THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS
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Registered as a Newspaper.

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

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.	Langham 8738
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. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 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
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
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.	
COID	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
CUC	Coal Utilization Council. 3, Upper Belgrave Street. S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. 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, 5, Arundel Street, Strand.	Temple Bar 6633
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	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
FPC	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

COLT *CANADIAN CEDARWOOD* SHINGLES

Architect: F. C. Moscrop-Young, F.R.I.B.A.
Builders: Rust & Ratcliffe, Chesham, Bucks.

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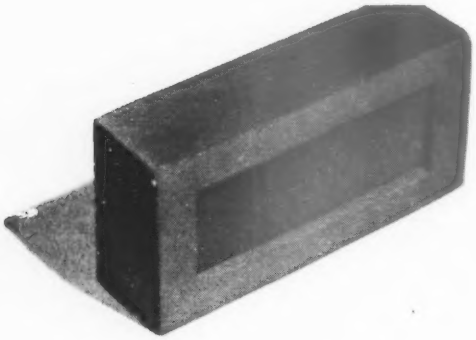
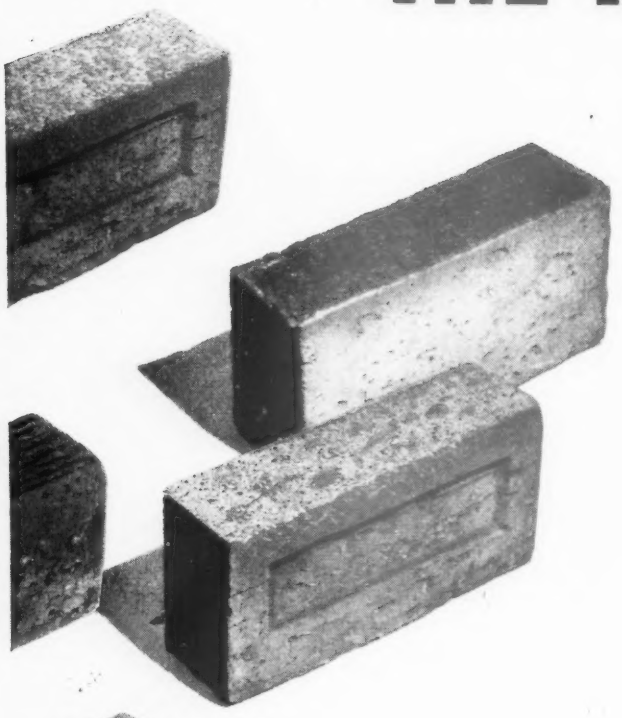


Finding

THE RIGHT BRICK



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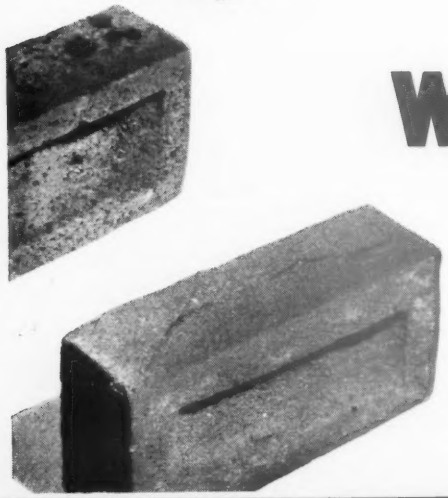

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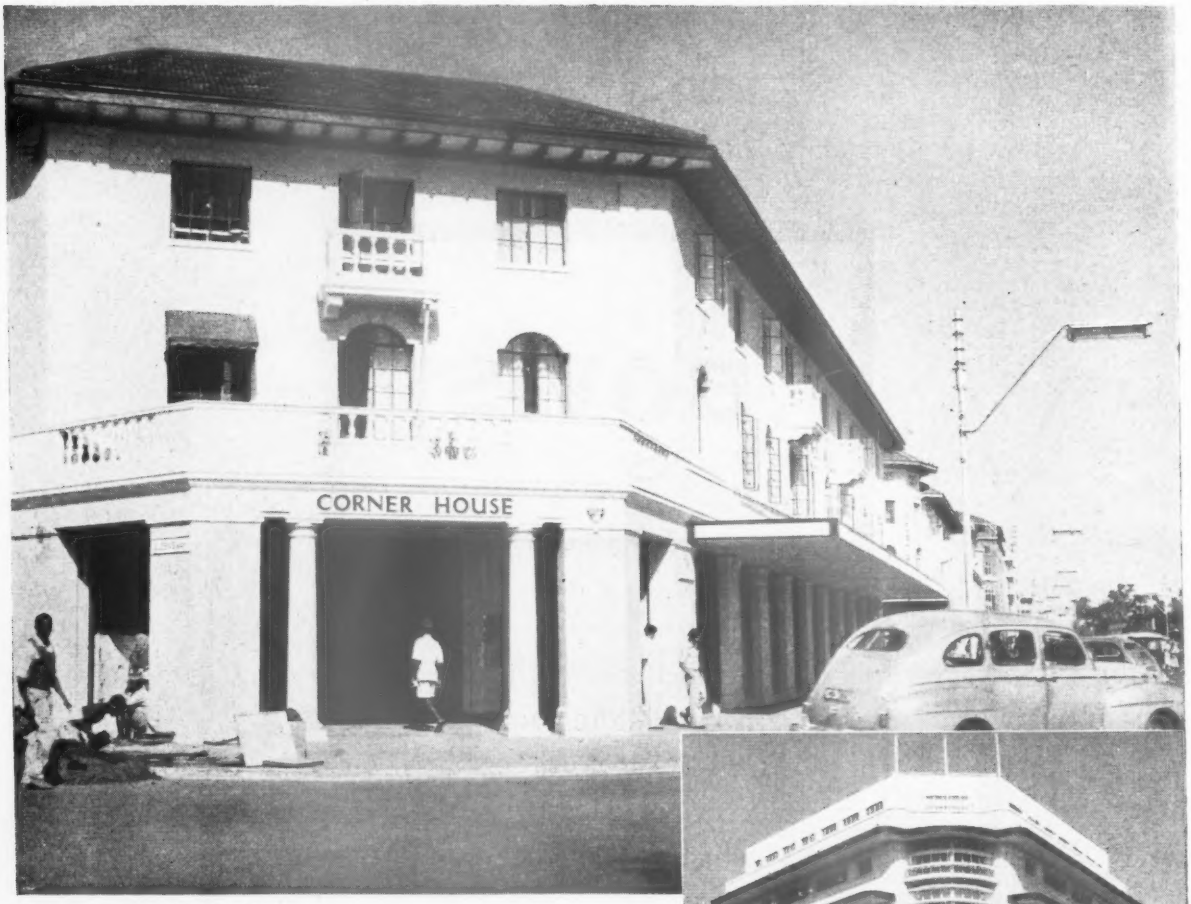

Photographs: D. B. Whitfield, Nairobi.

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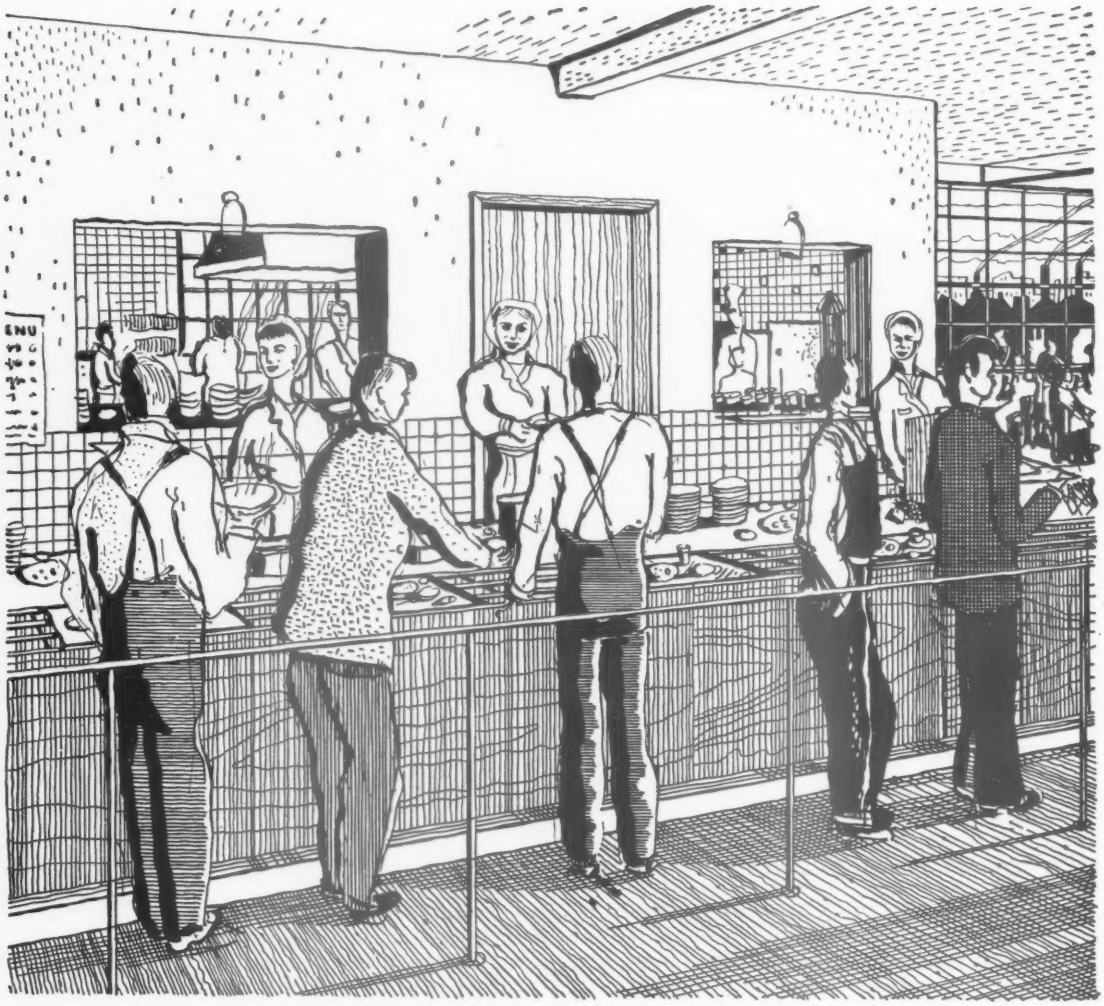

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You might imagine that the interest of local Gas Undertakings in factory canteens and tea bars would be confined to supplying the gas for cooking, water heating, and refrigeration. In fact, their interest goes much deeper. They provide a great deal of information for the provision of catering services. They are often consulted about such things as basic layout, the size and form of storage space, provision for the preparation of food, and the problems involved in providing efficient service at counter or table. In short, they do everything in their power to ensure that where gas is used, it is used to the best advantage and, in the Nation's interest, economically and wisely.

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GAS

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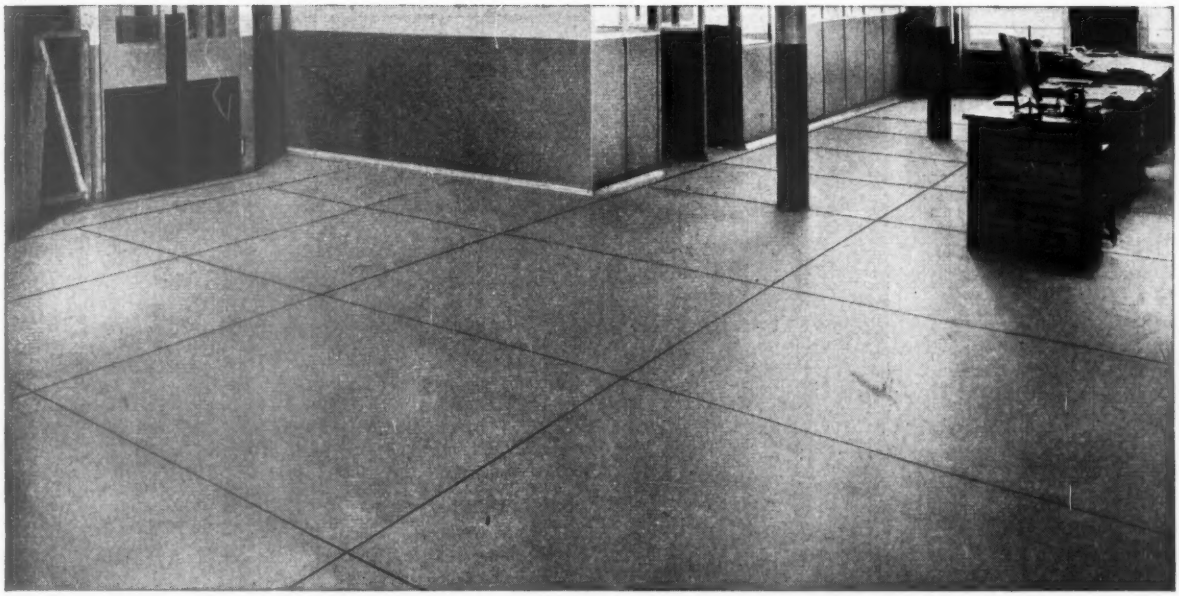
GC11



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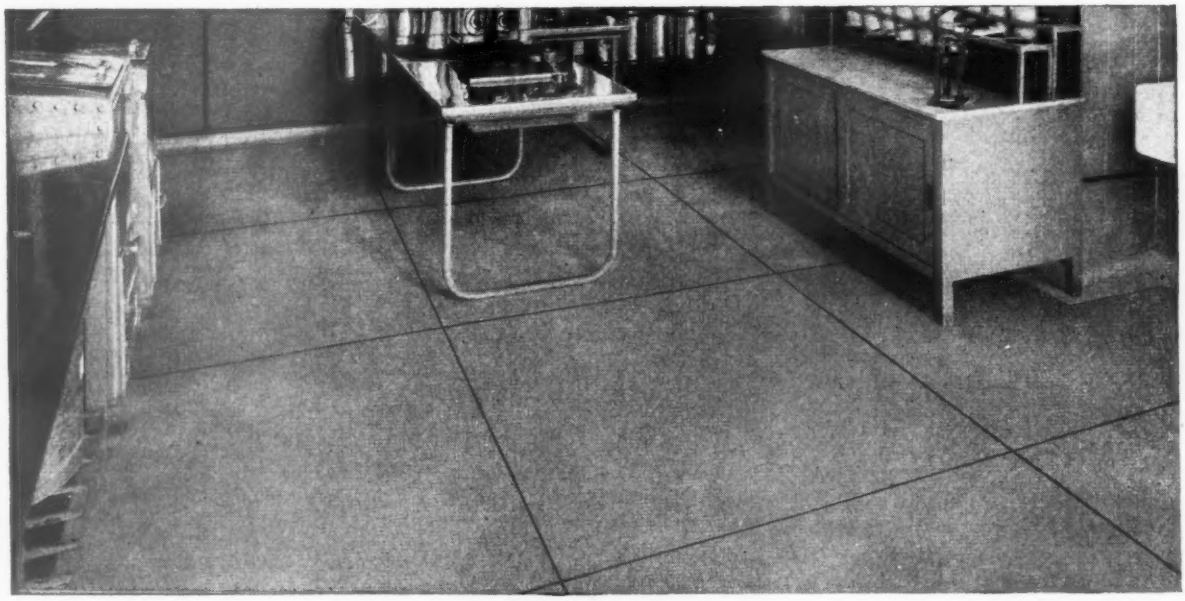

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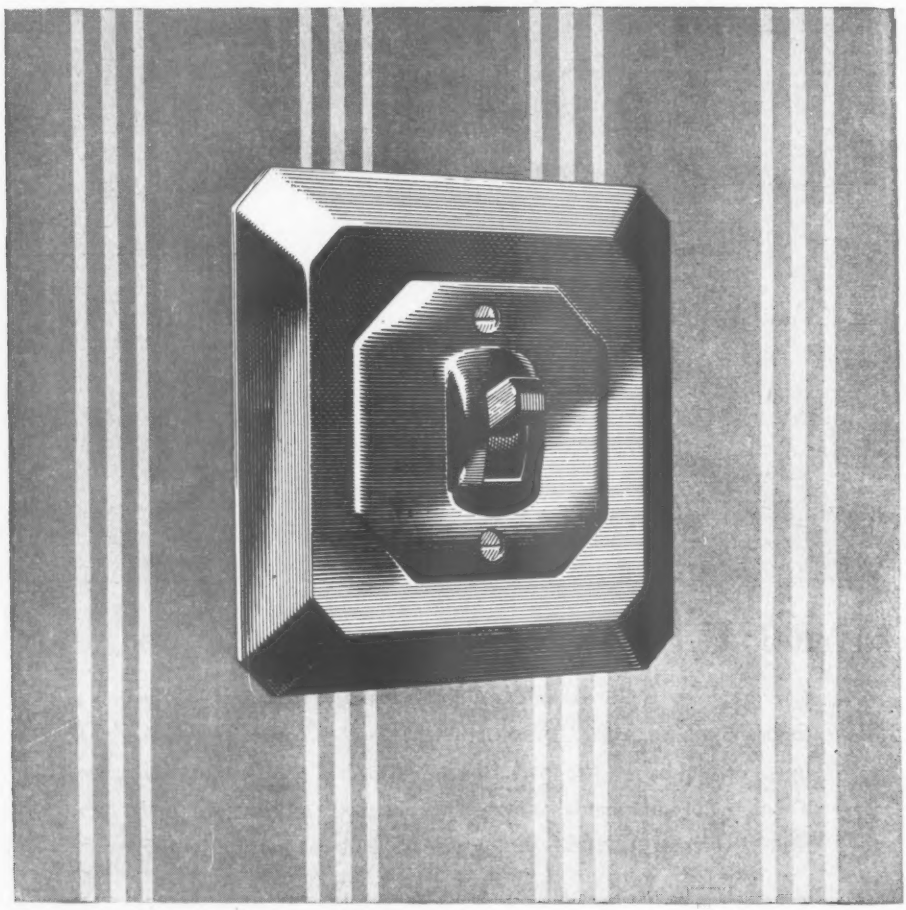

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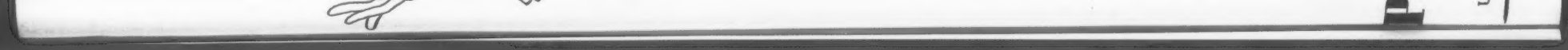

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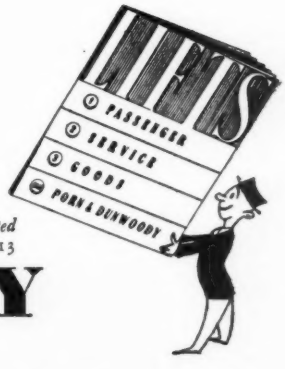

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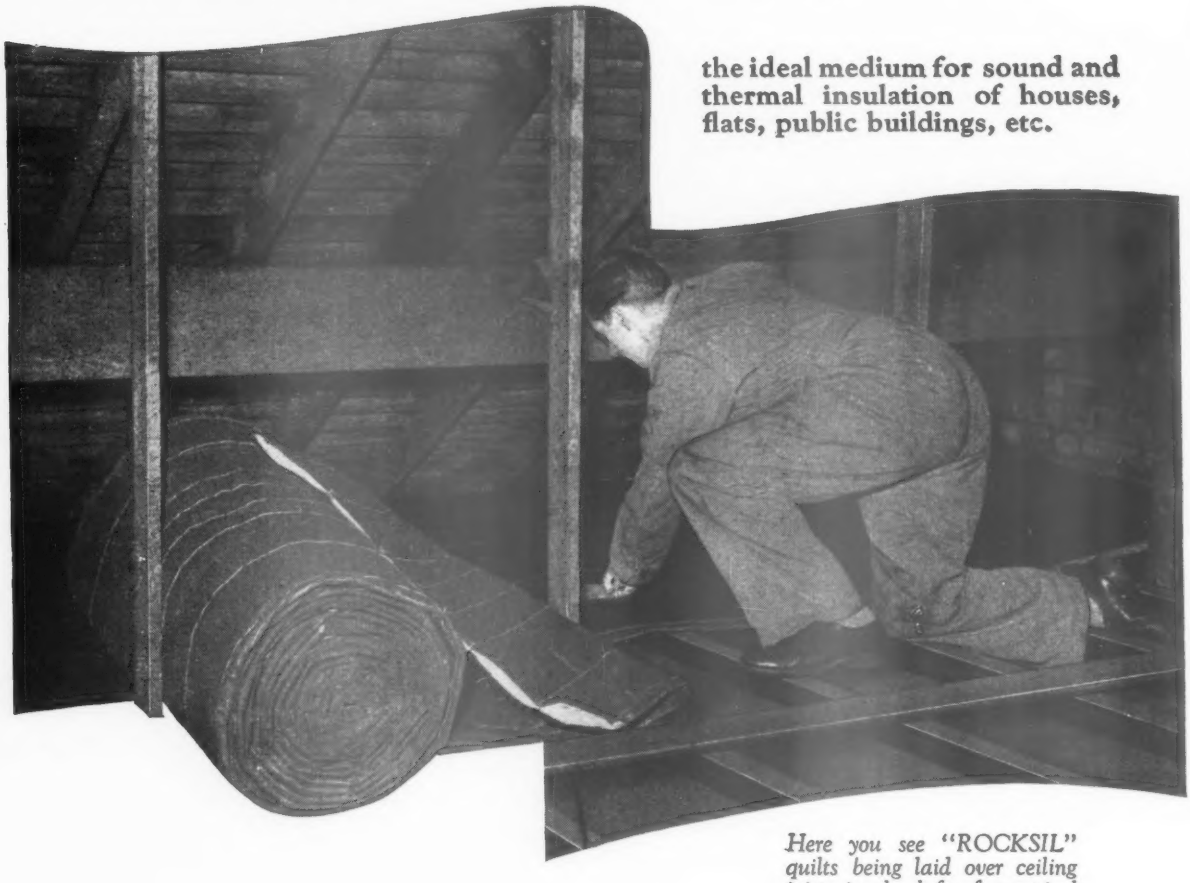
the ideal medium for sound and thermal insulation of houses, flats, public buildings, etc.



Here you see "ROCKSIL" quilts being laid over ceiling joists in the loft of a typical modern house.

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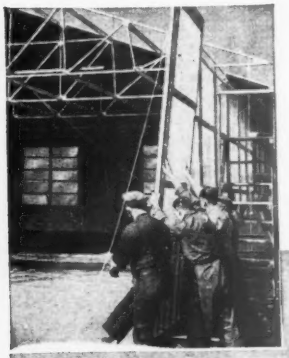

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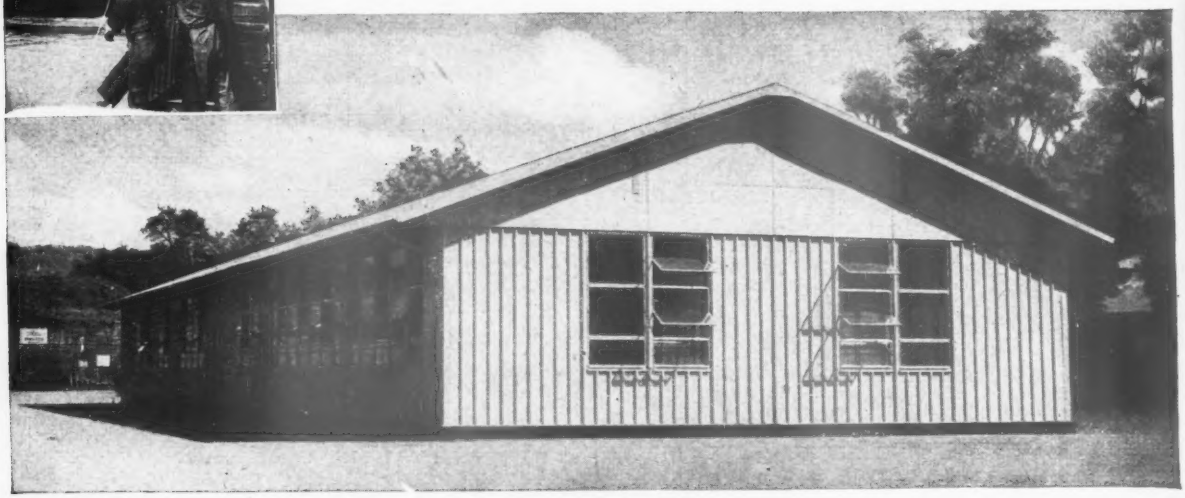

AT HOME AND OVERSEAS

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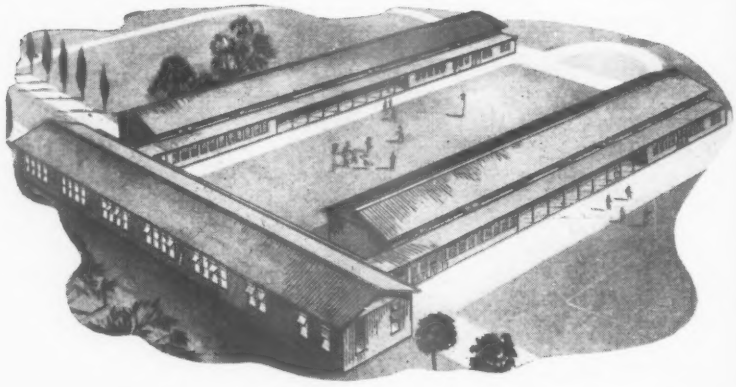

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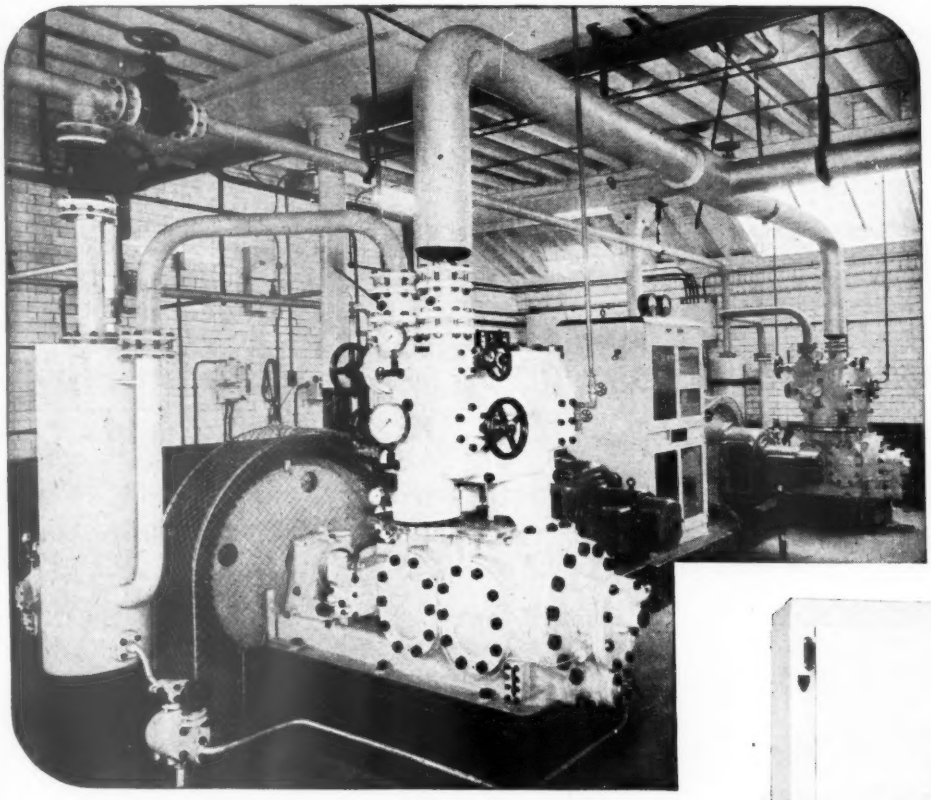

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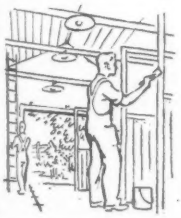

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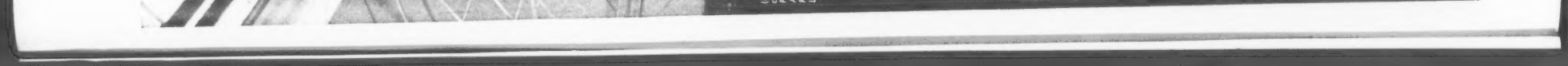

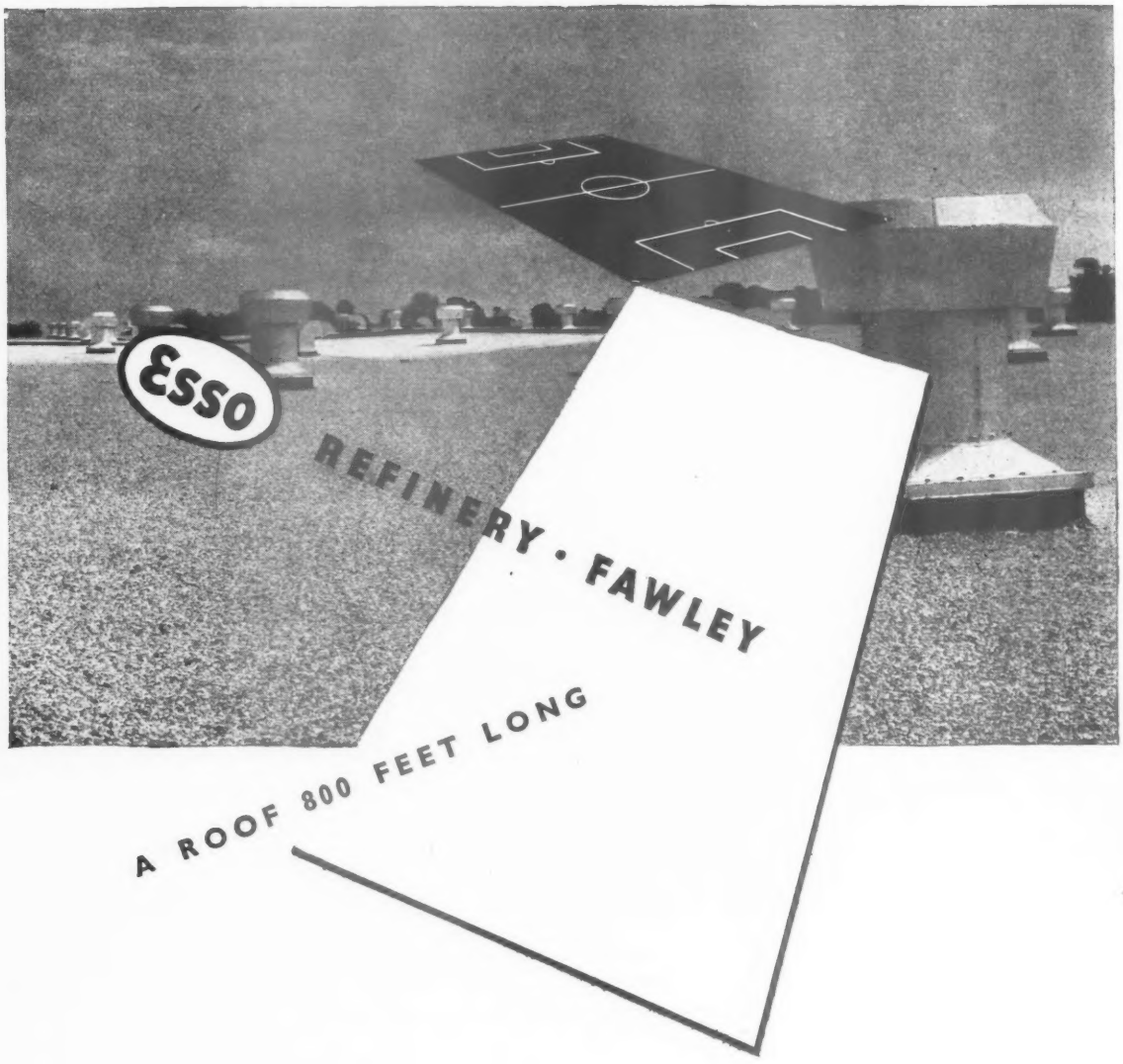

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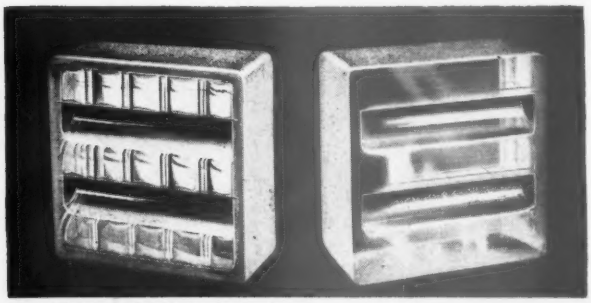

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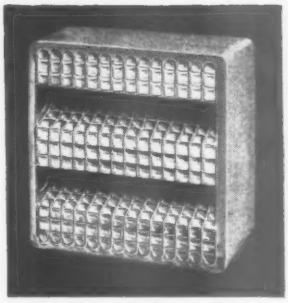

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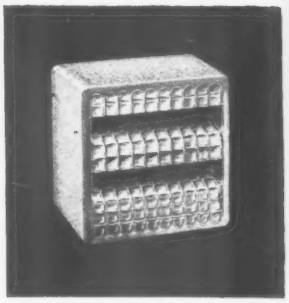

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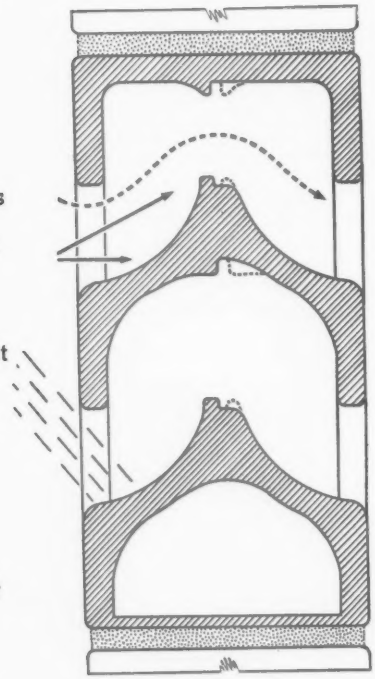

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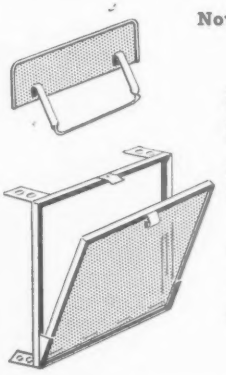

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THE ARCHITECTS' JOURNAL

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No. 3002 September 11, 1952 VOL 116

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ROYAL RETREATS

Osborne, Balmoral, Sandringham—the purely private retreats of royalty do not make a very inspiring list; two, at least, were presumably chosen mainly for the stag and pheasant killing facilities they provided. We know a good deal more about their interior decor than we did years ago, and at best it has proved "amusing." I was interested, when reading Harold Nicolson's newly published "Life of George V"* to find this description of York Cottage, Sandringham, the retreat to which that honest monarch took his bride in 1893. "It was, and remains," writes Mr. Nicolson, "a glum little villa, encompassed by thickets of laurel and rhododendron, shadowed by huge Wellingtonias and separated by an abrupt rim of lawn from a pond, at the edge of which a leaden pelican gazes in dejection upon the water-lilies and bamboos. The local brown stone . . . is enlivened by very imitation Tudor beams. The rooms inside, with their fumed oak surrounds, their white overmantels framing oval mirrors, their Doulton tiles and stained glass fanlights, are indistinguishable from those of any Surbiton or Upper Norwood home. The Duke's own sitting-room, its north window blocked by heavy shrubberies, was rendered even darker by the red cloth covering which saddened the walls. Against this dismal monochrome (which was composed of the cloth used in those days for the trousers of the French army) hung excellent reproductions of some of the more popular pictures acquired by the Chantrey Bequest. This most undesirable residence remained his favourite home for thirty-three years."

*

Times change and the Queen Mother's purchase of a grey and remote castle on the Pentland Firth has about it a dash of real romanticism. Castle of Mey—in recent years known as Borogill—may have its nineteenth century blemishes, but it *is* a romantic pile, set in an atmosphere of windswept spaces; old, ragged apple trees and great starry skies. It is, in all the circumstances, an interesting and remarkable choice—a far cry from 1893.

*

My first thought about Castle of Mey was that—apart from cottages—it must be the most northerly house in the country, being in fact about a quarter of a mile north of John O'Groats. But only, of course, the most northerly on the mainland; the real palm must go to an even more remarkable piece of architecture—Lethaby's very fine Melsetter, on Orkney. I have never heard the final fate of Melsetter; it was, I believe, in the balance a few years ago, and I sincerely hope some good and permanent use was found for it.

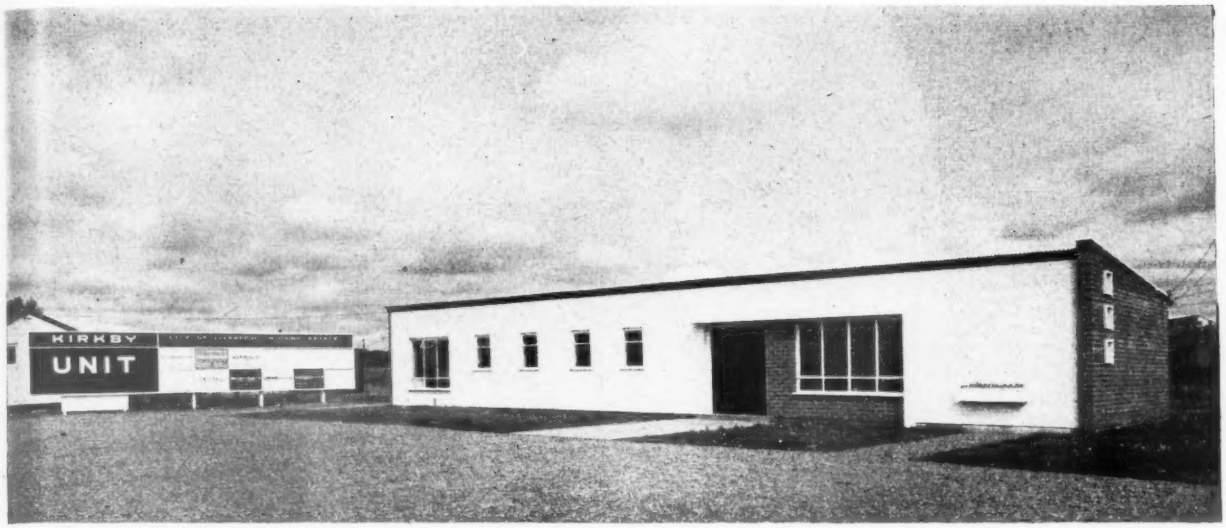
HOUSE OWNERSHIP . . .

Local authorities are to be allowed once more to sell houses to their tenants if they wish, but the conditions under which Mr. Macmillan will allow them to do so are fairly strict, and nobody seems likely to be able to profiteer on the deal. Who then will benefit? Well, the local authority and the taxpayer both save the annual subsidy and the tenant gets a house—tolerably well built and maintained—at what is probably a bargain price, unless values slump catastrophically during the next five years. *But* the tenant becomes the owner, and is, of course, responsible for repairs. Are we, then, likely to start a new series of slums with owners who can't afford or just don't want to spend the necessary money? And have people been turned away from house buying by all the current stories of compulsory purchase orders? At least it will be interesting to see, first of all, how the local authorities react, and then what percentage of the tenants feel they want to buy.

. . . AND LANDLORDS

Thinking of this question of house repairs it's obvious that something will have to be done shortly about the Rent Restriction Act. Nobody has very much sympathy for landlords, but not all of them are grasping, and when even the minimum of repairs are twice the

* Constable. 45s.



ASTRAGAL *thought this building was worth putting on record. It is—believe or not—a contractor's hut on a building site. The hut, which is of the type of construction normally used—except for colour wash—was designed by Dr. Ronald Bradbury, Liverpool's city architect and director of housing. It was built by the Unit Construction Co., Ltd. to house their site staff on a large housing scheme for the city corporation. Dr. Bradbury also designed the sign-board.*

rent the whole business becomes nonsense. Hence the property owners who ask for their houses to be condemned, or who just disappear.

*

One large city, for instance, reported the other day that about 2,000 houses every year lose their owners, and that whole terraces gradually crumble about the tenants' ears. Poor property, no doubt, but probably repairable if anyone had the right to do so—though *not* at the controlled rent. Various people have had schemes like allowing rent increases in proportion to the amount spent on repairs, but none of them are more than palliatives. The Act will have to be revised sooner or later, but people feel so strongly about rents that it will almost certainly mean suicide for any political party to attempt it.

SOUTH BANK IN THE NORTH

A good many architects must have been as surprised and delighted as ASTRAGAL to read that a film had been made about the South Bank Exhibition and has had its first public showing last week at the Edinburgh Film Festival. One of our spies was deputed to see it and went off in heavy disguise—remember the RIBA Conference?—and full of memories of almost the last occasion he had attended a theatre in that city, on the night of Pavlova's farewell performance. As The Swan glided on—so the spy's obviously fabricated story goes—a voice whispered behind him . . . " Ye know she's verra like Mrs. Wishant. . . ." No such comment of comparison, he says, was heard at the showing of " Brief City "—an excellent title, by the way. The audience apparently received the film with enthusiasm, and it seems certain of a London premiere and general booking soon.

*

The story of how the film came to be made is quite a scenario in itself. Two weeks before the exhibition closed *The Observer*—always a good friend to it—discovered that no film record had been made. (Presumably the Festival Office had run out of the necessary cash.) There are no flies on *The Observer*. You cannot, as Ted Ray says, even see where they've been. And within the Exhibition's last ten days—some of them wet—" Brief City " was planned, scripted and shot. The commentary was written by Patrick O'Donovan (now reporting in Korea) with a copy of the *Review's* South Bank issue at his elbow and Sir Hugh Casson breathing occasionally down his neck, and it is spoken by these two characters as they walk round the site together.

*

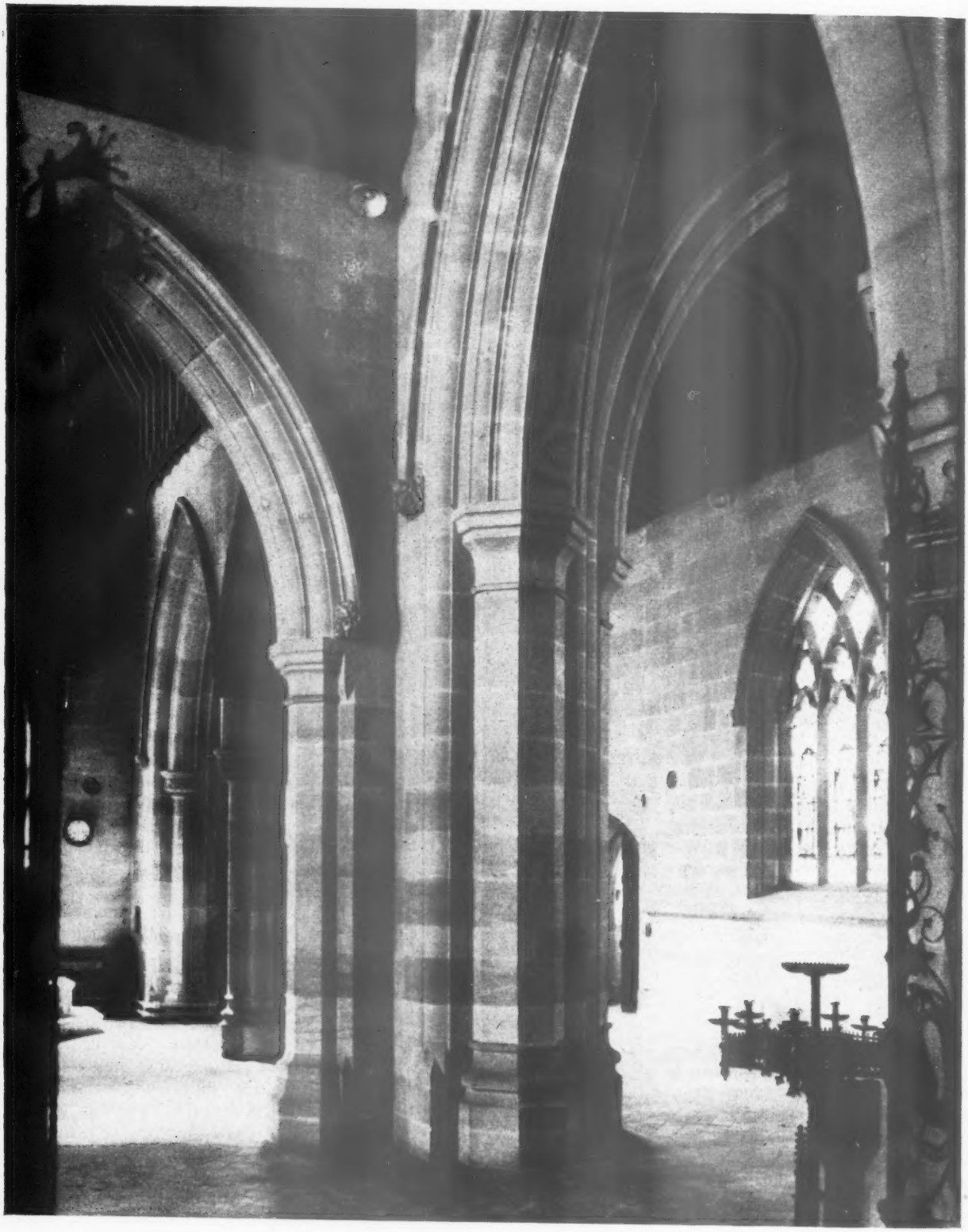
The theme, put simply, is that here is an example of townscape worth studying and remembering and, although, alas, the film is not in colour, our spy reports that it has caught admirably the character and spirit of the South Bank, and the fact that it was made in such a hurry in a way seems to have sharpened the sympathy between film and subject. Congratulations to all concerned—and particularly to *The Observer* for its enterprise.

LIBERTY HALL

Walking down Regent Street last week ASTRAGAL decided to take Liberty's on the way, and penetrated to the gloomy heart of the building in search of the exhibition now being staged there of work by students of the Royal College of Art. He ran it to earth eventually, snug in the half-timbered belly of the fourth floor, where the students have themselves put up a slightly smaller version of their recent annual show of textiles, furniture, ceramics and jewellery. As usual the standard is remarkably high, public interest has been great, and some of the designs in all fields have been sold to industry.

*

Only one faint thorn spikes ASTRAGAL'S bouquet. So many modern textiles are so pretty and clever in their line-and-spot formula that they have begun to destroy themselves and become boring. One sighs for a really expertly handled damask pattern instead of all this—didn't Forbes Robertson once call it " Skimble-Skamble "?—stuff. The fact is—let's face it—that this sort of haphazard dot-and-dash stuff is really too easy to do and too many people are doing it, and being too lazy to try something a little bit harder. Can't the RCA, with all its splendid array of teaching talent, grit its beautiful teeth and really insist on some serious disciplined study from its students instead of this admittedly modish and extremely pretty froth? Is ASTRAGAL'S sourness extending now even to his eyes? Maybe. But as he walked down through those murky cells



Pugin's Centenary

On the opposite page ASTRAGAL writes about Pugin, who died one hundred years ago this week. Above is a reminder of his work, St. Augustine's, Ramsgate. Visitors to this church, John Summerson has written, "are often disappointed. They expect something as peculiar, original and exciting as Pugin himself. . . . They find only a very beautiful Decorated church. . . . And although some queer sense of guilt or frustration in the modern architect encourages him to prefer the sociologically correct to the intrinsically agreeable, no impressionable mind can withhold admiration for this building." Pugin died at Ramsgate in the house he had built for himself there.

which contain the more old-fashioned products of Liberty's he had to admit to an occasional glow of respect and admiration for what he saw, if only because it had been so carefully done.

PUGIN CENTENARY

On September 14, 1852, in that strange and solid house he had built for himself on the cliffs at Ramsgate, there died Augustus Welby Pugin. He was buried, as may be imagined, with all the ritual and pomp that the Catholic Church could provide. He was barely forty, and all that ASTRAGAL can do concerning one so familiar to his readers is to remind them that the achievements of that ardent and fiery little genius were contained within twenty-five working years.

*

Many strange things happened to Pugin: three marriages and one abortive engagement, concerning which he had to issue, in self-defence, an explanatory pamphlet, were the measure of his private life. In addition, there was his sailing-boat—many of the finest details for the House of Lords were drawn on choppy seas—his mediæval hospitality to friends and to ship-wrecked sailors, strange dreams and premonitions, pages torn from minute-books and burnt letters . . . these were the things that seemed to gather around Pugin.

*

Trappes-Lomax's biography is, as far as it goes, admirable; Ferrey's, written in 1861, is in some respects more informative. It is also amusing, since its author, while trying to do justice to a romantic rebel, also believed in toadying to lords. The net result is a most curious mixture of the facetious and the pompous, and a rather distorted picture both of Pugin and his age. One must not, I suppose, put Pugin too high; nevertheless, he was a great forerunner and we still have no complete, illustrated account of his work—though one, it is rumoured, is simmering gently in the neighbourhood of Grosvenor Square and may soon come to the boil.

HAIL HEAL

And while on the subject of anniversaries, ASTRAGAL sends his warmest congratulations to Sir Ambrose Heal upon his eighteenth birthday, celebrated last week.

ASTRAGAL

POINTS FROM THIS ISSUE

The Editors

YET HIGHER SALARIES NEEDED

THE letter from Alexander Furness, printed overleaf, says that we gave a "cold douche" in our editorial of August 14 to the suggestion by the Guest Editors that higher salaries be paid to the proposed key position of group leader in public architectural offices.

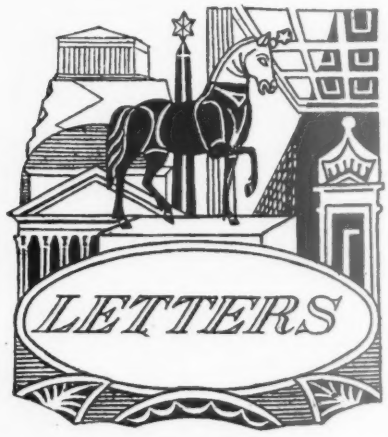
Let us say here and now that no "cold douche" was intended. But we do agree that our phrases were liable to mislead. "A salary . . . between £1,500 and £2,000 a year," we stated, ". . . is not chicken feed. It is, perhaps the minimum remuneration which an intelligent architect in charge of a small design team of from, say, four to ten architects and draughtsmen should receive in return for the heavy responsibilities he undertakes." While drawing attention to the word *minimum* in the above sentence we admit to using a phrase which suggests that we overestimate the value of such a range of salary. This range is probably nearly double the salary range which assistant architects receive today for doing work of comparable scope to that of a group leader. But it is certainly markedly less than they would receive if they were private architects handling the same amount of building work. Building costs are approximately three times what they were before the war, and private practice architects are paid fees which are directly related on a percentage basis to the cost of building. So private architects receive fees which have gone up roughly in accordance with the rise in the cost of building, and, incidentally, with the rise in the cost of living.

But the salaries of architects in public offices cannot be said to have increased in anything like this proportion. It cannot be denied that there have been increases, but, as Mr. Furness points out, the £1,000-a-year man in 1939 should now be getting £3,000 a year in order to live on a standard similar to that which was his in 1939. It is possible that not all private architects are managing to treble their pre-war incomes. It is quite certain that public architects are not doing so.

We know of a public architect's office which, having taken into account all possible expenses and overheads, still saved their authority a sum of £40,000 in the past year which would otherwise have had to have been paid out as architects' fees to private architects' offices. While admitting that there should be some saving, we know that in this instance it has been achieved by the local authority under-paying their staff. Pleased with their economy, the local authority is thus encouraged to give less work to private architects—which does not please the latter. The local authorities' low rates of pay

mean that the work is frequently given instead to relatively inexperienced and inefficient staff whose designs therefore please nobody. In answer to this situation we can only repeat again our Guest Editor's plea : " Too many local authorities try to get cheap architects and succeed in getting bad architecture expensively."

We want to see the position of group leader in the public office recognized as a responsible position for a full-blooded *architect* in every sense of the professional title—and paid accordingly. The minimum salary, as we said, should be between £1,500 and £2,000 a year, and if the cost of living goes on rising, then the salary should rise accordingly.



Alexander Furness, L.R.I.B.A.

" Mendicant "

Depreciation of Salaries . . . .

SIR,—May I thank your Guest Editors for their excellent article " Organizing the Large Office," which appeared in your issue of August 14, 1952, and also express sincere appreciation of their views about that professional Cinderella " The Group Leader."

How refreshing it is to find, at long last, that so distinguished a group as your Guest Editors have the vision and wisdom to give the group leader his rightful due, and also have the courage to assess the group leader's worth in terms of a salary in keeping with present-day conditions, living costs, and money values—namely, a salary of between £1,500 and £2,000 a year.

But, equally, I deplore the cold douche given in your accompanying editorial leader which says that a salary of £1,500 to £2,000 a year " even at the present cost of living, is not chicken feed."

It is high time that, in the assessment of salaries, their true money-value should not be confused with their face-value. With the pound now worth no more than one-third of its 1939 value, a present-day salary of £2,000 is worth no more than a 1939 salary of about £650; and in 1939 a group leader was paid around £650 a year. So what is so fantastic about your Guest Editors' suggestion? Surely the thing that is fantastic is the way in which people will persist in assessing present-day salaries from the viewpoint of 1939 values.

In 1939, one talked of the £1,000-a-year-man in bated breath. The trouble is that people still do this, without stopping to think that the man who was earning £1,000 a year in 1939 should now be getting no less than £3,000 a year, in order to keep on an even keel and live on a standard similar to that which was his in 1939.

ALEXANDER FURNESS.

London.

. . . . and Depreciation of Assistant Architects

SIR,—Judging by the fifty-odd lines of rather ill-mannered diatribe which appeared last week beneath that cute irrelevancy of a title " More Pie in the Sky," ASTRAGAL was annoyed with me—which was unfortunately as far as we got. I made several forthright assertions in my recent letter, and if ASTRAGAL or anyone else disagrees with me, then let us have some cogent argument, not this garrulous twaddle.

It is no use trying to persuade ourselves that employers in this profession are any better (or any worse) than in others. I have yet in 30 years of experience to meet the man who will pay more for assistance than the market price—and who can blame him? On the other hand, the assistant has a perfect right to drive the best bargain he can, and who is to blame *him* (who, that is, except ASTRAGAL).

Employers would have a legitimate grouse if the supply of competent assistance was so meagre that offices were short of staff; —why then should not assistants grouse when the supply becomes so copious as to affect *their* standards of remuneration and prospects of employment.

Furthermore, it is not only a question of assistants being unemployed, but of the sort of jobs which are available. The qualified assistant architect has now almost supplanted the architectural draughtsman of pre-war days, but at the latter's rate of pay in many cases. The architectural draughtsman was a hack (often a very accomplished hack) and as such was extremely useful.

There is a greater need for such men now than pre-war, but the race has been supplanted by a horde of qualified assistant architects—a very large proportion of whom will be doing hack work at hack salaries for years to come, simply because there has never been anything approaching a sufficient number of what may be termed the " executive " type of job. Is it or is it not the " executive " job for which the qualified man has trained? Perhaps I should make it clear that it is jobs of the " group-leader " grade, not less, which I have in mind. I maintain that when positions like these are so few in comparison with the number ostensibly trained—and, worse still, training—for them, then we already have an acute state of overcrowding in the profession.

MENDICANT.

London.

This week the JOURNAL'S *Guest Editors confine themselves to answering briefly anonymous criticisms which they have received of their last article (see the* JOURNAL *for August 14, pages 187-189), which gave their suggestions on organizing the large office.*

The Guest Editors

ANSWERING CRITICISM

WE have received criticism arising from proposals which we made in our last article in the JOURNAL of August 14. In this article, we elaborated on what is, in our opinion, the best way of organizing a large office, and on what we consider the task of the chief architect. We also described what his relationship should be to those key members of the large office, the group leaders.

We would like here to stress that these suggestions have been put forward in all modesty as the best which we can devise, and we are hoping that readers will contribute to their improvement by yet more constructive criticism.

OUR MAIN THEME

Before describing and commenting on the criticism which we have received it would be as well to run through some of the points we made in our last article. We sketched out an architectural set-up, in which, irrespective of the size of office, the group leader and his group is a constantly recurring factor. The smallest kind of office has a group leader who would also be the chief architect and responsible for policy. This office may consist of a total of six or seven men, or even less. In the larger office of twenty, thirty or forty architects, there would be three, four, or more groups, each with a group leader who would be responsible for them, and also in close collaboration with the policy-making chief architect. No one comes between the chief architect and the group leader except in the really large office, when the numbers of group leaders and of architects in the groups have grown so large that they cannot be known individually by the chief architect. Then another rank of architect is introduced which we called the " divisional " architect, who shares responsibility for policy with the chief architect. He is, then, to the group leader, virtually the chief architect. Incidentally, he also, where possible, together with the chief, takes a part in group working.

The vital figure in this set-up, as we have said repeatedly before, is the group leader

who is responsible to the client committee, who is in consultation with the chief in appointing and dismissing staff, and who is also concerned with all the problems and duties connected with the design and construction of buildings and of the running of an architectural group. These responsibilities, we maintain, should be recognized by a salary of from £1,500 to £2,000 a year.

A DEMAND FOR REALISM

Now one of the criticisms we have received pointed out that if " the salary of the group leader was, as we suggested, to be 75 per cent. of the chief's, then how are the salaries of the divisional architects and the deputy fitted in with the remaining 25 per cent.? "Surely," writes the critic, " the deputy will receive as much salary as his chief, or as near as makes no matter. It is generally accepted at present that a deputy's salary should be two-thirds of a chief's salary, though few have yet got this proportion." He continues: " an award of anything like 75 per cent. for deputies is extremely unlikely, in any unforeseeable future. What then of the group leader? I am all in favour of propaganda for higher salaries, but we must be realistic."

" We must be realistic " is perhaps only another way of saying that it is not worth trying to do anything, and it is tempting to add, " we must be realistic and continue the existing irrational and unsatisfactory state of affairs." But the main point of this criticism is perhaps the result of our not making sufficiently clear that in our conception of the office, the divisional architect *is* the chief of the group leader, and we would expect a proportionately larger division of salary between group leader and chief in those larger offices in which divisional architects occupy intermediate roles.

POSTS ABOVE GROUP LEADER

We do not think it would be appropriate to go into more detail about proportionate salary levels in larger offices (they would, of course, vary quite a lot according to type and size), but, as a general guide, we think that in large offices, where there are divisional architects and/or deputies as well as group leaders, the group leaders' salaries should never be less than 50 per cent. of the chief's. In a large office this would mean a minimum salary level of £2,000 for the group leaders and £4,000 for the chief architect. In a medium office with no intermediate position it would mean a minimum salary level of £1,500 for the group leaders and £2,000 for the chief.

But the salary of chief architects is not our primary concern. Obviously it should be more than the group leader's, but whether it is ten, twenty, or thirty per cent. higher depends on the particular responsibilities and circumstances of the office. Our major concern is to establish the position of the group leader as an architect in the real meaning of the word—carrying real responsibilities and a pay packet which corresponds to them. Posts, in fact, which would attract first-rate men to fill them.

It can be appreciated that this position of group leader becomes the key post which is a common denominator, so to speak, between all offices. The group leader will have as much responsibility, and pay, in a small office as in a large one. This will tend to break down the differences between small and large offices and make the interchange of staff, which is so healthy and desirable, more simple to perform.

We have also received a criticism that in many offices, particularly the larger ones, there are grades of architects between the divisional architect and the group leaders which could cause further complications. Now it is this multiplicity of grades of architects to which we so strongly object, and which we feel certain is so bad for architecture. We do not want architects intervening between group leaders and their chief because that presupposes the pyramidal type of organization which we are trying to get rid of. A pyramid organization is devised for safety-first running. It takes responsibility away from the group leader and leaves him as a hack. In addition, and this is more apposite today, this type of organization leads to a fearful waste of manpower.

OTHER PROFESSIONS

The critic goes on " Your method of proportioning salaries appears to assume that all offices are composed only of architects, whereas many employ other professions in varying proportions up to the offices composed of architects, engineers, quantity surveyors and land surveyors and valuers on equal status. In the latter the chief architect's responsibilities are divided. It would be impossible to persuade our masters that a group leader in one branch of such a department should have a salary at least 75 per cent. of his chief's, even if the chief could persuade himself that it should be so."

Even so, we maintain that what is sauce for the goose is sauce for the gander, and that all these other professions should be organized on the same group basis, with each head of another professional section treated in much the same way as another group leader. And, indeed, the private architectural firms operating on behalf of the local authority form, in their way, groups with similar status and relationships to the chief as the other groups within the authority.

Yet another criticism is that our proposals could apply only to a small office composed only of up to twenty-five to thirty architects and where there is no one between the group leader and the chief. " I consider," writes an irate critic, " that your article will have two effects. It will unduly disturb assistant architects and it will give opportunities for ridicule by persons who are unsympathetic to salary increases."

AN APPEAL TO BUSINESS SENSE

Now the prime intention of our thesis was to suggest a means of running a large office and if after reading our article our critic (who must be anonymous) feels that it is applicable only to the small office, we can only ask him to read through the earlier articles more carefully. As regards ridicule by the unsympathetic, we feel that a logical case (and we hope ours is) when put forward with the support of the considerable evidence which we have, is never ridiculous, in spite of people's sympathies.

It is high time that " our masters " thought about this problem more from the point of view of the economics of the end product, and less from that of comparing the incomparable, *e.g.*, the duties and remuneration of a sanitary inspector, county surveyor's assistants, etc., with those of architects. We think that our proposed increases in salary is a very modest improvement on the present position. Whether or not it raises false hopes among assistants in public offices depends on the conscience of the profession and the business sense of local and central authorities.

NEWS

MOHLG

Housing Progress

The number of permanent houses completed in Great Britain during July was 19,985, compared with 15,965 in July last year.

In the first seven months of this year, 130,949 permanent houses were completed compared with 108,051 in the same period in 1951.

N. IRELAND

Housing Subsidies

The Minister of Health and Local Government for N. Ireland is anxious that we should give current figures for housing subsidies in Northern Ireland, as these are not the same as the figures given in the JOURNAL for July 31.

An Order dated March 21, 1952, makes provisions for the payment of subsidies on all houses built by private persons and completed after March 1, 1952, as follows:—*For letting:* 3-apt., £300; 4-apt., £550; 5-apt., £600. *For owner-occupation:* 3-apt., £215; 4-apt., £325; 5-apt., £360.

All houses must comply with regulations governing standards of accommodation and construction and have an area of not more than 1,050 sq. ft.

POLAND

BBC Talk on Warsaw

Graeme Shankland, one of the architects and town planners who visited Warsaw recently (see AJ for September 4) will be talking about the redevelopment of the Polish capital on the BBC's Third Programme next week. This talk, which is one of the " Prospect " series, will be given on September 17 at 7.40 p.m.

HOUSING

at LANSBURY, POPLAR, LONDON, E.14

for the London County Council

designed by BRIDGWATER and SHEPHEARD

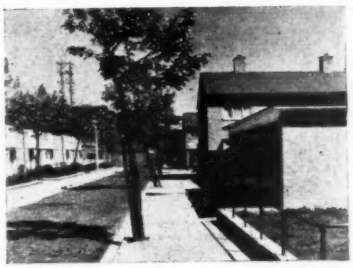
assistant architect, GORDON MICHELL

Typical pair of linked houses.

The 27 houses and 30 flats, in three-storey blocks, which have been recently completed for the LCC and are illustrated here, are on housing site No. 3 in development neighbourhood No. 9. The layout, in the form of a master plan for the development, was issued by the town planning department of the Council, while the detailed planning was done by the private architects. Owing to the high density required, the planning on the site is somewhat compact.

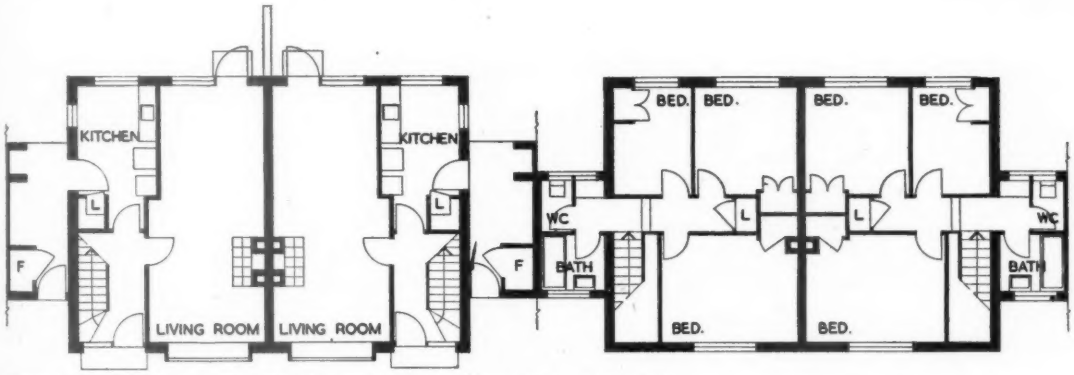
Linked houses and terrace houses facing Pekin Close.

SITE.—The terrace houses either face Canton Street or a small paved close to the south of Pekin Street. The linked houses face Pekin Street, which is a cul-de-sac. Pekin Close is paved with artificial stone and has lines of granite setts and old cast iron bollards from the city. Front gardens to linked houses have privet hedges, dwarf walls and iron gates, while the terrace houses have open gardens with grass and flower beds.

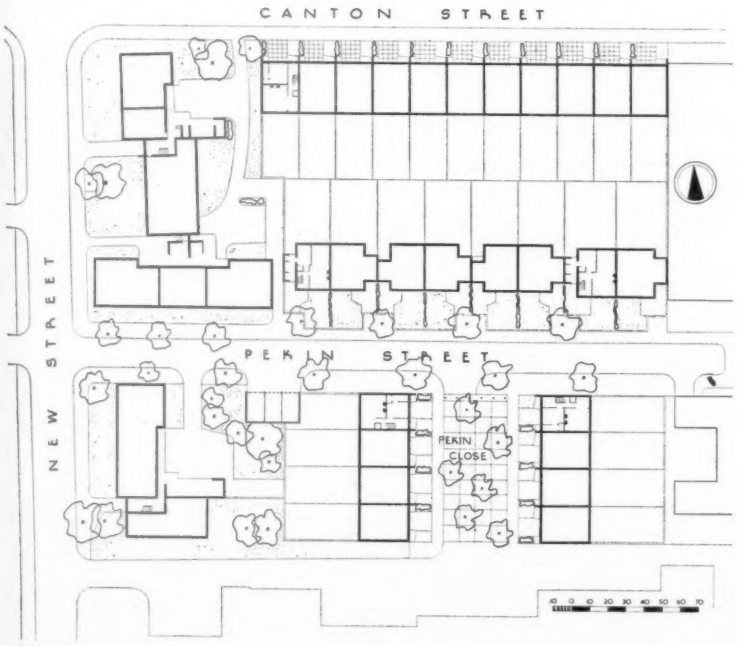


Above, looking east along Pekin Street, with garages on the right. Below, terrace houses facing Pekin Close.

Ground and first floor plans of typical terrace houses [Scale : $\frac{1}{16}$" = 1' 0"]

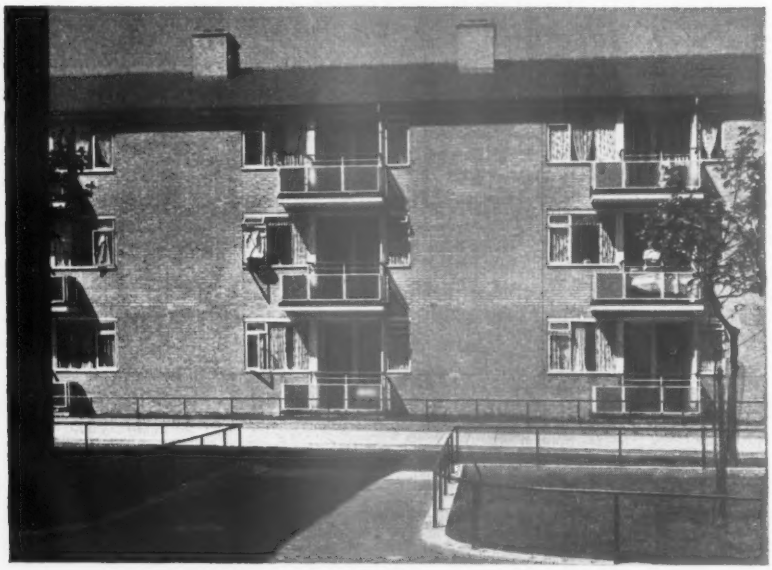


Ground and first floor plans of three-bedroom linked houses [Scale : $\frac{1}{16}$" = 1' 0"]

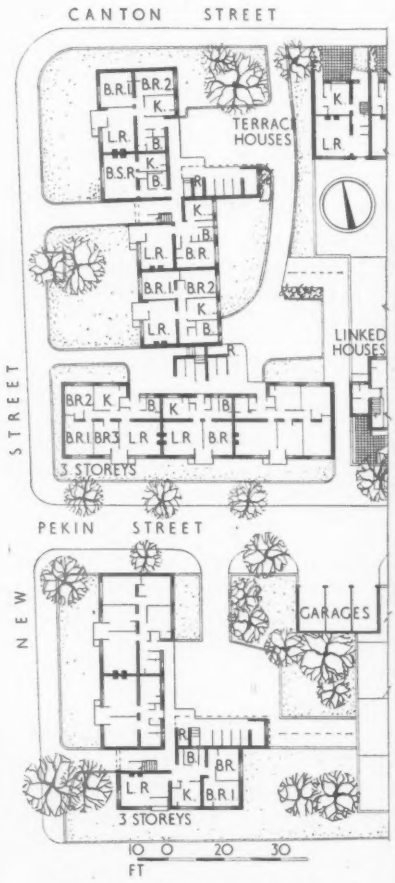


Site plan

PLAN.—The terrace houses, each of which has a floor area of 967 sq. ft., are planned with all access, including that to kitchens, coal spaces and dustbins, on the road side and within a 20-ft. frontage. This leaves the garden side free from obstructions and avoids alleys and tunnels. In the case of the linked houses, this is a reversion to a type of plan common in Victorian days, in which all the main rooms are in one semi-detached block with bathrooms and w.c's forming a lower link between the blocks. The ground floor of this link is occupied by storage space for coal, dustbins, bicycles, tools, etc. There are two types of linked house, 3-bedroom with 930 sq. ft. and 4-bedroom with 1,083 sq. ft. The flats are planned to reduce internal circulation to a minimum and with short access balconies so that no more than one flat has to be passed.



Above, looking south-east at the flats facing New Street. Left, south elevation of flats facing Pekin Street.



Site plan. Three-storey blocks of flats

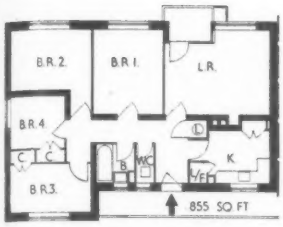
HOUSING

at LANSBURY LONDON, E. 14

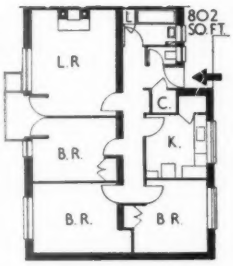
designed by BRIDGWATER and SHEPHEARD

CONSTRUCTION.—All houses have 11-in. cavity brick external walls, concrete ground floors, timber first floors and a timber roof of a modified TDA truss type. Flats have 13½-in. brick walls, RC floors and roofs with modified TDA trusses.

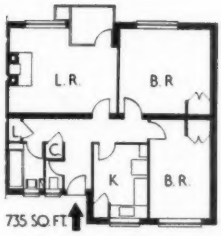
FINISHES.—These are similar, externally and internally, for flats and houses. Facing bricks are deep buff flints, roofs are covered with asbestos cement slates and windows are timber of the heavier EJMA section. Although elevational treatment was left to the architects, the town planning authorities



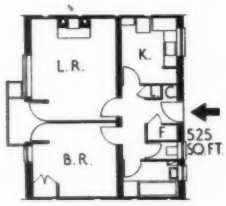
Plan of 4-bedroom flat
[Scale : $\frac{1}{24}$" = 1'0"]



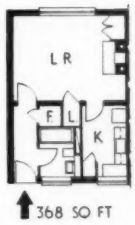
Plan of 3-bedroom flat



Plan of 2-bedroom flat



Plan of 1-bedroom flat



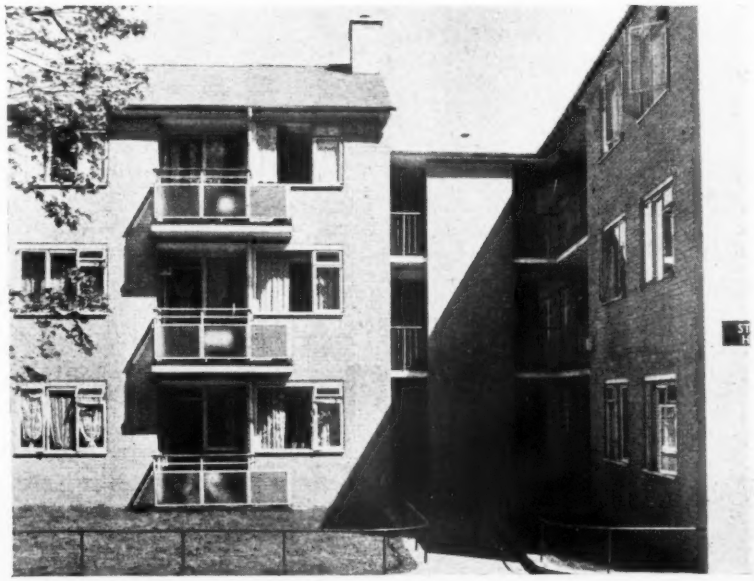
Plan of 1-room flat

expressed a preference for a London stock, or similar brick, and a 25-deg. pitched roof, slated. Living rooms have precast concrete window surrounds and windows, gutters and all trim are painted white. Front entrance doors are painted various colours and have panels of Georgian wired cast glass. Ground floors are finished with thermoplastic tiles and first floors to houses are boarded on joists at 16-in. centres. Ceilings are of plasterboard, plastered and distempered.

SERVICES.—Hot water in all houses and flats is by a back boiler to the living room fire, and services are laid to a point in the kitchen where tenants can instal their own gas water heater or refrigerator if they wish. Cooking is by gas or electricity, to the tenants' choice. All plumbing to drains is on the one-pipe system, contained inside buildings in accessible ducts.

The general contractors were A. E. Symes, Ltd. For sub-contractors, see page 330.

Below, two views of the flats, seen from New Street. The upper photograph shows a staircase link between two of the blocks.

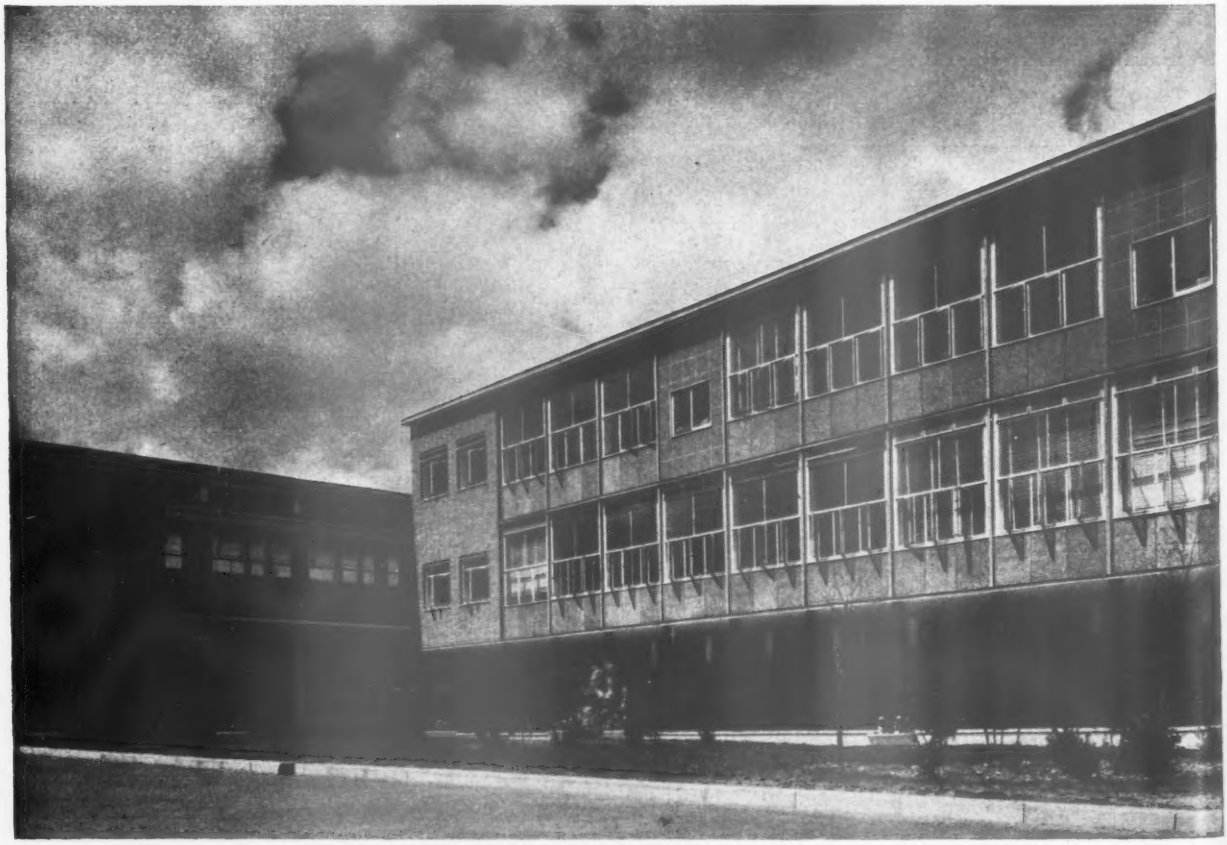


PRIMARY SCHOOL

in ST. LEONARD STREET, LONDON, E.3
for the London County Council
designed by CECIL C. HANDISYDE
in association with HAMMETT and NORTON
consulting engineer, FELIX J. SAMUELY

The Old Palace School, in Poplar, which stands on the site of a previous school destroyed by bombing, is designed for 240 juniors and 160 infants. The site is very restricted and covers only one acre. The LCC, however, intends to provide additional playcourts in the future, and this will allow an entrance from a quiet road instead of from a busy thoroughfare, as at present. Since this school is one of the first in which prestressed concrete has been used, a discussion was held between the architects, the engineer and the editors of the JOURNAL, and this is reported on pages 318 to 320.

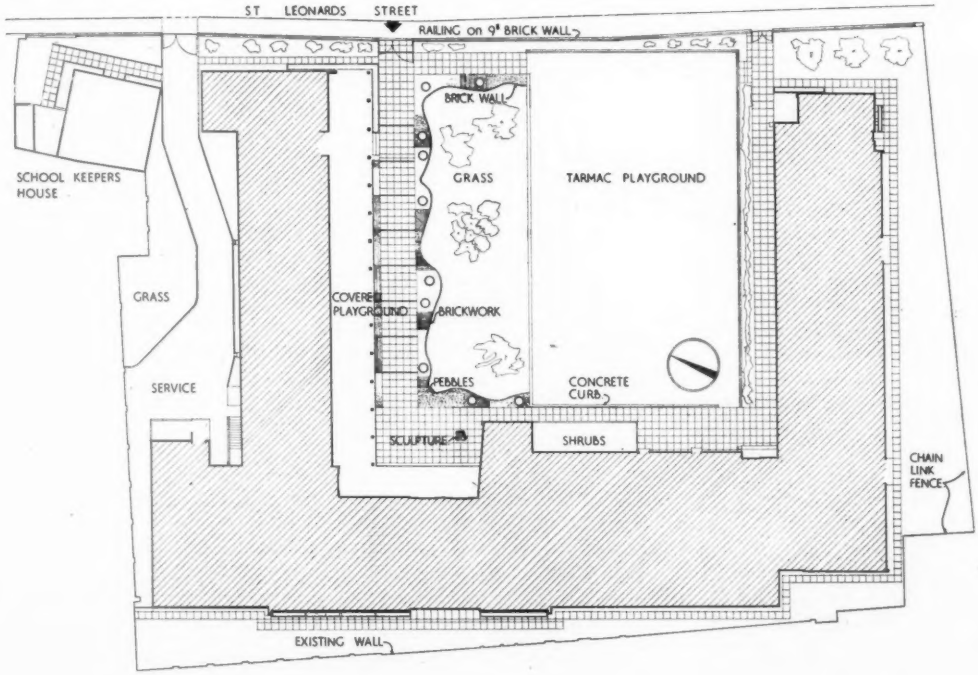
South facade of the classroom block from the playground.



PLAN.—The school was commenced in the Council's 1949 programme and provision was made for drying rooms, projection room and stage, which would have to be omitted under the latest standards. The school consists of a three-storey junior block with cloakrooms on the ground floor and classrooms and staffrooms on the other two floors. The two-storey administrative block contains dining, assembly and exhibition halls, headmistress's room and kitchen. The infants' classrooms are in a single-storey block bordering the south edge of the site.

CONSTRUCTION.—As it was known that at least one building, apart from the old school, had been on the site, there were likely to be too many obstructions for piling to be economical, and so mass concrete piers under each column were taken down to the gravel, which lies at a level of 10 ft. to 16 ft. below ground floor level. There are RC ground beams to carry walls and partitions, and the ground floor slab, which is of waterproof concrete on hard-core, is completely divorced from the foundations. The form of construction used here for the first time for a school has proved very suitable and is being used for several more. The building consists of one-storey, two-storey and three-storey blocks, the roof span being 23 ft. for classrooms and 31 ft. for the administrative block. In each block the columns are of *in situ* RC and the main beams consist of a number of prestressed concrete soffits and precast trough-shaped units between, with *in situ* concrete on top to bond all the precast units into one monolithic structure. As the prestressed units form the lower part of the beam only, it is possible to use the same units for different spans by varying the depth of beam. Over the dining and

Above, the east facade of the administrative wing, from the courtyard. On the left is the single-storey infants' wing.



Site plan.

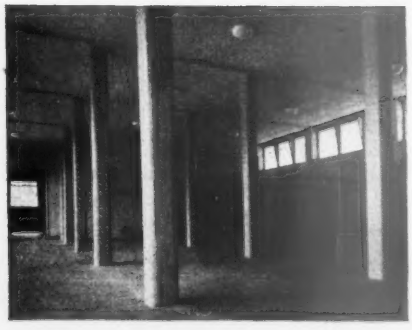
PRIMARY SCHOOL

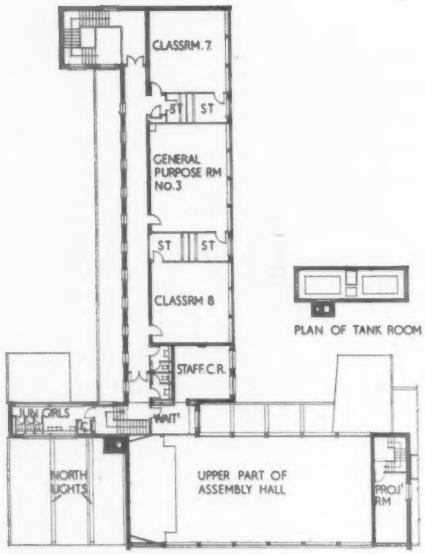
in POPLAR, LONDON, E.3

designed by CECIL C. HANDISYDE

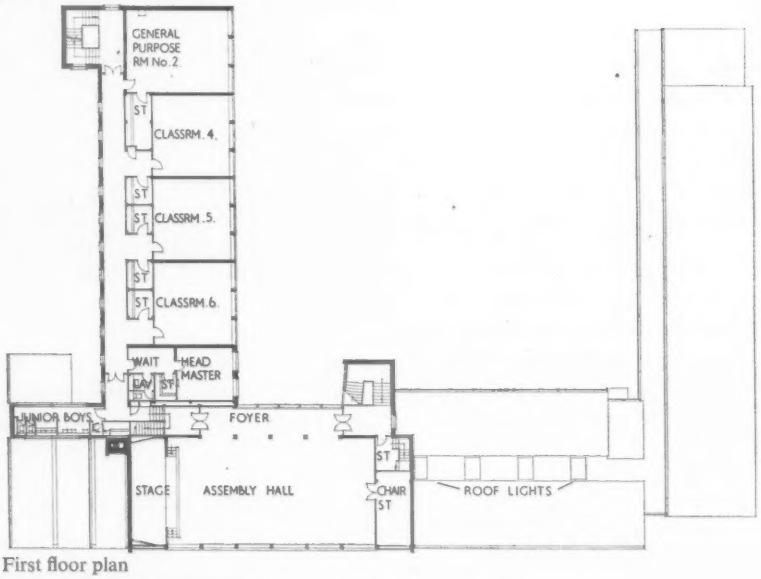
in association with HAMMETT and NORTON

Below, three views of a typical junior classroom. Bottom, cloakroom on the ground floor of the three-storey block.

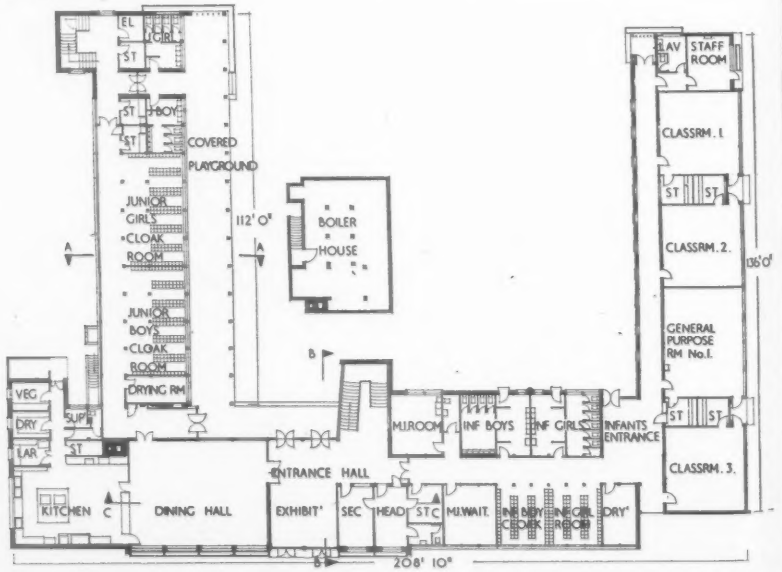




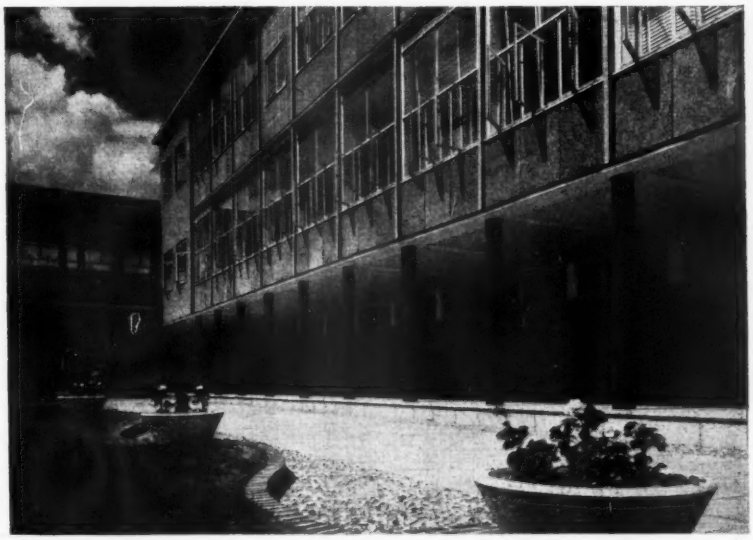
Second floor plan



First floor plan

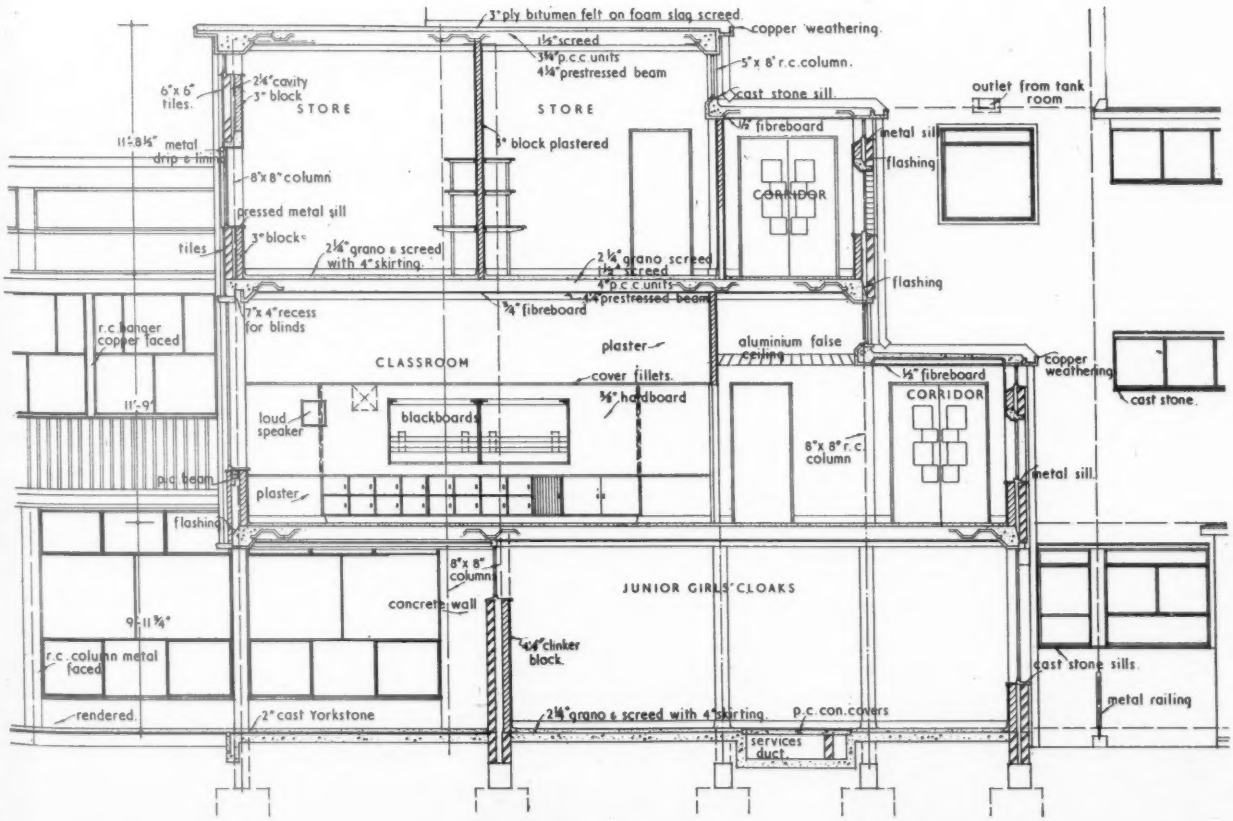


Ground floor and basement plans [Scale : $\frac{1}{16}$" = 1' 0"]

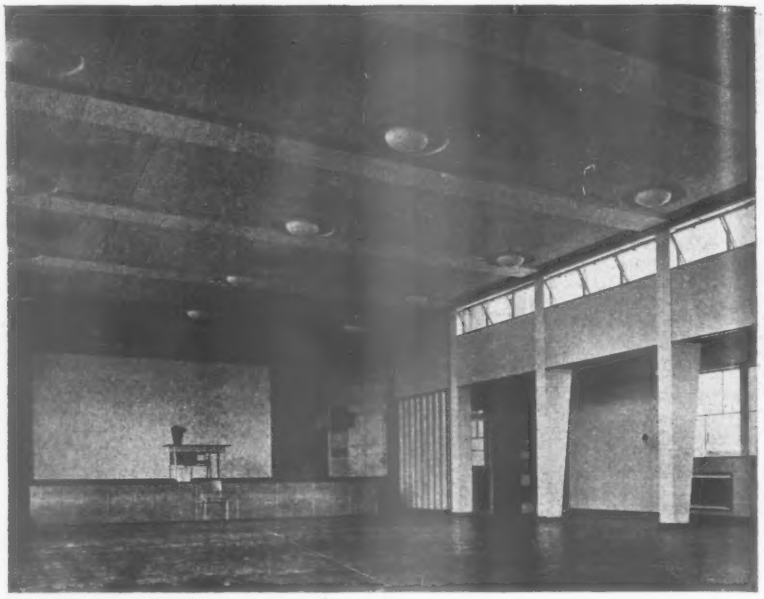


Above, left, looking towards the main entrance from the covered playground. Above, the three-storey classroom block and covered playground.

assembly halls double beams are used, by putting two prestressed units side by side. The upper surfaces of these units are castellated in order to ensure adequate bond between the precast and the *in situ* concrete. Where necessary, ordinary steel was cast into the prestressed units at the ends to take shear. This was required, for instance, where the units were on columns narrower than the beams. The building's foundation work was carried out under a separate contract, during which time it was possible to prepare final ½-in. and most detail drawings, from which bills of quantities could be taken for the main contract. The use of precast concrete presented three main problems: (*a*) the



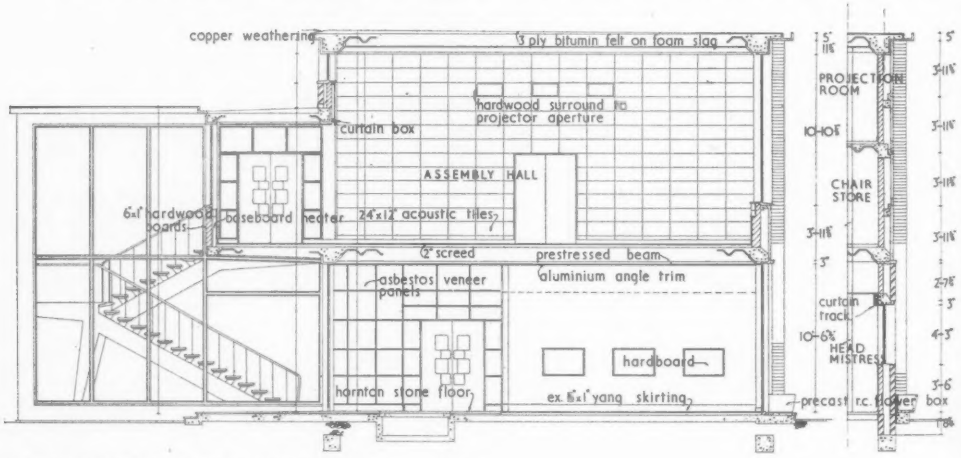
Section A-A through three-storey classroom block [Scale : ⅛" = 1'0"]



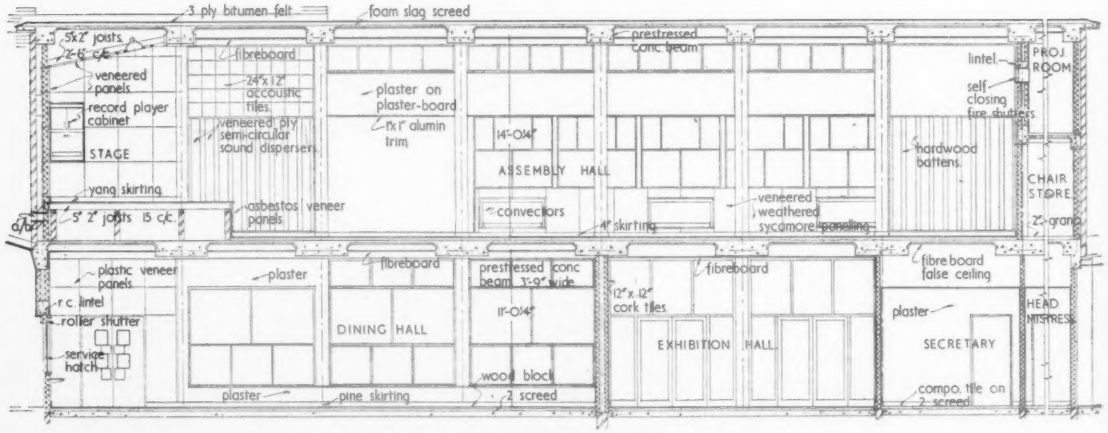
Above, west facade of the assembly hall and dining room block. Above, right, assembly hall on the first floor, looking towards the stage.

combination of precast and *in situ* concrete ; (*b*) the provision of holes in the structure for services ; (*c*) organising the delivery of the precast and prestressed units. In this instance, it was decided to have cast *in situ* columns in order to avoid complicated connections between beams and columns.

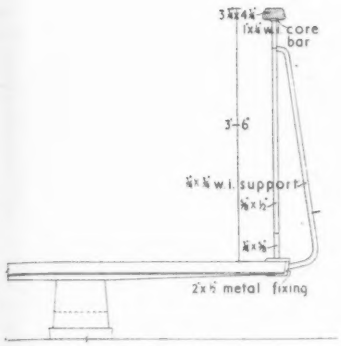
The general contractor first cast the columns up to first floor level, then used a mast to erect the precast beams and floor units of the first floor. The mast was then removed and the *in situ* columns cast up to second floor. The mast was placed on the first floor, which was temporarily strutted, for the next



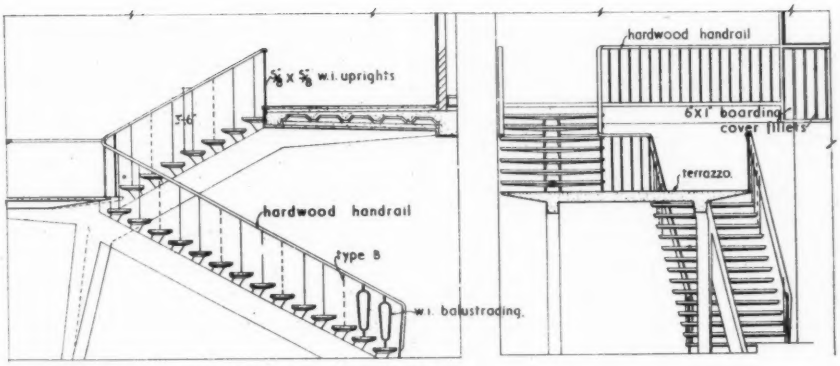
Section B-B and part section through Headmistress's room



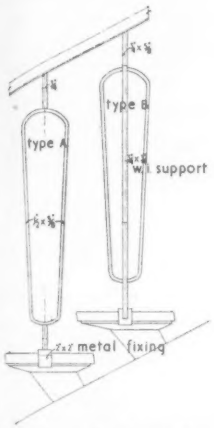
Section C-C through assembly hall [Scale : $\frac{1}{16}$" = 1' 0"]



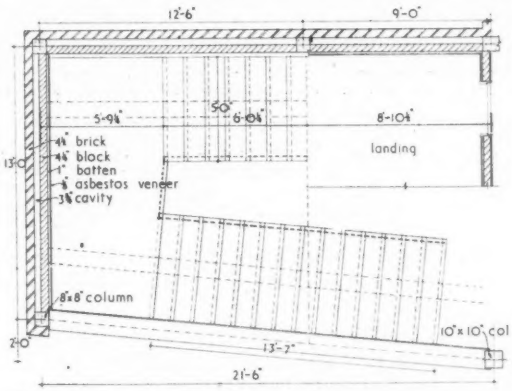
Section of balustrade



Longitudinal and cross-sections through main staircase



Elevation of balustrading
[Scale : ½" = 1' 0"]



Plan of staircase hall [Scale : ⅛" = 1' 0"]

PRIMARY SCHOOL

in POPLAR, LONDON, E.3
designed by C. C. HANDISYDE
in association with HAMMETT
and NORTON

Below, the main staircase, which has precast concrete treads, cantilevered from a concrete spine beam.

stage, and the process was repeated for the third floor. For the two-storey section of the building a mobile crane was used to erect the large prestressed beams of the first floor, which span 31 ft.

FINISHES.—The facing bricks are deep red, with light pointing, except to the covered playground, where buff concrete bricks are used. The concrete wall slabs are rough faced with grey and black granite chippings to contrast in texture with the polished slate aggregate concrete vertical ribs between classroom windows. Coloured tiles are used on the external walls to stores. Floors are Hornton stone in the main entrance and exhibition hall, composition tiles in classrooms and staff rooms, Missanda wood blocks in the dining hall, granolithic in cloakrooms and lavatories. The entrance hall and main staircase walls are panelled with sycamore veneered hardboard.

SERVICES.—The whole building, except the lavatories, is heated by means of low temperature floor panel coils of ½-in. galvanised iron pipes at 9-in. centres set in the floor screed and convectors under the windows in single-storey and second floor classrooms.

The general contractors were Gee, Walker & Slater, Ltd. For sub-contractors, see page 330.

The subject of the discussion reported below, the first to appear in the JOURNAL *for some time, has been chosen because of its exceptional technical interest. The use of precast and prestressed concrete units and the combination of precast and* in situ *concrete presents a number of problems and this school is one of the first on which this type of construction has been used.*

PRIMARY SCHOOL IN POPLAR, LONDON, E.3

A Discussion between the Architects, the Structural Engineer and the Specialist Editors of the JOURNAL, *whose subject can be identified by referring to page 301.*

TWELVE : Could you explain in more detail the system of floor construction ?

ENGINEER : Certainly. There are beams across the building on the grid lines, *i.e.*, every eight or ten feet, with slabs spanning between the beams. The slabs consist of precast concrete trough units with *in situ* concrete on top making a monolithic structure. The beams consist of prestressed units forming the tension zone of the beams—we call them soffits. The remainder of the beam is *in situ* concrete but, as there are no gaps between the prestressed units and the troughs, no shuttering is required for the *in situ* concrete.

The beams are relatively shallow—12 in.—because they are prestressed. There is a false ceiling under the troughs and all the services are run in the space between. The level of this ceiling is slightly higher than the soffit of the beams. In order to arrange services in the length of the building, holes were left in the cross beams.

SIXTEEN : Since you used a suspended ceiling, would it not have been better to make it a little lower, so that it cleared the prestressed soffits ? It would not then have been necessary to pass conduit etc. through the beams.

ENGINEER : Services do not go through the precast soffits. Cardboard tubes were placed between the top of the soffits and the bottom of the troughs before the *in situ* concrete was poured.

THIRTEEN : What were the advantages of using the precast prestressed soffits ?

ENGINEER : The main advantage was the saving in timber and steel.

THIRTEEN : What was the amount of high-tensile steel used per square foot of floor area compared with the amount of mild steel which would have been required for normal RC construction ?

ENGINEER : The comparison is difficult because steel quantities for RC beams depend on the depth of the beam. If I assume that in ordinary reinforced concrete a 24 in. deep beam would have been required and compare this with the 12 in. prestressed beam, I would say that the saving was between 60% and 70%. If the prestressed beam is compared with a RC beam of the same depth, the saving would be much larger.

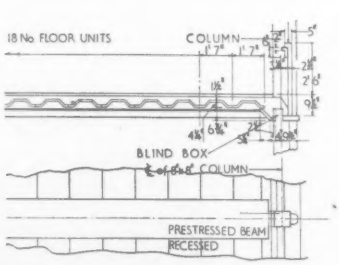
TWELVE : It is clear you have saved steel ; have you also saved money by this method of construction ?

ENGINEER : Calculations show that the most economical RC beam costs roughly the same as the most economical prestressed beam of the type used at this school. But the most economical RC beam would have to be, as I said before, twice as deep as a prestressed beam. For beams of the same depth, ordinary RC is considerably more expensive than prestressed concrete. It is, however, extremely difficult to compare costs ; we get variations in tenders for prestressed work as much as 300 per cent. Incidentally, the cost of the prestressed beams was only about £1,000 (the total cost of the structure was about £25,000) ; so you can see the cost of the beams was very small compared with the total cost of the building—roughly £100,000.

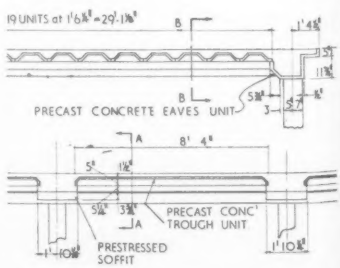
THIRTEEN : Would it not have reduced the cost of the prestressed soffits if you had had one grid instead of two.

ENGINEER : No ; with concrete it is only necessary to use a mould 50 or 100 times to bring the price of the units down to a reasonable figure. When you use it more often than that there is no appreciable reduction in cost. With steel units it is different ; you must have orders of thousands before production of a special design becomes economical. Incidentally, similar soffits are to be used for three other schools and other types of building as well. They will be made in the same moulds.

Above, left, during the discussion, reading l. to r. : Cecil C. Handisyde, R. D. Hammett, two of the architects, and Felix J. Samuely, the consulting engineer.



Standard floor construction, section and plan looking up



Section A-A (top) and B-B (bottom)
[Scale: ⅛" = 1'0"]

THIRTEEN : Did you consider post-tensioning; would it have been cheaper ?

ENGINEER : Post-tensioning can still only be used under licence; you have to pay 22s. per cone, although they only cost about 4s. to make.

TWELVE : Were many of the precast beams broken?

ARCHITECT : None were broken in transit, but one was dropped and broken whilst being placed in position on the site.

ELEVEN : How were the beams handled ?

ENGINEER : Two lifting eyes were cast in each beam at points so arranged that when the beams were lifted the negative and positive moments were balanced so that no over-stressing occurred; for the one- and two-storey parts of the building a mobile crane was used. For the three-storey part, the beams were lifted on to the second floor with the crane and then raised into position with a pole and lifting tackle, which was erected on the second floor.

THIRTEEN : Since you were using prestressed concrete, would it not have been an advantage to prestress the columns too, and thereby reduce their sectional area ?

ENGINEER : During the last few years, I have often compared the cost of precast and *in situ* columns. The variation has been such that I have been unable to make up my mind which is really cheaper. There are a number of hidden costs which cannot easily be analysed: for instance, if *in situ* columns are used the connections between beams and columns become much simpler, but the general organization of the job is considerably more complicated because the *in situ* work and the erection of the precast units has to be synchronised.

Columns, unless they are very eccentrically loaded, or have to transmit considerable bending moments, cannot reasonably be prestressed. Columns for a multi-storey building, if properly designed, rarely have to withstand large bending moments and prestressing is, therefore, of no advantage.

FIFTEEN : In designing the precast floor units were you able to leave holes in standard positions for the passage of services, or was it necessary to have a lot of cutting and chasing done ?

ARCHITECT : The question of providing holes for services in the precast concrete involved a considerable amount of time and thought. In the case of heating and plumbing very few additional holes had to be made. The electrical services presented the greatest difficulty, as electrical engineers rarely work out in advance the exact run of their conduit. However, most of the electrical runs were planned in advance, and a number of extra holes were provided when the units were cast in order to allow for various alternative arrangements. Even so, quite a lot of cutting had to be done on the site.

TWELVE : Would it not have simplified matters if the suspended ceiling had been below the level of the projecting beams, as I suggested before ?

ARCHITECT : Not really; the main problem is with the vertical runs, not the horizontal ones. Lowering the ceiling would not have helped to solve this problem. I think the solution would be to standardize a large number of holes in the units.

ENGINEER : I agree, but if and when sub-contractors get used to the idea of planning their runs in advance, and then sticking to them, this would not be necessary.

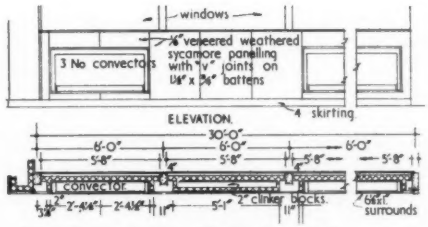
ELEVEN : What degree of fire resistance does this form of floor construction provide ?

ENGINEER : It is satisfactory from the LCC's point of view for one hour's fire resistance, which is what is prescribed for this type of school. When tested, even after two hours no collapse occurred, although the permanent deflections were rather serious, and would involve considerable replacements. The LCC wanted to play safe, and a layer of brick aggregate was incorporated in the soffit of the beams to serve as insulation and keep the heat away from the prestressing wires.

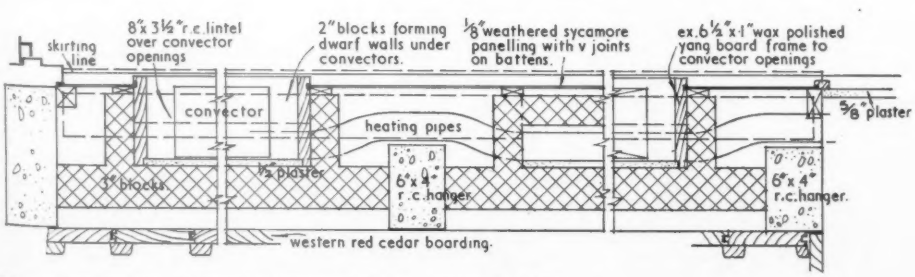
ELEVEN : You used three different types of external facing: concrete slabs with a granite chip face, brickwork, and tiling; why did you use different materials in what appeared to be identical situations ?

ARCHITECT : We did it because we liked it ! We wanted to have some contrast in colour and texture in the external finishes but there was some logic about it too. We used the concrete facing slabs in the teaching areas as a simple infilling under the large windows between the columns, and the tiling was used in places where it could be easily cleaned. Atmospheric pollution in this district is very bad but, so long as they can be cleaned, the brightly coloured tiles will remain so and the coarse textured finishes of the concrete slabs has been found elsewhere to retain a good deal of life, even in this dirty atmosphere.

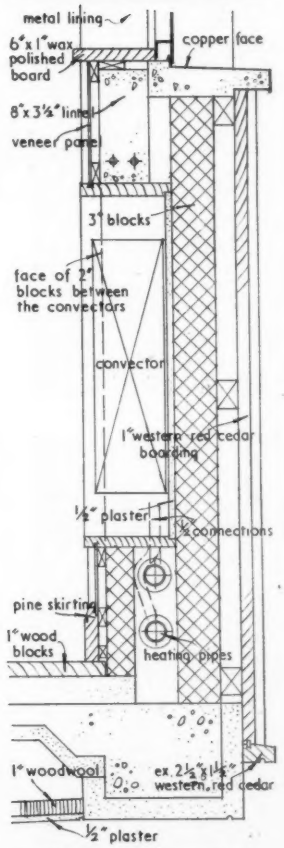
Below, the assembly hall on the first floor. On the left, below the windows, are the convectors.



Elevation and plan [Scale : ⅜" = 1' 0"]



Plan of convectors and spandrel under windows [Scale : 1" = 1' 0"]



Section through convector

TWELVE : What is the reason for the vertical joints in the external brick wall over each column, *i.e.*, at 8-ft. centres ?

ARCHITECT : These are concrete bricks and, as the total run is 80 ft., it was essential to divide the brickwork into bays to avoid the danger of thermal movement damaging the bricks. The bays need not have been as small as 8 ft., but it was convenient to arrange the joints over the centre of each column.

ELEVEN : I noticed some fine cracks on the face of many of the columns ; did you take special precautions to dissociate the plaster from the columns ?

ARCHITECT : Yes ; the clinker blocks were set half an inch proud of the column face, and expanded metal was carried across the column and fixed to the blocks. We do not really know why the cracks have occurred. They may be due to the blocks having moved when dampened by the application of the plaster, or the expanded metal may have sagged slightly.

ELEVEN : It might be a good idea if we shuttered out columns more carefully and thus avoided the need to plaster them altogether, as is the trend in the USA.

FIFTEEN : Does the cross-lighting obtained through the reeded glass in the rear walls of the classrooms and borrowed from the clerestory windows in the stores really raise the level of light in the classrooms ?

ARCHITECT : The clerestory lighting provides over a third of the daylight in the second floor classrooms and single-storey classrooms and over one quarter in the first floor classrooms.

EIGHT : What proportion of the total floor area is occupied by classrooms and assembly hall, compared with that taken up by cloakrooms, circulation space, etc. ?

ARCHITECT : The figures are : classrooms, 43 per cent., circulation, 24 per cent., administration, stores, cloakrooms, lavatories and M.I. room, 20 per cent., kitchen and dining room, 12 per cent.

FIFTEEN : Your impressive collection of lighting fittings, although well selected, indicates that the amount spent on them is high considering the very small number of school hours during which they will be used. Do you not agree ?

ARCHITECT : The amount allocated for lighting fittings for schools does seem disproportionately high, but it should be remembered that schools are used in the evenings for other purposes.

ELEVEN : How were you able to achieve such a high quality and variety of wall and floor finishes ?

ARCHITECT : This school was designed, of course, before the 1950 cuts. Our main intentions in choosing finishes were that they should be hard-wearing and easy to keep clean and fresh, as children will be moving about the areas you mention frequently and in large numbers—coming into them directly from outside, often with wet, gritty shoes. The cork wall in the exhibition hall is for " pin up " purposes ; the veneered panelling is hard wearing and easy to clean, and the stone floor and terrazzo staircase will stand up to all the wear it will receive. The assembly hall finishes were designed largely with acoustical considerations in mind. The timber diffusers at the stage end were inserted to overcome any short echo in the front rows.

FIFTEEN : Why did you use them at the back of the hall as well ?

ARCHITECT : That breaks up the long echos !

FIFTEEN : I should have thought that absorbant at the back of the hall was sufficient. The diffusers may improve the quality but such niceties of acoustics are hardly necessary in a school hall.

ELEVEN : What is the purpose of the lines of blocks and quarter inch gaskets of cork set in the herring-bone pattern wood block floors ?

ARCHITECT : The cork insets are intended to take up any movement in the flooring caused by the under-floor heating. During Christmas holidays the heating will be turned off and the atmosphere will, doubtless, get very humid.

FIFTEEN : Why have you convectors in the larger rooms, in addition to the under-floor heating ?

ARCHITECT : In the assembly hall and similar rooms with high ceilings it would not be possible to raise the temperature sufficiently with floor heating alone, without raising the temperature of the floor above the recommended maximum of 75 deg. The convectors (they run off the same hot-water system) make it possible to raise the temperature fairly rapidly when necessary.

FIFTEEN : Are the convectors controlled by a separate thermostatic control ?

ARCHITECT : No, but they have individual manual controls.

TWELVE : How long did it take to build the school?

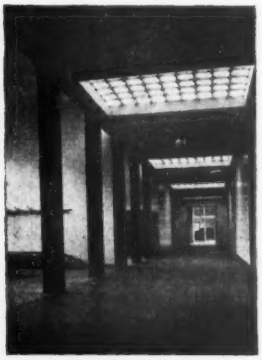
ARCHITECT : Excluding the foundations, which were let on a separate contract (there were a lot of difficulties with the foundations owing to the existence on the site of foundations of three earlier buildings), the superstructure took 16 months to complete.

EIGHT : Can you give us an idea of the total cost of the school ?

ARCHITECT : There were two separate contracts, the figures were £10,715 for the foundations and £91,537 for the superstructure and site works.

EIGHT : As a final word on this extremely interesting school, it was most encouraging to see the sculpture by Bainbridge Copnall outside the main entrance. We hope to see more sculptors and artists employed on LCC schools in future.

Below, ground floor corridor leading from the main entrance to the infants' wing. Bottom, left, sculpture by E. Bainbridge Copnall, outside the main entrance. Bottom right, south-east corner of assembly hall, showing convector heaters on the left and timber sound diffusers on the right.



TECHNICAL SECTION

This week, we devote the whole of the Technical Section to the subject of Building in Sweden. Economic conditions in Sweden are similar in many ways to those here. The fact that, in spite of full employment and materials' shortages, productivity is as high in Sweden now as it was before the war shows that there is much that we can learn by studying Swedish building methods and organization.

The first article, a general one commencing below, is by R. H. James, until recently chief advisor on payments-by-results schemes at the MOW and now a private consultant on building efficiency, who visited Sweden first in 1949 as a member of an official team representing the Building Industry Working Party and again in 1951. The second article, describing the use of a portal crane for constructing blocks of flats, is by Jan F. Reymert, a young Norwegian civil engineer who last year visited Gt. Britain, Sweden and Holland, under a Norwegian government scholarship, in order to study building methods in these countries. The third article, on productivity in the Swedish building industry, is by Dr. Mejse Jacobsson, civil engineering consultant and director of research at the Swedish government research establishment at Stockholm.

On pages 326, 327 and 329 are illustrated and briefly described a number of items of Swedish building equipment, the use of which is helping to maintain productivity in the industry. Although most of this equipment is used in Sweden for building blocks of flats, most of it is equally suitable for the semi-detached and terrace houses we seem to prefer in this country.

This week's special feature

17 CONSTRUCTION : GENERAL
building organization and efficiency in Sweden

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

Discussing building costs in Sweden and describing measures being taken there to keep them down, R. H. James pays special attention to the Swedish incentives scheme. Operatives there can earn as much as 100 per cent. bonus. This is surely responsible for the "sense of urgency" which Mr. James says impressed him when he visited Swedish building sites in 1949 and 1951.

It is always difficult to compare the level of productivity in one country with that in another, but there are indications that building production per man in Swedish cities is much higher than it is in English cities. Although in 1949 the hourly earnings in wages and bonus were about double those in this country, the cost of labour for a number of specific operations for which direct comparisons have been made reveals no significant difference between the two countries. Moreover, in housing construction, the cost of labour is less than 30 per cent. of the total building cost, compared with *at least* 30 per cent. in this country, where wages and bonus earnings are far lower than in Sweden.

It is true that standards and techniques of construction in the two countries are different. (For example, the tendency in Sweden is to rush up the walls in brick or light concrete slabs very quickly and roughly, and to cover them up with a fairly thick plaster finish. This technique is most suitable when the emphasis is on speed.) Nevertheless, there seems to be little doubt that one of the main reasons for

the speed of working is the fact that about half the men's earnings in Sweden are based on piece-work.

THE SWEDISH INCENTIVE SCHEME

The present incentive scheme has been developing in the Swedish building industry since 1900. (Statistics of earnings are available for as far back as 1928.) The scheme operates in the following manner: Schedules of piece-work rates for most of the operations in the building industry have been agreed jointly by the employers' and operatives' federations for each trade. Rates have been agreed for between 7,000 and 10,000 items. A group of workers on a particular site agree with the employer the amount of work which is to be the bonusing unit, *e.g.*, all the brickwork in a block of apartments, or (in some cases) for the whole of a contract. (It is a condition of such agreements that the workers concerned may not leave their employment during the execution of the work.) On the completion of the work, or at the end of three months (whichever is the less), the total quantities of work completed during the period are measured up and agreed by official measurers, some paid by the employers', some by the operatives' federations. The amount of time which the men have spent on work not covered by piece-work rates is also agreed. The value of the work completed is worked out from the official schedules and the cost of executing the work on the basis of plain-time rates is deducted. The balance is distributed to the men responsible for the work in any manner which may have been agreed on a particular site; it is usually in proportion to the hours worked by each man. During the course of the work the men are paid the basic wage rates, which are looked upon as an advance on piece-work earnings. The basic wage rates are also fixed by collective agreements between the employers' and the operatives' unions for each trade or craft.

Fig. 1. 4-storey flats on the outskirts of Stockholm. The ground floor is utilized for stores, laundries, etc.

The scheme seems to be very easy to operate. The operations covered by piece-work schedules appear to be unnecessarily detailed but, no doubt, the official measurers have evolved many simplifications for measuring normal work. One of the objections to using fixed piece-work rates is that where improved methods of working or new equipment are introduced it is difficult to agree on the necessary adjustments. Nevertheless, schedules of piece-work prices in Sweden are periodically reviewed and, if necessary, amplified and adjusted, and there is no doubt that, in practice, adjustments are made on individual sites on an *ad hoc* basis.

From the operatives' point of view the scheme is both simple and watertight. They or their official representative are in a position to check from the schedules of piece-work rates the total money due to them and the hours which have been debited to the work. One possible objection to the scheme is that the men's bonus is paid at infrequent intervals in the form of a lump sum which often amounts to as much as, or more than, the wages received during the execution of the work. The prospect of a substantial sum of money every quarter does, however, appear to act as a strong incentive, and there is no doubt that the principle of basing the main portion of the men's earnings on piece-work bonus has achieved the effect of making them work much faster than is usual in Britain.

It might be thought that the fixing of piece-work rates per unit of work would tend to freeze labour costs at a particular level, but tradesmen are engaged on piece-work for only about 80 per cent. of their time, and the contractor can reduce labour costs by organizing the job efficiently and cutting down attendant labour and in-

Above, Fig. 2, 8-storey and, left, Fig. 3, 9-storey flats on the outskirts of Stockholm. Those on the left were built before the war; those above, since the war.

directly productive work to a minimum. (The proportion of unskilled labour which is covered by the incentive scheme is only about 25 per cent.)

COSTS

In 1951 building costs rose steeply owing to an increase of about 20 per cent. in piece-work rates and 33 per cent. in wage rates, and to a much greater increase in materials costs. Skilled workers in Stockholm now receive a basic rate of about 3 kroner per hour (about 4s. 6d.), on top of which they earn about the same amount in bonus—a total of about 9s. per hour. Men whose work is not covered by incentive schemes, representing between 20 per cent. and 30 per cent. of the labour force, earn the plain time rate plus a rate in lieu of bonus of about 6d. per hour, making a total of about 5s. per hour.

As a result of the fact that labour costs are estimated to represent less than 30 per cent. of total building costs, the 1951 increase in the labour bill represented an increase in total building costs of about 10 per cent. Material costs, however, rose much more steeply; for example, the cost of much timber was doubled, and other materials affected include steel, cement and bricks. It is claimed, however, that the resulting rise in building costs in 1951 of roughly 20 per cent. brought them up to only about double pre-war costs, which compares favourably with costs in other countries.

The average cost of finished dwellings, however, tends to be higher than in this country, because in Sweden 60 per cent. of the dwellings now being built are flats, whereas in Great Britain the majority of dwellings are semi-detached houses. Most of the flats are in three- or four-storey blocks, built in brick or aerated concrete; the houses, usually housing one or two families, are mostly in rural areas, and are generally timber. Concrete floors are usually used, although the structures are rarely framed, unless they are more than four storeys high.

A high degree of thermal insulation is required in Sweden, owing to the severe winter conditions. Special materials are used in the walls and double glazing is employed nearly everywhere. Foundations are costly, because it is often necessary, particularly in the northern districts, to carry them down below the frost level. Basements are, therefore, common and are usually used to house central heating plant. Many housing schemes incorporate, within the blocks of flats themselves, and generally at ground floor level, shops, laundries, schools and other communal amenities.

Flats are smaller than in this country, although their equipment is of a high standard. However, in spite of their efforts to reduce building costs, the Swedish government is increasing the size of flats. In 1949 the average floor area of a three-bedroom flat was about 800 sq. ft.; today it is nearer 1,000 sq. ft.

MEANS OF REDUCING BUILDING COSTS

The Swedish building industry is trying to halt the rise in building costs. The Royal Housing Board is investigating the reasons for the variation in costs between different parts of the country, in order to find out why building in some districts is cheaper than in others. The co-operative house-building societies, which build a substantial proportion of all the flats built in Sweden, are collaborating with the government research departments and the employers' federations in promoting discussions, lectures and articles for contractors, with a view to improving site organization. The operatives' federations have also set up a large statistical and research department of their own. Planning ahead by architects is considered very important, and there is an increasing tendency for architects to ask contractors to base their tenders on the cost of materials which they can most easily and cheaply obtain.

Fig. 4, owner-built prefabricated house in South Stockholm.

One of the main aims of the industry is to reduce the amount of timber used, not only in buildings themselves, but also during their construction. (One of the most striking features of building sites in Sweden is the mass of timber used for scaffolding and temporary hoists and staircases.

Light-weight concrete slabs are being used increasingly in place of bricks. They are, in Sweden, cheap and more easily laid than bricks. The mechanization of building sites has also increased rapidly during the last few years. Mechanical hoists are used for almost all flat construction, and electric concrete vibrators are in common use. (It is interesting to note that architects in Sweden often ask their contractors to provide concrete of a given strength, instead of specifying the mix. This means that economies can be effected by the contractor if he employs skilled supervisors.) The supply of cement in bulk, new types of mechanical wheelbarrow for carrying bricks or concrete (see photographs on page 326), and the use of cranes for traditional and non-traditional construction, are other means by which the Swedish building industry hopes to reduce the cost of building.

Above, Fig. 5, free patterns on brickwork produced by use of two colours of mortar. Right, Fig. 6, concrete bas relief of lighthouse on gable wall of flats in road of this name in Stockholm. All these flats were built by the trade unions' co-operative organization.

Because the design of homes in Sweden, mostly in three- or four-storey blocks of flats with staircase access, is somewhat standardized, the application of highly mechanized systems of construction, such as the one described in this article, is relatively simple. It is interesting to note that this system of construction can completely eliminate both plastering and brickwork.

THE USE OF A PORTAL CRANE FOR FLAT BUILDING IN SWEDEN

By Jan F. Reymert

Of Sweden's annual output of between 45 and 50,000 dwellings, approximately 30,000 are in blocks of flats. Of these, 70-80 per cent. are four-storey buildings of fairly uniform design (Fig. 1), usually with staircase access (each staircase serving two flats on each floor). There is generally a basement containing stores and laundries. These buildings vary in depth between 30 and 36 ft.; their length depends on the number of staircase units—usually between two and six. Most of the flats have two bedrooms and a total floor area of between 700 and 720 sq. ft.

Reinforced concrete frames are not often used in Sweden, except for buildings more than six storeys high. Until recently small blocks of flats were generally constructed with load-bearing brick walls. Now lightweight concrete is more often used. Floors are of reinforced concrete, generally 6 or 6½ in. thick, in order to provide good sound insulation.

This somewhat standardized pattern of housing development has facilitated efforts to rationalize and mechanize construction in order to reduce the cost of building and, no less important, to eliminate much of the more arduous and unpleasant labour involved in building. New methods of construction and new plant are continually being introduced on to Swedish building sites. Of these, the portal (or trestle) crane probably represents the most revolutionary development that has taken place so far. The crane shown in Fig. 2 was, when this article was written (Spring 1952), the only one of its type in use in Sweden. This crane was built in 1948 at a cost of £6,000, including the cost of much experimental work.

THE CRANE

The span between its legs is 47 ft.; lifting height, from top of rail to highest position of hook, 40 ft.; maximum lifting capacity, 10 ton at a speed of 1½ in./sec., 5 ton at a speed of 4 in./sec.; speed along rails with full load, 1½ ft./sec. A load of 10 ton is equivalent to a concrete floor element of 320 sq. ft. (6½ in. thickness). The total weight of the crane is 26 ton. All its movements are powered by a diesel-electric engine.

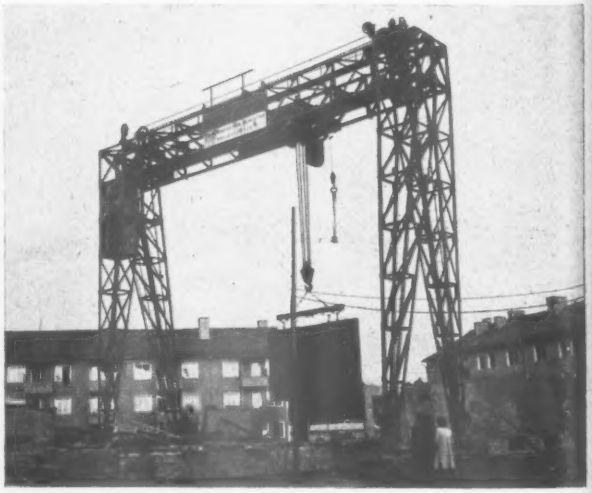
CONSTRUCTIONAL SYSTEMS

Since the crane was first used in 1948 the constructional system has been greatly developed. On the first block of flats for which the crane was used, all load-bearing walls and light partitions were constructed conventionally of foamed slag blocks. The crane was used to handle scaffolding, to transport small loads of blocks and mortar to the bricklayers, and to hoist precast concrete staircases (complete with mosaic finish) and balconies into position.

Concrete floor units were cast on the site at ground level, one on top of the other, up to to 10 in number. Various separating mediums, including steel, paper and plastic, were tried in order to produce a smooth ceiling which would not need plastering. The crane was then used to lift these units into position.

The construction of basements was completely traditional. The crane was not erected until the basement was finished, as it was considered dangerous to lay the rails near the edge of the excavation.

The second stage in the use of the crane was reached in 1950. At this stage concrete wall units, storey height, up to 20 ft. long and 4 in. thick, were cast on the ground in the same way as the floor slabs. When hoisted into position, they act as the inner skin of a cavity wall, and the wall is completed by the addition of mineral wool insulation and a 5-in. outer skin of brickwork. Like the floor units, these wall units do not require plastering. Space on sites for casting the units is limited, so an electro-hardening process was tried. This gave 7-day strength after only 2 days, but proved expensive. A chemical process has, therefore, been adopted. This gives between 55 and 60 per cent. of the 7-day strength after 2 days, and also increases elasticity and reduces shrinkage. The units are lifted into position 1½ days after casting in



Top, Fig. 1, 4-storey block of flats built with the aid of a portal crane, during the first stage of the development of its use. Right, Fig. 2, the portal crane on a housing site; a concrete wall unit being lowered into position. Note the R.S.J. used to distribute the stresses during lifting.

WORKING DETAIL **FURNITURE AND FITTINGS: 25**

SETTEE: EXHIBITION AT OFFICES IN LONDON, S.W.1

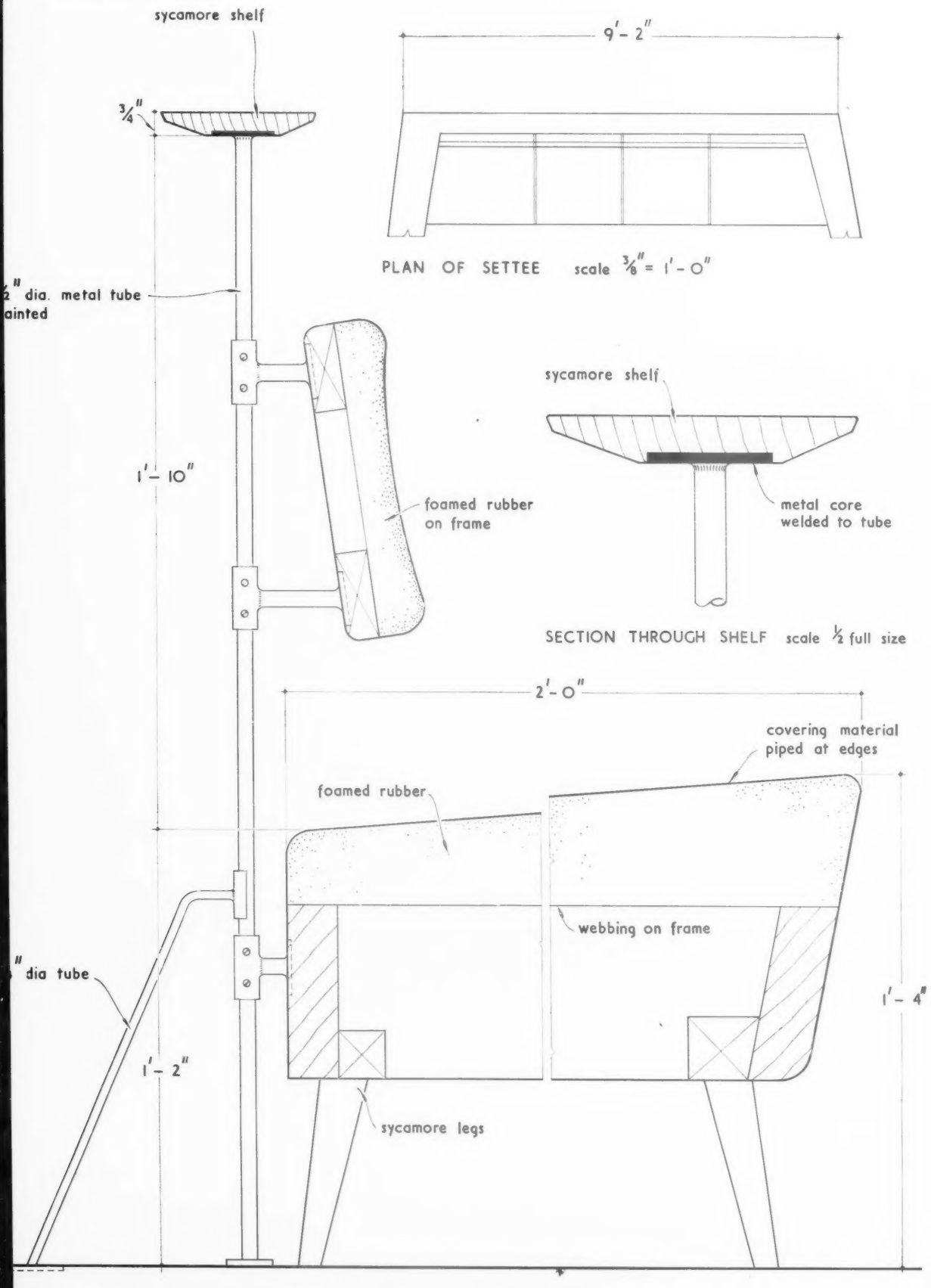
F. M. Gross, designer

The settee has a foamed rubber seat and back rest, the upholstery for the former being pale blue and the latter lemon yellow.

WORKING DETAIL **FURNITURE AND FITTINGS: 25**

SETTEE: EXHIBITION AT OFFICES IN LONDON, S.W.1

F M. Gross, designer



ERTICAL SECTION THROUGH SETTEE AND SHELVING. scale ¼ full size

WORKING DETAIL

TYPISTS' DESKS: CLUB AT RUISLIP

Gordon Symondson, designer

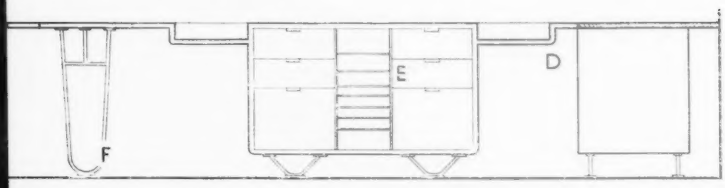
The built-in fitting is made in iroko and is supported by tubular metal legs.

WORKING DETAIL

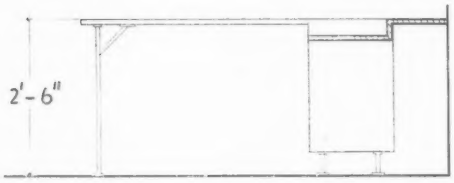
FURNITURE AND FITTINGS: 26

TYPISTS' DESKS: CLUB AT RUISLIP

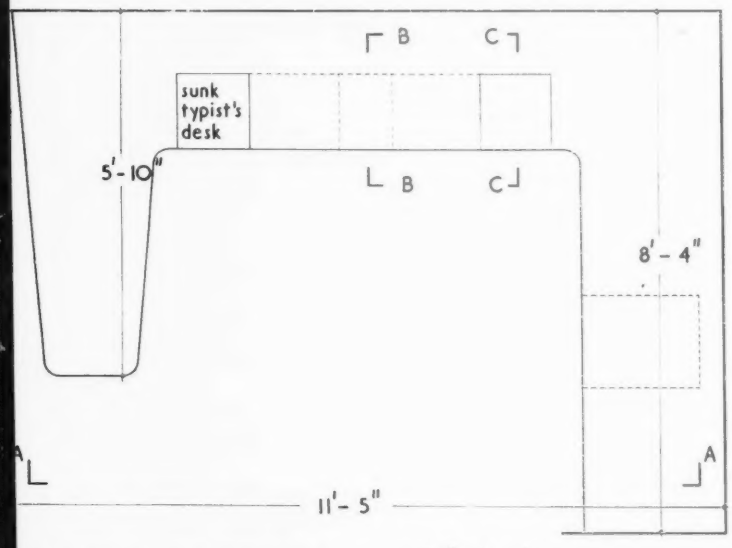
Gordon Symondson, designer



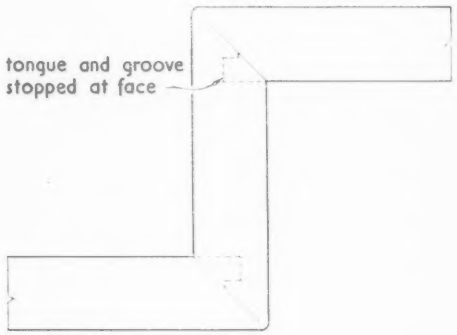
SECTION A - A.



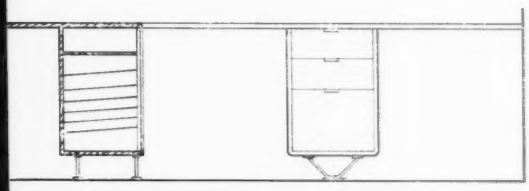
SECTION C - C.



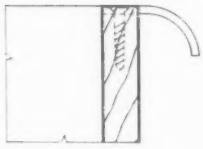
PLAN OF OFFICE FITMENTS. scale 3/8" = 1'-0"



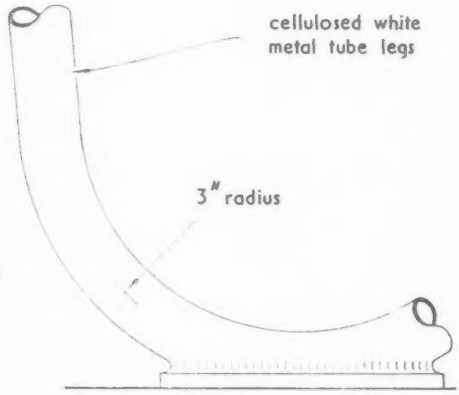
DETAIL OF JOINTS AT D.



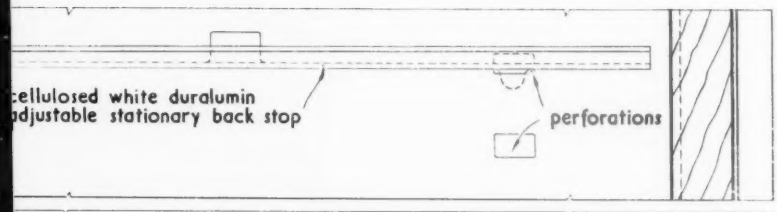
SECTION B - B.

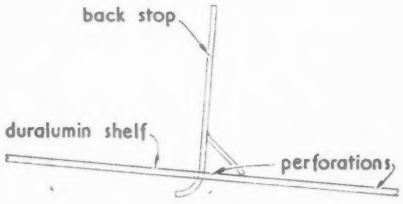


DETAIL OF STEEL DRAWER PULL

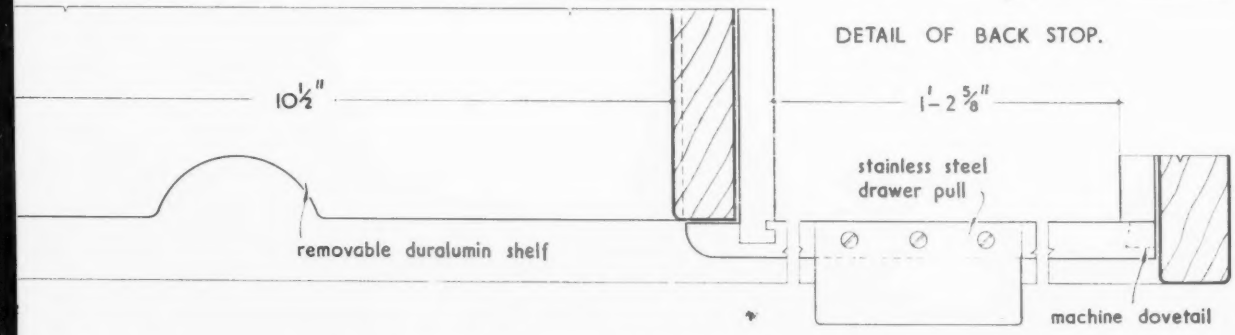


DETAIL OF LEG FOOT AT F.





DETAIL OF BACK STOP.



PART PLAN OF DRAWER AND SHELVES AT E. scale ½ full size

Architect: C. H. Thurston Esq., L.R.I.B.A., F.R.I.C.S.
County Architect, 25 Thorpe Road, Norwich.
Contractors: Kerridge (Cambridge), Ltd.,
Sturton Street, Cambridge.

KING'S LYNN POLICE STATION

Designed on clean precise lines the new King's Lynn Police Station will preserve law and order and will itself be preserved by the first class material used in its construction. 'PUDLO' Brand Waterproofer was selected for use in all the sub-floors to this building, the pipe ducts and the pit of the police car repair workshop. The lintels and door canopies and the door steps were all waterproofed with 'PUDLO'.

The composition of the 4" thickness of concrete sub-floors in which 'PUDLO' Brand Waterproofer was used was as follows:—4 parts of clean non-porous aggregate to pass $\frac{3}{8}$" mesh. 2 parts coarse, washed sand. 1 part of Portland Cement. 2 lbs. 'PUDLO' Brand Powder to each 100 lbs. cement. Only $1\frac{1}{8}$ lb. of 'PUDLO' brand Waterproofer was used per yard super for this thickness.

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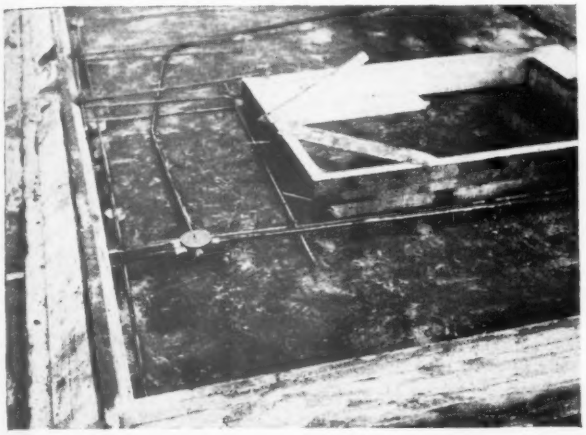
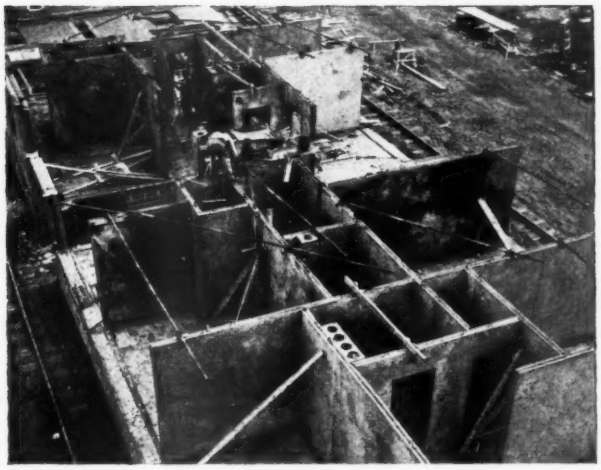
Five stages in the erection of a block of flats with a portal crane. Below, Fig. 3, formwork for inner wall element; electrical conduit and door frame placed in position. Below centre, Fig. 4, pouring lightweight concrete into formwork from skip hanging from crane. Bottom, Fig. 5, large inner wall element (10 ft. by 20 ft.) being mechanically levelled and vibrated.





Top right, Fig. 6, wall element being raised from formwork; note V-shape groove around edge of element for grout. Above, Fig. 7, block of flats with nearly all wall elements in position prior to reinforcement being placed and grout being poured into grooves between the elements.

summer, 3 days after casting in winter. They are lightly reinforced to resist shrinkage.

At the third stage—the stage of development now reached—external concrete wall units are 14 in. thick. Special insulating materials and the outer skin of brickwork are, thereby, eliminated. A special lightweight concrete is used, with an aggregate of sand and a fine stone powder—a by-product of a mine in the district where the crane is at present being used. Chemicals are added which expand the concrete to nearly double its volume, so that shuttering is only half filled. The weight of the concrete is roughly 60 lb./cu. ft. It could be made even lighter, but the units have, of course, to resist stresses during lifting. Cylindrical fibre tubes in the formwork reduce the weight of non-load-bearing partitions.

The concrete can be reinforced where necessary, such as over window and door openings. It has a thin consistency, and formwork (Fig. 3) must, therefore, be tight. The top surface is levelled off after the expansion due to the chemicals has taken place (Fig. 5).

All four edges of the wall units are grooved (Fig. 6). The grooves form vertical ducts and horizontal channels, into which reinforcement can be dropped and a cement grout poured to provide continuity in the structure.

As stated above, no internal plaster is required, but a special plastic primer mixed with extremely fine sand is used. This dries in 24 hours. Externally, a moisture-resisting cement paint is applied.

ADVANTAGES AND LIMITATIONS

Scaffolding and formwork requirements are vastly reduced and timber requirements reduced by about 30 per cent. The reduction in man-hours is also considerable—from the normal figure of 4·9 man-hours/cu. m. to about 3·5.

This system is economical only if the rate of work on the site can be successfully adjusted to the capacity of the crane. The crane must not be idle; nor must men have to wait for it.

In describing the changes that have taken place in Swedish building productivity, Dr. Jacobsson differentiates clearly between output per man per hour—a measure of human effort—and output per per man per year—a measure of organizational efficiency. Use of the word "productivity" alone often leads to serious confusion.

PRODUCTIVITY IN THE SWEDISH BUILDING INDUSTRY

By Dr. Mejse Jacobsson

Since the war, a considerable rise has taken place in the standard of living in Sweden, due mainly to increased productivity. Between 1947 and 1950 a particularly large increase occurred in total output. Although the number of persons employed rose by only 1 per cent. per annum, the average annual increase in production per man amounted to 4·5 per cent. This is a high figure compared with the average annual increase recorded during the 1930's, which amounted to only 2·5 per cent.

From 1945 to 1950 productivity rose by 26 per cent. This is equivalent to a rise of 100 per cent. in 16 years, and indicates that a revolutionary change has occurred in the productive process.

PRODUCTIVITY IN HOUSING

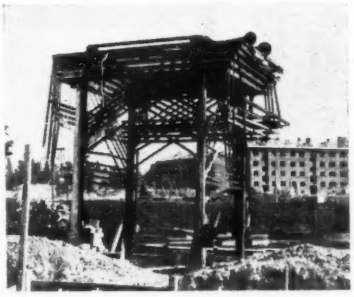
It is not easy to examine productivity in the house-building industry; firstly, because of the difficulty of obtaining a common standard of measurement for products which vary widely both in quality and in character, and, secondly, because building statistics in Sweden are incomplete and, often, defective. Hence, the conclusions reached cannot have the same degree of accuracy as can be obtained in other industries.

The figures quoted in this article were calculated from statistics obtained from 89 building sites in Stockholm. Only bricklayers, carpenters, joiners and unskilled labourers were considered, because, in Sweden, many other tradesmen, such as electricians and painters, are employed by sub-contractors and figures for their output were not available.

UNITS

In Table I, all working time has been expressed in the unit hr./m.^{3}, *i.e.*, the number of working hours required per cubic metre of completed building. The

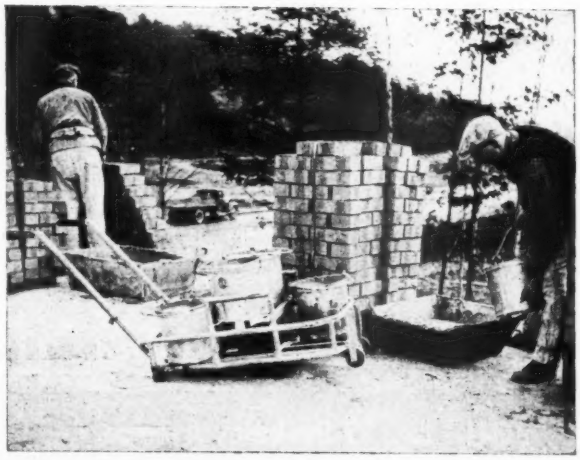
MODERN SWEDISH BUILDING EQUIPMENT



Telescopic platform hoist widely used in Southern Sweden. Above, Fig. 1, the hoist ready to be transported. Right, Fig. 2, the hoist erected. The type shown has two independent narrow platforms; other models have one wide platform.

Left, Fig. 3, the most widely used type of brick barrow found in Sweden. Bricks, light-weight concrete blocks, or breeze blocks, are stacked on pallets on the site—if possible direct from the lorry. The usual load is 84 bricks (each 3 in. × 5 in. × 10 in.), weighing approximately 650 lb. A two-wheel barrow is also in use, but is not as popular as this type.

Right, Fig. 4, a four-wheel mortar (usually lime) barrow, with a capacity of roughly 4 cu. ft., i.e., sufficient to fill 2 trays (seen in Fig. 5). The container can be rotated, and is emptied, through an outlet in the side near the bottom, directly into the tray. It is seen here on internal scaffolding, as is usually used in Sweden.



Left, Fig. 5, a popular one-wheel mortar barrow designed to carry 6 buckets, each with a capacity of 0·5 cu. ft. Note the mortar trays: the one on the left is an old wooden model; the one on the right, a new steel one. Note also the steel band round the brick stack; the bricks were delivered from the brickworks ready stacked.

Table I

Number of storeys	Year of construction	Bricklayers		Carpenters		Joiners		Unskilled labourers	All workers	
		Contracted time	Total time	Contracted time	Total time	Contracted time	Total time	Total time	Contracted time	Total time
3	1935–39	814	914	675	807	581	653	2,734	2,808	5,038
	1940–45	779	859	684	780	379	438	3,390	2,744	5,302
	1946–50	596	677	616	727	353	410	3,280	2,323	4,883
4 or more	1935–39	788	915	702	882	544	638	2,522	2,738	4,905
	1940–45	814	929	769	887	478	595	3,101	2,798	5,418
	1946–50	524	648	559	682	457	698	3,388	2,249	5,417
All	1935–39	799	914	692	853	559	644	2,604	2,766	4,958
	1940–45	791	883	713	816	412	490	3,292	2,762	5,341
	1946–50	593	676	614	725	357	421	3,282	2,320	4,903

N.B.—"Contracted time" is that spent on work covered by the national incentive scheme. Total time includes work not covered by the scheme, *i.e.*, non-bonused work. (See part of article by R. H. Jones, on page 322.)

investigation covered three periods: the first dealing with the years 1935-1939 (pre-war); the second, 1940-1945 (war-time); the third, from the armistice to 1950 (post-war). The table gives separate figures and averages for each period, each trade and three- and four-storey buildings.

From the table it can be calculated that the number of working hours required to produce 1 cu. m. of dwelling increased during the war by 8 per cent. Since the end of the war, this figure has dropped to roughly its pre-war level.

Table II summarizes the figures in Table I and expresses them in the form of an index, with the period 1935-1939 as 100. Expressed in terms of productivity, these figures show that during the war productivity dropped from 100 to $\frac{100 \times 100}{108} = 93$, *i.e.*, a fall of 7 per cent., and that it has now risen by the same amount.

(This, of course, applies only to the four groups of workers mentioned above, *i.e.*, those engaged directly by the general contractor. However, these comprise about 70 per cent. of the total labour force and, therefore, variations in their productivity inevitably dominate the level of productivity of the labour force as a whole.)

VARIATIONS BETWEEN TRADESMEN AND LABOURERS

Table II shows clearly that the increase in the hr./m.³ for *all workers* which took place during the war was due entirely to the increase in the figure for unskilled labourers. Bricklayers' time dropped during the war, although it has dropped even more since. This is due to the fact that brickwork is rapidly being replaced by the use of lightweight concrete blocks, which can be laid more quickly. During Period I (1935-1939) the proportion of brickwork to concrete block wallings was 9:1; during Period III (1945-1950) the proportion was 4:6, *i.e.*, lightweight concrete blocks now predominate instead of bricks.

Man-hours for carpenters also dropped both from Period I to Period II and from Period II to Period III. As with bricklayers' time, the second drop was the greater, but the figure has not fallen so far as the figure for bricklayers' time. The reasons in this case are the use of reinforced concrete floors instead of timber and improvements in the design of formwork.

The greatest fall in hr./m.³ has been for joiners. The figure for Period III is only two-thirds of the figure for Period I. This is due to increased factory production. In the late 1930's the fitting of hinges, locks, casement catches, etc., took place on the site; now windows and doors are delivered to the site complete with all their fittings. Cupboards too are now delivered complete and, often, ready painted, whereas, during the 1930's they were usually made on the site. The fitting of letterboxes, in particular, has been vastly simplified.

In contrast to the drop in hr./m.³ for tradesmen, the figure for unskilled labourers rose from Period I to Period II by 25 per cent. and has remained at this level ever since. It would appear that a gradual transfer of work has taken place from skilled workers to unskilled. The former now receive far more assistance from the latter; this assistance mainly taking the form of fetching and carrying and cleaning up.

—	Bricklayers	Carpenters	Joiners	Unskilled labourers	All workers
Period I (1935–39)	100	100	100	100	100
Period II (1940–45)	97	96	76	126	108
Period III (1946–50)	74	85	65	126	99

Table II
A summary of Table I with the figures expressed as an index. (Period I = 100).

MODERN SWEDISH BUILDING PLANT (cont.)

Fig. 6, a new telescopic type of support for flat arches, fastened with wing-nuts at each end. Available in 3 widths, for 1-, 1½- and 2-brick walls.

Fig. 7, a device for mixing mortar. Ready-mixed mortar is placed in a box near the hoist. It is stirred up with this machine.

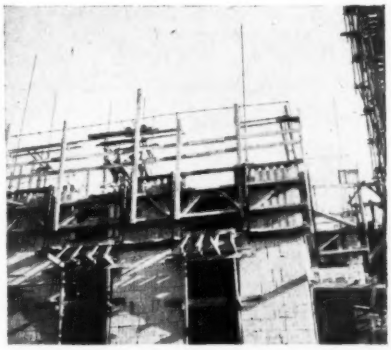


Fig. 8, hydraulically lifted sliding formwork in use on a 10-storey building. The formwork is usually between 3 and 4 ft. high, and is raised continuously at a rate of 5-6 in./hr. It is lifted by means of hydraulic jacks—one to each 45-50 sq. ft. of gross area—powered by one small electric motor and controlled by one man.

Stony Hall East Housing Site, Stevenage New Town. Bitumen-bonded 'Fibreglass' has been applied in the roof space for thermal insulation. Chief Architect: Clifford Holliday, M.Arch., F.R.I.B.A., A.M.T.P.I. Architect in Charge: O. C. F. Carey, A.R.I.B.A. Assistant Architect: P. Halliwell, A.R.I.B.A.

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Sevenoaks Rural District Council.	Engineer & Surveyor: N. W. Cole, M.I.Mun.E., F.R.I.C.S., A.M.T.P.I.
Crawley Development Corporation.	Chief Architect: A. G. Sheppard Fidler, M.A., B.Arch., F.R.I.B.A., A.M.T.P.I.
Farley Hill Estate, Luton.	Engineer & Surveyor: F. Oliver, A.M.I.C.E., A.M.I.Struct.E.
Welwyn Rural District Council.	Engineer & Surveyor: C. B. Borthwick, M.I.Mun.E., M.R.San.I.
Field Road Housing Estate, County Borough of West Ham.	Borough Architect and Planning Officer: Thomas E. North, F.R.I.B.A., Dist.T.P.
Chippingfield Harlow New Town Development Corporation.	Architect-Planner: Fredk. Gibberd, F.R.I.B.A., M.T.P.I. Executive Architect: V. Hamnett, B.Sc., A.R.I.B.A., A.R.I.C.S.

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TWO CONCEPTS OF PRODUCTIVITY

The figures in Tables I and II show that productivity, in terms of output of cubic space per man hour, is now approximately the same as in the late 1930's. Considered from other aspects, however, productivity can be said to have increased. For example, although the number of workers in the industry has not increased, the volume of construction has gone up—as a result of the increase in the proportion of work carried out during the winter months (30 per cent. in Period I, 40 per cent. in Period III). This has reduced seasonal unemployment, and the average number of hours worked by each man in the industry per year was 26 per cent. higher between 1946 and 1948 than it was between 1936 and 1938—an annual increase of about 2 per cent.

THE CONTRACTORS POINT OF VIEW

We have now given two aspects of productivity and concluded that: (i) productivity per man per annum has increased by roughly 2 per cent. per year; (ii) productivity per man per hour is roughly at its prewar level. However, few building contractors in Sweden would accept this second conclusion. They argue that, as a result of improved methods of construction and the increasing use of mechanical aids, productivity per man-hour should have vastly increased and that the fact that it has not done so proves that workers in the industry no longer exert themselves as much as they did before the war.

Many builders go further and say that productivity has decreased. They support their view by pointing out that during the years immediately preceding the war a block of flats was normally built in six months, whereas the usual time taken is now a year and often 14-15 months.

DEVELOPMENTS IN BUILDING METHODS

In addition to the prefabrication and finishing of joinery in the factory, mentioned above, the principal developments which have taken place in Swedish building methods are:

(i) The precasting of staircase units or even complete staircases (the site fixing is usually performed by a subcontractor).

(ii) The use of much larger and more durable concrete mixers than were used before the war. These are less liable to engine trouble and delays due to repairs and adjustments are, therefore, reduced.

(iii) The use of vibrators instead of hand puddling for working concrete.

(iv) The use of steel instead of timber for trestles for scaffolding platforms. Before the war timber trestles were usually made on the site as required.

(v) The use of improved types of concrete and mortar barrows (see photographs on page 326).

There have also been a number of minor improvements which together should have had a considerable effect on productivity.

FACTORS WHICH HAVE REDUCED PRODUCTIVITY

There are two factors which have counteracted the effects of new methods of building: the lack of stable labour conditions on building sites and the fall in the intensity at which building operatives work.

During the immediate post-war years the Swedish authorities made great efforts to secure a stable rate of employment and to iron out seasonal fluctuations. The result, unfortunately, has been *over*-employment. Wages have been forced up to a high level and workers repeatedly move from one job to another in search of still higher pay. Builders, therefore, find it difficult to draw up accurate timetables, for they never know whether they will be able to get the number of workers they need, or whether once found they can be retained. This position is aggravated by the fact that certain trades are paid more than others and plasterers, for example, are even more hard to find than bricklayers.

In an attempt to solve this problem, which became most acute in the summer of 1947, a temporary halt was called to all new building in the autumn of 1947. However, by 1949 labour conditions had become more balanced, although there was still a shortage, particularly of unskilled workers, and this is reflected in the improved hr./m.^{3} figures for 1949 which show a 17 per cent. reduction over the figures for 1945-1947.

In considering the intensity of building workers' efforts, it should be remembered that building workers have always had an arduous job. In most industries it is agreed that a workman should not have to lift loads exceeding 25 kg. (62 lb.); in the building industry, however, much heavier loads, usually about 85 kg. (212 lb.), are continually being carried. It is quite normal in the Swedish building industry for a labourer to carry loads during one day equivalent to 50 kg. (125 lb.) carried a distance of 30 km. (19 miles). However, the trade unions are now warning their younger members that excessive exertion during their early years in the industry can cause overstrain and early "retirement." As a result, the normal load of bricks carried by labourers has dropped from 24-28 in the 1930's to 20-24 at the end of 1949.

Another important factor affecting output is the rise in the average age of workers in the industry. This has increased steadily during recent years, with the result that in 1949 over half the members of building trade unions were over 50 years of age.

BUILDING PLANT (Cont.)

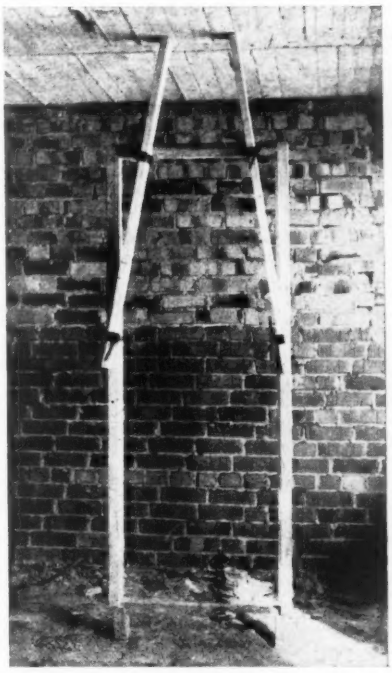

Fig. 9, temporary support for door frames in non-load-bearing partitions.

Temporary timber staircases are widely used on Swedish building sites, instead of ladders. Labourer's carry large loads of bricks and concrete blocks which could not be carried up ladders. Above, Fig. 10, complete staircase; below, Fig. 11, one section.

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Buildings Illustrated

Housing in Pekin Street and *Canton Street, Lansbury, Poplar, London, E.*14. (Pages 308-311.) For the London County Council. Architects: Bridgwater & Shepheard, F/A.R.I.B.A.; Assistant architect: Gordon Michell, A.R.I.B.A.; Quantity surveyor: John Leaming & Son; General contractor: A. E. Symes, Ltd.; Sub-contractors: Asphalt, Natural Rock Asphalte Co., Ltd.; reinforced concrete, structural steel, Twisteel Reinforcement, Ltd.; slates, Poilite Asbestos Cement Slates, laid by Whittaker & Co., Ltd.; patent glazing, W. Tabor & Son (Glass), Ltd.; patent flooring, Marley Floor Tile Co., Ltd.; grates, Broad & Co., Ltd.; electric wiring, Haines & Sheppard; plumbing, Matthew Hall & Co., Ltd.; door furniture, Nicholls & Clarke, Ltd.; casements, Jayanbee Joinery, Ltd.; plaster, Co-Plastering (East), Ltd.; metalwork, Clark, Hunt & Co., Ltd.; shrubs and trees, Wallace & Co., Ltd.

*Old Palace Primary School, Poplar, London, E.*3, for the London County Council. (Pages 312-320.) Architects: Cecil C. Handisyde, A.R.I.B.A., in association with Hammett & Norton, A/A.R.I.B.A., and Robert H. Matthew, A.R.I.B.A., Architect to the L.C.C.; Structural engineer: Felix J. Samuely, B.SC.(ENG.), A.M.I.C.E.; Heating consultant: John Porges, A.M.I. MECH.E., electrical consultanis: J. Rawlinson, M.I.C.E., M.I.MUN.E., Chief Engineer, L.C.C.; Quantity surveyors: Selby & Sanders; Sculptor: E. Bainbridge Copnall; General contractors: Gee, Walker & Slater, Ltd.; Sub-contractors: Facing bricks, A. Turner & Sons, Ltd., Dunbrik, Ltd.; paints, The Leyland Paint & Varnish Co., Ltd.; foundations: W. J. Simms, Son & Cooke, Ltd.; paving stones, Noelite, Ltd.; plastering and granolithic, J. H. Jenner & Co., Ltd.; precast concrete facing units and floor slabs, The Atlas Stone Co., Ltd.; prestressed concrete beams, Liverpool Artificial Stone Co., Ltd.; R.F. steel, T. C. Jones & Co., Ltd.; roller shutters, John Booth & Sons (Bolton), Ltd.; roof lights, Luxfer, Ltd.; roof tiling, L. Whittaker & Co., Ltd.; sanitary fittings, John Bolding & Sons, Ltd.; special electric light fittings, Merchant Adventurers, Ltd.; stage curtain track, Tidmarsh & Sons; structural steel, Lindsay's Paddington Ironworks, Ltd.; tarmac, Home Counties Tarmacadam Contracting Co., Ltd.; terrazzo, Art Pavements & Decorations, Ltd.; tiling, Harradine Rouse & Co., Ltd.; veneered hardboard, C. V. Creffield & Co., Ltd.; Venetian blinds, J. Avery & Co., Ltd.; vibrated hollow clinker blocks, Broad & Co., Ltd.; wood block and strip floors, Hollis Bros. & Co., Ltd.

Announcements

Mr. Edward A. Darley, A.R.I.B.A., has taken over the practice of Mr. Duncan McCulloch, L.R.I.B.A., at 130, High Street, Ayr, and will continue the practice under his own name from that address. He will be pleased to receive trade catalogues, etc.

Mr. G. A. Shaw has recently been appointed as Midland Area Representative for the Building & Decorating Division of Cellon, Ltd., Kingston-on-Thames. Mr. Shaw joined the first Midland Branch in 1933 and has been in charge of the Order Department for many years.

Messrs. Troughton and Young (Lighting) Ltd. supplied a number of lighting fittings for the US Officers' Club which was illustrated in the JOURNAL for July 31.

The Expanded Metal Co. Ltd. was not included in the list of sub-contractors for the Durham Colleges illustrated on July 24. They were the sub-contractors for the supply and erection of expanded metal lathing in suspended ceilings, false arches, beams, etc.

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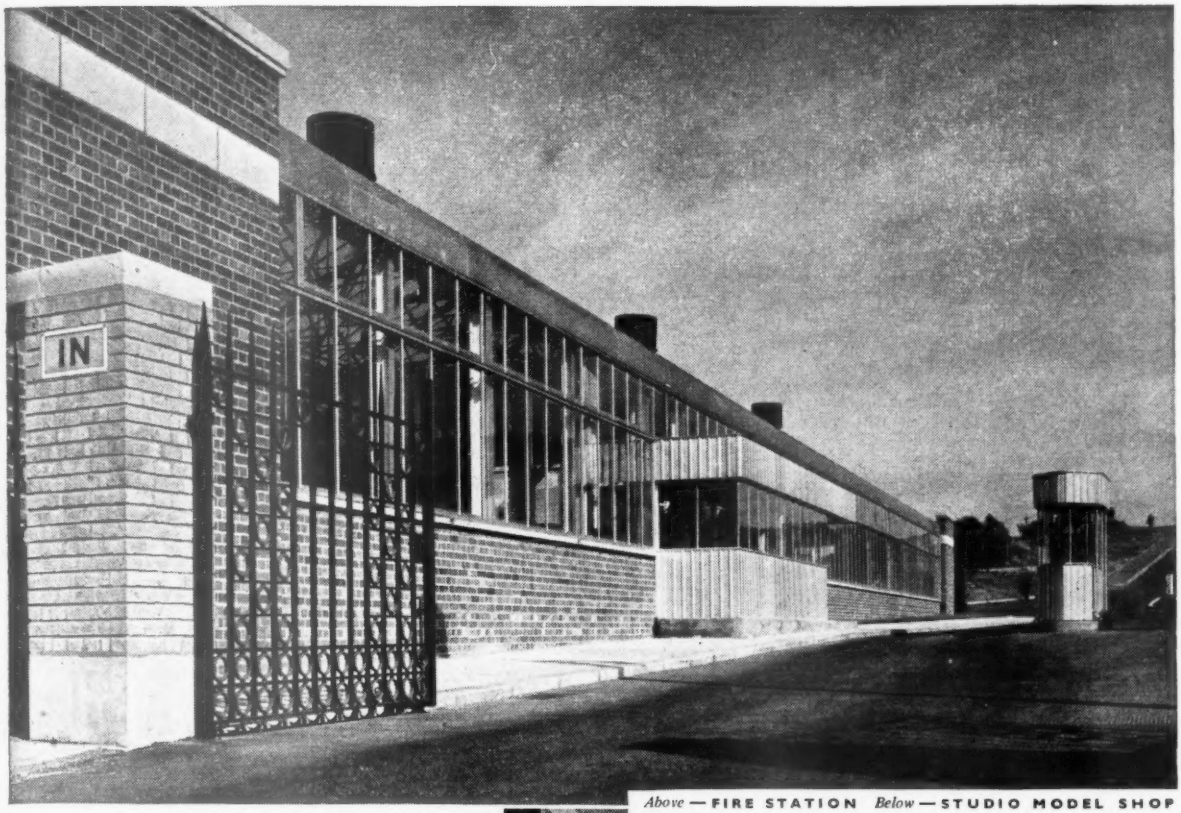
VISION IN MODERN INDUSTRIAL DESIGN

featuring the use of metal windows and patent glazing in the Austin Factory Extensions

These photographs illustrate the versatility possible with the joint use of metal windows and patent glazing and how it has been employed by the architect with effect in the new buildings at Longbridge. Beauty goes hand in hand with utility as the buildings are both elegant and completely functional. The windows were produced by Williams and Williams, who also supplied the Aluminex Patent Glazing.



Above — **FIRE STATION** *Below* — **STUDIO MODEL SHOP**

Car assembly building The main window in this building — 30ft. wide by 19ft. high — is constructed from natural finish aluminium with steel mullions sheathed in aluminium. The other ranges of windows are also in aluminium mill finish.

The studio model shop The maximum light needed in this building where new models are studied and designed, is admirably provided by Aluminex Patent Glazing. Each tier of glazing consists of three top hung ventilators 44ft. long by 3ft. 7ins. high, independently operated by Teleflex gear and glazed with 3/16″ broad reeded glass.

The fire station The imaginative use of Aluminex has achieved great effect here. Stretching for 150 feet, the glazing has been used to enhance the distinctive character of this building. The top three feet of the nine feet high range are manually operated by Teleflex gear so that the required degree of ventilation is easily obtained. Teleflex will open lengths of up to 200 feet from one control, and both manual and electrical control systems are available to suit particular installations.

Prefabricated sheet aluminium forms the continuous eaves fascia which was also manufactured by Williams & Williams. The whole result is in keeping with the standing of Austins of England and will no doubt attract the sincerest form of flattery in many parts of the world where Austin's leadership is unquestioned.

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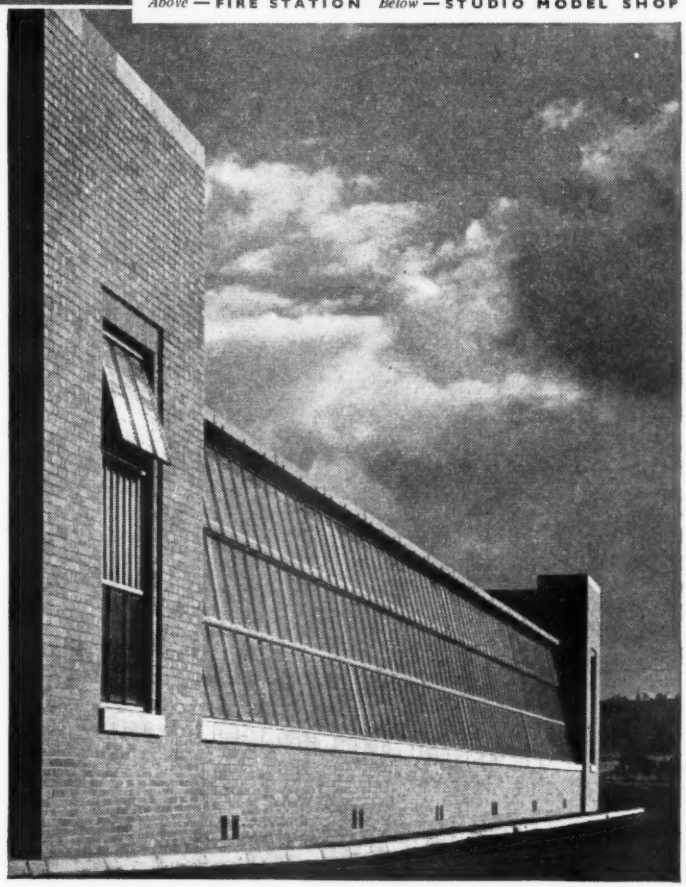

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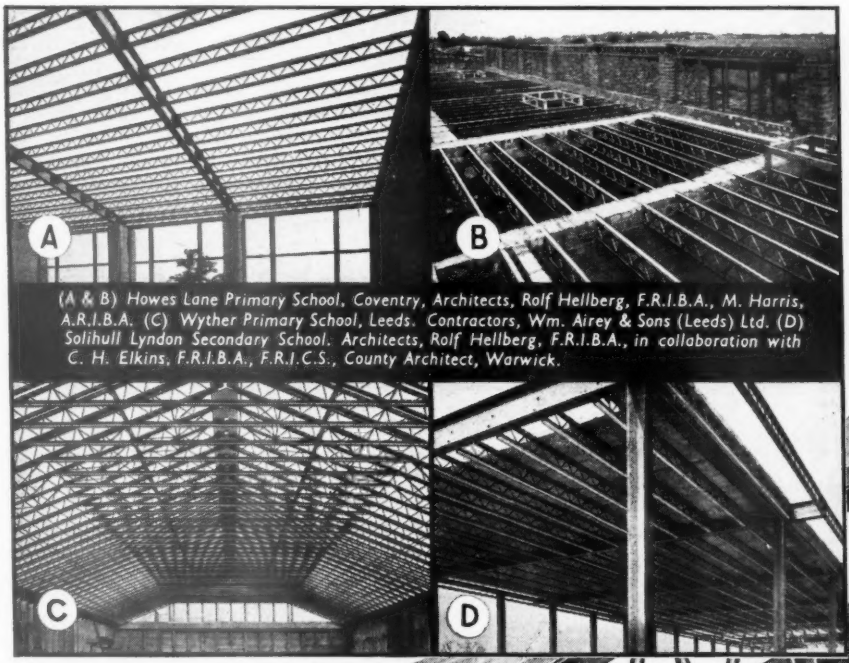
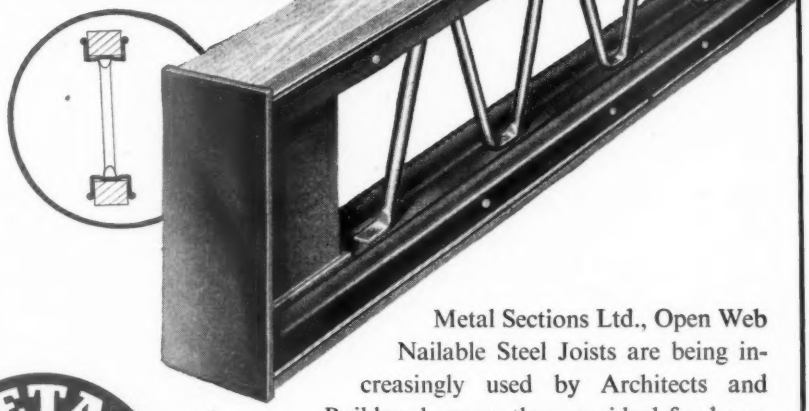


(A & B) Howes Lane Primary School, Coventry, Architects, Rolf Hellberg, F.R.I.B.A., M. Harris, A.R.I.B.A. (C) Wyther Primary School, Leeds. Contractors, Wm. Airey & Sons (Leeds) Ltd. (D) Solihull Lyndon Secondary School. Architects, Rolf Hellberg, F.R.I.B.A., in collaboration with C. H. Elkins, F.R.I.B.A., F.R.I.C.S., County Architect, Warwick.



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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

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

LONDON COUNTY COUNCIL.
Vacancies for ARCHITECTS (A.R.I.B.A.) for Housing Division. Starting salaries up to £696. Application forms from Architect, quote (EK/H/2), County Hall, S.E.1. (936) 7325

COUNTY BOROUGH OF OLDHAM.
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.
Applications are invited for the appointment of a Senior Architectural Assistant in my Department, at a salary in accordance with Grade A.P.T., Va (£600-£660 per annum).
Applicants should be Chartered Architects, and housing accommodation will be provided if necessary.
The appointment will be subject to the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.
Applications, giving age and previous appointments, in addition to qualifications and experience, and copies of two recent testimonials, must reach me not later than Monday, 22nd September, 1952, in envelopes endorsed "Senior Architectural Assistant."

A. L. HOBSON,
Borough Engineer and Surveyor.
75, Union Street, Oldham.
1st September, 1952. 7342

COUNTY BOROUGH OF DARLINGTON.
BOROUGH ARCHITECT'S DEPARTMENT.
Applications are invited for the permanent appointment of an ASSISTANT ARCHITECT. Salary Grade A.P.T., VI.
The Department is dealing with a large programme of Education work, including large Secondary Schools, a new Technical College, Housing, Welfare Buildings and other general work. Candidates must have had previous office experience, and member of the R.I.B.A. will receive preference.
The Corporation will endeavour to make a flat in a converted house available to the successful candidate, if required.
Applications, giving full particulars of age, qualifications, present appointment with salary, previous experience with dates, and the names and addresses of three referees, to be sent to E. A. Tornbohm, A.R.I.B.A., A.M.T.P.I., Borough Architect, Central Buildings, Darlington, not later than 19th September, 1952.

H. HOPKINS,
Town Clerk.
7341

QUANTITY SURVEYORS AND ASSISTANT QUANTITY SURVEYORS REQUIRED THROUGHOUT U.K. BY MINISTRY OF WORKS, ADMIRALTY, WAR DEPARTMENT, Air Ministry, and occasionally overseas by Service Departments. Although not established posts have long term possibilities. Salaries in London for Officers over 26 years of age £600 to £1,200. Slightly lower in provinces. Salary on entry in accordance with age, qualifications and experience. Also vacancies for Quantity Surveying Assistants and others having some experience in a quantity surveyor's office, at salaries ranging from £300. (Quoting ref. J.Q.S.) Apply to Room 403, Ministry of Labour and National Service, Technical and Scientific Register, 26, King Street, London, S.W.1. 7352

CITY AND COUNTY OF BRISTOL
EDUCATION COMMITTEE
COLLEGE OF TECHNOLOGY
Principal: F. W. Partington, M.Sc.
Required ASSISTANT LECTURER (Grade A). Professional qualification in Architecture essential. Work involves part-time day/evening classes in Architecture, Surveying, Diploma and National Certificate courses in Building. Salary, Burnham Technical Scale for graduate assistants £475 by £18—£730 with additional increment for recognised full-time training. Commencing salary according to experience. Further particulars and application form (returnable as soon as possible) by sending stamped, addressed envelope to Registrar, College of Technology, Unity Street, Bristol, 1.

G. H. SYLVESTER,
Chief Education Officer.
Council House,
College Green, Bristol, 1. 7367

EASTERN ELECTRICITY BOARD
TRACERS required. N.J.C. Conditions. 5 day week (Men £165 rp to £460 inclusive, women £165 up to £385 inclusive). Write, giving age, experience and qualifications to Manager, Eastern Electricity Board, Northmet House, Southgate, N.14. 7362

BOROUGH OF REDCAR
APPOINTMENT OF ARCHITECTURAL ASSISTANT
Applications are invited for the above appointment in the Borough Engineer and Surveyor's Department, at a salary in accordance with Grade A.P.T. IV (£555—£500 p.a.) The appointment is superannuable and is subject to the candidate successfully passing a medical examination.
General architectural and housing experience is necessary and candidates should have passed the Intermediate of the R.I.B.A., or equivalent examination.
Applications endorsed "Architectural Assistant," stating age, qualifications and experience, together with the names of three referees, must reach the undersigned not later than Monday the 29th September, 1952.
Canvassing in any form will be a disqualification, and applicants must state whether or not they are related to any member or officer of the Council.

HUGH CALDWELL,
Town Clerk.
Municipal Buildings, Redcar. 7359

NORTHAMPTON RURAL DISTRICT COUNCIL
SURVEYOR AND ARCHITECT'S DEPARTMENT
Appointment of (*a*) QUANTITY SURVEYOR and (*b*) ASSISTANT.
Applications are invited for the above appointments.
For appointment (*a*) applicants should have passed the Final examination of the R.I.C.S. (Quantity Section) or similar, and have had considerable experience in the preparation of Bills, measurement of site works and preparation of interim statements and final accounts in connection with Housing Schemes.
For appointment (*b*) applicants should have had similar experience even in a junior capacity and preferably be fitting themselves for qualifying examination.
Both appointments will be terminable by one month's notice, in writing, on either side.
Applications, stating age, whether married or single, qualifications, full particulars of experience and range of salary required, together with copies of two recent testimonials are to reach the undersigned by Monday, 22nd September, 1952.
Applicants must disclose whether they are related to any member or senior officer of the Council. Canvassing, either directly or indirectly, will disqualify.

CLIFFORD E. JONES,
Clerk of the Council.
Council Offices,
1, Cheyne Walk, Northampton.
4th September, 1952. 7358

BOROUGH OF REIGATE
APPOINTMENT OF ARCHITECTURAL ASSISTANT
Architectural Assistant (permanent) required in the Borough Surveyor's Department. Salary A.P.T. III (£525—£570 per annum). Appointment subject to Local Government Superannuation Act, 1937. Medical examination required. Experience in the design of buildings and estate development essential.
Application Forms from Mr. George G. Sanderson, A.M.I.C.E., Borough Surveyor, Town Hall, Reigate.
Applications, endorsed "Architectural Assistant," with copies of three recent testimonials to the undersigned not later than Saturday, 27th September, 1952.

HEBER DAVIES,
Town Clerk.
Town Hall, Reigate.
September, 1952. 7371

URBAN DISTRICT OF EAST BARNET
ENGINEER AND SURVEYOR'S DEPARTMENT
Applications are invited for the following Permanent Appointments:—
(*a*) SENIOR ASSISTANT ENGINEER—A.P.T. Grade VI (£670 to £735 Plus London Weighting).
(*b*) ENGINEERING ASSISTANT — A.P.T. Grade II (£495 to £540 Plus London Weighting).
(*c*) ARCHITECTURAL ASSISTANT—A.P.T. Grade IV (£555 to £600 Plus London Weighting).
Housing Accommodation can be provided for Appointment (*c*) only.
Applications should be submitted by not later than Monday, 29th September, 1952, on Forms to be obtained from the Undersigned.

C. M. BARNES, O.B.E., M.I.Mun.E., F.R.S.I.,
Engineer & Surveyor.
Town Hall, Station Road,
New Barnet, Hertfordshire. 7372

BOROUGH OF ILFORD
APPOINTMENT OF ARCHITECTURAL ASSISTANT, GRADE VII
Applications are invited for the appointment of an Architectural Assistant on the permanent staff of the Borough Engineer's Department. Applicants should be Associate Members of the R.I.B.A. and should possess good general experience in a Municipal Engineer's Office. The salary will be in accordance with Grade A.P.T. VII viz., £710—£785 plus London Weighting.
The Council is not in a position to offer housing accommodation in connection with this appointment.
The appointment will be subject to one month's notice on either side, to the provisions of the Local Government Superannuation Acts, the National Conditions of Service and to medical examination.
Forms of application obtainable from the Town Clerk, Town Hall, Ilford, should be returned by the 22nd September, 1952. 7373

CIVIL SERVICE COMMISSION, DUBLIN—
POSITIONS VACANT
ESTABLISHED ASSISTANT ARCHITECTS (2) in the Department of Industry and Commerce, Dublin. Approximate Salary Scales: Man: £527—£983, Woman: £450—£802; with higher initial salary in certain cases. Maximum Age Limit: 45 years with extensions in certain circumstances. Application forms and further particulars obtainable from the Secretary, Civil Service Commission, 45, Upper O'Connell Street, Dublin. Latest time for accepting completed application forms: 5 p.m. on 30th September, 1952. 7351

HER MAJESTY'S COLONIAL SERVICE
Applications are invited for the following posts:—
ARCHITECTS, PUBLIC WORKS DEPARMENT (27301/19) FEDERATION OF MALAYA
Vacancies exist for a number of architects in Malaya. The appointments are pensionable on probation and the salary scale which has recently been revised is now £739 4s. to £1,680 basic, with a pensionable expatriation allowance varying from £266 to £364 per annum, the point of entry depending on experience and war service. In addition there is a non pensionable expatriation allowance for married candidates varying from £91 to £259. A substantial variable cost of living allowance is also payable.
Free passages are provided on appointment and on leave for the officer, his wife and up to 3 children under 10 years. Furnished quarters, as available, are provided at reasonable rents. Leave is granted at the rate of 4 days for each month of resident service.
Candidates must be between the ages 25—35 years and be A.R.I.B.A. or hold an equivalent approved qualification in any Dominion.
Intending candidates should apply in writing to the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, S.W.1, giving brief details of their age, qualifications and experience. They should mention this paper and quote the reference number (27301/19). 7374

Architectural Appointments Vacant

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

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

ARCHITECT'S ASSISTANT required for East Dereham, Norfolk, office. Intermediate standard, able to drive car. Details, including salary required, to Box 7278.

JUNIOR ASSISTANT required for private Architect's office. Mainly commercial and business premises practice. Good prospects. Box 7319.

ARCHITECT'S SENIOR ASSISTANT required for general practice in Dublin. Permanent and interesting position offered to suitable applicant. Reply, stating age, training, experience, and salary required, to Donald A. Tyndall, Chartered Architect, 43, Fitzwilliam Place, Dublin. 7326

JUNIOR ARCHITECTURAL ASSISTANT required for busy office in Hampshire. Reply, stating age, experience, and salary required, to Box 7364.

DRAUGHTSMAN.—Able to take particulars of buildings from Architect's plans and arrange heating installations for same. Knowledge of ductwork an advantage. Box 7369.

CHIEF ASSISTANT required in Architect and Surveyor's Department of a large Brewery Company in London. The work is in connection with industrial and administrative buildings. Applicants, age 35-45, should have passed the Final Examination of the R.I.B.A. and be able to drive a car. A sound knowledge of construction and experience in industrial work is essential, with ability to take charge during the absence of the Chief Architect. The successful candidate will be considered for permanency and pension scheme on completion of six months' probationary period. Attractive conditions of service. Reply, stating age, qualifications, experience, past and present appointments, and salary required, to Box 7365.

ARCHITECTS' CO-OPERATIVE PARTNERSHIP require an assistant with experience of administration. Salary according to experience. Apply in writing to 34, Gordon Square, London, W.C.1. 7353

ARCHITECTURAL ASSISTANT required immediately for general practice, intermediate standard, good draughtsmanship and previous experience in private practice essential. Write stating age, experience and salary required. Box 7376.

Architectural Appointments Wanted

SENIOR ASSISTANT ARCHITECT, extensive office experience in design of domestic and office buildings, also reconstructions, conversions, town planning, seeks position in London. Box 556.

A. R.I.B.A. (27) requires position as SENIOR ASSISTANT in central London area. 7 years' varied experience in private practice and L.A. schools, including administration and supervision of contracts. Box 539.

A. R.I.B.A., accustomed to being in charge of a drawing office, has had excellent experience in the office and on the site. Can take charge from sketch to final settlement; specifications, perspectives, layout. Can work in his own West End office if necessary. Box 7301.

ASSOCIATE, R.I.B.A., 17 years' general experience, private practice and industrial, used to working on own initiative. Present salary £600. N.E. England preferred, or anywhere if accommodation available. Box 547.

ARCHITECTURAL ASSISTANT, experienced, seeks position in London. Box 7327.

A. R.I.B.A. (28) requires responsible position. Good general experience, including private and L.A. housing. Surveys, lay-out, specifications. Prepared to take charge from sketch stage to final settlement. Box 550.

ARCHITECTURAL ASSISTANT, with much varied experience, at present studying for Final, desires part-time work. Box 7368.

ASSISTANT with several years' experience. Neat and efficient draughtsman seeks London post. Box 7356.

STUDENT R.I.B.A. requires post as Architect's Assistant. School trained but little office experience. £4 10s. per week. Box 555.

STUDENT R.I.B.A., 4 years' experience, requires position London office. Contemporary detailer and designer. £6—£7 a week. Box 554.

SENIOR ASSISTANT requires change. Qualified. 13 years' varied experience, including period with contractors. Technically minded, contemporary designer, used to organisation and control. Box 7355.

YOUNG ARCHITECT, M.C.D., B.Arch. (Liverpool), A.R.I.B.A., seeks introduction to established practice, view to partnership. Capital available if required. Box 7345.

B. ARCH. (L'pool), Class I Hons., with administrative and general experience in England and Switzerland, requires suitable position in Liverpool district. Used to taking complete charge of contracts. Box 552.

A. R.I.B.A. (28), with knowledge of interior and exhibition design and with experience as a Chief Assistant, seeks responsible position in contemporary practice, London. Box 553.

STUDENT R.I.B.A. (28) seeks progressive position involving some responsibility. 5½ years' general experience; preparing for Final at recognised school. Salary by arrangement. Box 551.

Other Appointments Vacant

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

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

SHORTHAND/TYPIST required for Architectural practice, London, S.W.15. Hours 9 a.m. to 5.30 p.m., 5-day week. Salary according to age and experience. Apply Box 7316.

CHARTERED SURVEYORS, City, require ASSISTANT BUILDING SURVEYOR, age about 30 years, with knowledge of London procedure and prices. Salary £500 p.a. Preference given to applicants recently qualified or taking Institution exams. Box 7360.

CIVIL ENGINEERING ASSISTANT required, to work under Chartered Civil Engineer. Must be experienced in general factory development and have knowledge of surveying, foundation work, etc. Apply, stating age, experience and salary required, to PERSONNEL MANAGER, Tube Investments (Group Services), Ltd., Rocky Lane, Aston, Birmingham, 6. 7363

SANITARY ENGINEER required by London Architects with varied practice, for design of plumbing and drainage schemes to multi-storey flats, housing, office buildings, aerodromes. Some knowledge of heating desirable. Salary by arrangement. Write Box 7375.

Services Offered

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BILLS of Quantities, Specifications, Drafts, etc., accurately executed by expert staff. Express service. Moderate terms. Estimates given. The Typewriting & Duplicating Service, Market Square, Wellingborough, Northants. Tel. 2308. Estd. 20 years. 7260

ENGINEER, experienced underpinning work, offers services for design of underpinning schemes. Specifications and working drawings, own soil testing laboratory. Would undertake supervision of works, if required. Fees by arrangement. Box 7312.

A. R.I.B.A., with good all round experience, requires part-time or free lance work to help his growing practice. MUSeum 9106. 7205

TYPEWRITING, DUPLICATING.—Bills of Quantity, Specifications, etc., expertly typed/duplicated. Express service. Work collected/delivered. JOSEPHINE HALL & PARTNERS, 50½/2, GRAND BUILDINGS, TRAFALGAR SQUARE, W.C.2. WHI. 6411/2, and 87, High Street, Tunbridge Wells. Telephone: 1255. 7005

ENGINEER, qualified, good experience Civil Structural Surveying and Quantities, seeks part-time work. Drawing facilities available. Box 7259.

SURVEYING and Levelling of Building Sites and Measured Drawings undertaken by experienced Surveyor at moderate charges. Box 6583.

EXPERIENCED PERSPECTIVE ARTIST prepared to execute Drawings from Architect's own plans, etc., for about 6d. per sq. in. Box 7343.

DRAUGHTSMAN requires evening work at home. Tracing or making up of Schedules. Moderate charges. Box 7348.

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R.A. EXHIBITOR will do Perspective Drawings from Plans and Elevations supplied by the Architect. Box 7370.

For Sale or Wanted

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

RECONDITIONED EX-ARMY HUTS, and manufactured buildings. Timber, Asbestos, Nissen type, Hall type, etc. All sizes and prices. Write, call, or telephone, Universal Supplies (Belvedere), Ltd., Dept. 25, Crabtree Manorway, Belvedere, Kent. Tel.: Erith 2948. 6803

"THE ARCHITECT IN PRACTICE," by A. J. Willis and W. N. B. George. A R.I.B.A. recommended text-book. 18s. 9d., post free, from Mason & Hodges, Ltd., 6, Goring Road, Worthing, Sussex. 7262

PRACTICE FOR SALE.—Old-established Architect's General Practice. Work in hand and good prospects. Well equipped office, on lease; London West suburb, with very little competition. Reasonable figure would be accepted. Age reason for selling. Box 7313.

ANGLE FENCING STAKES.—1¾ in. by 1¾ in. by ⅛ in. by 6 ft., holed and pointed. 3s. 5d. each. Carriage paid on orders for 25 and over. Reduction for large quantities. Other sizes available. Enquiries to: Church & Bramhall (Engineers), Ltd., Reservoir Place, Pleck, Walsall. 7323

COMPLETE STEAM HEATING PLANT, comprising Riley Bros. No. 10 Cylindrical Horizontal Multitubular Marine Type Boiler, complete with Clyde Fuel Systems, Oil Burning Equipment and Mobrey Low Water Alarm System. Latter two items have never been in use. This is a high grade installation covered by insurance reports and a genuine bargain opportunity. Price includes delivery within 100 miles of Glasgow. Can be inspected by appointment. Apply Mr. N. A. Baker, L. Sterne & Co., Ltd., Kelvin Avenue, Hillington, Glasgow, S.W.2. 7367

2 ADMEL RIGIDUS Steel d/e Drawing Stands, as new. £4 each. Box 7361.

"ARCHITECTURAL REVIEW" August 1951, to July, 1952, inclusive. £2. Post Paid. Richards, Palmerston, Shanklin. 7366

1938 WOLSELEY 12 SALOON; dark green; one owner; excellent mechanical condition; reconditioned engine; relined brakes; £360 or near offer; inspection and trial run London by appointment. Box 7354.

EIGHT Marble Corinthian Columns and Pilasters, 9 ft. high, each four sections. Offers. Brownless, Whinfield Hall, Darlington, Co. Durham. 7359

IMMEDIATE sale—surplus to contract—New Standard Lanterns, complete with glass, ready for fixing: 1 off 10 ft. by 6 ft., 1 off 12 ft. by 6 ft. Also 2 Sets Gates, for opening approximately 8 ft. 8 in. wide. Can be inspected by appointment. Guildford Glass & Metal Works, Ltd. Telephone: Guildford 2922. 7347

Miscellaneous

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

A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment. Harvest Works, 96/107, St. Paul's Road, N.1. Canonbury 2061.

OFFICE TO LET.—Central position, Mortimer Street, W.1. Two rooms and cloakroom, ground floor. Rent, unfurnished, £4 10s. weekly. Can be let furnished if desired. Suitable for professional offices. Box 7349.

ART.—Take up Water Colour. Six famous Artists teach you by post. The Course is a sheer joy, easy, inexpensive. Pupils exhibit in Royal Academy, etc. Other Postal Courses in every branch of Art. Illustrated prospectus free. Press Art School, Ltd. (Dept. A.J.1), Tudor Hall, S.E.23. 7344

Educational Announcements

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

R.I.C.S., I.A.A.S., and I.Q.S. Exams.—Postal Courses conducted by the Ellis School (Principal: A. B. Waters, M.B.E., G.M., F.R.I.B.A.), 103B, Old Brompton Road, S.W.7. KEN. 4477/8/9. Descriptive Booklet on request. 7009

R.I.B.A. and T.P.I. EXAMS.—Stuart Stanley (Tuton Sch. of Arch., Lon. Univ.) and G. A. Crockett, M.A./B.A., F./A.R.I.B.A., M./A.M.T.P.I. (Prof. Sir Patrick Abercrombie in assn.), prepare Students by correspondence tuition. 10, Adelaide Street, Strand, W.C.2. TEM. 1603/4.

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