.

FINISHES.—Outside panel walls are mostly of normal cavity construction. The outer skin is of 4½-in. reinforced brickwork tied to the crosswalls, and the inner skin is of 2-in. cell-concrete slabs. The gable walls and balcony balustrades are of reinforced concrete clad with frostproof tiles.

SERVICES.—Heating and hot water are supplied from a common main served by oil-fed boilers placed in an underground chamber. Each flat has convector radiators in living rooms and entrance

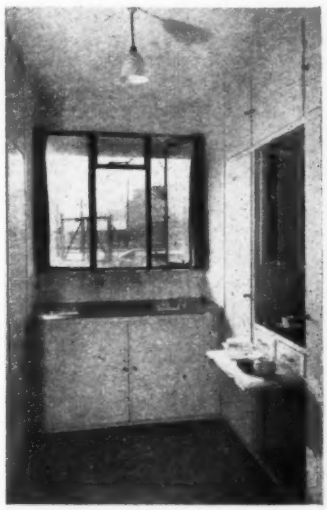
Isometric projection showing shuttering in position in box-frame construction

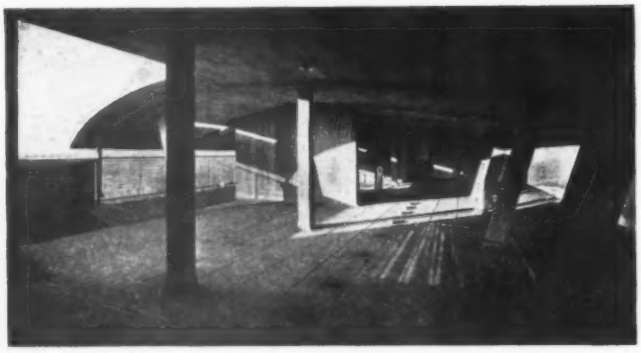


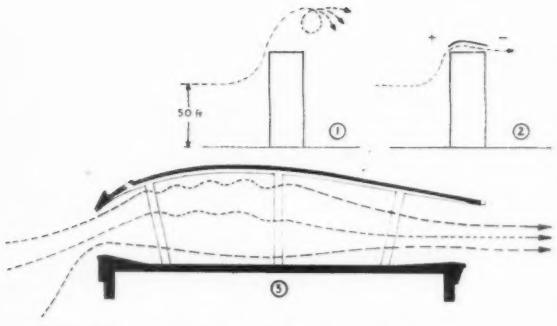


THE LAMINATED STEEL SHUTTERING

Below, a typical kitchen showing double service hatch to living room on the right.







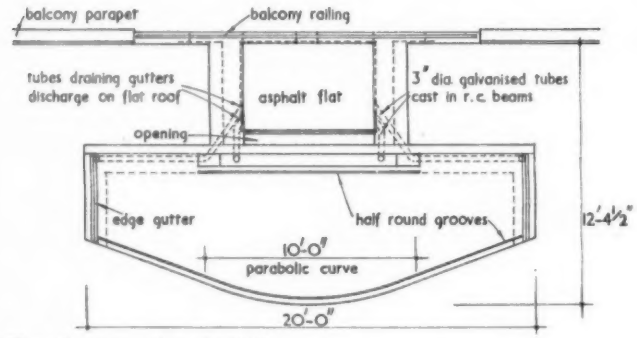
Diagrams showing principle of wind roof design

Above left, the wind roof on one of the main blocks. This covered drying space obviates the use of balconies for this purpose. As shown in the diagrams, this roof traps rising air currents, which are at maximum velocity at 50 ft. above ground level. Slots in the leading edge of the roof, seen in diagram 3, set up fluctuations which increase the drying efficiency of the air.

FLATS

on the SPA GREEN ESTATE, FINSBURY

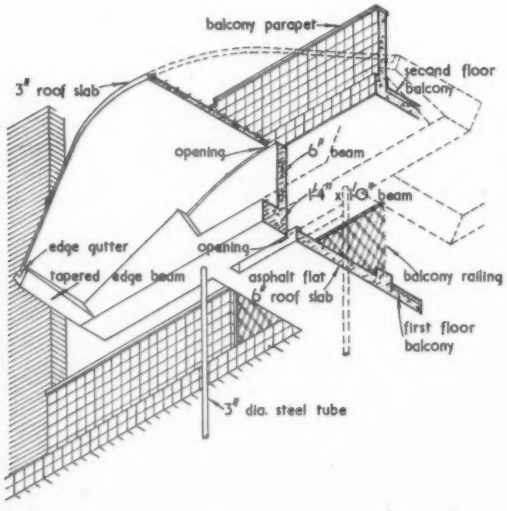
designed by TECTON



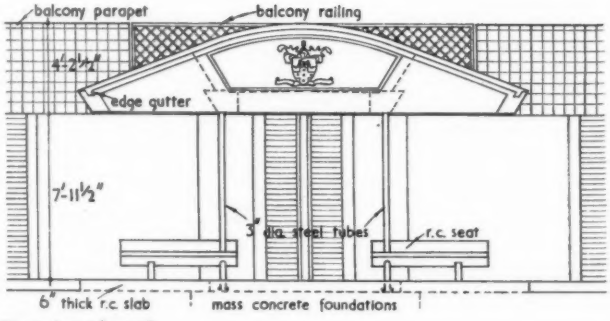
Plan of porch [Scale: ⅛" = 1' 0"]

halls and built-in gas or electric fires. Hot-water supply is from a 30-gallon calorifier heated by a coil from the main circuit. The Garchey refuse system is used, refuse being put into a container in the kitchen sink and falling by gravity into an underground collection chamber. From here it is sucked by vacuum every 7-14 days into a central disposal station.

The general contractors were William Moss & Sons, Ltd. For list of sub-contractors, see page 530.

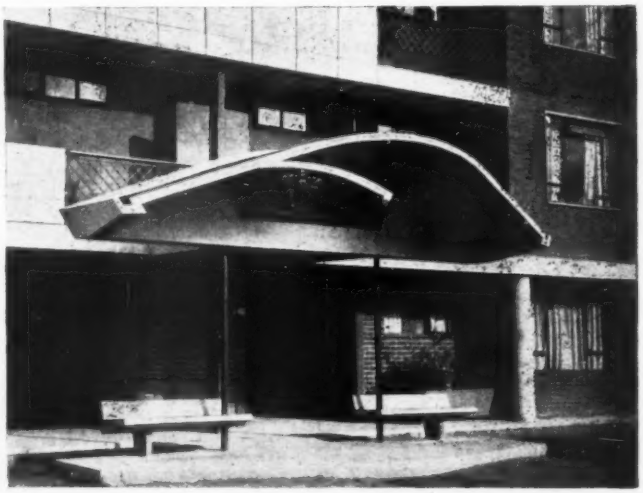


Isometric sketch of porch



Elevation of porch

Hood over the garden entrance of south-west block.



INFORMATION CENTRE · INFORMATION SHEETS
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TECHNICAL SECTION

Last July, O. J. Masterman's article, comparing timber floors and roofs with those of other materials, aroused much controversy amongst readers. The recent increase in timber prices brings this subject, once again, to the fore, and the* JOURNAL'S *Technical Editor, R. Fitzmaurice, has written the following article comparing the advantages of timber and concrete. This will be followed shortly by another article which will discuss in more detail the economic aspects of the problem.*

FLOORS FOR HOUSES

By R. Fitzmaurice.

The writing of this paper has been prompted, to some extent, by the curious situation which has developed in connection with timber floors. In quite a number of countries where good building timber is home grown and plentiful, the wooden floor is rapidly becoming the exception rather than the rule. In Great Britain, on the other hand, where the vast bulk of our building timber has to be imported, the wooden floor is still pre-eminent.

This prompts one to ask a number of questions. Is the wooden floor inherently better than some of the possible alternatives? Is the wooden floor much cheaper than some of the alternatives? Could we find alternative types of floors, if, for any reason, we could not afford to buy wood in addition to all the other things we must import from overseas? Have we the technical skill to produce alternative types of floors in sufficient quantity? If we have not, is there any fundamental reason why we should not acquire it? Ought we to buy wood in bulk from overseas to use in floors, when there may be other commodities, such as food and raw materials for industry, for which our need is more urgent?

In this paper an attempt is made to find the answers to some of these questions in an unbiased and factual manner. This is not easy to do because the subject is controversial. Merely to set out the arguments is to lay oneself open to a charge of bias in one direction or the other.

In an industry based on traditional practice it is not unusual to find that certain things are always done in the same way, and that no one even thinks to ask why they are done in that way. Our experience, and experience handed down to us from our forefathers tells us that if we do a job in a particular fashion the result will be satisfactory. This is a very sound basis to work on, provided that the results are satisfactory *in all respects*.

However, circumstances change with time and the day comes when a building method becomes less desirable, though it may have been ideal 50 years ago. In the last 10 years there have been conspicuous changes in the circumstances concerning the use of wooden floors. Wood is now difficult to obtain and it is several times more expensive than it was. These factors suggest that it is prudent to consider whether there is any justification for a change in methods of construction.

THE ADVANTAGES OF TIMBER

What are the advantages of the wooden floor for housing? Probably the outstanding factor is the ease with which it can be constructed. No more tools are required than a saw and a hammer; no elaborate detail drawings are necessary. A skilled carpenter can do all that is required from a sketch on the back of an envelope. This may be an over-simplification. The carpenter can get the length of joist he wants only by cutting a piece off a longer timber. If the builder is not careful in ordering his timber, or if he is unlucky in the lengths he receives, the waste resulting from this cutting may assume serious proportions. There is the old story of the carpenter who was heard to remark: "Well, that's funny, I've cut this joist twice and it's still too short." Perhaps it is too easy to handle wood!

And then it is so quick and easy to cut holes in a piece of wood to accommodate a run of pipe or an electric conduit. It is so easy that there is scarcely any point in bothering about these details till the last moment. If we were to abandon wooden floor construction we should be compelled to plan these details in advance and someone would have to see that the necessary provision was made at the right time. From this emerges the fact that the wooden floor is much the easiest kind of floor to use and, what is equally important, every builder, however small, has a carpenter who can lay a wooden floor. The minimum amount of thinking ahead and the simplest sort of site organization is required.

This ease and this simplicity, backed by a centuries-old habit of use, carry with them a drawback. If you ask someone in the industry to do something different he is terrified of the unknown and particularly of the need to work out all the details in advance and to make provision for services, etc., at the right time. When anyone is asked to depart from a traditional form of construction an extra item of cost is added automatically, simply to cover the element of unfamiliarity. It will be shown later that this extra cost is the main difference today between the cost of a timber floor and that of some of the alternatives which might be used.

COMPARISONS WITH FOREIGN PRACTICE

It is interesting to see how timber floors compare with the possible alternatives in other countries, and Switzerland provides a useful example. In Switzerland the general standard of building is considerably higher than it is in the United Kingdom. The Swiss have not been beset by the shortages of labour and materials which have made things so difficult in the United Kingdom, and they have not had to lower their standards to a "utility" level as we have.

In an urban or suburban house in Switzerland, as opposed to blocks of flats, there is always a basement or semi-basement. This has a store cellar, a heating chamber and very often a wash room. The ground floor over the basement is always a reinforced concrete floor, and nothing else would be considered. There is a risk of fire from the heating chamber and of dry rot over the unheated cellars.

The first floors in such houses are of timber or of reinforced concrete, but there will always be a square of reinforced concrete under the bathroom and w.c. Older people have a preference for timber floors and this is respected. However, there is practically nothing to choose between timber and reinforced concrete in cost in Switzerland, despite the fact that the country grows her own building timber and has never known any shortage of it. The reason for this is that every reputable Swiss builder can undertake a simple reinforced concrete job; and it is so very easy to put in a plain reinforced concrete slab. There is no fuss about it, and, what is more important, no extra cost just because it is not timber. If the owners are not particular, a 5-in. slab is the rule, and, if better sound insulation is wanted, a 7-in. slab is used with the appropriate increase in cost.

CONCRETE FLOORS IN THE UNITED KINGDOM

In the United Kingdom we use reinforced concrete floors for nearly all multi-storey blocks of flats. The "fireproof" floor is demanded as soon as the height and total cube of a building begin to introduce a serious hazard to life and property. But this always involves employing a flooring specialist, because, for some reason or other, the average builder regards a reinforced concrete floor as something "special" and beyond his ability. Similarly, of course, the architect can rarely design the reinforced concrete floor and another specialist has to be brought in to do this. All this adds up to something "special" in the cost of the job and it is common knowledge that housing in high flats is very much more expensive than the same accommodation in houses or in two- or three-storeyed flats. It is not so in other countries. In fact, accommodation in high flats is often cheaper than the equivalent accommodation in houses—as, of course, it should be.

What conclusion can be drawn from these preliminary considerations? It would seem that hitherto in the United Kingdom we have lacked the incentive to use materials other than timber for the floors of houses. We have been able to buy the pick of the world's timber and we have had the necessary credits to pay for it from the wealth we accumulated when we led the world in industrial development. We have not seriously tried to build suspended floors without timber, though for ground floors on the solid we have managed quite well, without putting up the cost of housing to any appreciable extent. Whilst the industry is composed of a certain number of "backwoodsmen" there are plenty of keen spirits who would very quickly adapt themselves to other kinds of floor just as the Swiss have done. The necessary incentive may be applied by *force majeure*. It would be a good thing to see that our building technicians were as well trained for the job as their opposite numbers in Switzerland, Austria or Italy. They do

* "Timber Substitutes in Houses." AJ. July 13, 1950.

not need to understand calculus in order to design and construct a simple reinforced concrete floor but they should know how to make good concrete, or, at least, how to recognize it when they see it. They should know what reinforcement does and when it is needed. With this elementary knowledge of the use of these materials, the rest can be got from tables.

FLOOR COVERINGS

In theory, a timber floor does not need any covering, whereas a concrete floor does. The truth is that something more "friendly" than a concrete finish is essential for living rooms and bedrooms in the climate of the United Kingdom. In hot climates granolithic and terrazzo finishes are often preferred. Whether or not a covering needs to be applied to a wooden floor is a moot point, but there is no escaping the fact that every self-respecting possessor of a plain, deal, boarded floor always covers it as soon as the linoleum substitute is available. It is possible to stain and wax-polish a deal floor but we cannot pick and choose these days and some of the floor timber is not much to look at. Also it involves a good deal of work to keep a polished deal floor spick and span, whereas linoleum is cleaned very easily. It would be more fair to compare a covered concrete floor with a covered deal floor, but, according to present convention, a local authority tenant expects a concrete floor to be covered for him and is prepared to cover his wooden floor himself. Therefore we must compare a concrete floor and covering with a bare wooden floor when we consider relative costs. When considering the durability of floors, however, it is absolutely essential to regard a wooden floor as a linoleum-covered wooden floor. Failure to do this has had disastrous consequences on very many building sites.

Unfortunately, it is the ground floor where the linoleum is always needed. Living room, parlour and kitchen will be covered; and it is on the ground floor, with its proximity to ground moisture, that the impervious covering can do the most harm.

GROUND FLOORS

It might be argued, quite legitimately, that the wooden ground floor has been abolished by official orders, during and since the war, and that the question of alternatives does not, therefore, arise, because wood is scarce and no serious hardship has resulted from its prohibition. This, however, needs some further thought. When wood was banned from ground floors it was necessary to find coverings for concrete ground slabs which would be acceptable to the occupants of the houses. Individual manufacturers applied themselves to this problem and produced the necessary coverings and, without doubt, they have made a profitable contribution to the range of building materials. In order to produce the necessary coverings, the manufacturers had to spend very large sums of money on development; much hard work on the part of their technical staffs was needed and a great deal of this was on a high scientific and technical plane. Expensive machinery had to be installed, and the investment has now become an important one. The people who had the faith and vision to make this investment naturally have at the back of their minds a certain anxiety. They ask themselves: If supplies of foreign timber became easier, and if the official ban on the use of timber in ground floors were lifted, would the industry revert to the use of timber floors?

This question is important because it affects the price at which the new coverings can be sold. If the investment is a long-term one, the development and capital charges can be spread over the long term and the selling price can be brought down. If, however, the demand is a short-term one, liable to cease abruptly, the charges must be covered in the short-term development and the selling price will remain higher than might otherwise be necessary. This sort of problem must always arise when a decision rests on political, as opposed to purely technical, considerations. It is worthwhile, nevertheless, to examine the pros and cons of timber *versus* solid slabs for ground floors.

DURABILITY

The building owner is concerned primarily with the durability of the floor. The traditional timber floor, consisting of wooden joists with tongued and grooved board finish of softwood, is subject to attack by wood-destroying fungi whenever the moisture content rises above 20 per cent. This moisture content in wood is well below complete saturation and can be reached without there being any evidence of the presence of water as such. Prolonged storage in an atmosphere of high humidity will result in the moisture content in wood reaching the danger point. In the case of a suspended wooden ground floor there is a concrete slab on the ground and below this an inexhaustible supply of moisture in the ground. The concrete slab is more or less permeable to moisture and, even if the concrete is very dense, which is most rare on a housing site, sufficient moisture will be transmitted through the slab to saturate the air in the space below the wooden boarding. The only safe way of preventing the air becoming saturated is to remove it by sub-floor ventilation at such a rate that in no part of the floor can it ever become saturated for any length of time.

The very existence of the floor depends on this ventilation. It may be argued that everyone knows this and takes all the necessary precautions, but over a long period of time all sorts of things can happen: Ventilators get blocked, because the occupants of the houses do not always realise how important they are. Accidents happen. Taps and waste pipes leak, gutters and rainwater pipes get blocked and water seeps into the fabric of the house. With all these things in mind, the prudent architect sees to it that sub-floor ventilation is first class, but to achieve this is expensive. The boarded floor must be kept well above ground level in order to give the air free access to the ventilators. Two or three extra courses of brickwork in the walls may make all the difference. Where parts of the floor is on the solid, such as that of the kitchen and the sculleries, a lot of filling is required to make up the level.

HEAT INSULATION

Enough has been said on the subject of ventilation to make it clear that there must be a vigorous air movement below wooden floors. This causes a rapid rate of heat loss. If, as happens at times, there are air leaks through the boards, the heat loss by excess air change in a warmed room is a source of grave discomfort. The reader may ask: "does heat loss really matter?" A great deal has been written on the subject during and since the war and numerous recommendations have been made by learned committees. People are a little bored by the subject. "U" values are sometimes quoted by people who want to sell insulation in some shape or form but the industry generally is not particularly enthusiastic. Until recently there was some justification for this attitude; there was always the argument that differences in insulation values in houses can be swamped by differences in the habits of the occupants and that it would be difficult, therefore, to justify expenditure on additional insulation. Any doubts on this score, however, are now dispelled. The BRS has made a long and painstaking study of a group of houses with different standards of heating and different degrees of insulation. Under controlled conditions it was shown that insulation to the standards recommended was definitely worthwhile. The investigation has been completed by determining the actual fuel used by normal occupants of the houses under normal usage, and it is now proved that insulation can save as much fuel as those in favour of it had suggested it would.

It is possible to argue that timber may return in pre-war abundance (though scarcely at pre-war cost), but it is obvious that coal will not. And there is not the remotest chance that fuel costs will drop. Hence, heat insulation is not only worthwhile, but it is going to become more so as the years pass.

What is the heat loss through a solid ground floor? To some extent this depends on the surface covering. With a good insulator, such as wood blocks, the heat loss through the solid floor would be less than half that through the ventilated board and joist floor with a linoleum covering. With a pitch mastic or asphalt tile covering the advantage would be somewhat less and the heat loss would be between one half and two thirds of that through the ventilated floor. The advantage of the solid floor, in this respect, is undeniable.

RESILIENCE

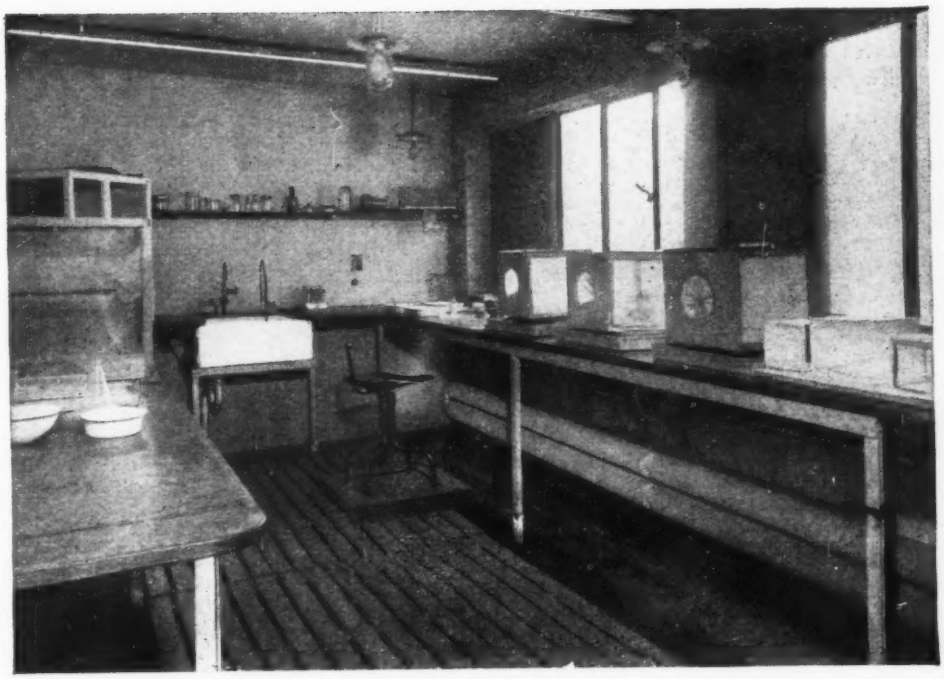
There are, however, two other aspects which must be considered. The suspended wooden floor is slightly "springy"—more so than a solid concrete slab on the ground. There is no real evidence as to what this means to the occupant, though various strong opinions have been expressed on the subject. The author confesses to a preference for wood-block flooring on a concrete base, a view which is shared by his household, and the amount of "spring" in this is negligible. But, since this article is intended to give facts not opinions, no more need be said on this point.

"Warmth to the touch" is important. It is, however, mainly a function of the covering with which the feet come into contact, and may be modified very much by the use of mats, carpets and rugs. For a climate like that of Great Britain it is most desirable to have a surface which warms up quickly and is of low thermal capacity and low thermal conductivity. Wood is very good from this point of view and concrete very bad. Other finishes tend in the main to be somewhere between these extremes but the necessary quantitative data to enable one to discriminate do not seem to have been assembled.

OTHER FACTORS

When we come to upper floors there are various other factors, such as sound insulation, and fire resistance which become very important, but they do not matter very much for ground floors. To sum up, it seems that the wooden boarded floor on wooden joists is not very attractive, but it is familiar and accepted as the natural order of things. It is definitely cold from the point of view of heat loss, but the surface of the boards warms up quickly and therefore is not cold to the touch. The wooden floor is "springier" than floors on the solid but what this means in terms of comfort is pure conjecture. Stringent precautions, which involve appreciable cost, are necessary to avoid dry-rot fungus attack and there is the possibility that some accident may let in water and cause decay of the floors during the life of the building.

The solid ground floor needs some sort of covering. Its appearance depends on the covering; so also does the "warmth to the touch." It has a considerably lower rate of heat loss than the ventilated wooden floor, and it is virtually indestructible though, naturally, the covering may have to be renewed, from time to time, at a frequency depending on its resistance to wear. Many coverings available will last as long as, or longer than, softwood boarding. Hundreds of thousands of houses have been built since the war with solid concrete slab ground floors with a considerable variety of coverings. This does not seem to have provoked any serious volume of



THE FLOOR OF THIS INSECTORIUM IS A POND

THIS insectorium forms part of the entomological field laboratory of a world-famous research organisation, and when informing us that it had been constructed twelve years previously, the Architect stated "... *as it was required to have standing water on the floor, the walls and floor were given three coats of Portland Cement and sand rendering waterproofed with 'PUDLO' Brand waterproofer. The work was carried out in accordance with the recommendations of your handbook.*" After these twelve years of satisfactory service the floor developed a slight crack, due to subsoil disturbance, which allowed the water to escape and flood an adjacent boiler room but the making good of the crack has stopped the leakage. This unusual example emphasises the necessity for structural soundness in waterproofing work, and also provides the best possible evidence that, if such requirement is satisfied, a permanently satisfactory result is obtained by using 'PUDLO' Brand cement waterproofer in accordance with the directions which embody the experience of forty years' specialisation.

'PUDLO'

BRAND

CEMENT WATERPROOFER

KERNER-GREENWOOD & COMPANY, LTD.

KING'S LYNN NORFOLK

Sole Proprietors and Manufacturers

The word 'PUDLO' is the Registered Trade Brand of Kerner-Greenwood & Co., Ltd., by whom all articles bearing that Brand are manufactured or guaranteed.

criticism from the occupants, and with some of the coverings, where attention has been given to ease of maintenance and good appearance, the housewives are very well pleased with their floors and appreciate the advantage of not having to buy and fit linoleum or a linoleum substitute.

SLOPING SITES

There is a special case for ground floors, where steeply sloping sites have to be negotiated. Where there is a great difference in level across the site of the houses, it is obvious that there will be a lot of "making up" to be done at the lower side of the house. It very soon becomes uneconomical to use a concrete slab on solid filling, owing to the depth of fill. It has been shown* that where the hardcore fill exceeds about 30 in. in depth it pays to use a suspended floor. The arguments then present a close analogy to those relating to the suspended floor at first floor level, except for the fact that there is no ceiling to consider. It is a matter of wonder in some such cases that part at least of the void beneath the house is not used for service and storage room as is the normal practice on the continent.

UPPER FLOORS

The comparative durability of concrete floors is not so important with suspended floors. It used to be quite important in the days of solid walls, but the cavity wall always provides a dry housing for the joist ends, and dry-rot in suspended wooden floors occurs very rarely indeed. Sound insulation and fire resistance come into greater prominence. For individual houses no great importance is attached to these problems, it being held that a family can control the noise emitted by the more unruly of its members. Similarly if they like to set fire to their own belongings it is their own business. In actual fact, the number of fires in houses is so small that it is reasonable to neglect fire resistance as a factor in the design of conventional houses. When flats are concerned, however, it becomes necessary to consider these questions, because excessive noise transmission may make life a burden. Equally, a fire originating in one flat may endanger the lives and property of families in adjoining flats.

SOUND INSULATION

Noise transmission has been considered in terms of contact noises (footsteps, hammering, plumbing noises, etc.) and airborne noises (speech, radio, gramophone, etc.). Continental housing architects smile when we talk about contact noises and ways and means of overcoming them in floor construction. In many continental countries flat-dwelling has been an established habit for generations, and people have learnt how to live in flats. Thus, for example, they take their outdoor shoes off and put on slippers when they enter their flats. This eliminates footsteps automatically as a noise factor, and, also, it is much easier on the housewife's carefully polished floor and makes rugs and carpets wear infinitely longer. Concerning the comparison between wooden floors and concrete floors in respect of impact noise, there is not a lot of difference between them so long as they are untreated. They are both bad, though the wooden floor is probably the noisier of the two.

The average concrete floor transmits less airborne noise than the normal wooden floor, though it is not good enough to reduce radio noise to the extent which is desirable. In Switzerland, where concrete floors in flats are universal, a 5-in. reinforced concrete slab is used for low-cost housing, but where people want quieter conditions, and can afford to pay for them, the thickness is increased to 7½ in. This seems to provide adequate insulation against air-borne sound.

Both the wooden floor and the concrete floor could be improved enormously and much valuable work has been carried out (notably by the BRS) and in this matter we lead the world. However, this article is not intended to be a treatise on sound transmission, and in considering the pros and cons of the two types of floor it is sufficient to indicate that by the time a wooden floor has been improved to the level of an improved concrete floor it would be the more expensive of the two. This is true equally for air-borne and for contact noise.

FIRE RESISTANCE

The fire resistance of a wooden floor of the simplest kind, such as is common in low-cost housing today is not very great. Measured in terms of the standard fire test it is about 20 mins. with a single sheet of plasterboard on the ceiling. By thickening the ceiling this period can be raised to ½ hr., but to achieve anything beyond this involves considerable elaboration and expense. How much fire resistance is needed? Official recommendations suggest that for a house occupied by one family the normal untreated wooden floor is good enough. For two- and three-storey flats, where the total floor area of the building is limited to 2,500 sq. ft., ½-hr. fire resistance is adequate and, as noted, this is given by any reinforced concrete floor and by modest treatment of the ceiling of the wooden floor. For higher and larger blocks of flats the fire resistance required is 1 hr. This is easily attained by using a reinforced concrete floor but it would involve prohibitive expense to make a wooden floor give this degree of protection.

SUMMARY

To summarize, we can state that for the single family house the conventional wooden floor is accepted as good enough for its job, though from the point of view of sound insulation it is very poor indeed. To improve the wooden floor so that it will provide a good standard of sound insulation for flats would make it more expensive than a reinforced concrete floor. For fire resistance the conventional wooden floor is good enough for one-family houses and it can be brought up to the standard required for small blocks of flats of two or three storeys. For large blocks of flats it would be uneconomical to attempt to attain the necessary standard of fire resistance with a wooden floor.

Heat insulation is not usually very important in suspended floors. For the one-family house the only heat which normally gets into the upper storey is that which leaks through the floors, and it is probably useful in mitigating the deadly chill in a completely unheated suite of rooms. For flats the heating conditions are much the same on either side of the floor so that the heat flow may be reduced to a minimum.

"Springiness" and warmth to the touch have already been discussed under the heading of "Ground Floors."

If the arguments set out above are accepted, we can say that there is no single respect in which the timber floor is significantly better than the reinforced concrete floor; and in respect of durability, sound insulation and fire resistance, the timber floor is markedly inferior. This is probably the reason why in many continental countries the timber floor is rapidly dropping out of use, even where building timber is indigenous and supplies relatively plentiful.

(In these notes the arguments have been limited to timber *versus* reinforced concrete. There are, of course, various other alternatives to timber; but as things are today, there are so many uncertainties in the supply of light metal components, and in protecting them against corrosion, that it seems that the most practicable alternative is reinforced concrete, either *in situ* or precast.)

* O. J. Masterman, "Timber Substitutes in Houses," AJ, July 13, 1950

This feature answers any question connected with building confidentially and free of charge. Questions to the Technical Editor, The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1.

QUESTIONS AND ANSWERS

3039 FLAGS: DIMENSIONS

Q *I should like to have information regarding the dimensions of flags suitable for various heights of mounting.*

A There is no standard for the dimensions of flags compared with heights of masts, but two or three manufacturers have more or less the same ideas about dimensions.

The size of a flag is based on its overall length, which is measured from the edge against the mast to the outer edge of the flag. The height of the flag varies with this length and is dependent on the type of flag, but in the case of Union Jacks or Ensigns the height is generally half the length of the flag. The following table gives you sizes for various heights of masts:

Height of Mast in ft.	Length of Flag	Height of Flag approx.
15	2 yards	1 yard
20-25	2½ ,,	1¼ yards
30-40	3 ,,	1½ ,,
50	4 ,,	2 ,,
60	5 ,,	2½ ,,

3040 EXPANSION JOINTS

Q *On a factory we are designing, we have used a 15½ in. brick wall at one end for a length of 165 ft. and height of 18 ft. above foundations, the wall being composed of 9 in. inner skin, 2 in. cavity and 4½ in. outer skin, load bearing with internal piers at corners and three intermediate piers.*

The wall, which is to be rendered externally, has no window openings, the factory being mainly top-lit, and we are concerned as to the provision of vertical expansion joints at points along the wall and foundations.

We would be obliged if you could advise us as to the best form and position of expansion joints that may be necessary in this case and would welcome any information that may be a guide in designing expansion joints in brick walls generally.

A Brickwork is normally immune from serious trouble due to drying shrinkage, so that it is thermal effects which are the most important.

In the case of a solid roof slab, such as a reinforced concrete deck, or the like, I should be inclined to expect differential thermal movement between the roof and the wall in a length of 165 ft., unless the roof were carefully treated to prevent a rapid temperature rise in sunny weather.

In the case of a light steel roof the danger is not so great, but it is quite possible, nevertheless, that considerable thermal expansion may occur in long valley gutters abutting on to the brickwork, and the resulting movements may crack the brickwork.

In order to be effective, expansion joints have to be designed in relation to the roof system as well as the wall itself. Serious defects due to temperature effects in a straightforward massive wall, in lengths of the order of 200 ft., are rare, but local thrusts from steelwork or concrete decking may cause considerable cracking. With a rendered finish the effect is to make any cracking conspicuous, however slight it may be.

CURRENT MARKET PRICES OF MATERIALS

BY DAVIS, BELFIELD AND EVEREST, Chartered Quantity Surveyors

Rates of Wages last rose on March 5, 1951, and are now as follows :—

	Craftsmen.	Labourers.
LONDON DISTRICT		
Within 12 miles radius	3s. 3½d.	2s. 9½d.
From 12-15 „ „	3s. 2½d.	2s. 9d.
LIVERPOOL and DISTRICT	3s. 3d.	2s. 9½d.

GRADE CLASSIFICATIONS	A	A¹	A²	A³
Craftsmen ..	3s. 1½d.	3s. 1d.	3s. 0½d.	3s. 0d.
Labourers ..	2s. 8d.	2s. 7½d.	2s. 7d.	2s. 6½d.

F.R.I.C.S., F.I.Arb.

Prices vary according to quality and the quantity ordered.

Those given below are average market prices and include delivery in the London area, except where otherwise stated, but do not include overhead charges and profit for the General Contractor.

CONCRETOR

Cements

	6 tons and over.
Portland to B.S. 12 .... per ton	85/6
Rapid hardening to B.S. 12 .... „	91/6
Aquacrete water repellant .... „	117/-

Above prices include for delivery to Charing Cross in non-returnable paper bags or cotton sacks.

For other packages, deduct 13/6 per ton from above prices and add : Returnable jute sacks : 35/6 per ton of cement or 1/9½ per sack. Credit on return at 1/6 per sack.

Returnable cotton sacks : 66/8 per ton of cement or 3/4 per sack. Credit on return at 3/- per sack.

Snowcrete (minimum 1-ton lots), per ton, 243/- (including bags).

Aggregate and Sands, etc. (Full Loads)

¾" (Down) Washed, crushed and graded shingle to B.S. 882, Table 2	per yard cube	15/10
1½" Ditto	per yard cube	14/11
⅛" Sharp washed sand to B.S. 882, Table 3	per yard cube	18/5
Brick hardcore	per yard cube	7/3

(For Sands for Bricklaying and Plastering, *see* respective trades)

Reinforcement

Home trade maximum basis price for mild steel rods to B.S. 785, ½" diameter and upwards, ex mills delivered to station or siding	per ton	£22 10 0
Extras for :—		
Under ½" to ⅜" diameter	per ton	15 0
Ditto ⅜" and over ½" diameter	per ton	£1 2 6
½" and over ⅝" diameter	per ton	£1 10 0
⅝" and over ¾" diameter	per ton	£1 17 6
¾" and over ⅞" diameter	per ton	£2 5 0
⅞" and over 1" diameter	per ton	£2 12 6
1" diameter	per ton	£3 0 0
Under 1" to ⅜" diameter	per ton	£4 10 0

Fabric Reinforcement

	16.35 lb.	9.32 lb.	4.71 lb.	1.83 lb.
Steel wire mesh fabric to B.S. 1221, Part A per yd. super.	6/2¾	3/7⅛	1/10	1/2¼

BRICKLAYER

Common Bricks

Third stocks	per 1,000	114/4
Rough stocks	per 1,000	145/10
Mild stocks	per 1,000	197/10
Sand limes	per 1,000	95/-
Phorpres pressed Flettons	per 1,000	96/-

Facing Bricks

Hand-selected sand limes	per 1,000	130/9
Phorpres rustic Flettons	per 1,000	121/-
Stocks, first hard	per 1,000	232/10
Stocks, second hard	per 1,000	222/10
Southwater pressed sandfaced reds	per 1,000	243/6
Dorking pressed sandfaced multicoloured facings	per 1,000	209/-

BRICKLAYER—(*continued*)

Engineering Bricks

Lingfield engineering wirecuts	per 1,000	175/-
Southwater engineering No. 2 (second quality red pressed)	per 1,000	241/-
*Blue pressed bricks to B.S. 1301	per 1,000	362/-

* Haulage extra

Glazed Bricks

		Best quality £ s. d.	Seconds £ s. d.
White, Ivory or Brown, 9" × 2½" × 4½"			
Headers	per 1,000	39 10 0	37 10 0
Stretchers	per 1,000	40 0 0	38 0 0

Prices for glazed bricks + 37½%, seconds.
+ 42½%, bests.

Limes and Sands

	1 ton lots.
†Lime, greystone, to B.S. 890 .... per ton	97/-
†Lime, chalk, ditto .... per ton	97/-
*Lime, hydrated, ditto .... per tons	109/-
Washed pit sand to B.S. 1200 .... per yard cube	18/5

* Including paper bags.

†Hire of jute sacks charged at 1/6 and credited at 1/6. If left, charged at 1/9.

Sundries

10 s.w. gauge galvanized butterfly type wall ties to B.S. 1243	per 1,000		87/3
Wall ties, galvanized, 8" × ¾" × ¼", to B.S. 1243	per cwt.		76/6
Damp proof course slates :		Imported	Welsh
Size 14" × 9"	per 100	53/-	73/-
„ 14" × 4½"	per 100	25/9	34/9
Hessian base bitumen damp course to B.S. 743	per yard super		5/3
		9" × 3"	9" × 6" 9" × 9"
Terra-cotta airbricks	each	1/2	2/4 5/9
Galvanized cast-iron airbricks	each	2/8	4/6 7/-
Galvanized cast-iron hit-and-miss ventilators	each	2/7	5/1 6/6

Buff terra-cotta chimney pots .... each	1' 0" 6/5	1' 6" 7/11	2' 0" 11/3	2' 6" 14/9	3' 6" 32/9	5' 0" 55/4

Wall reinforcement supplied in standard rolls containing 25 yards lineal		
‡2" wide black japanned	per roll	3/½
‡2½" wide black japanned	per roll	3/9½

‡ Greater widths pro rata 2½" price, carriage paid on orders of £7. Discount for quantities.

Partitions, etc.

		2"	2½"	3"	4½"
Breeze to B.S. 492	per yard super	3/6	4/1	4/8	6/2
Hollow clay to B.S. 1190 (keyed)	per yard super	3/10	4/1	4/7	
Ditto, smooth	per yard super	4/2	4/5	4/11	5/11
Moler (keyed)	per yard super	8/3	10/6	11/9	13/- (4")

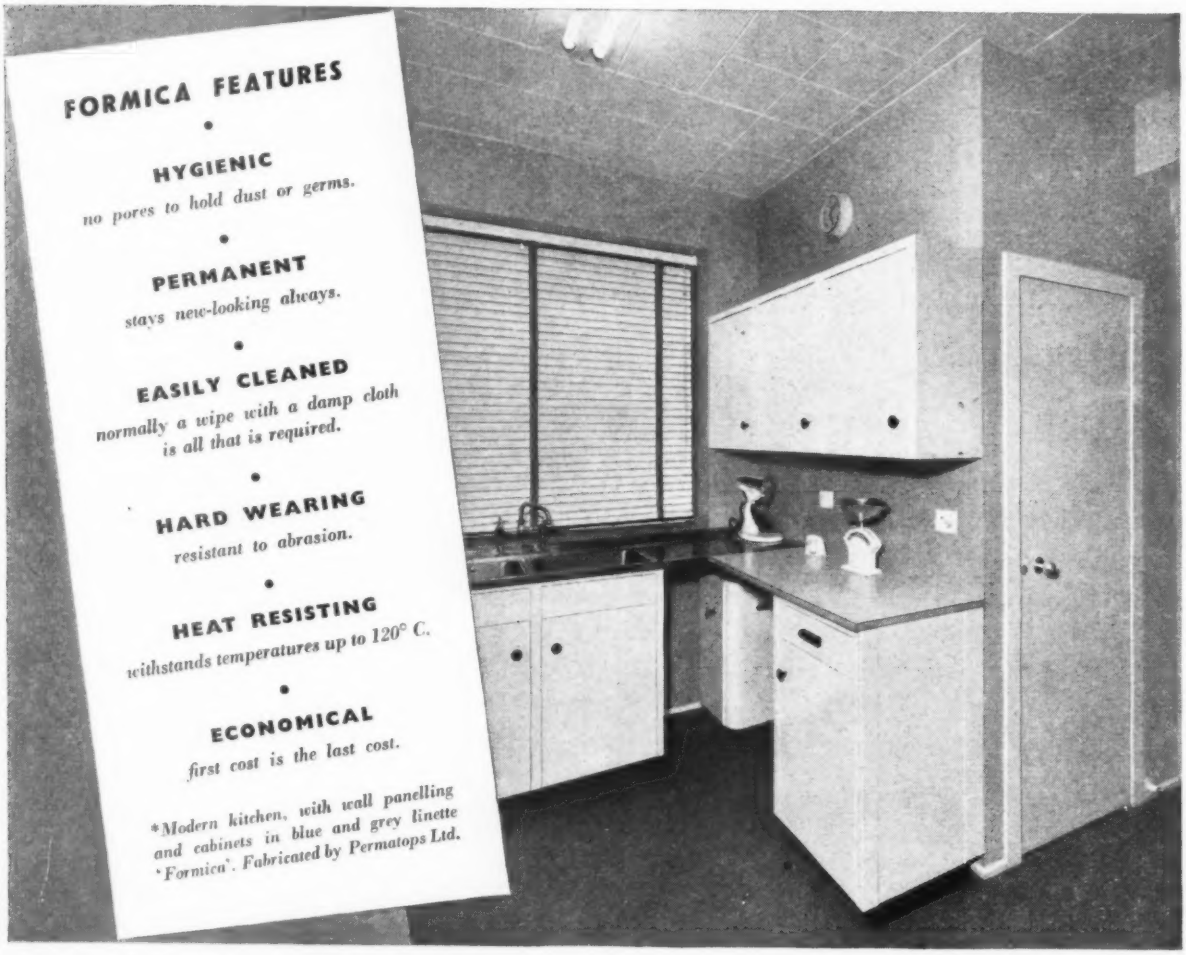
PAVIOR

2" coarse gravel for paths	per yard cube	18/3
¾" fine ditto	per yard cube	19/9
Clean granite chippings to B.S. 1201, Table 4 (in 5-ton loads)	per ton	40/5
Red quarry tiles, 6" × 6" × ¾", to B.S. 1286	per yard super	12/-
Ditto 6" × 6" × ½", to B.S. 1286	per yard super	10/3
Buff quarry tiles, 6" × 6" × ¾", to B.S. 1286	per yard super	14/3
Ditto 6" × 6" × ½", to B.S. 1286	per yard super	11/9
Hard red paving bricks, 2"	per 1,000	352/6
Ditto 1½"	per 1,000	335/9

FORMICA
REGISTERED TRADE MARK

in the home

As an aid to the Architect, FORMICA is far more than a decoration. A rigid laminated plastic board of immense strength, FORMICA provides PERMANENT beauty on vertical and horizontal surfaces. It is easily and speedily fitted and is unaffected by boiling water and acids or alkalies normally used in the kitchen. A wipe with a damp cloth is the only maintenance required.



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DRAINLAYER

Clay Land Drain Pipes to B.S. 1196

	3″	4″	6″
Pipes in 12″ lengths .... per 1,000	156/–	201/6	418/–

Salt Glazed Stoneware Pipes and Fittings

	Orders for 2 tons and over	Standard List + Orders under 2 tons 100 pieces upwards	Orders under 2 tons less than 100 pieces
Seconds Quality	47½% less 15%	67½% less 15%	77½% less 15%
Best Quality	47½%	67½%	77½%
British Standard Quality	55%	75%	85%
Tested Quality....	72½%	92½%	102½%
British Standard Tested	80%	100%	110%

Cast Iron Drain Pipes and Fittings

Socket and spigot pipes to B.S. 437 :—

Weight per 9 ft			Size	9 fts. per yd.	6 fts. per yd.	4 fts. each	3 fts. each	2 fts. each
1	1	17	4″	16 11	18/7	29/8	22/8	18/3
2	0	1	6″	25/3	29/9	47/7	37/11	28/7
3	3	21	9″	45/7	59/4	102/1	78/–	

Tonnage Allowances :—
Orders up to 2 tons nett.

		4″	6″	9″
*Bends (short radius) as Fig. No. 4	each	6/3	13/–	40/–
*Single junctions as Fig. No. 18	each	11/–	22/6	69/–
*Intercepting traps as Fig. No. 33	each	30/–	50/–	123/–
*Gullies ordinary trapped "P"	each	14/6		
*Extra for 4″ vertical back inlet	each	4/3		
*Grease gully trap	each	121/–		

* These prices are subject to 89½% plusage.

Channels in Brown Glazed Ware.

Standard list + same discounts as "Best" quality salt-glazed Stoneware pipes.

White Glazed Channels

Orders under 20 pieces. Standard list +20%

Manhole covers and frames

	Size of load	Unit price
C.I. coated double triangular manhole cover and frame, 22″ dia. clear opening to B.S 497, Grade A .... each	35 tons	118/3
C.I. coated circular manhole cover and frame, 22″ dia. clear opening to B.S. 497, Grade B. .... each	5 tons	66/6

	Size of load	Single seal Flat type	Double seal Flat type
Coated manhole cover and frame to B.S. 497, Grade C, 24″ × 18″ each	1 ton	31/1	51/9
Galvanised ditto, 24″ × 18″ .... each	1 ton	56/8	81/–
Coated manhole cover and frame, to B.S. 497, Grade C, 24″ × 24″ each	1 ton	44/3	77/3
Galvanised ditto, 24″ × 24″ .... each	1 ton	83/8	120/10

MASON

Yorkstone

Building quality Robin Hood and Woodkirk Blue Stone.

Blocks scrappled, random sizes .... per foot cube	10/8
Add for blocks to dimension sizes .... per foot cube	1/3 (each dimension)
Templates with sawn beds, edges rough (up to 4 ft. super and not over 2′ 6″ long) .... per foot cube	11/3
Templates with sawn beds, sawn one edge, per foot cube	14/5
Price f.o.r. Yorkshire, railway rate to London Station per ton. (Minimum 4-ton loads)	45/–

Bath Stone in random blocks

Monk's Park .... per foot cube	5/7
St. Aldhelm Box Ground .... per foot cube	6/7

Delivered on rail at South Lambeth station.

Portland Stone in random blocks, average 20 feet

Whitbed ... ... per foot cube	6/4½

Delivered on rail at Nine Elms Station.

MASON—(*continued*)

Artificial Stone to B.S. 1217

4½″ × 4″ Sill, sunk, weathered, throated and grooved .... per foot run	2/11
9″ × 3″ Ditto .... per foot run	4/–
2″ × 12″ Coping, weathered and twice throated .... per foot run	3/8
3″ × 12″ Ditto.... .... per foot run	5/6
5″ × 12″ Saddleback coping, twice throated per foot run	8/3
6″ × 12″ Ditto.... .... per foot run	9/6

SLATER, TILER AND ROOFER

Slates

	£	s.	d.
16″ × 10″ Best Bangor Slates to B.S. 680 .... per 1,000 actual	46	5	0
20″ × 10″ Ditto .... per 1,000 actual	67	15	0

Tiles

Hand-made sandfaced 10½″ × 6½″ red roofing tiles	per 1,000	260/–
Machine-made sandfaced best red tiles with continuous nibs, 10½″ × 6½″	per 1,000	222/6
Berkshire hand-made red Pantiles, 14½″ × 10″	per 100	104/6
Concrete plain tiles, 10½″ × 6½″	per 1,000	141/–
Ditto interlocking tiles, 15″ × 9″	per 1,000	480/–

Asbestos-cement

*6″ corrugated sheets, grey	per yard super	5/6½

*Prices are for minimum two-ton loads, and are subject to 2½% discount.

Felt

Reinforced roofing felt to B.S. 747	per yard sup.	1/5
Roofing felt (1-ply bitumen) to B.S. 747, Part I	per yard sup.	1/4
Bituminous hair felt to B.S. 747, Part II	per yard sup.	2/4

CARPENTER AND JOINER

Wall boards

	Up to 10,000 sq. ft.
¼″ Imported Fibre board (per 100 sq. ft.)	46/6
⅛″ Imported Hardboard (per 100 sq. ft.)	53/–
3/16″ Imported Hardboard (per 100 sq. ft.)	73/9
* 3/16″ Semi compressed asbestos cement flat building sheets, grey....	per yard super 2/0½
* ¼″ Ditto	per yard super 2/10½

* Prices are for orders of 2 tons and over. Subject to 5% trade discount.

Sundries

"Sisalkraft" standard grade	per yard sup. –/9½
"Sisalkraft" subsoil grade	per yard sup. –/6

Timber

Softwood for Carpentry (average price)	per std.	£115
Softwood for Joinery (ditto)	per std.	£120
Tongued and Grooved SoftwoodFlooring (ditto)	per std.	£120
First Quality English Oak (ditto)	per ft. cube	25/–
Teak (ditto)	per ft. cube	45/–

Standard Panelled and Glazed Wood Doors to B.S. 459, Pt. I

Type 4 size 2′ 6″ × 6′ 6″ × 1⅜″	each	45/10
Type 2 × G size 2′ 6″ × 6′ 6″ × 2″	each	56/6
Type 4 × G size 2′ 6″ × 6′ 6″ × 2″	each	62/9

In lots of from 1 to 11 inclusive.

Standard E.J.M.A. Wood Windows

INP 26 size 2′ 6″ × 1′ 5½″	each	39/4
4V 36 size 3′ 6″ × 7′ 10″	each	164/5
IV 40 size 4′ 0″ × 2′ 2½″	each	45/1
3T 46 size 4′ 6″ × 5′ 11½″	each	164/2
4T 50 size 5′ 0″ × 7′ 10″	each	185/11

Standard E.J.M.A. Kitchen Units

No. 1 size 3′ 0″ × 3′ 6″ × 1′ 7″	each	202/–
No. 2 size 3′ 0″ × 3′ 6″ × 1′ 7″	each	137/9
No. 4 size 3′ 0″ × 1′ 9″ × 1′ 7″	each	121/11
No. 5 size 3′ 10″ × 1′ 9″ × 1′ 7″	each	107/3
No. 7 size 6′ 6″ × 1′ 9″ × 1′ 7″	each	192/4

STEEL AND IRONWORKER

		£	s.	d.
Basis price for rolled steel joist sections, 5″ × 4½″ to 16″ × 6″ in 10 ft. to 50 ft. lengths	ex mills per ton	21	1	6
Extra for sizes :—				
9″ × 7″	Add per ton		5	0
6″ × 3″	,, ,,		7	6
3½″ × 3½″, 4″ × 4″, 5″ × 3″, 10″ × 8″, 12″ × 8″, 14″ × 8″, 16″ × 8″, 18″ × 6″, 18″ × 7″, 18″ × 8″, 20″ × 6½″, 20″ × 7½″	,, ,,		10	0
5″ × 2½″, 22″ × 7″	,, ,,		15	0
4″ × 2½″, 4″ × 3″, 24″ × 7½″	,, ,,	1	0	0
3″ × 3″	,, ,,	1	5	0
4½″ × 1½″	,, ,,	1	10	0
4″ × 1¾″	,, ,,	2	10	0
3″ × 1½″	,, ,,	3	10	0
Basis price for angles	ex mills per ton	19	13	6
,, ,, ,, tees	,, ,,	20	13	6
,, ,, ,, solid steel columns	,, ,,	21	13	6

All delivered Station or Siding.

PLASTERER

Plaster and Cement

		1-ton loads	6-ton loads
Thistle (browning) to B.S. 1191, Class B	per ton	126/3	102/3
Gypstone to B.S. 1191, Class B	per ton	80/6	ex Works, Kent.
Paristone (haired) to B.S. 1191, Class B	per ton	83/-	ex Works, Kent.
Ditto (unhaired)	per ton	80/6	ex Works, Kent.
Sirapite (coarse) to B.S. 1191, Class C	per ton	122/9	98/9
Ditto (fine) to B.S. 1191, Class C	per ton	132/9	108/9
Keene's Pink to B.S. 1191, Class D	per ton	168/9	
Keene's White to B.S. 1191, Class D	per ton	174/-	
Cullamix (Tyrolean Finish), 1-ton lots and upwards	per ton from	162/6 to 196/-	

Sundries

Sharp washed sand to B.S. 1198	per yard cube	19/5			
Cow Hair	per cwt.	84/6			
Expanded metal lathing, 9′ 0″ × 2′ 0″ × ⅛″ mesh × 24 gauge	per sheet	5/5			
	Up to 149 yards	150-299 yards	300-599 yards	Over 600 yards
⅜″ Plasterboard (base board) per yard super	2/5½	2/1½	2/0¼	1/11¼
Galvanized lath nails	per cwt.	106/3			
Hessian Scrim cloth in 100-yard rolls, 3¼″ wide	per roll	8/4			

Wall Tiles

The following prices are subject to 17½ per cent. addition :

Standard quality white glazed 6″ × 6″ × ¼″	per yard super	18/6
Cream glazed 6″ × 6″ × ¼″	per yard super	20/6
Eggshell or glossy glazed 6″ × 6″ × ¼″	per yard super	26/3

PLUMBER

Lead and Copper

3½ lb. and upwards milled sheet lead in quantities of 5 cwts. to 1 ton in sheets to B.S. 1178		per cwt.	157/3
Allowance for old lead delivered to merchant or manufacturer		per cwt.	126/3
Hot rolled copper sheeting in 5-cwt. lots (4′ × 2′ sheets), to B.S. 899	23 wire gauge	per cwt.	277/3
Ditto	24 wire gauge	per cwt.	280/3
Zinc sheeting in 2-cwt. lots	14 gauge	per cwt.	180/-

Cast Iron Goods

Percentage Adjustment on List No. 3100 A.B. 1/2/40.

Rainwater Goods (painted or unpainted)	*Plus* 78½%
Soil goods (coated or uncoated)	*Plus* 78½%

Mild Steel Rainwater Goods

		Standard List
Gutters	(under 100 lengths)	Less 17½% + 5%
Pipes and Fittings	(,, ,,)	Less 17½% + 5%

Asbestos-Cement Rainwater Goods

The following prices are subject to 12½% trade discount.

Orders over £30 are subject to 17½% trade discount.

PLUMBER—(*continued*)

Rainwater Pipes.

Prices are for 6′ 0″ lengths, but 10′ 0″ lengths are available in 2″, 2½″, 3″ and 4″ diameters at same prices. Short lengths up to 2′ 0″ are charged as 1 yard. From 2′ 0″ to 4′ 0″ charged as 1½ yards. From 4′ 0″ to 6′ 0″ charged as 2 yards. Over 6′ 0″ charged as 10′ 0″

	Diameter				
Round Pipes per yard run	2″	2½″	3″	4″	6″
	2/8	3/-	3/7	4/11	10/2

Gutters.

Short lengths of gutter up to 2′ 0″ charged as 1 yard ; from 2′ 0″ to 4′ 0″ as 1½ yards, and over 4′ 0″ as 2 yards.

Half round gutters	3″	4″	4½″	5″	6″	8″
per yard run	1/11	2/3	2/4	2/9	3/10	4/9

INTERNAL PLUMBER

Lead pipe in coils, 5 cwts. and upwards, to B.S. 602	per cwt.	158/6			
Lead soil pipe	per cwt.	161/6			
Drawn lead traps with brass screw eye, 6 lb., to B.S. 504	1″	1¼″	1½″	2″
S. trap	each	6/-	7/-	8/8	12/6
P. trap	each	5/3	5/9	7/2	10/-
Extra for 3″ deep seal " S " trap	each	1/5	1/8	1/11	2/5
Extra for 3″ deep seal " P " trap	each	1/-	1/3	1/3	1/8

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc.

Fittings and flanges and tubes ordered in long random lengths are subject to the following trade discounts :—

Tubes :	½″ to 4″			
Class B	35½%	Fittings :		
,, C	25½%	Lightweight		12½%
Galvanized Class B	7½%	Heavyweight		5%
,, ,, C	plus 5½%			

Flanges :

		½″ to 2″	2½″	3″ to 4″
Lightweight (Table D)	Plus	¾%	less 35%	49%
Heavyweight (Table E)	Plus	20¼%	less 24¼%	39½%

Copper tubing to B.S. 659 and 1386 Basic price per lb. 1/11¼

GLAZIER

Sheet Glass, cut to size (ordinary glazing quality), to B.S. 952, Section A.

For quantities exceeding 500 ft. super.

18 oz.	per foot super	4½d.
24 oz.	per foot super	5½d.
32 oz.	per foot super	9½d.

Polished Plate glass, ordinary substance, approximately ¼″, to B.S. 952, Section A.

In plates not exceeding :		Glazing quality	Selected glazing	Silvering quality
2 ft. super	per foot super	2/8	2/10	3/4
3 ft. super	per foot super	3/-	3/5	4/1
5 ft. super	per foot super	3/2	3/10	4/7
*45 ft. super	per foot super	3/9	4/1	5/7
*100 ft. super	per foot super	4/5	5/7	7/2

* Extra sizes, i.e., plates exceeding 100 ft. super or 160 in. long, or 96 in. wide, at higher prices.

¼″ figured rolled and cathedral, to B.S. 952, Section B—untinted	per foot super	7½d.
3/16″ or ¼″ rolled plate, ,, ,,	per foot super	8½d.
3/16″ or ¼″ rough cast, ,, ,,	per foot super	8½d.
¼″ Georgian wired cast, ,, ,, Section D	per foot super	10d.
¼″ Georgian wired polished plate ,, ,,	per foot super	3/10d.
¼″ wired cast ,,	per foot super	9½d.

PAINTER

White ceiling distemper	per cwt.	26/6
Washable distemper	per cwt. from	100/-
Ready mixed white lead paint (best), semi-gloss, per 32 lb.	per gallon	58/6
Aluminium paint (best quality)	per gallon	34/-
White enamel paint	per gallon	48/-
Oil stain (scumble)	per lb.	3/10
Varnish (outside quality), copal oak	per gallon	31/-
,, ,, ,, general oak	per gallon	27/-

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

ENQUIRY FORM

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

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Please ask manufacturers to send further particulars to:—

NAME.....

PROFESSION or TRADE

.....

ADDRESS.....

.....

.....

A.J. 26.4.51

Announcements

Mr. Kenneth G. Gold, A.R.I.B.A., of 41, Victoria Avenue, Surbiton, Surrey, is shortly taking up an appointment with the Commonwealth of Australia. His new address will be c/o The Department of Works and Housing, Darwin, Northern Territory, Australia, where he would be pleased to receive trade catalogues from firms in the UK and in Australia.

Mr. W. G. Seaton, A.R.I.B.A., has taken into partnership Mr. Douglas A. Cull, A.R.I.B.A. The practice will continue from Central House, Lansdowne, Bournemouth, under the style of Seaton and Cull.

Corrections

On page 392 of our issue for March 29 we incorrectly showed the height of the cross and orb at the Brompton Oratory as 4 ft. 10 in. This is, in fact, the height of the cross alone, excluding the base collars, and the overall height of the finial is 10 ft. 4 in.

In our issue for April 5, on page 417, we misspelled the name of Mr. H. J. Reifenberg, who has collaborated with Mr. G. Grenfell Baines in the design of the Industrial Pavilion for the South Bank Exhibition.

Buildings Illustrated

Royal Festival Hall (pages 513-516). Main sub-contractors and suppliers of the furniture: auditorium chairs, Cox & Co. (Watford) Ltd.; dining table, Kingfisher Ltd.; dining chair, Dare-Inglis Products Ltd.; occasional chair, coffee tables and settee units, S. Hille & Co., Ltd.; chairs for boxes, B. North & Sons (West Wycombe) Ltd.; music stand, A. Arden & Co.; leather, Connolly Bros.; moquette, T. F. Firth & Sons, Ltd.; foamed rubber, Dunlop Ltd.; plastic cloth, Fothergill & Harvey Ltd.; veneered ply, Renns Shaped Ply Ltd.; plastic number plates, De La Rue Ltd.

Flats at Rosebery Avenue, Finsbury. (Pages 517-522.) Architects: Tecton. Executive Architects: Lubetkin & Skinner. Consulting Engineers: Ove Arup & Partners. Quantity Surveyors: Veale & Sanders. General Contractors: William Moss & Sons Ltd. Subcontractors: Reinforced concrete, J. L. Kier & Co.; heating, hot water supply and plumbing, G. N. Haden & Sons Ltd.; electrical work, Berkeley Electrical Engineering Co. Ltd.; Garchey system of refuse disposal, Matthew Hall & Co. Ltd.; lifts, Hammond & Champness Ltd.; windows, Williams & Williams Ltd.; sanitary fittings, Dent & Hellyer Ltd.; external tiling, Carter & Co. (London) Ltd.; metal door frames, Morris Singer Co.; facing bricks, J. & W. Henderson Ltd.; concrete window surrounds, Liverpool Artificial Stone Co.; concrete balcony panels, Girlings' Ferro-Concrete Co. Ltd.; cast-iron balcony panels, Walter Macfarlane & Co. Ltd.; radio aerial system, E. M. I. Sales & Service Ltd.; roofing and asphalte, Permanite Ltd.; asphalte floors, General Asphalte Co. Ltd.; wood block floors, Horsley Smith & Co. (Hayes) Ltd.; door furniture, Parker, Winder & Achurch Ltd.; cell concrete insulation, Christiani & Nielsen Ltd.; terrazzo fireplace surrounds and wall lighting, Art Pavements & Decorations Ltd.; lightning conductors, R. C. Cutting & Co. Ltd.; radio masts, J. W. Gray & Son Ltd.; wrought iron work, Haywards Ltd., Clark Hunt & Co. Ltd., H. & C. Davis & Co. Ltd.; planting and turfing, Tuck & Ballard.

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

LONDON COUNTY COUNCIL.

Applications are invited for positions of ARCHITECTURAL ASSISTANT salaries up to £680 a year) in the Housing and Valuation Department. Commencing salaries will be determined according to qualifications and experience. Engagement will be subject to the Local Government Superannuation Acts, and successful candidates will be eligible for consideration for appointment to the permanent staff on the occurrence of vacancies.

Successful candidates will be required to assist in the design, layout and preparation of working drawings for housing schemes (cottages and multi-storey flats), and will be employed in the Housing Architect's Division.

Forms of application may be obtained from the Director of Housing, The County Hall, Westminster Bridge, S.E.1 (stamped addressed envelope required and quote reference A.A.1). Canvassing disqualifies. (816) 4558

BOROUGH OF WALTHAMSTOW COMMITTEE FOR EDUCATION.

Applications are invited for the following permanent appointment in the office of the Architect to the Committee, Mr. Frank H. Heaven, A.R.I.B.A., A.R.I.C.S.

CHIEF ASSISTANT ARCHITECT, at a salary of £685, rising by increments of £25 to £760 per annum, plus £30 London weighting (Grade A.P.T., VIII, of National Scales).

Applicants must have had considerable experience in an Architect's office in connection with the design, construction and maintenance of educational or similar buildings, and some administrative experience.

Forms of application may be obtained from and should be returned to the undersigned within three weeks of the appearance of this notice.

E. T. POTTER,
Borough Education Officer.

Education Offices, Town Hall, Forest Road, Walthamstow, E.17. 2334

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of ASSISTANT MAINTENANCE SURVEYOR, Grade VI, at a commencing salary of £595 per annum, rising by annual increments of £20/£25 to a maximum of £660 per annum, plus London allowance of £30 per annum.

Applicants should possess approved qualifications and experience, and preference will be given to those who are Members of the Royal Institution of Chartered Surveyors (Building Sub-Division).

They should be capable of drafting specifications in all trades, preparing schedules of dilapidations, the preparation of detailed estimates for general maintenance works, and surveys of properties.

Full details of past and present appointments should be given.

The appointment will be subject to the provisions of the Local Government Act, 1937, and the successful applicant will be required to pass a medical examination.

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to the County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than the 4th May, 1951.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

The Council will be unable to provide any housing accommodation, and the successful applicant will be expected to make his own arrangements in this direction.

T. W. W. GOODERIDGE,
Clerk of the Council.

County Hall, Kingston-upon-Thames. 2367

BUCKS COUNTY COUNCIL.

Applications are invited from QUALIFIED ARCHITECTS for vacancies in the undermentioned grades on the staff of the County Architect :—

Grade VIII (£685-£760 p.a.).
Grade VII (£635-£710 p.a.).
Grade VI (£595-£660 p.a.).
Grade V (£520-£570 p.a.).

The posts offer scope for initiative and enthusiasm. Applicants should preferably have been trained at a recognised School of Architecture.

The appointments are superannuable and subject to medical examination.

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

Further particulars and form of application may be obtained from the County Architect, County Offices, Aylesbury, to whom applications must be delivered by 3rd May, 1951.

GUY R. CROUCH,
Clerk of the Council.

County Hall, Aylesbury.
April, 1951. 2377

COUNTY BOROUGH OF DUDLEY.

Applications are invited for the following appointments on the established staff of the Borough Architect :—

(*a*) ASSISTANT ARCHITECT, on Grade V (£520 to £570 p.a.).

(*b*) ASSISTANT QUANTITY SURVEYOR, on Grade III (£450 to £495 p.a.).

Further particulars can be obtained on application to the undersigned, to whom applications should be sent so as to be received by Tuesday, the 8th May, 1951.

P. D. WADSWORTH,
Town Clerk.

The Council House, Dudley.
10th April, 1951. 2369

COUNTY BOROUGH OF DERBY.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointment on the permanent staff in accordance with the National Scale of Salaries :—

ONE SENIOR QUANTITY SURVEYOR, Grade VI. Salary £595-£660.

Applicants should be Chartered Quantity Surveyors or prospective, and be fully experienced in the preparation of quantities, specifications, site measuring and estimates.

The appointment will be subject to one month's notice in writing on either side, and to the terms of the National Joint Council's Scheme of Conditions of Service, and the provisions of the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination.

Form of application may be obtained from the Borough Architect, The Council House, Corporation Street, Derby, and should be returned when completed, together with a copy of one testimonial and the names of two persons to whom reference may be made, to arrive not later than Monday, 7th May, 1951.

Canvassing, directly or indirectly, will be a disqualification.

E. H. NICHOLS,
Town Clerk.

2385

THE UNIVERSITY OF SHEFFIELD.

Applications are invited for the post of LECTURER or ASSISTANT LECTURER in Architecture, to begin duties as early as possible.

Salary scales : Lecturer £550-£1,100, Assistant Lecturer £450-£500, with Superannuation provision under the Federated Superannuation Scheme for Universities, and a family allowance. The commencing salary on either scale will depend upon the qualifications and experience of the successful candidate.

Further particulars may be obtained from the undersigned, with whom applications (three copies), including the names and addresses of two referees, should be lodged by 12th May, 1951.

A. W. CHAPMAN,
Registrar.

2356

COUNTY BOROUGH OF SOUTHEND-ON-SEA
EDUCATION COMMITTEE.
MUNICIPAL COLLEGE.

Principal : R. W. WILSON, B.Sc.(Eng.), A.C.G.I., Whit.Sch., D.I.C., A.M.I.E.E.

FULL-TIME ASSISTANT IN THE SCHOOL OF ARCHITECTURE.

Applications are invited for the appointment of an Assistant (Grade B) to undertake studio instruction and lecturing in the School of Architecture.

Applicants should be Associates of the R.I.B.A., and must be keenly interested in progressive architectural education. Previous teaching experience is not essential.

Salary : Burnham Technical Report, 1951.

Further particulars and forms of application may be obtained from the undersigned (s.a.e. foolscap).

Completed forms should be returned to the Principal, Municipal College, Victoria Circus, Southend-on-Sea, within 14 days of the appearance of this advertisement.

D. B. BARTLETT, B.A., M.A.Ed.,
Acting Chief Education Officer.

Education Office, Warrior Square, Southend-on-Sea. 2338

BRACKNELL DEVELOPMENT CORPORATION invites applications from suitably qualified persons for the following appointment :—

ARCHITECT (Housing).
Salary £550×£40—£750.

Applicants should be Corporate Members of the R.I.B.A., and an additional town planning qualification will be an advantage. Students of a recognised School of Architecture who have exceptional ability but lack practical experience and are due to qualify in June will be considered for this appointment.

The successful applicant will be engaged on the design and construction of large housing layouts, and will work under the direction of Mr. E. A. Ferriby, B.Arch., A.R.I.B.A., A.M.T.P.I., Chief Architect to the Corporation.

The post will be superannuable under the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Candidates are required to state if they are to their knowledge related to any member of the Corporation or staff.

Applications, giving full particulars of the candidate's age, qualifications and experience, together with the names of two persons to whom reference can be made, must reach the General Manager, Bracknell Development Corporation, Farley Hall, Binfield, Bracknell, Berks., on or before 30th April, 1951, marking envelope "Architect." 2355

WEST SUFFOLK COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments in the County Architect's Department. Salaries as indicated in accordance with the National Joint Council Salary Scales, position on scales according to qualifications and experience, viz. :—

(*a*) SENIOR ASSISTANT ARCHITECT. A.P.T., Grade VII (£635-£710).

(*b*) ASSISTANT HEATING ENGINEER. A.P.T., Grades III-IV (£450-£525).

Applicants in respect of (*a*) should be Associates of the Royal Institute of British Architects, with not less than three years' office experience.

Applicants in respect of (*b*) should be capable of calculating heat losses, preparing schemes and working drawings under supervision, and a knowledge of electrical work would be an advantage.

The appointments will be terminable by one month's notice in writing on either side, and will be subject to the provisions of the Local Government Superannuation Act, 1937. The successful candidates will be required to pass a medical examination.

Forms of application may be obtained from the undersigned, by whom applications, together with the names of two referees, should be received not later than 14 days after the date of publication of this advertisement.

L. G. H. MUNSEY,
Clerk of the County Council.

Shire Hall, Bury St. Edmunds.
April, 1951. 2411

COUNTY BOROUGH OF BLACKBURN.
APPOINTMENT OF ASSISTANT QUANTITY SURVEYOR.

Applications are invited for the permanent appointment of Assistant Quantity Surveyor, Grade VI (£595-£660).

Applicants must be experienced in the preparation of Bills of Quantities, Specifications, Estimates, and the Settlement of Final Accounts. Preference will be given to Professional Associates of the Chartered Surveyors' Institute.

Applications, with full particulars, should be submitted with not more than three recent testimonials to the Borough Engineer and Surveyor, Town Hall, Blackburn, by 12th May.

CHAS. S. ROBINSON,
Town Clerk.

2410

COUNTY BOROUGH OF MERTHYR TYDFIL.
BOROUGH ENGINEER'S SURVEYOR AND ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments :—

(*a*) SENIOR ARCHITECTURAL ASSISTANT. Grade A.P.T., VI (£595-£660).

(*b*) ARCHITECTURAL ASSISTANT. Grade A.P.T., IV (£480-£525).

Candidates for (*a*) must have had considerable experience in the design and construction of houses, clinics, public buildings and general architectural work, in the preparation of specifications, bills of quantities and estimates in connection therewith. Applicants must be Associate Members of the Royal Institute of British Architects.

Candidates for (*b*) must have passed the Intermediate R.I.B.A. Examination, and have had at least two years' experience after attaining that qualification.

The appointment will be subject to :—

(1) Scheme of Conditions of Service of the National Joint Council.

(2) Provisions of the Local Government Superannuation Act, 1937.

(3) The passing of a satisfactory medical examination.

(4) One month's written notice on either side.

The Council will provide housing accommodation if required.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be delivered to the undersigned not later than Thursday, the 17th May, 1951.

Canvassing in any form will be deemed a disqualification.

T. S. EVANS,
Town Clerk.

Town Hall, Merthyr Tydfil.
16th April, 1951. 2409

COUNTY OF CORNWALL.
APPOINTMENT OF PLANNING STAFF.

Applications are invited for the appointment of an ASSISTANT AREA PLANNING OFFICER, for the Eastern Area Planning Office, Liskeard. The salary will be on Grade A.P.T., VI (£595-£660), commencing salary within the Grade being dependent on qualifications and experience. Candidates must be Associate Members of the Town Planning Institute. The successful candidate will be engaged mainly on development control, and preference will be given to an applicant with practical experience in this type of work.

The successful candidate will be required to provide a motor car for necessary travelling, with mileage allowance on the County Scale. The customary service conditions of the Local Government Service will apply.

Applications, together with the names and addresses of three persons to whom reference may be made, should be addressed to the County Planning Officer, County Hall, Truro, not later than the 11th May, 1951. No application forms are issued.

E. T. VERGER,
Clerk of the County Council.

County Hall, Truro.
19th April, 1951. 2440

BOROUGH OF BARNES.
APPOINTMENT OF PERMANENT ARCHITECTURAL ASSISTANT (GRADE III).

Applications are invited for the above-mentioned appointment on the salary scale of £450×£15—£495, plus London weighting allowance.

Applicants should have passed the R.I.B.A. Intermediate Examination and have had 3 years' approved experience.

Applicants who have partly completed the above examination will be considered, but if appointed will be placed on a lower grade until the required qualifications are obtained.

Applications, giving the names of three persons to whom reference can be made, should be addressed to the undersigned not later than Friday, 4th May, 1951.

The Council is unable to provide housing accommodation.

W. R. SHEPHERD, A.M.I.C.E., A.M.T.P.I.,
Borough Engineer and Surveyor.

Municipal Offices, Sheen Lane, London, S.W.14.
13th April, 1951. 2402

SWINDON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE.
CLERK OF WORKS.

Applications are invited for the post of Clerk of Works, at a salary in accordance with A.P.T., Grade V, £520 per annum, rising by two increments of £15 and one of £20 to £570 per annum. The post is superannuable, subject to medical examination.

Applicants must have served an apprenticeship in the building industry, be capable of preparing sketch plans, specifications and reports, and have had practical experience in the control of structural and maintenance work and of maintenance staff. Preference will be given to applicants holding the higher national certificate in building or its equivalent.

The duties of the post include supervision of the maintenance of eight hospitals: five in Swindon and three in the Marlborough area.

Forms of application may be obtained from the undersigned, to whom they should be returned within 14 days of the appearance of this advertisement.

W. J. LEWIS,
Secretary.

7, Okus Road, Swindon. 2348

KIDSGROVE URBAN DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT.

The Council invites applications for the post of Architectural Assistant in the Engineer, Architect and Surveyor's Department.

Applicants must have a thorough architectural training and must be first-class draughtsmen. Preference will be given to those who have passed the Intermediate Examination of the Royal Institution of British Architects and have experience in connection with Municipal housing schemes.

The salary will be Grade A.P.T., III (£450×£15—£495).

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination.

Applications, endorsed "Architectural Assistant," stating age, qualifications and experience, and accompanied by three recent testimonials, should reach Mr. J. Lewis Bleazard, Chartered Engineer and Architect, Town Hall, Kidsgrove, Staffs., not later than 5 p.m. on Monday, 14th May, 1951. Applicants should state whether or not they are related to any member or senior officer of the Council, and canvassing, either directly or indirectly, will be a disqualification.

A house will be made available if the applicant is married and does not live within reasonable distance of Kidsgrove.

O. LLOYD HURST,
Clerk of the Council.

Town Hall, Kidsgrove, Staffs.
April, 1951. 2390

EAST SUFFOLK COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

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

Grade "A" ASSISTANT ARCHITECT. A.P.T., Grade VII. Consolidated salary: £635-£710 per annum.

The commencing salary in this grade will be fixed according to the qualifications and experience.

Applicants must be Members of the R.I.B.A. quick and accurate draughtsmen, capable of carrying a job through in all its stages, including sketch plans, working drawings, supervision of work in progress, as well as the administration work in connection therewith. They should have a sound knowledge of design and building construction, and should be capable of writing specifications. Office experience after school training or articles is essential. The work to be dealt with is that normally carried out by a Local Authority.

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

Applications, stating age, qualifications, and full details of previous experience, accompanied by copies of three recent testimonials, should be sent to E. J. Symcox, F.R.I.B.A., County Architect, County Hall, Ipswich, not later than 11th May, 1951.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

G. C. LIGHTFOOT,
Clerk of the Council.

2439

MINISTRY OF WORKS.

There are vacancies in the Chief Architect's Division for ARCHITECTURAL ASSISTANTS and LEADING ARCHITECTURAL ASSISTANTS with recognised training and fair experience. Successful candidates will be employed in London and elsewhere on a wide variety of Public Buildings, including Atomic energy and other Research Establishments, Telephone Exchanges, and Housing.

Salary: Architectural Assistants, £300-£525 per annum; Leading Architectural Assistants, £500-£625 per annum. Starting pay will be assessed acording to age, qualifications and experience. These rates are for London; a small deduction is made in the Provinces.

Although these are not established posts, some of them have long term possibilities, and competitions are held periodically to fill established vacancies.

Apply in writing, stating age, nationality, full details of experience and locality preferred, to Chief Architect, W.G.10/BC, Ministry of Works, Abell House, London, S.W.1, quoting reference W.G. 10/BC. 4826

LIVERPOOL REGIONAL HOSPITAL BOARD.

Applications are invited for the following permanent appointment in the Regional Architect's Department, on the Headquarters staff of the Board:—

ASSISTANT ARCHITECT, at a salary in accordance with A.P.T., Grade VI, £595-£660 per annum.

Applicants should be Associates of the Royal Institute of British Architects, and must have a good general experience and ability in design and construction.

The above appointment will be subject to the National Health Service (Superannuation) Regulations, 1950, and the successful candidate may be required to pass a medical examination.

Applications, stating age, education, qualifications, experience, present and previous appointments and salary, together with the names and addresses of three referees, should be sent to the undersigned at 19, James Street, Liverpool, 2, not later than 11th May, 1951.

VINCENT COLLINGE,
Secretary to the Board.

2425

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, SCOTLAND.

Applications are invited for the following established posts in the Regional Architect's Section:—

TWO ARCHITECTURAL ASSISTANTS. Grade A.P.T., IV. Salary scale: £480×£15—£525 p.a.

Applicants should have general architectural experience, and should be able to prepare working details from preliminary sketches; some experience of hospital work is desirable, but not essential.

Applications, giving details of age, qualifications, experience, along with the names and addresses of two referees, should be sent to the Regional Architect, 6, Cambridge Street, Edinburgh, 1, on or before 8th May, 1951. 2426

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for positions of ARCHITECT, Grade III (£550-£700) and TECHNICAL ASSISTANT (up to £580) for specification writing in connection with new schools and other constructional works. Experience in dealing with specifications essential, preferably for large new works costing up to £500,000 each.

Positions are superannuable, and carry eligibility on merit for permanent appointment and promotion. Salaries quoted are subject to addition of 10 per cent. on first £600 and 7½ per cent. on any remainder.

Application forms, to be returned by 5th May, 1951, obtainable from Architect to the Council, County Hall, S.E.1, enclosing stamped addressed foolscape envelope, and quoting AR/EK/SW.

Canvassing disqualifies. (477) 2428

MONMOUTHSHIRE COUNTY COUNCIL.
SMALL HOLDINGS COMMITTEE.

Applications are invited for the post of ARCHITECTURAL ASSISTANT in the office of the County Land Agent.

Salary: A.P.T., Grade V, £520 to £570.

Applicants should have good general experience in the design and construction of dwelling houses and farm buildings.

The appointment will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Acts.

The successful applicant will be required to pass a medical examination.

Application forms and conditions of appointment can be obtained from the County Land Agent, 20, Gold Tops, Newport, Mon., and should be returned to me not later than Wednesday, 23rd May, 1951.

VERNON LAWRENCE,
Clerk of the Council.

17th April, 1951. 2408

BOROUGH OF MORECAMBE AND HEYSHAM.
BOROUGH SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments in the above Department:—

(*a*) ARCHITECTURAL ASSISTANT. A.P.T., III (£450-£495).

(*b*) JUNIOR ENGINEERING ASSISTANT. A.P.T., I (£390-£420).

Application forms obtainable from the Borough Surveyor; closing date 3rd May, 1951.

Canvassing will disqualify.

ROGER ROSE,
Town Clerk.

16th April, 1951. 2403

NATIONAL COAL BOARD—EAST MIDLANDS DIVISION.
ARCHITECTS' DEPARTMENT.

Applications are invited for the following permanent and superannuated appointments:—

S.V.79. ARCHITECTS (Qualified), Grade I. Salary £700×£25 to £875 per annum.

S.V.80. ARCHITECTS (Qualified), Grade II. Salary £450×£25 to £700 per annum.

S.V.81. QUANTITY SURVEYOR, Grade II. Salary £450×£25 to £700 per annum.

S.V.82. ARCHITECTURAL ASSISTANTS, Grade I. Salary £410 ×£20 to £550 per annum, and in exceptional cases to £700 per annum.

S.V.83. ARCHITECTURAL ASSISTANTS, Grade II. Salary £300×£20 to £440 per annum.

The point of entry into the relevant salary scales will depend on the qualifications and experience of the successful applicants, and subject to satisfactory service, opportunities will be available for promotion to higher grades.

The architectural work of the Department covers all new projects in the Division, which embraces five counties. The work is of considerable variety and interest, and includes the design of industrial buildings of all types concerned in the planning of collieries, such as workshops, power plants, offices, stores, pithead baths, canteens, medical centres, recreation buildings, convalescent homes, etc.

Part-time studying facilities are given to assistants in the Department to avail themselves of the advantages of the Nottingham School of Architecture.

Applications, stating age, education, qualifications, experience, present appointment and salary, should be submitted within 14 days of publication to the Secretary, National Coal Board, East Midlands Division, Sherwood Lodge, Arnold, Notts.

Envelopes should be marked with the appropriate Staff Vacancy Number. 2418

BOROUGH OF FINCHLEY.
HOUSING AND TOWN PLANNING DEPARTMENT.
APPOINTMENT OF CLERK OF WORKS.

Applications are invited from suitably qualified persons for the appointment of Clerk of Works, on the temporary staff, for the supervision of work arising out of a Contract in respect of the Basing Estate, North Circular Road, Finchley, N.3, for 124 Flats.

Candidates should have a practical knowledge of all branches of the building trade, be able to read plans, use a level, and check setting out.

The Clerk of Works appointed will be under the direct control of the Chief Architect. The salary will be within Grade A.P.T., V, of the National Scale (£520-£570×£15×£15×£20), second stage, plus £30 London weighting.

Applications, stating age, qualifications, experience, previous appointments held and salary, together with copies of two testimonials (of which at least one should be recent) or the names of two referees, should be sent to:

I. FOOKS, F.A.I.,
Borough Housing and Town Planning Officer,
Borough Housing and Town Planning Department,
The Avenue, Finchley, N.3,

not later than 4th May, 1951.

R. M. FRANKLIN,
Town Clerk.

2417

COUNTY BOROUGH OF EAST HAM.
HOUSING DEPARTMENT.
TEMPORARY ARCHITECTURAL ASSISTANTS.

Applications are invited for the above temporary appointments, at a salary in accordance with Grade A.P.T., III, of the National Salary Scales (£450-£495), plus the appropriate London weighting.

Applicants should have passed the Intermediate Examination of the R.I.B.A. and have had experience in the detailing of flats and houses.

Applications, on forms obtainable from the undersigned, must be returned by noon on Thursday, 17th May, 1951.

H. A. EDWARDS,
Town Clerk.

Town Hall, East Ham, E.6.
April, 1951. 2416

LONDON COUNTY COUNCIL.

Required at Brixton School of Building, Ferndale Road, S.W.4, a TRACER, preferably with draughtsmanship experience, to prepare tracings of drawings, time tables and associated work. Commencing basic rate of pay is 90s. a week, rising by annual increments of 5s. to a maximum of 140s. a week, plus an addition of 10 per cent.

Applications by letter to the Principal at the School, stating age, qualifications and experience. (472) 2427

COUNTY BOROUGH OF MIDDLESBROUGH EDUCATION COMMITTEE.
ASSISTANT ARCHITECTS.

Applications are invited for three posts of Assistant Architect, Grade A.P.T., VII, and A.P.T., V (two posts) respectively, in the Education Offices (Education Architect: P. R. Middleton, Dipl.Arch., A.R.I.B.A.). The Committee have a large Building Programme in hand, and the posts offer excellent opportunities in the design and construction of modern school buildings.

Forms of application and conditions of service may be obtained from the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned, not later than Saturday, 5th May, 1951.

E. C. PARR,
Town Clerk.

2358

BOROUGH OF KEIGHLEY.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments on the permanent staff :—

(*a*) ONE ASSISTANT ARCHITECT, Grade A.P.T., II. Salary scale, £420-£465.

(*b*) ONE ASSISTANT ARCHITECT, Grade A.P.T., I. Salary scale, £390-£435.

Applicants should possess general architectural experience. Conditions of service and salaries are in accordance with the National Joint Council Scheme for Local Authorities.

Applications to be made upon the prescribed form, to be obtained from the undersigned, to whom same must be returned, accompanied by copies only of two recent testimonials, not later than first post Monday, 21st May, 1951.

E. G. FELGATE, A.R.I.B.A.,
Borough Architect.

Borough Architect's Department,
College Street, Keighley. 2446

CAMBRIDGESHIRE COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the post of PLANNING OFFICER. Grade A.P.T., VIII (salary £685-£760 per annum). Candidates should be Corporate Members of the Town Planning Institute or possess a recognised qualification in Civil Engineering, Surveying or Architecture, and should have had considerable experience in an executive position in town and country planning, and particularly in the preparation of Development Plans, and should possess a thorough knowledge of the 1947 Act and associated Regulations.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, the Council's conditions of service, and a medical examination.

Applications, stating age, past and present appointments (with dates), qualifications, and the names of two referees, should be sent to the undersigned not later than 14th May, 1951.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall, Castle Hill, Cambridge. 2445

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the appointment of PLANNING ASSISTANTS. A.P.T., Grades I to IV, at £390 to £525 p.a., and IV to VI, at £480 to £660 p.a., in the Southern Area Planning Office at Wolverhampton.

Applicants for the appointments should have had training in an Architect's Engineer's, Surveyor's or Planning Office, and preference will be given to those who have passed the Intermediate or Final Examination of the Town Planning Institute or its equivalent.

Applications should give details of age, education and training, qualifications, present and previous appointments and experience, and should include copies of two recent testimonials and the names of two other persons to whom reference can be made. Applications should be sent to D. W. Riley, County Planning Officer, 41a, Eastgate Street, Stafford, not later than the 5th May, 1951.

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

2444

DUNDEE COLLEGE OF ART SCHOOL OF ARCHITECTURE.

The Governors of the Dundee Institute of Art and Technology invite applications for the position of LECTURER AND STUDIO INSTRUCTOR.

Applicants should be Members of the R.I.B.A. and should preferably be holders of a degree or diploma of a recognised School of Architecture.

Salary Scales: Men, £450 by £20 to £700; women, £400 by £15 to £575, with placing according to qualifications and experience. These scales are at present under revision, and the person appointed will benefit by any increase which may be decided upon.

Applications should be lodged as soon as possible, and should be on the prescribed form, copies of which, with full particulars, may be obtained from the undersigned.

J. CAMERON FREER,
Clerk and Treasurer.

Bell Street, Dundee.
17th April, 1951. 2449

THE IMPERIAL WAR GRAVES COMMISSION invite applications from suitably qualified candidates for two posts of SENIOR SUPERINTENDENT OF WORKS in their India, Pakistan and South-East Asia District. Initial postings would be to Kohima in Assam and to Rangoon in Burma. All candidates should be under 50 years of age, have had experience in carrying out constructional work abroad, and have some knowledge of the country concerned. Membership of the Royal Institution of Civil Engineers or Royal Institute of British Architects or Royal Institution of Chartered Surveyors and Military Works Service experience would be advantages. Single men or married men prepared to leave their families in this country only will be considered. Candidates must be prepared to live on sites. Salary scale £675×£25—£825 per annum, plus foreign service allowance, at present at the rate of £105 per annum for single men or £305 per annum for a married man unaccompanied by his wife, in India, and £585 per annum for a single man or £785 per annum for a married man unaccompanied by his wife, in Burma, plus free accommodation in each case. Initial contract three years.

Applications should reach the Appointments Officer, Imperial War Graves Commission, Wooburn House, Wooburn Green, High Wycombe, Bucks., within two weeks of the appearance of this notice. 2443

CRICKLADE AND WOOTTON BASSETT RURAL DISTRICT COUNCIL.
APPOINTMENT OF JUNIOR ENGINEERING ASSISTANT.

Applications are invited for the appointment of Junior Engineering Assistant to the Engineer and Surveyor, Mr. J. C. Grindley, A.M.I.C.E., A.R.I.C.S., A.M.T.P.I., at a salary in accordance with Grade II of the A.P.T. Division of the National Conditions of Service (£420×£15—£465).

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and to the successful candidate passing a medical examination.

Experience in housing works will be considered an advantage.

Applications (endorsed "Junior Engineering Assistant"), stating age, qualifications, and experience, together with copies of not more than three recent testimonials, should reach the undersigned by Tuesday, 8th May, 1951.

Canvassing, directly or indirectly, will be a disqualification.

W. J. HOSIER,
Clerk of the Council.

Council Offices, Wootton, Bassett, Wilts.
13th April, 1951. 2389

LONDON ELECTRICITY BOARD.
DRAWING OFFICE SECTION LEADER (ENGINEERING).

Applications are invited for the above position in the Design and Planning Branch of the Southern Sub-Area, at 44, High Street, Beckenham, Kent.

Candidates should have had an engineering training and considerable experience in drawing office practice in the Electricity Supply Industry, particularly in the layout of plant in sub-stations and transformer chambers. A technical qualification equivalent to the Higher National Certificate is considered desirable, and previous experience in the control of draughtsmen would be an advantage.

Pending grading of the post under the revised agreement of the National Joint Board, the provisional salary will be fixed within the range £550 to £650 per annum inclusive, dependent upon qualifications and experience.

Application forms obtainable from Establishments Officer, 46, New Broad Street, E.C.2, to be returned duly completed within 10 days. Please enclose addressed envelope and quote ref. EST/V/1146/A. on all correspondence. 2391

CARDIFF RURAL DISTRICT COUNCIL.
APPOINTMENT OF CHIEF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Chief Architectural Assistant in the Engineer and Surveyor's Department, at a salary in accordance with Grade VII, A.P.T. Division of the National Scale of Salaries (£635-£710) per annum.

Candidates should be Registered Architects and hold a recognised professional qualification, with experience in general housing work, a good knowledge of design and construction is essential, with particular reference to design of houses, flats and other dwellings, and layout of estates.

Experience in dealing with contracts, preparation of estimates, specifications and accounts, will be an advantage. The Council will favourably consider housing accommodation if required by the candidate.

The appointment, which will be subject to one month's notice on either side, is subject to the Local Government Superannuation Acts, and the National Scheme of Conditions of Service, and the successful applicant will be required to pass a medical examination.

Applications, stating age, details of qualifications and experience, together with copies of three testimonials, should be delivered to me in a stamped envelope endorsed "Appointment of Chief Architectural Assistant," within seven days from the appearance of this advertisement.

S. P. YOULDON, M.C., F.R.I.C.S., M.I.Mun.E., L.R.I.B.A.,
Engineer, Surveyor and Architect.

Park House, 20, Park Place, Cardiff.
18th April, 1951. 2441

CHESTERFIELD RURAL DISTRICT COUNCIL.
ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF JUNIOR QUANTITY SURVEYOR.

Applications are invited for the appointment of Junior Quantity Surveyor in the Architectural Section of the Department of the Engineer and Surveyor.

Candidates must be competent to prepare Bills of Quantities for housing contracts and in the settlement of Final Accounts. Preference will be given to those who have passed the Intermediate Examination of the R.I.C.S. (Quantities Division).

The salary will be in accordance with Scales A.P.T., I-III, according to qualifications and experience.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and to a satisfactory medical examination.

Applications, endorsed "Junior Quantity Surveyor," and giving the names and addresses of two persons to whom reference may be made, must reach the undersigned not later than 9 a.m. on Friday, the 25th day of May, 1951.

The Council will give all possible assistance towards the provision of housing accommodation for the successful applicant.

J. B. WIKELEY,
Engineer and Surveyor.

Rural Council House, Saltergate, Chesterfield.
21st April, 1951. 2447

HAMPSHIRE COUNTY COUNCIL.

Applications are invited for the appointment of a TECHNICAL ASSISTANT, on Grade III-IV of the National Scales (£450-£525), to work in the South-East Area Office of the County Planning Department at Gosport. Candidates should have passed the Intermediate Examination of the Town Planning Institute, and have had experience in the Planning Department of a Local Planning Authority. In the event of an applicant being appointed who does not hold the requisite qualification, the appointment will be made at a suitable point in Grade II of the National Scales, pending the passing of the requisite examination. The appointment is pensionable and will be subject to a satisfactory medical report.

Officers using their own cars when travelling on County Council duties will receive travelling allowance on the County Scale for the time being in force.

No form of application is issued, but applications, stating age, education, qualification and experience, together with a copy of one testimonial and the names and addresses of two persons to whom reference may be made, should be sent to the County Planning Officer, Litton Lodge, Clifton Road, Winchester, not later than the 11th May, 1951.

G. A. WHEATLEY,
Clerk of the County Council.

The Castle, Winchester.
18th April, 1951. 2448

Tenders for Contracts

6 *lines or under*, 12s. 6d.; *each additional line*, 2s.

URBAN DISTRICT OF WOLVERTON.
STACEY HILL HOUSING ESTATE—CONTRACT NO. 14.

Tenders are invited for the construction of 32 houses and external works on this estate.

Bills of Quantities, etc., may be obtained from the Engineer and Surveyor on and after 28th April, 1951, on payment of £2 2s., which will be refunded on receipt of a *bona fide* tender, or the return of all the documents.

Plans, and a copy of the General Condition of Contract, may be inspected at the office of the Engineer and Surveyor during normal office hours, as from the date of this advertisement.

Tenders, in a plain sealed envelope endorsed "Stacey Hill, Contract No. 14," must reach me by 10 a.m. on 10th May, 1951. The Council does not bind itself to accept the lowest or any tender.

A. J. W. JEFFREY,
Clerk of the Council.

Market Square, Stony Stratford,
Wolverton, Bucks.
14th April, 1951. 2401

Partnership

6 *lines or under*, 12s. 6d.; *each additional line*, 2s.

MAJORITY PARTNERSHIP offered in small established practice in the Channel Islands. Applications for further particulars should give details of qualifications, experience, and *bona fides*. Box 2289.

ARCHITECT AND SURVEYOR, with busy general practice in Isle of Wight, seeks cross-partnership, part time partnership, or association with mainland firm. Please write Box 2407.

Architectural Appointments Vacant

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

ARCHITECTURAL ASSISTANT required by Gollins, Melvin & Partners. Capable working drawings. Salary £450-£550. Office experience essential. 5-day week. Telephone Museum 0683 for appointment. 2287

ESTABLISHED London Firm requires able ASSISTANT. Permanent position. Interested contemporary architecture. Salary £500-£650. Box 2288.

ASSISTANTS required in Architects's Department of large commercial organisation, London office. Sound all-round training in the profession essential, including supervision of work. Excellent opportunities for men of initiative. Apply in writing, giving details of experience, age, and salary required, to Box No. 596/1, Foster Turner & Everetts, Ltd., 11, Old Jewry, E.C.2. 2277

ARCHITECTURAL ASSISTANT required. Intermediate standard. Small progressive London office. Write, stating age, experience, qualifications salary, etc. Box 2308.

ARCHITECTURAL ASSISTANT required, of Intermediate R.I.B.A. standard or over, and with some previous experience in an architect's office. Salary according to ability. Write, stating age and experience, to Staff Officer, Handley Page, Ltd., Cricklewood, N.W.2. 2326

ARCHITECTURAL ASSISTANT required immediately for progressive appointment in pleasant coastal town, S.W. England. Sound knowledge of Construction and some Administrative experience essential. Salary within the range of £480-£525 p.a. Superannuation Scheme after probationary period. Box 2340.

ARCHITECT, qualified, experienced in design and construction, specification writing and supervision and control of building contracts, is required by a long established firm of Architects in South-West Lancashire. Commencing salary £800 to £1,000 per annum, according to age and ability. The appointment offers an opening to a partnership, subject to mutual confidence. Living accommodation available. Apply, stating education, age, experience, to Box 2342.

ARCHITECT'S ASSISTANT required by Manchester firm of Architects. Previous office experience and sound knowledge of construction essential. Salary offered £350-£450, according to age and capabilities. Box 2352.

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

ASSISTANT ARCHITECTS required for permanent staff. Salary range £490-£555 per annum. Capable of preparing sketches, working drawings, and details under supervision of Senior Architects.

Sound knowledge of construction and architectural design is essential.

The work is interesting and varied, with good prospects, to suitable men.

Apply in writing to Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1, stating age, experience, qualifications and references. 2349

ARCHITECTURAL ASSISTANT required for duty in London offices of large Oil Company. Previous experience as Architectural Draughtsman, age 25 to 35; salary according to age and experience. Write, with full informative detail, and quoting No. 36, to Box 4113, c/o Charles Barker & Sons, Ltd., 31, Budge Row, London, E.C.4. 2392

ARCHITECT.

CHARTERED ARCHITECT (Belfast) has vacancies for :—

(1) SENIOR EXPERIENCED ASSISTANT.

(2) INTERMEDIATE AND FINAL GRADE ASSISTANTS.

Salary by arrangement.

Good opportunity for advancement and possible interest in practice for suitable candidates.

The work is mainly new University, College and Church buildings.

Reply in writing, with copies of testimonials, stating training, experience, qualifications and age, to :

JOHN MACGEAGH, A.R.I.B.A.,
23, Ocean Buildings,
Donegall Square East, Belfast. 2392

ARCHITECTURAL ASSISTANT, Intermediate standard, or experienced Draughtsman required. Country practice. Able drive car an advantage. F. C. Levitt, L.R.I.B.A., Biggleswade, Beds. 2394

ARCHITECTURAL ASSISTANT required by Midlands firm capable of taking charge of small drawing office. Varied and interesting practice. Starting salary £650 and option of profits-sharing scheme after 12 months' satisfactory service. Full particulars of experience, etc., to Box 2429.

ARCHITECTURAL ASSISTANT required by major industrial organisation, with head office in the West End of London. Applicants, not necessarily qualified, should be aged 35/45, and experienced in the preparation of surveys, sketch plans, working drawings, in connection with industrial buildings; also able to supervise work in progress and prepare reports. This post carries a good salary. Apply in writing, stating age, qualifications and experience, to Dept. M.101, Box 5196H, A.K. Advtg., 212a, Shaftesbury Avenue, W.C.2. 2396

ARCHITECTURAL ASSISTANT required for Victoria Street Office. Capable of preparing working details from sketch designs. Salary up to £350. Write, stating experience, Box 2405.

ARCHITECTURAL ASSISTANT required immediately. Must have up-to-date experience of the design of large industrial buildings and office blocks, and be fully conversant with Local Authorities' requirements and bye-laws. Knowledge of steel and concrete framed structures essential, also ability to prepare specifications ready for quantity surveyor and tender. Salary £525 p.a. Apply in writing, stating age, experience, etc., marking envelope "Architect," to Personnel Manager, Metropolitan-Vickers Electrical Co., Ltd., Trafford Park, Manchester, 17. 2412

SENIOR ASSISTANT wanted in busy North Midlands office. Would be in control of section of Drawing Office. Experience of general private practice essential. Send particulars and salary requirements to Box 2433.

SENIOR ASSISTANT for country office, with varied practice in South-West. Applicants to have at least 5 years' office experience as a Senior in a similar practice. Full details and salary required to Box 2430.

IMPERIAL CHEMICAL INDUSTRIES, LTD., Plastics Division, requires an ARCHITECTURAL ASSISTANT in the Engineering Department at Welwyn Garden City. Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects, and it would be to advantage if they had spent a few years in an Architect's office. Write for an Application Form to the Staff Manager, I.C.I., Ltd., Plastics Division, Black Fan Road, Welwyn Garden City, Herts. 2424

RONALD WARD & PARTNERS require an ARCHITECTURAL ASSISTANT (Intermediate). Apply 33, St. George's Drive, S.W.1. Telephone Victoria 5531. 2432

ARCHITECTURAL ASSISTANT required immediately for Design Consultants' office, for work on Exhibitions, Store Interiors, Furniture, etc. Apply, stating salary required, and full details of experience, Box 2419.

SENIOR ASSISTANT required by Sir John Burnet, Tait & Partners. Applicant must be fully experienced in the preparation of working drawings for multi-storey buildings. Apply in writing, stating experience and salary required, to 10, Bedford Square, London, W.C.1. 2420

ARCHITECTS, with West End office, require ASSISTANTS of Intermediate standard for work of an interesting and varied nature. Box 2421.

APPLICATIONS are invited for the appointment of ARCHITECTURAL ASSISTANT, with sound knowledge of design and construction of industrial type buildings and necessary surveying and levelling. The post is permanent and pensionable, and the salary will be commensurate with the qualifications and experience of the successful candidate. Staff restaurant available. Reply within 14 days to Chief Architect, Bleachers' Association, Ltd., Engineer's Dept., Blackfriars House, Manchester. 2422

SENIOR Architectural Assistant required as CHIEF ASSISTANT in Bristol Architects' office. Must be fully conversant with all normal duties and able to control staff. Possibility of assistance with living accommodation. Write, giving full details of experience and training, with salary required, to McDonald & Brown, A.R.I.B.A./A.I.A.S., 1, Unity Street, Bristol, 1. Telephone : 22374/5. 2423

ASSISTANT ARCHITECT required in Edinburgh. Applicants should be qualified and have practical experience in design and erection of building works. Minimum salary £625 per annum. Pension scheme available. Box 2442.

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