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preview 1960

THE ARCHITECTURAL REVIEW VOLUME CXXVII NUMBER 755 JANUARY 1960 FIVE SHILLINGS

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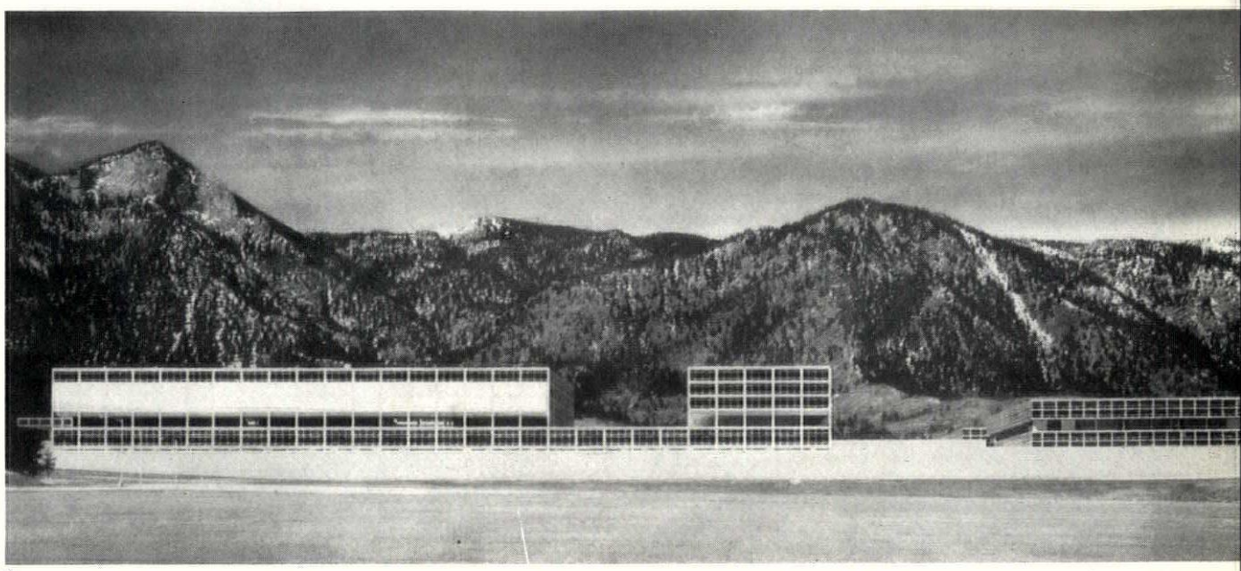
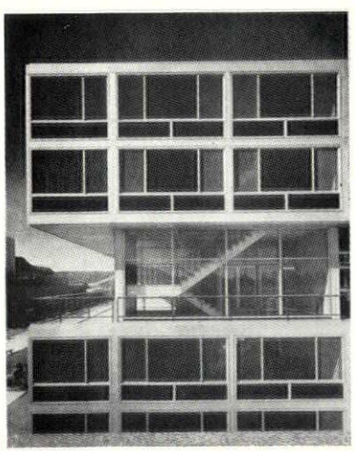


1

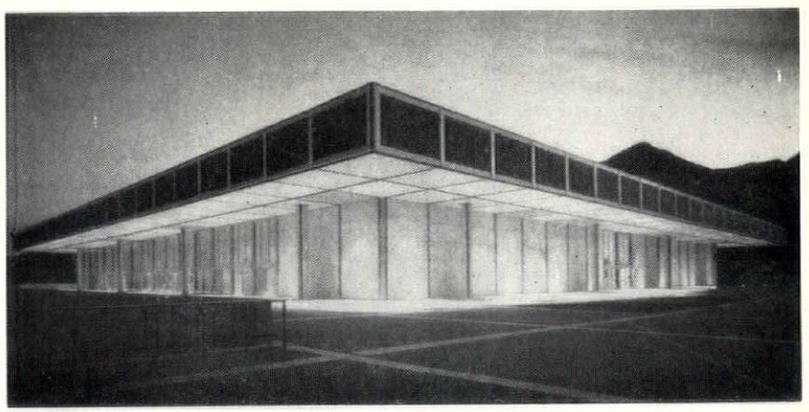
Acropolis of Pure Reason

The word 'Acropolis' adheres persistently to the newly-dedicated US Air Force Academy, 1, not far from Colorado Springs. Major critics and casual visitors alike seem to have found the word rising unbidden in their thoughts. *Architecture d'Aujourdhui* (85, 1959), having noticed 'the severe modulation, the clearly exhibited structure, the rectangularity of the composition and the balance of the elementary volumes,' finds the Acropolis comparison somewhat *osé*, but is still prepared to discuss it at length. Certainly in its extreme rationalism and impersonality, 2, Skidmore, Owings and Merrill have achieved an image of those aspects of Greek architecture that the Modern Movement admires, but the Parthenon is only one part of the Acropolis, and it is on the planning and landscape side that the comparison seems most arguable. What was admired in the Acropolis by Auguste Choisy, the grand ancestor of Twentieth Century Rationalism, was the subtly picturesque quality of the layout, whereas the planning of the Air Force Academy, 3, is as rigorously orthogonal as its elevations and the relationship to the surrounding landscape, with its heroically-scaled backdrop of mountains, is completely different—though there is, to judge from eye-witness reports, a series of views from the approach road that give a somewhat similar effect to those seen from the Propylaeum.



2

But, if it is a modern Acropolis, has it a modern Parthenon? The answer, probably, is Yes—provided one reads *Parthenon* in terms of clarity and single-mindedness of conception, and does not worry too much about masterpiece status. The great dining hall, large enough to accommodate the entire cadet body (eating at Attention) in one sitting is simply an uninterrupted square volume, 252 feet each way, capped by a space-frame full of air-conditioning and services nearly ten feet deep, which registers on the outside as a massive cornice of extract-grilles, 4—and that, apart from a central core of kitchens and servery, is literally all there is to it, a volume and a lid, expressed with undismayed directness. There have been many expressions of disappointment that (to quote *Architectural Record*, June, 1959) the buildings are an expression of 'a corporate aesthetic, rather than of an intrinsic purpose,' but would critics have been any happier with the version that, say, a Saarinen or a Rudolph might have produced in their present moods?



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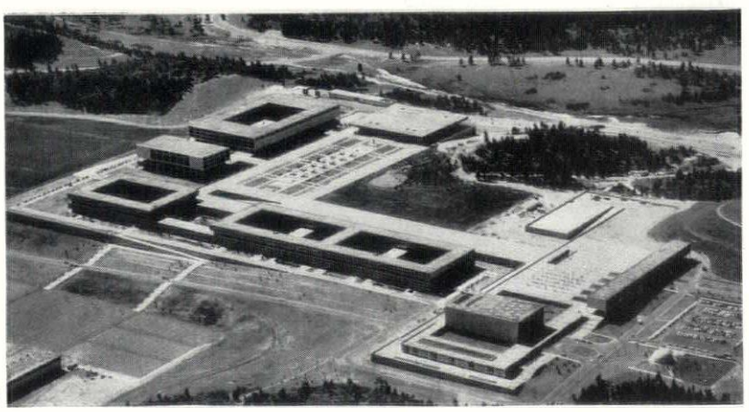
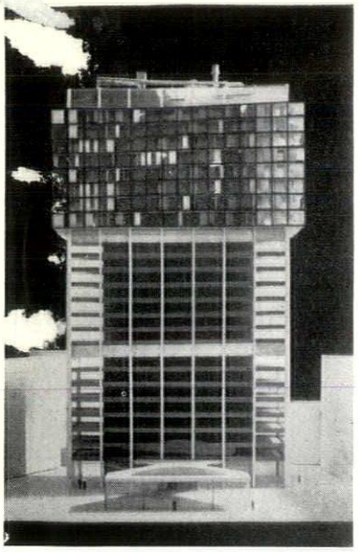


3

Clarification from Milan

Apparently stung by the world-wide bewilderment and hostility aroused by their Torre Velasca in Milan, the BBPR partnership have offered in *Casabella* (232, 1959) a *chiarimento* of their intentions in the tower, and some more recent works from the office for comparison. As so often happens with such deeply-felt personal statements the confusion is not greatly lessened, but at least there is more material with which to argue. For instance, they produce two documents of quite outstanding interest, in the form of photographs of models of the *Torre Velasca* designed before their change of heart. Both have the same 'Big Ben' silhouette as the built version, but in detail one is so different, 5, that it could almost be the work of a different office. It may also provide a clue to just where BBPR have deviated significantly from the mainstream of development—compared



5

with the built version it shows a clearer distinction between the exterior expressions of its two main interior functions (viz., flats and offices), and seems also to give more weight to the mechanical, as against the structural aspects of the building—as evidence the grilles of the service floor immediately under the overhang.

The structural emphasis appears equally in one of the works that BBPR offer in collateral justification of the Torre—a complex development on the Corso Francia in Turin, 6. In spite of their protestations that the aim 'was to interpret the poetic sense of their thematic essence and that of their pre-existent environment' it is difficult to see what the game of hit-and-miss variants on the Chicago triple-light window has to do with the pre-existing environment of Turin, even if the recessed bay-windows *à la* Mackintosh at mezzanine level have some connection with Torinese *Art Nouveau*. Elsewhere in the same issue Ernesto Rogers (the 'R' of BBPR) proposes that architecture of this type 'goes beyond the abstract schemes of the "modern" architectural expression . . . giving a new kind of modernity to architecture.' If this is seriously intended, and these dowdy-looking revivals of late nineteenth-century architecture are supposed to have 'a new kind of modernity,' then Gillo Dorfles and other semantic critics of the Milanese School have some urgent work to do on the meanings of *new* and *modern*.



6

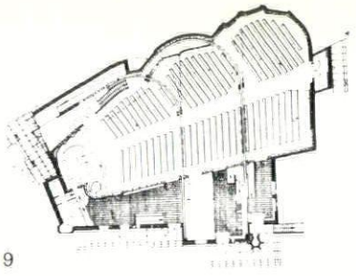
Art for Art or Diplomacy?

'We see here a once truly functional architect losing himself in modern "l'art pour l'art" in a fashionable dressing up of essentially elementary space and form,' wrote J. J. Vriend, one of four critics invited by *Bouw* (30, 1959) to comment on Marcel Breuer's new US embassy building in The Hague. Many English voices would doubtless echo these sentiments when confronted with the building itself, 7, with its trapezoidal windows. But they might enquire further what justifications were offered for this further manifestation of American Diplomatic Formalism. Unlike the attempted 'keeping in keeping' of Saarinen's London Embassy, this design keeps in no visible keeping with, say, the houses in the Lange Voorhout, and even less with the symmetrical Baroque front of the Royal Theatre, which is directly confronted by the asymmetry of the block on the left in 7. Those who acclaimed the early stages of the State Department's reformed building programme, and held it up as an example to other governments, including our own, must now be wondering what monsters have been fathered on the modern movement by global politics and unlimited budgets.

The Vaults of Imatra

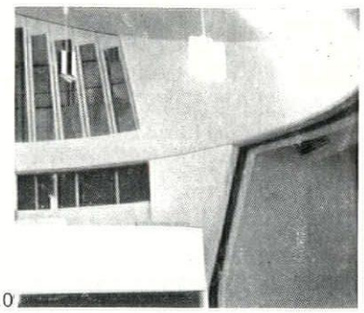
If, as Henry-Russell Hitchcock appears to think, architecture is about to enter a 'Late Roman' phase, in which the exteriors are left to fend for themselves and attention is concentrated on the inner volumes, then we are in for a bad time photographically. Complex interior spaces that do not answer to a simple geometrical figure in plan cannot be rendered in a single photograph, and only a pile of photographic documentation gives any idea to a person who has not experienced the building first hand—case in point, Alvar Aalto's new church at Imatra. The exterior, 8, makes it moderately clear what must be going on, but it is only now that a number of magazines have published their versions of the interior that the pictures begin to add up.

The plan, 9, shows a lay-out in which three asymmetrically scalloped



9

vaults taper down to a flat chancel wall—what time the average roof-line becomes higher. Two sliding doors, travelling in curved tracks, extreme right in 10, make it possible to cut off the two larger, but lower vaulted areas from the chancel, and on the liturgical west (away from the altar) of each door-track lies the secret of



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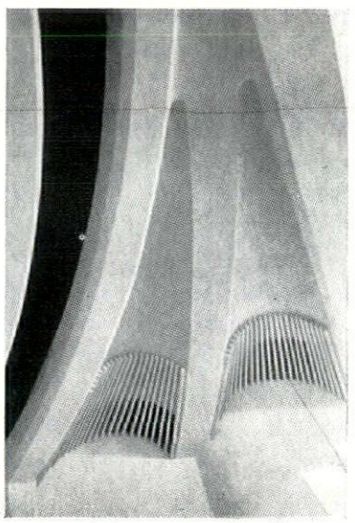
the whole design—a pair of *trompes* (for want of a better word) that fill the space, 11, between the curved



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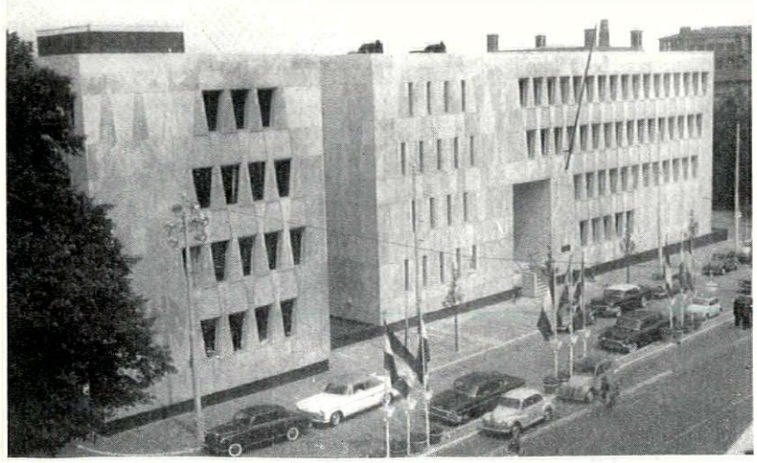

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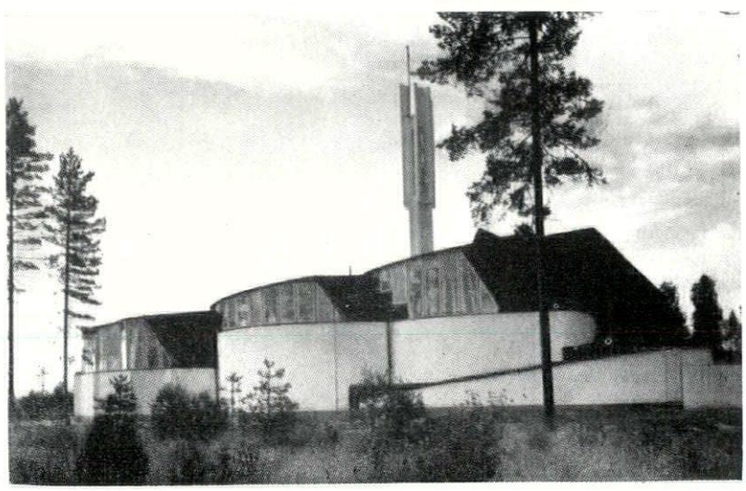

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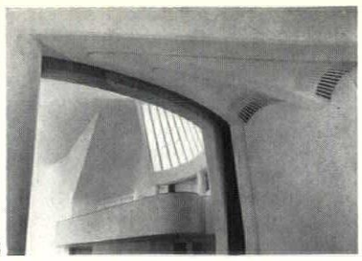
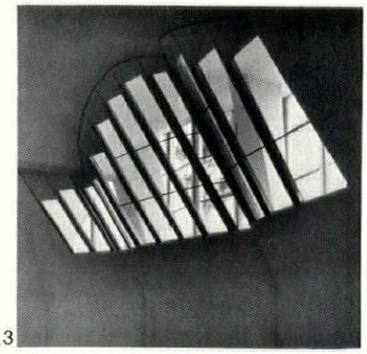


12

door and the square portal from which the next vault springs, 12. The unphotographable confusion that results is deepened by the way in which the inner, false windows, 13, are canted inwards and—in the case of the middle vault, rise from a differently shaped plan to that of the vertical exterior window, 14.

Having said so much, one can only join in the chorus of praise that has



13



14

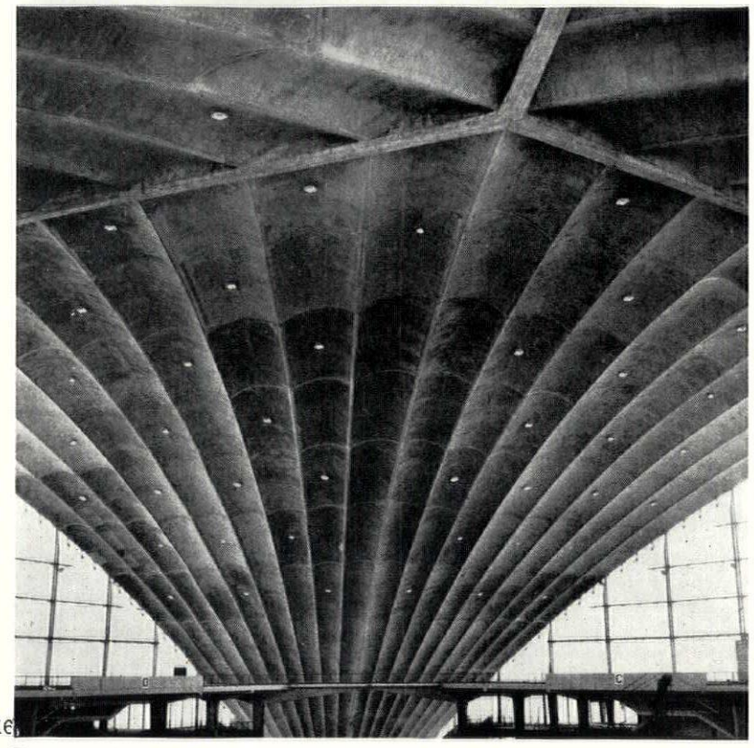
greeted this subtle and extraordinary work of the great Finnish master —*Zodiac* (3, 1959) pronounced that 'Aalto here stands at the height of his skill, and handles the volume of space with organic freedom,' *Casabella* (230, 1959), speaking with the voice of Leonardo Mosso, that '. . . in this threefold composition of the Imatra church the space is not so much flowing as in growing tension . . . One is tempted to say that this is Aalto's most advanced work,' and *Werk* (8, 1959) alone in drawing an analogy from the waves of the sea, felt that the vaults 'seem to rise and flow back as they converge toward the altar.'

Great Exhibition Domes

CNIT is—at last—completed; having first been noted in these columns as long ago as July, 1956. Although Nervi's name has disappeared from the credits (Camelot, Zehrfuss, de Mailly and Prouvé remain), this great exhibition hall by the Rond-point de la Défense in the western suburbs of Paris, still bears a strong resemblance, 15, to the project as he left it. The exteriors, which consist of little more than the glazing in of three huge lunettes, are—like all large areas of glass—variably successful according to the fall of light, but the interior, though difficult to scale



15



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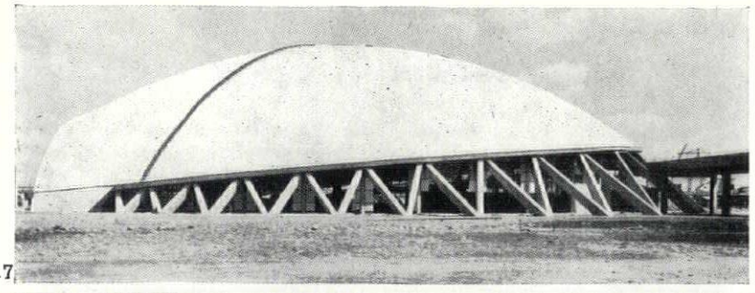

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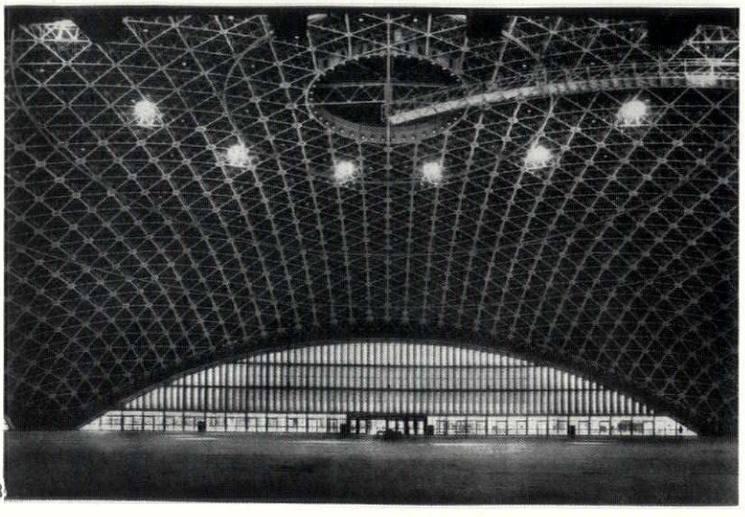


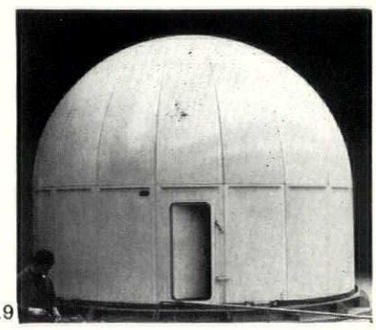
18

by eye, is stunning, 16, and suggests that French designers are still capable of recapturing the unassailed mastery of exhibition structures that enabled them to produce the Eiffel Tower and the Galérie des Machines.

But now they have competition. The tilted dome, 17, of the Tokyo international trade centre, designed by Masachika Murata with Yoshikatsu Tsuboi as structural engineer, is only one-sixth the size (10,798 square metres as against over 100,000 for CNIT) but the ambition behind it is clearly comparable, as is the building's function. The interior is a good deal simpler for the eye to handle—the pattern of the repeating truss-work (which is not, in fact, geodesic in its geometry) is given scale by the ingenious rotating catwalk, 18, which moves on rails to give access to the entire undersurface of the dome for cleaning and servicing. This impressive dome is No. 2 of a sequence of buildings for the exhibition centre, which will eventually comprise six halls as well as the usual ancillary buildings and an outdoor exhibition space, and the halls of foreign countries—Welton Becket's US pavilion is now nearing completion.

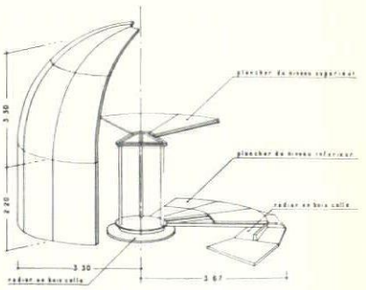
To the Greenland Station

The radical project by Victor Bodiansky and the ATBAT office for lightweight expedition-huts to serve the French Antarctic Geophysical Year base was illustrated in AR, September, 1956. Unexecuted, it remains a monument of frustrated ingenuity, but its example has not gone by default, and the same team have now designed a simplified version, 19, in plastic sandwich-panel construction for use as an over-wintering base for the French research-team on the Greenland ice-cap, and one has already been parachuted into position. The method of assembly is shown in 20, the lower floor having work-spaces and communal areas distributed peripherally

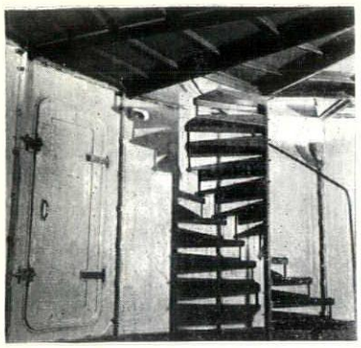


19

around the walls, with a service-cooking core in the centre, while the domed upper part has six cabins for sleep and study, plus two instrument rooms, arranged radially around a central landing, to which access is gained by the lightweight spiral stair seen in 21. This view also gives some



20 schema de montage



21

idea of the bolted assembly of the panels and the massive double catches on the door which will be needed to secure it against the weather—even so, this will, in service, be only the outer door of a two-door air-lock.

Where this scheme differs most from the Antarctic version is in not having the central post construction and ingenious point-and-guy foundations, being envisaged from the start as a stressed-skin construction capable of being set down on a more-or-less level snow surface, rather than the rocky terrain anticipated in Antarctica.

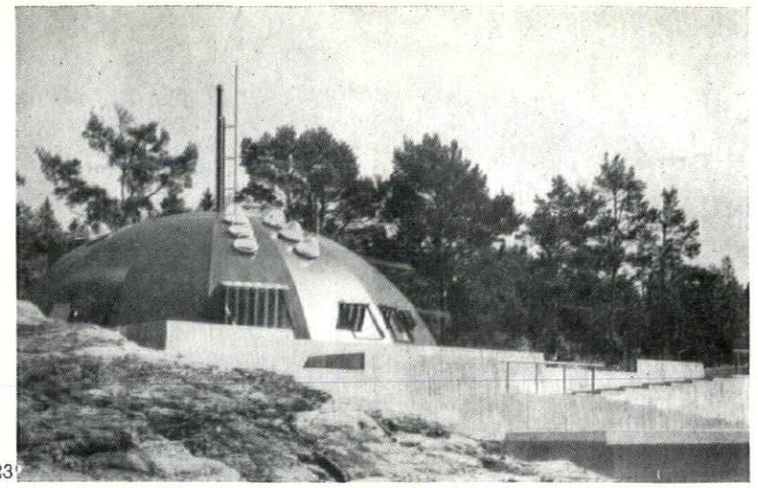


22

Pirelli Completed

1959's big four European sky-scrapers were one nearer completion as December began. With Phönix-Rheinrohr still to come, the Pirelli tower joined the Torre Galfa in Milan and Mannesmann in Dusseldorf (*World*, AR, November, 1959) among those safely and impressively out of their scaffolding, 22. Since the completed tower will be much admired, thought about, and discussed, it might be as well here to re-establish the distribution of credit for its design, which has tended too often (even in the pages of THE ARCHITECTURAL REVIEW) to be given exclusively to Gio Ponti and Pierluigi Nervi. The responsibility for its design should go to two design offices—those of Gio Ponti, Antonio Fornaroli and Alberto Rosselli; and of Giuseppe Valtolino and Egidio dell'Orto—and to two structural consultants—Pierluigi Nervi and Arturo Danuso. Clearly, the credit for so remarkable a building will be a matter of consequence to all those who participated in its design, and the *Architectural Review* wishes to apologize to those who have, on occasions, been omitted.

For the Pirelli building is a remarkable achievement—a fact which may have been somewhat obscured by an energetic publicity campaign which has been pointing out, for some four years now, and in a variety of languages, what a remarkable achievement the Pirelli Tower was going to be. It is the measure of the remarkableness of the achievement that the finished building appears to live up to the advance publicity with unqualified success. What now remains to be seen is the extent to which performance measures up to promise—how well the office-module serves office use, and the behaviour of the special curtain-walling and air-conditioning arrangements under Milan's rather taxing climatic conditions.



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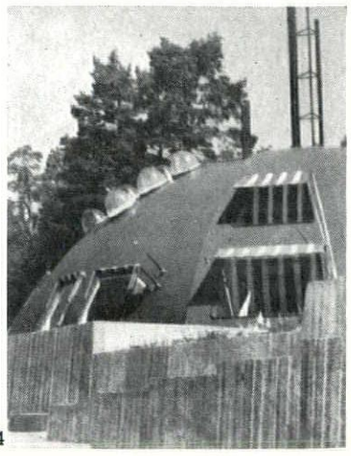

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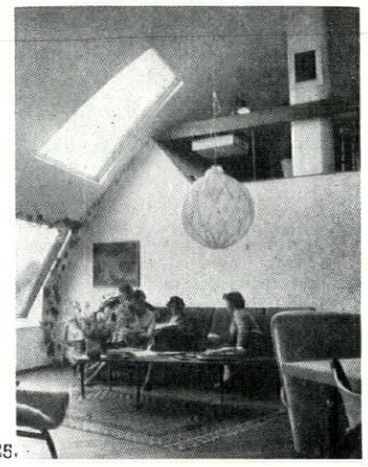

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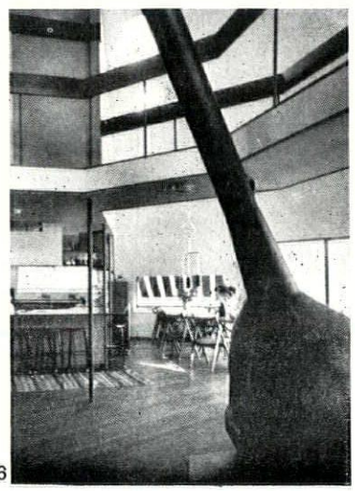


26

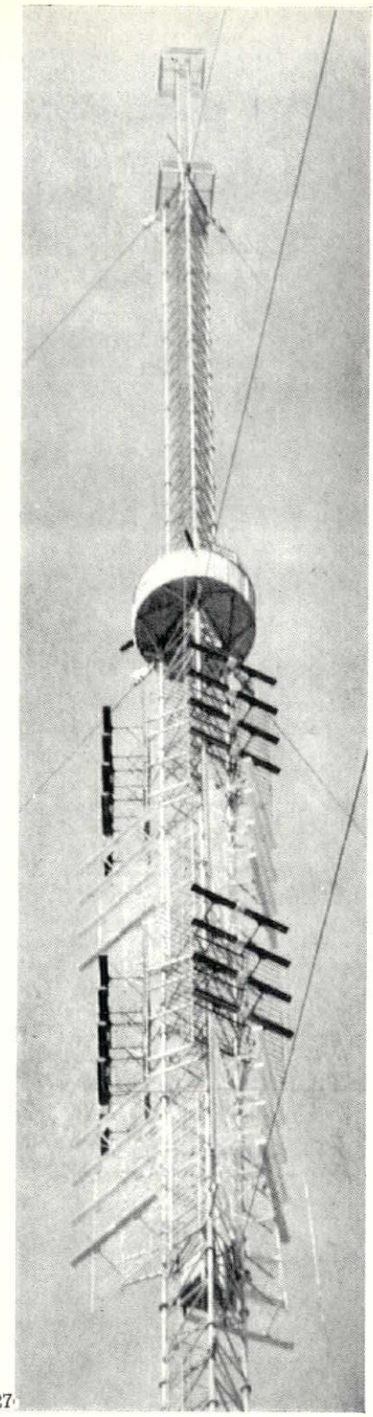
The Erskines Have Landed!

The words 'Science-Fiction Dome' normally summon to architectural minds the image of a Buckminster Fuller construction, but for an astonishingly accurate (and surely not entirely coincidental) example of the image it might summon in the minds of SF-readers, we can now turn to Ralph Erskine's recently-designed country-house at Lisön, 23, in Sweden, with its segmental dome form and mysterious projecting 'antennae' and 'bug eyes,' 24, the whole painted a lichen grey, like the surrounding rocks, as if visiting aliens, having landed, were trying to camouflage their base. The reasons for the low, domical shape are as functional as those for the shape of the French Greenland hut (see 19) and for the same reason—protection against an extreme climate. The structure, however, not needing to be air-transported, is relatively massive, being of sheet steel.

Having commented on the extreme functionalism of the design of the building envelope, and the treatment of the garden as a terrain-sculpture, the Swedish magazine *Arkitektur* (8, 1959) observes that 'in the controlled air conditions under this vault the living space has been planned with constructive and functional freedom,' and it is, indeed, remarkable how the interiors, 25, of this tightly disciplined dome reveal the romantic, sculptural, liberated space-composition familiar from Erskine's earlier and more loosely composed buildings; even Erskine's familiar freestanding fireplaces and 'wandering' chimneys are present, 26. In this, and various other schemes recently proposed (mostly by engineers), the possibility begins to emerge that in buildings in which the envelope is effectively predetermined by the use of some form of vault, the interior may prove to be more free and functional in its spatial planning than those in which the functional spaces are predetermined and the envelope is supposed to result from their most efficient assembly. This, should it prove true, will be a reversal of the expected quite as strange as any in science fiction.

Video Tower

Truth is stranger than fiction. Science is persistently stranger than art—even art that claims to be scientific. Some time ago there was exhibited in Paris, at the International Building and Public Works exhibition of 1955, a Cybernetic Tower—a lattice mast with projecting metal vanes that was intended to



27

be not only a work of art in its own right, but also to transmute sunlight and wind-pressure, electronically, into a species of Aeolian music. Four years later, the Swedes proudly announce that, to distribute TV and FM transmissions over a large area of Southern Sweden, they have built the tallest lattice tower in Europe, just on 1,000 feet high. Since this is concerned with communicating systems, it too has a claim to be considered as a cybernetic tower, and when it is seen, 27, it proves to be very like the Nicholas Schoeffer version in Paris, although the closer-packed antennae of the Hörby TV tower make a far more forceful visual image. The chance of influence from Paris on Hörby can be ruled out—this must just be one of those coincidences which a well-run *Zeitgeist* is bound to produce even under conditions where communications are so good as to threaten to short-circuit it.

BOOK REVIEWS

I CARATTERI DISTRIBUTIVI DEGLI ANTICHI EDIFICI. *By Paolo Chiolini. Milan. U. Hoepli. Price* 46*s*.

This is a curious book devised maybe for students of architecture or made up from lectures for such students (the author is a lecturer at the Milan Polytechnic). It is illustrated entirely by line-drawings—224 of them—mostly plans with a few sections and elevations and occasionally, charmingly done, exterior and interior views.

The title is curious too, it means 'The Planning of Ancient Buildings,' but that is not what it offers. There are limitations in time as well as space. If ancient is meant to apply to Antiquity, then Greece and the Orient are missing and we ought to be told; for as soon as we know that Antiquity is represented solely by Rome, we have no further grievance.

In addition to Rome the book deals with the whole of the Middle Ages, but the really disturbing fact is that the author's ancient buildings are almost exclusively Italian. Yet you can obviously not discuss for instance the types of Roman villas without Hagia Sophia and the basilicas of Asia Minor, Syria and North Africa. As it is, alternation of supports, west apses, and the problem of nave vaulting and domes do not appear. For the latter we could, of course, have been introduced to S. Salvatore at Spoleto, but perhaps Professor Chiolini does not believe in the early date of the dome there. His choice of Romanesque and Gothic architecture is affected by the fact that Italy was then no longer a donor of styles but a recipient. So the essential innovations such as ambulatories with radiating chapels, and again the whole problem of vaulting, are merely touched upon, and the equally important problem of west towers, west transepts, 'westworks,' etc., is not mentioned. The treatment, incidentally, is consistently typological, not historical. The author enumerates planning varieties but does not follow them from start to spread. The stress is everywhere on function, so the book is at its most valuable in the treatment of less familiar types of buildings, Roman granaries and meat markets, medieval town halls, the medieval naval dockyards of Pisa and Venice, etc. The blocks of flats in Venice and their amazingly intricate staircase arrangements are unfortunately not included (see AR 107, 1950). The book is excellently produced but it has no index and little use has been made of literature of the last ten or twenty years.

N. Pevsner

SIX GREAT ARCHITECTS. *By Robert Lutyens. Hamish Hamilton.* 12*s*. 6*d*.

In these days of standardization, one is so used to reading the same ready-made opinions expressed in slightly different words, that it is very refreshing to read Robert Lutyens's six essays. Whether one agrees with him or not, he has at any rate opinions of his own and no hesitation in stating them. His basic approach to architecture is unorthodox by 'contemporary' standards, but he gives good reasons for holding the views he does.

The book is obviously aimed at an amateur reader but, as historians, the majority of architects may be classed as amateurs. Many will read it with profit and enjoyment, and will be fascinated by the son's-eye view of Edwin Lutyens, even if they find the author's views on other architects irritating or unimportant. The reader who already has some architectural background can judge for himself how far he is prepared to accept Lutyens's views, but to one who has never heard the other side of the case, this book may well be somewhat misleading and, quite apart from matters of opinion, there are certain inaccuracies or deviations from generally accepted fact and from customary spelling of proper names, such as 'Vetruvius' and 'Nostal Priory.' There are also a number of printing errors, for example: Robert Adam's patroness—the eccentric Countess Hume—appears as 'Countess Howe.'

John Brandon-Jones

HABITATION 2. *Edited by J. H. van den Broek. Elsevier Publishing Co. (On behalf of Bouwcentrum, Rotterdam and IUA).* 95*s*.

The second part of the three-volume study of world housing initiated by the International Union of Architects (using the Bouwcentrum and the architecture department at Delft to handle the documentation) covers four European countries with established reputations in the field of housing—Denmark, Sweden, Switzerland and the UK—one with some spectacular individual structures—France—and two that are virtually unknown territory for diverse reasons—Belgium and Czechoslovakia. The Scandinavian and British coverage contains no surprises, the Swiss includes one or two housing schemes that are not so well known, the French has surprisingly little to set alongside Le Corbusier's *Unités*, but gives some idea of the housing work of the late André Sive, and of the scope of the HLM programme.

Conversely, the oft-heard jibe 'There's no modern architecture in Belgium' proves to be in need of revision, for *Habitation* 2 illustrates schemes that are highly competitive by European standards, as well as some very banal ones whose interest is primarily statistical. The picture of Czechoslovakian housing that emerges is one of extraordinary variety—cottage developments in peasant-style, small blocks in almost the Italian neo-traditional manner, Stalin and post-Stalin 'realism,' a tower-scheme of Perret-like regularity and one unmistakably modern development at Litvinov, a multi-wing block whose symmetry and facades recall the work of Tecton. It is in the Czech section, also, that the only substantial or interesting entries on standardization are to be found—elsewhere, one suspects (after reading between the lines of the French entry under this head) that the subject has been played down because architects are not much involved in it. Even for these marginal matters, *Habitation* 2 is of interest, but its overwhelming recommendation is the sheer bulk of clearly tabulated information it brings together for comparison and study.

Q.S.C.

MARGINALIA

Cast Iron Classicism

Much has been said and written about the classical contribution to the Functional Tradition, and a reassuringly domestic footnote to the debate has been provided by a Victorian cast-iron radiator, 1, which has just been put back into commission at the Avonmouth Hotel in Mudeford, on Christchurch Harbour—connoisseurs of the tenacity of classical traditions will note how the Doric form remains persistently



1

convincing, in spite of the way in which the heating tubes turn the flutings inside-out, so to speak.

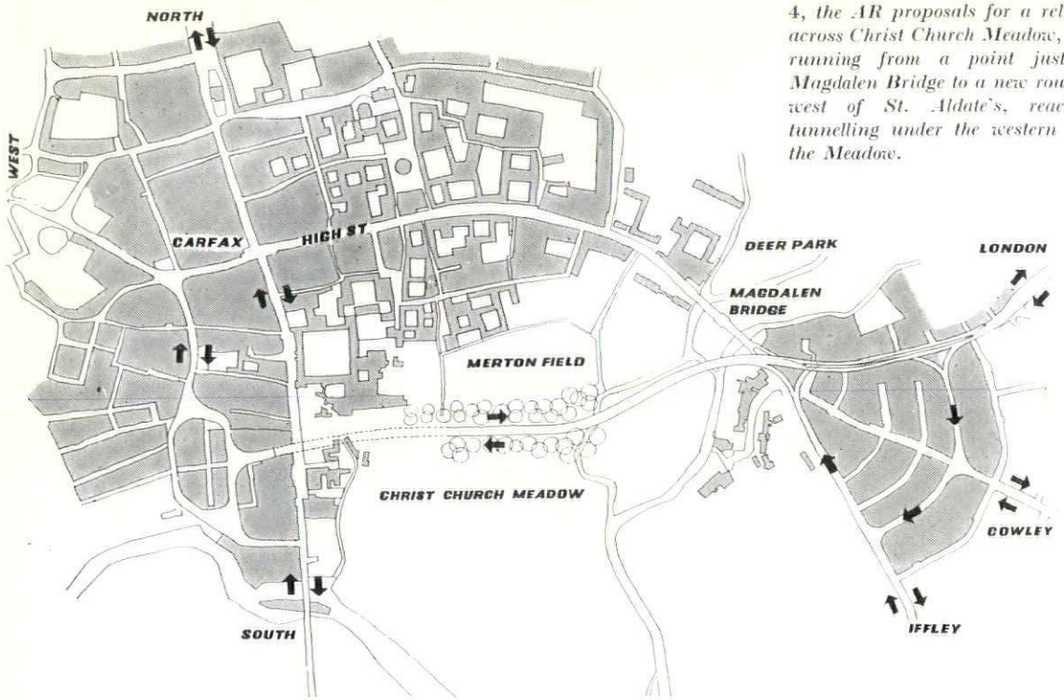
Mudeford also boasts another monument of cast-iron classicism, 2, a letterbox whose purely Doric form will do much to explain to younger generations, who rarely have a chance to see this type today, why the common GPO posting box is mysteriously referred to as a 'Pillar-box.'



2

Motorway Signs

Since it seems to be generally admitted that the experimental route-signs in use on the Preston by-pass, and intended for other British motorways as well, are an immense improvement on previous standard signs of this type, it is hardly an opportune moment for the Council of Industrial Design's magazine *Design* to start rocking the boat by making space available for detail quibbling about the sizes of the signs, the use of upper and lower case letters, serifs versus sanserifs, and so forth. The signs actually reproduced by *Design* to illustrate the argument represent so closely the type of visible signal that enlightened interests have been



4, the AR proposals for a relief road across Christ Church Meadow, Oxford, running from a point just before Magdalen Bridge to a new roundabout west of St. Aldate's, reached by tunnelling under the western part of the Meadow.

campaigning for over many years, and confirm those interests' campaign so fully by the improved legibility they offer, 3, that one would have thought that here was just the sort of case of Officialdom Improved that the CoID was founded to nourish and sustain.

The worst feature of the 'debate' is that both sides—for and against the new signs—are manipulating the same experimental results in support of their cases, together with a fair amount of mild rhetoric, but the experiments in question have nothing to do with this particular set of signs or even with English conditions. Practically everyone involved in the affair is quoted as saying that more research is needed —would it not have been better to wait until there were come incontrovertible results from field tests (one of which would have been to give



3

the new signs a fair trial without first undermining public confidence in them) and then proceed on a basis of facts rather than of intra-professional typographical polemic ?

Oxford Relieved—The Figures

Polemics first, facts afterwards; the customary and frustrating pattern of public debate has run its course once more, this time in connection with the various schemes for the relief of traffic in central Oxford, but the outcome, for once, is promising. The Road Research Laboratory has now published the results of its survey of Oxford traffic movements, and the figures fully support the proposals made by THE ARCHITECTURAL REVIEW as long ago as May, 1956. The AR proposal was for an inner relief road across and partly under Christ Church Meadow, its use made more or less mandatory by the closing of Magdalen Bridge (see map, 4), and supported by suitable outer relief roads to draw off purely arterial traffic from the central area.

The Road Research Laboratory's figures which were published at a melancholy moment, not long before the death of Lawrence Dale, who first proposed a radical solution to Oxford's traffic problems—these figures show that an inner relief road across the Meadow would reduce traffic in the High (the main object of all the schemes under discussion) by eighty-four per cent, *even without closing Magdalen Bridge*. With the bridge closed, the reduction would be of the order of ninety-four per cent. The statistical evidence in favour of the Meadow road thus seems invincible, and the largest of the political *blocs* on the City Council is committed to its construction. It appears to be only Whitehall that is holding up the scheme now. As an Oxford correspondent of the *Cambridge Review* wrote recently (10 October, 1959) 'It was Macmillan, H. (Balliol) who allowed the new Woolworth's to build despite the City's refusal of consent, thus making the City centre the great magnet for local shoppers and it is the same man who appears to be delaying any Whitehall decision on what road should be approved. . . .'

Most Ancient Monuments, II

The much-publicized, and much discussed, archaeological discoveries made at Stonehenge over the last half decade, and culminating during last year's repairs and partial restoration (AR, November, 1959), have now, with commendable promptness, been incorporated in a popular guide-book, written by Professor R. J. C. Atkinson for HMSO (three shillings). The guide covers Avebury, as well as Stonehenge, and all the associated monuments in the vicinity of both. In consequence it has to cover a variety of wooden circles as well as stone ones, barrows and artificial hills—including Silbury, the largest in Europe—avenues and ditches, and ends up as an uncommonly useful general pocket-book on Neolithic and Early Bronze Age monuments in Britain.

The text is conscientiously unsensational, even going out of its way to debunk the supposed Druidical connections of the monuments, and sticking resolutely to the ascertainable facts (though one would like some more evidence for the up-and-down career of the bluestones at Stonehenge). The photographs are excellent and informative, as are the diagrams, but the 'imaginative reconstructions' of the monuments, their construction and use, are so full of wild Gothic Drama and windswept twilight that one wonders to whom the Stationery Office are trying to sell the film rights.

OBITUARY

Sir Ambrose Heal: 1872-1959

Not many men alive in 1959 could claim to have been members of the Art Workers' Guild in William Morris's lifetime; any scholar could have been proud to have written *The English Writing Masters*, or *London Furniture Makers*; any designer would have been proud of Sir Ambrose Heal's collection of medals, awards and honours. Yet it is less for these things that he will be remembered than as the man who broke the ingrained conservatism and bad taste of the Tottenham Court Road. His life, even more than Sir Gordon Russell's, spans the history of the modern movement in design from the age of the pioneers, to the age of the mass-acceptance of 'contemporary'—and he had a very large part to play in this revolution. Early in his career he inherited some of Ashbee's craftsmen when the Guild of Handicrafts moved out to the Cotswolds; with them he set out to introduce a more straightforward and functional kind of design in wooden furniture, not only for his own satisfaction and the delight of a select band of connoisseurs but also, through the old established family bed-making business, for the use of a wider public.

The expansion of the old business into a place where enlightened consumers could find the whole range of domestic furniture and equipment, none of it below a decent minimum standard (and much was very good by international standards) of workmanship, performance and taste, did not at first achieve any notable success, but simply by always being there, and never lowering its standards, it eventually became one of the solid bases on which the changed British attitude to domestic design was founded. When Sir Ambrose died on November 15, at the great age of 87, he had lived through, and largely produced, the change-over from handicraft to mass-production that made 'Art for All' a little less of a slogan and a little more of a reality.

H. O. Dell

The death took place on November 1 of Oliver Dell, the photographer, who with his partner H. L. Wainwright, was for many years, up to the end of the last war when he retired, official photographer to THE ARCHITECTURAL REVIEW. During the ninteen-thirties especially the names of Dell and Wainwright were synonymous with the best photographic representation of modern architecture. Architects, as well as the REVIEW, owe them a great deal for the skill and artistry with which they interpreted the qualities of modern buildings in England to the whole world.

INTELLIGENCE

The Minister for Local Government of the Republic of Ireland has approved the appointment of Mr. Daithi P. Hanley as Dublin City Architect, a new post created by the amalgamation of the offices of city architect and housing architect. Before his appointment Mr. Hanley was the Dublin Housing Architect, and previously he was Housing and Town Planning Architect to Dunlaoghaire.

ACKNOWLEDGMENTS

COVER: Galwey Arphot. WORLD, pages 1–4: 19, 21, Jacques Masson. MARGINALIA, pages 6–7: 1, 2, John Tarlton; 3, Design. PREVIEW: page 11, Sydney W. Newbery; page 13, bottom, Elsam, Mann and Cooper; page 14, top, Galwey Arphot; remainder, Henk Snoek; page 16, F. W. Rushton; page 19, Times Printing Office; Henk Snoek; page 20, top, Galwey Arphot; bottom, P. W. and L. Thompson; page 23, top, Alfred Cracknell; bottom, Sydney W. Newbery; page 24, bottom, Galwey Arphot; page 27, top, Alfred Cracknell; bottom, W. E. Middleton and Sons; Mann Bros.; page 28, top, Sam Lambert; bottom, Alfred Cracknell; page 31, top, Elsam, Mann and Cooper; bottom, Sydney W. Newbery; page 32, Toomey Arphot; page 33, Toomey Arphot; page 37, top, London County Council; bottom, Sydney W. Newbery; page 38, top and centre, Galwey Arphot; bottom, Granada TV; page 41, Galwey Arphot; page 42, London County Council; page 47, top, Galwey Arphot; bottom, Ministry of Works; page 48, top, Alfred Cracknell; centre, Ministry of Works; bottom, Galwey Arphot; page 50, John Maltby; page 55, top, Galwey Arphot; bottom, Henk Snoek; page 56, top left, John Maltby; top right, Galwey Arphot; bottom, London County Council; page 60, Patricia Cain; page 61, Edward Leigh; page 62, Philipson Studios. MISCELLANY, pages 65–74: Exhibitions, 1–3, Amsterdam Municipal Museums and Whitechapel Art Gallery; 4, 5, Marlborough Fine Art; 7, John R. Freeman and Co. Landscape Exhibition, 1–5, 8, 11, A. Jansen; 6, 7, 9, 12, Gordon Logie; 10, Beringer and Pampalucki.

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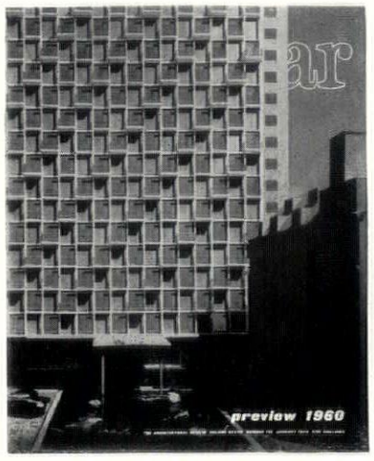
Volume 127 Number 755 January 1960

SPECIAL PREVIEW ISSUE



The cover shows the proposed western elevation of a project for an hotel at the corner of Park Lane and Brick Street, London. The architect is Vivien Pilley, and the scheme is further described on p. 54 of this issue, but the project has the additional interest—over and above its qualities as architecture—that it is the first of a number of proposals for hotels around the boundary of Hyde Park to be given the go-ahead, after the recent town-planning controversies over the siting of tall blocks in that area. In this case the hotel does not directly overlook the Park, but sees it across the northern end of Hamilton Place.

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THE ARCHITECTURAL REVIEW
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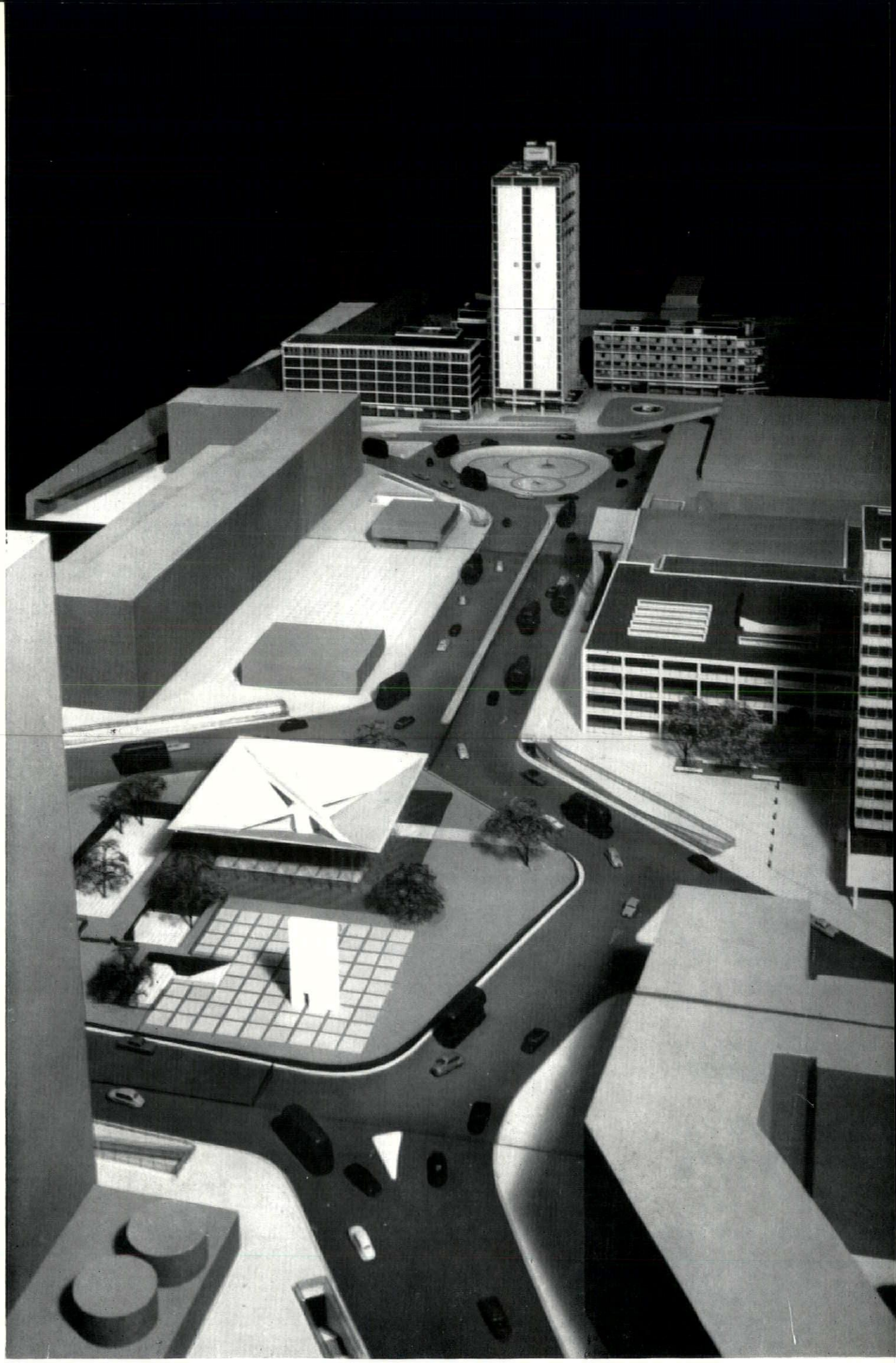
This aerial view of the London County Council's model of their reconstruction area at the Elephant and Castle has been chosen to introduce this year's Preview issue because a number of the ideas and tendencies most characteristic of the work at present on architect's drawing-boards (of which the issue provides a selective survey) are represented in it. First there is the close integration of traffic movement and building development. The Elephant and Castle is one of the busiest traffic intersections south of the Thames and the L.C.C.'s comprehensive reconstruction of the war-damaged area round it began with a new traffic layout, involving the segregation of vehicles and pedestrians, by which the pattern of redevelopment was largely determined. Next there is the principle of mixed development, which the L.C.C. have lately been fostering on social as well as economic grounds. This principle is exemplified in the Draper Street portion of the area (seen in the background of the picture and also illustrated on pages 42-43). Here one small group of buildings contains offices, flats, maisonettes, shops, garages and workshops. Next there is the emergence of the tower block as the dominant feature of a group of city buildings. The same Draper Street scheme contains an office block of 25 storeys. Next there is the redevelopment of sites within reconstruction areas by private finance, involving difficult problems of architectural control. The areas shown diagramatically on the model are still under negotiation; to the left of the picture is one site where a scheme by Ernö Goldfinger has been approved (see pages 40-43). Finally there is the problem of assimilating historic buildings in a reconstructed setting. On the right of the main trafficway can be seen the classical portico, which survived the bombing, of the Metropolitan Tabernacle. The square construction in the centre of the picture is the Faraday memorial. The building on the right is the London School of Printing by the L.C.C. architects, now under construction.



ARCHITECTURE AFTER 1960

For architectural purposes, the middle of the Twentieth Century is not necessarily where it is by the calendar. If the reader will look back at the mid-century surveys published in THE ARCHITECTURAL REVIEW in 1950, he may well feel that he is looking back into a different world, and that somewhere about 1950 there must have been a great divide. But if the events of the Fifties are enumerated in their chronological sequence, it will be seen that the divide does not lie in the early part of the decade, near the Festival of Britain, but later, after Ronchamp, nearer 1960.

This is in accord with the predictions of the forecasters. Some time ago Sir John Summerson, with his historian's sense of the mathematics of cultural change, propounded a Thirty-Year Rule governing changes of architectural taste. On this basis, and extrapolating from the events of the fairly recent past, he proposed 1957 as a year of architectural crisis and change. Although it would have been difficult to pin anything down at the time—Sir John having brushed off the New Brutalism (1955) as an attempt to jump the gun—it is now clear that 1957 must have been just such a year.

Critics and pundits have been eager to offer labels, praise and blame—in fact it has been a period when an enterprising manufacturer could have put out a do-it-yourself pundit-kit in which the aspiring theorist had only to fill in the blank in the phrase *The New* (. . .)-*ism* and set up in business. But most of the blanket theories that have been launched have proven fallible, partly because the situation is too diverse to be covered in a single term, and partly because most labels have concentrated on the purely formal side of what has been built or projected, and failed to take into account the fact that nearly all the new trends rely heavily on engineers or technicians of genius (or nearly so). On the other hand, attempts to explain the situation in terms of new engineering techniques only, have also

failed in their turn because—as Robin Boyd pointed out (AR, November, 1958)—it has been the architects who demanded the creation of new vault-forms and structures.

Somewhere along the line, the Modern Movement's private mythology of Form and Function has come apart, to the extent that many critics have announced the 'end of functionalism'. However, one notes that these jeremiads are usually sparked off by curved buildings, and it is clear that all that has really died is the old slogan, Functionalism with a capital F, and its accompanying delusion that curved forms were the work of untrammelled fancy, and only rectangles were rational and functional.

But is a new and equally compelling slogan, complete with capital letter, just around the corner? Plenty of experimental models are available, from Anticipatory Design to Une Architecture Autre, by way of the All-in Package Design Service and A More Crumbly Aesthetic. In the midst of these competing bids for intellectual dominion, the architectural profession, as a profession, is apt to draw back into itself a little, scribe a line around the status quo, about as far out as it can reach without straining, and say 'Everything beyond this line is Not Architecture, and no real concern of ours'.

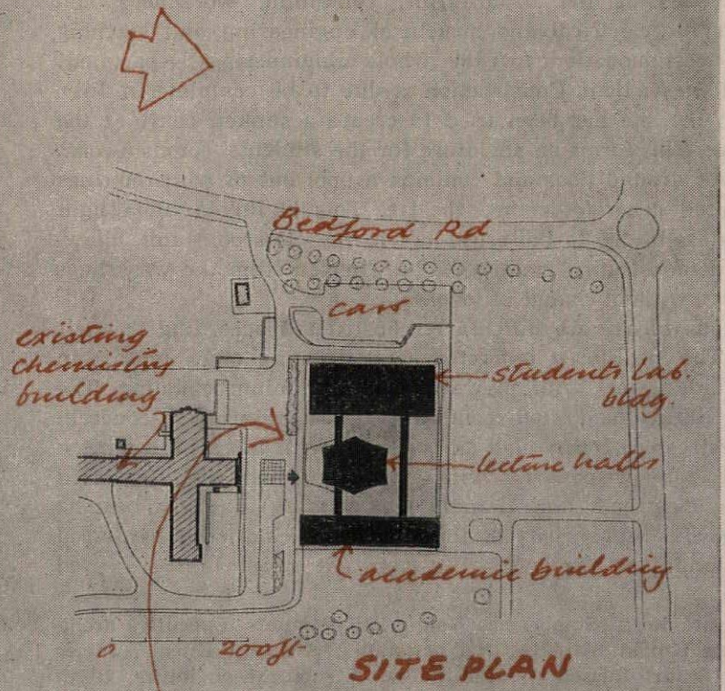
Unfortunately, attempts to stand pat on professional tradition are constantly thrown off-balance by the all-devouring artistic conscience with which the Great Pioneers endowed the Modern Movement. Architects have been conditioned for most of the past sixty years to treat nothing designed as alien to them, and they continue to invade neighbouring fields of endeavour, such as typography and road planning, where they find their professional disciplines of mind suggestively inadequate. What the inadequacies suggest is always that professional discipline be extended a little this way or that—cost-planning, the integration of the arts or some such—beyond the limits of professional stability.

Just how the balance will tip, in what stance the profession will brandish its new, compelling, unifying slogan is difficult to prophesy. There may be some subtle pointers to be found on the following pages, in which THE ARCHITECTURAL REVIEW makes its annual Preview of buildings under construction or on the drawing board at the threshold of the Sixties, but it would need skilful guidance to find them. On the other hand, it is possible to indicate three major cultural (or, if you prefer, theoretical) influences that will have to be equilibrated before the situation steadies. All three are old and familiar friends, but all have acquired new faces in the last thirty years.

One is Science, constantly modifying the way in which an architect can act; the second is his view of the profession itself, affecting the subjects on which he permits himself to act; the third is the study of history, constantly modifying his view of what he has done after he has acted.

The last of these is a subject that could hardly be discussed among progressive architects in 1927, but now—in 1960—it is as compelling as a popular song. It will be discussed, along with the impact of science and current views on the nature of the profession, in a series of articles in THE ARCHITECTURAL REVIEW this year. The series, which is under the editorship of Reyner Banham, will commence in February with an attempt to take stock of the present state of architecture, torn between tradition and technology, and will conclude in June with a survey of the emergent design-criteria for the Sixties. None of these features is committed to prophecy, the aim, rather, is to examine the ground on which we stand and the ground where we shall have to tread next.

1 UNIVERSITY BUILDINGS



NATURAL PHILOSOPHY BUILDING: ABERDEEN

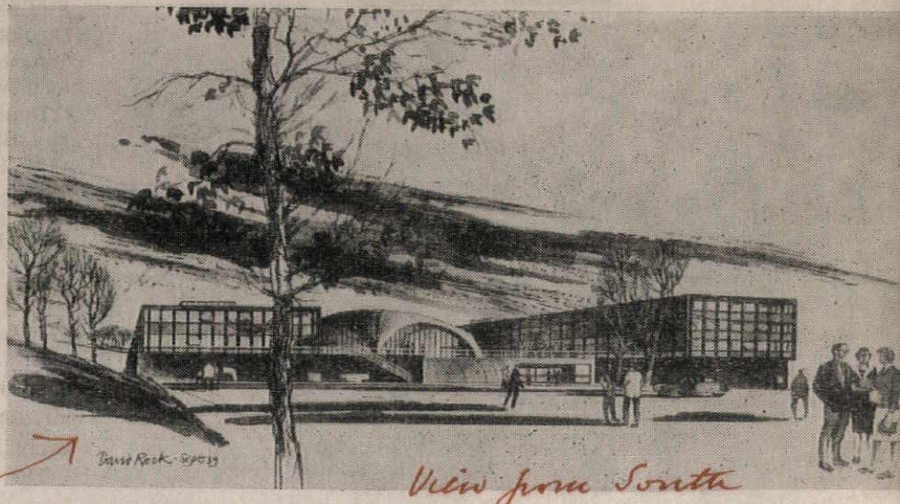
J. Douglass Mathews and Partners

Designed in relation to the adjoining chemistry building; part of the development of the university lands in Old Aberdeen following Prof. Robert Matthew's plan. Car parking is provided on the west side of both buildings to keep the space between them free for pedestrians. Work will start in July.

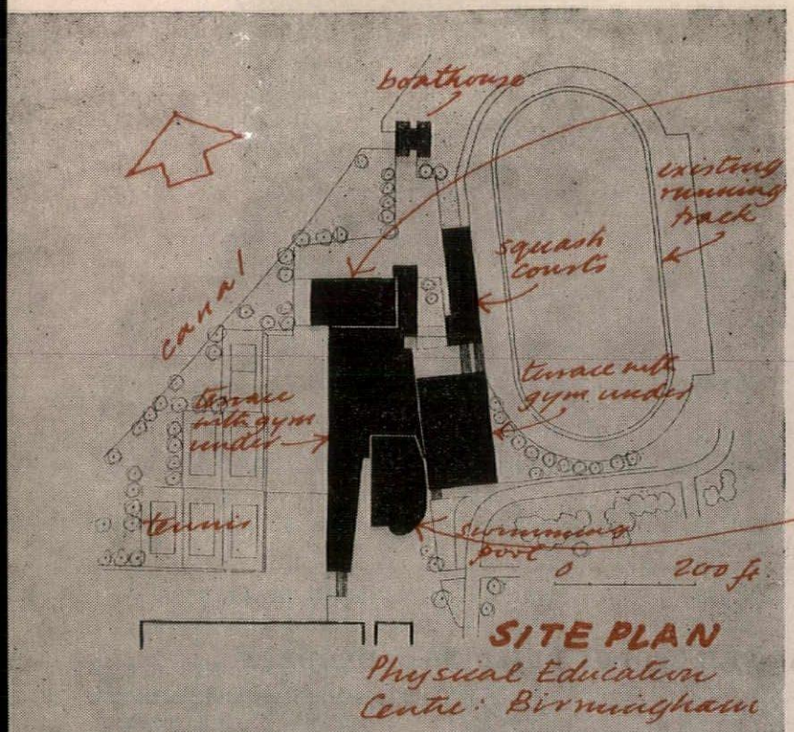
Teaching and research accommodation is balanced about the main entrance and lecture halls, which are planned for independent outside access. A large lower-ground floor area, required to meet the needs of complex physical and vibration-free conditions in the experimental areas and the research areas controlled from the academic staff block, forms a podium base to the building. Individual blocks are linked to the entrance by covered ways, forming courtyards either side of the main lecture-hall. The research areas had to be planned in close relationship to the workshops.

The structure is a precast concrete frame, exposed externally. The podium walls are faced with granite and the infill panels between mullions above the podium with granite-faced slabs. The podium roof is a reinforced concrete slab with no exposed beams that would interfere with the run of services. The main lecture-hall has a shell-concrete roof independent of the main structure.

Partner in charge, E. D. Jefferiss Mathews. Executive architect, E. J. Hill. Structural engineers, C. V. Blumfield and Partners. Electrical and mechanical engineers, G. H. Buckle and Partners. Acoustics consultant, Hugh Creighton. Quantity surveyors, Dansken and Purdie.



View from South



SITE PLAN
Physical Education Centre: Birmingham

PHYSICAL EDUCATION CENTRE: BIRMINGHAM

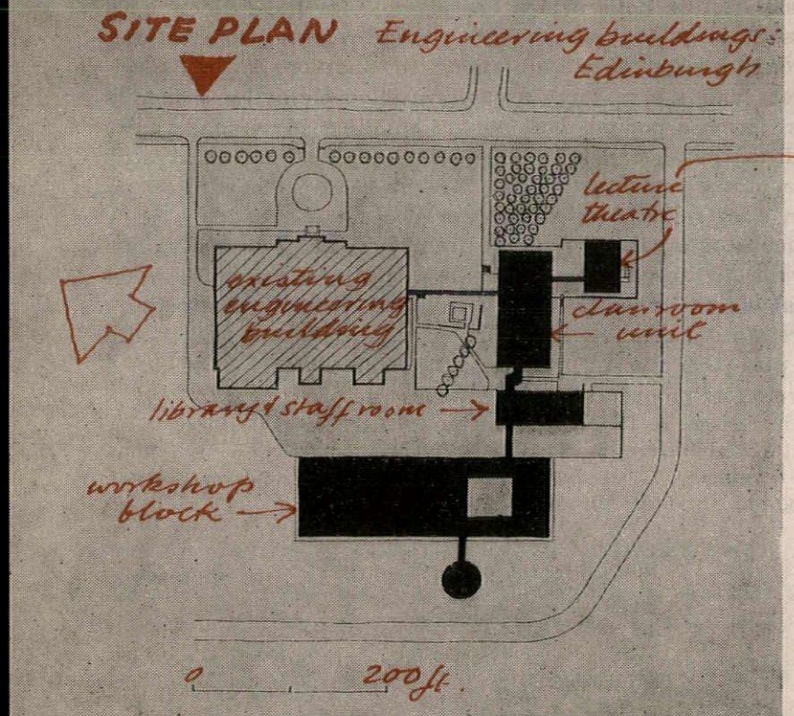
Chamberlin, Powell and Bon

Contains sports hall, two large and five small gymnasia, indoor ice-rink, squash-courts and swimming-pool as well as administrative and changing accommodation. To the west of the group of buildings is a hard play area, and rising from it to the level of a canal which bounds the site are six tennis courts in the form of stepped terraces. Work will begin this autumn.

The gymnasia, which required to be top-lit, are grouped, together with the ice-rink and the teaching, changing and administrative accommodation, on the lowest part of the sloping site adjoining the main university ring road. Above these the site is terraced upwards towards the existing running-track, and here are placed the sports hall, squash-courts and a boat-house. Higher still is the swimming-pool, poised above an entrance concourse with its higher end, covering the diving-platforms, dominating the whole group.

Construction is reinforced concrete for retaining walls and floor and roof slabs, and load-bearing brick external walls. The swimming-pool enclosure and the conoid roof of the sports hall are shell concrete.

Assistant architect in charge, John Honer. Structural engineers, Flint and Neill. Services engineers, G. H. Buckle and Partners. Quantity surveyors, Davis, Belfield and Everest.



ENGINEERING BUILDINGS: EDINBURGH

Robert Gardner-Medwin

On the edge of the Braid Hills, containing workshops and laboratories for electrical and structural engineering and teaching and staff accommodation for the whole Engineering Department whose buildings adjoin. Construction is due to be complete in July.

A fall in the site has been used to create a sunken court at the eastern edge. This forms an enclosure for the students' common-room on the lower ground floor and contains a pool out of which springs the reinforced concrete lecture theatre. This is linked by a light steel and glass bridge to the crush-hall in the classroom unit, allowing heavy demonstration material to be wheeled from the workshops to the theatre without change of level.

The various blocks are differently constructed according to their functions. The two-storey laboratory and drawing office unit is in exposed welded steel with plywood and aluminium cladding. The five-storey library and staff-room unit has a reinforced concrete (partly prestressed) frame clad on the ends with mosaic-lined brick and in the window-spandrels with grey stove-enamelled insulated panels. The classroom unit (largely single-storey) has load-bearing brick walls. The upper part of the theatre is clad with hardwood planks. Aluminium windows of a constant proportion are used throughout.

Associate architects, Stephenson, Young and Partners. Executive architect, William Knight. Architectural assistants, Anthony Kneale, James O'Donahue, Stuart Russell, George Wilkie. Structural engineers, Blyth and Blyth. Quantity surveyors, Todd and Ledsdon.

SCIENCE AND MATHEMATICS BUILDING: NEWCASTLE

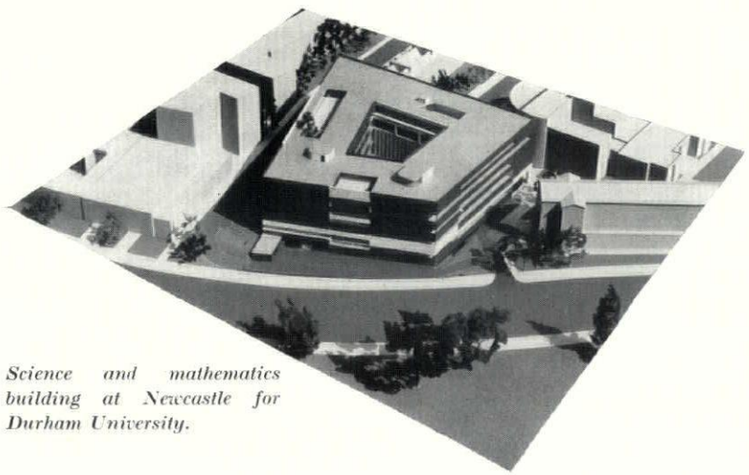
Richard Sheppard, Robson and Partners

For King's College, Newcastle. To house three separate departments of Durham University: Chemical Engineering, Electrical Engineering and Mathematics, together with lecture-hall common to all departments and available also for outside use. Work will begin early in the summer and will be completed in August, 1962.

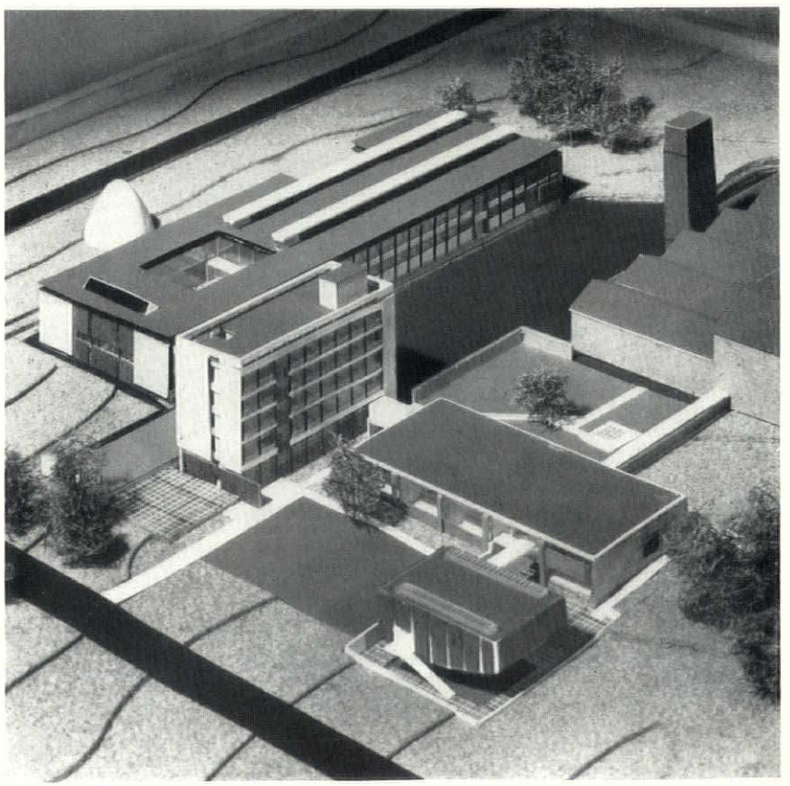
The site is small and the buildings cover the whole area, with a

[*continued on page* 15

Physical education centre for Birmingham University. In the centre, with a conoid roof, is the swimming-pool, and beyond it, with the row of elliptical openings, the sports hall. Changing-rooms are beneath the terrace between them, and beneath the upper terrace, lit by circular rooflights, are the gymnasia. The squash courts are beneath the seating beside the running track, and beyond them (top right) is the boat-house.



Science and mathematics building at Newcastle for Durham University.

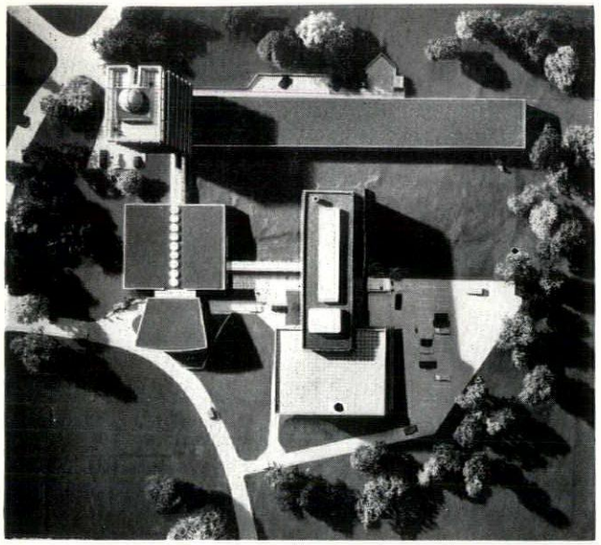


Right, engineering buildings, Edinburgh University: lecture-theatre in foreground, linked to classroom unit; five-storey library and staff unit in centre; laboratories, drawing-office, etc., beyond.

1. UNIVERSITY BUILDINGS



Above, students' union building for the University College of North Staffordshire, Keele, by Stillman and Eastwick-Field. The domed roof at the far end covers the two-storey ballroom.



Science buildings, Exeter University: left, from above, showing the three linked elements of the plan—physics building, lecture-hall block and chemistry building; below, from the south, with the tower of the physics building on the left and the chemistry building on the right.

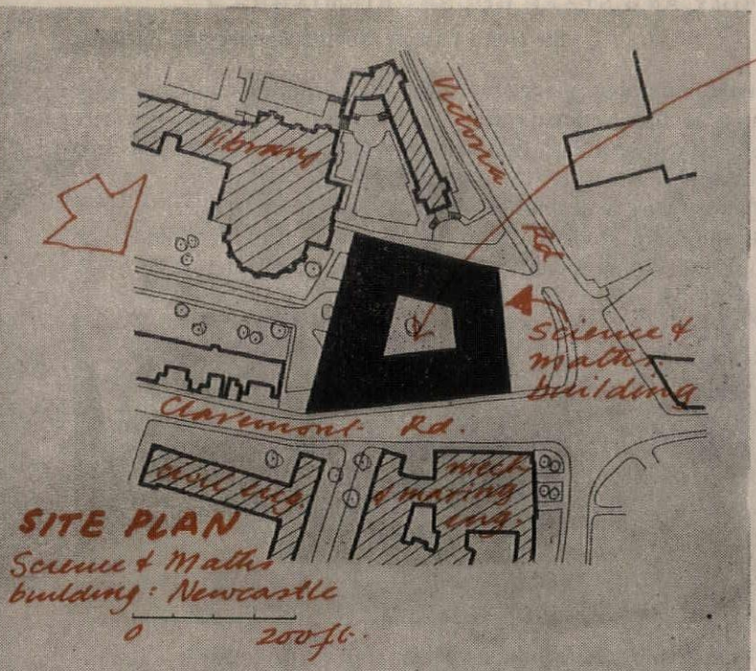


continued from page 12

small central courtyard. The side north-east of the courtyard houses the Chemical Engineering Department, and the side south-west the Electrical Engineering, which also shares the north-west side with administrative offices and the south-east side with the lecture-halls. These have their own entrance and staircase and span 100ft. over the entrance to the courtyard. The Mathematics Department, which consists chiefly of lecture-rooms, seminar-rooms and small rooms for professors and lecturers, occupies the fourth and fifth floors on the south-east and north-east sides.

The building has a reinforced concrete frame with floors spanning 30ft. from a spine frame to the outside walls. It is faced largely in brick, with continuous strip windows varying in height (according to room-heights and uses) from 30ft. in the pilot-plant laboratory to 8ft. in the small offices.

Architect in charge, D. P. Challis. Structural engineers, Hajnal and Myers. Electrical engineers, Barlow, Leslie and Coombes. Quantity surveyors, E. C. Harris and Partners.



STUDENTS' UNION: KEELE

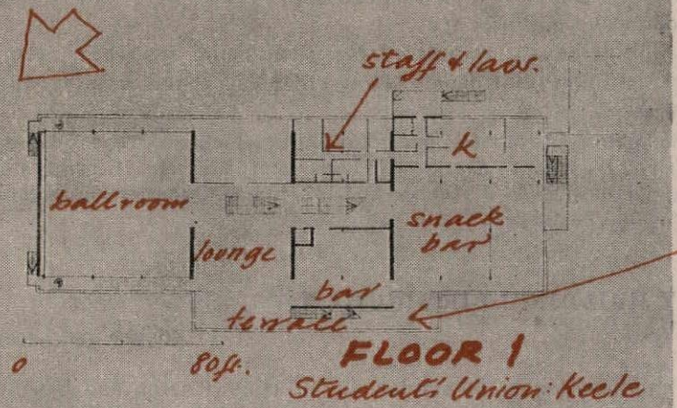
Stillman and Eastwick-Field

For the University College of North Staffordshire, in park-like surroundings between an existing car-park and a belt of trees. Work will begin this year.

The building is cut into the sloping site, allowing the ground floor offices to have lower ceilings than the main entrance hall and the shops and bank, also on the ground floor but with separate entrances. On the first floor are a lounge and snack-bar, both opening on to a large cantilevered terrace, and a two-storey ballroom. Above are billiards and games rooms, TV room, reading rooms and music rooms; also a caretaker's flat.

The structure is a reinforced concrete frame, divided into three sections to guard against mining subsidence. Cladding is concrete panels, bush-hammered.

Associate architect in charge, R. Smorczewski. Structural engineer, Donovan H. Lee. Consulting engineers, Hoare, Lea and Partners. Quantity surveyors, Harry Trinick and Partners.



SCIENCE BUILDINGS: EXETER

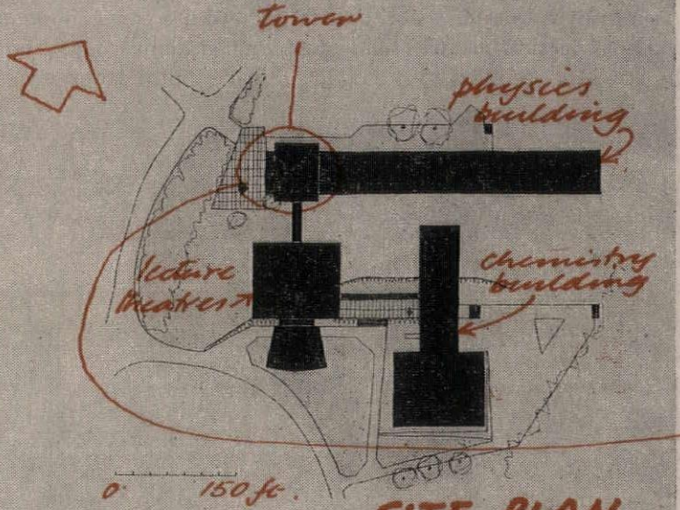
Basil Spence and Partners

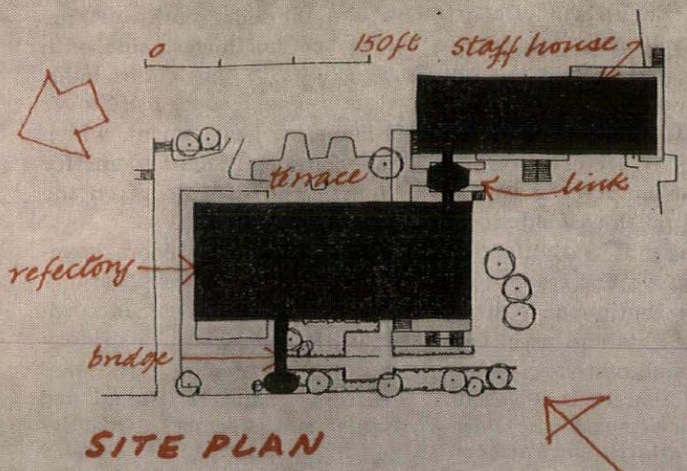
For the physics and chemistry departments, on a steeply sloping and open hill-top site overlooking the city and valley of the Exe: the second group of buildings on this new site being developed by the university, the first having been Sir William Holford's Arts building (AR Preview issue, January 1957), opened last May. To be built in three stages over the period 1961-64, beginning with the chemistry building.

This is planned as three elements: research wing (reinforced concrete structure with precast concrete fins, infill panels of Westleigh stone, aluminium sash windows); teaching wing (reinforced concrete with prestressed beams giving a clear span over the laboratories, faced with brick); base containing entrance hall, boiler-house, service rooms and some laboratories (reinforced concrete faced with brick).

The second stage will be a lecture block serving both departments (a mixture of loadbearing brick and reinforced concrete construction) and the third stage the physics building in reinforced concrete with brick facing. The physics building has a tower marking the highest point of the site, topped by an observatory.

Engineers, Ove Arup and Partners. Heating and ventilation consultants, Steensen, Varming and Mulcahy. Quantity surveyors, Reynolds and Young.





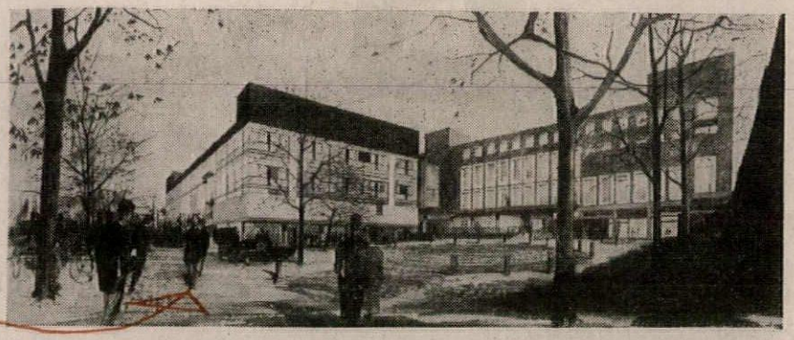
SITE PLAN

REFECTORY AND STAFF HOUSE: BIRMINGHAM

Sir Hugh Casson, Neville Conder and Partners

Two linked buildings, placed at right-angles and facing the same paved court as the projected biology building (see below). Work on the refectory began last September and on the staff-house will begin in March.

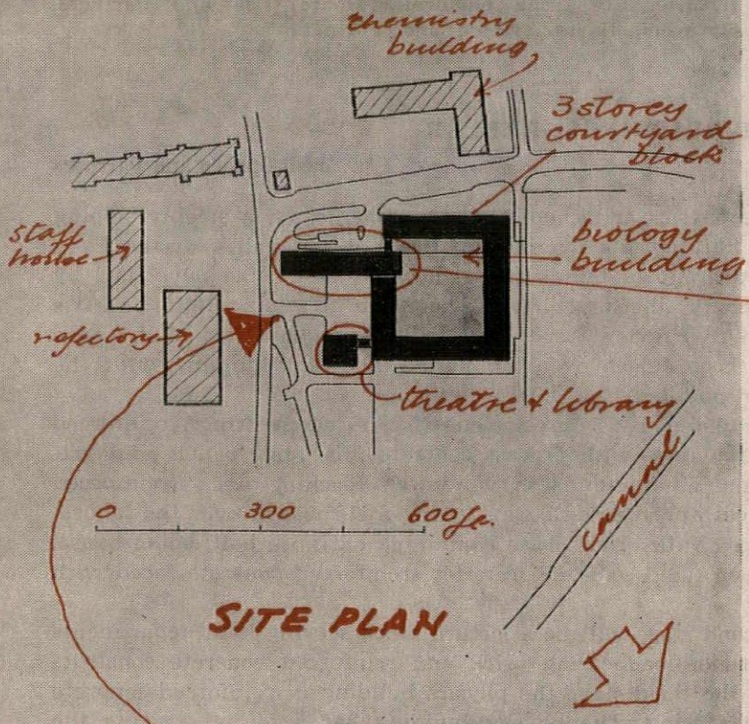
The refectory has a snack-bar, shops and a bank on the ground floor, with the main student dining-room on the first floor, together with a separate dining-room for technical and administrative staff.



On the second floor are common-rooms and on the third a dance-hall, rising into the roof. The staff-house has a bar, billiards room, cloakrooms and women's common-room on the ground floor, common-room and snack-bar on the first, dining-room and kitchens on the second and several formal dining-rooms—together with guest and staff bedrooms on the third.

Both buildings have a reinforced concrete frame with brick cladding and aluminium infill panels below cill level on the window wall of the refectory.

Assistant architects, Montague J. Turland (refectory); D. F. Bayley (staff house). Engineers, Clarke, Nicholls and Marcel. Heating and ventilating engineers, A. J. Smith and Partners. Quantity surveyors, Bond, Foster and Partners.



SITE PLAN

BIOLOGY BUILDING: BIRMINGHAM

Playne and Lacey

Part of the new development plan by Sir Hugh Casson and Neville Conder and near the latter's refectory and staff house (see above) and the chemistry building, also by Playne and Lacey, now under construction and illustrated in the Preview issue, January, 1958. The biology building will be started this summer and completed in 1963.

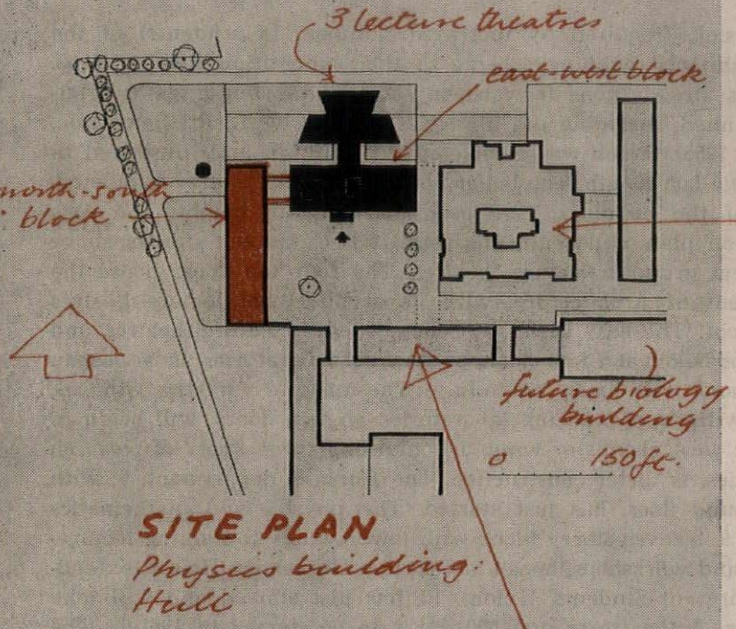
It houses seven departments (Applied Biochemistry, Botany, Chemical Physiology, Genetics, Medical Biochemistry and Pharmacology, Microbiology and Zoology) in a three-storey courtyard block linked by two bridges to a nine-storey tower. There are some common facilities such as lecture-theatres and staff and student rooms, but most of the space is occupied by specialist departmental laboratories



for teaching and research. At the top of the tower is an animal-house with access corridor cantilevered outwards.

The structure is a reinforced concrete frame. The tower has no internal columns to allow freedom of laboratory planning. Services are run in deep floors and vertical ducts. The courtyard block is faced with dark grey brick and Portland stone (matching the chemistry building) and the tower with precast blocks with an aggregate chosen to give a rough texture.

Engineers, Ove Arup and Partners. Quantity surveyors, Hamilton H. Turner and Son.



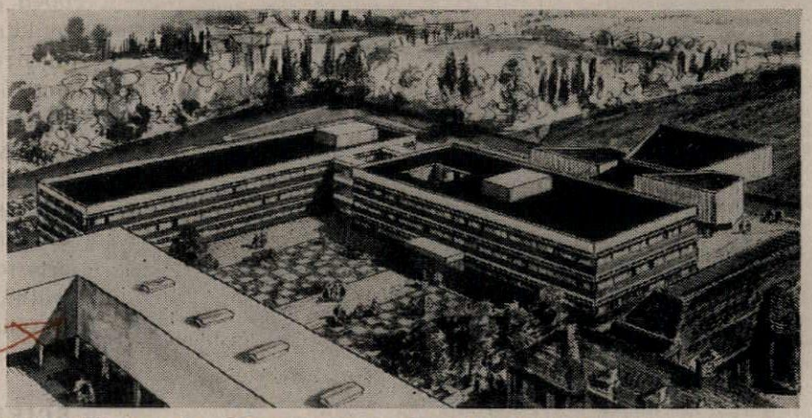
SITE PLAN
Physics building: Hull

PHYSICS BUILDING: HULL

Architects' Co-Partnership

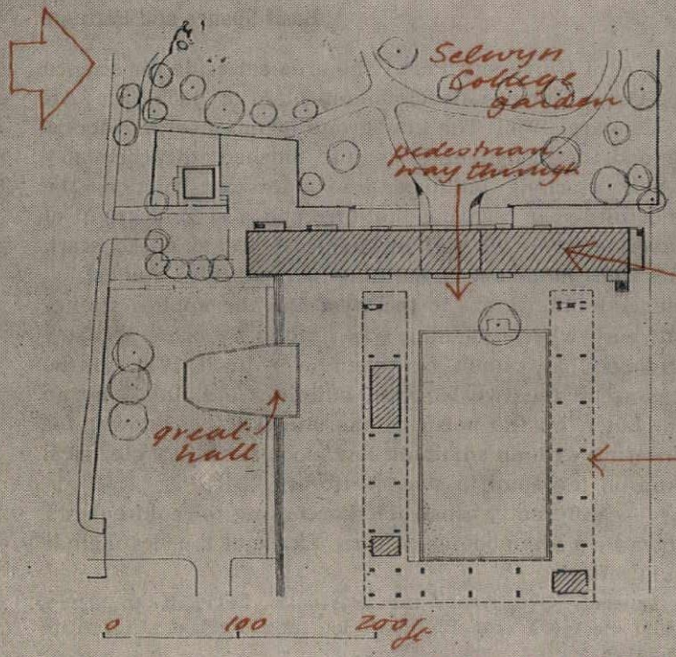
Part of Sir Leslie Martin's recent development plan, the building occupies two sides of a quadrangle bounded on the other sides by the uncompleted Students' Union and a future biology building. Construction of the first two stages (the east-west block, the three lecture theatres and the northern part of the north-south block) will begin in August and finish by May, 1961. The third stage, comprising the remainder of the north-south block, will follow in 1963 or 1964 and allowance has been made for a possible extension northwards as a fourth stage.

The building is three storeys high with teaching accommodation in the east-west block and research laboratories, stores and workshops in the other. Construction is reinforced concrete, exposed



externally at edge beams and at the photobolic screens at window transom level. The continuous wall spandrels are brick and window-frames timber. Services in the teaching block are taken from ring mains in false ceilings, rising to the floor above, and in the research block in vertical ducts rising from a below-ground crawl duct. The teaching block has heated ceilings.

Structural engineers, Ove Arup and Partners. Services engineers, Edward A. Pearce and Partners. Quantity surveyors, Monk and Dunstone.



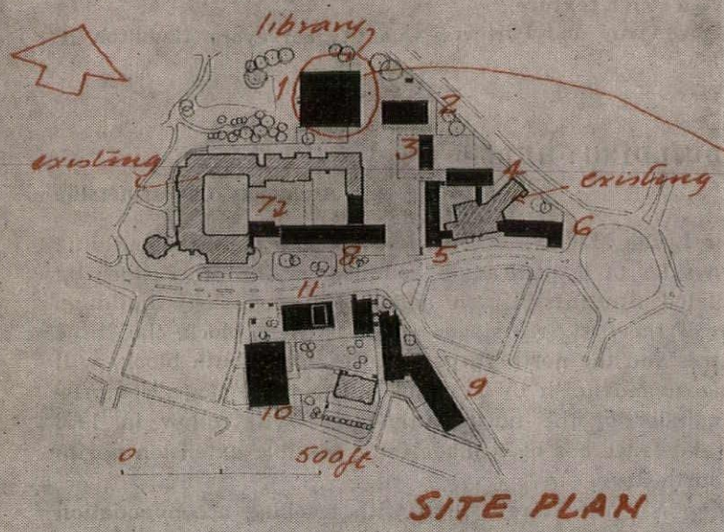
SITE PLAN

ECONOMICS AND POLITICS BUILDING: CAMBRIDGE

Sir Hugh Casson, Neville Conder and Partners

The third major building on the Sidgwick Avenue site. It forms the fourth side of the courtyard enclosed by the nearly complete U-shaped library. Construction will begin this year and finish next.

The building (see p. 19) contains the Faculty Library seating 180, related libraries for the Departments of Applied Economics and Statistics, studies, common-rooms, offices and a canteen. It is close to Selwyn College garden, which will be extended up to the walls of the building with a pedestrian way through at ground level. Beneath the building is a boiler-house (already completed) serving the whole development. The main library has a two-level well in the centre. The



SITE PLAN

statistical library is insulated from it to allow the use of computers. Construction is reinforced concrete frame with bush-hammered finish and brick (Sussex stocks) walling. Windows are natural and black anodized aluminium.

Structural engineers, Jenkins and Potter. Mechanical engineers, A. J. Smith and Partners. Quantity surveyors, A. S. Wilson and Partners.

WESTERN BANK DEVELOPMENT: SHEFFIELD

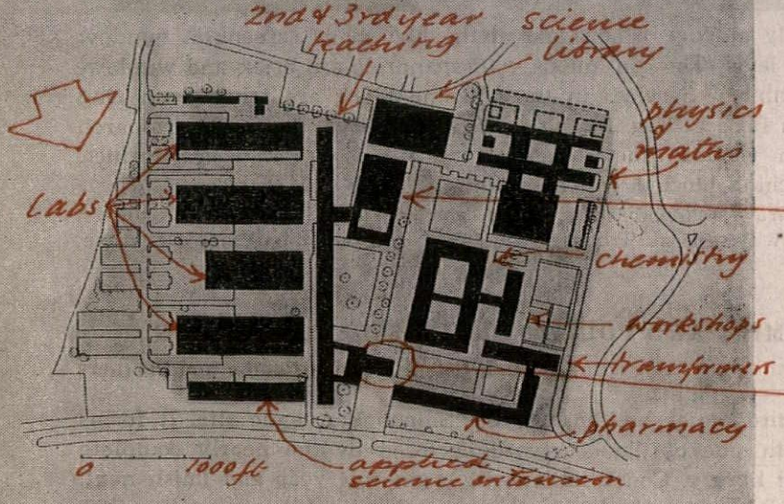
Gollins, Melvin, Ward and Partners

A revision (required by increased numbers of students) of the same architects' winning scheme in the competition held in 1953. Work has already gone forward on some of the buildings as originally planned, including the library, 1 on plan (A.R. Preview issue, January, 1955), which was completed last autumn and illustrated in the *Review* last month. The boiler house, 3 on plan, is also completed.

Most of the buildings have been increased in height. The Arts tower, 2 on plan, will begin this year. It rises sixteen storeys above a basement group of lecture theatres. The four top floors house the Department of Architecture, with its architectural lecture-theatres on the roof. The east chemistry wing, 6, with lecture-theatres and workshops below and four floors of teaching-laboratories above, began in 1958 and will finish next July. The north chemistry wing, 4, similar, with large teaching laboratories on five floors, will begin in 1963. The west chemistry wing, 5, containing three floors of research laboratories, is under construction. The Bursar's department, 7, with open ground floor, has just started. The physics and mathematics building, 9, a seven-storey block with lower wings containing lecture-theatres and workshops, began last spring. University House (extending the present Students' Union), 10, has just started and will take two years. A theatre to seat 600, 11, is to be started in 1961-62. The botany, zoology and genetics building, 8, of five or six floors, will probably start in 1962-63.

Construction is mostly reinforced concrete and steel in the case of the chemistry wings, which have brick or stone flank walls. The arts tower and other main buildings have a combination of curtain walling, mosaic, concrete and glazed brick.

Assistant architects, P. Guest ; B. P. Mayes ; H. Prime.



SITE PLAN
Science buildings : Nottingham

SCIENCE BUILDINGS: NOTTINGHAM

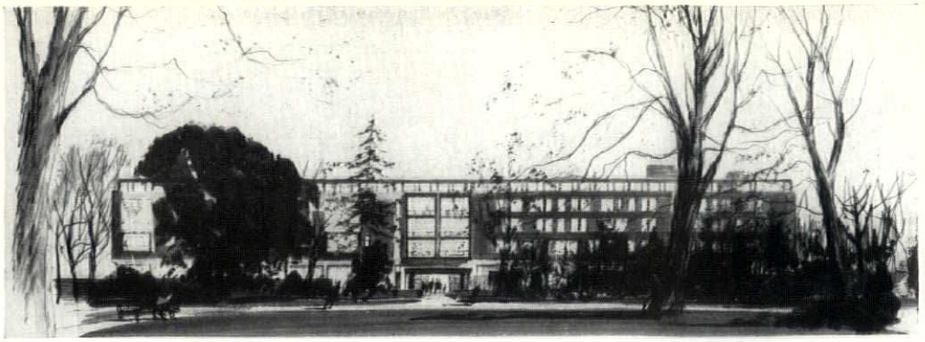
Basil Spence and Partners

At the north side of University Park: the area set aside for science in the Jellicoe-Percy Thomas development plan of 1955 (see AR Preview issue, January, 1956). The first group of engineering laboratories (mining and thermodynamics) is just finished, the chemistry and the first-year teaching building are under construction, the second-year and third-year teaching building and a second group of engineering laboratories (civil and mechanical) are about to start, and the physics and mathematics building will start in August.

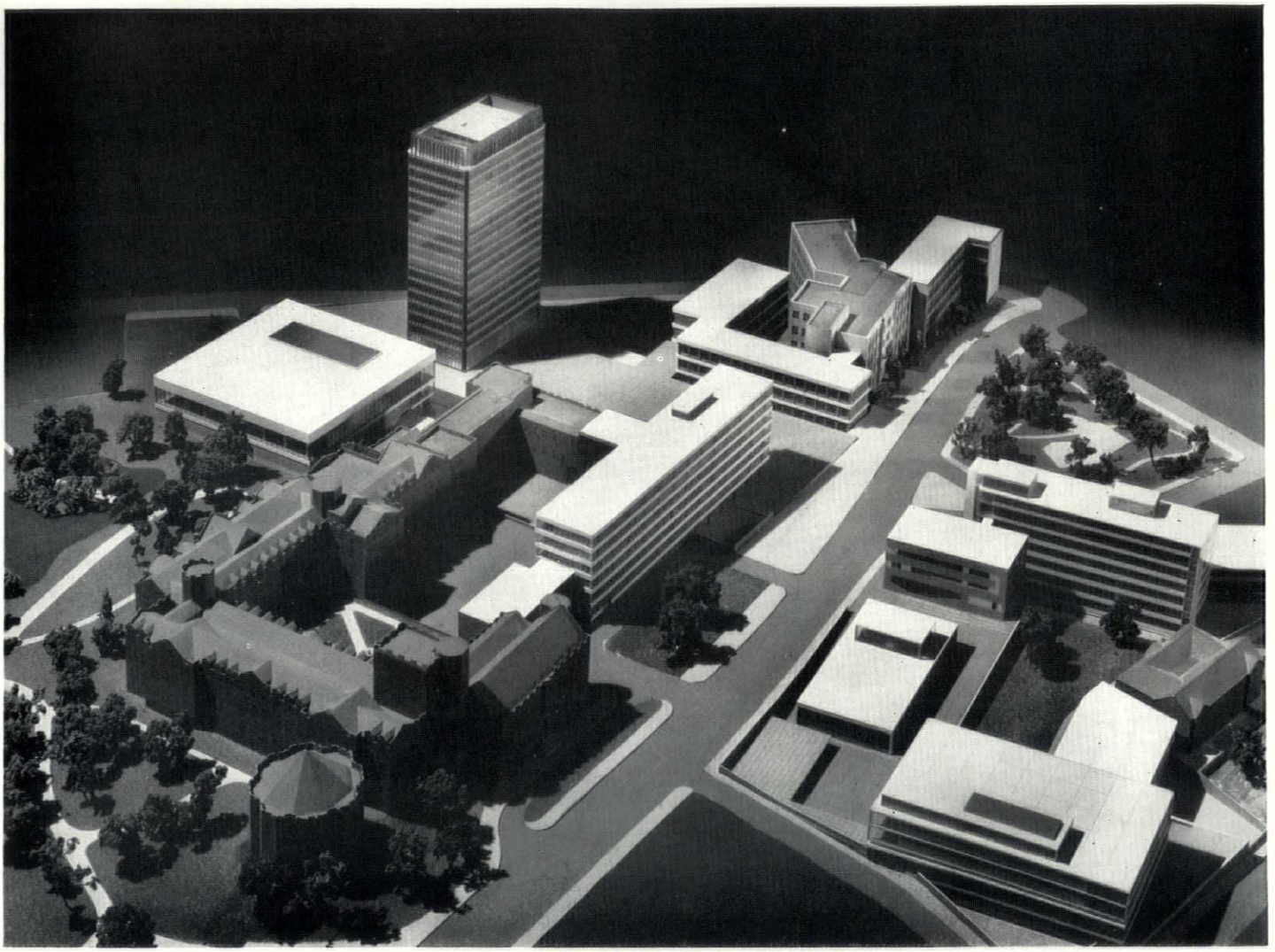
The pure science buildings are to the west and the applied science buildings to the east, where planning was limited by some Ministry of Works buildings that cannot be taken over until 1970. In the applied sciences group the two teaching buildings are linked by an exhibition hall. Later, on the north of the site will be a tower for electrical engineering with an adjoining low block for heavy electrical engineering, and on the south a science library.

The buildings are differently constructed according to requirements, but unity is given by a 5ft. modular pattern. External finishes include brick, stone and timber.

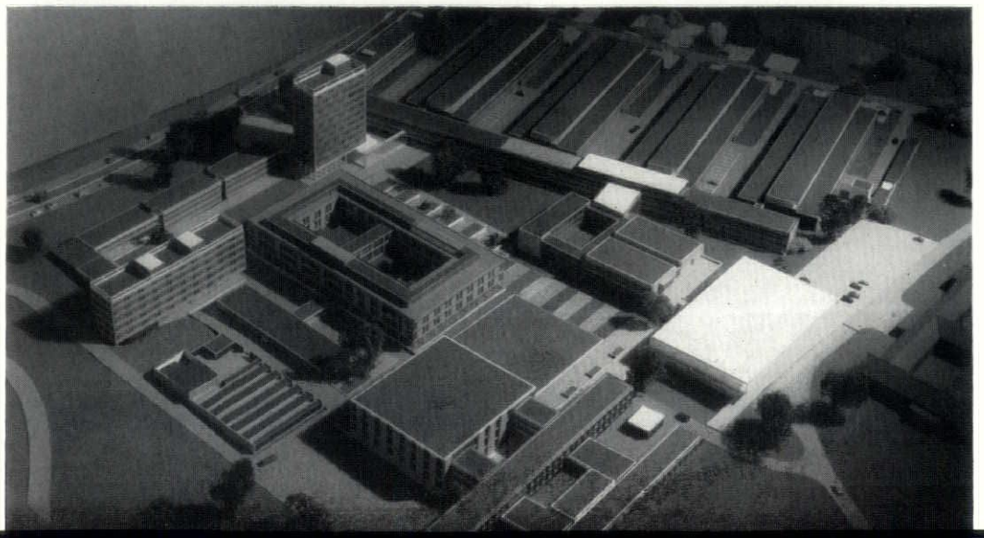
Structural engineers, Ove Arup and Partners. Services engineers, A. F. Myers and Partners and Phillips, Son and Partners. Quantity surveyors, Gleeds.



Left, faculty of economics and politics in the Arts Centre, Sidgwick Avenue, Cambridge, by Sir Hugh Casson and Neville Conder: the elevation facing Selwyn College gardens.

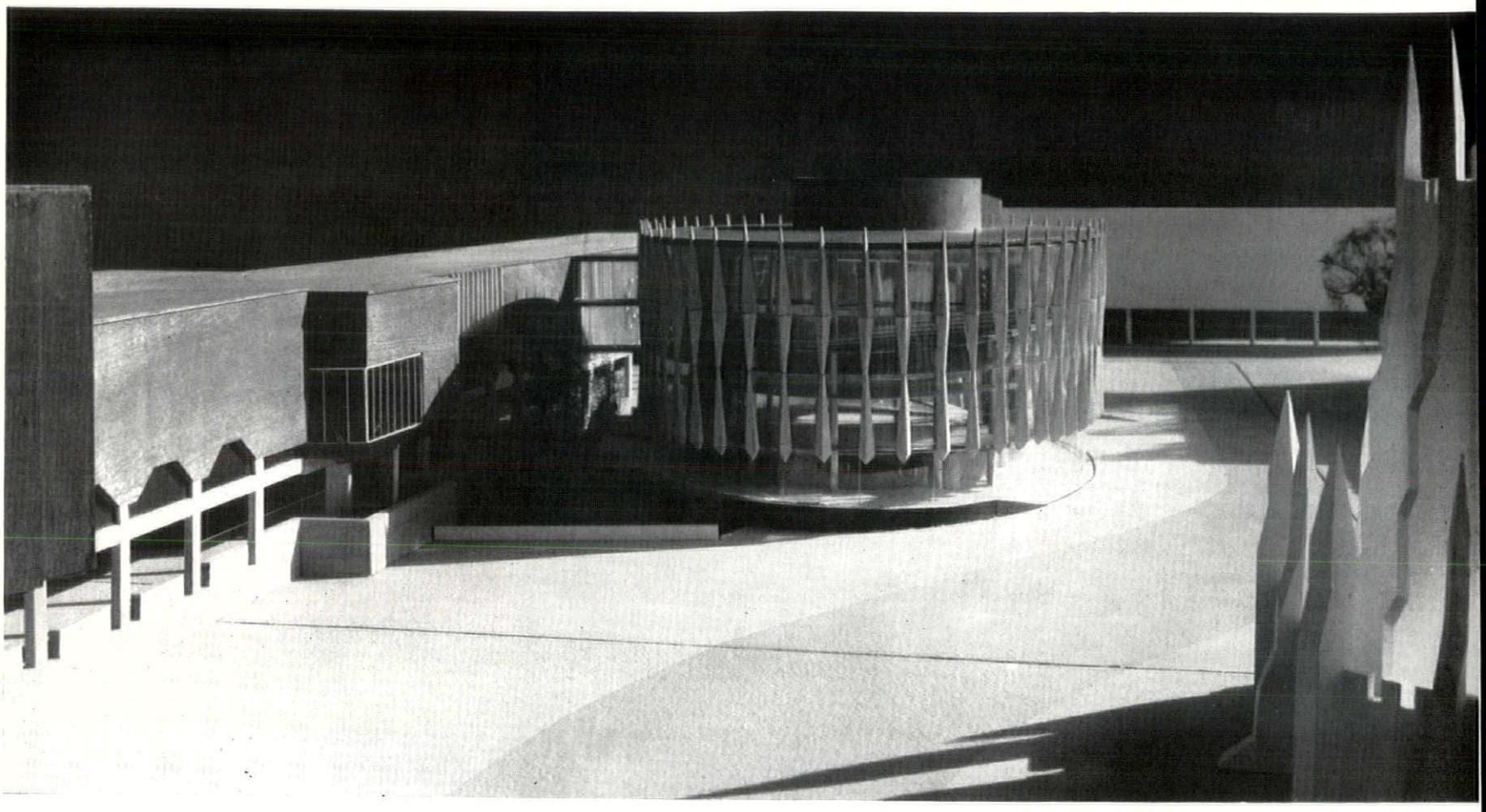


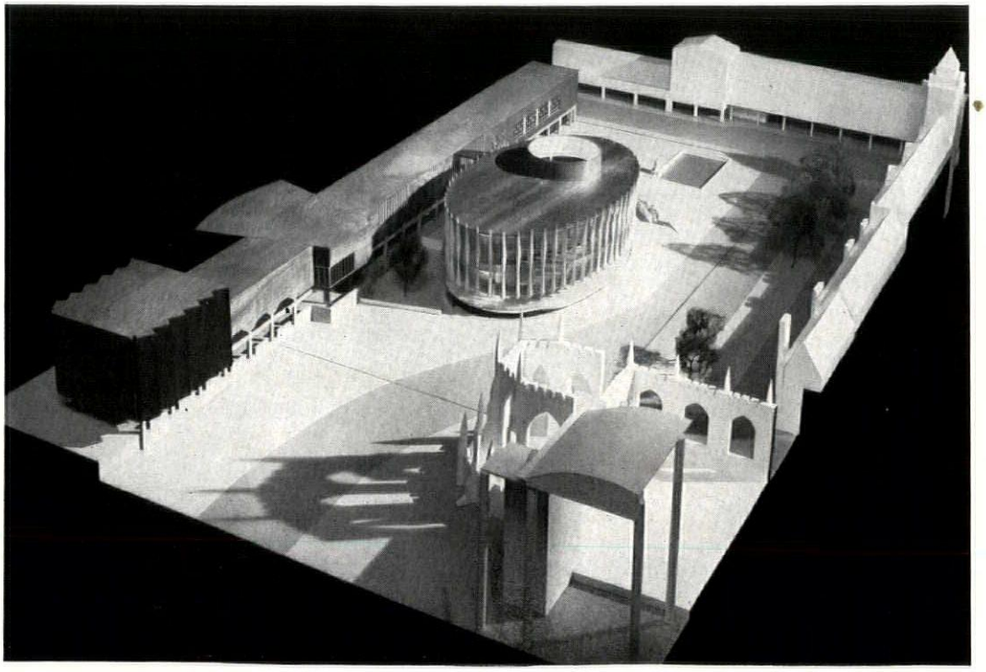
Above, revised development of the Western Bank area of Sheffield University. In the left background are the library (already built) and the sixteen-storey Arts tower. The other new buildings are identified on the plan opposite. Left foreground: existing buildings.



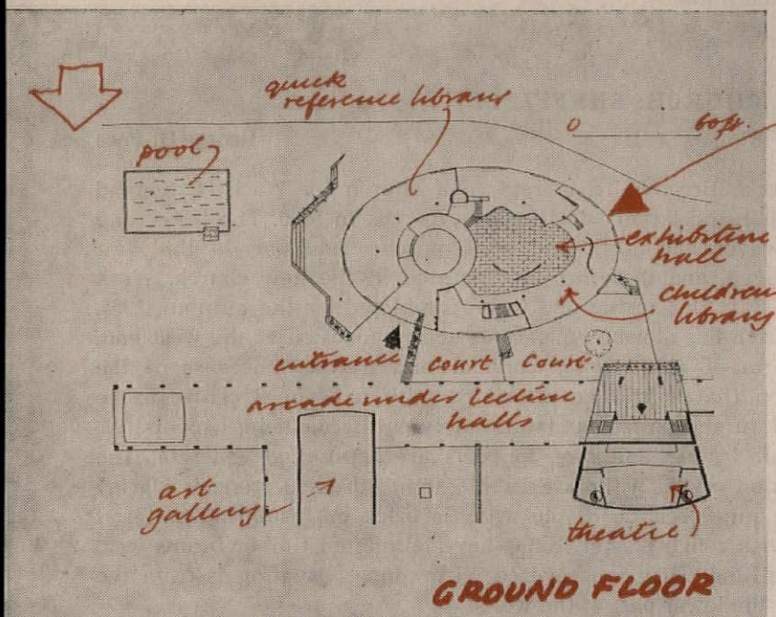
Right, science buildings, Nottingham, from the south-west. The tower in the background is the future electrical engineering building.

2 PUBLIC BUILDINGS





The central library, Coventry, and the new square surrounding it: above, from the end of the ruined cathedral, showing the elliptical library linked to the new art-gallery and theatre; right, looking down on the square, with the cathedral ruins in the foreground.



LIBRARY: COVENTRY

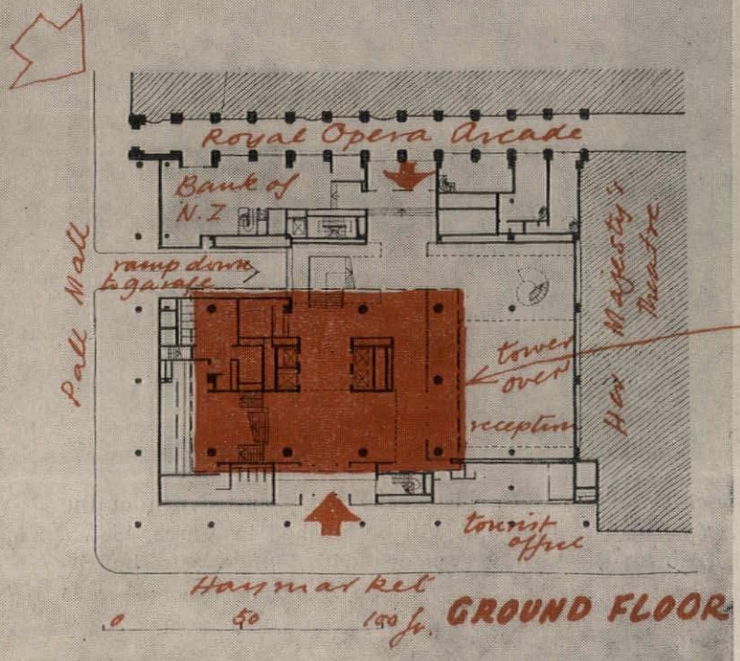
Arthur Ling (City Architect)

A central library sited in the new square north of the Council House. It is connected to the art gallery which forms the north side of the square, and to the theatre, and the arcade beneath the latter provides a covered link between the two buildings and the theatre. On the east side of the square are the new City Architect's offices (three storeys on piloti) and on the west side the cathedral ruins with the new cathedral beyond, so that the elliptical library is surrounded by old and new buildings with views from it to the cathedrals. Passers-by will see into it through glass and aluminium walls. No starting date has yet been fixed.

The main book stack, in two tiers accommodating 100,000 books, is in the basement, together with a news-room, three meeting-rooms and a lecture-theatre seating 400. On the ground floor are a quick-reference library, an exhibition hall to be used in connection with the adjoining art-gallery and, on two levels surrounding the hall, a children's library. This is also directly connected to the main lending library on the first floor. Above this, still within the inner ellipse of the building, is a music library with sound-proof cubicles. It is connected to the lecture-halls in the adjoining building. The staff workrooms form a vertical core through the building from the stock-room and service entrance in the basement to the reference library at the top. Also at the top are the Coventry and Warwickshire collection and students' study-rooms, at different levels connected by a spiral ramp.

Construction is reinforced concrete, with the floors cantilevered outwards from columns round the inner ellipse but partly supported at the edges by the window-mullions. These are aluminium. The glazing is sloped to show three facets.

Principal architect, William Kretchmer. Job architect, R. S. Johnston.



NEW ZEALAND HOUSE: HAYMARKET, LONDON

Robert Matthew and Johnson-Marshall

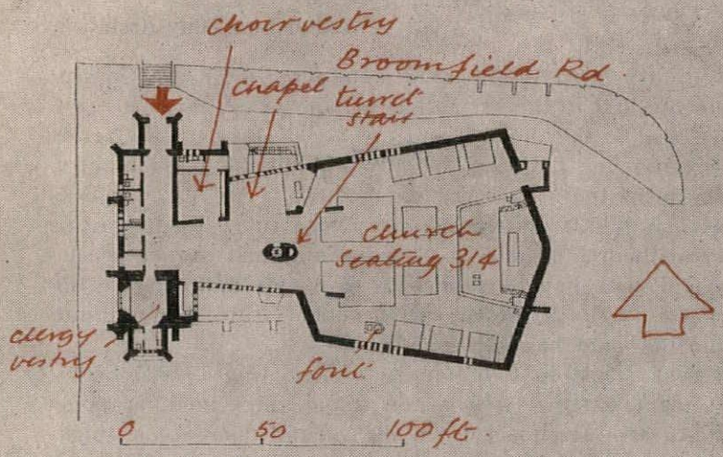
On the site of the old Carlton Hotel (and later to be extended to cover the site of Her Majesty's Theatre which, however, will not be available until after 1970). The building will be the London headquarters of the New Zealand government. Site work has already begun. Completion is expected early in 1961.

A 4-storey block covers the whole site, and above it rises a 15-storey tower to a height of 225ft. In the lower block is most of the public accommodation (ground and mezzanine floors), immigration and other departmental offices (first and second) and the High Commissioner's suite and external affairs office (third). The High Commissioner's suite has a private terrace overlooking Pall Mall and at second-floor level is an open court visible through the building from Pall Mall. The tower consists of office floors surrounding central lift-shafts. On top is a penthouse for social and staff use.

Ground-floor shops and a bank are entered from the adjoining Royal Opera Arcade from which there is also an entrance to the central public space.

The reinforced concrete structure includes a pair of box columns forming the central core of the tower. The ground floor is faced in black granite; the remainder in Portland stone, with plate glass panels of unusual size—in the lower storeys they are 18ft. by 9ft. uninterrupted glass area. The whole building is air-conditioned and the lower block has double glazing against traffic noise.

Senior architect in charge, Maurice Lee. Job architect, K. G. A. Feakes. Structural engineers, Scott and Wilson, Kirkpatrick and Partners. Services engineers, J. Roger Preston and Partners. Quantity Surveyors, Franklin and Andrews.



GROUND FLOOR

PARISH CHURCH: SHEFFIELD

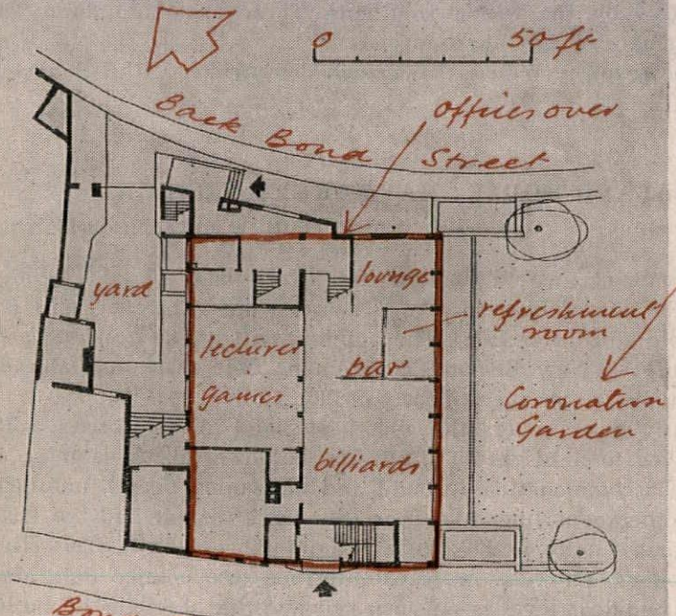
George G. Pace

St. Mark's, Broomhall: to replace a church by W. H. Crossland built in 1871 and largely destroyed by bombs in 1940. The tower and spire, however, the north and south porches and part of the west wall survived, and these are incorporated in the new church. Work is due to start this spring and to be completed by the autumn, 1961.

The church has unusually spacious accommodation at the west end, in the form of an entrance corridor and narthex, because of the expectation that it will be associated with a hospital centre to be developed in the parish, and ultimately with Sheffield University.

The wall frames and roof supports are reinforced concrete. The outer section of the walls are rubble stone; dressed stone is Darley Dale. The inner section of the walls is brick or insulating material finished with rough plaster. Roofs have laminated timber beams with timber infilling. They are covered with copper. Heating is from the floors and the lower part of the walls.

Engineers, Ove Arup and Partners. Acoustic consultant, D. T. E. Jennings. Quantity surveyors, Thompson and Alexander.

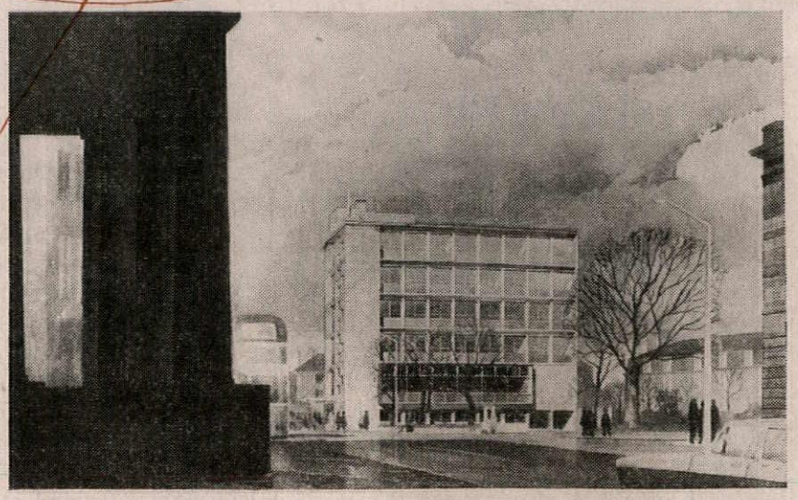


GROUND FLOOR

COUNTY COUNCIL STAFF CLUB AND OFFICES: WAKEFIELD

A. W. Glover (West Riding County Architect)

To provide club facilities for the staff of West Riding County Council and offices for some 300 council staff at present dispersed in various terrace housing. The building, at the north end of the Coronation Garden, completes the fourth side of a square group of



county council buildings started 60 years ago. Construction of the new building began last June and will be finished in March, 1961.

The club occupies the two lower floors, with lounge, refreshment-

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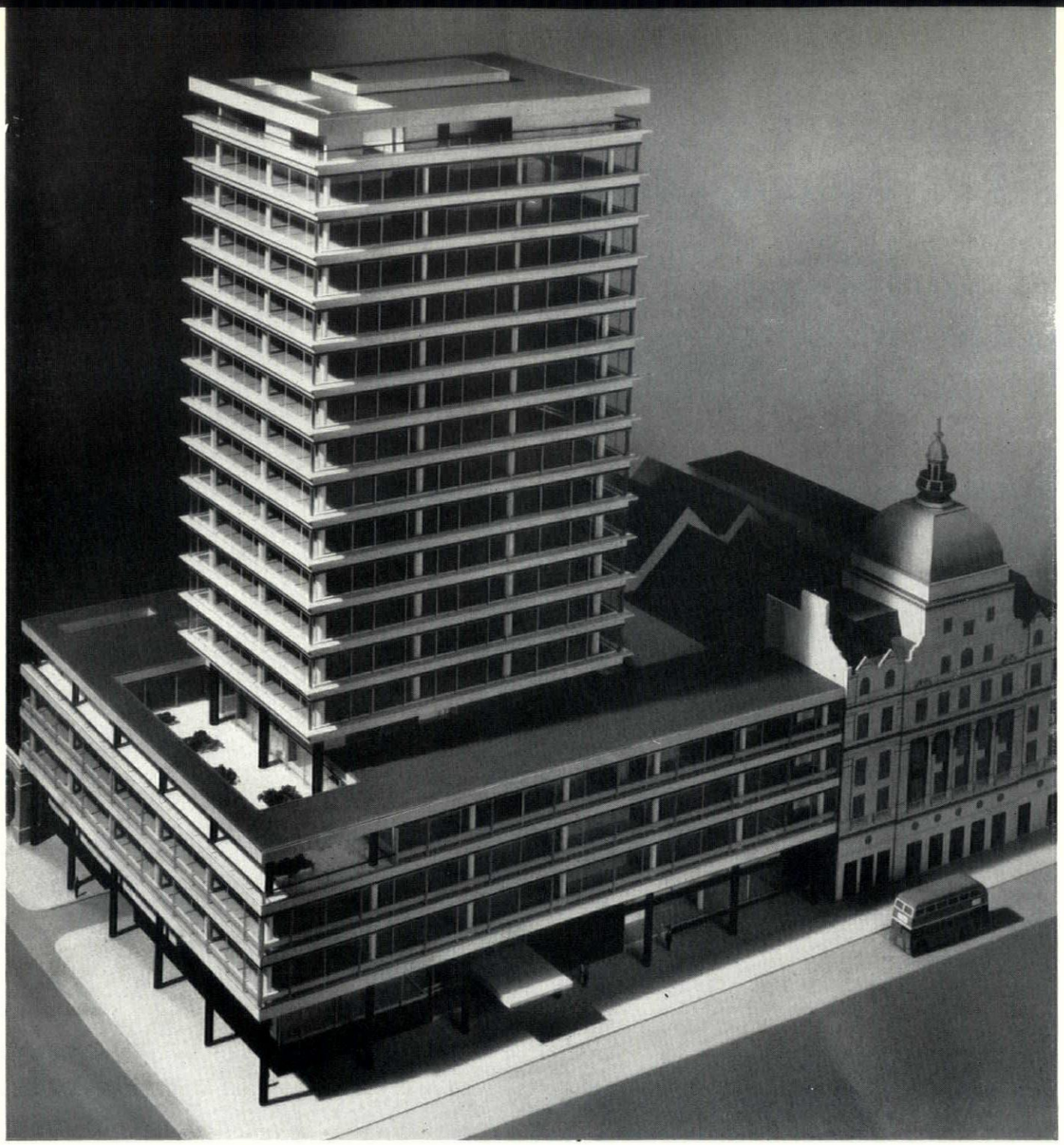
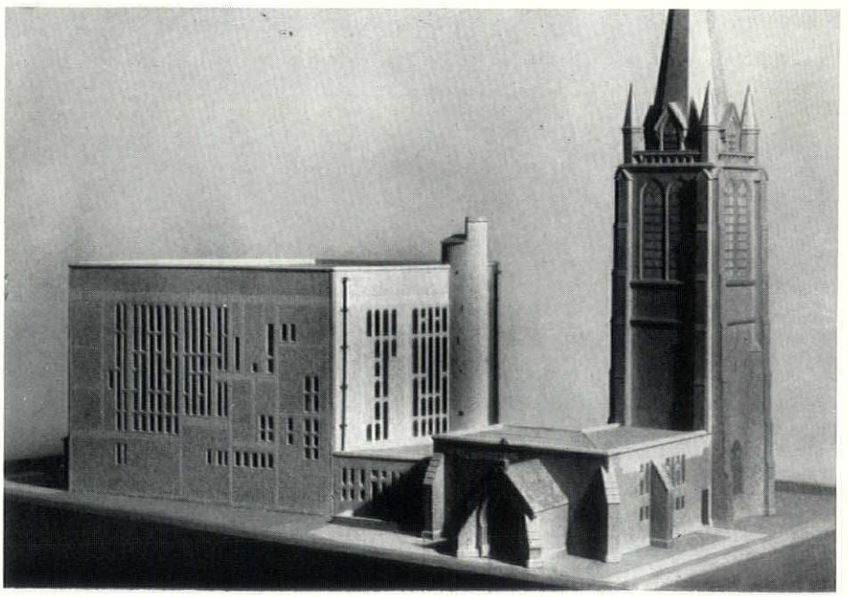


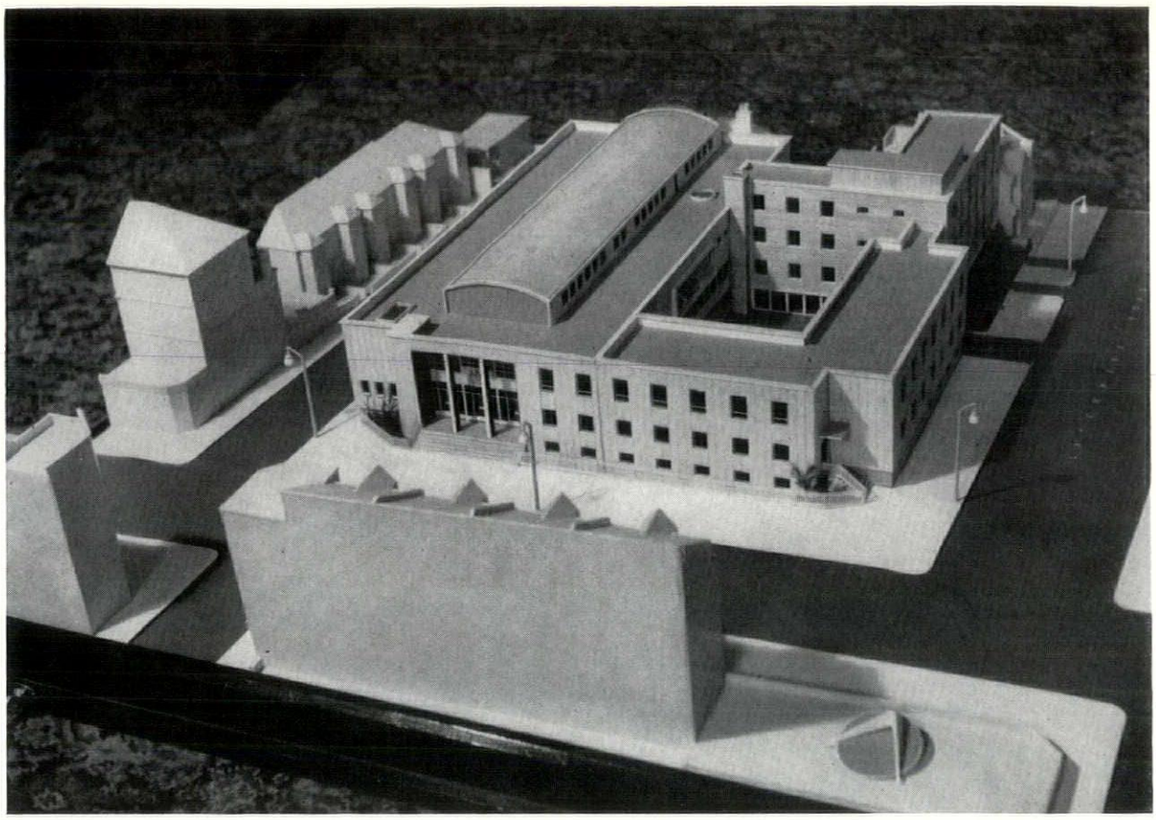
New Zealand House, at the corner of Haymarket and Pall Mall, by Robert Matthew and Johnson-Marshall. At the left-hand edge of the picture is the entrance to Royal Opera Arcade, which is being retained. On the right is Her Majesty's Theatre, which is being retained until after 1970.

Below, interior (looking east) and exterior of St. Mark's Church, Broomhall, Sheffield, showing the surviving tower and porch of the nineteenth-century church, which are incorporated in the new one.

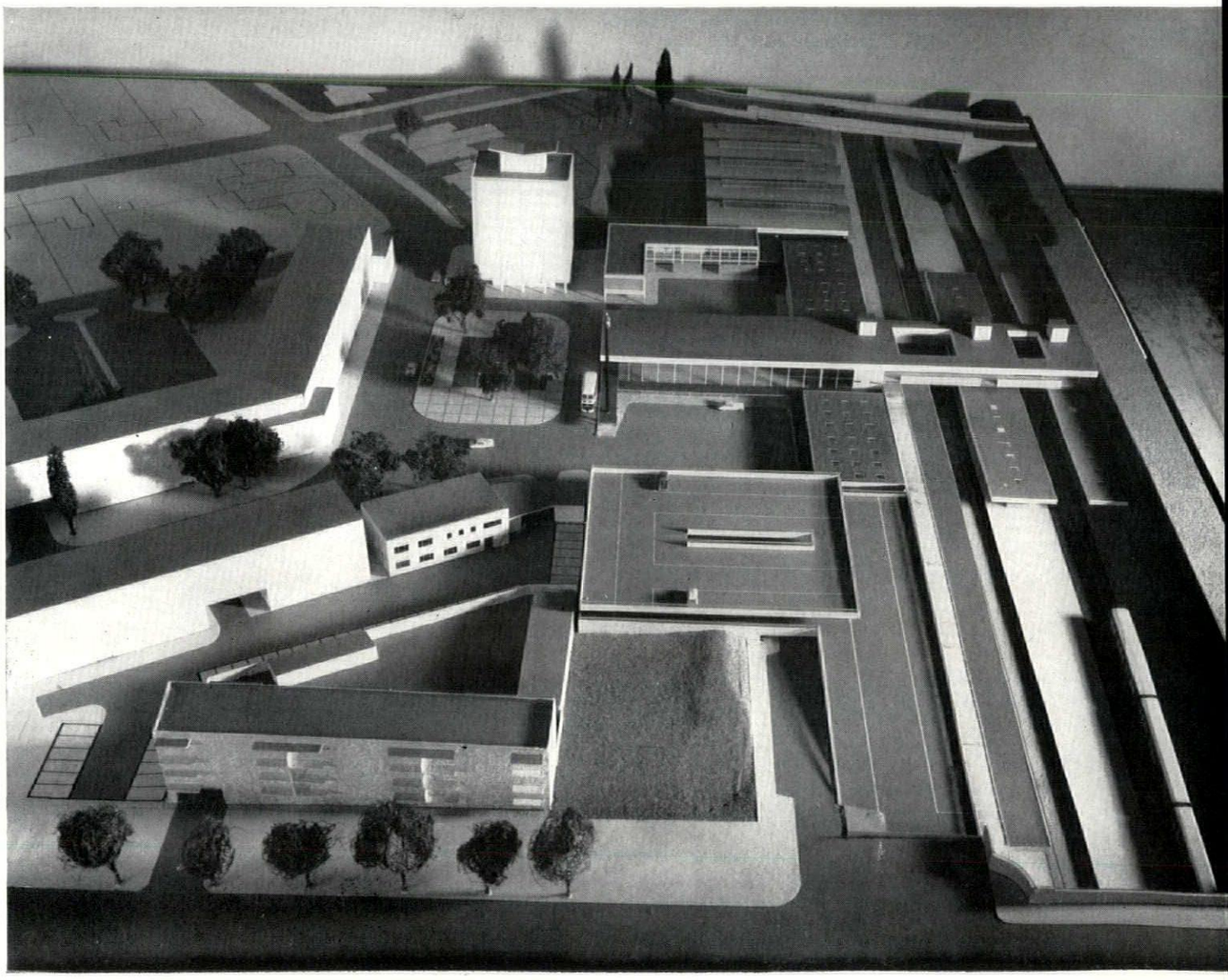




2. PUBLIC BUILDINGS



Right, magistrates' court, Lavender Hill, from the south, also showing later rebuilding of the police station.



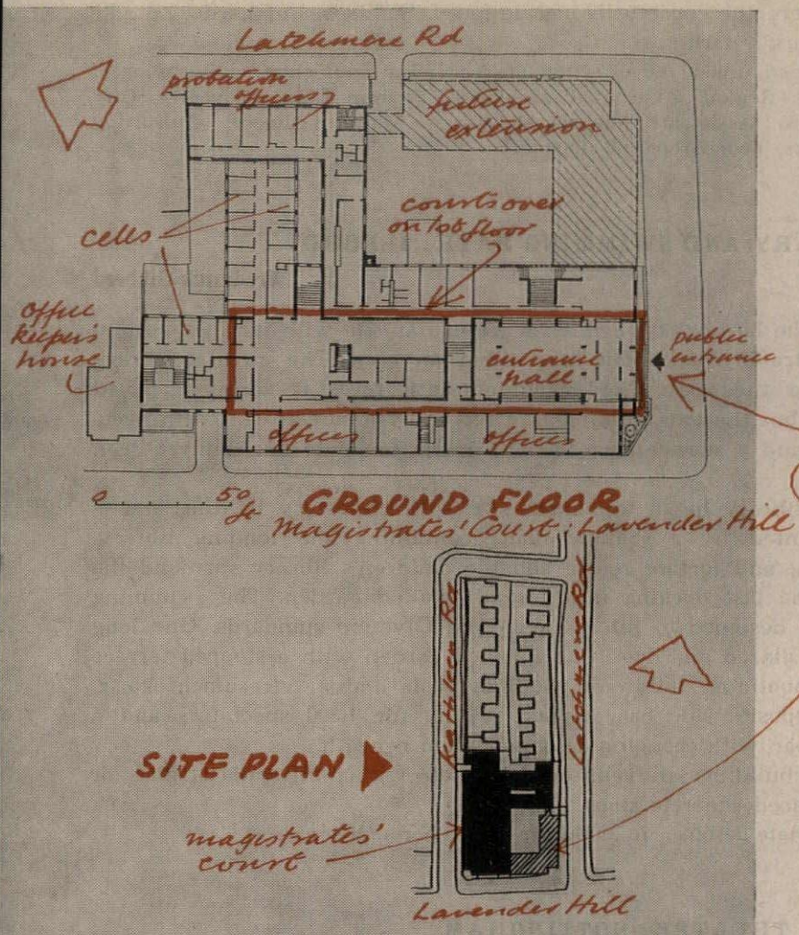
Railway station, Coventry, and the new square from which it will be approached. The passenger concourse runs at right-angles to the railway-tracks (right). On this side of it is the two-storey car-park also reached from Warwick Road (foreground). At the far side of the square is a tall office building.

continued from page 22]

room and billiards-room (all served from a central bar) and games-room below, and dining-room and kitchen above, together with a meeting-room with a floor slightly higher which can be opened into the dining-room and serve as a stage. 250 meals can be served daily. Over the club are six floors of offices, with a separate entrance.

The building has a steel frame with precast concrete floors. The solid end walls are faced with York stone; the window walls are storey-height timber frames with steel sashes and vitreous enamel panels. Heating is by ceiling panels.

Deputy county architect, W. T. C. Walker, Assistant Architects, F. Thornton; M. K. Zadzuik. Engineers, G. Mundy (structural); T. E. Cunningham (heating); B. Davies (electrical). Quantity surveyor. W. Pepper.



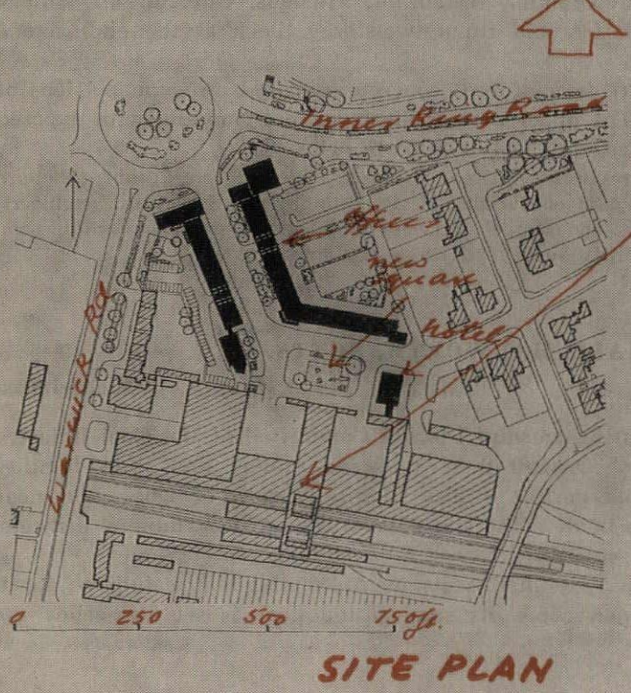
MAGISTRATES' COURT: LAVENDER HILL, LONDON

J. Innes Elliott (Chief Architect, New Scotland Yard)

To serve the South-West London area and to provide offices for the Probation Service in the same area. The model shows also a later development on the same site, the rebuilding of the police station which will complete the elevation to Lavender Hill. Construction of the magistrates' court and offices will begin next autumn.

The plan was largely determined by the need to provide separate entrances for the public, magistrates, prisoners and probationers. The various elements, together with the future police station, form an enclosed square of three-storey buildings, dominated by the segmental roof of the courts. The structure is a reinforced concrete frame faced on the street elevations with precast panels of Portland stone, and elsewhere with brick. The court rooms are air-conditioned and the areas used by prisoners have air control.

Senior architect in charge, G. B. Vint. Executive architects, D. J. Hogarth; D. E. Chapman. Structural engineer, R. F. Galbraith. Electrical and mechanical engineer, A. R. L. Collis (Chief Engineer, New Scotland Yard). Quantity surveyors, Thurgood, Son and Chidgey.



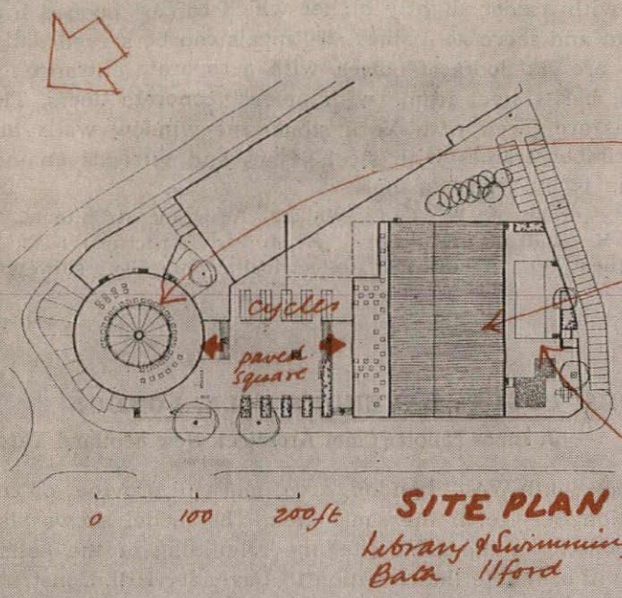
RAILWAY STATION AND SQUARE: COVENTRY

W. R. Headley (Architect, Midland Region, British Railways)

To replace the present station. Work began last October and is expected to be completed by the spring, 1961. The replanning of the station involves laying out a new square, also shown on the model, providing sites for an 8-storey hotel on the east side and offices on the north. Work on these will begin in 1962.

The station is planned to segregate passenger, parcel and G.P.O. traffic. A projecting concourse is placed at right-angles to the covered platforms and associated buildings. Passenger vehicles go to the right of the concourse and other traffic to the left. Passengers arriving by bus are set down at the end, under cover, and a covered way links the station with a two-storey car-park reached both from the station approach and at high level from Warwick Road. The concourse contains booking-office, information-office, left-luggage office, shops, telephones and train-indicators. From it passengers reach the platforms by bridge. Parcels have a separate overbridge with lifts. The buildings facing the London-bound platform have on one side public rooms (including waiting-room and cafeteria overlooking the station forecourt and the square beyond) and on the other side staff-rooms. There is also a waiting-refreshment room on the island platform.

The bridges and similar structures are of reinforced concrete with the bridge decks suspended by stainless steel hangers from the high roof-beams. The concourse is partly concrete and partly light steel framed, as also are the remaining buildings including the roofs over the platforms. The parcels office has an exposed concrete frame.



SITE PLAN
Library & Swimming Bath: Ilford

Elsewhere the concrete is mosaic faced. Soffits are of hardwood and brickwork a dark grey.

Designed under the direction of A. N. Butland, chief civil engineer, Midland Region. Associated architects, Arthur Ling (Coventry City Architect); assistants, Michael McLellan; Malcolm Reece. Consulting engineers, Ove Arup and Partners.

LIBRARY AND SWIMMING BATH: ILFORD

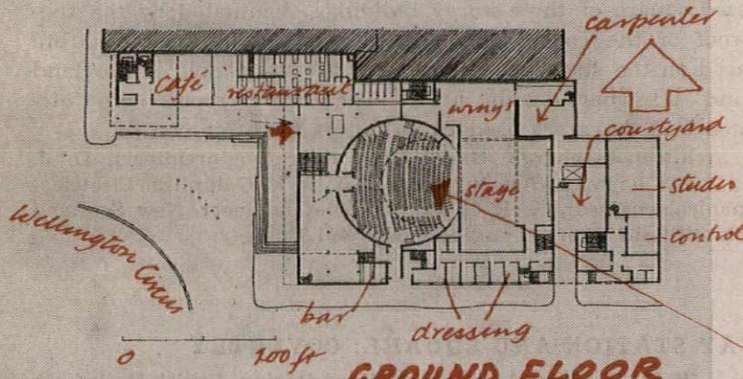
Frederick Gibberd

For the borough council, on a triangular site with its apex adjoining a traffic roundabout in a suburban area. The circular library fits into the apex. The swimming bath faces it across a paved square but the two buildings are linked by a screen wall with cycle stores and a service area behind. A starting date has not yet been fixed.

The library has a tall inner core with clerestory lighting and is surmounted by a shallow dome containing the lending library. Reading and lecture rooms and the children's library surround the core, the last opening into a small walled garden. The swimming bath is designed to international and Olympic standards. One long side is glazed and overlooks a paved garden with a stepped terrace for sunbathing, children's paddling pools and a refreshment kiosk. The opposite side has stepped seating for 1,300 spectators and a snack-bar, with changing accommodation beneath.

Both buildings are reinforced concrete with infill walls of glass or stone-faced concrete slabs.

Associate designer, H. J. Mulder (Ilford borough engineer).



GROUND FLOOR
Civic Theatre: Nottingham

CIVIC THEATRE: NOTTINGHAM

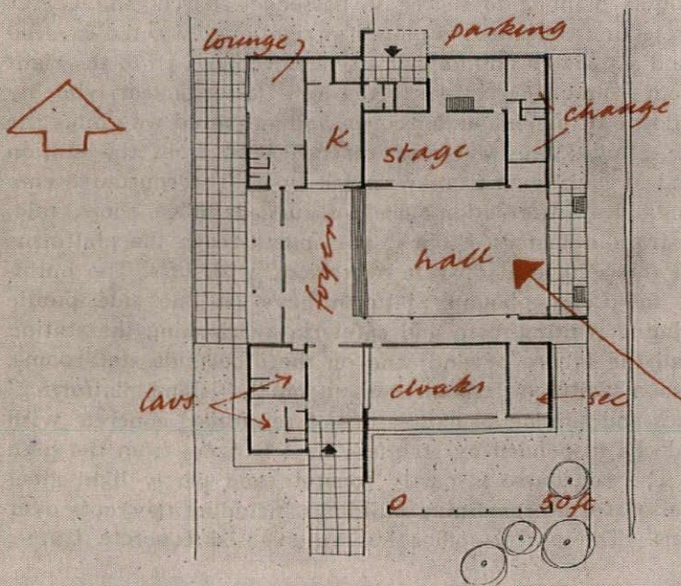
Peter Moro

Called the Playhouse Theatre, alongside Wellington Circus, near the centre of the city, it replaces a smaller theatre of the same name. Construction will begin this summer.

The planning was largely dictated by the irregularly shaped site and the desire to mask the flank wall of the adjoining Albert Hall. The auditorium (seating 520 in the stalls and 250 in the balcony) is circular and occupies the centre of the main block. This has a service courtyard at rear, dressing-rooms along one side and workshops the other. From one corner, alongside the entrance foyer, projects a wing containing restaurant, kitchens, café, an art gallery beneath the latter, and (in a two-storey block at the end) actors' flatlets.

The structure is reinforced concrete, exposed on some portions of the exterior. The upper part of the foyer has cladding with exposed light grey aggregate. The base is black brick.

Assistant architect, Michael Mellish. Theatre consultant, Richard Southern. Acoustic consultant, H. R. Humphreys. Structural engineers, Clarke Nicholls and Marcel. Services engineers, Steensen, Varming and Mulcahy. Quantity surveyors, Davis, Belfield and Everest.



GROUND FLOOR
Village Hall: Harworth

VILLAGE HALL: HARWORTH, NOTTS.

Michael Moss

For the Nottinghamshire District Committee of the Coal Industry Social Welfare Organization: to serve miners and their families and old people in this village 10 miles south of Doncaster, near the Yorkshire border. The site adjoins the existing miners' institute. Work will begin in April.

The multi-purpose hall seats over 400 and has a fully-equipped stage and green-rooms. Its semi-sprung floor is set 3ft. below the

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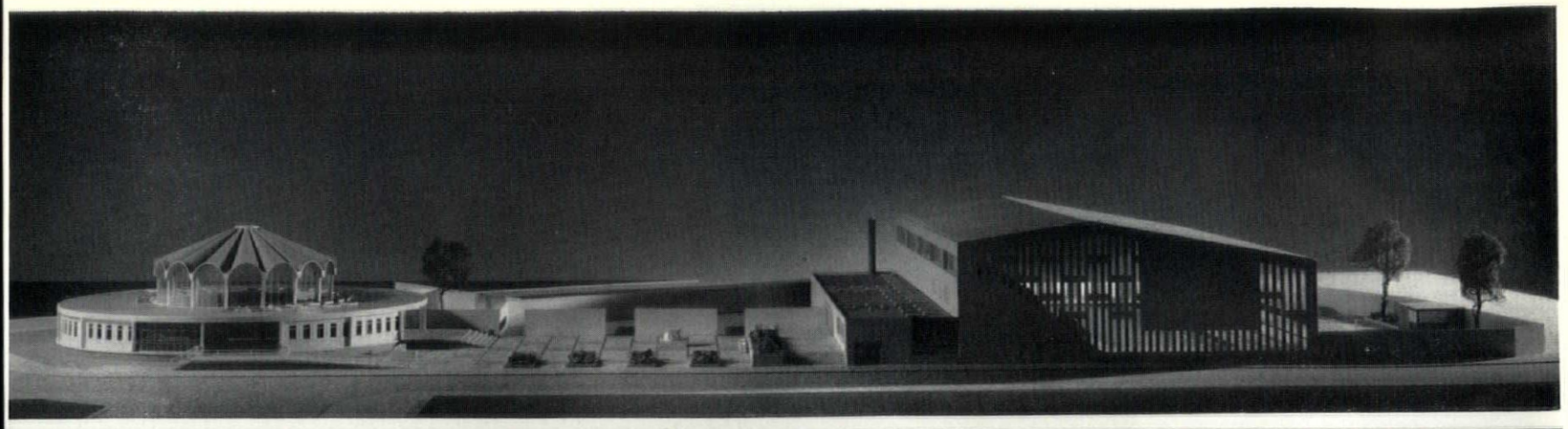
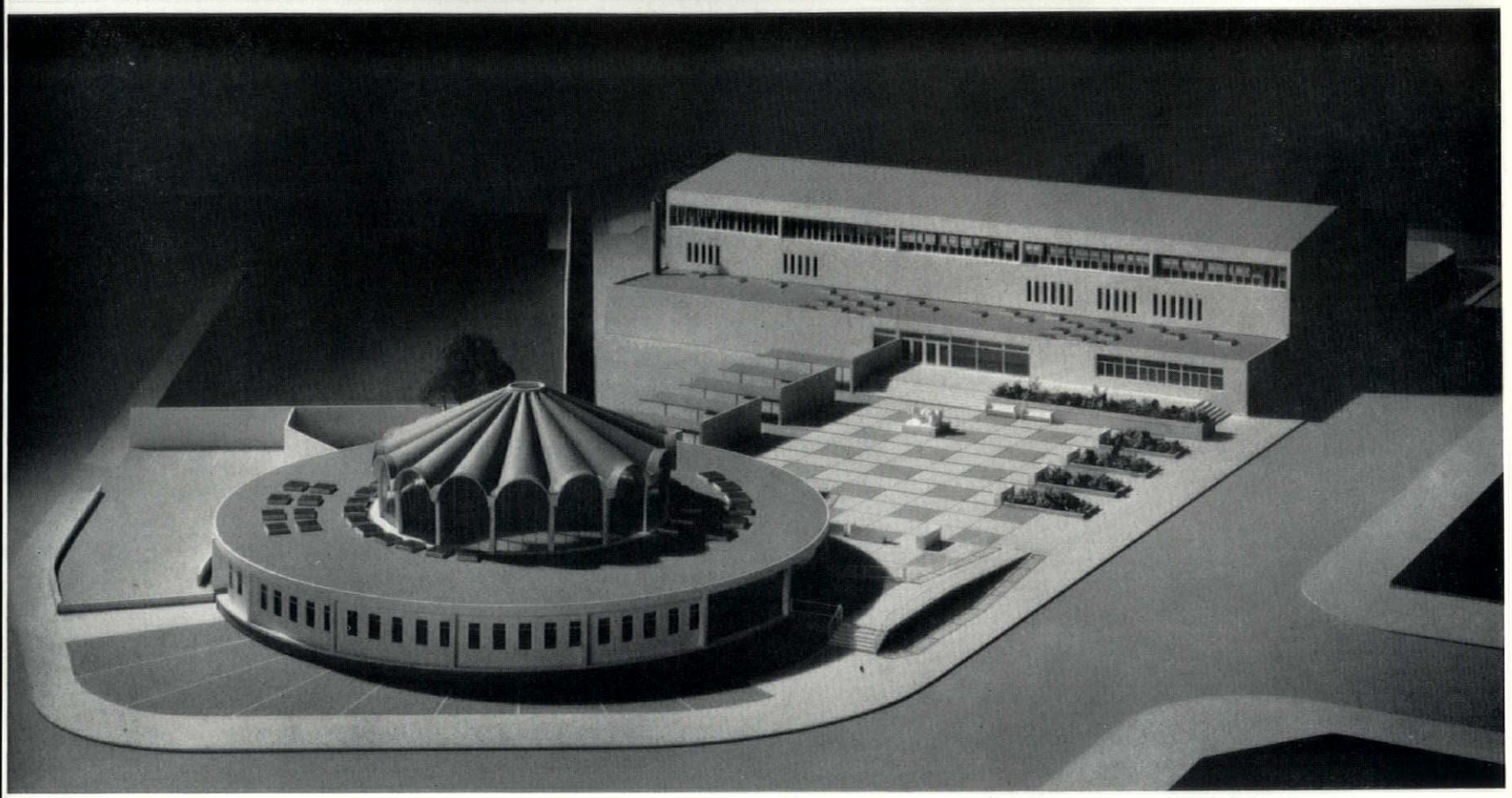
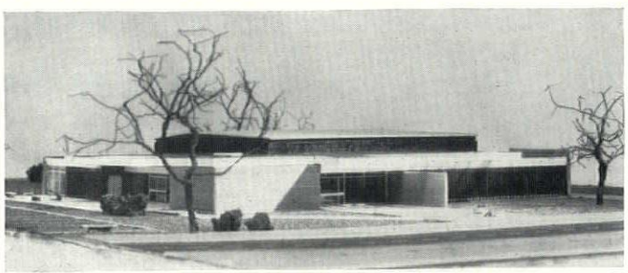
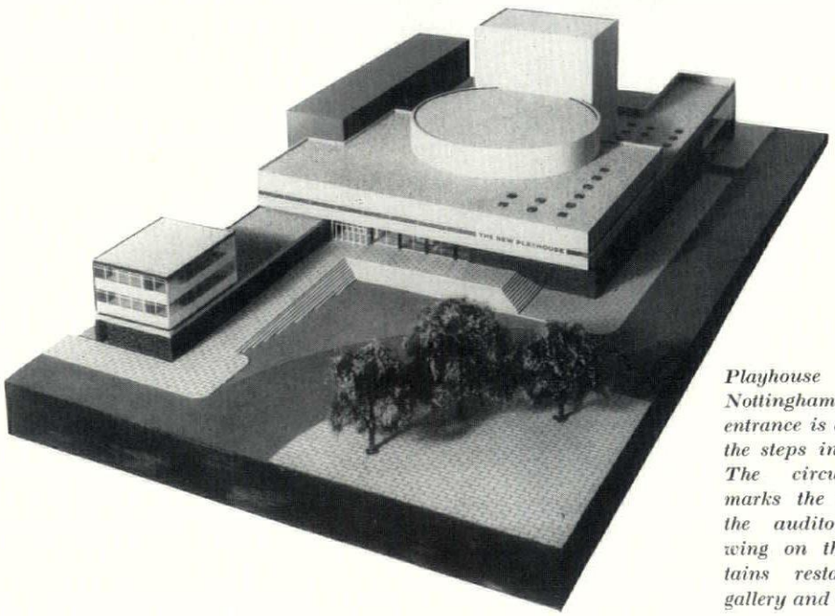




Library and swimming-bath at Fullwell Cross, Ilford. The circular library is separated from the swimming-bath by a paved square.

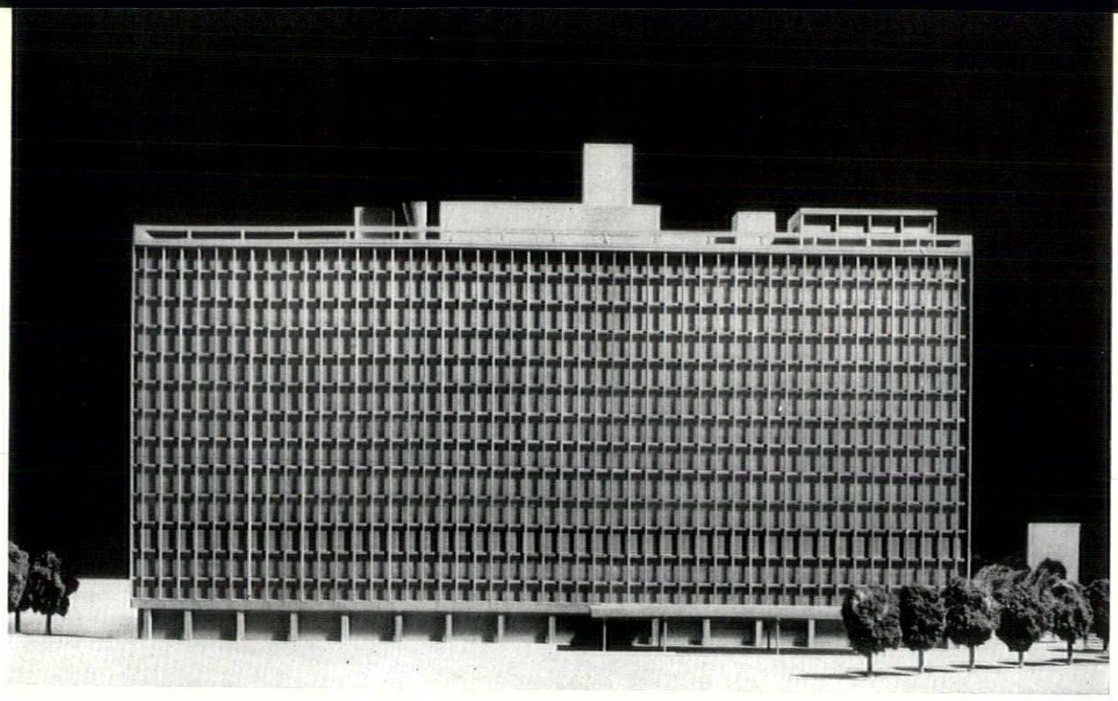


Above, village hall for miners and their families at Harworth, Notts: the hall in the centre; old people's lounge on the left.

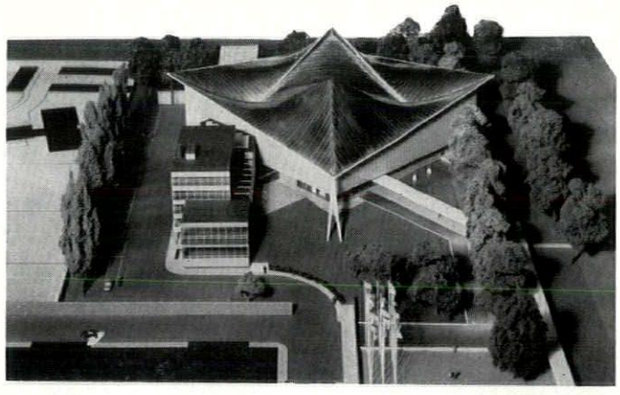


Playhouse Theatre, Nottingham. The main entrance is at the top of the steps in the centre. The circular drum marks the position of the auditorium. The wing on the left contains restaurant, art gallery and actors' flats.

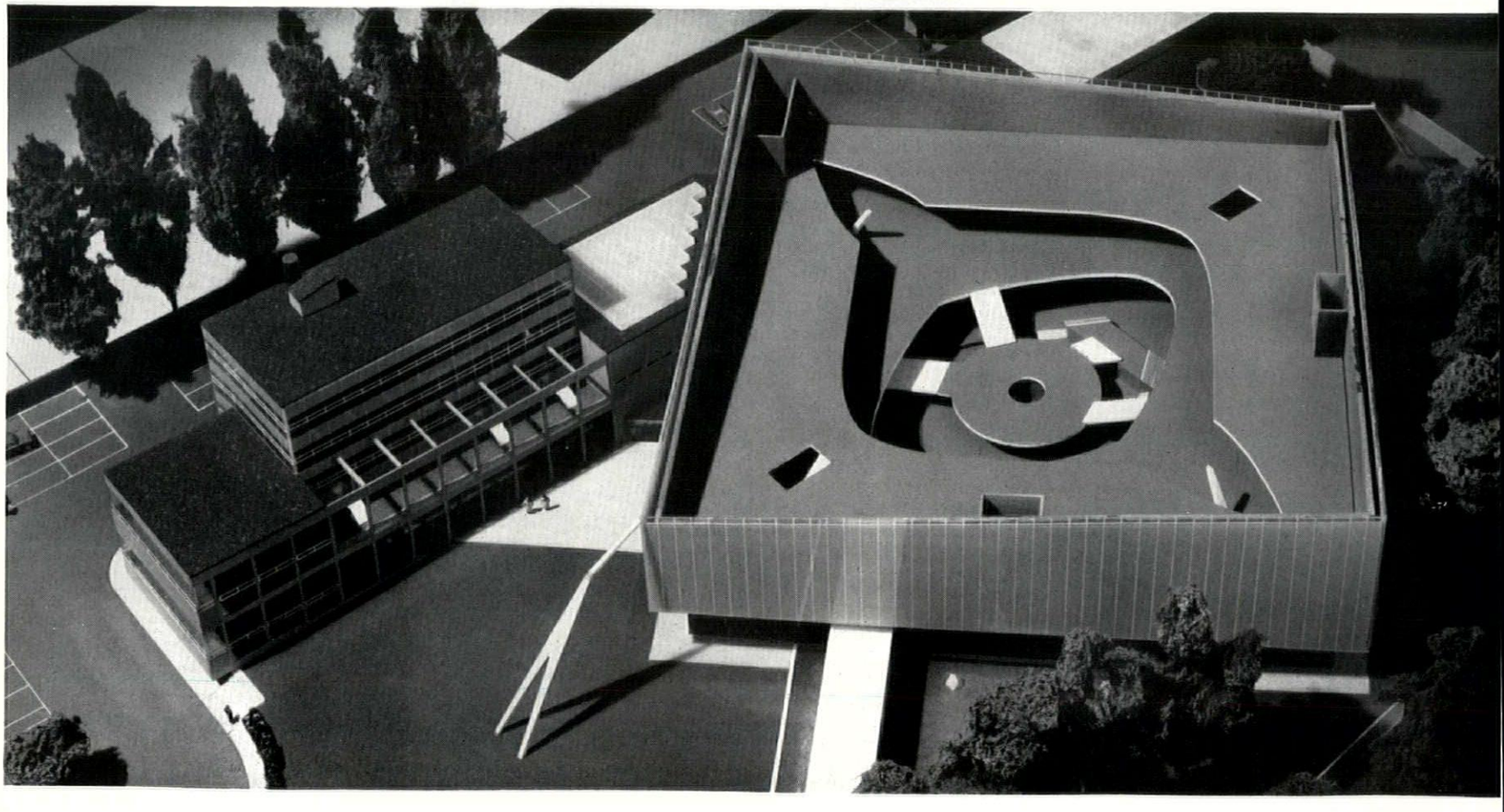
2. PUBLIC BUILDINGS



Above, Western General Hospital, Hull: elevational view of the ward wing.



Commonwealth Institute, Kensington: left, from the High St., with the copper-roofed exhibition hall beyond its garden and forecourt; below, with the roof of the hall removed to show the arrangement of galleries within.



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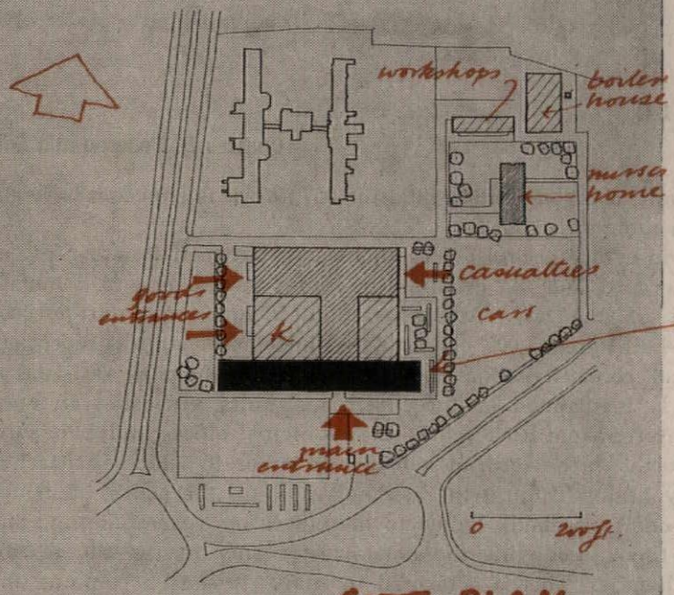
general floor level. Other accommodation, placed at right-angles to the hall, include an old people's lounge (designed for use in conjunction with the hall or independently), service kitchen and secretary's office. The hall and lounge open on to a terrace facing existing bowling-greens.

Construction is laminated timber. Structural members are left exposed and have a natural finish internally. Cladding is grey brick, vertical boarding and timber curtain-walling.

Quantity surveyor, William C. Kitch.



SITE PLAN
Hospital : Hull

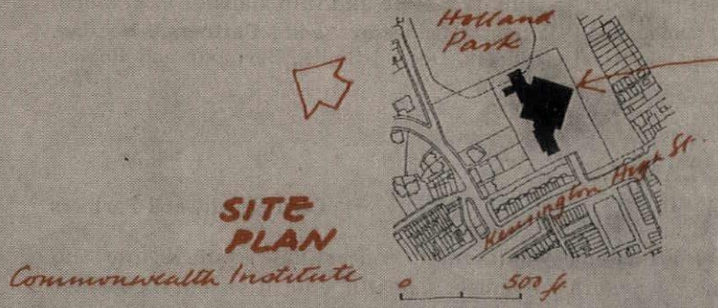
HOSPITAL: HULL

Yorke, Rosenberg and Mardall

The Western General Hospital (for the Leeds Regional Hospital Board) will replace the existing obsolete hospital except that two blocks of the old buildings will be retained for some years as wards. The site, of three acres, is near the centre of the city. The starting date has not yet been fixed.

There are 590 beds and large casualty and out-patient departments. The wards are in a single fourteen-storey block facing south, of which the lower four storeys house administrative offices, dining rooms and laboratories. Two floors are allocated to paediatrics. Each ward unit consists of one 20-bed ward, one four-bed ward and six one-bed wards, plus the usual service accommodation. A block to the north contains, on the ground floor, the main kitchen, bulk storage, mortuary and casualty department; on the first floor, the out-patients' department; on the second, the therapy department, x-ray and chest unit, and on the third, the theatres and central sterilising plant. There are seven main theatres and two smaller ones for the casualty department. The main structure is reinforced concrete, on piles with no basement owing to the unsuitable nature of the ground.

Associate architect, P. B. Nash (Leeds Regional Hospital Board). Structural engineers, F. J. Samuely and Partners. Mechanical and electrical engineers, R. W. Gregory and Partners. Quantity surveyors, Davis, Belfield and Everest.



SITE PLAN
Commonwealth Institute

COMMONWEALTH INSTITUTE: KENSINGTON

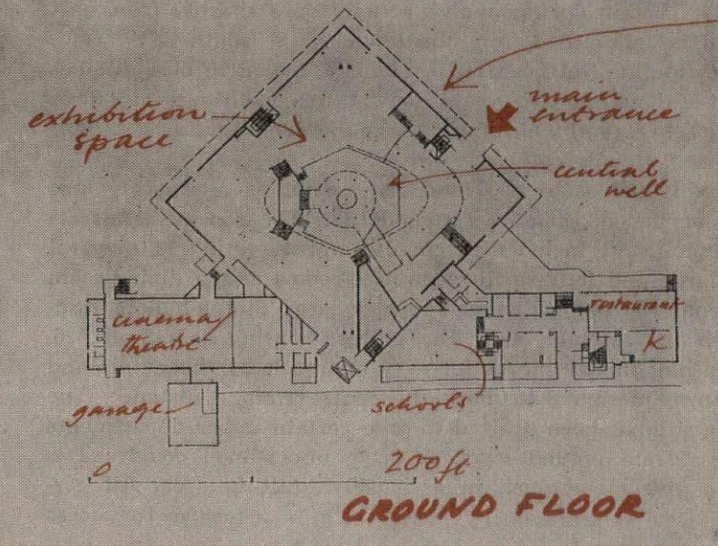
Robert Matthew and Johnson-Marshall

To replace the accommodation used by the old Imperial Institute in Colcutt's building, South Kensington, which is to be demolished to permit expansion of the Imperial College of Science (see A.R. Preview issue, January 1957). The site is a narrow one at the south end of Holland Park, facing Kensington High Street. Construction will begin this spring and will be complete in the summer, 1962.

The main building, set back from the street, is square on plan but placed diagonally. It has a roof composed of five hyperbolic paraboloids and contains exhibition space at ground level and in three galleries surrounding a central well partly lit by clerestory windows. Two-storey wings placed at an angle to the main block contain offices, lecture-rooms, library and restaurant in front (facing the entrance courtyard) and a cinema and art gallery at the back.

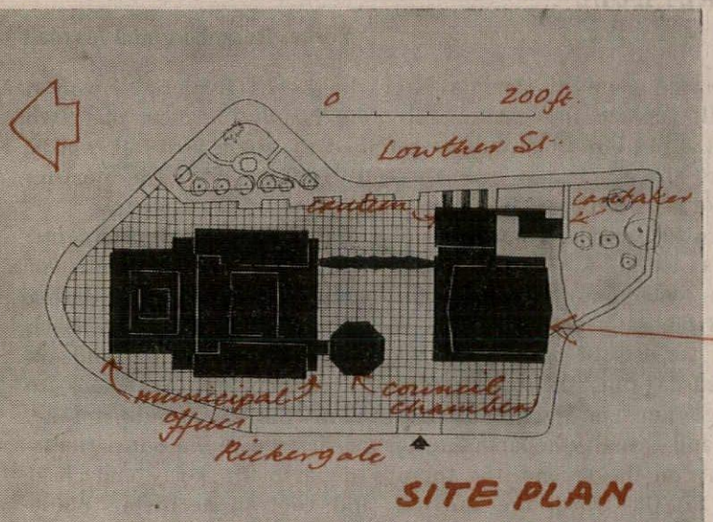
The structure is reinforced concrete with infill panels of dark brick in the lower buildings and cladding of opaque blue-grey glass in the main block. The roof structure is a mesh of precast post-tensioned concrete ribs, covering an area 185ft. square with only four supports. The outer surface is copper.

Senior architect in charge, P. A. Newnham. Job architect, R. Cunliffe. Exhibition designer, James Gardner. Structural engineers, A. J. and J. D. Harris. Heating and ventilating engineer, L. J. Fowler. Electrical engineers, C. Mackechnie Jarvis and Partners. Quantity surveyors, Franklin and Andrews.



GROUND FLOOR

3 CIVIC CENTRES



SITE PLAN

CARLISLE

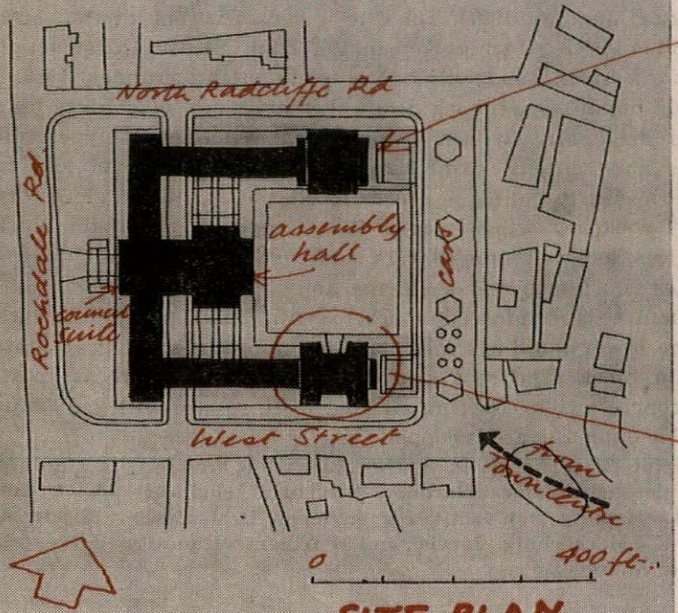
Charles B. Pearson and Son

The result of a competition held in 1957. Work is expected to begin early this summer.

The civic centre occupies the whole area between Lowther Street and Rickergate, and the group of buildings is designed to dominate this part of the city. Accommodation includes a multi-purpose assembly-hall to seat 1,000, civic suite with council-chamber, reception-rooms and committee-rooms, municipal offices housing 303 and a canteen. It is planned as three separate units, enclosing an open square entered from Rickergate: the municipal offices and civic suite on the north, in the form of a 10-storey tower to which is attached a 2-storey hollow square; the assembly-hall on the south (to which the canteen is attached), linked to the offices by a covered way; and between them, occupying the north-west corner of the square, the council chamber. This is octagonal in shape, raised on columns and linked to the offices at first-floor level by a bridge. The office block can also be entered from the Lowther Street side. The civic suite and the offices share a central staircase hall, off which is a large top-lit rates hall occupying the central area of the 2-storey block.

Construction is reinforced concrete except for the assembly-hall, which is steel framed. Cladding is mosaic and thin slabs of local stone.

Structural engineers, Bolton, Hennessey and Partners. Heating, ventilating and electrical engineers, Donald Smith, Seymour and Rooley. Quantity surveyors, Lay and Partners.



SITE PLAN

OLDHAM, LANCS.

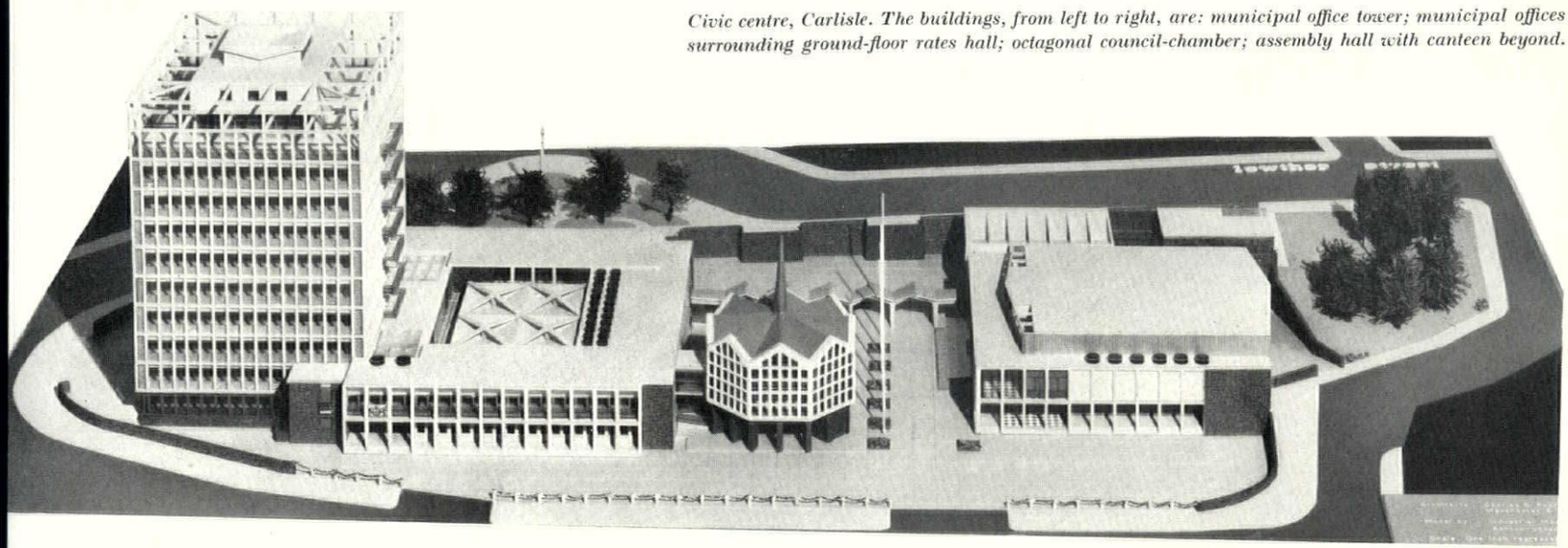
Cecil Howitt and Partners

Consists of an assembly-hall, small concert-hall, council-suite and offices for the town-clerk's, engineer's, health, education and six smaller departments. The site, of about five acres, slopes sharply from east to west and is approached from the town at the south-east corner. No starting date has yet been fixed, but it is hoped to build all but the concert-hall within two years, except for one range of offices (facing Radcliffe Street) which must await the demolition of a factory in 1968.

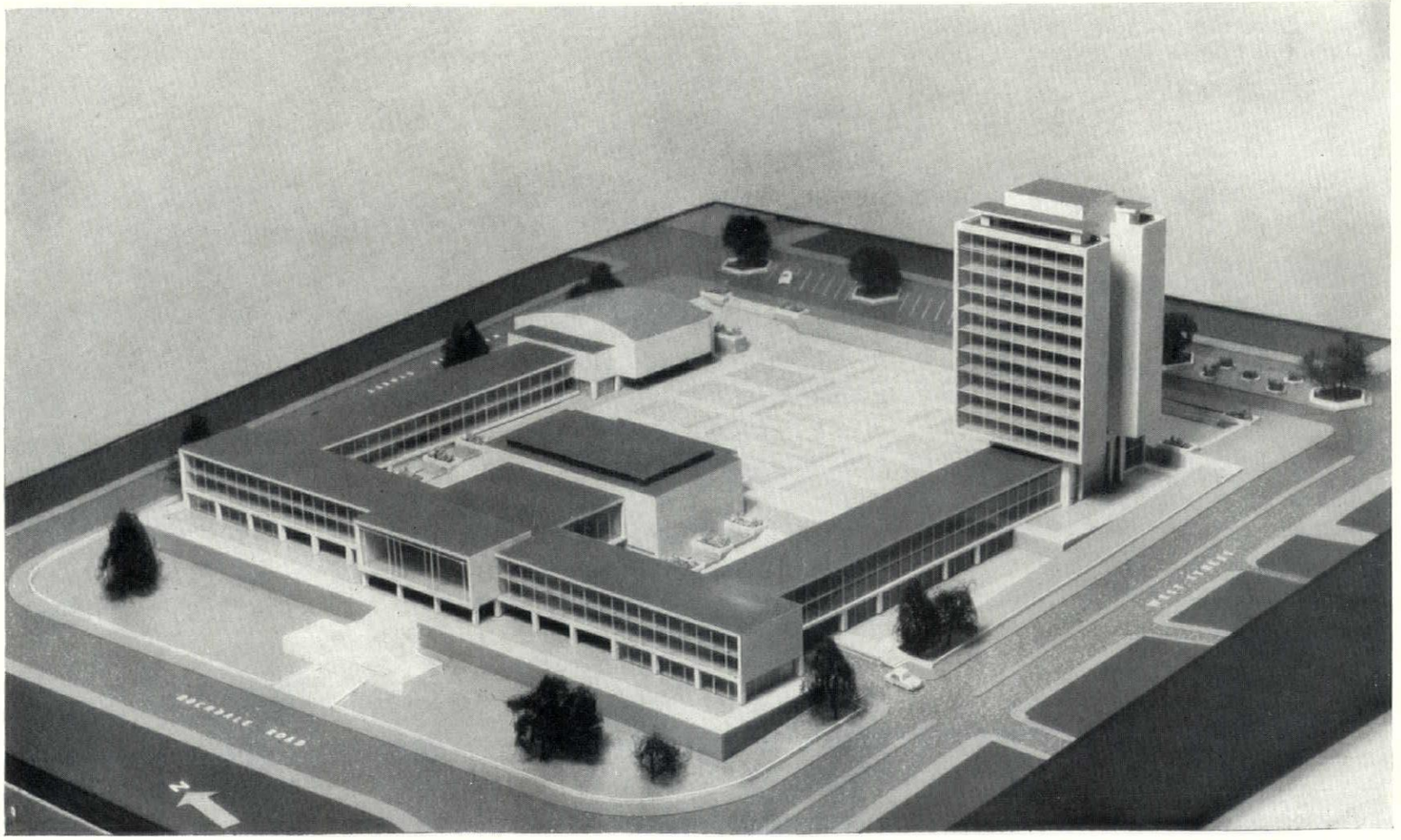
The assembly-hall seats 1,000 and can be let as a separate unit with some of the associated accommodation. The concert-hall seats 500. The council suite includes a council-chamber seating 52, mayoral suite, one large and four small committee-rooms and a dining-room and ante-room which together can form a large dining-hall in association with the assembly-hall. The offices, housing a staff of 525, are planned half in low blocks for easy approach by the public and half in a tower designed to mark the centre from a distance. The slope of the site has been utilized to give certain upper departments direct access from ground level. A large upper-level courtyard is designed to give elbow-room in a densely built-up area. All car-

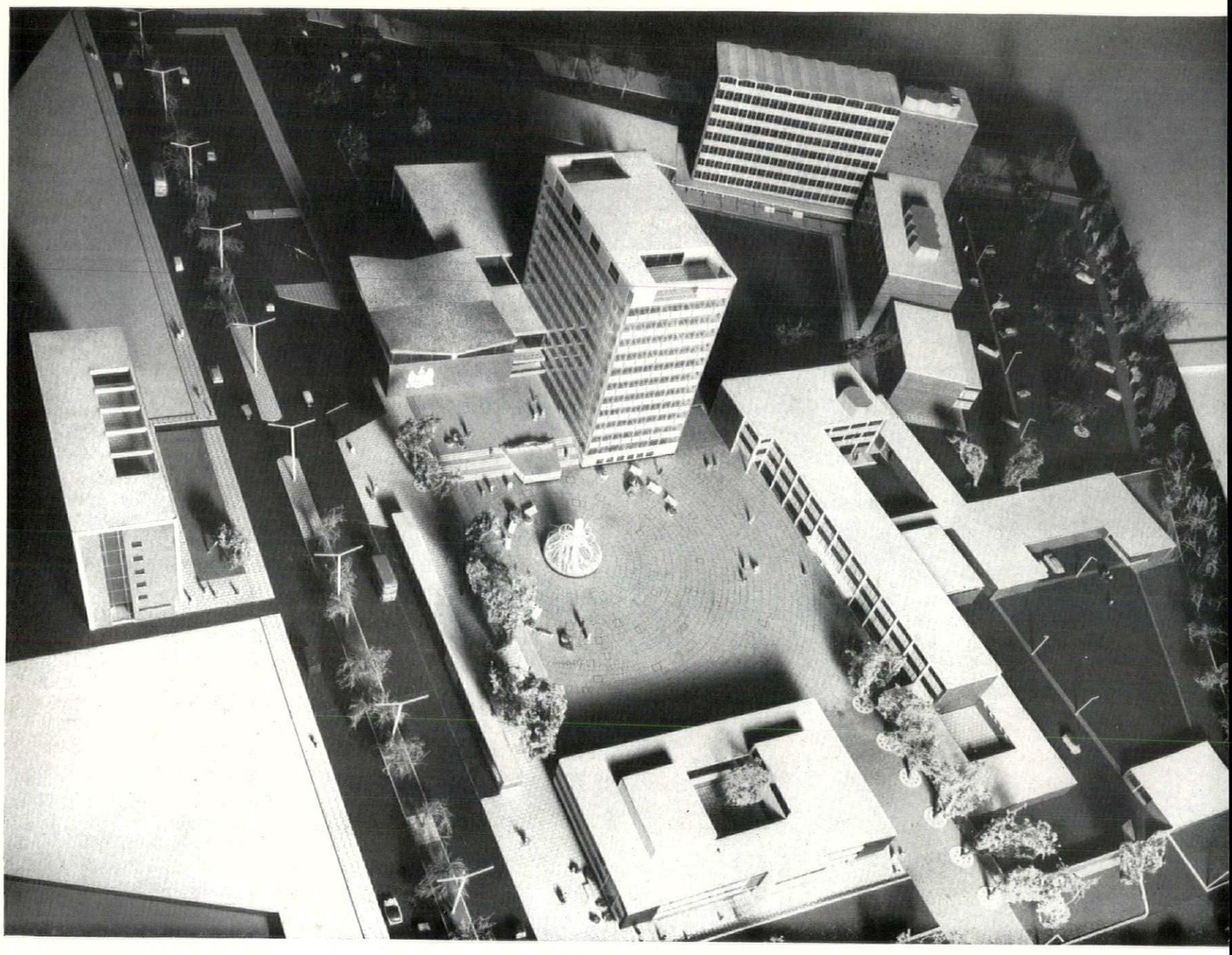
[*continued on page* 33

Civic centre, Carlisle. The buildings, from left to right, are: municipal office tower; municipal offices surrounding ground-floor rates hall; octagonal council-chamber; assembly hall with canteen beyond.



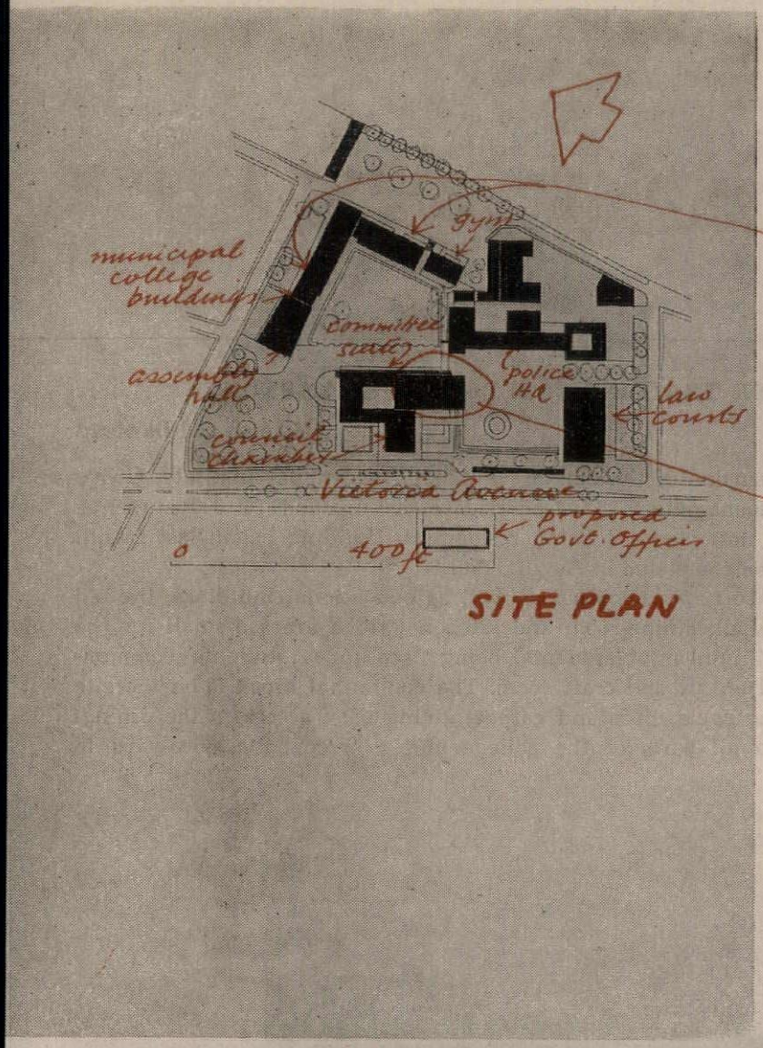
Below, Oldham civic centre, from the south-west.







Southend civic centre and municipal college buildings. Above, looking down on the square round which the civic buildings are planned, with the tall block of municipal offices on the far side, the law courts on the near side and the police headquarters on the right. Beyond the latter is the group of college buildings. On the left of the picture is Victoria Avenue, and on the other side of it the new Government office building. Right, from across Victoria Avenue.



SITE PLAN

continued from page 30]

parking is underground except for a few short-term standing spaces near the offices.

The structural frame is reinforced concrete faced with Portland stone; local stone for paving and terracing.

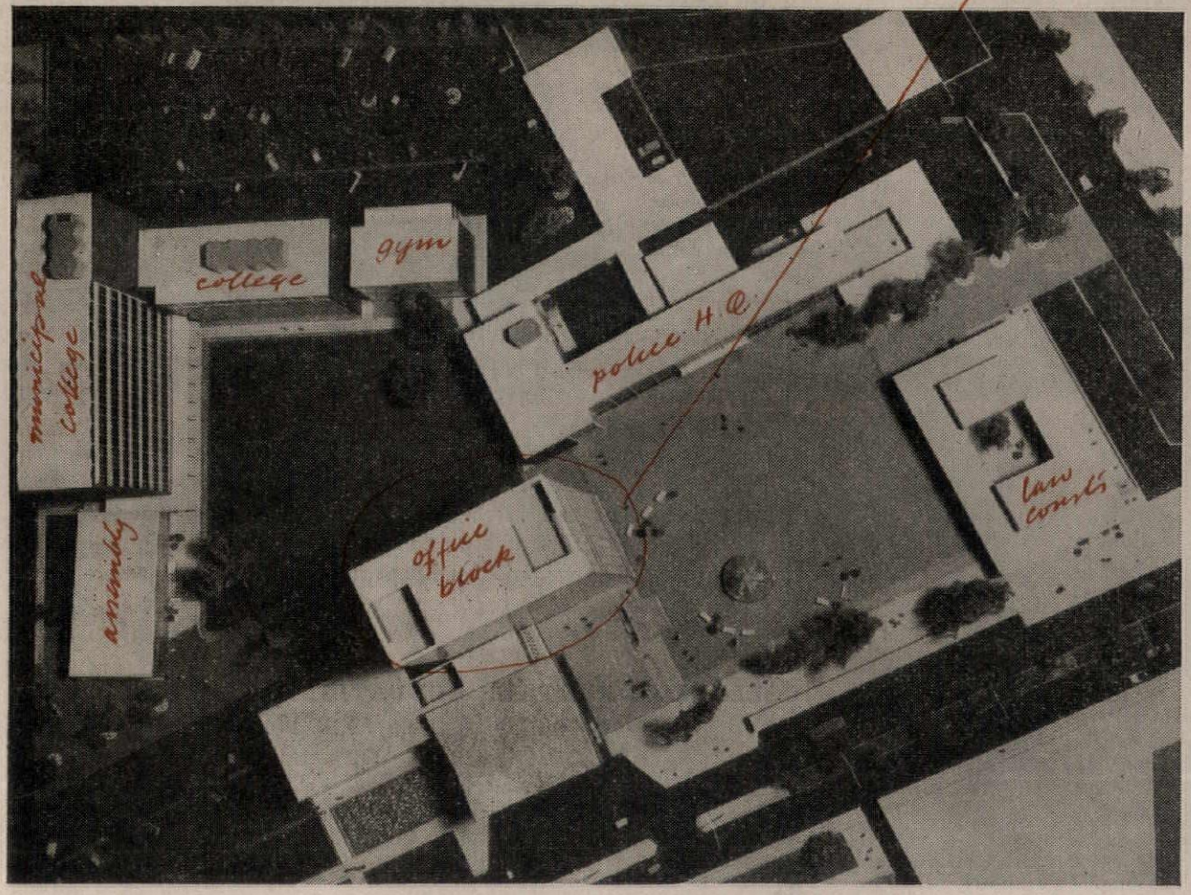
SOUTHEND-ON-SEA

P. F. Burridge (Borough Architect)

Includes municipal college buildings as well as civic buildings. The site is on Victoria Avenue, which links with the A.127 road to London and with Southend airport and continues through the main shopping-centre to the centre of seaside activity. A large Government office building (also shown on the model) is to be erected nearby. The main block of the college buildings is already nearing completion and the remainder will be started in 1961 and finished in 1964. The office block of the civic buildings is just starting. Most of the remainder will start this year or next and it is hoped to have the whole civic centre finished in five years.

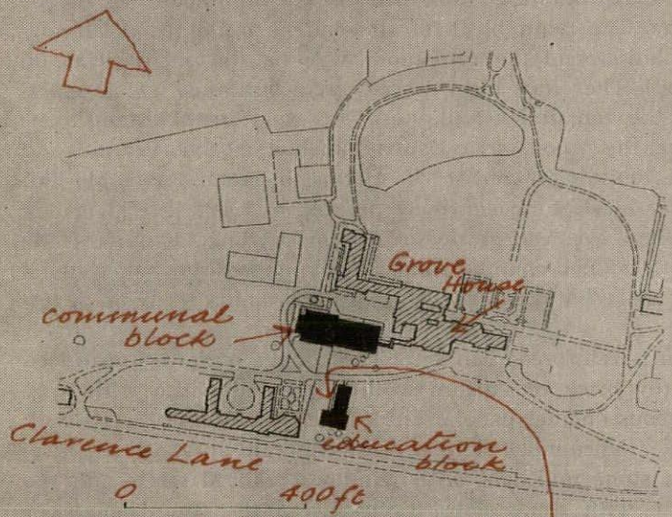
The college buildings consist of gymnasia block, assembly-hall and a teaching block for science, commerce and art. In the group of civic buildings are a 15-storey office block which dominates the whole centre, a council-chamber and a committee-suite, police headquarters and court buildings. Each group surrounds its own pedestrian square.

Construction is reinforced concrete. The college buildings are faced with silver grey brick or curtain walling painted white with grey glass and vitreous enamel panels. The council chamber is faced with brick, the tower office-block with precast concrete slabs (flint aggregate) between stone mullions, with windows painted white and the committee-suite with stone slabs. Both it and the council-chamber have a copper roof. The police headquarters have grey brick walls and curtain-walling with dark blue panels, and the courts grey brick and stone panels.



Air-view of Southend civic centre, showing also the municipal college (already under construction), far left. On the left of the paved square are the municipal offices, council-suite and council-chamber, on the right the law courts and on the far side the police headquarters.

4 FURTHER EDUCATION



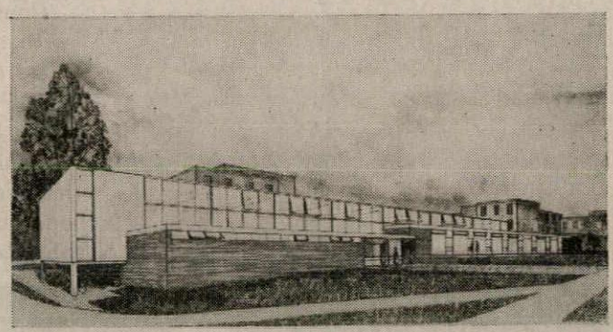
SITE PLAN
Teacher Training College: Roehampton

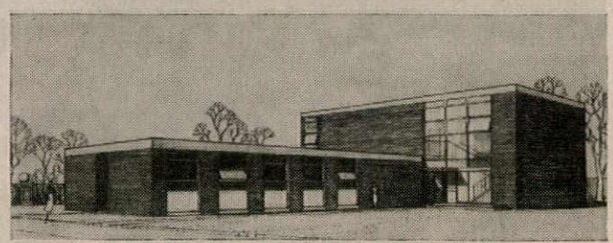
TEACHER TRAINING COLLEGE: ROEHAMPTON

Norman and Dawbarn

An expansion of the existing Froebel Educational Institute, Grove House, Roehampton, to accommodate 400 instead of 300 students, 44 of the new students being residential. Building began last month and will be completed in August, 1961.

There are new communal as well as educational buildings, the old assembly-hall, dining-room and kitchen (which are too small for the increased number of students) being used for a students' common-room and an art and craft room. The communal block is on the site of existing cycle sheds and garage, giving easy access to the dining-hall from all parts of the college and a screened service-yard to the kitchen, and allowing the assembly-hall, used for music, to be kept away from the teaching rooms. The new education block has two storeys with two lecture-rooms in each and a single-storey wing with tutorial rooms.





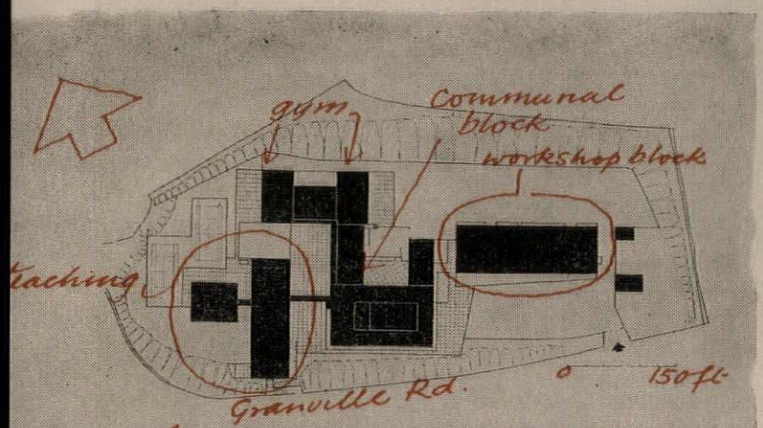
Above, communal block from the south-west. Right, education block from north-west.

The communal block has a reinforced concrete frame for the central area, faced with brick and precast concrete slabs, and load-bearing brick for the kitchen and lavatory wings. The education block has a concrete frame on the south elevation to provide large lecture-room windows and load-bearing brickwork elsewhere.

COLLEGE OF FURTHER EDUCATION: SHEFFIELD

J. L. Womersley (City Architect)

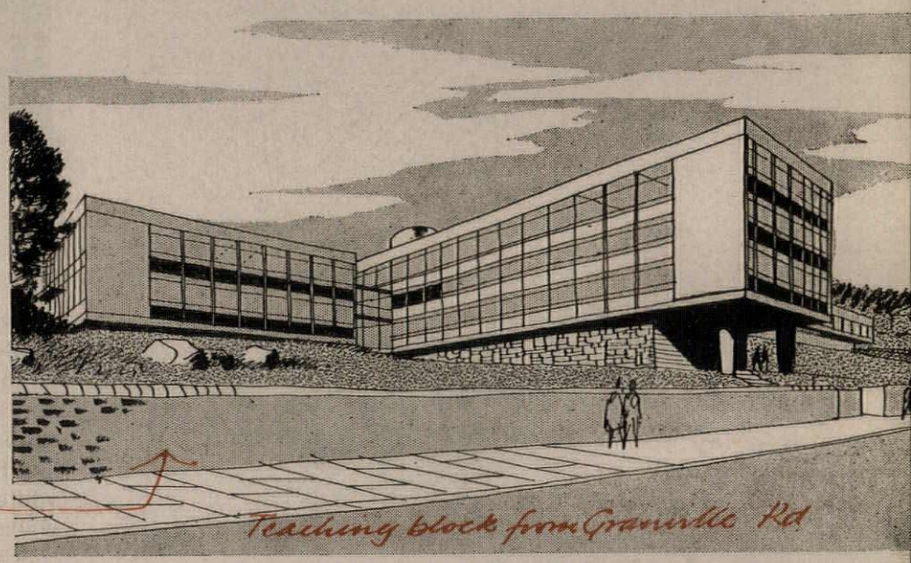
In Granville Road, near the new main technical college, on a level site created by the recent excavation of 25,000 tons of coal. Work began in July, 1958, and will be finished in September this year.



SITE PLAN

College of Further Education: Sheffield

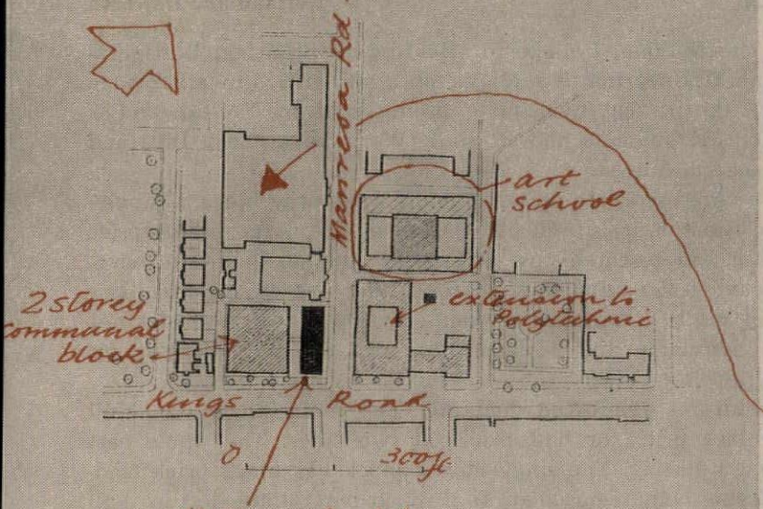
The college provides courses (full and part-time) in science, housecraft, art and allied subjects, typewriting, wood and metal work and various branches of engineering; also recreational and social facilities. It is planned in three main blocks, connected by glazed links and covered ways: a teaching-block (part three-storeys and part two-storeys), a communal block (containing assembly-hall, gymnasia, dining-rooms, kitchen, library and common-rooms) and a workshop block. The communal block is in the centre to provide a sound buffer between the quiet and noisy areas.



Teaching block from Granville Rd

The teaching blocks have an exposed reinforced concrete frame faced with slate and tiles, with brick end panel walls. Windows are steel in hardwood frames. The communal block is a mixture of concrete and steel. The aluminium curtain-wall has either coloured glass or brick infill panels. The workshop block is reinforced concrete with steel roof-trusses. Cross-walls are carried up into the roof where sound insulation is required.

Architect in charge, E. A. Whitaker. Structural engineers, Ove Arup and Partners. Mechanical and electrical engineers, E. A. Pearce and Partners. Quantity surveyor, A. W. Lancaster.



SITE PLAN

Chelsea College & Art School: London

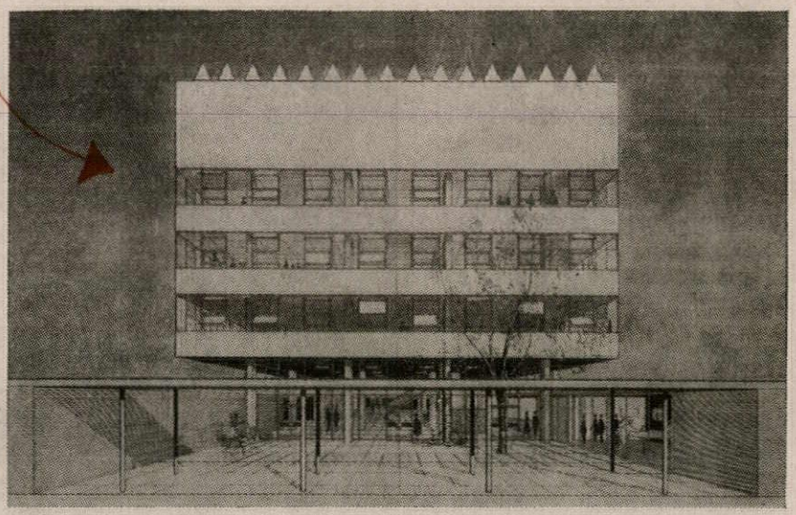
CHELSEA COLLEGE AND ART SCHOOL: LONDON

Hubert Bennett (London County Council Architect)

A group of buildings facing King's Road and bisected by Manresa Road, adjoining Chelsea Polytechnic. The latter is to become a college of advanced science and its art school separated from it. The new group consists of a new art school, a chemistry block for the college of science, a hostel for 200 science students, a communal block and a fire-station. Work will begin in a year's time and will be completed early in 1963.

The chemistry block has teaching, research and staff laboratories and lecture-theatres planned round an open court. The rooms facing

King's Road have double glazing. The hostel, eleven storeys high, has an open ground floor. The fourth floor accommodates resident staff and a sick-bay. The remaining floors contain single study-bedrooms. Behind is a single-storey warden's flat with a private garden, and alongside a two-storey communal block with dining-room and kitchen to serve all the students of the college and an assembly-hall to seat 400. It is linked to the hostel by a covered bridge. The art school, for 300 students, is a five-storey block with lower wings, one

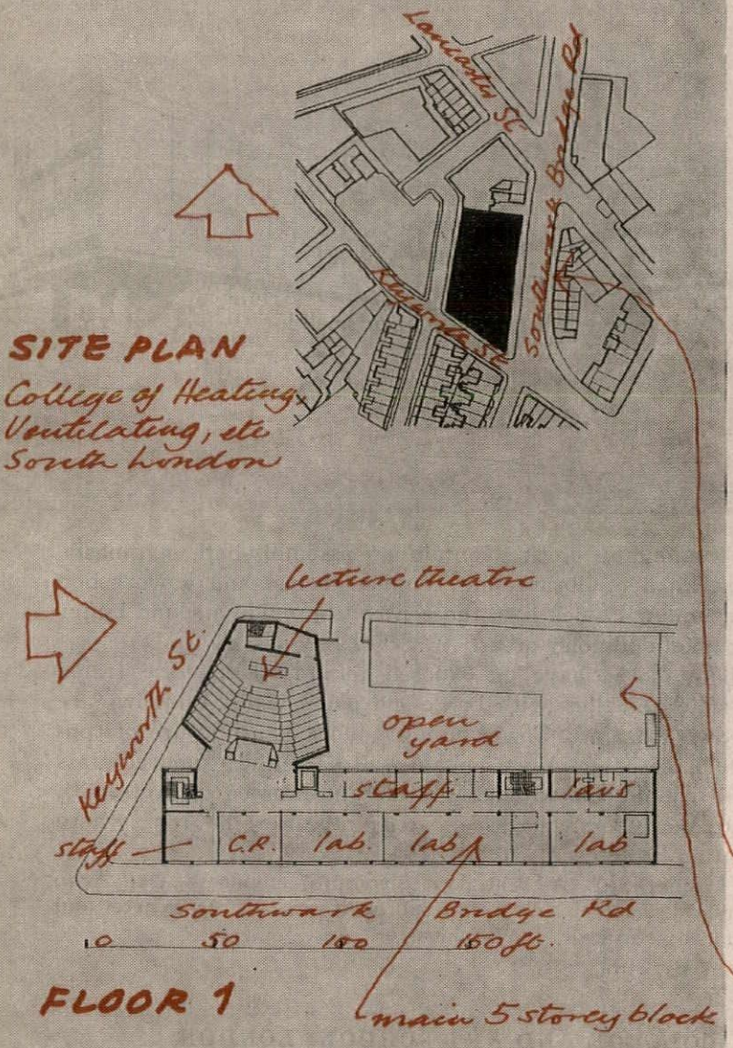


End elevation of art school block with top-lit studios on the upper floors.

of which contains the sculpture studios with car-parking for the whole college beneath. The main block has exhibition-space and a dining-assembly hall on the ground floor, lecture-rooms and library on the first floor, the design department on the second and the studios above.

All the buildings have a reinforced concrete structural frame with white mosaic infill panels on upper floors. Ground floor and boundary walls are dark brick.

Schools architect, Michael Powell. Group leaders, B. Le Mare (chemistry block and school of art); I. G. Berresford (hostel). Structural engineer, Senior Structural Engineer, L.C.C. Architect's Department. Electrical engineer, Chief Engineer, L.C.C. Heating engineers, Wingfield-Bowles and Partners.



COLLEGE OF HEATING, VENTILATING, ETC.: SOUTH LONDON

Norman and Dawbarn

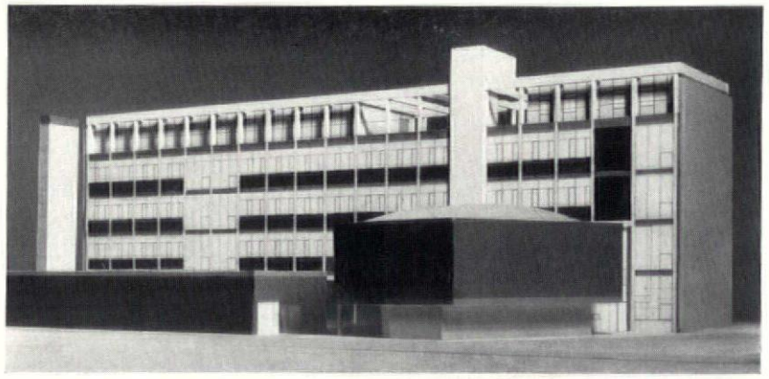
In full: the National College for Heating, Ventilating, Refrigeration and Fan Engineering. It replaces, on a site at Southwark Bridge Road, S.E.1, the present inadequate premises of the college and is designed for 315 students and 20 staff. Work began last July and will be finished in August.

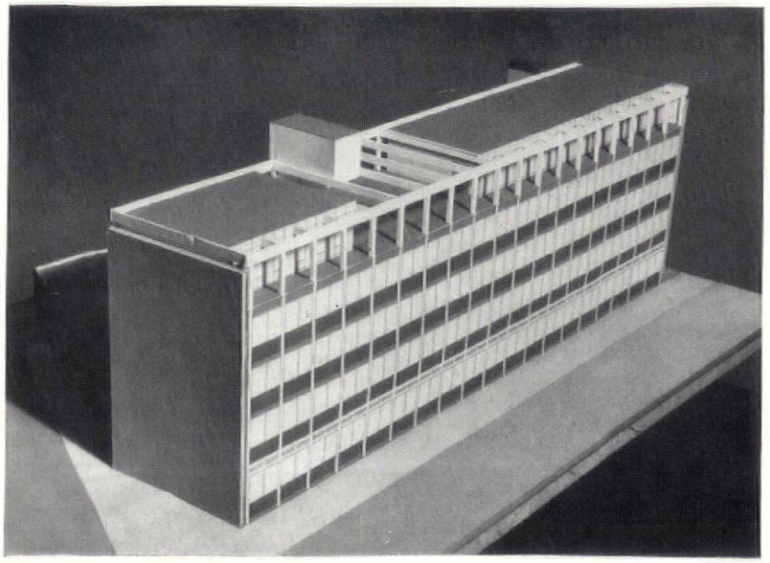
There are three separate units: a main five-storey block, a single-storey block and a lecture-theatre. Most of the large laboratories (for teaching and research) are at ground level to facilitate movement of heavy test equipment; the remainder are on the first floor of the main block. Heating and other services are of several kinds as aids to instruction and demonstration and teaching plant rooms occur at all levels.

The structure is reinforced concrete. The main block has infill panels of black brick, or buff brick on two sides. The whole east wall has fixed glazing. The single-storey block has black brick cladding, the frame being concealed. The upper part of the lecture hall is faced with black bricks and the lower part, which is set back, with buff bricks.

Mechanical engineers, J. Roger Preston and Partners. Quantity Surveyors, William C. Inman and Partners.

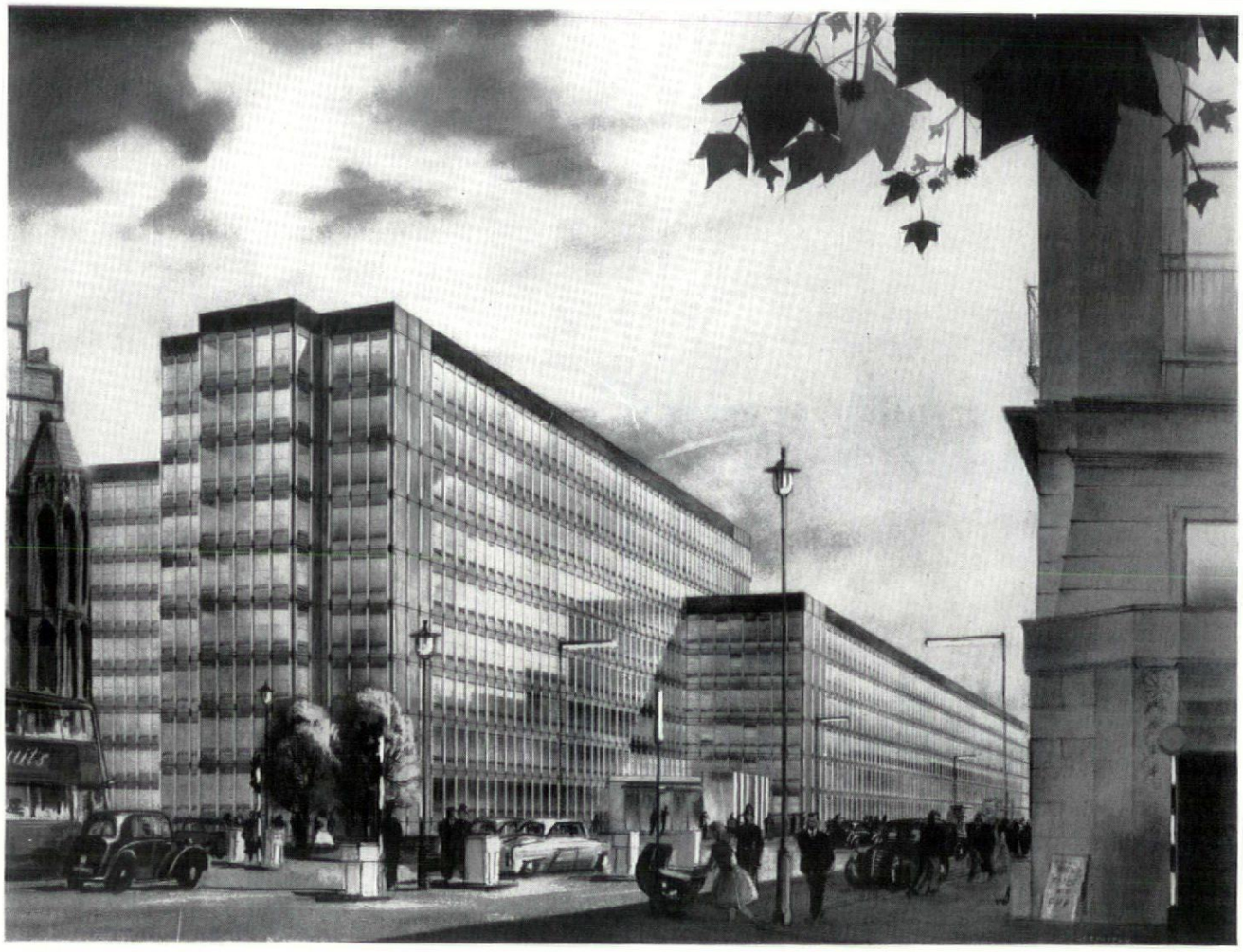
Chelsea college of science and art school, by the LCC architects, seen from across King's Road. The tall block at the corner of Manresa Road is the science students' hostel; behind it is the two-storey communal block. On the near side of Manresa Road are the chemistry block, planned round a courtyard, and alongside it, facing down Oakley Street, an LCC fire-station with sculpturally treated hose-drying tower in the yard behind. Beyond this is the art school block—see also facing page. The buildings shown in outline only on the other side of Manresa Road are the present buildings of Chelsea Polytechnic where the art school is now housed.





National College for Heating, Ventilating, Refrigeration and Fan Engineering: top, from the west, with lecture theatre in foreground; bottom, from the south-east showing the facade of the five-storey block facing on to Southwark Bridge Road.

5 OFFICE BUILDINGS



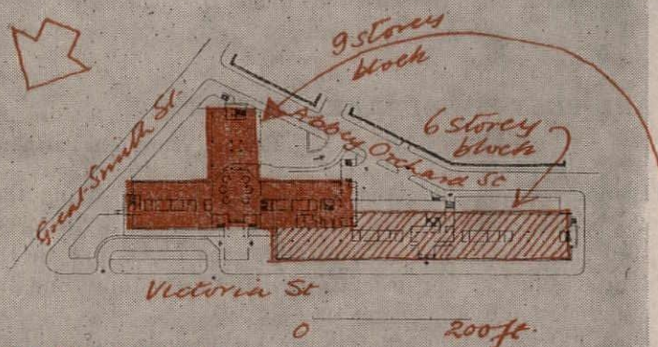
Offices in Victoria Street: the view from Broad Sanctuary, with the corner of Great Smith Street on the left.



Sales offices at Ipswich: on two storeys raised above an open ground floor containing a car park.

Below, offices for the Granada television network, Manchester. On the far side of the seven-storey block is the future main ring road.





SITE PLAN

OFFICES: VICTORIA STREET, LONDON

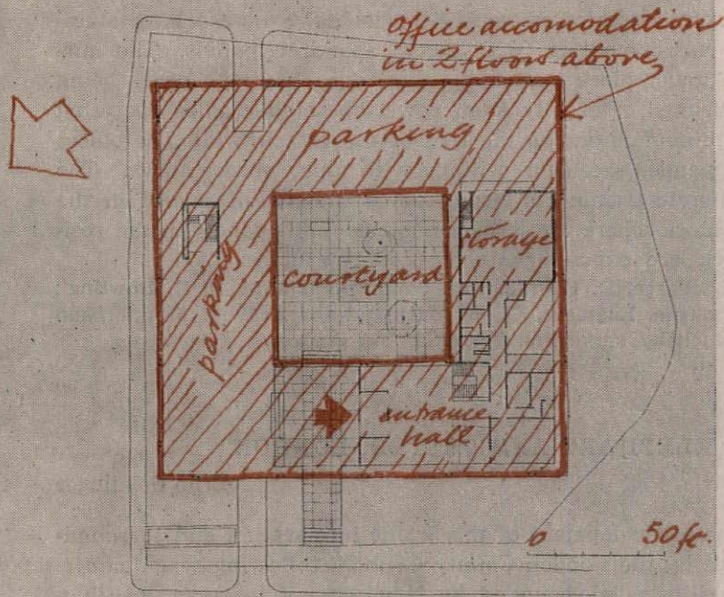
Ronald Fielding

On a two-acre island site at the Westminster end of the street (that is, at the corner of Great Smith Street). The whole building is let to one tenant and designed for his requirements. Site work began last May; completion is scheduled for March, 1962.

The buildings (the final grouping of which followed negotiations with the L.C.C. and the Royal Fine Art Commission after a scheme with a higher main block had first been put forward) consist of a nine-storey T-shaped block and a six-storey block parallel with one another. In one of the two basements is a garage for 170 cars.

Services are contained in a central reinforced concrete core from which the floors span to external columns, also reinforced concrete, 5ft. apart. The columns are faced with white marble; spandrel panels and the solid end panels with granite.

Engineers, Bylander, Waddell and Partners. Quantity surveyors, E. C. Harris and Partners.



GROUND FLOOR Offices: Ipswich.

OFFICES: IPSWICH

Johns, Slater and Haward

For Messrs. Fison, to accommodate their south-eastern sales division: on an island site, one side of which is a future inner ring road. Construction of three sides of the hollow square on which the building is planned began last August and will be finished in October. The fourth side will follow later.

Except for a few general offices, such as telephone and post room, the ground floor contains only the entrance hall, the office accommodation being on the two floors above. The remainder of the covered ground area is parking space for about 24 cars.

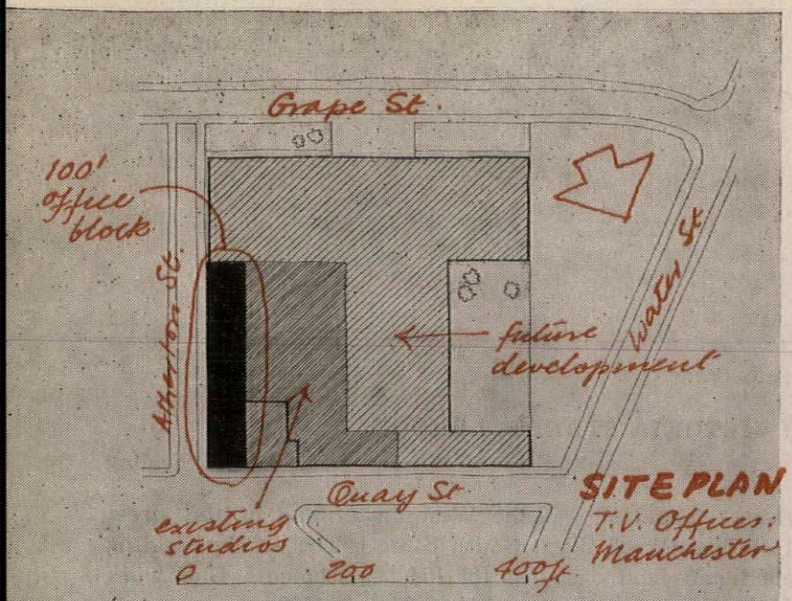
Construction consists of precast reinforced concrete units with two-storey H-frames forming the upper floors. These support prestressed joists. The frames rest on V columns supporting edge-beams combining rolled steel and prestressed concrete casing of a type designed by F. J. Samuely just before his death and used here for the first time. Cladding consists of hardwood units between the exposed concrete H-frames, with aluminium opening lights. Panels below windows are black glass. First floor and roof edge-beams are faced with granite.

Structural engineers, F. J. Samuely and Partners. Heating and electrical engineers, Fisons Engineering Department, Felixstowe. Quantity surveyors, Caston and Porritt.

TELEVISION OFFICES: MANCHESTER

Ralph Tubbs

For the Granada network, part of their TV Centre. The office block, 100ft. high, is on the Atherton Street frontage of the centre,



facing the future main ring road. Work began last September and will finish next December.

The lower ground floor, on the same level as the existing studios alongside, contains a boiler-house which will eventually serve the whole centre, a viewing theatre with projection-room and film storage. This and the ground floor are connected with the existing buildings, and the reception hall at street level will eventually be the entrance to the whole centre. Above are seven floors of offices, with a small amount of residential accommodation on the roof; also a penthouse reception-room with access to a roof-terrace.

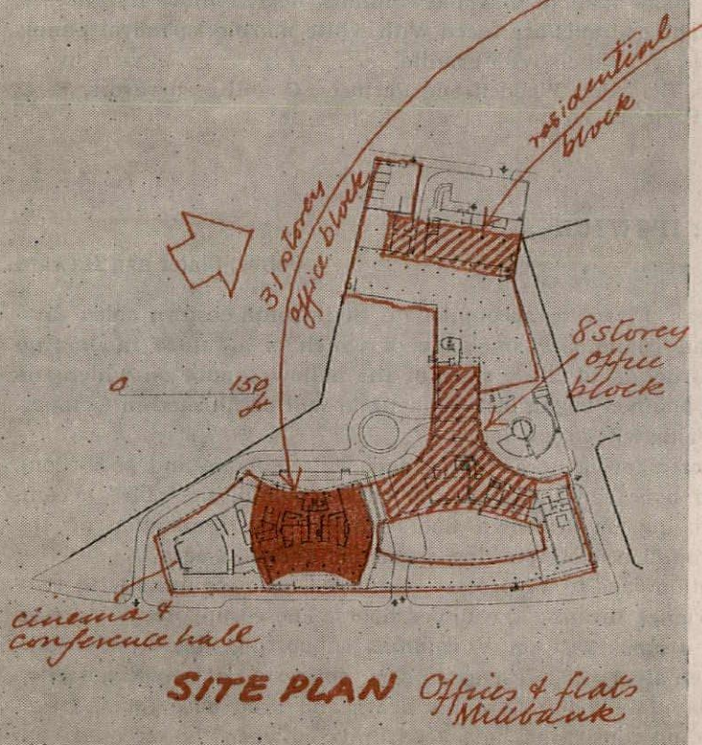
The building has a reinforced concrete frame, with curtain walling with steel-faced infill panels enamelled grey and flank-walls and penthouse in dark brick. On the office floors only the corridor walls are permanent. Services run below the slab between them.

Assistant architects, Miss P. Townsend and I. Urwin. Structural engineers, Truscon Ltd. Quantity surveyor, Brian D. Etchells.

OFFICES AND FLATS: MILLBANK, LONDON

Ronald Ward and Partners

Between Lambeth Bridge and the Tate Gallery, overlooking the Thames: for Messrs. Vickers. The scheme consists of a 31-storey office block, 380ft. high, an 8-storey Y-shaped office block and an 11-storey residential block. Construction began last June and is scheduled for completion by the end of 1962.



The layout and the height of the tower block were determined by angles imposed by town-planning restrictions on the north and south boundaries. The tower is designed to provide a visual stop to the cliff-like development further downstream. The site has been kept as open as possible at ground level, offices and flats beginning on the first floor. There is a cinema-conference hall at ground level on the south side of the tower, and restaurants and kitchens in the first-floor podium of the various blocks. The residential block has one floor of ten hotel suites; otherwise 80 two-bedroom and one-bedroom flats. There is parking for about 250 cars on three levels, reached by a spiral ramp cantilevered out from a water-tower.

Construction is reinforced concrete. The office blocks have stainless steel curtain-walling with glass spandrel panels. The air-conditioned tower block has double windows, the outer panes being fixed and cleaned externally from power-operated cradles operating on bronze guide-mullions on the face of the curtain-wall. The offices have a suspended acoustic ceiling, with duct space above. The exposed concrete framing is faced with white mosaic except in the residential block where the mosaic is black. Infill panels in the residential block are exposed-aggregate concrete slabs.

Partner in charge, D. H.. Marriott. Senior assistants, R. B. Dowling; G. D. Wimbourne. Engineer, G. W. Kirkland (of Travers Morgan and Partners). Quantity surveyors, Franklin and Andrews.

OFFICES: ELEPHANT AND CASTLE, LONDON

Ernö Goldfinger

Part of the redevelopment of this traffic intersection and surrounding buildings by the London County Council, following war damage. The section illustrated, bounded by Newington Causeway, Rockingham Street, Tarn Street and the Trocadero cinema, is known as Site 2. It comprises 72,000 sq. ft. and is laid out with three office blocks parallel to the main axis of the whole scheme and staggered in plan to form an enclosed pedestrian courtyard in conjunction with the northern facade of the cinema. There is basement and surface car-parking. Construction will begin this year.

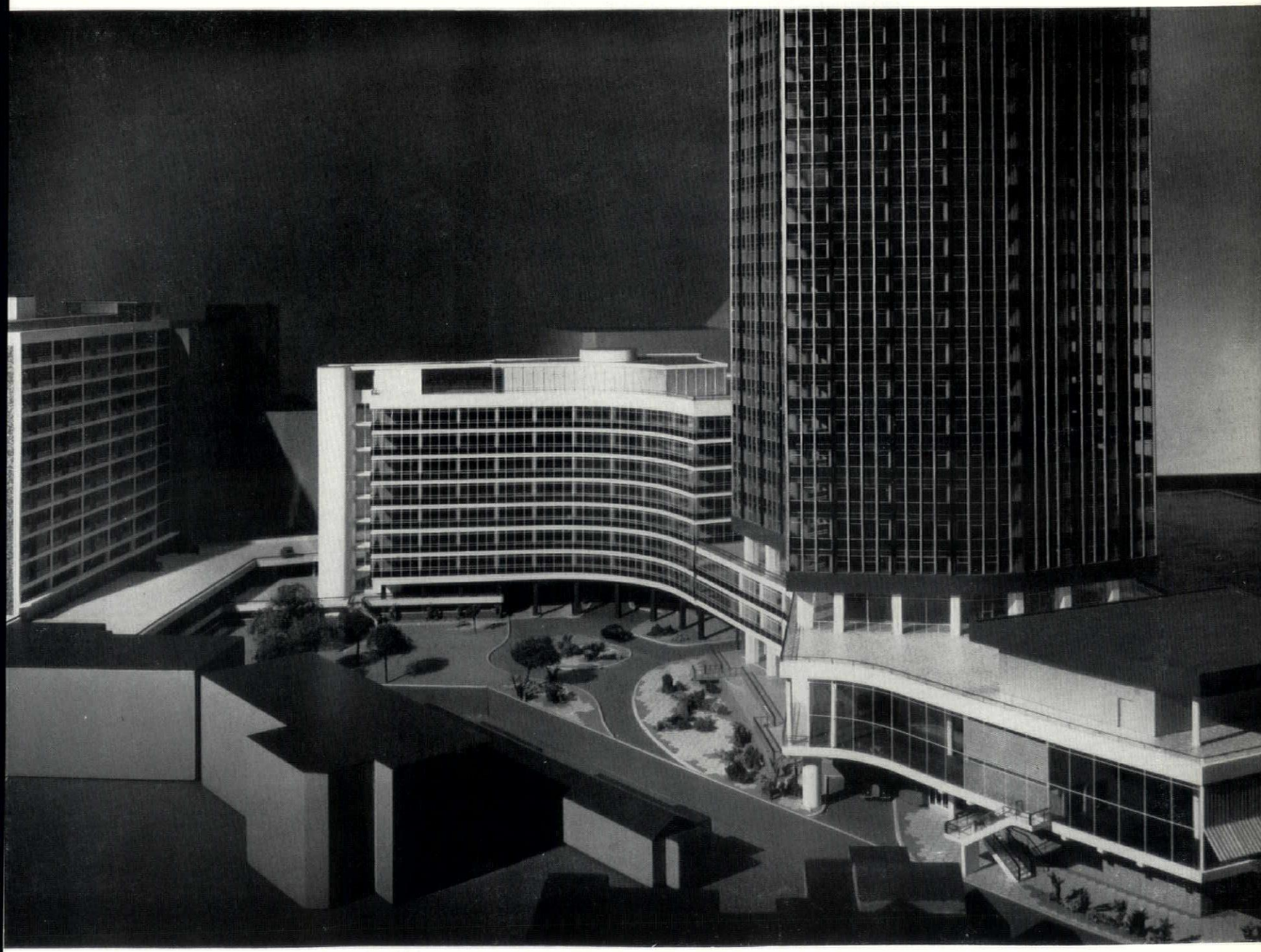
Two of the blocks are seven storeys high, and the third thirteen.

[*continued on page* 43



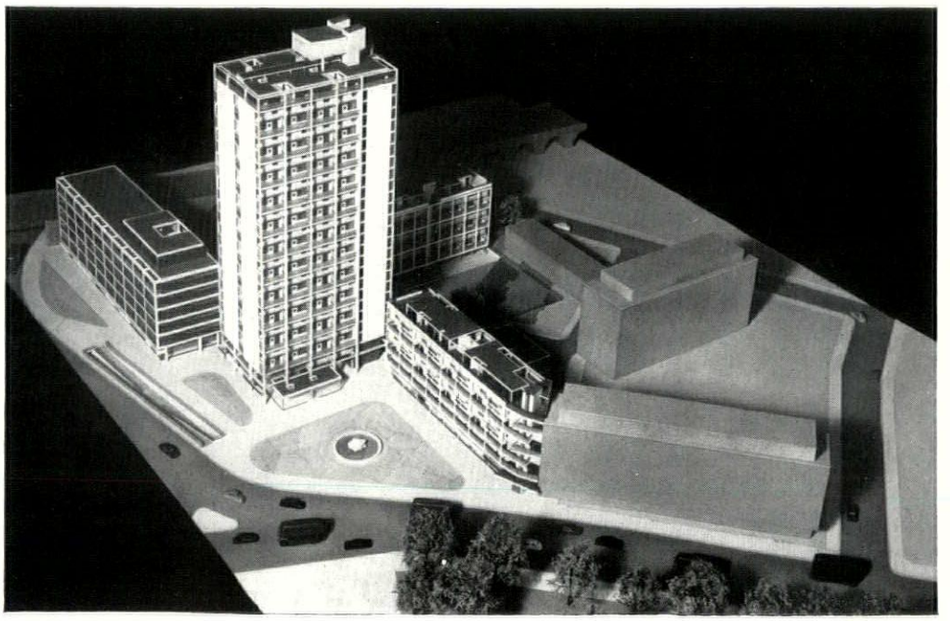


Offices and flats at Millbank, London, overlooking the Thames: left, from the east (the side facing the river), and night view from the south-west; below, a detail from the south-west showing the open courtyards and gardens between the buildings. The residential block is on the extreme left and the cinema-conference hall at the foot of the tower on the right.

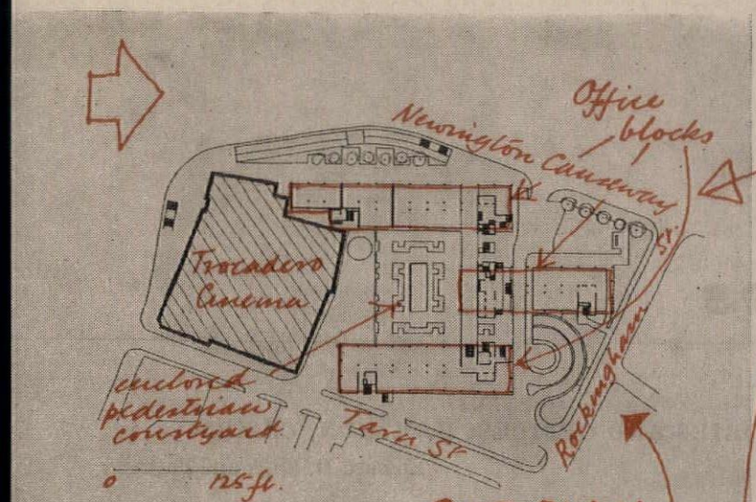


5. OFFICE BUILDINGS

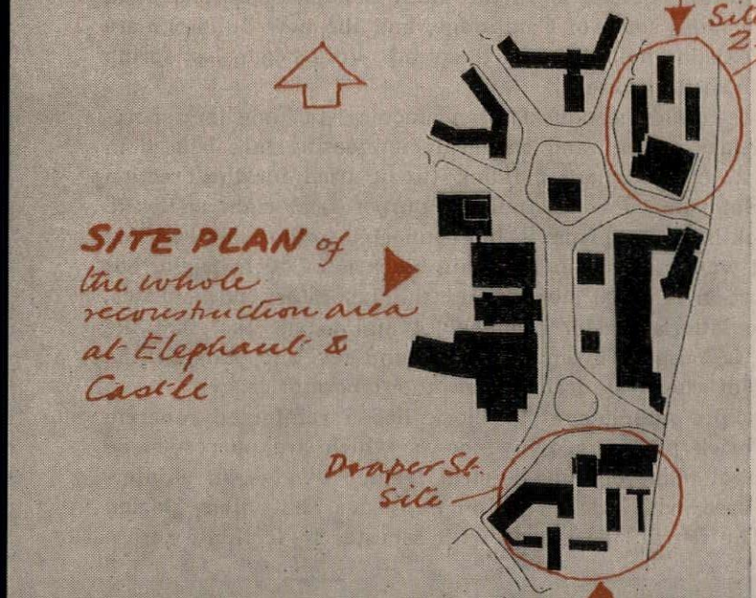




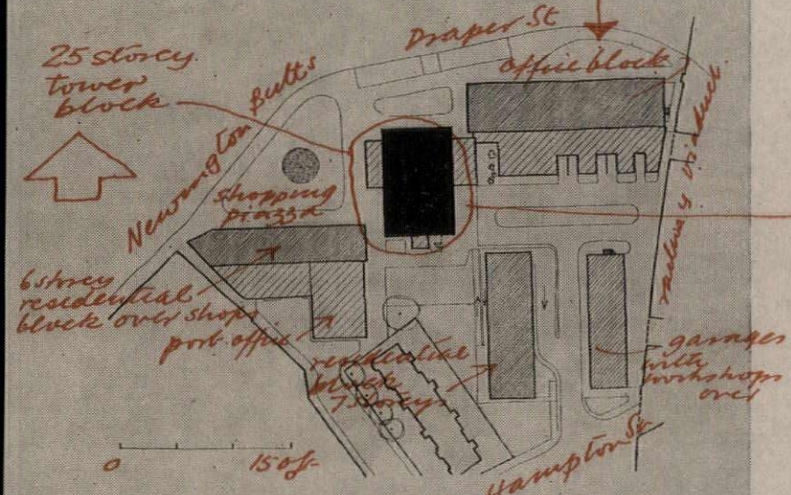
The LCC redevelopment scheme at the southern (Draper Street) end of the Elephant and Castle area, comprising, besides offices, housing, shops and other buildings. Above, from the south-east. On the right, on the far side of the main traffic-way, is the classical portico of the restored Metropolitan Tabernacle. Beyond it is the London School of Printing. Just off the right-hand edge of this picture, at the northern end of the same reconstruction area, the scheme by Ernö Goldfinger, also illustrated in this issue and shown in the line drawing opposite, is sited—see layout plan. Right, the LCC Draper Street scheme from the north-west. See also the frontispiece to this issue.



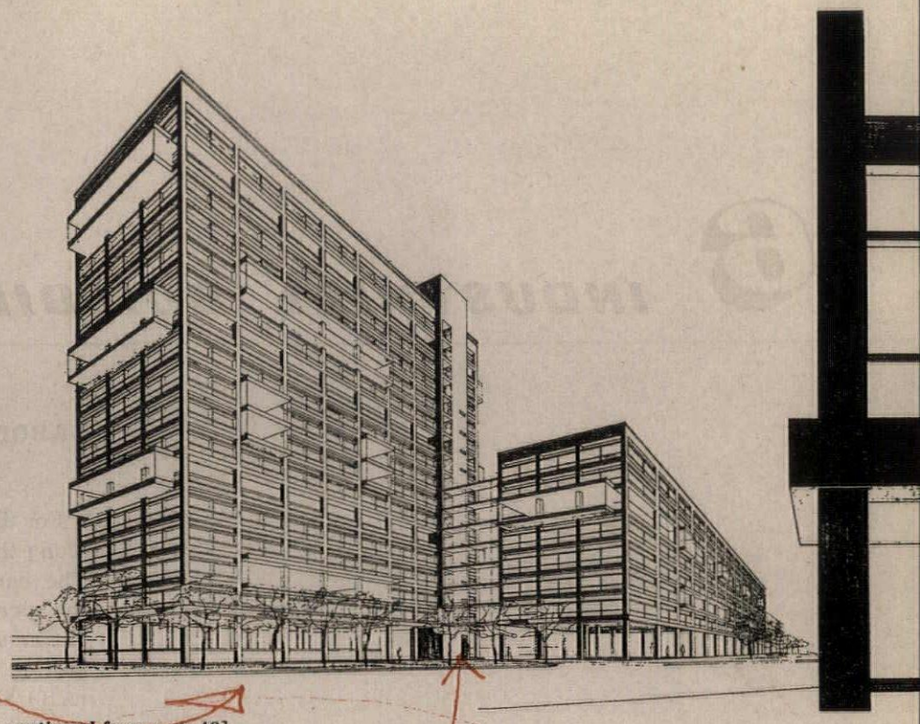
SITE PLAN Site 2



SITE PLAN of the whole reconstruction area at Elephant & Castle



SITE PLAN Draper St. site



continued from page 40]

One of the latter has shops or showrooms on the ground floor, as well as two banks and a public-house reinstated from pre-war. The three office blocks are linked by bridges. The blank west facade of the cinema, exposed by the demolition of existing buildings, is faced by a structure designed to carry illuminated advertisements.

The buildings are reinforced concrete structures with the frames exposed and bush-hammered. Ground floor columns are faced with granite. Modelling is given to the facades by projecting some sections to form bay windows and recessing others behind the structural frame to form colonnades.

Assistant architects, J. Winter ; J. Blacker.

OFFICES, HOUSING, ETC., SOUTH-EAST LONDON

Hubert Bennett (Architect, London County Council)

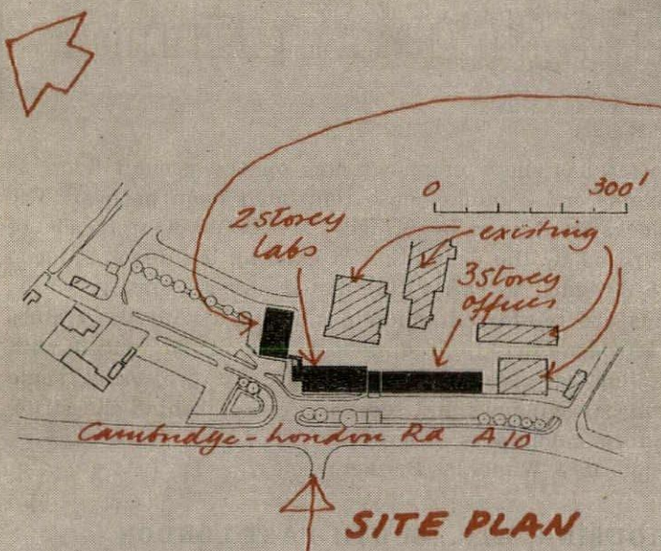
In Draper Street: comprising the southern sector of the Elephant and Castle reconstruction area (see also above). The development illustrated here consists of offices, 200 flats and maisonettes, shops, pub, post-office, garages (including an underground car park) and an occupation centre with workshops. Work below ground has begun. The remainder will begin early this year. The office block will be completed in 1962 and the other buildings in 1963.

The office block is placed at right-angles to the railway viaduct which forms the eastern boundary of the site, and a residential block with shops on the ground floor and penthouse flats on the roof is set back at the south end of the 25-storey tower to form a small shopping piazza away from the main road. This is laid out with fountains and sculpture, and may be embellished with illuminated advertisements on the blank north end of the tower. The south front of the tower overlooks a small green space with sunken children's playground and covered play-space connected by ramps to the main levels.

Construction is reinforced concrete, mostly precast. The exposed frame has a blue granite aggregate, bush-hammered. Cladding is precast slabs with grey granite aggregate. On the tower block storey-height slabs are finished with white Sicilian marble slips.

Deputy architect to the council, F. G. West. Architect in charge, Edward Hollamby. Job architect, D. A. Woods. Consultant artist designer, William Mitchell. Structural engineers. F. J. Samuely and Partners. Heating, ventilation and electrical engineers, Chief Engineer's Department, L.C.C. Quantity surveyors, H. Trinick and Partners.

6 INDUSTRIAL BUILDINGS



SITE PLAN

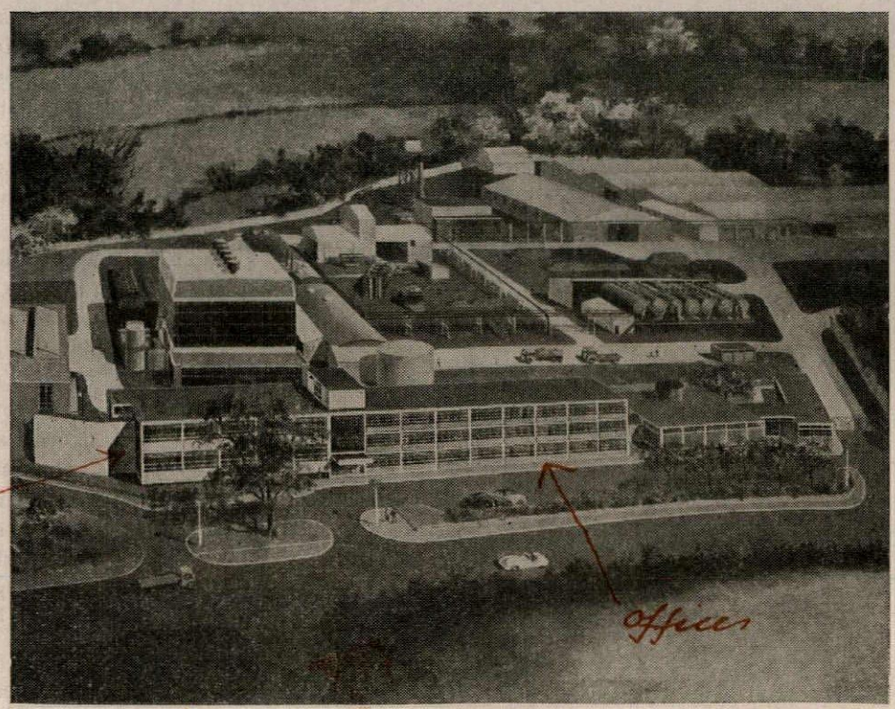
LABORATORIES AND OFFICES: HARSTON, CAMBS.

Edward D. Mills and Partners

For Fisons Pest Control, Ltd.: the final stage of a development along the road frontage of the firm's existing spray-chemicals factory. The earlier stages of the project (the whole of which is shown in the perspective) consisted of an ablutions building and a works entrance and gatehouse. The new building replaces temporary laboratories and offices. The site is on the main London-Cambridge road (A10) about 5 miles south of Cambridge, and the new buildings are between the existing buildings and this road. Work began last spring and will be finished in June.

Offices for the firm's headquarters and factory staff and the laboratories (analytical, organic and chemical engineering) are housed in a single block. A pilot plant building (to be used for the erection of various pilot plants for experimental purposes) at right angles to the main block is separate from it, but connected to the main building by a covered way and bridge. The main block is of even height, but the office portion is three storeys and the laboratory portion two, owing to the latter's greater room-height and to the fact that the ground floor is raised 3ft. 6in. above ground level to simplify the arrangement of chemical drains from the laboratories.

The main office and laboratory block has a reinforced concrete frame with brick panels below windows, which are purpose-made metal. The pilot plant building is steel framed to give an uninterrupted floor area, with brick walls on two sides and patent glazing on a third. The fourth side is clad with asbestos to facilitate future



extension. There is a car-park in front of the new buildings, screened from the highway by a belt of trees and shrubs.

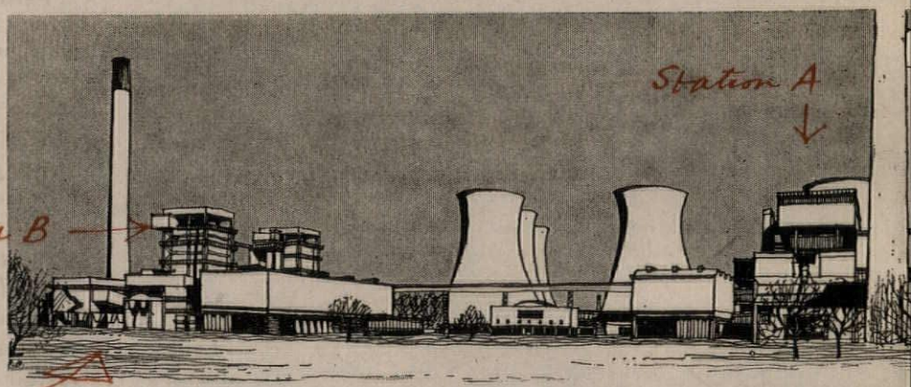
Architect in charge, Philip E. Bell. Engineers, Ove Arup and Partners. Quantity surveyors, Leslie W. Clerk and Partners.

POWER STATION: WILLINGTON, DERBYSHIRE

Farmer and Dark

For the Central Electricity Generating Board, to supply power to the national 132 and 275 KV grid systems. Two adjoining stations (both coal-burning) each have a capacity of 400 megawatts. Station A is already built (completed last year). Station B, illustrated here, is under construction and will be finished in the summer, 1962.

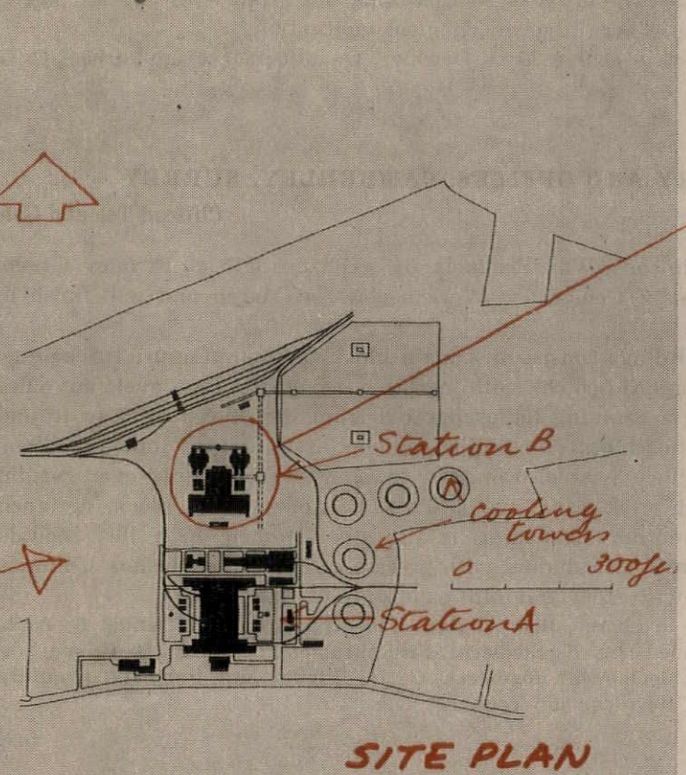
It consists of two sets, each comprising a 200 megawatt turbo-alternator and associated plant. The two boilers that provide the steam pressure are arranged in line alongside the turbo-alternators, with the reinforced concrete fuel bunkers placed between them. These are exposed, but the areas above the conveyors and below the low-level weighers are closed in. Ducting from boilers and precipitators connects with a single free-standing reinforced concrete



chimney 425ft. high. The two turbines are housed in one building, but the boilers are completely exposed; so are the other items of plant such as precipitators, dust collectors and fans and the transformers associated with turbines and plant control. Bright colour is used to differentiate the kinds of plant. Ancillary buildings include workshops, stores, offices, canteen, control-room, three pumphouses, ash-plant, locomotive shed, garages, switch-rooms, etc.

These are built with exposed reinforced concrete frames with brick, aluminium and glass cladding. The turbine house is clad with dark purple-grey brick at low level and aluminium sheeting above. Glass areas are aluminium bar patent glazing.

Engineering consultants, Ewbank and Partners.



SITE PLAN

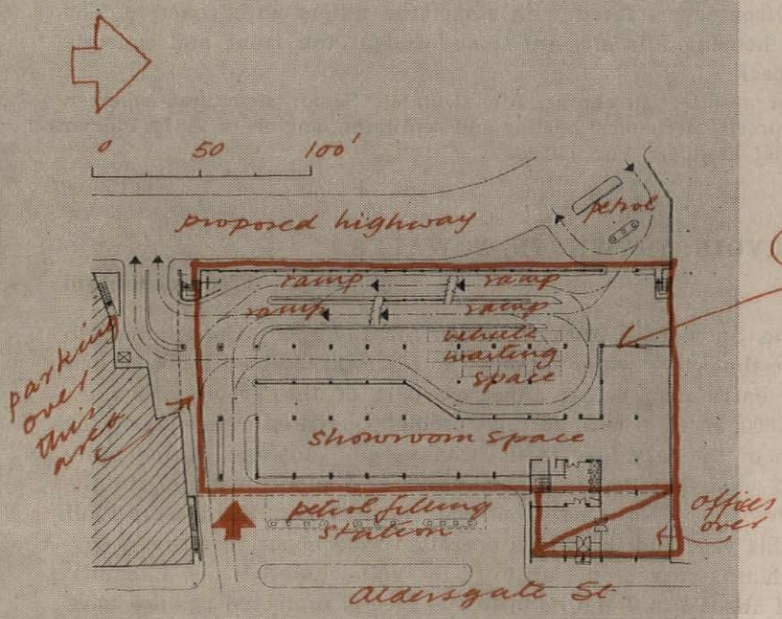
PARKING GARAGE: ALDERSGATE STREET, LONDON

Oscar Garry and Partners

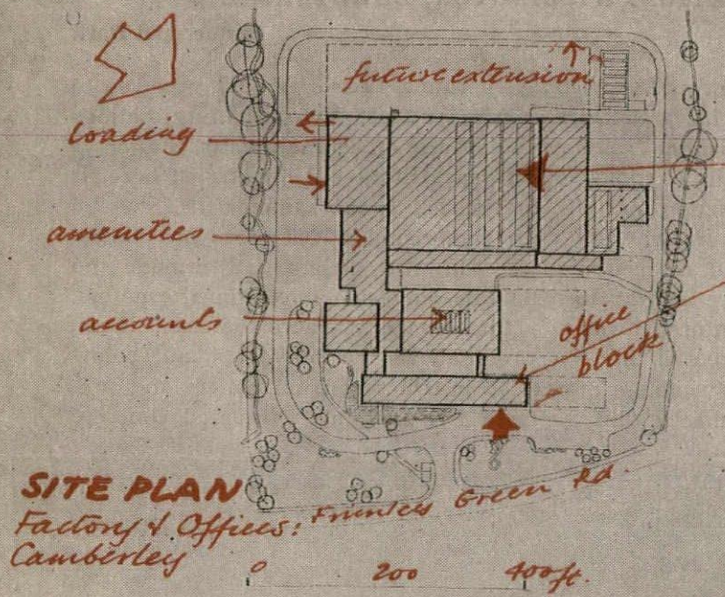
Facing the Barbican redevelopment area: the City's first public multi-storey car-park. Work begins this month.

There is parking space for about 500 cars on a staggered floor system with ramp approach, together with a car-sales showroom, filling-station, service area in the basement and offices. Initially both in-going and out-going traffic will use the Aldersgate Street entrance but later an exit will be formed in a new road at the rear. Customers will park their own cars under the supervision of attendants.

The structure is reinforced concrete, with prestressed T-joist floors spanning between longitudinal beams which are supported internally



GROUND FLOOR



on columns and externally on precast framing units forming an open grille. The areas of solid walling are faced with exposed aggregate slabs. There is no mechanical ventilation.

Architect in charge, G. J. Hawkins. Quantity surveyor, Michael C. G. Seward.

FACTORY AND OFFICES: CAMBERLEY, SURREY

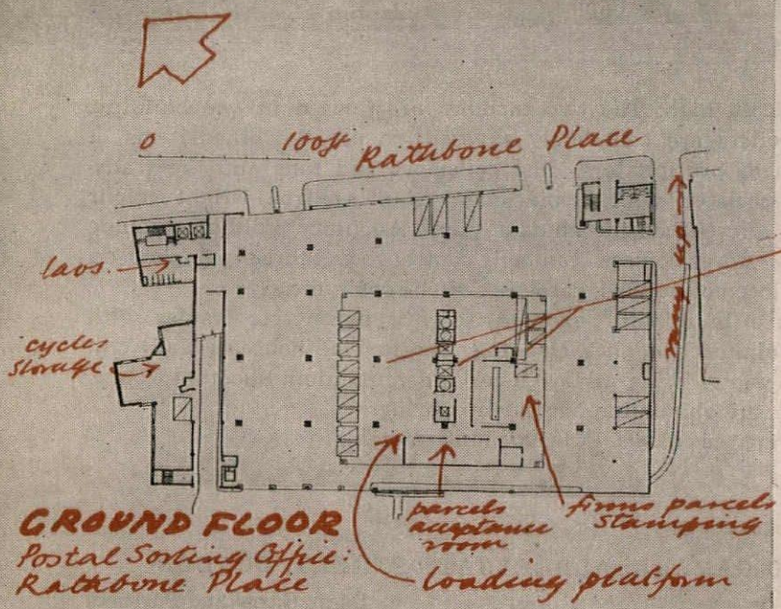
Clifford Tee and Gale

For Johnson's Wax Products, on a 10-acre site at Frimley Green, south-west of Camberley. Work began last March and will finish in August.

The buildings consist of a main block for manufacture, packaging, storage and despatch, with research at mezzanine level, an office block, an accounting hall separated from the offices by a patio and an amenities block (containing canteen, first-aid, etc.) linked to them.

The factory is steel-framed with monitor roof-lights over certain areas and brick panel walls. The two-storey office block, designed to take another floor later, is also steel framed on a 10ft. module without internal columns, with precast concrete floor beams. Columns are faced with stone and infill panels are brick.

Partner in charge, Eric A. Day. Executive architect, Dennis A. Arch. Group leader, Jan K. Siedlecki. Structural engineers, C. B. Brown and Partners. Mechanical engineers, G. H. Buckle and Partners. Quantity surveyors, Reynolds and Young.



POSTAL SORTING OFFICE: RATHBONE PLACE, LONDON

Chief Architect's Division, Ministry of Works

A new sorting office (letters and parcels) for the Western postal district. The site is just north of Oxford Street, between Rathbone Place and Newman Street. Work began in December, 1958, and will be finished at the end of 1962, enabling the Post Office engineers to install the mechanical equipment by early 1963.

The square five-storey building has goods lift, chutes and service stairs in the centre and is connected to a new Post Office underground station beneath. There is a sub-basement garage, the basement being used for mechanical plant and bag-cleaning. The ground floor contains a covered yard and loading platforms, the first, second and third floors the sorting offices and the top floor welfare accommodation.

The main structure is reinforced concrete. The main (Rathbone Place) frontage is faced with stone; the others with concrete. The towers housing lifts etc. are stone-faced at the front and concrete at the back.

Senior architect in charge, Alan Dumble. Senior structural engineer, W. J. Purcell. Mechanical heating and ventilating engineers, A. M. Palmer and Chief Engineer, Post Office.

RESERVOIR: TRYWERYN, N. WALES

Frederick Gibberd

In the Snowdonia National Park, for Liverpool Corporation; to increase that city's water supply. The reservoir, formed by constructing an earth dam across a narrow part of the Tryweryn valley, covers 800 acres. The landscape problems created range from the relation of the new lake to the established landscape, posing problems of changing land-use, earth-form and plant material, to the reinstatement of scarring from the construction. Road work will begin this year and the whole operation take about three years.

The dam is curved on plan to fit the valley sides. It has a shallow slope of about 1 in 3 and its upstream face is protected against wave

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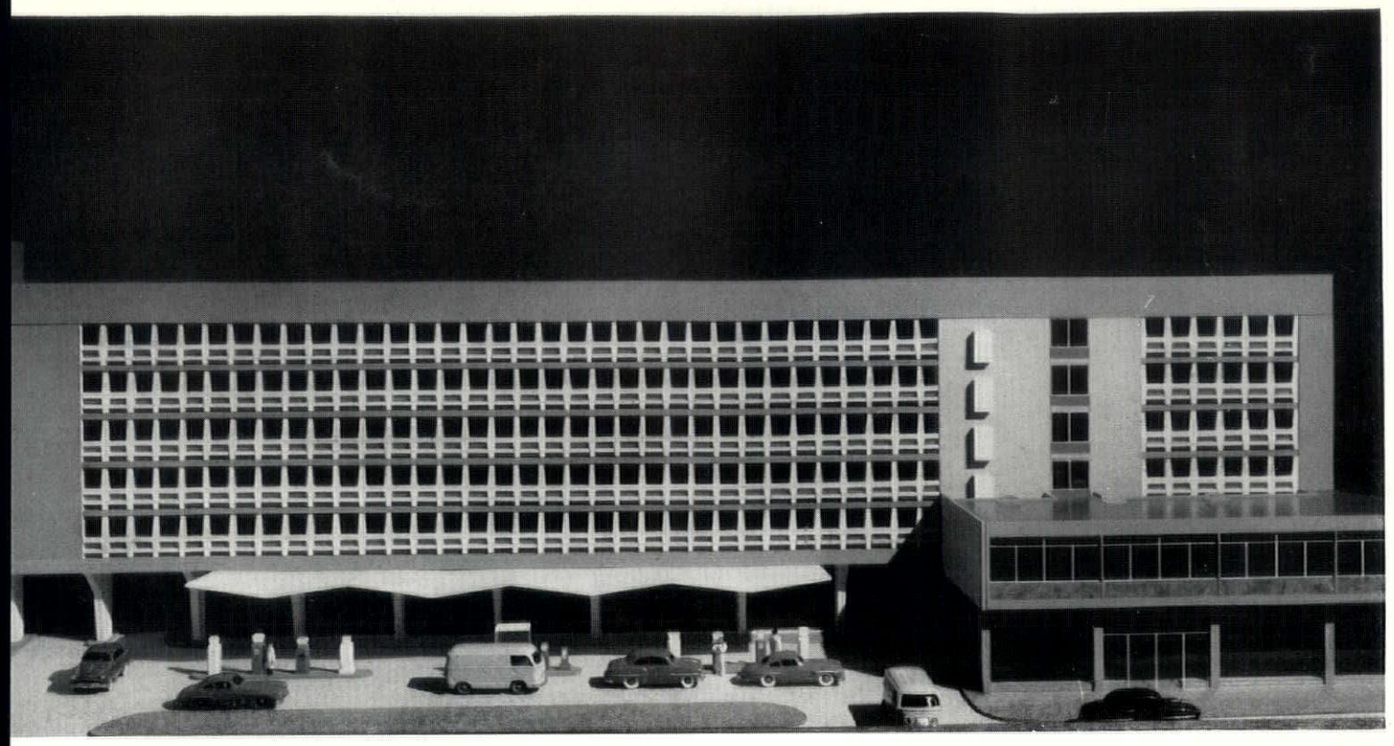
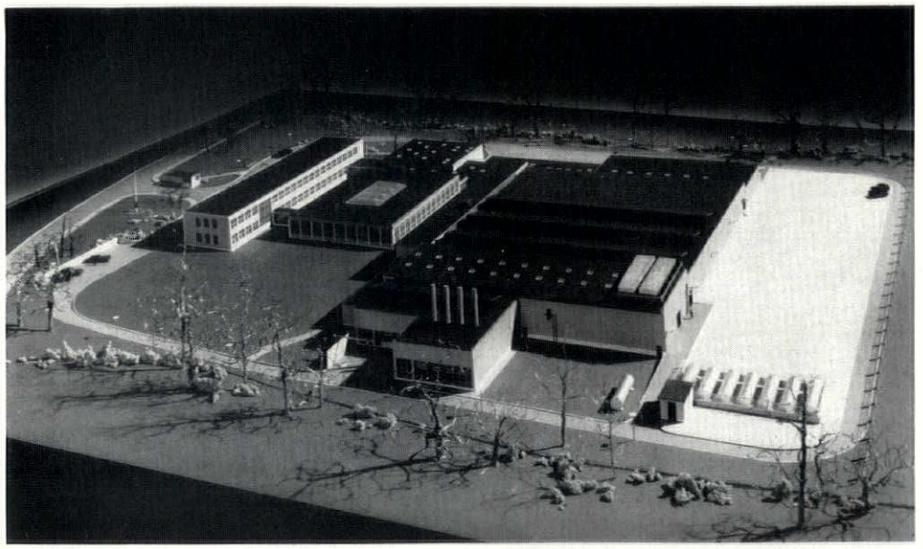
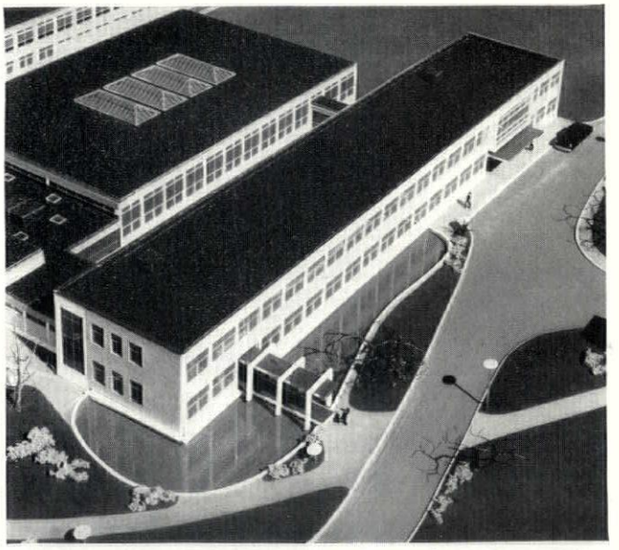
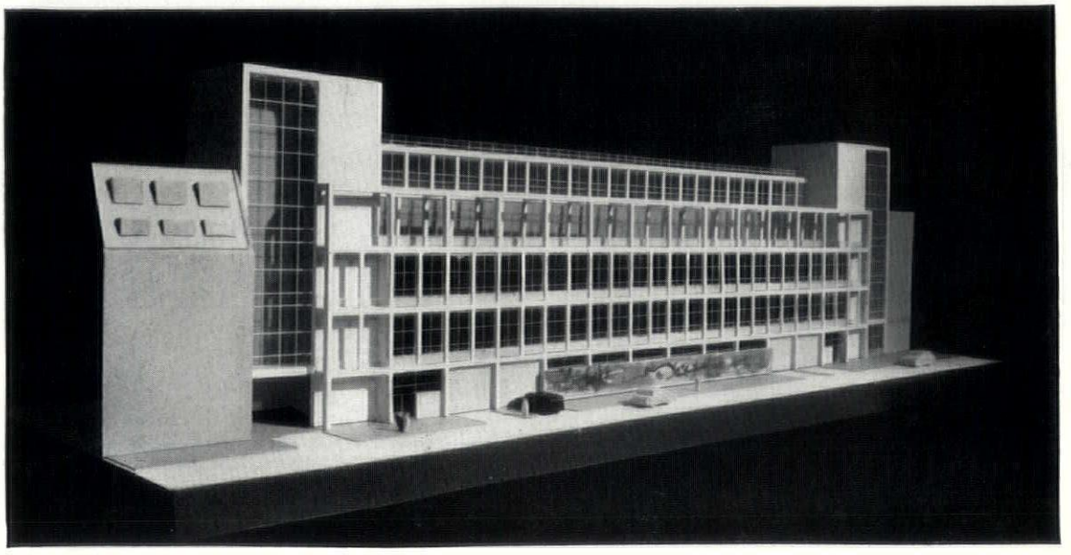


Public parking-garage facing the Barbican redevelopment area in the City of London. Architects: Oscar Garry and Partners.





Factory and offices at Frimley Green, Camberley. Above left, the whole scheme from the air, with the office block alongside the approach road on the extreme left of the picture. Above right, close-up of office block from the entrance side.



Right, postal sorting office in Rathbone Place, London, with loading facilities on the ground floor and welfare accommodation on the top floor.

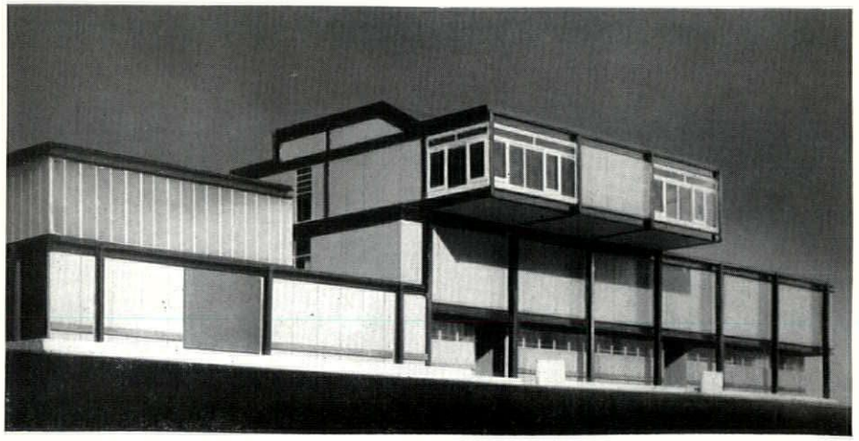
Above, Tryweryn reservoir, North Wales; architect, Frederick Gibberd. Looking across the reservoir, with the draw-off tower in the foreground and overflow bellmouth and car-park in the background.

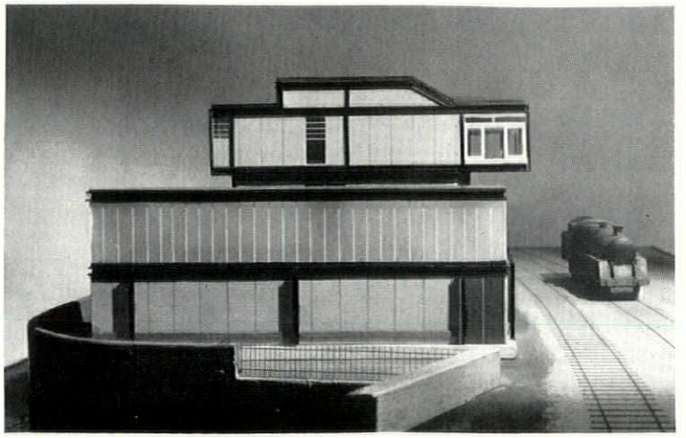
6. INDUSTRIAL BUILDINGS

Right, hydraulics research building at Howbery Park, Wallingford, covering two concrete wave-basins.



Below, two views of the railway signal box at Manchester. The projecting upper storey contains the control room.

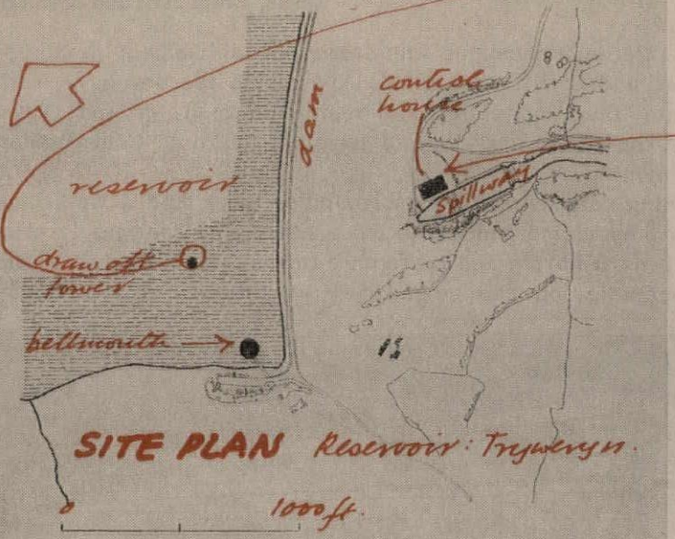




continued from page 46]

action by layers of natural rock. A number of buildings house hydraulic and electrical machinery. The draw-off tower, drum-shaped and with a conical roof, is the inlet of the water-tunnel; here the flow of water is regulated. It has a wide balcony with continuous windows over the water for maintenance purposes and as a viewing-platform. It is faced with Penmaenmawr stone and its reinforced concrete roof is covered with mosaic. The rectangular control-house near the toe of the dam on its downstream side houses turbines and electrical gear. Electricity is generated from water discharged from the draw-off tower. The control house has stone walls and a copper-covered roof. Alongside it is the stilling basin—a stone-faced concrete container to disperse the energy of the turbulent water discharging from the tunnel-mouth before it is led into the original river bed.

Water engineer, J. H. T. Stilgoe (Liverpool Corporation). Consulting engineers, Binnie, Deacon and Gourley.



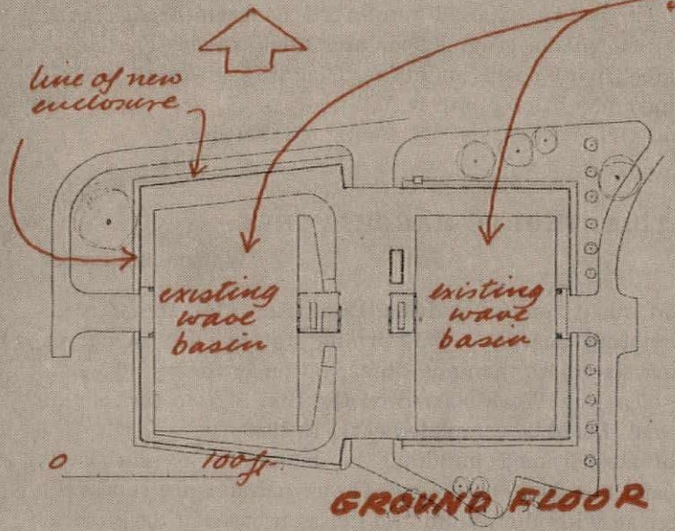
HYDRAULICS RESEARCH BUILDING: WALLINGFORD

Chief Architect's Division, Ministry of Works

At Howbery Park, the Hydraulics Research Establishment on the banks of the Thames: to cover in and protect from rain, wind, icing and falling leaves the two existing concrete wave-basins used in research on the siltation of rivers and harbours and allied problems, and thus avoid interruption of service. Construction will start in April and finish by the end of the year.

An uninterrupted span across the wave-basins was essential, with enough height for the suspension of cameras. This is achieved by a timber-framed structure on concrete foundations. The framing system (of Swedish origin) is based on an I-beam built up with laminated flanges of relatively small timbers and with a web of two layers of diagonally opposed boarding. The walls of the frame-work are clad with cedar boarding and the roof with diagonal boarding and felt. Lighting, designed to avoid sun-glare, is through areas of translucent sheet in the end walls and parts of the roof. Several existing small insulated research rooms are also enclosed within the new structure.

Senior architect in charge, O. P. Carver.



RAILWAY SIGNAL BOX: MANCHESTER

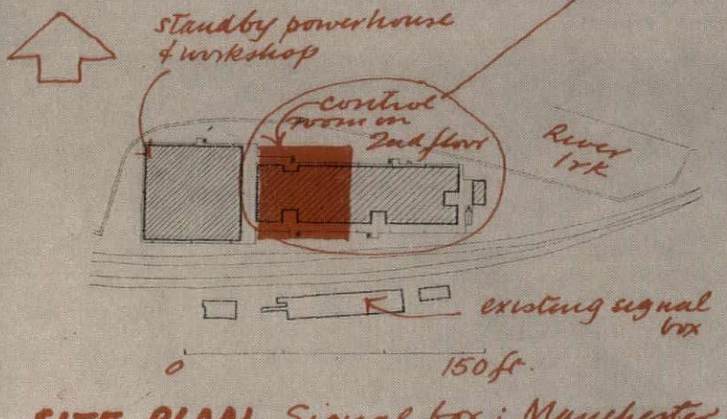
W. R. Headley (Architect, Midland Region, British Railways)

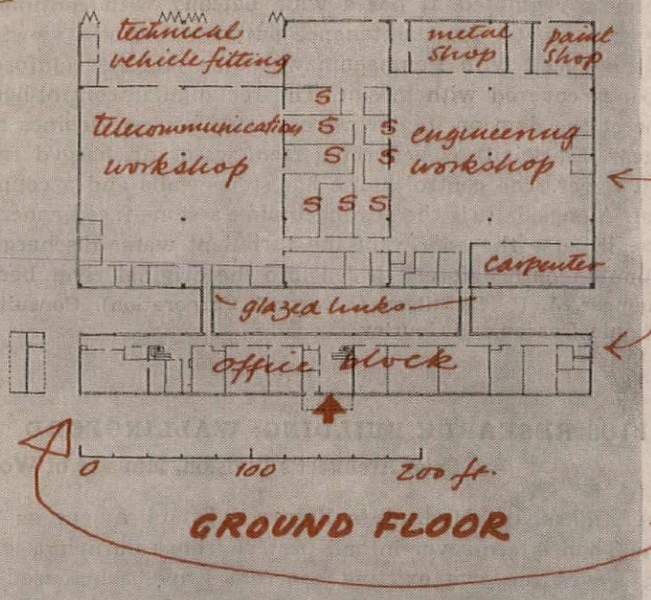
A prototype for a new range of power signal boxes to be built as part of the Midland Region's modernization programme. It is built over Victorian brick arches at the edge of the River Irk. Work began last September and will be finished in June.

The ground floor contains amenity rooms for staff working in or near the signal box. The first floor, which is mechanically ventilated with filtered air, houses the electronic signalling equipment. On the second floor is the control-room with a mess adjoining. West of the box is a separate building comprising workshop, stand-by power-house and an unroofed compound for compressed air cylinders and water tanks. The control-room has a part-raised ceiling to take an indicator-panel showing the layout of tracks and signals. This is shielded from direct sunlight and illuminated by a low-level source in the sloping ceiling. Also in the control-room is a station announcer's cabin, constructed as an independent box with rubber insulation.

Both signal box and power-house are welded steel frame structures with precast concrete floors and sheet steel roofs. The cladding, which fits behind the columns and runs between rolled steel channels, consists of panels faced with polyester fibre glass on a foamed core.

Designed under the direction of A. N. Butland, chief civil engineer, Midland Region.





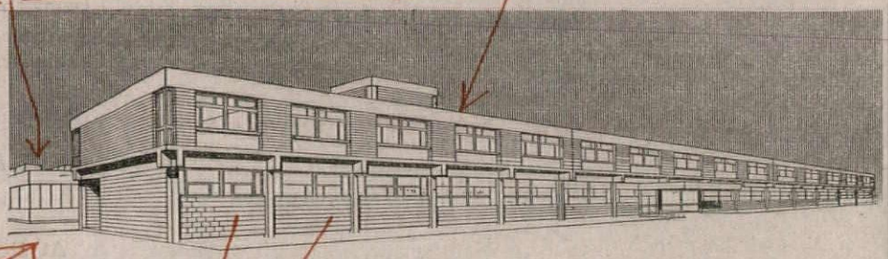
GROUND FLOOR

RESEARCH BUILDING: GATWICK AIRPORT

Yorke, Rosenberg and Mardall

For the Telecommunications Engineering Establishment, Ministry of Transport and Civil Aviation: To co-ordinate the design of, and research into the construction and maintenance of, ground radar equipment. The site is near the old terminal building. Construction starts next month.

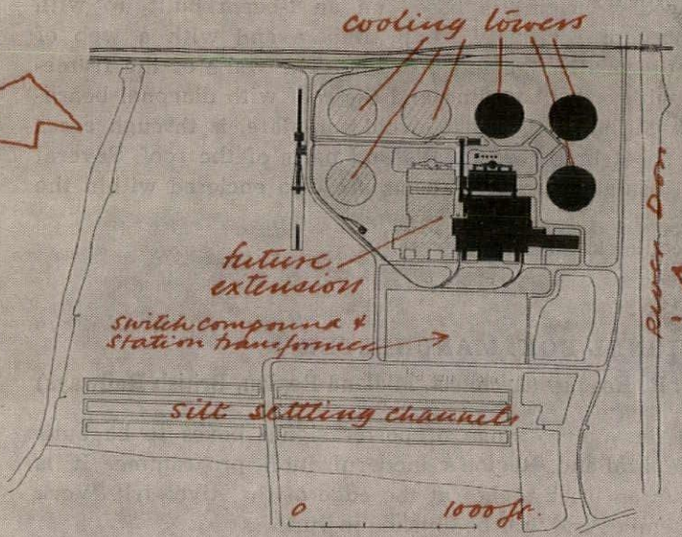
The building consists of a two-storey office block and a workshop block, joined by glazed links. The office block also contains laboratories, canteens, a library and conference-rooms. The workshop block has telecommunication and engineering workshops, with auxiliary



stores, offices, paintshops and a carpenter's shop. There is also a technical vehicle fitting bay where radar vehicles can be serviced.

The office block has an exposed reinforced concrete frame, with concrete block infill on the ground floor and brick above. The workshop block is steel, with portal monitors. Cladding is asbestos with perimeter glazing and a brick plinth wall.

Consulting and civil engineers, F. S. Snow and Partners.



SITE PLAN

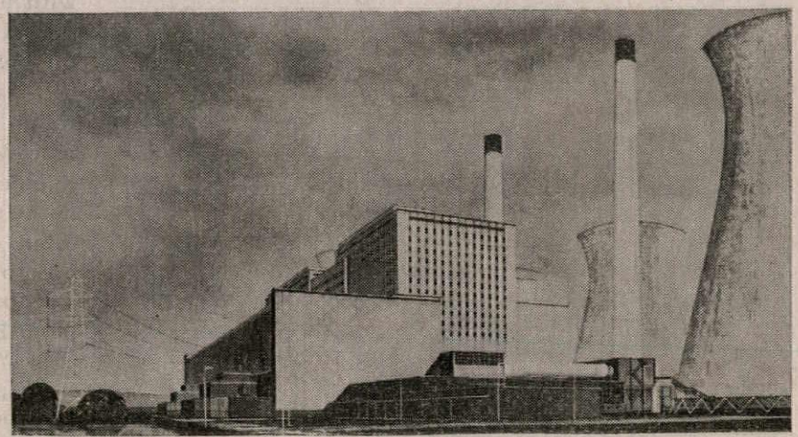
POWER STATION: THORPE MARSH, YORKS.

Watson and Coates

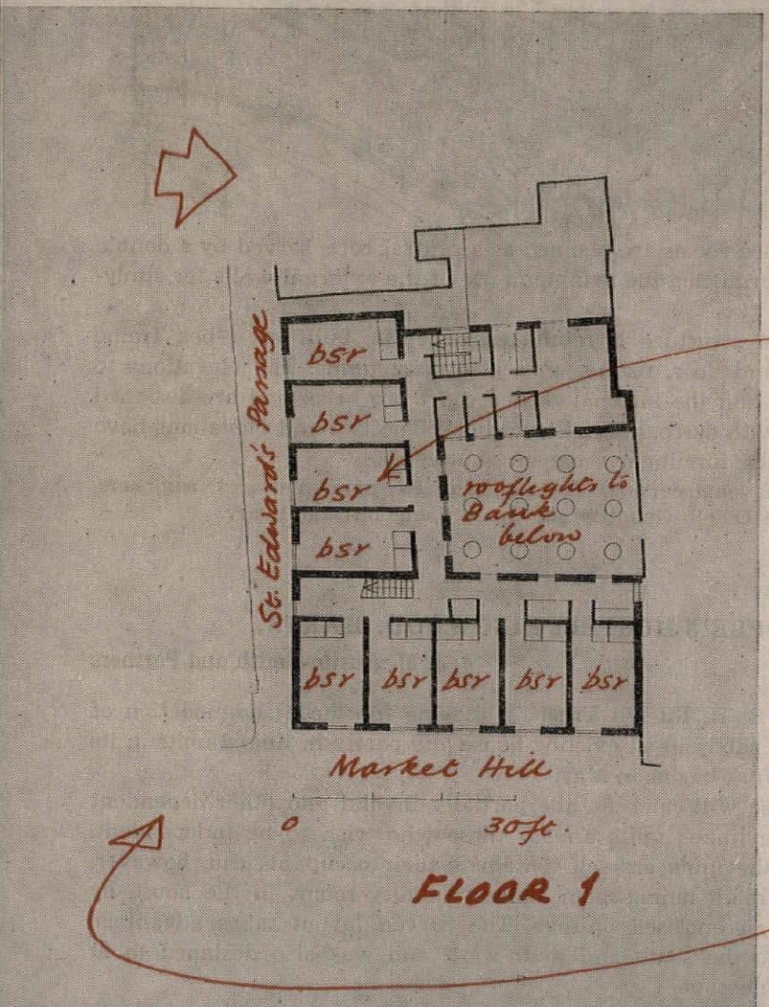
On marshland about ten miles from Doncaster: for the Central Electricity Generating Board. A coal-burning station with an output of 1,100,000 kilowatts—more than any other station in the world whatever its source of power. Work started on the first of two sections in April last year and should be completed early in 1963.

The group of steel-framed buildings is dominated by six 350ft. cooling towers and two 500ft. chimneys. The remainder are relatively light structures clad with aluminium and glass on bases of dark brick. The ends of the turbine house have concrete panels. Elevations are based on a 5ft. module, which sets the size of these panels and of the windows. Bright colours are used on the external electrical gear. The administrative buildings look south over a landscaped area with settling ponds. Coal handling is at the opposite end of the site.

Landscape architect, Mrs. S. M. Haywood. Executive engineers, Northern Project Group of the C.E.G.B. Consulting engineers for foundations, Sir Alexander Gibb and Partners. Quantity surveyors for administration block, Higgins and Partners.



7 HOSTELS AND HOTELS

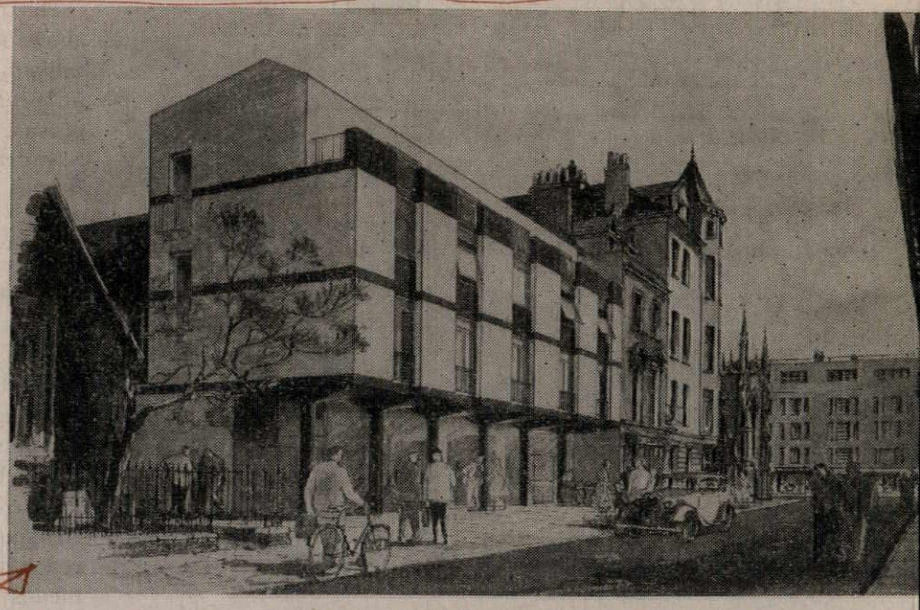


UNDERGRADUATE ROOMS: CAMBRIDGE

Architects' Co-Partnership

For King's College, on a site in the Market Square at the corner of Market Hill and St. Edward's Passage, replacing two existing buildings, one 15th century and the other 18th. Work will start this summer and will be completed in two years.

The ground floor and basement accommodate a bank. The upper floors provide 21 undergraduate bed-sitting rooms. Construction is



partly reinforced concrete; partly load-bearing brick. Walls are faced with narrow white Dutch bricks and black slate. The roof is copper.

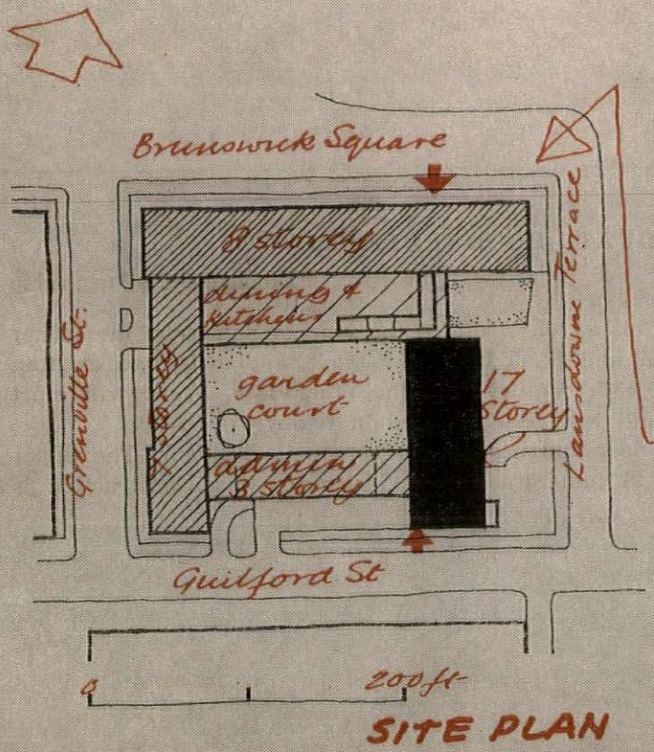
Structural engineers, Ove Arup and Partners. Heating and ventilating engineer, A. J. Smith. Quantity surveyors, Monk and Dunstone.

HALL OF RESIDENCE: BRUNSWICK SQUARE, LONDON

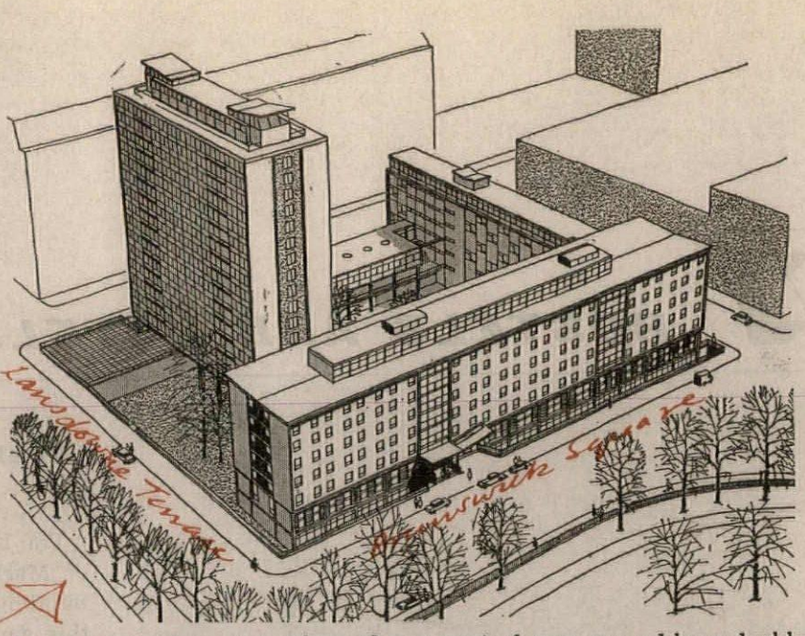
Easton and Robertson

For London University, the first stage of a development scheme for the whole island site on the south side of the square, which will eventually contain three largely separate halls of residence. This, the International Hall of Residence, accommodates 270 men students. Nineteen Commonwealth, and two foreign, governments have contributed to the cost. Construction began last October.

Besides the student study-bedrooms, the building accommodates a senior and a junior warden, other administrative and domestic staff and a small number of resident academic staff. The main common-room, recreation room and dining-room open on to a garden court. The kitchen and a central boiler-house, which are below ground level, will eventually serve all three halls. On the upper



SITE PLAN



floors, service rooms are planned as a central core, served by a double corridor, permitting the maximum use of the external walls for study-bedrooms.

The main structure is reinforced concrete, built as a box frame above ground floor, resting on a grid of columns. The elevations to the square and the internal garden court are brick and are designed to accord with surrounding Bloomsbury. The two end elevations have precast slabs forming permanent shuttering.

Structural engineers, Ove Arup and Partners. Services engineers, Brandt and O'dell. Quantity surveyors, Langdon and Every.

OLD PEOPLE'S HOSTEL: RINGWOOD, HANTS.

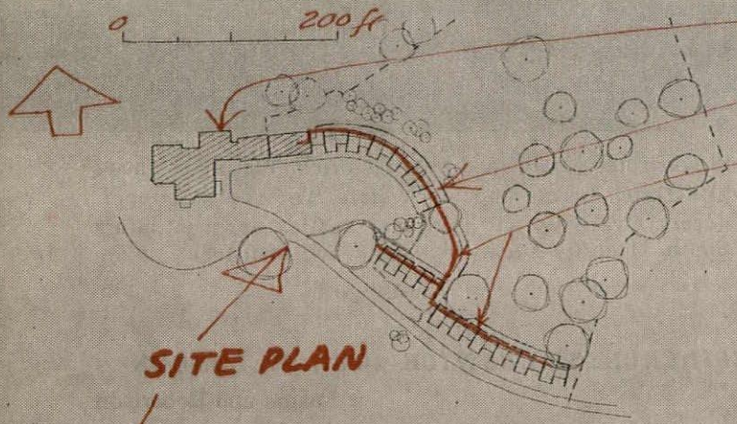
J. M. Austin-Smith and Partners

For the R. H. Russell Trust: a scheme for the accommodation of old people partly in an existing house and partly in linked units in its grounds. Work begins in May.

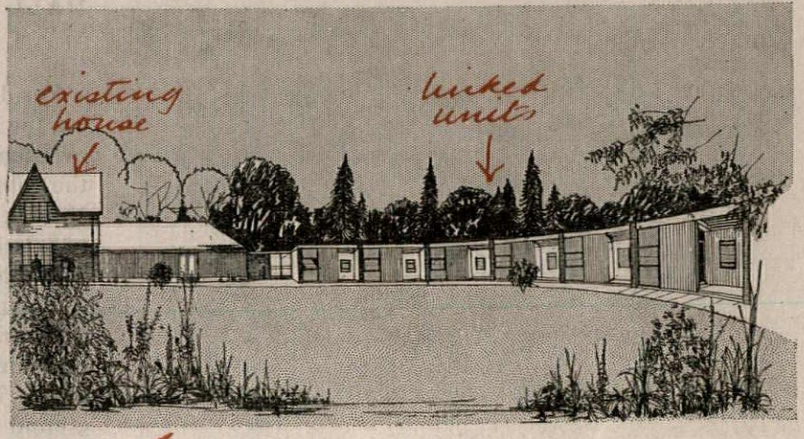
The house will cater for the partially invalid and other dependent people; the linked units are for those who wish to be independent. Although the units are self-contained, their occupants can, however, reach the main dining-room and community rooms in the house by means of an enclosed passage. The curved layout takes advantage of views to the south and south-west, and was also designed to fit into the landscape.

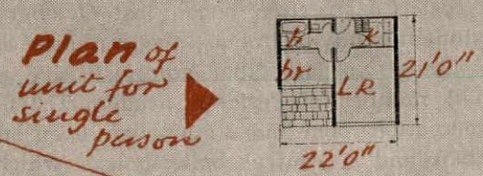
Construction consists of brick cross-walls with timber-framed load-bearing partitions and front and rear walls. Timber roofs are sheathed in copper.

Partner in charge, Geoffrey Salmon. Assistant in charge, John Porter.



SITE PLAN



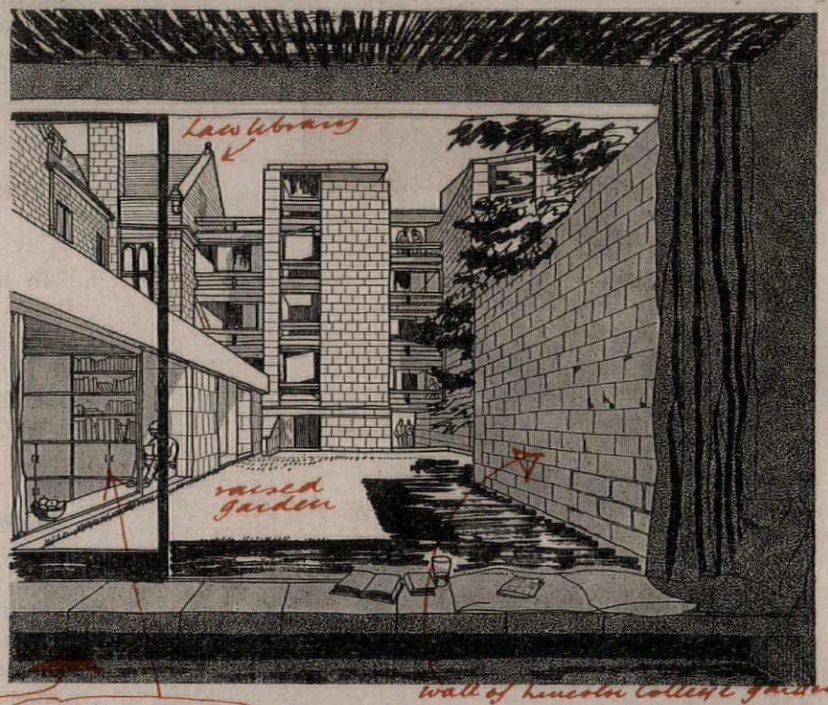


UNDERGRADUATE ROOMS: OXFORD

Powell and Moya

For Brasenose College, on the western boundary of the college site, adjoining Lincoln College. Work began last July and will finish in September.

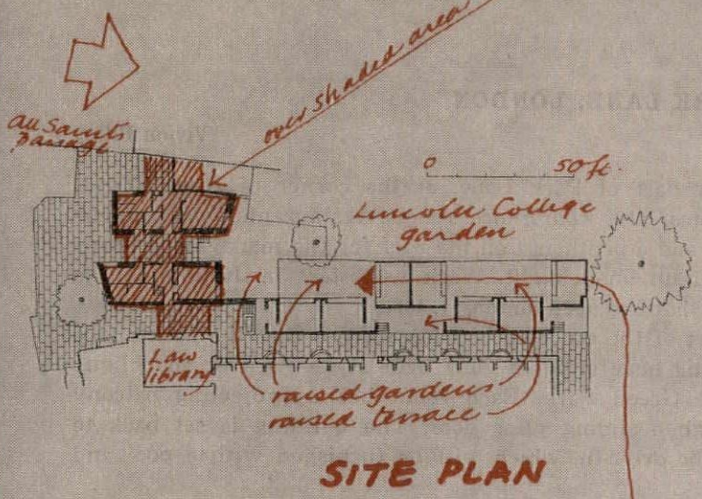
Two areas of ground were available, one about 60ft. square and the other 110ft. long but only 35ft. wide. Both were surrounded by stucco Georgian and 1900 Gothic buildings. In the square area is a four-storey building with a penthouse containing 25 bed-sitting rooms. Its irregular outline was determined by the height and placing of the surrounding buildings and the possibility of some good views, especially over the gardens of Lincoln College. Most rooms have windows facing two directions. In the narrow area is a group of

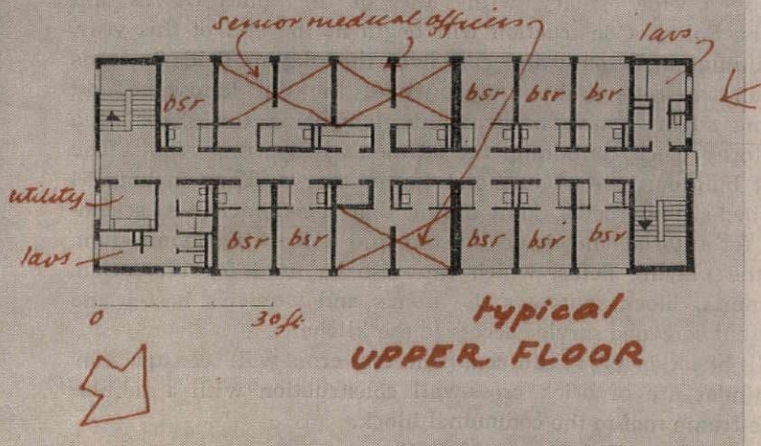


single-storey pavilions each containing one or two bed-sitting rooms (seven altogether), approached from small entrance courts and opening on to private courts or gardens.

Load-bearing brick walls are faced with Portland stone. Windows are aluminium with precast concrete transomes and cills (white Norwegian quartzite aggregate) and lead-faced panels. The rooms are centrally heated from an existing boiler-house.

Assistant architects, D. Acton Stow, Robert Huddleston, Richard Burton. Engineers, Charles Weiss and Partners. Quantity surveyors, Davis, Belfield and Everest.



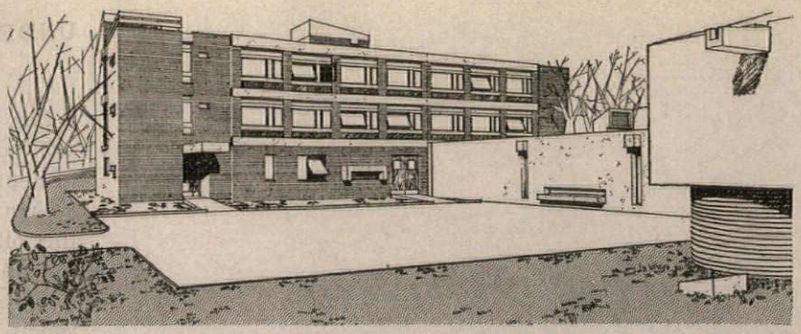


MEDICAL OFFICERS' ROOMS: DONCASTER

George, Trew and Dunn

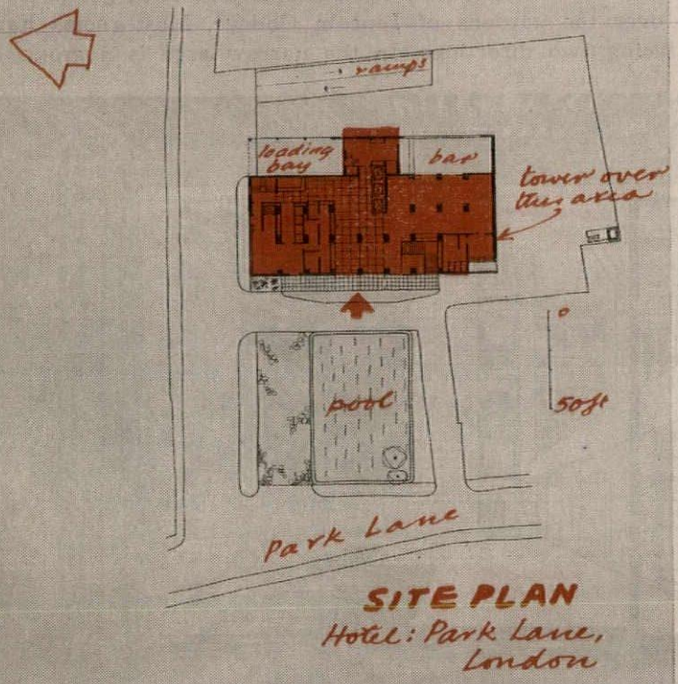
A residential block for 24 medical officers forming part of the second phase of development at the Doncaster Royal Infirmary for the Sheffield Regional Hospital Board. This development involves reorganizing the existing hospital to provide over 800 beds instead of the present 330. Work on the residential block has just begun and will finish in January, 1961.

The three-storey building has recreation and service rooms on the ground floor and on each of the upper floors nine bed-sitting rooms for junior medical officers and three bedrooms and sitting rooms for senior medical officers. It is sited between the existing hospital buildings and a new diagnostic block and straddles a service corridor connecting the two.



Construction is load-bearing brick walls with concrete floor and roof slabs, the latter being partly exposed. The block is structurally divided near the centre to allow for possible subsidence through coal-mining beneath the site.

Structural engineers, Scott and Wilson, Kirkpatrick and Partners. Mechanical and electrical engineers, Brian Colquhoun and Partners. Quantity surveyors, Arthur J. Willis and Thompson.



SITE PLAN
Hotel: Park Lane, London

HOTEL: PARK LANE, LONDON

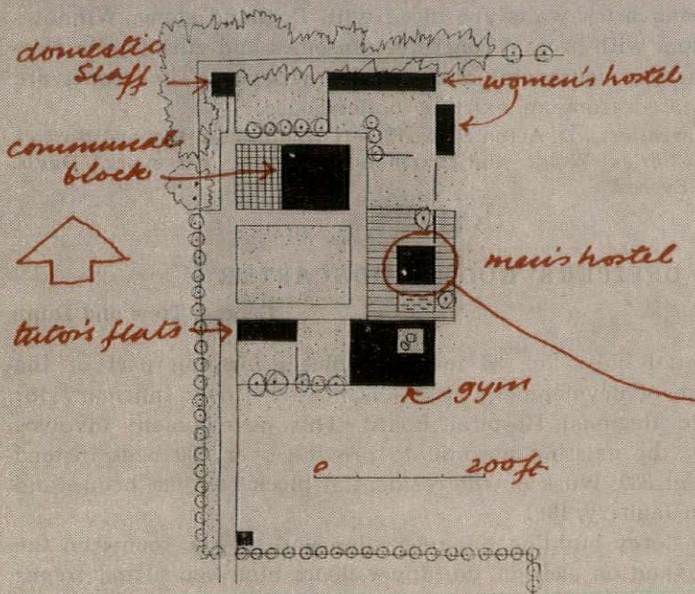
Vivien Pilley

In the lower part of Park Lane, at the corner of Brick Street. It has 270 rooms, plus conference rooms, restaurants, bars, underground garage and a penthouse on the roof for the managing director of the hotel group financing it. Work will start in June and it is planned for the hotel to open on May 1, 1962.

The high part of the building is orientated so that the rooms face east or west and have either a view over Hyde Park or an oblique view over the Green Park. Each room has a projecting balcony reached through a sliding glass door. The building is set back to provide a traffic drive-in, which will be furnished with a pool and sculpture.

Reinforced concrete cross-wall construction with wall surfaces of reconstructed stone panels with exposed blue clay chippings or (on the ground floor) exposed aggregate of anthracite nuts. Entrance panels are green Italian marble.

Engineers, Clarke Nicholl and Marcel. Quantity surveyors, Cyril Sweett and Partners.



SITE PLAN

STUDENT TEACHERS' HOSTEL: PORTSMOUTH

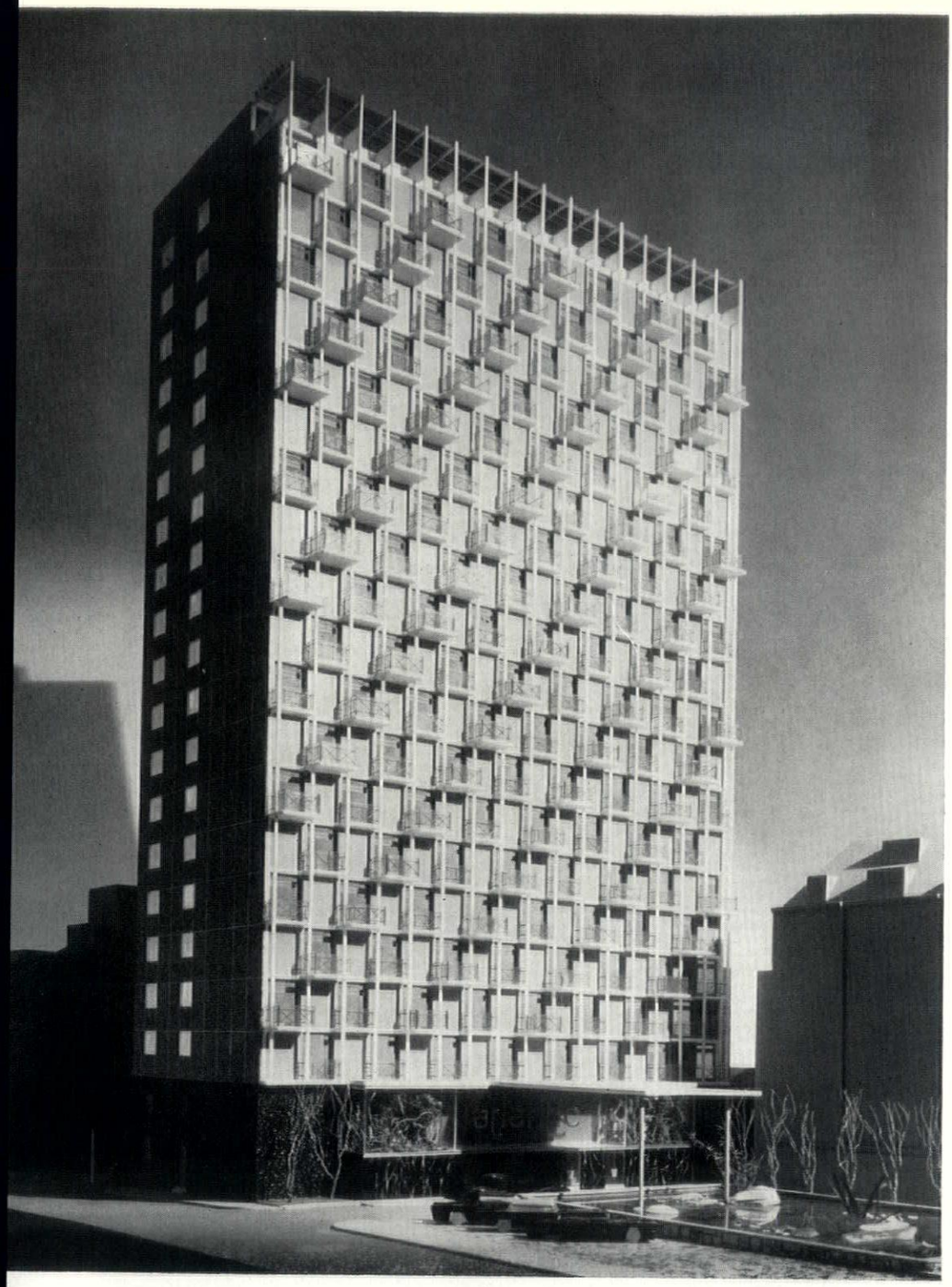
Gollins, Melvin, Ward and Partners

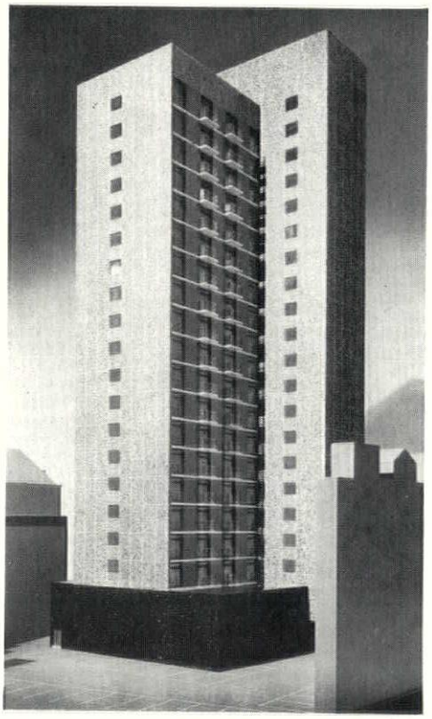
For the Portsmouth Education Committee, to house students attending the teachers' training college half a mile away. On a flat site, bounded by a wide estuary, with views of the South Downs and towards the Solent. Construction will begin at the end of this year.

The buildings look south and east over the playing-fields towards the sea, and to relieve the uniformity of the flat landscape and surrounding suburbs have a dominant element in the shape of a thirteen-storey block containing the 96 men's bed-sitting rooms. The remaining buildings are of one and three storeys. They include 54 women's bed-sitting rooms, joint dining and social facilities, accommodation for tutorial and domestic staff and a teaching gymnasium, close to the playing fields, which can also be used for recreation. The communal block separates the men's and women's hostel and has direct but screened service access to the kitchens.

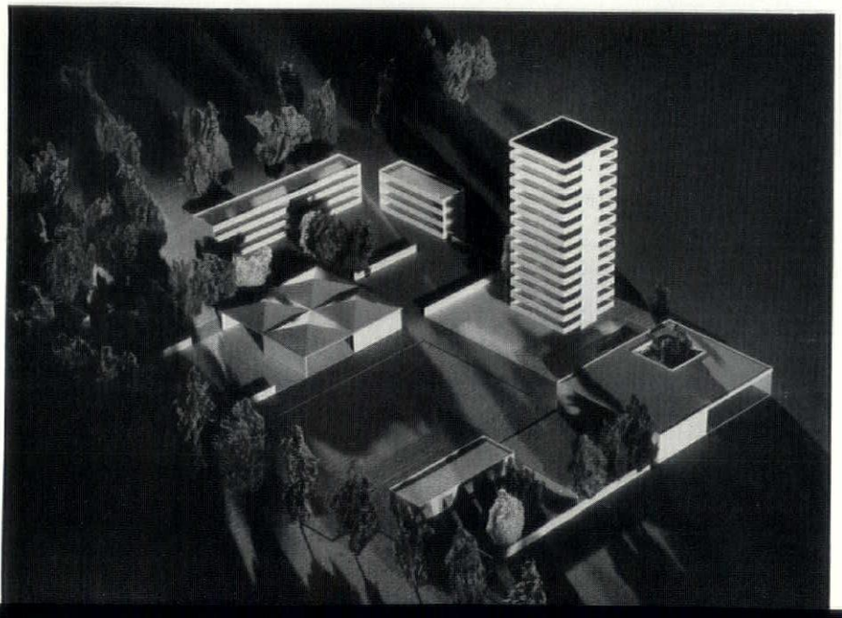
The tall block is of reinforced concrete cross-wall construction. The remainder are of brick cross-wall construction with a tubular steel space-frame roof to the communal block.

Assistant architects, B. J. Mayes ; M. G. Carr.



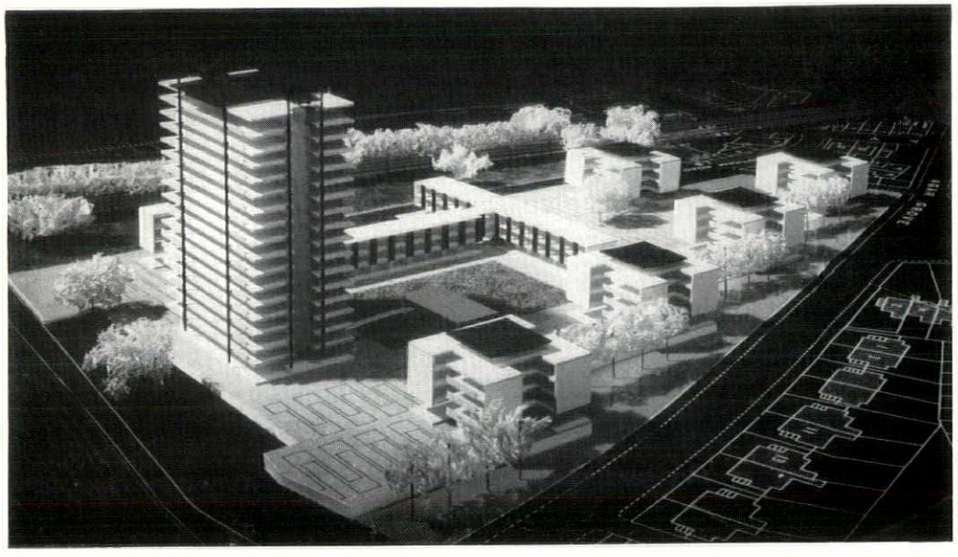


Above,' hotel in Park Lane: left, the main front, set back behind a drive-in forecourt; right, from the back. See also the cover of this issue.

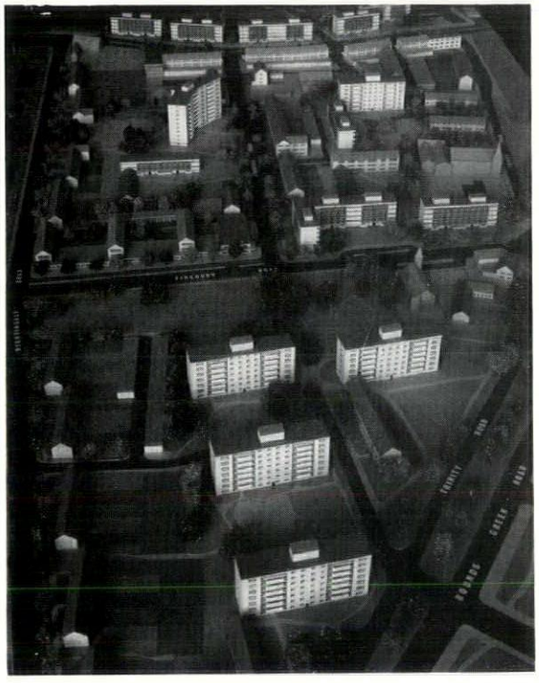


Student teachers' hostel at Portsmouth from the south-west. The thirteen-storey tower contains the men's bed-sitting rooms.

8 HOUSING

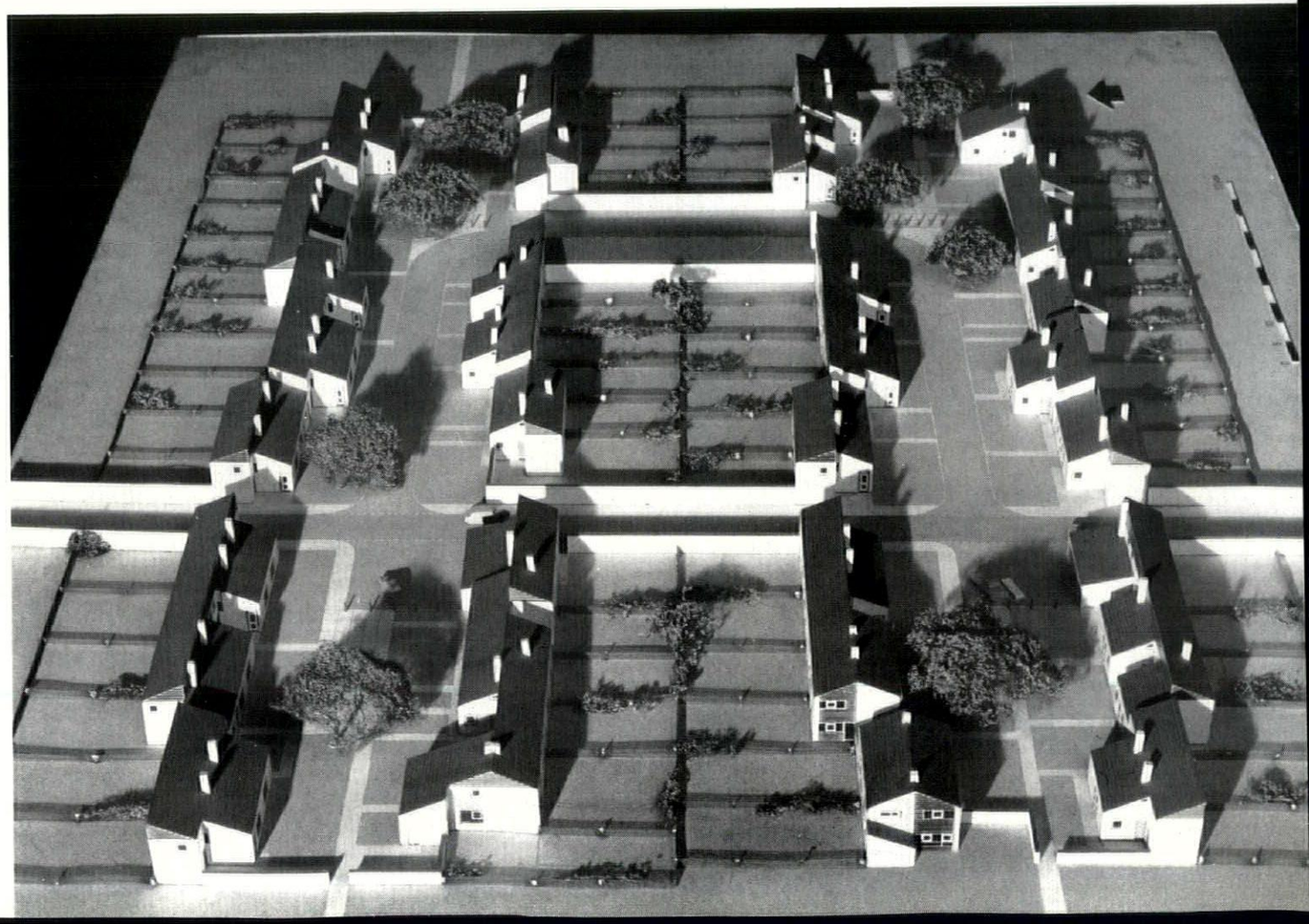


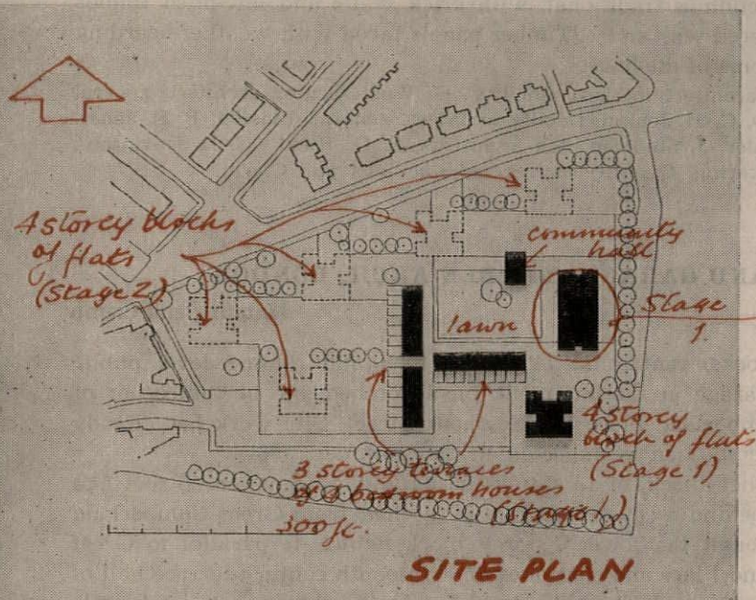
Above, housing at Camden Town for St. Pancras borough council, including a seventeen-storey tower to be built as part of the first stage.



Right, flats and houses at Wood Green, Middlesex.

Housing at Haverhill, Suffolk, part of the expansion of the town to take London overspill population. The system of linked houses allows considerable variation in pian-form and roof-shape.





SITE PLAN



SITE PLAN
Flats & Houses: Wood Green, Middx.

HOUSING: CAMDEN TOWN, LONDON

J. M. Austin-Smith and Partners

For St. Pancras Borough Council; an area of seven and a half acres to be developed in two stages. No starting date has yet been fixed.

The first stage makes use of bombed and otherwise open areas, avoiding the need to displace existing occupants until later. It is designed to read as a complete scheme pending the construction of the second stage. The replanning of the area has involved the elimination of all through traffic routes. The first stage consists of a 17-storey block containing 128 dwellings (two-bedroom, one-bedroom and one-room flats), one four-storey block containing 16 dwellings (three-bedroom and two-bedroom flats), two three-storey terraces of four-bedroom houses each with a small walled garden and a community hall and laundry. The second stage will provide five more four-storey blocks of flats.

The tall block has a reinforced concrete frame. The other buildings are load-bearing brick.

Partner in charge, P. J. Lord. Assistant architect, J. Chitty.

FLATS AND HOUSES: WOOD GREEN, MIDDLESEX

A. J. Rebbeck (Borough Engineer, Wood Green)

In Commerce Road. Only two of the blocks of flats, of seven and four storeys, have as yet been designed in detail, but it is expected that the remaining seven-storey blocks will be identical with the first. Work on the two blocks will start this year. It is planned to have the whole scheme finished by 1975.

The two blocks contain 44 flats, in an equal proportion of two-bedroom and three-bedroom flats. They have reinforced concrete frames and floors, the latter of the 'plate' type to eliminate beams within the flats. External walls are brick, with panels of curtain walling. The houses are of brick cross-wall construction. The flats have under-floor heating in living-rooms and halls.

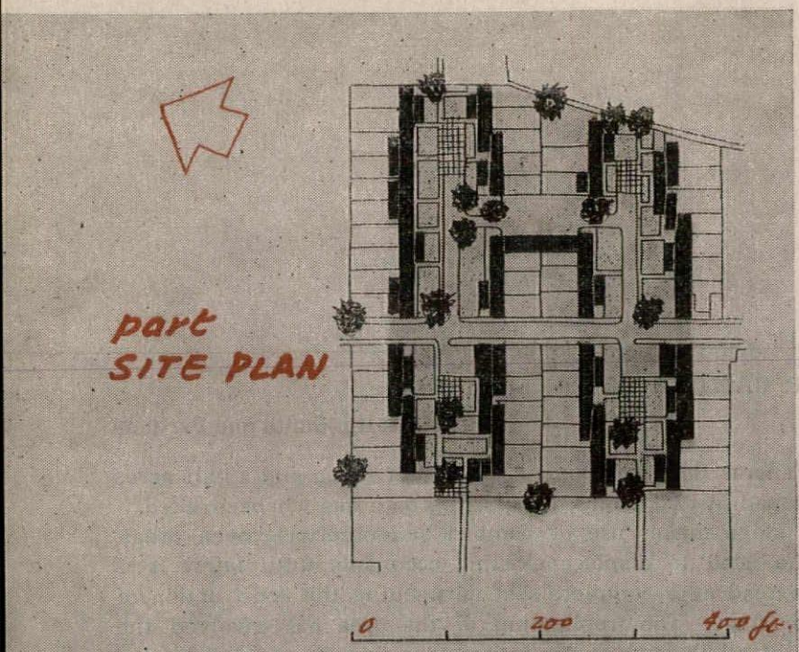
Assistant architects, S. G. Smith; P. J. Brown. Layout by B. J. Collins (Middlesex County Planning Officer).

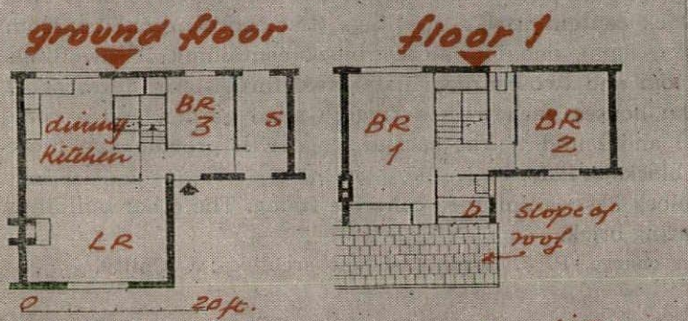
HOUSING: HAVERHILL, SUFFOLK

Hubert Bennett (Architect, London County Council)

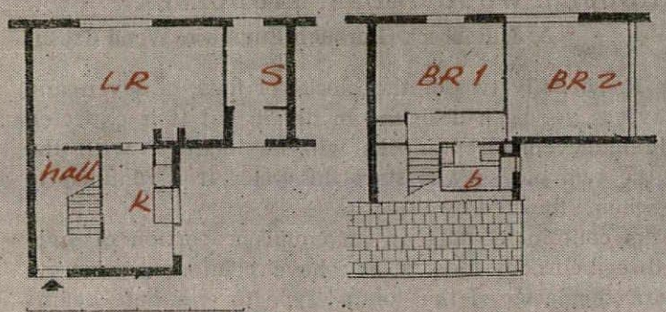
The town is expected to double its present population of 5,000 by expansion under the Town Development Act. This housing, for families coming from densely populated parts of London and designed for social reasons with houses of different sizes closely mixed, is in three areas on the fringe of the town, on land at present open. The first 100 houses were completed last autumn, 52 more were then started and will be completed in November, and the remaining 140 will be started in March and will be completed in October, 1961.

Through access from front to back was required, and this has been





PLANS of 3 bedroom dining-kitchen type house.



ground floor floor 1.

PLANS of 3 room working kitchen type house.

Housing: Haverhill, Suffolk.

achieved both by planning in pairs and by an L-shaped plan with passage through the narrower part. Although houses of different sizes adjoin and reveal their differences by their fenestration and by the size of certain elements, other elements, certain dimensions and roof slopes remain constant. They are linked in various ways, including the staggered row in which the spine of one house becomes the front wall of the next. The layout is of the Radburn type, with the houses grouped round closes of varying design. Where the site is steep, the rows of houses follow the contours, forming long, narrow closes. Garage space and paved parking areas (where children can also play under supervision) take the form of a secondary branch off the close.

Construction is traditional, with brick walls and low-pitch timber roofs, covered with slates. Timber panels faced with weather-boarding occur in some of the houses.

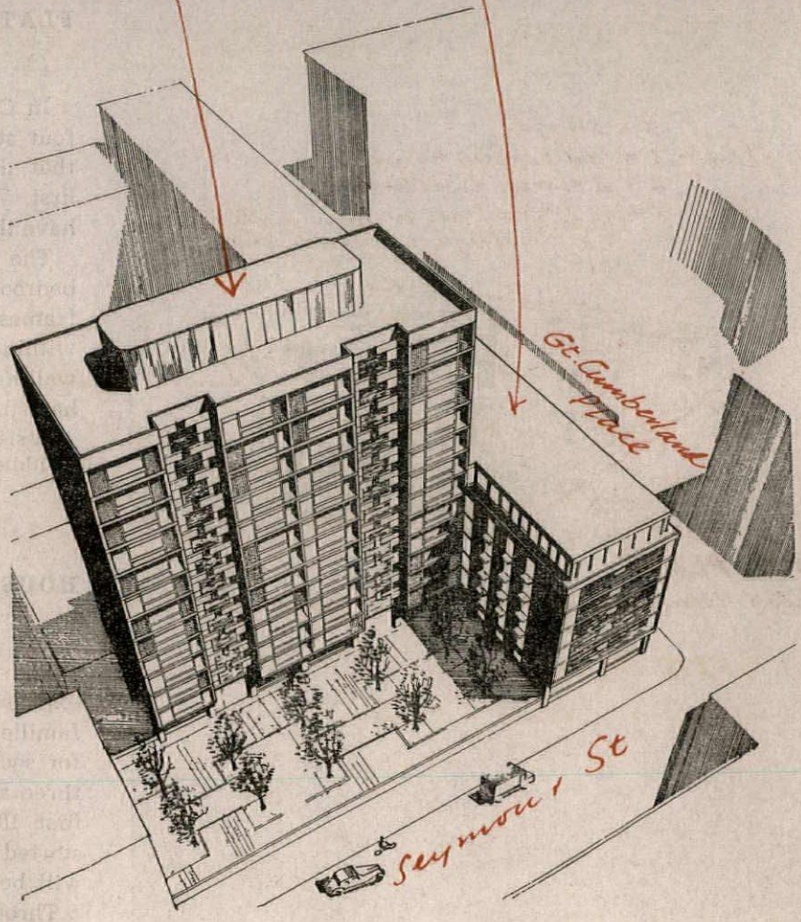
Deputy architect to the council, F. G. West. Senior architect, general division, D. C. H. Jenkin. Deputy architect, general division, P. E. Jones. Group leader, J. Stedman. Job architects, E. G. Ribet ; C. H. Davidson ; M. N. Pickering. Quantity surveyors, Stockings and Clark.

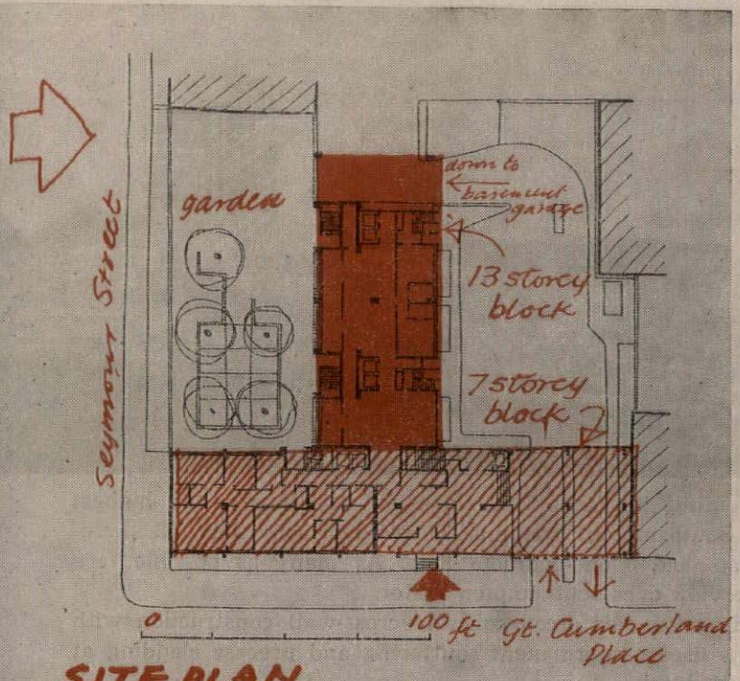
FLATS AND GARAGE: MARBLE ARCH, LONDON

Manning and Clamp

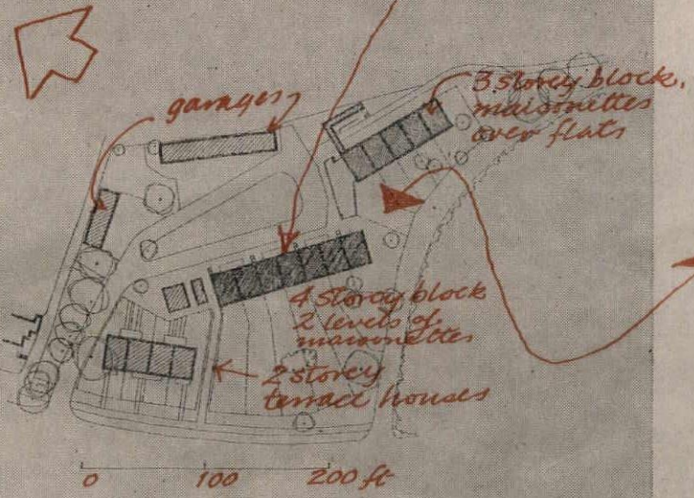
Two blocks, containing 74 luxury flats and a three-level public parking garage in the basement, on a bombed site at the corner of Great Cumberland Place and Seymour Street. Site work has already begun. Completion is expected in the summer, 1961.

The higher block, of 13 storeys, is parallel to Seymour Street and set back behind a courtyard. This is reached from Great Cumberland Place through the lower 7-storey block, which is parallel to Great Cumberland Place and continues an eighteenth century terrace half of which was bombed. The block has been designed to maintain the scale and texture of this terrace. The same courtyard also gives access to





SITE PLAN
Flats & Garage: Marble Arch



SITE PLAN
Housing: Abbots Langley

the garage and to a service entrance. The garage is arranged on a series of half-levels connected by short ramps with a double row of parking places at each level. A lift discharges into the open air near the main entrance. The flats are either two- or three-bedroomed, with all living-rooms facing south or east. The tall block has recessed balconies the full width of the room. Bathrooms are internal, mechanically ventilated.

Construction is concrete, employing precast wall-units each 5ft. wide placed in position against light removable steel frames. Floors are cast in situ. Facing materials are brick, Portland stone and quartzite.

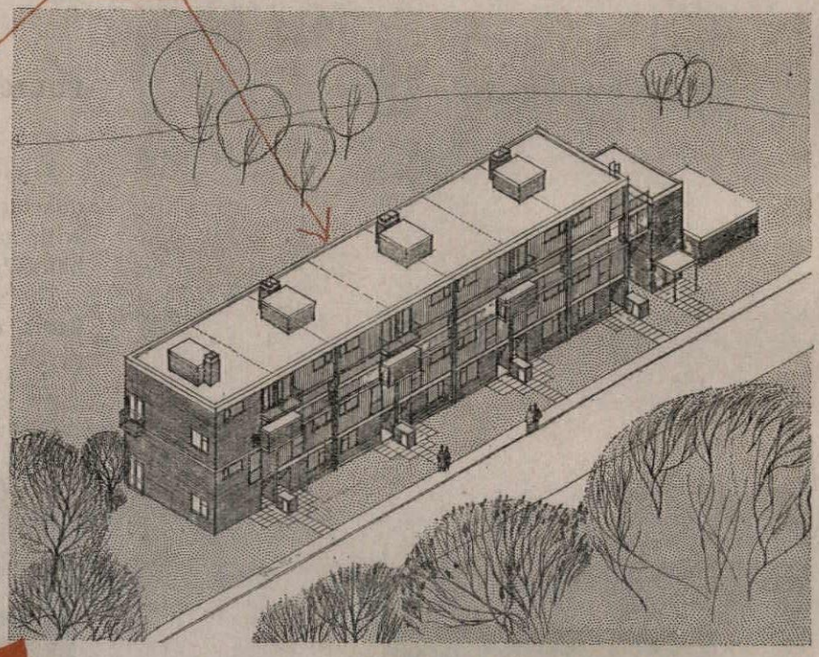
Associate in charge, A. R. Osborne. Structural engineers, Jenkins and Potter. Mechanical and electrical engineers, Donald Rudd and Partners.

HOUSING: ABBOTS LANGLEY, HERTS.

Ernö Goldfinger

For Watford Rural District Council, on a site, sloping steeply from north-east to south-west, previously occupied by a Regency mansion. Work began last March and will be completed in the spring of this year.

There are 28 dwellings, comprising a block of four terrace houses, a four-storey block with 14 maisonettes (illustrated herewith) and a



block with five ground-floor flats and maisonettes over them. There are also two blocks of garages (with room for 15 cars) as well as room for cycles and motor-cycles.

The terrace houses have cross-wall construction with low pitched roof. The maisonettes are of precast concrete units with main floors of concrete and the floors inside each maisonette of timber.

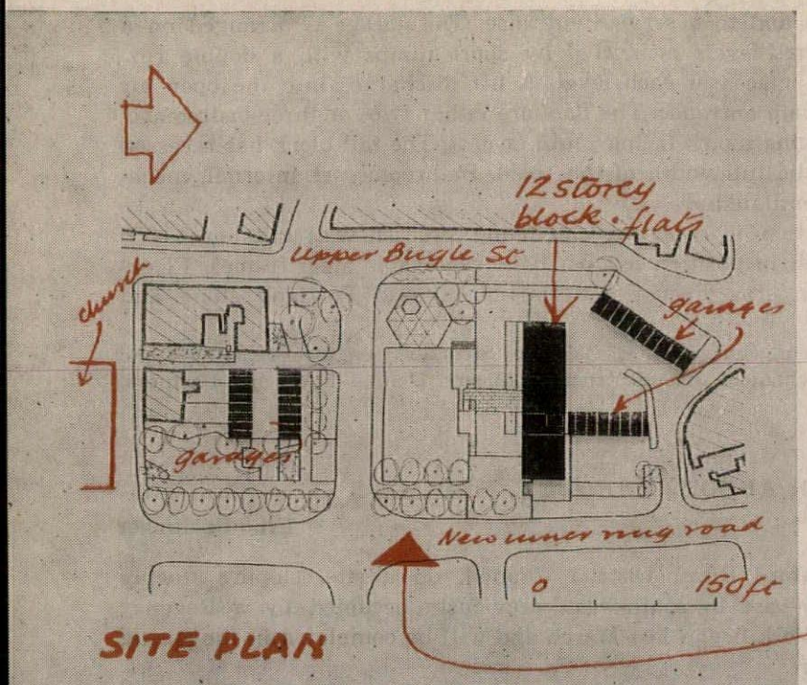
Quantity surveyors, Davis, Belfield and Everest.

FLATS: SOUTHAMPTON

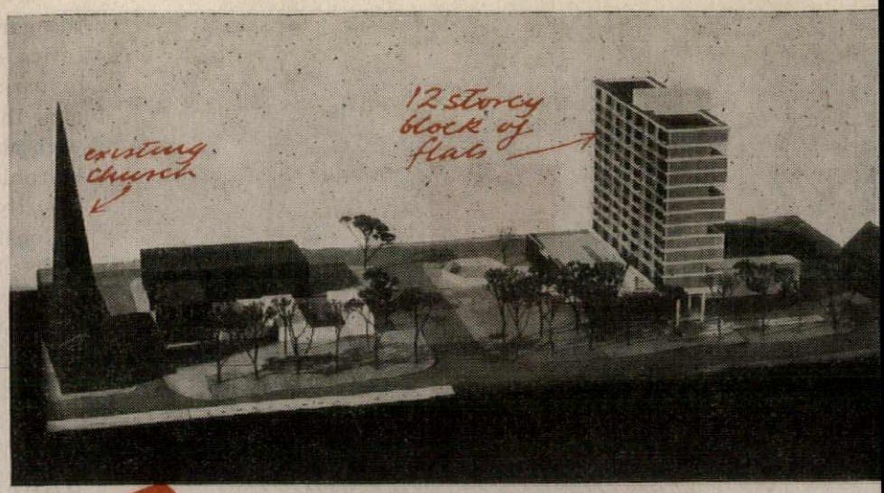
Eric Lyons

For the city council, on Lansdowne Hill, 30ft. above surrounding land (the site was that of an old castle). Work will begin early this year and will be finished in the summer, 1961.

Bad foundations made it more economical to plan all the accommodation in one block, which also avoided building too near an old



SITE PLAN



church adjoining the site. The block (of 12 storeys—the highest in central Southampton) contains 32 two-bedroom flats, 32 three-bedroom flats and 8 one-bedroom flats. As many as possible face south with a view over Southampton Water.

The building has reinforced concrete cross-wall construction with precast units used as permanent shuttering and precast cladding at the ends of the block.

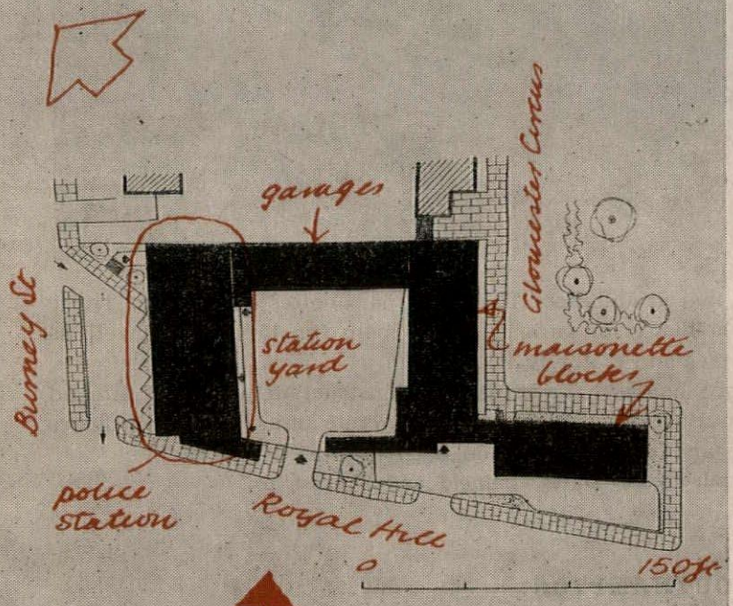
Engineer, Z. Pick. Services consultants, H. C. Barratt and Partners. Quantity surveyors, Monk and Dunstone.

POLICE HOUSING AND STATION: GREENWICH

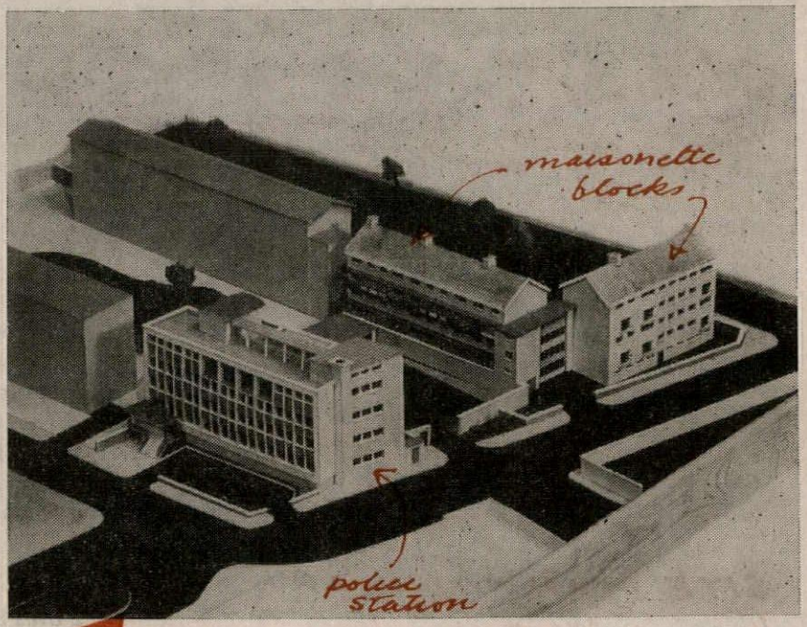
J. Innes Elliott (Chief Architect, New Scotland Yard)

A new divisional police-station and a four-storey block of married quarters consisting of 16 maisonettes. They are separated by a yard with garages for station cars. The site is east of Greenwich town-hall. Work will begin in March.

The station block has a sub-divisional station on ground and first floors, divisional headquarters on the second floor and kitchen and



SITE PLAN

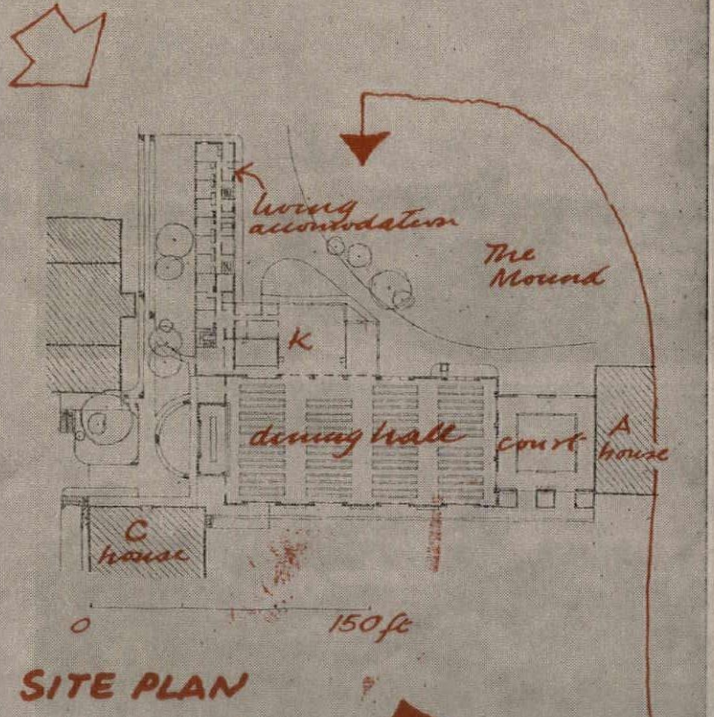


canteens on the third. On a lower ground floor are the parade room and stores; heating and ventilation plant are in the basement.

Construction is a reinforced concrete frame faced with precast stone and brick panels and walls.

Senior architect in charge, D. T. Edwards. Executive architect, C. Liardet. Electrical and mechanical engineer, A. R. L. Collis (Chief Engineer, New Scotland Yard).

9 SCHOOLS



SITE PLAN

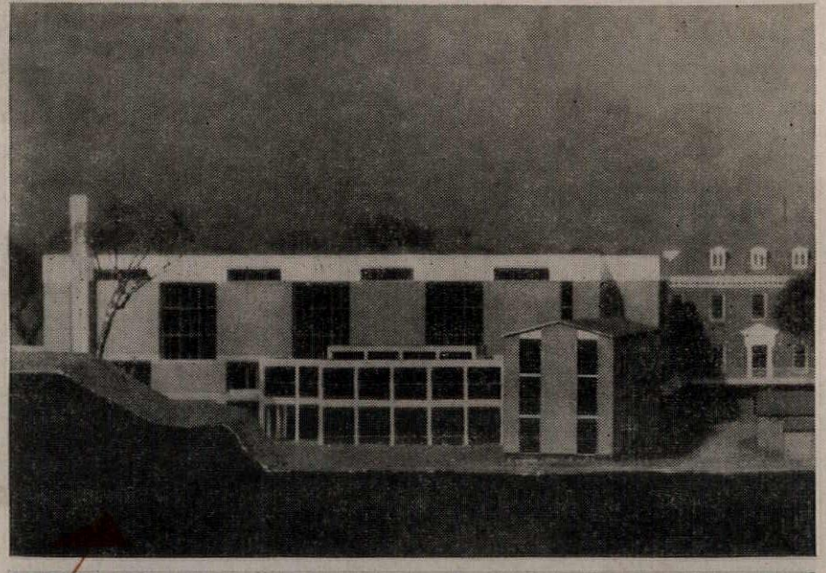
DINING HALL: MARLBOROUGH COLLEGE

David Roberts

To accommodate 850 boys, prefects and masters so that the whole school can have meals together. The buildings will be constructed over the existing dining-hall, so that continuous use will not be interrupted. The demolition will take place in stages, fitting into school holidays. Work will start this spring and will be completed in the autumn, 1961.

The work also includes a new kitchen and living accommodation for the domestic staff (already under construction and due for completion in March). It enables the original eighteenth-century house to be freed from the later buildings that have been constructed against it. The existing basement, containing the boiler-house, is to be retained.

Construction is load-bearing brick with reinforced concrete stiffen-





ing and timber folded-slab roof covered with copper. External finishes are local hand-made red brick and Portland stone aggregate concrete. Foundations are mass concrete. Windows are aluminium. The interior of the hall has a stone floor.

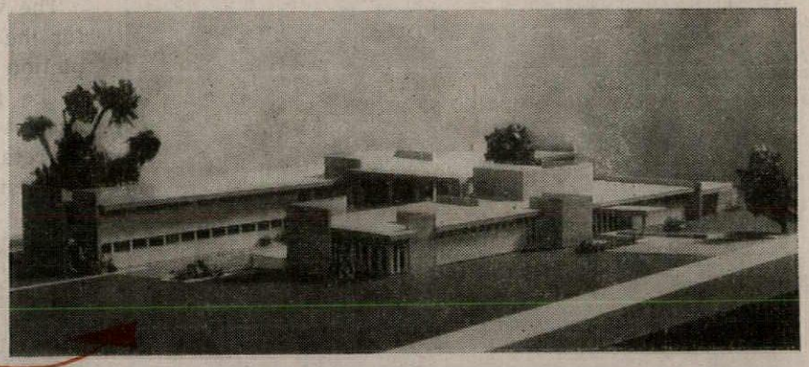
Associate architects, Christophe Grillet; Geoffrey Clarke. Engineer, Felix J. Samuely. Quantity surveyors, Davis, Belfield and Everest.

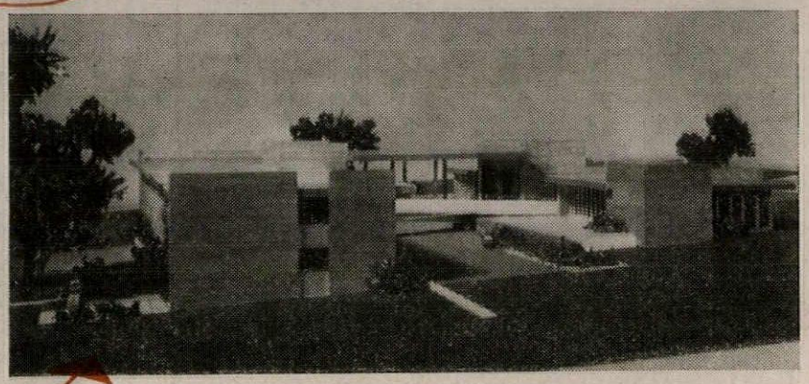
SPECIAL SCHOOL: PRUDHOE, NORTHUMBERLAND

S. W. Milburn and Partners

For the Newcastle Regional Hospital Board: a residential school forming part of the "Children's Village" at the Prudhoe and Monkton mental deficiency hospital, for 230 patients of different ages and mental capacities. It replaces an existing school which is too small and out-of-date. Construction is scheduled to begin about the middle of this year.

The building will also be used for evening courses for adult patients, so is sited at the south-east corner of the "Village" near the main hospital. It comprises a single-storey administrative wing,

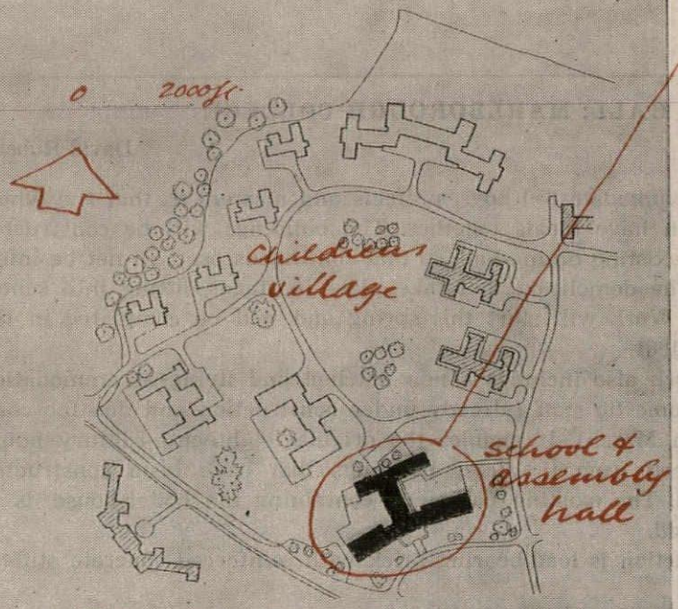




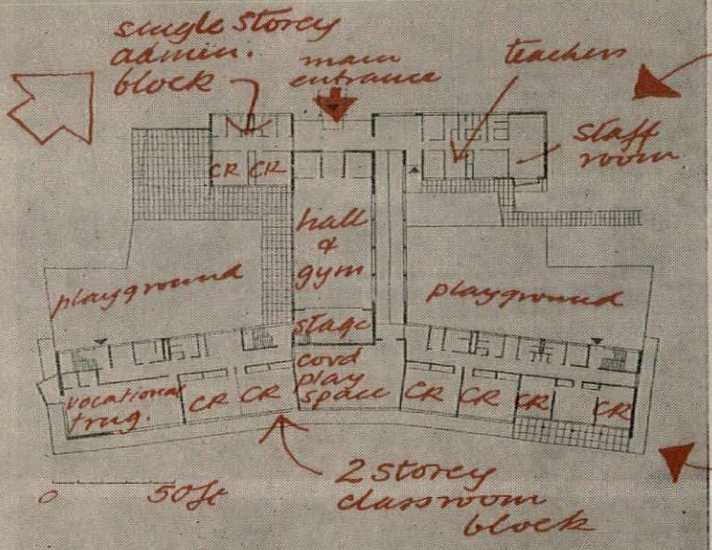
linked by an assembly-hall and gymnasium to a two-storey classroom block. A sloping site has been used to provide easy ramped approaches as many of the pupils are crippled. Segregation of groups of pupils and separate cloakroom accommodation for each group was required because of the diversity in ages. The average number of pupils in a class is 15, or eight in the case of some difficult groups. There are covered play areas, but only rudimentary gymnasium facilities as physical training is done elsewhere in the hospital. There are also existing playing-fields nearby, but small grassed play areas have also been laid out near the school.

The building is of steel frame construction with reinforced concrete floors and patent timber roofs. Facing bricks are light buff. Windows are metal in wood frames. Heating is by low pressure hot water, served from an existing system. The assembly-hall has mechanical ventilation.

Associated architect, P. H. Knighton (Architect to the Newcastle Regional Hospital Board). Assistant architect in charge, M. Harding. Model maker, Denis Wilkinson.



SITE PLAN



GROUND FLOOR

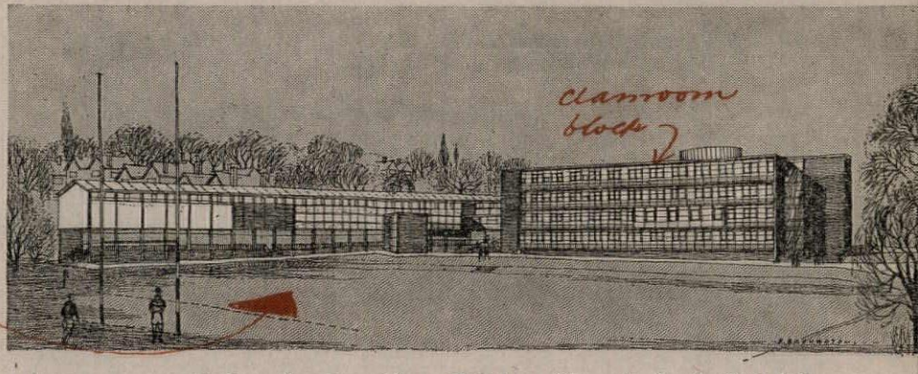
SECONDARY SCHOOL: CROUCH END, LONDON

Edward D. Mills and Partners

A four-form entry secondary modern school for 600 boys and girls, to be called Bishopswood School and situated in Montenotte Road, N.8. Work began last May and will be finished in the autumn of this year.

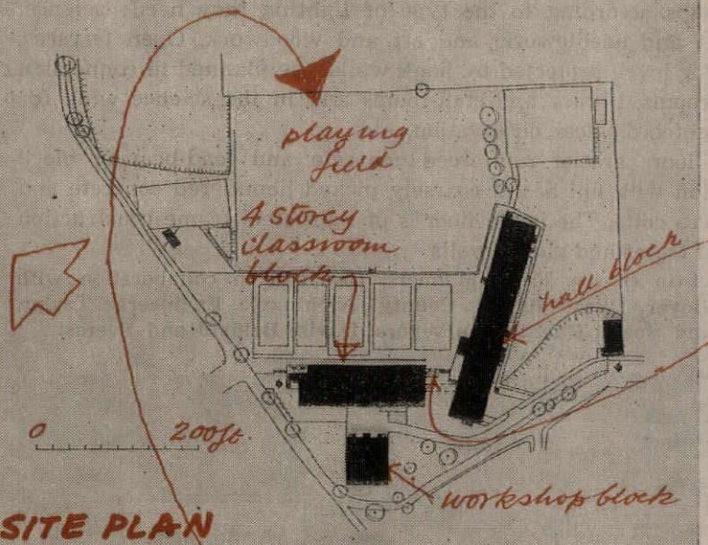
On a difficult site: small, intersected by a stream and with shrinkable made-up ground. The stream is enclosed in a culvert and the assembly-hall and gymnasium block built on the steep terraced bank to the south of it. This block also contains the dining-hall and kitchen, with a school-keeper's flat over the latter. It is linked by an enclosed bridge to the first floor of the four-storey classroom block. Changing-rooms, cycle-stores, etc., are fitted in at a lower level, utilizing the fall of the ground. The single-storey workshop block is separate, to reduce sound transmission.

Because of the risk of subsoil movement the hall block has a special foundation system with concrete piles tied together by continuous pile beams and supporting a reinforced concrete frame on which the main floor rests. On this platform are erected welded steel portal frames with angle purlins. Below the main floor-level walling is black brick; above it is buff cavity brickwork with timber curtain-walling having solid panels of enamelled asbestos and glazed opening lights. The gymnasium is faced with concrete blocks with recessed black vertical joints. The classroom block has a reinforced concrete frame with timber curtain walling and panels of enamelled

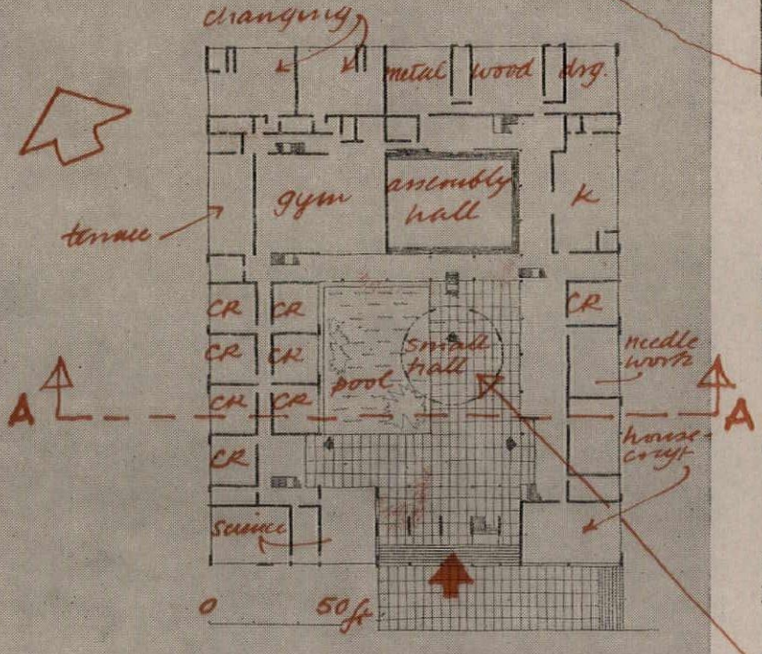


asbestos or vertical cedar boarding. Solid walling is in buff brick. The workshop block has a steel frame faced with brick or concrete blocks.

Assistant in charge, Peter Milne. The school designed in collaboration with Whitfield Lewis, Middlesex County Architect, C. G. Stillman, former County Architect and D. R. Duncan, Area Architect. Structural and electrical engineers, Middlesex County Council. Heating and ventilating engineers, G. H. Buckle and Partners. Quantity surveyors, Harry Trinick and Partners.



SITE PLAN
Secondary school:
Crouch End, London



GROUND FLOOR
Grammar School:
Shipley, Yorks.

GRAMMAR SCHOOL: SHIPLEY, YORKS

Chamberlin, Powell and Bon

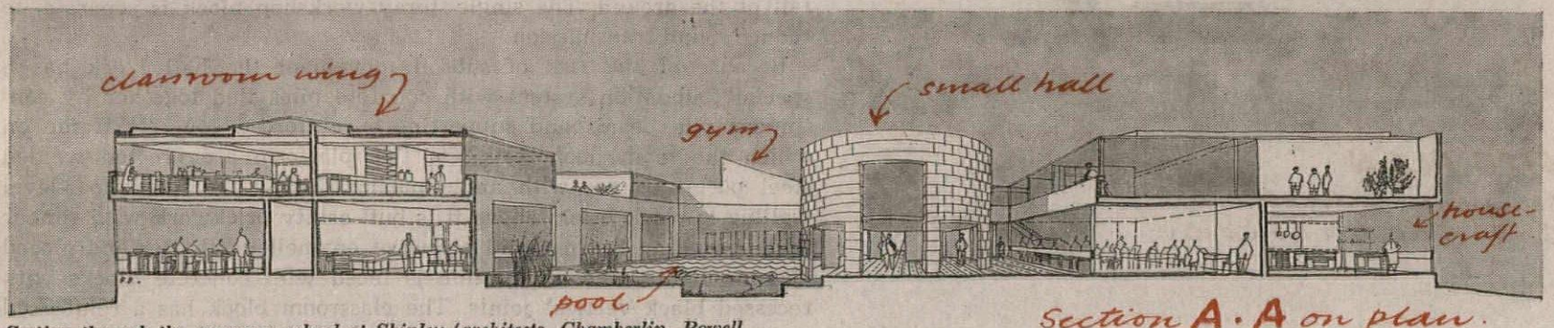
For 720 boys and girls; to supersede the present school at Saltaire built by Sir Titus Salt a hundred years ago. Work will begin in March.

The site is a strip of land running east-west at the foot of a wooded escarpment that slopes steeply to the south, and the school has been compactly planned so as to leave the site as free as possible. It is on two floors surrounding an internal courtyard containing a small circular hall. The various elements are reached through the courtyard, which is entered beneath a covered opening in one side. The main assembly-hall, on the far side from the entrance, can be enlarged by opening the surrounding circulation space into it, some of which is used for dining. The floor of the hall is sunk so that this

space forms raised galleries. In the teaching areas most of the classrooms are together on the west, and the specialist rooms are in three groups according to the type of lighting they need: science; housecraft and needlework, and art and woodwork. Open terraces, at first-floor level, protected by flank walls, are planned in connection with art-rooms, library and staff-rooms and in the science wing for use for meteorological observation, etc.

Lower floors are of reinforced concrete and load-bearing block construction with finishes of coarsely picked hammered concrete and glazed terra cotta. The upper floor is of light steel frame construction with wood frame and glazed walls.

Architect in charge, Keith Manners. Designed in collaboration with A. W. Glover (West Riding County Architect). Engineers, Taylor, Whalley and Spyra. Quantity surveyors, Davis, Belfield and Everest.



Section through the grammar school at Shipley (architects, Chamberlin, Powell and Bon), showing the small circular hall standing in the central courtyard.

EXHIBITIONS

PAINTINGS

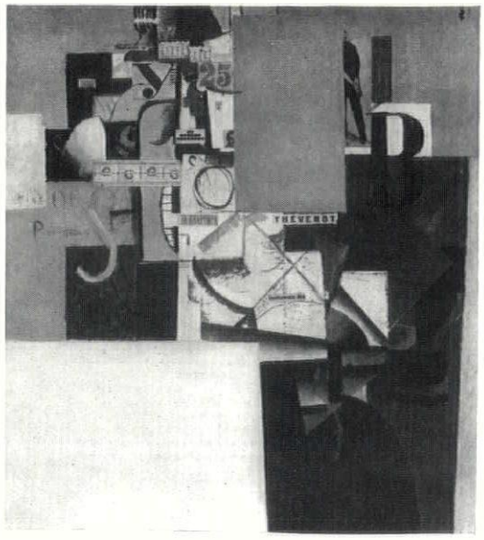
The white on white picture painted by Kasimir Malevich in 1918, *which is on extended loan to the Museum of Modern Art, is the Gioconda of twentieth-century painting.* It has acquired the character of a magical symbol, and to a great many people who have not even seen a reproduction of it, it is either more or less than a picture—an object of reverence or a target for ridicule. When it appeared at the Tate in 1952, in an exhibition organized by the Congress for Cultural Freedom, it would not have surprised me if a young follower of Duchamp or an old friend of Munnings had added a moustache to its enigmatic surface.

It is Holy Russia's last icon, Modern Art's first masterpiece of pure abstraction, the mystical counterpart of the hammer and sickle, and as a Russian critic wrote just before the art of the Revolution was suppressed in favour of Soviet realism, 'a rocket sent by the human spirit into non-existence.' And the suppression was so thorough, and the artists who escaped from Russia so egocentric, that in the West the word Malevich has had only as much of a human personality attached to it as could be read into a white square painted diagonally across a white ground, and has seemed less the name of a man than a Russian euphemism for 'Anon.' At least, that's how things stood here until an exhibition of his work came a short while ago to Whitechapel Art Gallery.

We have not been told who released the pictures for exhibition or why they were kept out of sight for so long, but it is now obvious that a few people have known for something like thirty years that Malevich left a large group of paintings in Germany when he made a trip there in the late twenties to try to arrange a one-man show. Apparently it has been kept more or less intact, since the pictures shown in London are said to constitute a considerable portion of it. The bulk of his work is still, of course, behind locked doors in Russian museums; nevertheless, the Whitechapel exhibits have the look of being hand-picked to represent all the phases of his remarkable career.

They came to Whitechapel as a package from the Stedlijk Museum, Amsterdam, and although Bryan Robertson declares that the London catalogue is 'essentially' a translation of the document prepared by the Stedlijk people, he has, in fact, added a fascinating introductory essay by Camilla Gray as well as her translations of excerpts from Malevich's own writings. Mr. Robertson also admits to making some amendments to the Stedlijk document, but he does not indicate where or why, and rather too enigmatically remarks that they are 'largely connected with the dating of the pictures,' based on information furnished by Miss Gray. The paintings are mostly unsigned and only two of them are dated, but on the face of it the dates in the catalogue certainly make sense and after an impressionist phase, represented by one picture, point to a swift series of changes leading into the geometrical style to which he gave the name of Suprematism. There are no weak links in the chain, and each step taken towards the absolute autonomy of painting is characterized by the joy of discovery and the sobriety of total conviction.

The paintings dated from 1907 to 1910 depict a toiling and dancing peasantry in a style which strikes a balance between the arcadianism of Matisse's Fauvist figure compositions and the emotionalism of the Brücke expressionists, and in the following year the same subject matter is used in a brilliant version of physical cubism which he called 'non-sense realism.' In 'The Woodcutter' and 'Bringing in the Harvest' all the forms resemble smooth curved metal plates heated up to the red to yellow colour range: they meet and lock on the picture surface without spaces between. These pictures are as beautiful and absurd as the best work of Leger's *style mecanique* phase, but they dispense with Leger's decorative composition props. Before the year was out he painted a cubist rose like a cast-iron version of Picasso's factory at Horta painted two years earlier, and from 1912 to 1914 he concentrated on a cubo-futurist synthesis which would appear to have been brought to a conclusion in the collage-painting called 'Woman beside an Advertisement Pillar,' 1, where two flat screens of colour float across the intricate clutter of signs like messages from nowhere. Up to this point he was just behind the innovators, examining and re-thinking their concepts with passionate intelligence. But from then on he was out on his own.



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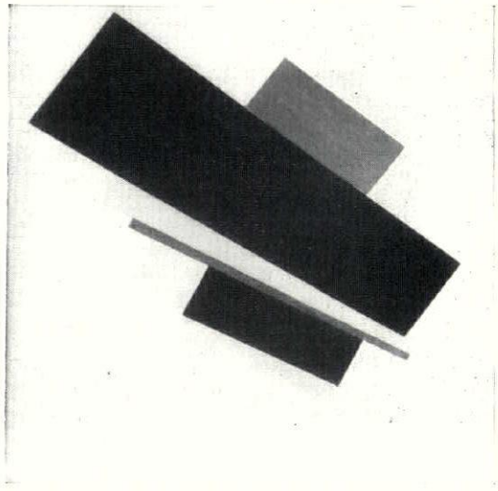
The exhibition includes a drawing dated 1914, which is a handwritten study for a picture without handwriting. It bears some relation to the Suprematist painting called 'Construction 18' (dated 1915 in the cata-



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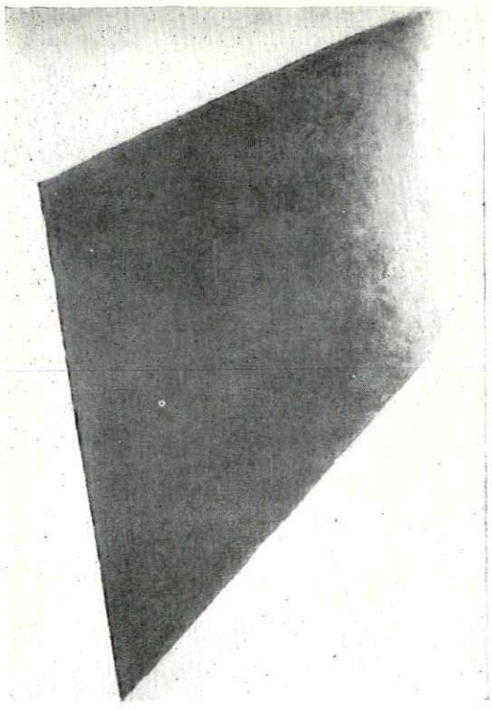
logue), 2, but some small 'direction-finding' attachments turn the forms into abstract aeroplanes and make it evident that such paintings as 'Construction 18' are intended in some measure as a celebration of man's physical conquest of space. In this sense the first phase of Suprematism retains a slender connection with Futurism. At a slightly later date, the white ground is occupied by crosses, and then in 1917 a superb painting of a large yellow quadrilateral fading off at the far edge into white, 3, immediately precedes the white on white pictures.

There were three white on whites in the exhibition—pictures in which the ghost of a form, faintly greyish in tone, emerges from or recedes into a whiter white. They tell nothing in reproduction, but in front of the paintings themselves one becomes aware of spaces more intimate and yet more remote than our 'coloured background of sky.' They bring his life as a creative artist to a close, and he could only have had these things in mind when he



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wrote in 1922, 'Man distinguishes himself as a thinking being and removed himself from the perfection of God's creation. Having left the non-thinking state, he strives by means of his perfected objects to be again embodied in the perfection of absolute non-thinking life.'

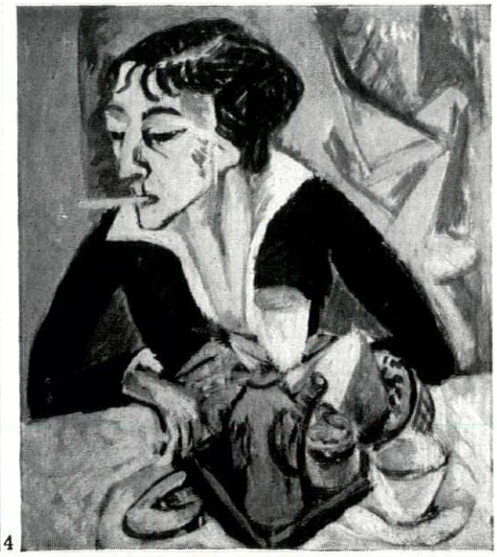
Miss Gray's essay provides the first sketch of Malevich's career to be published in the English language. She tells us that during the early years of the Revolution when Suprematism was the dominant style in Moscow, and non-figurative painters were in charge of the museums and art schools Malevich devoted all his time to devizing a Suprematist system of art-teaching and later became absorbed by projects for an 'ideal' architecture. Many documents connected with these interests were on view, and the diagrams and colour charts in which he demonstrates the development of painting since Cézanne and the interrelationships of the various schools suggest that he has no peer as a grammarian of modern art. The diagram in which he devizes eight signs to represent the characteristic basic structure of the work of eight cubist painters is a pedagogical masterpiece. The drawings for an 'ideal' architecture are disappointing, and are much more interesting as psychological documents than as architectural projects. The acute angle at which his groups of building blocks are depicted is in line with the Suprematist diagonal, but he has quite failed to make it the basis of his architectural constructions and in this context it is only a very naïve reflection of his belief that 'at the present moment man's path lies through space.' In one instance the building takes the general form of an aeroplane.

In 1932, when every kind of art other than Soviet Realism had been successfully suppressed in Russia, Malevich started to paint a series of portraits which Miss Gray describes as 'stiff and primitive.' The catalogue contains a reproduction of the self-portrait painted in 1934, the year before his death, but it is not so much stiff and primitive as hieratical. It is the portrait of a high priest expounding the Word, and the word is Suprematism. A coloured reproduction of it should hang in the entrance hall of every museum of twentieth-century art.

The exhibition called 'Art in Revolt,' held at Marlborough Fine Arts, was a splendid anthology of German painting between 1905 and 1925. It included work of the highest quality by all the leading painters in the *Brücke* and *Blaue Reiter* groups, the independent Expressionists Kokoschka and Beckmann, and the Dadaists Ernst and Schwitters. If there was one painter who was less well served than the others it was Beckmann, for the pictures which represented him were painted before he discovered the blazing colour which transformed his sadistic imagery into a presentable eroticism.

One was not particularly conscious of the dividing line drawn by Professor Grohmann between 'expressionists' and 'spiritualists,' although it was evident enough that the *Blaue Reiter* artists, Klee, Macke and Marc, were less involved in making inflamatory propaganda for the senses than the Brücke painters Kirchner, Nolde and Mueller.

Behind the work of the Brücke painters lurks Corinth's incredibly brutal 'Self Portrait as a Bacchanalian,' which is a mirror-image—painted with lush virtuosity—of a man grimacing in sensual ecstasy, and the horror of it is observed with complacent sharpness. In the Brücke painters there is the same sensual extravagance and the same hope of the imperfectibility of



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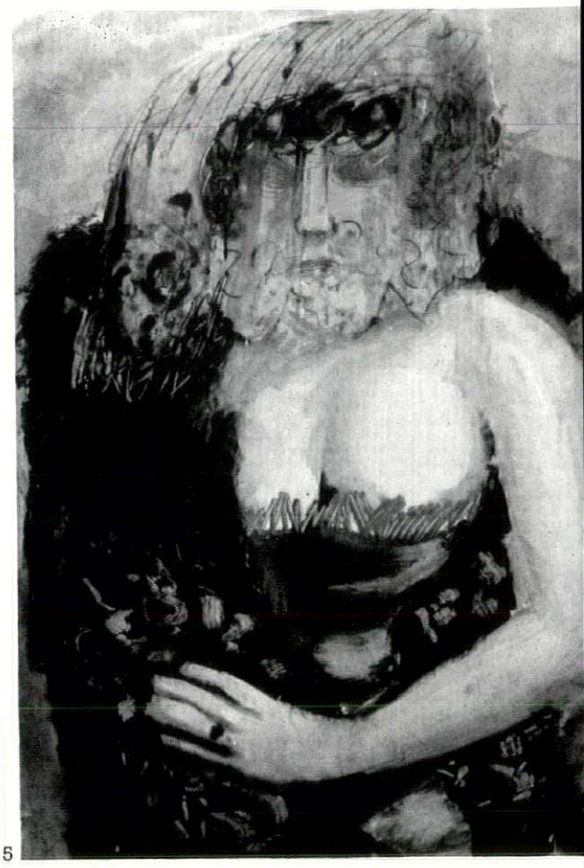
mankind, but the gesticulation of the brush plays a larger part than the grimace in the mirror in the expressiveness of the picture, and it is as if the brush itself were never free from the itch of desire. When the subject illustrates, so to speak, the orgiastic nature of the brushwork, the effect is almost too overwhelming, as in Nolde's



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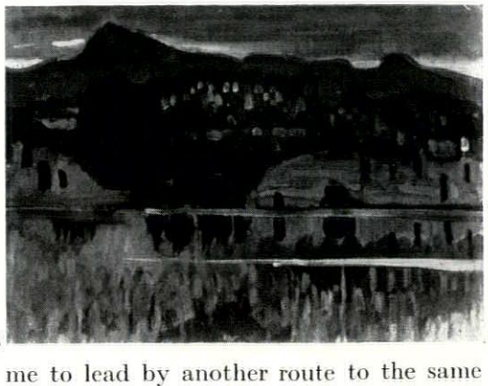
'St. Symeon and the Women.' It stays just within bounds in the brilliant portraits of women by Kirchner, 4, and Otto Dix, 5.

Kandinsky's use of automatism in his abstract expressionist paintings seems to



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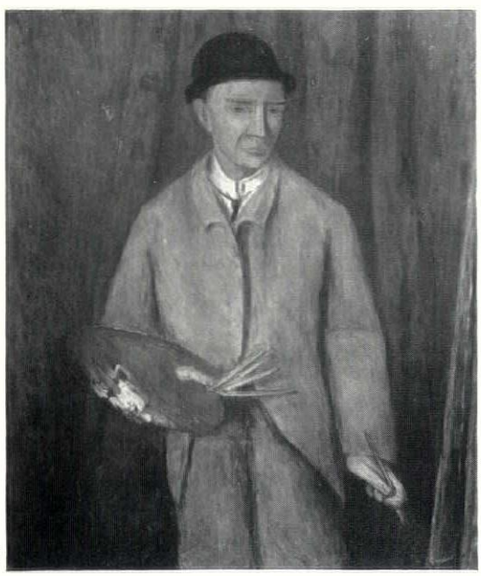
me to lead by another route to the same orgiastic results, and the notable examples in the Marlborough show have more in common with the flame-like paint marks in some of the work of Kirchner than with the *Blaue Reiter* painters who were his associates. Even the landscapes which were painted just before his free abstractions are closer to Nolde's passionate painting of a darkly rolling sea than to the

[continued on page 67

continued from page 66]

fauve works which influenced him. A brilliant example at the Marlborough which stands midway between observed landscape and abstract expressionism is somewhat spoilt for me by the comically decorative use of phallic forms, and I prefer the brooding landscape in dark blues and reds, 6, which was included in the latest of the Lefevre Gallery's elegant miscellanies of nineteenth- and twentieth-century masters.

The exhibition of Swiss painting and sculpture at the Tate was accompanied by a beautifully planned and printed catalogue; with a small reproduction beside each catalogue entry. Works by Klee and Giacometti were included in the show, but they did not 'show-up' the less exportable side of Swiss art. It was difficult to take Hodler's large early painting of a miller on his donkey, with laughing peasant girls waving him on, but Hodler outgrew its anecdotal gusto and the late painting of a



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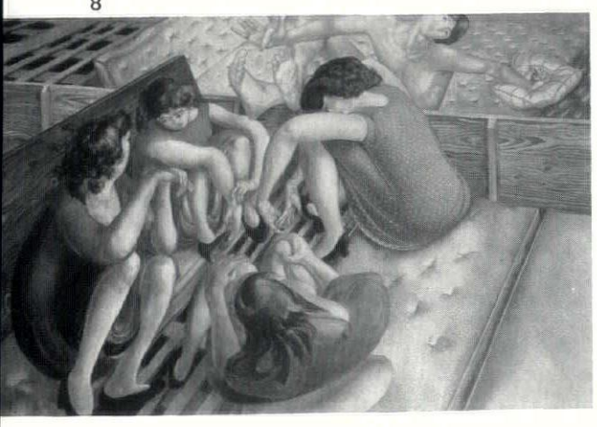
dead woman was like a foretaste of Gruber. Many Swiss painters took their cue from Hodler, notably Otto Meyer-Amden, whose small shadowy pastels of weavers and their families are full of deep, quiet feeling, and René Auberjonois, who is obviously interested in Cézanne and the Cubists, but gives his work a countrified air even when he is not painting peasants, and in his self-portrait, 7, painted in 1936, he provides himself with a whimsically humble and 'outmoded' appearance.



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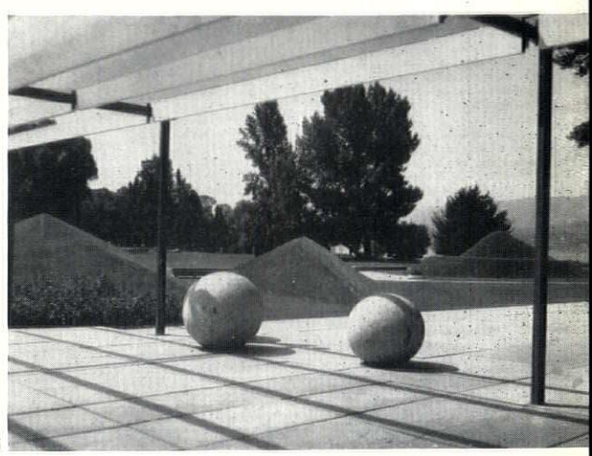
Our own Stanley Spencer puts on a countrified act with less discretion and a more exaggerated eccentricity, but the painting from the 'Christ Preaching at Cookham Regatta' series, 8, which was one of his contributions to the latest 'Critics' Choice' at Tooth's Gallery, was the outstanding exhibit. If all the energy which he spends on extravagant gestures and queer postures were put into the brush stroke he would be our most active action painter. The other artists chosen by Terence Mullaby did not measure up to his vitality although some of them made much more strenuous play with their brushwork.

Robert Melville



1



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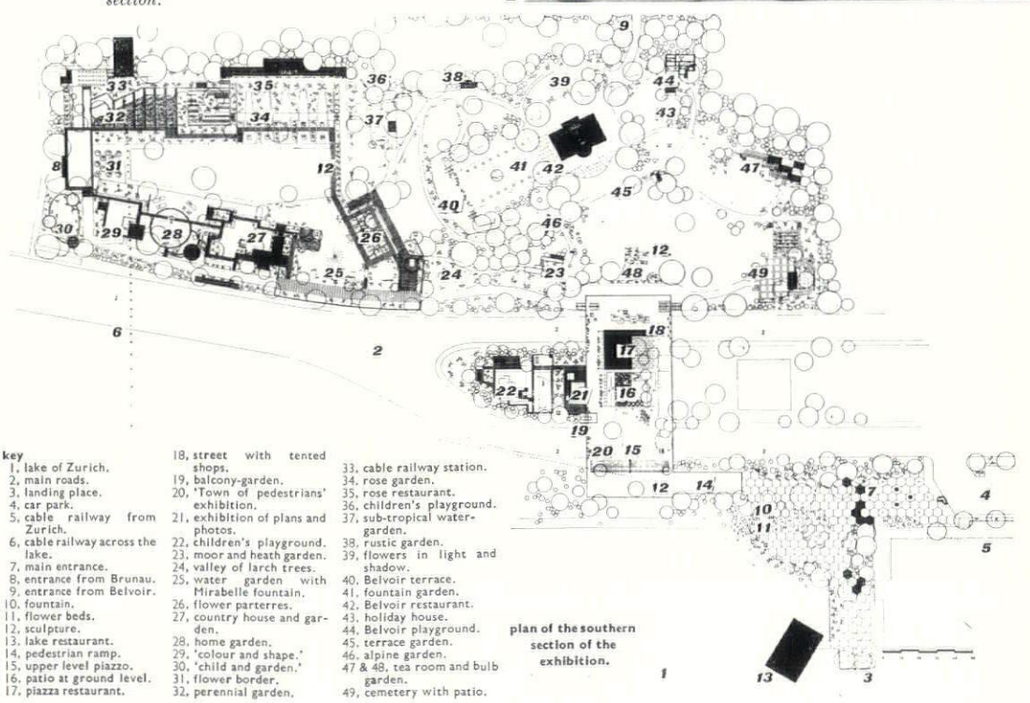
1, *view from Belvoir terrace across the parterres and Mirabelle fountain to the cable railway which formed a link with the other half of the exhibition on the north side of the lake.*
2, *the Philosopher's garden by Ernst Cramer, was one of the experimental areas in the northern section.*

SWISS LANDSCAPE EXHIBITION

The first landscape exhibition was held in Dresden in 1928 *and since then there have been exhibitions in many of the larger German towns. The idea is spreading to other countries. Switzerland had its first exhibition in Zürich last year, and this year Holland is to have one at Rotterdam.*

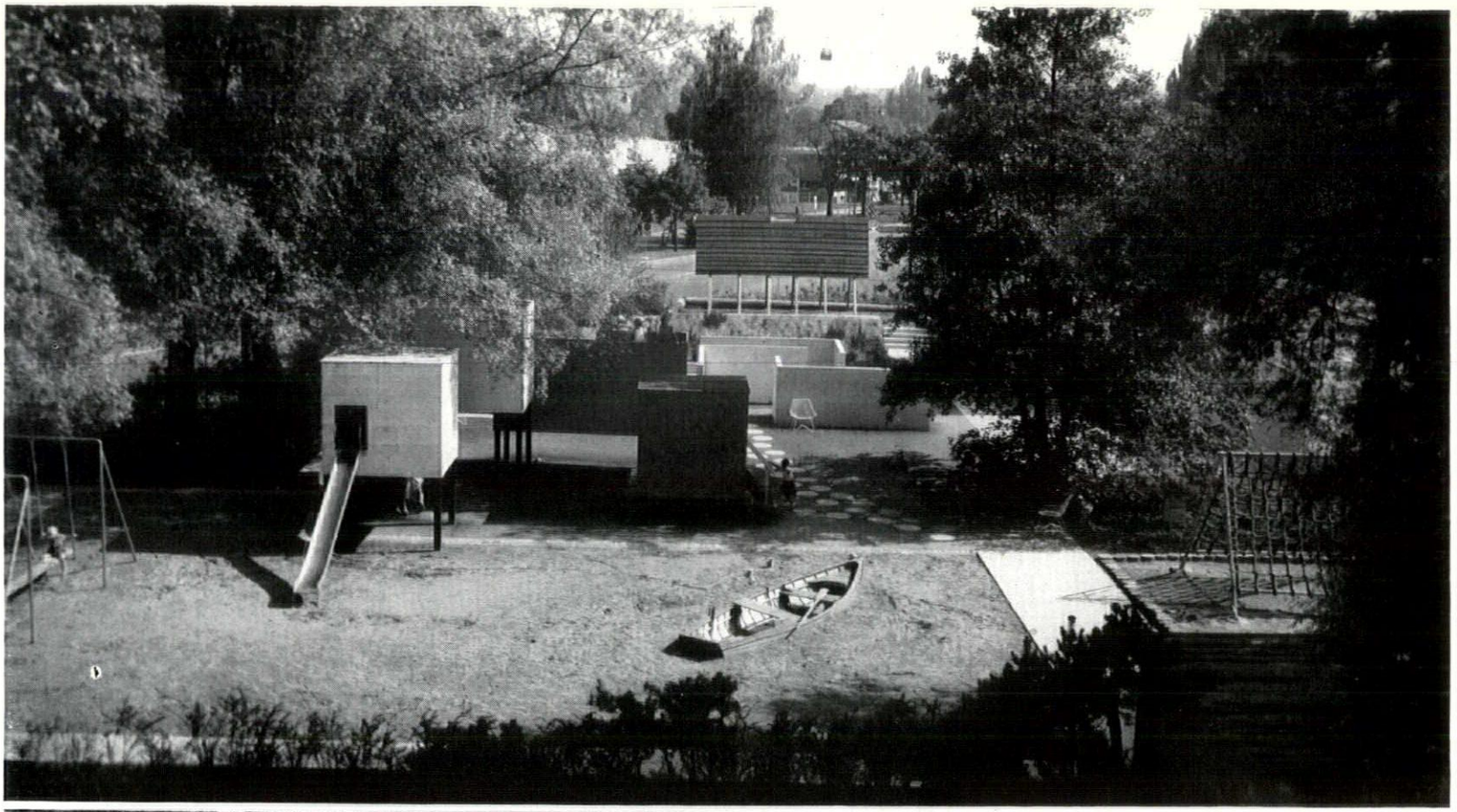
At its best—and parts of the Zürich exhibition were very good indeed—the



plan of the southern section of the exhibition.

key

1, lake of Zurich.
2, main roads.
3, landing place.
4, car park.
5, cable railway from Zurich.
6, cable railway across the lake.
7, main entrance.
8, entrance from Brunau.
9, entrance from Belvoir.
10, fountain.
11, flower beds.
12, sculpture.
13, lake restaurant.
14, pedestrian ramp.
15, upper level piazzo.
16, patio at ground level.
17, piazza restaurant.
18, street with tented shops.
19, balcony-garden.
20, 'Town of pedestrians' exhibition.
21, exhibition of plans and photos.
22, children's playground.
23, moor and heath garden.
24, valley of larch trees.
25, water garden with Mirabelle fountain.
26, flower parterres.
27, country house and garden.
28, home garden.
29, 'colour and shape.'
30, 'child and garden.'
31, flower border.
32, perennial garden.
33, cable railway station.
34, rose garden.
35, rose restaurant.
36, children's playground.
37, sub-tropical water-garden.
38, rustic garden.
39, flowers in light and shadow.
40, Belvoir terrace.
41, fountain garden.
42, Belvoir restaurant.
43, holiday house.
44, Belvoir playground.
45, terrace garden.
46, alpine garden.
47 & 48, tea room and bulb garden.
49, cemetery with patio.



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landscape exhibition has much to commend it. It makes it possible to display the infinite variety of plant material and the ways in which it can be used in open spaces and as a setting for buildings. Exhibitions can support experiments in landscape design which would be impossible in permanent work. They can help to fan a demand for more open space and for better landscaping. And they may make it possible to add a new permanent park to the town.

The Zürich exhibition was divided into two parts on either side of the Lake, linked by a cable railway in typical Swiss style. The two parts contrasted in every way. The northern one had views over the lake and the wooded hills to the south and the designers quite rightly took advantage of this with an outward looking scheme. They had to cope with more of the business side of the exhibition with all the trade exhibits and with massive advertising beds of flowers.

On this side there were a number of bold experiments in design. Perhaps the most successful visually was the 'philosopher's garden' consisting of a group of grassed pyramids. However they must have been difficult to mow and would probably grow very tiresome after a few visits. The

[continued on page 69

Swiss Landscape Exhibition

3, the children's playground in the centre of the Zürich exhibition, by Walter and Klaus Leder.
4, the garden of love, by Ernst Baumann and Klaus Leder, in the northern section.
5, the main entrance from Zürich, by Walter and Klaus Leder, had octagonal panels of planting and paving.

Swiss Landscape Exhibition

6, one of the standard credit panels.
7, detail of the pergola.
8, the water garden with the Mirabelle fountain, which changed shape continuously for an hour and a half.
9, one of the tea rooms.
10, the water garden and fountain, looking towards Belvoir terrace. On the right is the pergola which ran from the larch wood to the country house.
11, the country house and water garden, by Walter Leder.

continued from page 68]

'garden of love' was an interesting conceit but lacked the necessary virtuosity. In general the northside could be regarded as a series of bold but on the whole unsuccessful experiments lacking any underlying unity.

The south side was an inward looking scheme. Apart from a few views out over

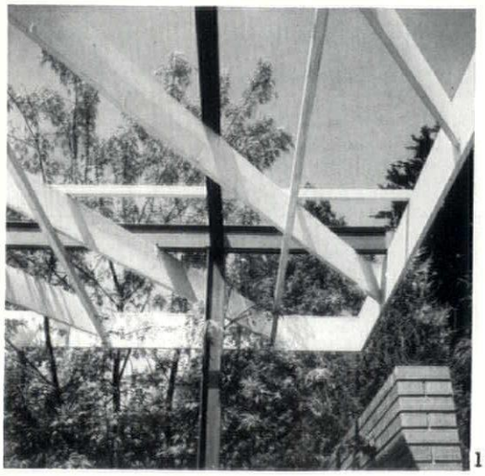


6

the lake it turned its back on its surroundings. With the exception of the lake restaurant all its focal points were within the scheme and the layout was designed to focus and regulate the tension between them.

The main entrance from Zürich was formed out over the lake. A hexagonal motif was used and although this can be tiring when carried to excess it seemed to fit the site very well and gave a feeling of unity combined with considerable informality in the various shapes of plant beds and paving.

The entrance was separated from the



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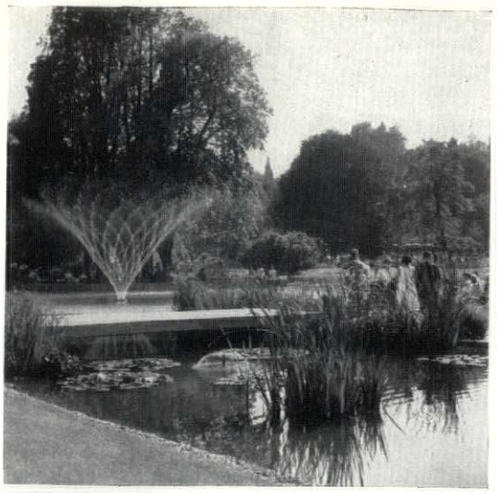

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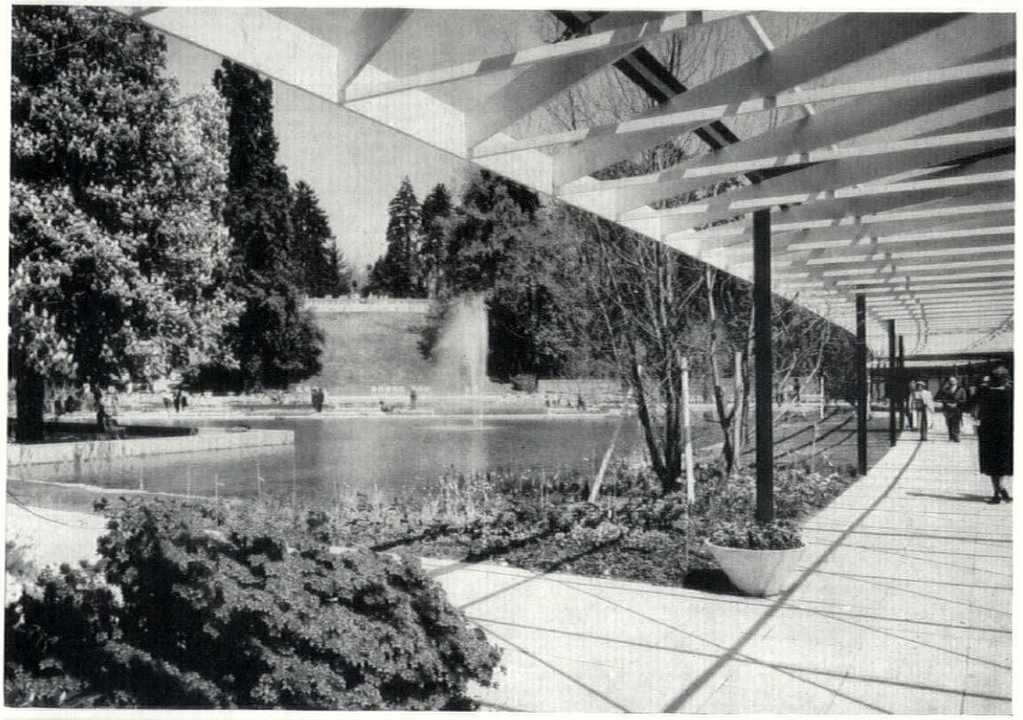

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11



12, *standard park seats.*

main area by two fast motor roads and the problem of access was not an easy one. Ordinary pedestrian bridges would have cut the flow of interest just as the visitor was getting the feel of the exhibition. The solution took the form of a wide elevated wooden piazza spanning both roads and completely hiding them except for a dramatic down-looking chimney with the cars flashing past below. Piazza and chimney pointed the moral of pedestrian segregation very effectively and this idea of a wide-spanning piazza is perhaps one which could be added to our planning repertoire and used as part of upper level circulations in permanent schemes.

The piazza led to a steep wooded park rising to a Victorian villa converted for the occasion into a large open-air restaurant with an enormous orange and red canopy almost as big as the villa itself. This faced the upper terrace which marked the end of the original Belvoir Park which had been remodelled to form part of the exhibition. Originally there was a dense wall of tall trees at this point masking views of the lake and making the park very dank and gloomy. The designers took the bold step of cutting down a number of these trees to open up a view to the new fountain pool and flower terraces. This clean downward sweep was a most successful piece of landscape surgery and an object lesson in what can be done to remodel an existing landscape by inspired ruthlessness.

The focal point of the south end of the exhibition was the fountain pool with a 'Mirabelle' fountain which changed its shape continuously for a period of an hour and a half. Along one side of the lake was a wooden pergola 100 metres long which in its way was almost as successful as the fountain. Walking along under it with a red brick wall along one side and the pool on the other one had a feeling of fine scale and airy space. At the far end was a week-end house delightful in its detailing however impractical it might be in real life. This part of the exhibition contained some really excellent planting and detailing of paving and was perhaps the highlight of the whole show.

This example of Swiss enterprise surely has a lesson for us. Why shouldn't one of the more progressive of our English towns or new towns follow this example to their greater glory and the furtherance of good landscaping?

Gordon Logie



Standard symbol of the Zürich landscape exhibition.

COUNTER-ATTACK

POSITIVE STREET FURNITURE

Street furniture which is quiet and unobtrusive is still rare enough; street furniture which makes a positive contribution to a town is almost unheard of. So two examples from East Lothian are especially welcome. The bus shelter at Haddington, 1, is near the north end of the Hardgate Redevelopment scheme. It is built mainly of stone saved from demolished cottages and makes a particularly agreeable link between the new flats and the wall of the old house behind. The main point seems to be that it is planned as a unit with its surrounding walls and in careful relation to the buildings next to it.

The other photograph, 2, shows a public lavatory at Dunbar, in which a very fresh and attractive shape has been added to the (rather broken up) sea-front. Here the material is (for a lavatory) as unconventional as the shape; and it is heartening that the concrete hasn't been forced to imitate something else, but has been used to give strength and boldness to the design.

Andor Gomme

THE NOTTINGHAM CASTLE

That London's villages are a hackneyed subject doesn't make them any less important. More than anything else they keep London sane and vital; the oases of quietness and small-scaleness which, by contrast, reinforce the metropolitan effect of the main streets. A city that is all big scale like New York and one that is all medium-small scale like Zurich can both be a kind of death, but the consumation of the two, a continuous dialectic of Here and There accentuating one another—*c'est magnifique.*

One of the most surprising and least arty is made up of the few streets between Grosvenor Place and Belgrave Square. Between Gog and Magog, so up in the world that only organisations can afford to live there, are unpretentious two and three-storey brick terraces—Little Chester Street, Wilton Mews—with their own village post-office and three village pubs, the best of them being the Nottingham Castle. There is not a hint of architecture, which is as it should be, although the front of the Nottingham is a classic example of what can be done with three storeys of stockbrick and a pair of signboards. It is just occupied with being a place, expressing a sense of communal identity: something you might plan

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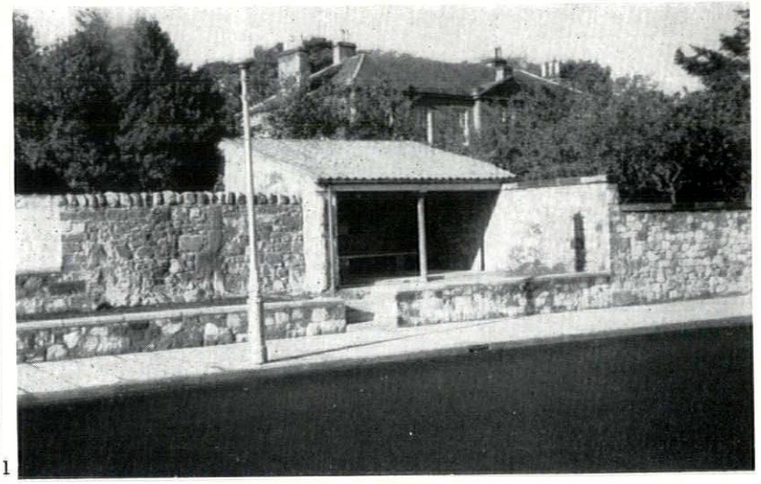

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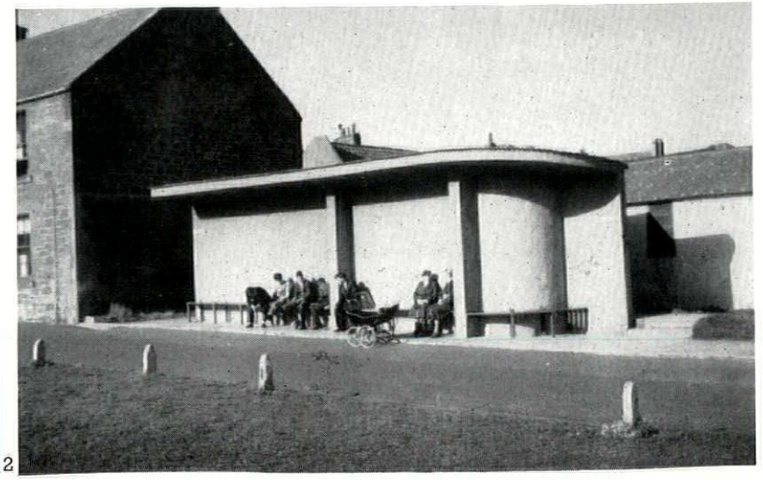

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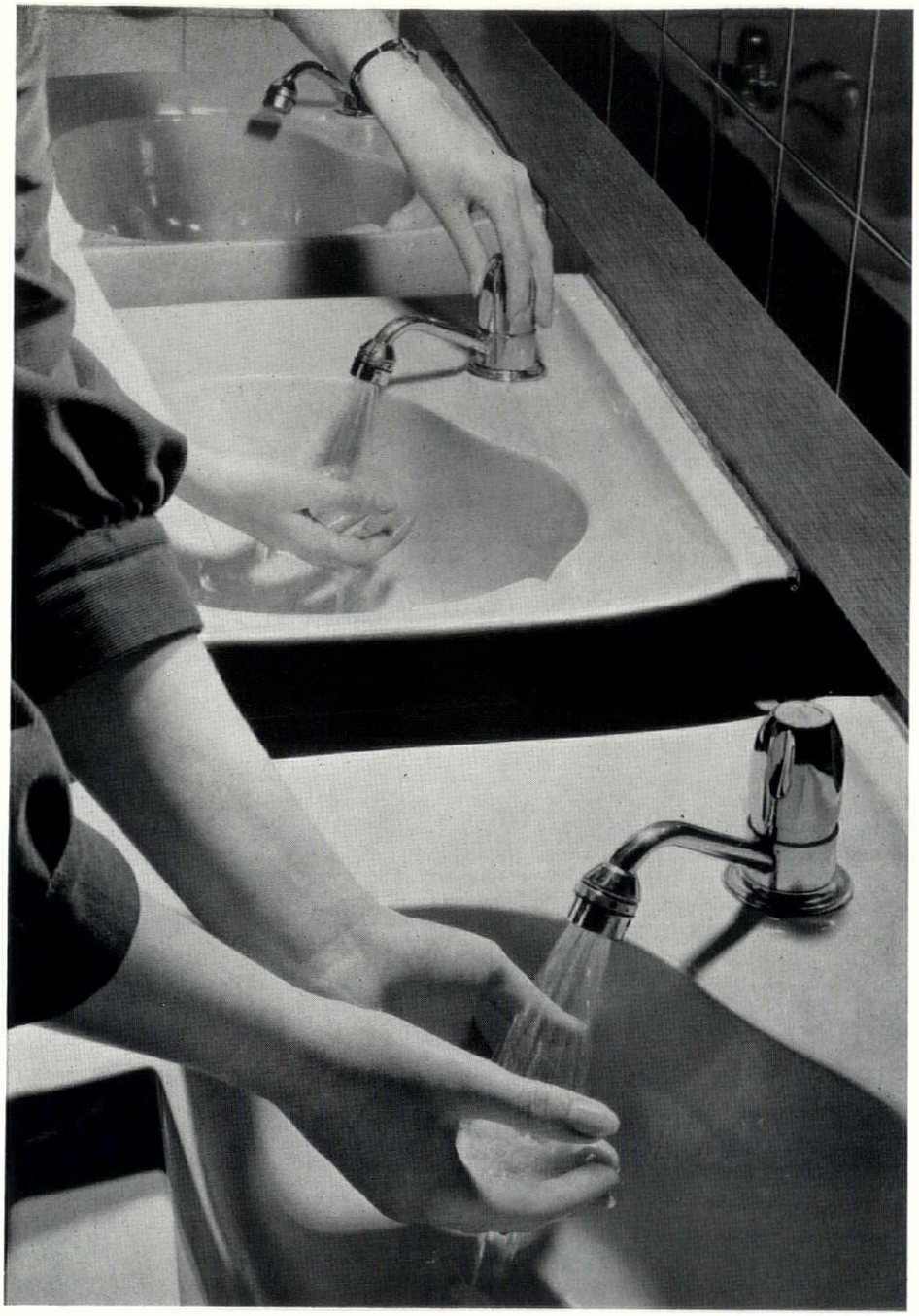
1, *stone-built bus shelter at Haddington.*
2, *public lavatory at Dunbar.*



How much water — hot water — can you afford to waste?

We waste too much water, and mainly hot water. We fiddle with the taps until the basin is a hot reservoir.
Contrast this with two recent cases. In the first, a branch of an institution was using in an ordinary week five hundred gallons hot and cold. This is now fifty-four gallons a week! The second is a London office block which for years used in a month six thousand gallons of hot and one thousand, six hundred and fifteen of cold. They have reduced this to one thousand, four hundred and fifty hot and eight hundred and fifty cold—a sixty-nine per cent total saving of water, seventy-five per cent of which (repeat : seventy-five per cent) was hot !
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and plan for and never get, as long as you were planning with the intellect only.

This tiny patch of London, Belgravia village, has changed hands. The new owners have started rebuilding, and intend to take down one whole side of Little Chester Street, including the Nottingham Castle. They are replacing three-storey brick terraces, Georgian because they just happened to be built about 1820, by three-storey brick terraces, neo-Georgian because someone thinks that neo-Georgian is the thing to build in this area—possibly to tie in with the strange custom of these Belgravians of wearing eighteenth century dress and coming to work only in horse-drawn carriages.

In case the irony does not register, let me be explicit. The new buildings, if continued, will produce an area that will be dead of all qualities of either heart or mind. It will be an architecture of conditioned reflexes—somebody said 'keep in keeping,' so somewhere else a parlour-dog paw jumped to obey. It will kill the place as surely as if a weeny H bomb had gone off.

There is no need to take this jeremiad on trust. The same effect can be seen everywhere that property developers have built this parlour-dog neo-Georgian: Bayswater, Chelsea, Kensington, worst of all in those few parts of Mayfair and St. James's where the real stuff is still alive and kicking (quote from an important property man: 'Contemporary? Of course it's contemporary. It's going up right now in Grosvenor Square, isn't it?') I do not say that if the replacements were modern architecture (or preferably, no

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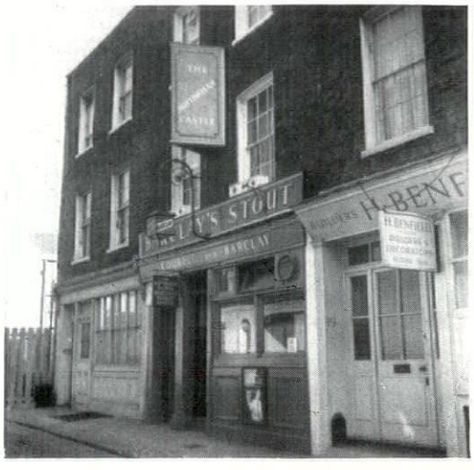

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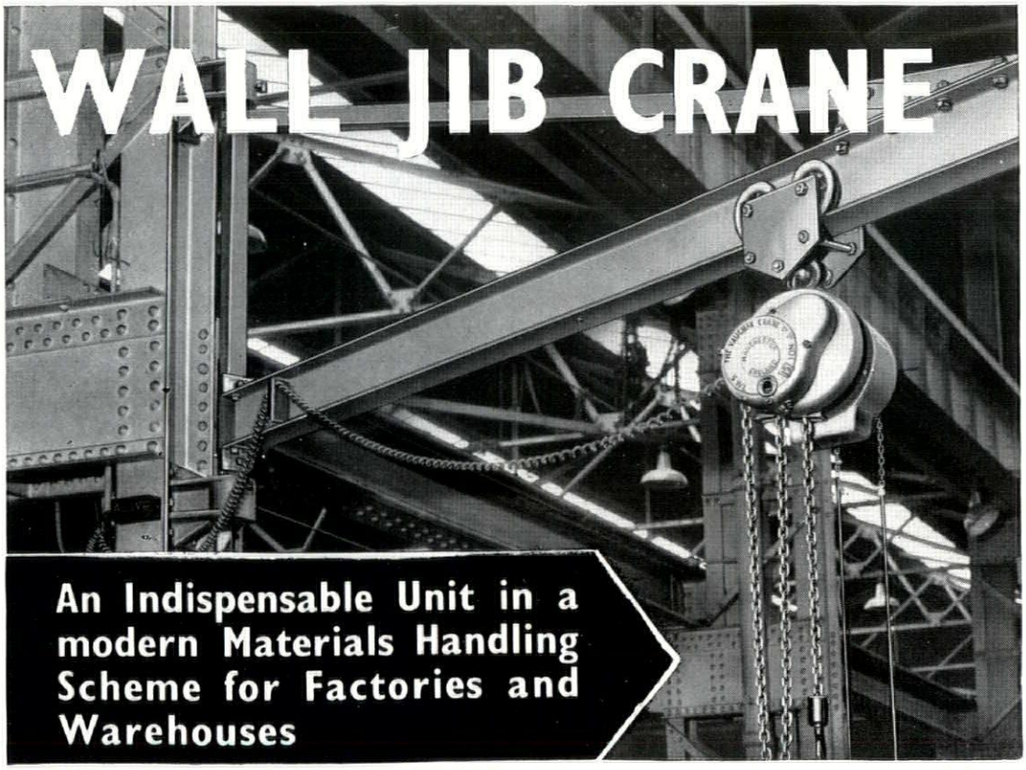
3, 4, *the Georgian terraces of Little Chester Street and Wilton Mews.*
5, *one of the cleared sites.*
6, *the new terraces which are now going up.*



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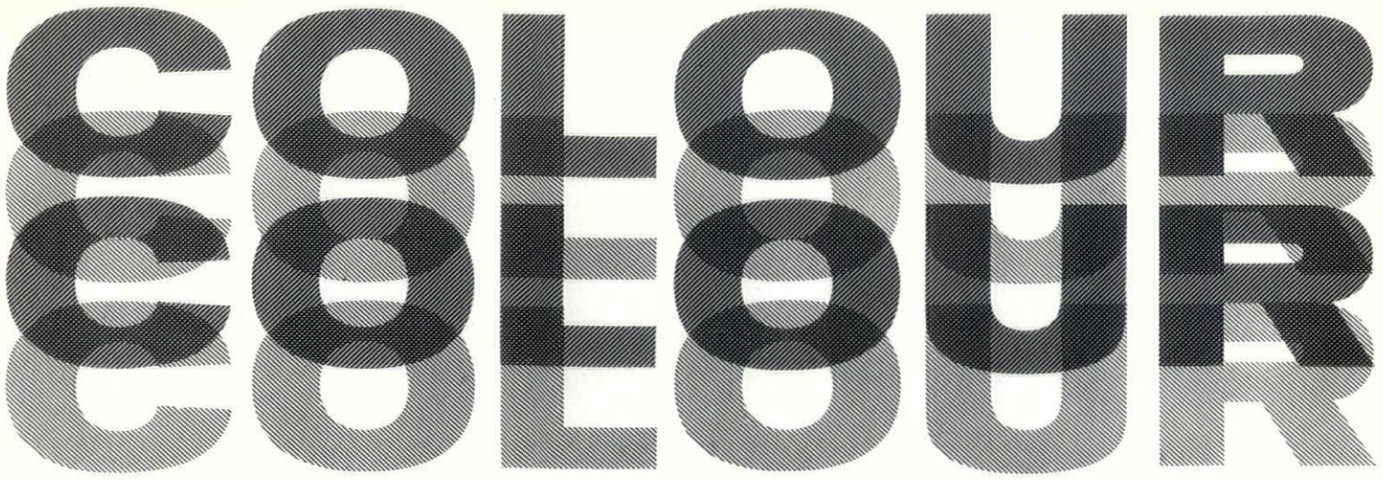

the logical use of colour in building no. I

introduction:

Few subjects can claim a more diverse group of interests than colour.

Psychologists, photographers, physicists, physiologists, philosophers, printers, paint manufacturers, lighting engineers and artists are but a few with such interests, each with their own problems and inevitably each with their own definitions — a babel of many tongues. The chemist employs it as a generic term for dyes, pigments and like materials. The physicist regards the term as a description of certain phenomena in optics. Physiologists and psychologists use the term to denote a sensation in the consciousness of a human observer. Colour is a household word as well and is commonly used indiscriminately in all three senses.

The three definitions are firmly rooted in the language and it is futile to expect one definition only to be adopted. The definition used must be the one most nearly applicable to the case under consideration.

There is no difficulty in distinguishing the use of the word "colour" to mean a pigment, dyestuff or other coloured material in a finely divided form, but the distinction between the objective physical definition and the subjective psychological one is more subtle. The objective measurement of colour is a physical reality and once determined remains fixed. The sensation that results when one looks upon a coloured object depends to a considerable extent upon the nature of the surrounding field and the nature of the field to which the observer has previously been exposed.

It is intended to run a series of these announcements which will endeavour to outline the importance of the subjective use of colour to the architect and building designer, and to show how such knowledge can be used.

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7, view from inside the Nottingham Castle.
8, detail of door and window in the old terraces.

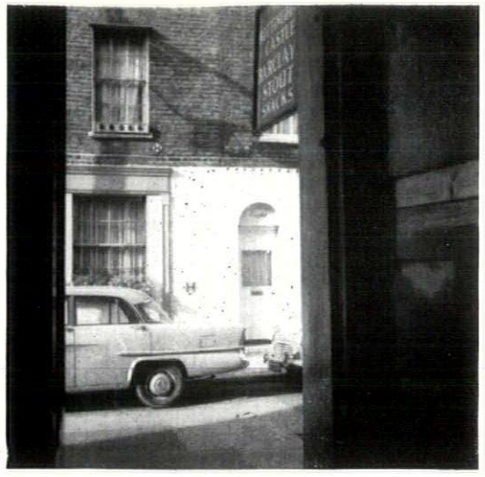
continued from page 72]

'architecture' at all, like the originals) they would automatically have these human qualities, but at least the failure would be an honest one.

As a property speculation the return from this bit of development will not keep a magnate or board of directors for very long: if I were a prospective house buyer in Belgravia, I would say that they were producing approximately the same amount of accommodation combined with much less attractive appearance. At the time of writing rebuilding was already well under way, but, for the sake of a real place—something which cannot be bought along with the Bentley Continental or the yacht—would the company be prepared to let the remainder be until the natural life of the buildings demand their removal piecemeal and rebuild in whatever style then happens to be current?

I do not think for a moment that such a miracle will happen. If the plans have not been passed, I can only whip up the natural antipathy between planners and developers by suggesting that the whole area be scheduled for group value, recognising the irony of using museum-piece techniques to try and keep the identity of something completely unlike a museum-piece. If the LCC Town Planning Committee do not know the area—it is easily missed—and care to go and have a look, they will see the charm and the threat—or the aliveness and the deadness—immediately. Meanwhile, and for a wider audience, here are some photographs taken in and around the Nottingham Castle. One might read all the planning textbooks in the world and never find the recipe for this: yet without it is nothing.

Ian Nairn



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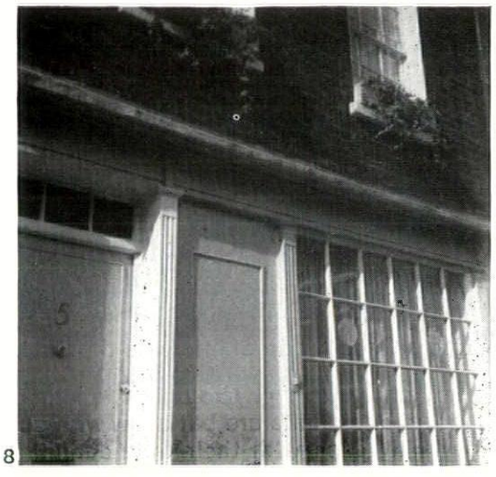

8

CONTRACTORS etc

Engineering Building, Edinburgh University. *Architect:* R. Gardner-Medwin. *General contractors:* Crudens Ltd. *Sub-contractors: Steelwork:* Redpath Brown Ltd. *Heating and ventilating:* Richard Crittall & Co. *Precast concrete floors and roof:* James K. Millar & Co. *Thermoplastic floor tiles:* Limmer & Trinidad Lake Asphalt Co. *Mosaic and terrazzo:* Toffolo Jackson & Co. *Core rail and balustrading:* Marley Tile Co. *Windows:* Quicktho (Engineering) Ltd. *Electric lifts:* Glasgow Engineers Ltd. *Acoustic materials:* Hermseal Acoustics Ltd. *Mastic asphalt tanking:* Limmer & Trinidad Lake Asphalt Co. *Scaffolding:* J. & W. Henderson Ltd. *Linoleum flooring:* Neuchatel Asphalt (Contracting) Ltd. *Window blinds:* Accordo Blinds Ltd.

Western Bank Development, Sheffield. *Architects:* Gollins, Melvin, Ward and Partners. *General contractors: Boiler house:* M. J. Gleeson Ltd. *Chemistry building, west wing:* M. J. Gleeson Ltd. *Chemistry building, east wing:* Simms, Sons & Cooke Ltd. *Physics and mathematics building:* Tersons Ltd.

County Council Staff Club and Offices, Wakefield. *Architect:* A. W. Glover, County Architect. *General contractor:* T. Coggon & Co. *Sub-contractors: Structural steel:* Octavius Atkinson & Sons. *Precast floors:* Truscon Ltd. *Heating and ventilation:* Sulzer Bros. (London) Ltd. *Electrical:* F. H. Wheeler & Sons. *Metal windows:* Henry Hope & Sons. *Stone:* Johnson Wellfield Quarries Ltd. *Slate:* Lake-

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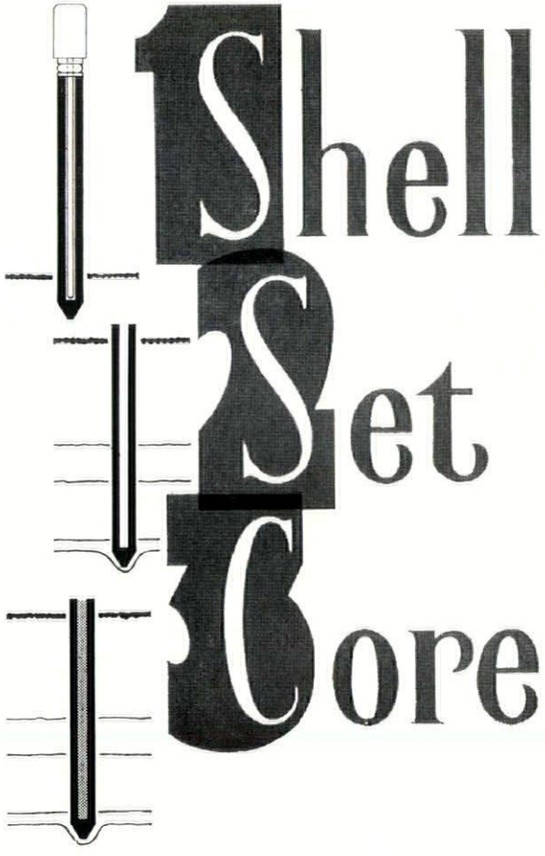

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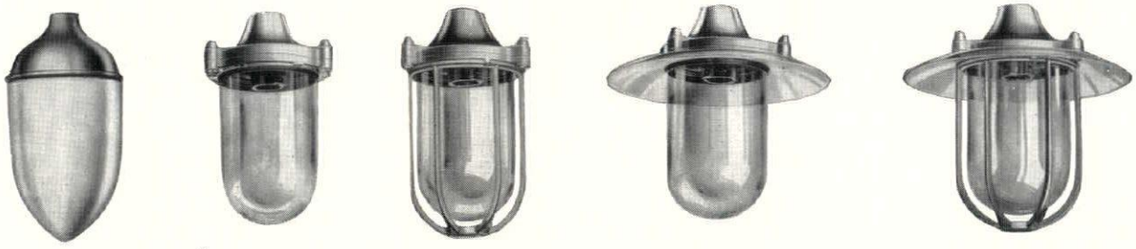

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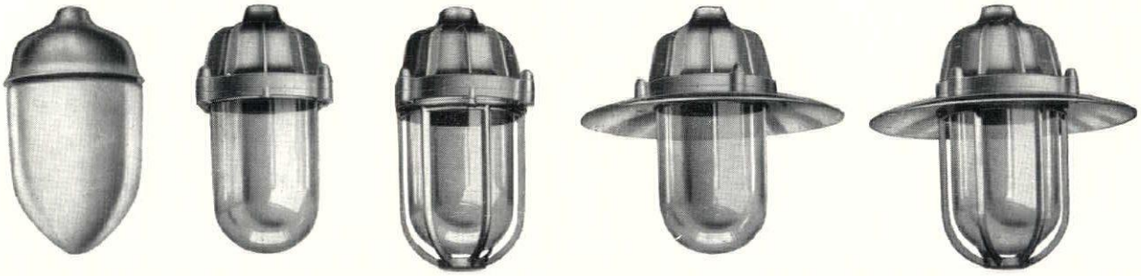



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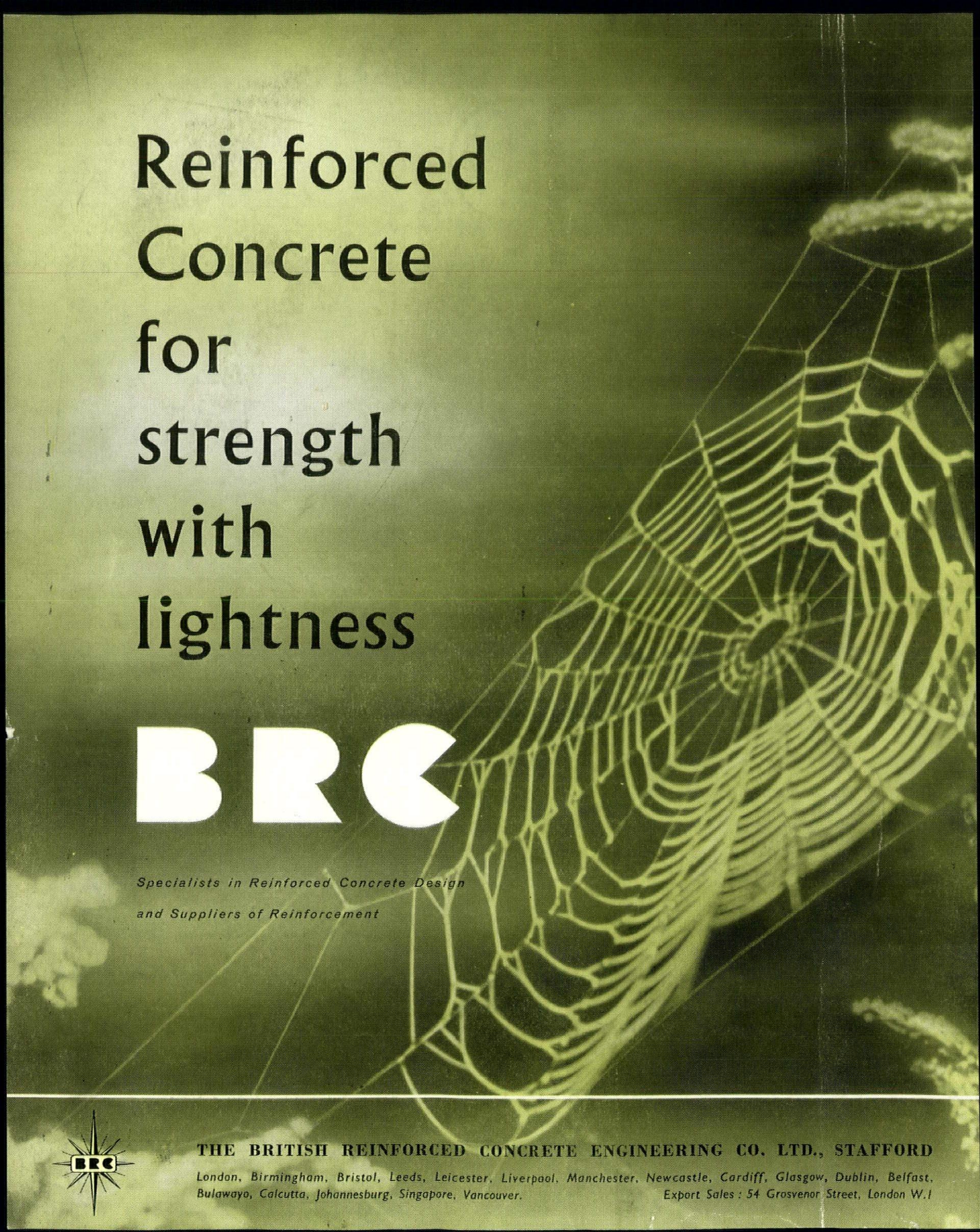
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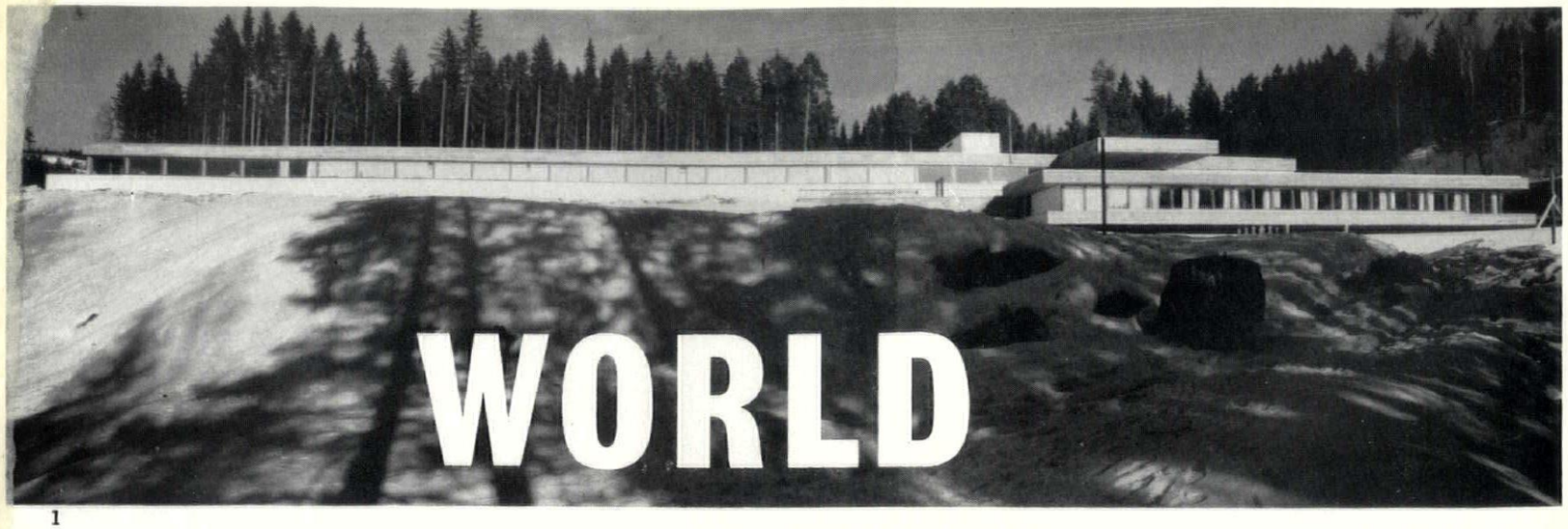

1

MAIHAUGEN MUSEUM

Character and Site Conditions

Sverre Fehn and Geir Grung's museum addition to the Maihaugen Folk-park at Lillehammer, Norway, is a design of sufficiently striking character to deserve fuller treatment than could be afforded it in Michael Brawne's article on museum design (AR, November, 1959). Basically, the scheme comprises two low blocks—one of them very long, 1—stepped one above the other (the lower one containing administrative offices) on the partially terraced slope of a pinewood. The main elements of the architecture are slabby and tough-minded, with a powerful emphasis on the sheltering functions of the massive concrete roofs, 2. *Brutalist* is the obvious word for its conception, but it should be noted that the detailing simultaneously pursues both possible lines of development from this conceptual basis. On the one hand there is the mechanistic employment and enjoyment of industrially-produced materials, exemplified by a direct use of steel tubing, etc., very much 'as found' for such equipment as hand-rails, gates and so forth, 3; but on the other hand much of the interior work with, for instance, its roughly planked ceilings, 4, creates an atmosphere that accords equally well with mediaeval or peasant objects and the slightly eccentric quality of sophisticated modern Scandinavian design, as exemplified in the moulded plywood chairs. When one considers how 'respect for the site and local conditions' has been talked down into an excuse for characterless and gutless architecture in recent years, this very positive statement—at once in sympathy and defiance of terrain and climate—is welcome proof that there is another and better way of doing things.



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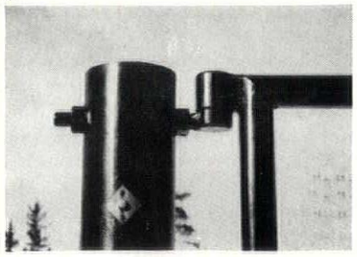

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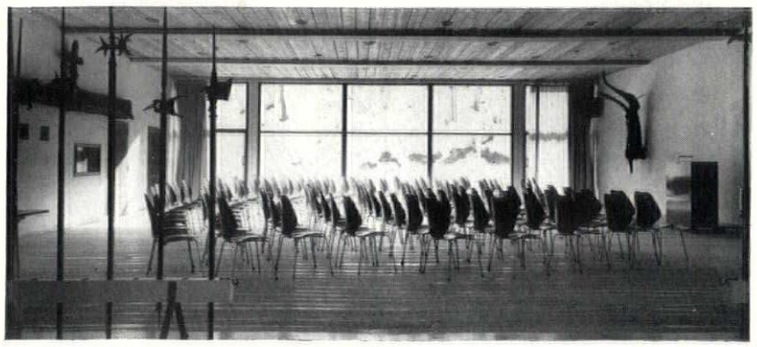
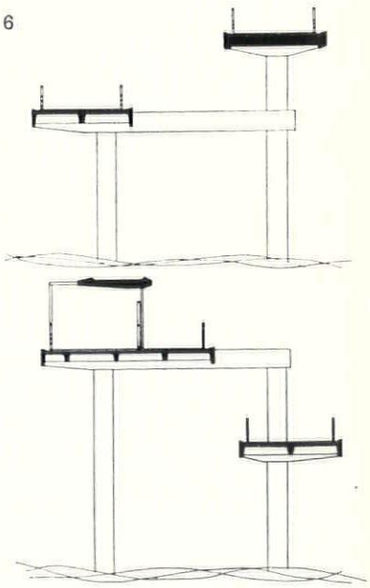


DUTCH PIER PROJECT

Although architectural students occasionally encounter the problem as a school exercise, the Dutch architects Maaskant, Dijk and Apon must be the first adult designers to be faced with a seaside pier for some time. Their project for a new pier is the real thing, 5, complete with restaurants and ice-cream parlours, flags, look-out towers, children's playground, projecting 400 yards into the sea on the front at Scheveningen, the resort-suburb of The Hague. After some deliberation as between metal, wooden and concrete construction, the latter has been chosen, the piles to be driven during the summer of 1960, the superstructure in the ensuing winter so that the pier can be in use in the summer of 1961. As will be observed from the sectional drawings, 6, the seaward end should constitute the only split-level pier in current use.

6



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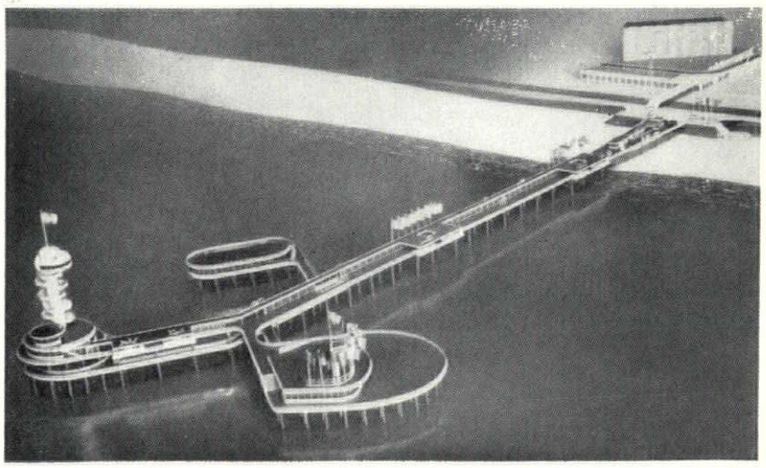
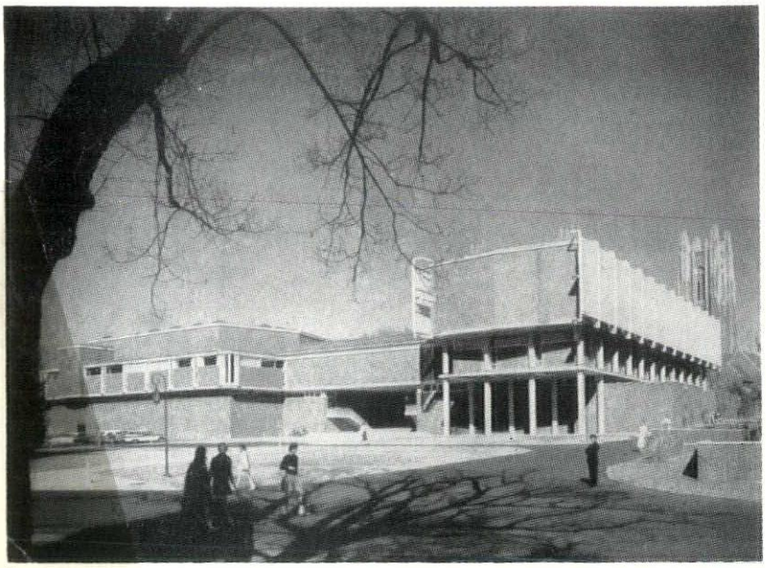


NOT NEO-TIFFANY

Revivalism and Paul Rudolph

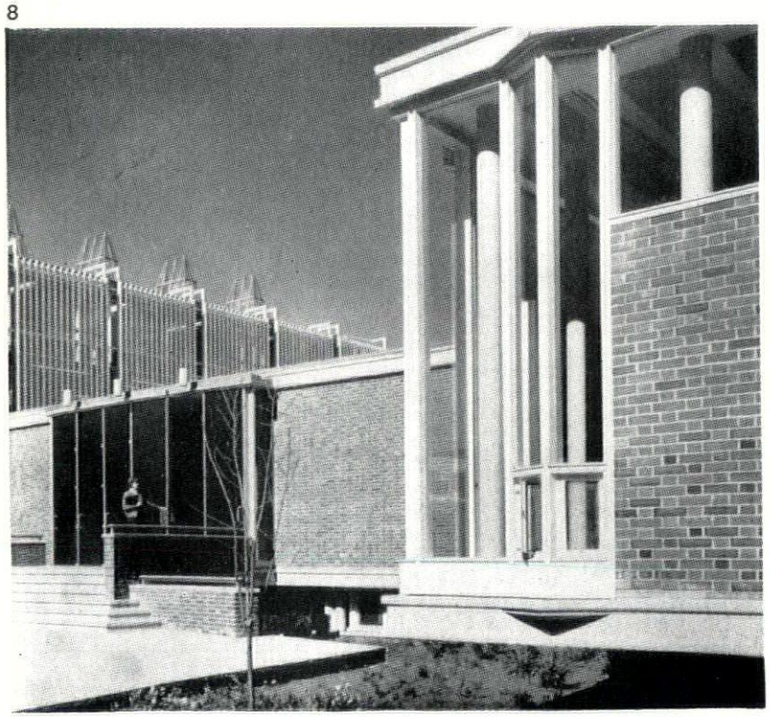


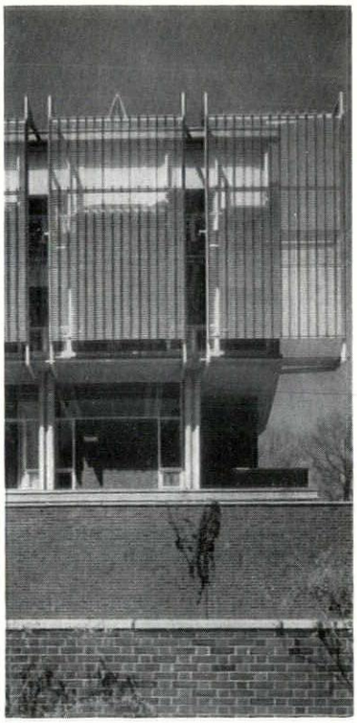
7

The given programme—indeed, the architect seems to have given it to himself—of Paul Rudolph's new buildings for The Jewett Arts Center, Wellesley College, was framed in terms almost identical with those underlying Italian Neoliberty—to fit into an environment dominated by older structures of strong architectural character. As the *Architectural Record* observed (July, 1959), thereby accidentally pinpointing the weakness of Neoliberty, 'These considerations had to be balanced against the temptation of the visual escapism all about.' Perhaps the 'visual escapism' of red-brick collegiate Gothic is less oppressive than the Italian urban scene; Rudolph's architecture, 7, is certainly less oppressed by it. Two reasons may be adduced for this—firstly the forms of the building envelopes, such as the art-gallery, on the right in 7, are not revivalist in any way, but straightforwardly functional; and, secondly, the detail handling, while it occasionally exhibits a character that tempts one to make Italian comparisons, as in the mock-oriels of some of the windows, 8, and however fantastic on occasion, like the much-discussed sunscreens, 9, has a motivation that is functional, not revivalist.

But the basic reason is almost certainly of a more subtle order. Neoliberty stems very largely from the acceptance of a banal and outworn concept of urbanism, a conventional relationship of building-facade to corridor-street. Rudolph may have been lucky with his site, but he has grasped its possibilities for a monumental circulation-scheme based on a purely twentieth century concept of under-and-over, three-dimensional planning, 10, with an almost Baroque enthusiasm, 11, that seems to have died out of Italian modern architecture many years ago.

8





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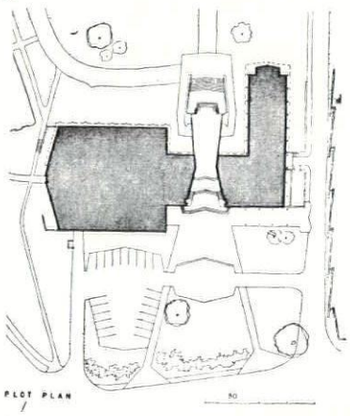

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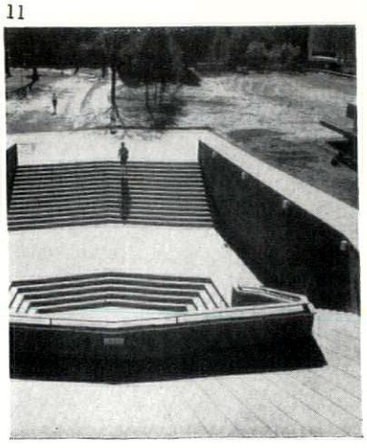
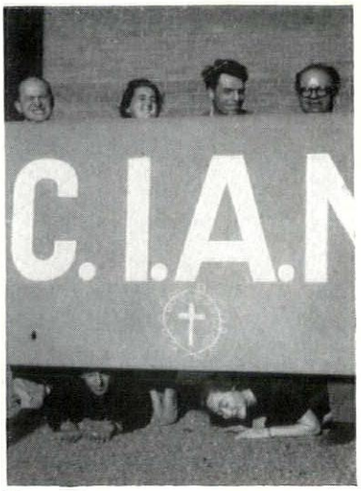


CIAM

Resurrection Move Fails at Otterloo

After the official 'suicide' of CIAM at Dubrovnik in 1956, it might seem an unprofitable exercise on the part of some of its ex-members to try to revive the corpse at what was, essentially, a Team-X meeting, at Otterloo as recently as September last year. The



12

attempt failed—after a near-success at a purely legalistic level—but it summoned up two documents of interest before some exasperated hand added the wreath and cross to the notice board seen in 12, with a border of Team-X heads and feet.

One of these documents was Aldo van Eyck's summing up of CIAM history and ideas in a special issue of *Forum* (7, 1959) under the title *Het Verhaal van een* Andere *Gedachte* (The story of an *other* idea). Although this was to some extent a polemical document, since van Eyck is an X-teamster, it has a double value: firstly as an attempt to look back and sum up the development of CIAM over thirty years from La Sarraz; secondly, as an accidental revelation of certain undiscussed tendencies that seem to have been common to all parties in the final polemics of dissolution. On the first count, most valuable is the citation of a series of contrasts between 1930 and 1950, drawn by John Voelcker. Samples: '1930, the frame building and the multi-level high rise city, images which contained a complete urban system; 1950, random images drawn from many sources, containing single ideas which, one by one, contribute to change and extend the experience of space: 1930, Prototype buildings and master plans each charged with the full international urban programme. Irrespective of location—Didactic; 1950, Building in unique situations. The elements articulate and resolve the ecological patterns, and provide instruments of

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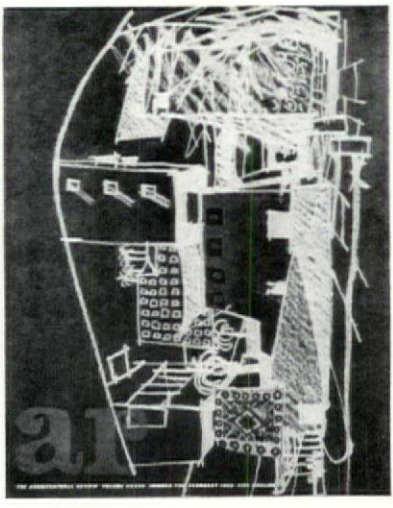


This Month's cover *shows — in a reversed print — part of the proposed multi-level, multi-storey re-development of the over-crowded, under-built areas of the city of Old Delhi; a piece of 'putting-right' — neither laissez-faire nor root-and-branch reconstruction—by which Gordon Cullen proposes to make good the old city without destroying its well-integrated community life. This and other proposals for Old Delhi, and New, taken from the report drawn up by Mr. Cullen for the Ford Foundation's Delhi Regional Plan Consulting Team, will be found on pages 110-118.*

CIAM

research into possible developments of each location.'

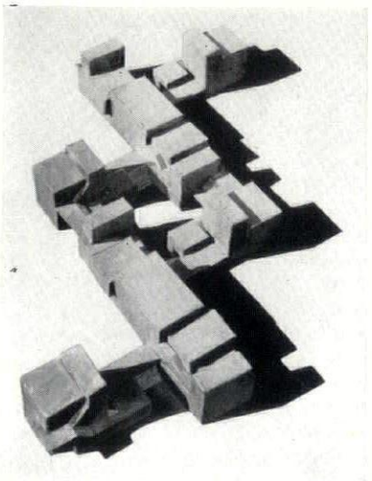
Yet, persistently, at all levels of discussion, and on every hand, there is a weird strain of exoticism, an inability to make visual formulations about primarily Western problems except in terms of non-Western images. Van Eyck's text is persistently illustrated with pictures of Africans, 13, or Italians (who to a Dutchman

13



are almost equally exotic), and the real life of the western towns with which CIAM was presumably concerned appears only in fancy dress or *en fête*, barring the inevitable mother-and-pram images. Not surprisingly the pay-off scheme is of what X-teamster W. G. Howell has called Wog-type architecture, 14, albeit designed by a Dutchman, P. Blom.

14



The other document comes from the most determined of the CIAM-revivalists, Ernesto Rogers (he stayed away from a conference in Brasilia in order to sit in on the Otterloo meeting). In Casabella (232, 1959) he wrote a personal farewell to the corpse of the beloved, *CIAM at the Museum*—a double-take since he meant not only the Kroller-Muller Museum at Otterloo in which the meetings took place, but also '. . . that imaginary museum housing works proven by the intelligence and the morality which went into them.' He concluded 'The CIAM represents the moment of greatest commitment and solidarity in modern architecture; a commitment still more valid today and more and more necessary if we are not to abandon the debate and our hope for a progressive architecture.'

One sees here the psychological need behind the desire to revive the exhausted organization, the need for support where hard pressed, much more than the need for an international forum. At its lowest level it is what Team-X describe as the 'desire to put the letters CIAM on your letter heading,' at another extreme it is the need for support in a moment of crisis, as with the Italians and at its most urgent level, it is the need for support and guidance on a new road, as it was voiced by the brightest of the new stars in Japanese architecture, Kunio Maekawa—'The young English architects are mad to kill off CIAM when we need it so badly.' This last matter alone need rest on the consciences of Team-X, but it must rest firmly, and it is to be hoped that something can be done to get some of them to the design-congress in Japan this year to explain their motives and suggest alternatives to CIAM.

IS GLAUS A CORBUSIAN?

The airport buildings at Agno, which serves Lugano, are not quite what one might expect, 15, being neither in the bad old tradition of Cuckoo-Clock Perret, nor in any of the emergent styles discussed in the AR for March and November, 1959. It appears to have roused some controversy in Switzerland, but when Giovanni Bernasconi calls it a 'Variazioni Lecorbusierana' as he did in *l'Architettura*, 49, 1959, the English reader, raised on the stock-brick Jaoulism of British Corbusiasts, is apt to shy off and start pointing out all the non-Corbusian qualities that strike his eye—such as the hard, smart crisp precision that recalls Terragni and his school in Como, which is only two lakes and a mountain away in Italy.

Yet Bernasconi has a case. Otto Glaus, head of the team of architects that designed the airport, worked in Le Corbusier's *atelier* for a number of years. Against this, an ambivalent quality persists in Glaus's other works,

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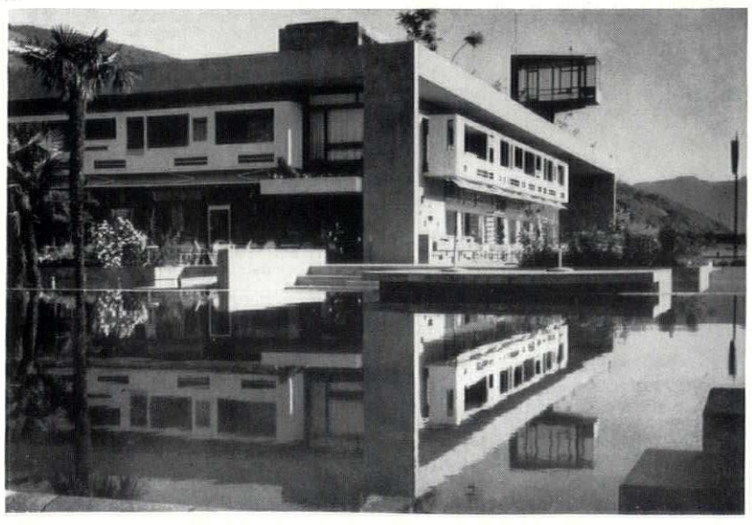



16

such as the Palazzo Ferrari in Chiasso, 16, which seems at first sight to be a sort of little *Unité*, yet again reveals the kind of geometrical fanaticism that again recalls the insistent facade-grids of Terragni and other Italians in the late thirties. Conceivably there will always be regional varieties of Corbism, but it is worth noting that many of the most satisfying and convincing aspects of Glaus's work are those that seem to owe least to *le grand Maître*, as witness the handsome staircase at Agno, 17, or the *sotto-portico* of the Palazzo Ferrari, 18. Could it be that within the Corbusian

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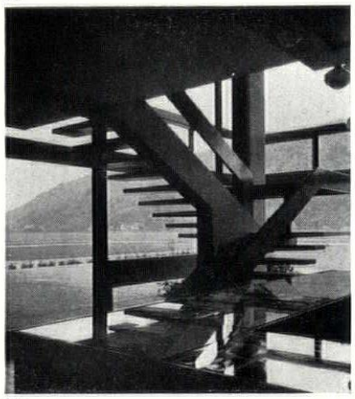


18

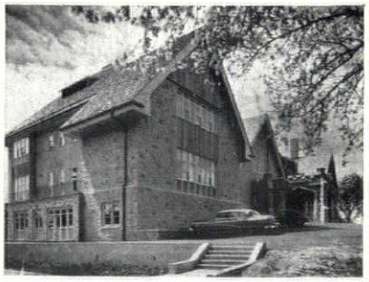


mannerisms there is an original designer fighting to get out, or is it still only a matter of some pervasive *genius loci* of Italian-speaking Switzerland that brings out some hidden strain of Lombardic geometry even in French-trained men with Tyrolese names? The answer probably waits on some solidly historical tome by a German or American art historian, whose aim will be to sort out the mere victims of the *Zeitgeist* from those who have deliberately followed in the steps of the Master—a book that will not be written—for obvious reasons of *amour-propre*—until at least fifty years after Le Corbusier's death.

OFFICIAL ECLECTICISM IN BC

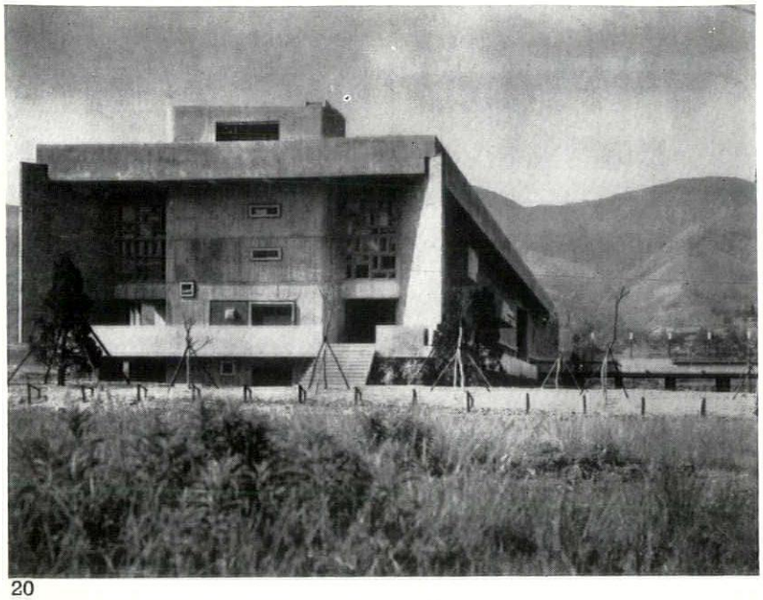
Lest the Commonwealth issue of the AR (October, 1959) should have given too rosy a view of architecture in the four temperate dominions, the illustration of Government House, the Lieutenant-Governor's residence on Vancouver Island, British Columbia, 19, will provide a valuable corrective. The credit [*sic*] for this remarkable design goes, apparently, to C. D. Campbell, chief architect to the British Columbia Department of Public Works, but it seems possible that his hand was guided, to some extent, by expressions of gubernatorial preference—which may account for the lack of persistence in any one particular error, since the back of the

19



house varies between Herts School Modern and Ragstone Odeonesque, and the kitchen, where function, rather than old-time Imperial symbolism, is the dominant, appears to be well-designed. The opportunity to build the new Government House arose through the most recent of a series of fires that have persistently destroyed houses on this site—the neo-Gothic porch is a survivor from an earlier structure—and one would have thought that this chain of coincidences might have inspired someone to demand a design less resolutely timbered and combustible, even if not to require something more visually expressive of British Columbia's part in the bustling and progressive life of the west coast of the North American half-continent.

JAPAN LOOKS WEST

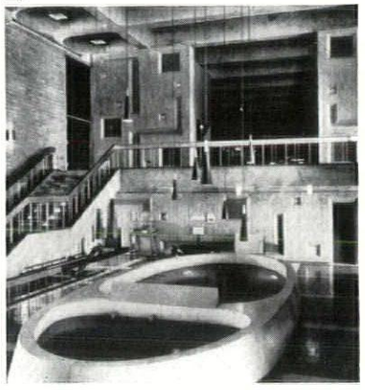


20

Japan is, by recent tradition, a mirror of disenchantment into which the western architect peers for an image of his own worst features—no European imitator of Le Corbusier could look on Motoo Take's Nagasaki Aquarium, 20 and 21, and preserve his conscience untroubled. But occasionally one finds distinguished Japanese architects taking up Western themes that have not been fully explored in Europe or the US, and putting them to work in ways that are completely convincing.

Thus, two of Japan's most serious and progressive architects, Kunio Maekawa and Kenzo Tange, have both recently investigated the plastic possibilities of something that has been left completely alone in Europe—the folded concrete walls of Nervi's conference block at Unesco, Paris. Neither has made an imitation of the original, but in both cases the affiliation is perfectly clear. Tange's is the public hall at Imibari, a free-standing block, 22, alongside his city hall there.

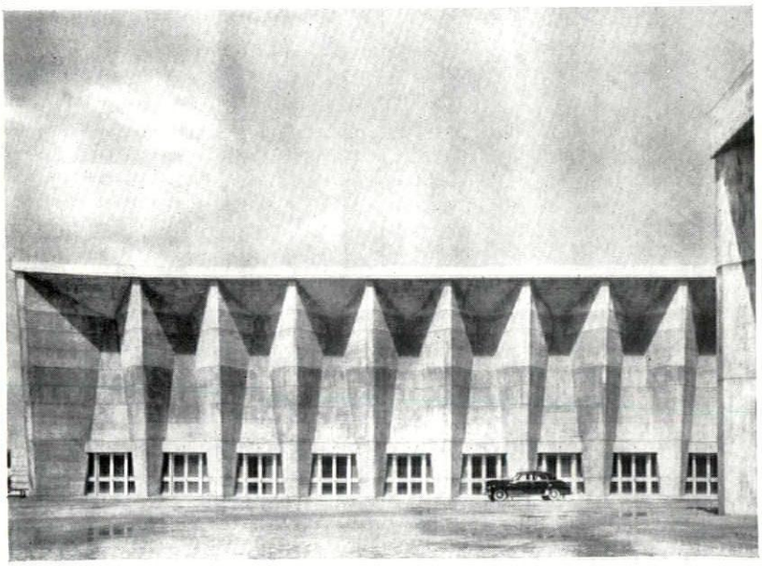
21

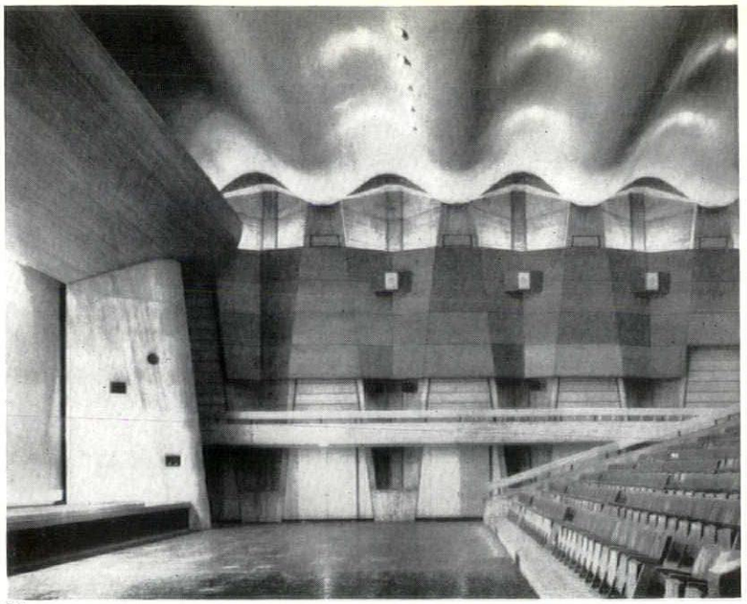


The corrugated structure is used to span the hall transversely, so that the rising rake of the auditorium seating climbs past the faceting of the inner face of the walls, as in 23—which also shows that Ronchamp has been laid under tribute for the side screens and acoustic canopy of a stage-front that is not to be described as a 'proscenium opening,' according to the account of the building given by Keiichiro Mogi in *Japan Architect* (October, 1959), since the whole thing clearly stands *inside* the main volume of the auditorium.

The Maekawa version is the Setagaya public hall in Tokio, less clear in its outward expression because joined directly to its ancillary buildings, but internally more clear than Tange's because there is less acoustic baffling on the side-walls, 24. Again, the corrugations of the structure run across the auditorium, but on the corners, one vertical corrugation is taken round on to the end wall, 25, thus solving a problem which Nervi, on Unesco, apparently chose to ignore—that of relating end-walls to side-walls.

22





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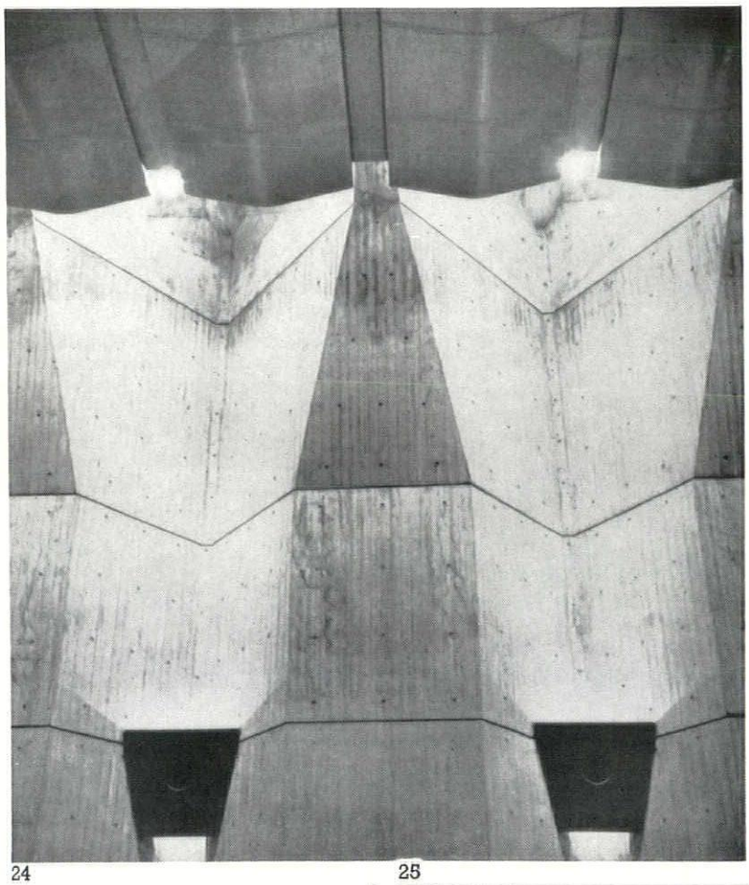

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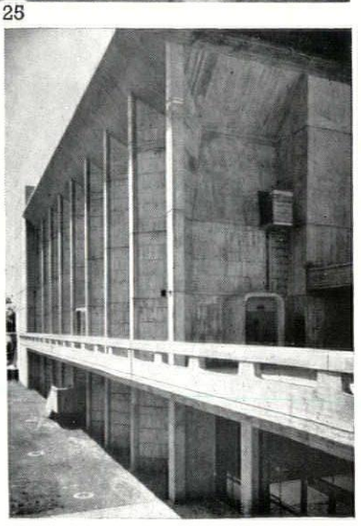


BOOK REVIEWS

OBJECTIVE HISTORY

A HISTORY OF MODERN ARCHITECTURE. *By Jurgen Joedicke. The Architectural Press. 45s.*

The first history—not prehistory—of modern architecture, Bruno Zevi's, came out in 1950. Date and author are equally characteristic. By 1950, at least in the minds of historians, the 1930's had joined the early years of the century in becoming history. One could look back at the so-called International Style (a term coined by Alfred Barr in 1932) from a sufficient distance and also from a viewpoint no longer within its territory. The Unité was under construction and Frank Lloyd Wright had moved from Falling Waters to the Guggenheim Museum. Its model of 1942 is the subject of the last illustrations in Zevi's little monograph on Wright, which came out in 1947. He is the hero in the *Storia dell'architettura moderna* too, a book both history and electioneering. The axe Zevi has to grind is not a rational but an organic tool. So one must not expect endeavour towards Ranke's objectivity in his fascinating, highly intelligent, bulky and badly illustrated volume.

Dr. Joedicke curiously enough seems to have no axe to grind. His book, well illustrated and not bulky, appears to be really objective. He divides his material into The Age of the Pioneers (familiar stuff this for Anglo-American readers); individual chapters on The Three Masters (Gropius, Mies and Le Corbusier); a group of chapters on extension and development, including De Stijl; the change from formal to informal planning; Alvar Aalto; the final achievement of skeletal construction in Lever House and Mies's late skyscrapers; and the new spatial conceptions of Maillart, Torroja, Nervi and Candela. The last part is surveys of national contributions. This is the least even part, and England e.g. is represented by a number of buildings an English author would hardly have chosen. However, Roehampton, Bryn Mawr, the Hertfordshire Schools, the Festival Hall and Coventry Cathedral are also duly illustrated.

In fact the book, with a few such reservations, is remarkably international. A little German bias does no harm, as the contribution of Germany to the history of the twentieth-century style is indeed considerable and the most recent German jobs illustrated are once more up to the best standards outside Germany.

The only reservation which is concerned with a general rather than a particular matter is the very consequence of Dr. Joedicke's objectivity. Can one really see Candela, the Sydney Opera House and Niemeyer's design for a museum at Caracas as part of the same style as the Bauhaus and the Villa Savoye, or are we watching the emergence of a mid-twentieth-century style, fantastical, anti-cubic and often anti-rational? And, if so, can Twentieth Century One and Twentieth Century Two be treated as one, without a determined caesura? I don't think they can.

Nikolaus Pevsner

INVERTED LEONARDO

MARCEL DUCHAMP. *By Robert Lebel. Trianon Press. 4½ gns.*

Among the 'documents photographiques' reproduced in Robert Lebel's book is a double portrait *à la* Picasso made in 1953. The profile suggests a Cartesian thinker or a Classicizing aesthete, the face of an Academician: the full face, grinning, suggests a joker who has just conceived a way of balancing a bucket of holy water on top of the pearly gates in time to catch the saints as they go marching in. In Duchamp's work the two aspects of the man are not so easily separable—the catalogue raisonné given by Lebel shows that the earliest surviving Duchamps are often cartoons with captions, and right through his work the titles of his pieces are (*a*) usually so long, and (*b*) so necessary to the works, that they still retain something of the caption quality—at least to the extent that they are nearly always puns, suggesting the kind of intellectual-visual pun that is the secret of most of his paintings, objects, machines.

But what, after that, is the status of his meticulously constructed mind-traps, the ready-made products wilfully elevated to the level of 'art'; the laboriously elaborated non-art creations like the Bride Stripped Bare, the optical illusions to be played on the gramophone, the preoccupation with chess? Is he a kind of inverted Leonardo (in some drawings the technique is identical, but the writing is right handed) for a perverse age, or is it all the projection of schizo's private 'other' world with only the clinical significance of a slip of the pen?

Lebel's book provides all the evidence, except the notes from the famous Green Box, but falls flat on interpretation. He is clearly no match for his subject matter in mental range and agility—for instance, he (or his translator) carefully signals every pun he recognizes, but fails to pick up such vital ones as 'Bagarre d'Austerlitz.' We still await the definitive Duchamp.

Q.S.C.

BOOKS RECEIVED

ART TREASURES OF GERMANY. Edited by Bernard Lohze and Harald Busch. B. T. Batsford. 84s.
THE CONSTRUCTION OF BUILDINGS, VOL. I. By R. Barry. Crosby, Lockwood and Son. 18s.
APPLIED BUILDING CONSTRUCTION. By A. Medlycott. Chapman and Hall. 25s.
SPECIFICATION WRITING. By Arthur J. Willis. Crosby, Lockwood and Son. 9s. 6d.
PICTORIAL HISTORY OF HEREFORD CATHEDRAL. By the Very Rev. H. R. Burrows. Pitkin. 2s. 6d.
PICTORIAL HISTORY OF WORCESTER CATHEDRAL. By the Very Rev. R. L. P. Milburn. Pitkin. 2s. 6d.
OUR ARCHITECTURAL CONFUSION. By Louis Labeaume. Vantage Press. $3.00.
THE WORK OF THE PUBLIC HEALTH ENGINEER. By L. B. Escritt and S. F. Rich. Macdonald and Evans. 75s.
PSYCHIATRIC ARCHITECTURE. Edited by Charles Goshen. American Psychiatric Association.
THE DESIGN OF SHELLS. By Albin Chronowicz. Crosby, Lockwood and Son. 42s.
LAND-USE PLANNING. By Charles M. Haar. Little, Brown and Co. $10.00.
ARCHITECTURAL MODELLING AND VISUAL PLANNING. By Norman G. Taylor. Cassell. 15s.
ADVERTISING IN MODERN LIFE. By John Gloag. Heinemann. 10s. 6d.
REGINALD FAIRLIE. By Patrick Nuttgens. Oliver and Boyd. 21s.
URBAN MOTORWAYS. British Road Fund Report. 55s.
HUDSON'S BUILDING CONTRACTS. By E. J. Rimmer, Q.C., and I. N. Duncan Wallace, M.A. Sweet & Maxwell. £4 4s. net.
FURNITURE. An Explanatory History. By David Reeves. Faber. 25s.
HEATING AND VENTILATING. New revised edition by Oscar Faber, revised by L. N. Doe. E. & F. N. Spon. 30s. net.
DER RAUMSATZ. Neue Gestaltungsprobleme der Architektur. By Wolfgang Th. Otto. Deutsche Verlags-Anstalt Stuttgart. Dm. 32.
OLIVETTI, 1908–1958. By Ing. C. Olivetti & C., S.p.A., Ivrea. Italian parent company of British Olivetti Ltd.
ELEMENTARY BUILDING CONSTRUCTION. By J. H. Mitchell. B. T. Batsford. 18s. net.
UMBAU DER STADTE. By Wilhelm Seidensticker. Vulkan-Verlag Dr. W. Classen, Essen.
PAUL RAND. His work from 1946 to 1958. Edited by Yusaka Kamekura. Alfred A. Knopf, New York. $13.50.
THE SCULPTURE OF THE PARTHENON. By P. E. Corbett. Penguin Books. 5s.
CO-OPERATIVE ARCHITECTURE, 1945–1959. Co-operative Wholesale Society Ltd. 25s.
TECHNICAL COLLEGES AND COLLEGES OF FURTHER EDUCATION. By Barbara Price. B. T. Batsford. 75s. net.
LIGHTING IN ARCHITECTURE. By Kihler and Luckhardt. Reinhold (sent by Chapman & Hall). 120s. net.
AIRPORTS FOR JETS. By John E. Peterson (Major, US Air Force). American Society of Planning Officials. $2.50.
GUIDE TO THE RIBA FORMS OF CONTRACT. By Donald Keating. Sweet & Maxwell. 30s. net.
ADVANCED STRUCTURAL ANALYSIS. By S. F. Borg and Joseph J. Gennaro. D. Van Nostrand Company. 56s. 6d.
THE SYNTHETIC VISION OF WALTER GROPIUS. By Gilvert Herbert. Witwatersrand University Press, Johannesburg. 19s. 6d.

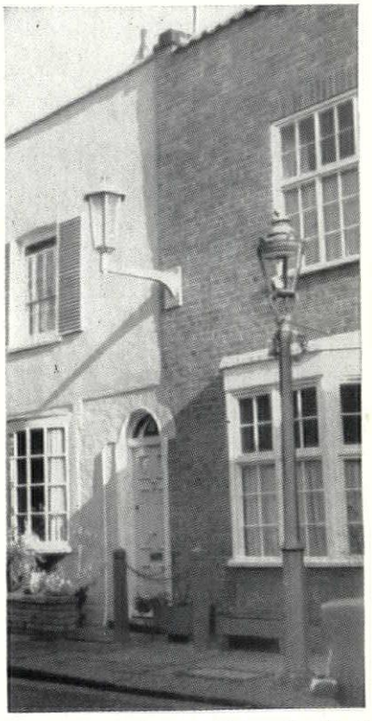
MARGINALIA

THE LIGHTS OF GODFREY STREET

For reasons which might well provide a historian of taste with the subject of an elegant and amusing *feuilleton*, street lighting now seems established as one of the accepted grounds for that form of skirmishing over amenities that is rapidly adding a new dimension to local-government democracy. Not only have new lamp-posts provided old actors and young exhibitionists with useful publicity, but they have also provided some just causes on which the techniques of *Counterattack* have been extended and perfected.

A case in point is provided by the bracket lights in various parts of Chelsea, particularly in Godfrey Street. For many close-built urban areas, as the AR has frequently pointed out, lights bracketted from street-side buildings are preferable to free-standing posts. Equally, there are many areas where the existing lighting is inadequate for present traffic movement, and an improved service is a justifiable ambition for a borough engineer. But to put up ill-conceived brackets in quiet residential areas where traffic only dubiously required an increase in lighting levels, and where there is existing gas equipment in scale and in keeping with the townscape, and capable of modification, 1—all this requires the sort of action that only a special-interest local lobby can produce.

Whether the action of the Godfrey Street Residents' Association will



1, *disputed street lamps in Chelsea—in spite of the fact that they are spending over* £80 *each on new standards elsewhere the Borough Council insist that the existing gas standards would be too expensive to convert, and are proposing instead, not only the bracket shown here, to which residents object, but have also put up some jury-rigged, wire braced brackets on corner sites.*

lead to any worthwhile results remains to be seen—they are having to fight their way through the usual smoke-screen of references-back, inter-departmental contradictions (with the interesting addition of contradictions between the legislative and executive sides of Chelsea Borough Council), alternative designs of doubtful standing since the original has been ordered in bulk already, and the sneak erection of yet other designs (or non-designs) not mentioned in the original proposals. One looks forward with apprehension to the outcome of the battle, if only because Chelsea has some reputation to keep up in matters of taste and visual design.

COUNTRY-HOUSE TYPOLOGY

In the July, 1959, issue of the *Journal* of the Royal Society of Arts,* there

*5s. from R.S.A., John Adam Street, London, W.C.2.

appeared a document that deserves wider circulation among historians and students of architectural history than the RSA's modest vehicle can afford, since the reprinting therein of Sir John Summerson's three Cantor lectures on *The Classical Country House in Eighteenth-Century England*, introduces a new method into the study of eighteenth-century architecture. Work on that century, as he points out in his first lecture, has been dominated by the study of leading personalities, not of dominant building types (one might add that this is in marked contrast to the study of the succeeding century, which has been dominated by the study of types, such as railway stations, iron-framed factories, skyscrapers, etc.). 'Nobody, I believe, has attempted to estimate the number of country houses being built, the amount of money being spent on them, or their distribution throughout the kingdom—elementary desiderata, surely, if country-house building is to be considered historically, and essential if changes in architectural character are to be properly observed.'

Though this statistical and documentary approach may dismay those who have particular idyllic visions of the 'Century of Taste' to cherish, the results it produces are fascinating and do—in fact—support the superficial impressions that are likely to be gleaned by the plain blunt observer doing the 'Country House Circuit.' Thus the general, but unsupported, assumption of a sudden splurge of Palladian building activity on country estates is fully justified by the figures, which show fifty substantial houses put in hand between 1720 and 1724, against an average of twenty for any comparable five-year period between 1710 and 1760.

On this secure basis Sir John is soon deeply involved in the nature and progress of the Palladian Boom—including the problem of which came first, the Palladianism or the Boom—too deeply involved for short summary here. But as his story unfolds and works its way through the century, other themes arise that provoke thought. One is the emergence of the gentleman-architect, whom he shows not to have emerged *as a type* (Sir John's italics) until the middle of the century—of the 42 ascertainable architects of major houses before 1740, seventeen held office under the Crown at some time, sixteen were masons with contracting businesses, and only six genuine amateurs.

Again in his third and last lecture, Sir John tackles a problem that sticks out like a sore thumb—once you have noticed its existence: the emergence of the Villa as the dominant country house type of the middle and late eighteenth century. The reason why this conspicuous development is so little observed appears, on Sir John's showing, to be partly semantic—the word *villa* does not appear in its present sense of a particular kind of compact house until 1750 (Robert Morris) and 1752 (Horace Walpole), and it was not until 1793 that a description of the villa as a functional and social *type* was to appear (Charles Middleton). Somewhat in concordance with this, villas—though existing as a building-type from the Palladian Twenties onwards, and enjoying a 'revival' in the Fifties—do not finally emerge as the preferred vehicle for country house design until the early seventies, and then rapidly become also a vehicle for what Sir John calls 'the architect's vanity,' as the classical certainties dissolve into the stylistic extravagances of Romanticism.

PICCADILLY ENQUIRY

A collision, at the highest level, of commercial, architectural and legal interests in urban re-development in England has long been anticipated, even if the nature of a suitable *cause célèbre* could not be predicted. In spite of a long preliminary rumble of almost a year, few would have anticipated that the north side of Piccadilly Circus, currently a visual slum partly redeemed by some of the best electric advertising on this side of the Atlantic, would be the point where the storm would finally burst. Yet it was a proposal by a constellation of commercial parties—Island (Piccadilly) Development Ltd., City Centre Properties Ltd. and the Legal and General Assurance Society—to erect a tall building on what is known as the Monico site, the largest block on the north of the Circus, to the designs of Cotton, Ballard and Blow, that finally stirred public opinion to such an outburst that the Minister of Housing and Local Government called in the scheme in accordance with his powers under the Act of 1947, and instituted a Public Enquiry.

As a result, most of the leading figures in British town-planning thought and architectural theory were called to give evidence—nearly all on the opposing side—and any number of current theories were subjected to the full and—in many cases—pointless test of microscopic legal cross-examination. One of the reasons why so much of the cross-examination was pointless was the person to whom it was addressed—forensic rhetoric and the scoring of debater's points might possibly sway a jury of twelve good (inexpert) men and true, but not a Ministry inspector with a BSc, AMICE, ARIBA and MTPI after his name and a first-class book on traffic problems to his credit (*Mixed Blessing*, reviewed in AR, October, 1958).

Indeed, the Inspector, Colin Buchanan, emerged early as one of the heroes of the enquiry, patiently trying to winkle out facts—especially in attempting to establish who was ultimately responsible for the design of the building as presented to the enquiry. The outcome was something of a dusty answer, but a revealing one, in that it confirmed what had long been suspected. No one person designed it—or, at any rate, no-one whom the developers were prepared to call in evidence. The design, it appeared, 'just growed' (to employ the phrase that was inevitably used by learned counsel) out of suggestions and counter-suggestions made by the developers and the London County Council as planning authority. A reading of the evidence gives a fair view of the quandary in which such a local authority finds itself in trying to assure that development does, in fact, take place but, at the same time, does not fall below certain minimum aesthetic and town-planning standards. The only pity is that the LCC failed to make a more positive case for itself, while succeeding, only too well, in giving the impression that it was prepared to jettison the idea of comprehensive re-development, when hard pressed.

Opposition to the proposed building was marshalled under the legal umbrella of the Civic Trust—so well marshalled, and so unanimous that counsel for the developers endeavoured to prove the existence of an organized conspiracy against the scheme and a 'smear campaign' against the architects, whose precise position vis-à-vis the development company appeared to give grounds for further elucidation, by the Architects' Registration Council of the proper relationship between architects and developers.

Nevertheless, the unanimity of opposition was remarkable, and represents one of the biggest stirrings of architectural conscience in Britain since the bitter campaigns of the Thirties. Not only could the Civic Trust call on witnesses as eminent as Sir William Holford, Thomas Sharp, Robert Furneaux Jordan, J. M. Richards, David Aberdeen, Richard Sheppard, Denys Lasdun, Miss Jane Drew and H. T. Cadbury Brown, but the latter could also produce a letter of protest signed by fifty-two architects whose eminence was not questioned by the developers' counsel. In addition, a distinguished peer, the Royal College Students' 'Anti-Ugly Action' Society, and others were also available in evidence.

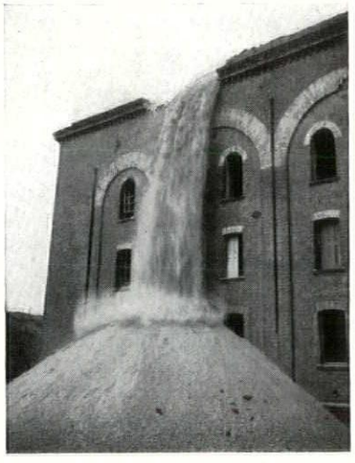
The general tenour of all objections will hardly come as a surprise to readers of Kenneth Browne's feature on Piccadilly Circus in the June, 1959, AR—that comprehensive re-development was needed to provide proper disentanglement of pedestrian and vehicle circulation, and to maintain and enhance the character of the Circus (including the illuminated advertising) as a place of popular resort and pleasure. The Minister's final decision is awaited with the most acute interest.

CORRESPONDENCE

BRICK CLIFFS OF DOVER

To the Editors.

SIRS,—I should like to draw your attention to an article in *The Dover Express and East Kent News*, dated November 20, 1959, describing the demolition of South Front Barracks on the Western Heights at Dover. I referred to these works in my article *Brick Cliffs of Dover* (AR, March, 1959) but the point I wish to raise here concerns the justifications offered for demolishing them.



2, *earth and stones cascading from the roof of the South Front Barracks in course of demolition (from the* Dover Express and East Kent News .

The South Front Barracks is just one hundred years old. It may seem a rather 'precious' opinion to adopt, but I feel that this building, together with the remainder of the Napoleonic Fortifications at Dover, represent a unique historical monument in this country to a particularly interesting period of military history. The fact that this period occurred barely a century ago, has presumably precluded this building from being 'Listed' by the Ministry, for I am sure that if the South Front Barracks had somehow managed to survive for another hundred years, its true value, and that of the Fortifications, as an example of a particular form of military engineering, would have been recognized. In the United States, buildings of a similar nature are carefully preserved as museums, and their surrounding moats transformed into grassed walks. The South Front Barracks is moreover an excellent example of the Functional Tradition, the thick brick cross walls and barrel vaults being clearly expressed on the façades to form a design reminiscent of some Florentine palazzo.

The War Department's decision, no doubt arrived at purely on economical grounds, is to be deplored, for the basic structure of this building, whilst possibly of no practical use, is still quite sound, and could have been left intact to form, together

with the miles of brick-faced moats, an awe-inspiring monument of considerable and peculiar grandeur, fully comparable with the Norman castle nearby.

It is to be hoped that the War Department's decision in this case will not form a precedent for the remainder of the Fortifications.

Yours, etc.,

JOHN PEVERLEY.

London, W.1.

HEADSTONE ART

To the Editors.

SIRS,—'Churchyard outrage' such as that at Scarborough, AR, November, 1959, seems in danger of becoming the rule rather than the exception—and in the process many sepulchral monuments of excellent design are being destroyed without record. With the inevitable factors of weathering and lack of upkeep added to such a threat, this heritage of carving may well become extinct within the next century, together with the craftsmen responsible.

As some stones weather worse than others, certain localities are badly affected. To quote one case in particular. Many of the Forest of Dean headstones suffer from surface shaling and are illegible, yet the better preserved (worked by such masons as the Laughtons, Hobday, Wheeler and Ballard in the vicinity of Evesham) are among the finest work of the early nineteenth century.

The neurosis for tidying churchyards seems to have developed from the initial difficulty of finding and paying for labour to keep down churchyard grass—in combination with a contemporary 'fad' for the lawn cemetery. By a process of illogic it now appears more correct to many local authorities to achieve an arid grass plain by the abolition of the older monuments—rather than to record, preserve and maintain them as part of the church and village social history.

With regard to Bury St. Edmunds (AR, October, 1959) it was a suggestion of mine that on the clearance of the Abbey Garth, the tombs of the Steggles and De Carle families could be retained out of respect for these craftsmen, who had made a visible contribution to the town's fabric in past days. The latter family, for instance, as statuaries, produced admirable tablets and gravestones throughout East Anglia, having workshops at Norwich, Bury St. Edmunds, Ipswich and Ballingdon (near Sudbury), and as builders worked on several country houses designed by Sir John Soane; one of their account books describing the difficulty they had in setting-up the portico at Ickworth House, and their relations with other craftsmen working on the building. The invidious status of gravestones in churchyard law makes their upkeep reliant on goodwill, rather than duty. Only 'informed opinion' by registering active complaint when each particular case of destruction is mooted, can prevent it becoming a 'fait accompli.' I have been compiling an illustrated biographical index of the older gravestone-cutters for several years, and signed monuments (less rare than is commonly supposed) are invaluable items in resurrecting such past craftsmen. I should welcome any factual descriptions of churchyard monuments known to readers to assist this task.

Yours, etc.,

FREDERICK BURGESS.

Reigate, Surrey.

OBJECT ON VIEW

To the Editors.

SIRS,—May a museum curator take issue with Mr. Michael Brawne's article 'Object on View' (AR, November, 1959)? The author is not the first of his profession to imagine a museum as a glorified art gallery.

The body of curatorial opinion would, I am sure, endorse that while the utmost taste is required in both activities, the function of a museum is primarily the conservation of knowledge, and arising out of this its interpretation to the visitor. Hence the first need of a museum is space for the conservation and housing of its accessions; birds must be stuffed before they can be exhibited, pottery repaired, and metalwork cleaned.

It is not sufficient merely to produce a dramatic display. The general visitor understands little or nothing from a Norman carving clamped on a wall. It is the museum's task to present such a specimen as part of the cultural heritage of the period, not just with a label but by getting the atmosphere so lamentably lacking on those sterile walls of your illustrations where even simple labels are conspicuous by their absence.

In England, where we do not, as in most European museums, impose a charge which deters all but the connoisseur, protection against dirty hands and dirty air is a constant problem which cannot be set aside in the interests of idealism. We have not here a legacy of whitewashed palaces, but one of monumental edifices which claim in their own right a place in our history and are in any case unlikely to be rebuilt for many years to come.

And before embarking on 'cultural centres' there are one or two little matters of staffing, finance and control which need serious thought from the curator's point of view.

Yours, etc.,

D. T-D. CLARKE,

Keeper of Antiquities, City of Leicester Museum and Art Gallery.

Mr. Brawne replies—

Mr. Clarke is of course right in saying that a museum must look after its accessions, but that ought never to become its primary purpose. A motor-car exists to provide transportation, not to be kept in mechanical repair, however necessary—or intriguing—an occupation that may be. Nor do I disagree that objects should be related to their cultural background; I would only again question whether the museum is necessarily the best means in a period when other media are readily available, particularly since such elaborate associations may nullify the museum's one trump card: immediacy.

I have no grounds for believing that the ticket-paying tourists of the Italian palazzos have cleaner hands than the freely admitted citizens of Leicester, nor that cultural centres are premature. Mr. Clarke may find that if museums became more relevant to the community, problems of staffing, finance and control might also appear easier.

COMMONWEALTH ISSUE

To the Editors.

SIRS,—The attention of the Central Council of the Institute of South African Architects, the governing body of the architectural profession in the Union of South Africa, has been drawn to the October, 1959, Commonwealth issue of THE ARCHITECTURAL REVIEW.

I am directed to inform you that grave exception is taken:

(i) To the political criticisms appearing on pages 174 and 176 in the article headed 'South Africa' (unidentified as to its authorship);

(ii) To the unfairness to Mr. W. Duncan Howie, a leading member of this Institute, who, because of the editorial indebtedness expressed at the foot of your Contents page, is very wrongfully and painfully associated with the political criticisms referred to.

I am directed also to ask you, as a matter of professional honour, to notify your readers of the factual position so as to remove from their minds, the extremely serious misapprehension that has been created.

Yours, etc.,

J. S. LEWIS,

Registrar, Institute of South African Architects.

Johannesburg.

To the Editors.

SIRS,—We greatly appreciate the reference to the National Building Code of Canada in the article describing building practice in Canada which appears on pages 218 and 219 of your October issue. Unfortunately the article's description of the Code as having been 'adopted in only limited areas' is incorrect, since the National Building Code is now used in one form or another as the building regulations for more than half the urban population of this country, and its use continues steadily to increase.

We are sure you would wish this reference to be corrected.

Yours, etc.,

ROBERT F. LEGGET,

Chairman, Associate Committee on the National Building Code, National Research Council of Canada.

Ottawa.

INTELLIGENCE

The firm of Grounds, Romberg and Boyd, of Melbourne, Australia, has been chosen by the Pacific Chapter of the American Institute of Architects to receive the second Pan-Pacific Architectural Citation for 'work of exceptional merit in the Pacific Area.' This office was responsible for the Academy of Science building in Canberra and other buildings in the Commonwealth issue of the AR (October, 1959), and Robin Boyd has contributed several articles to the AR.

The Queen has approved the award of the Gold Medal of the Royal Institute of British Architects for 1960 to the distinguished Italian architect-engineer Pier Luigi Nervi.

The International Union of Architects has given its approval to the conditions published for an international competition for the development of the city of Tunis, including the design of a palace for the President of the Tunisian Republic. The first prize is 5,000 dinars, and the closing date is October, 1960.

CORRECTIONS

The following corrections should be made in the texts of the special issue of the AR *Commonwealth* I (October, 1959):

P. 151, the reference to John 'Fussler' should read 'John Fassler.'

P. 159, credit for the Belly River Bridge, Alberta, should go to the Bridge Branch, Department of Highways, Government of the Province of Alberta, and not to the Toronto City Highways Department.

P. 175, the view shown in illustration 3 is of the Cape Peninsula, not of Cape Province.

P. 176, illustration 6 shows the Groote Kerk in Cape Town, not Pretoria as stated.

P. 187, Cape Town Medical Centre should be credited to Tribelhorn and Louw, and N. F. Lubynski.



The façade of the Palazzo Spada in Rome—Mannerism foreshadowing Baroque exuberance—as it appears in one of the plates in Georgina Masson's *Italian Villas and Palaces*, discussed by Dr. Peter Murray in the article opposite.

Peter Murray

CAMPAGNA E CITTÀ

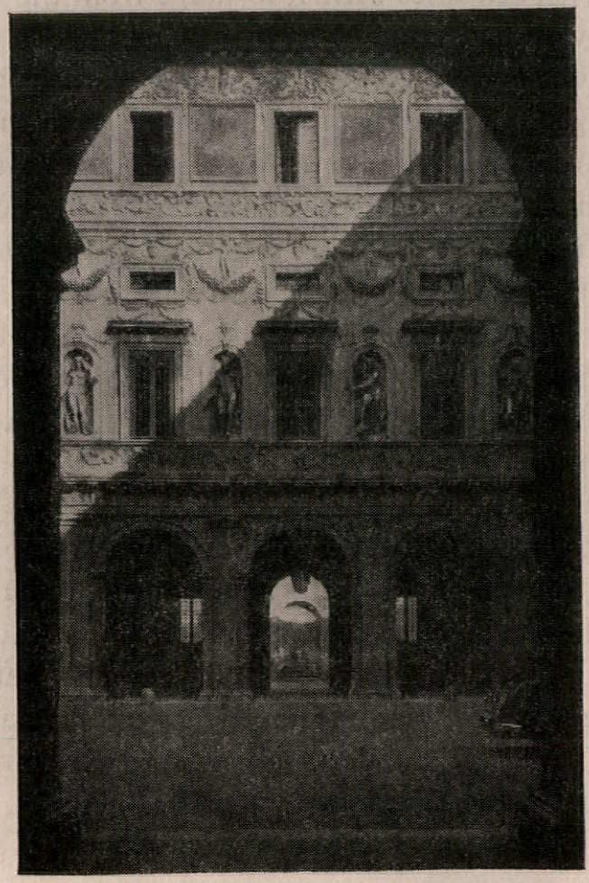
Petrarch, it is said, was the first man in modern times to climb a mountain for the sake of the view. This event took place about 1340, but it would not have seemed anything to make a fuss about some thirteen centuries earlier, to judge from the descriptions in the Letters of Pliny the Younger, who had a highly sophisticated taste in villa design and a very keen eye for the possibilities of a site. At about the time when Petrarch was climbing his mountain the Italians in general were becoming more aware of their classical heritage and were also working their way back to a conscious and sophisticated pleasure in domestic architecture, resulting in the villas and palaces that Georgina Masson describes in her recent splendid book* of nearly two hundred architectural photographs. 'Villas and Palaces'—the very words are Italian, and it is no coincidence that the ideas as well as the things spread out from Italy in the late fifteenth and sixteenth centuries until the Baroque palace and villa had conquered the whole of Europe. Villas had been built all over the Roman Empire, but they were forgotten and buried in the Dark Ages and the ideas had to be rediscovered and reimposed.

The Italian aristocracy never managed to attain to any of the feudal powers of their Northern cousins and a predominantly mercantile society naturally developed a highly organized urban life, with most of the political power in the hands of the traders. Florence, for example, was virtually ruled by the heads of the seven Greater Guilds, to whom the *Ordinamenti di Giustizia* of 1293 gave political power. The ruling families were naturally the principal members of the Arti Maggiori and their intermarriages equally naturally produced a fairly large number of very well-off families, all engaged in commerce and therefore settled in the town, where they built semi-fortified public buildings, such as the

* *Italian Villas and Palaces*. By Georgina Masson. London: Thames and Hudson, 1959. Price, 84s.

Bargello or those Palazzi del Comune still to be found in every Italian town, and also semi-fortified palaces for themselves. The fortification was made necessary by the not infrequent rioting of the *populo minuto*, denied any other form of political self-expression, and the typical palace was soon evolved to meet some fairly specific needs shared by a relatively large number of people.

The classical *insula* block was adapted, since the value of land made it necessary to build high, opening on to a central court for light and air, and the enclosed court meant that the whole building could be barred against rioters, for days on end if necessary. Since all the owners carried on some form of business the entire ground floor was given over to it, but the floor above was used for the living quarters of the family. It was insulated from the heat and noise of the street by the ground floor below and by one (or more often two) storeys above, hence the name *piano nobile*. The less desirable upper storeys were occupied by the children or other relatives of the owner, the servants and the apprentices in the business, and sometimes there was an open loggia on the top floor, shaded by the strongly projecting eaves. This is the type of Florentine palace, established in the fourteenth century in such examples as the Davanzati, and carried to great heights in the fifteenth century in the Medici, Ruccellai, Pitti and Strozzi Palaces. This essentially Florentine type was the first to be established and was modified in such masterpieces as the palace unit by Federigo da Montefeltro at Urbino or even the Palazzo della Cancelleria in Rome, until it was more or less superseded by the High Renaissance type developed in Rome in the early years of the sixteenth century, first by Bramante and then by his pupil Raphael and his pupil Giulio Romano. After the sack of 1527 the Bramantesque ideal was carried all over Italy in many modified forms, even as far as Venice where we can see the struggle to marry the traditional form evolved to meet the special needs of building over water, with the new desire for order and symmetry even at the expense of function (a case in point is what happened to the windows of the Venetian *gran salone*). By the seventeenth century a fairly uniform Baroque palace type had been evolved—compare such relative extremes as the Palazzo Barberini in Rome and the Palazzo Rezzonico in Venice—and this lasted until the politico-architectural effect of Versailles made its impact and made it psychologically necessary for the bankrupt Kingdom of the Two Sicilies to indulge in the great barracks of the Royal Palace at Caserta.



Courtyard of the Palazzo Spada. This and the photograph opposite are reduced from plates in Georgina Masson's Italian Villas and Palaces.

In a country in which sophisticated—and noisy—town life was so early developed it is not surprising that Petrarch should have climbed his mountain to enjoy the solitude and the view, and the idea of a villa as a country house to retire to from the cares of the family business in town, for learned and pleasant conversation, and as a refuge from that concomitant of town life the plague, very soon found favour. It had other recommendations too, for it is an idea traceable back to Roman times and was therefore fashionably antique; even better, there was no reason why some of the family capital should not be sunk into it to make it self-supporting and able to provide the town house with wine, olives and corn. The Villa Urbana described by Pliny in his two letters on his own villas at Tuscum and Laurentum is of this type, for much of the description is devoted to the farm quarters and the needs of the animals. Alberti gave an exposition of this sort of building, based on Pliny and Vitruvius, but the Renaissance villa was rather more luxurious—or more in keeping with the passages in Pliny describing separate suites of rooms for summer and winter, or to match the mood of the owner—and is best exemplified in palatial buildings like the Te at Mantua, not meant to be lived in but only places to spend a hot day. The Villa Giulia in Rome is another example of this kind of superb country palace; but this is not the Italian villa from which the English country house is descended, and of which many thousands still exist in Italy. This villa was really the creation of Palladio and his followers in the Veneto, re-creating practical farms for practical Venetians in what he conceived to be the antique manner, complete with temple front and the full panoply of the Orders.

As one might expect, the great Princes of the Church built themselves superb villas in the country



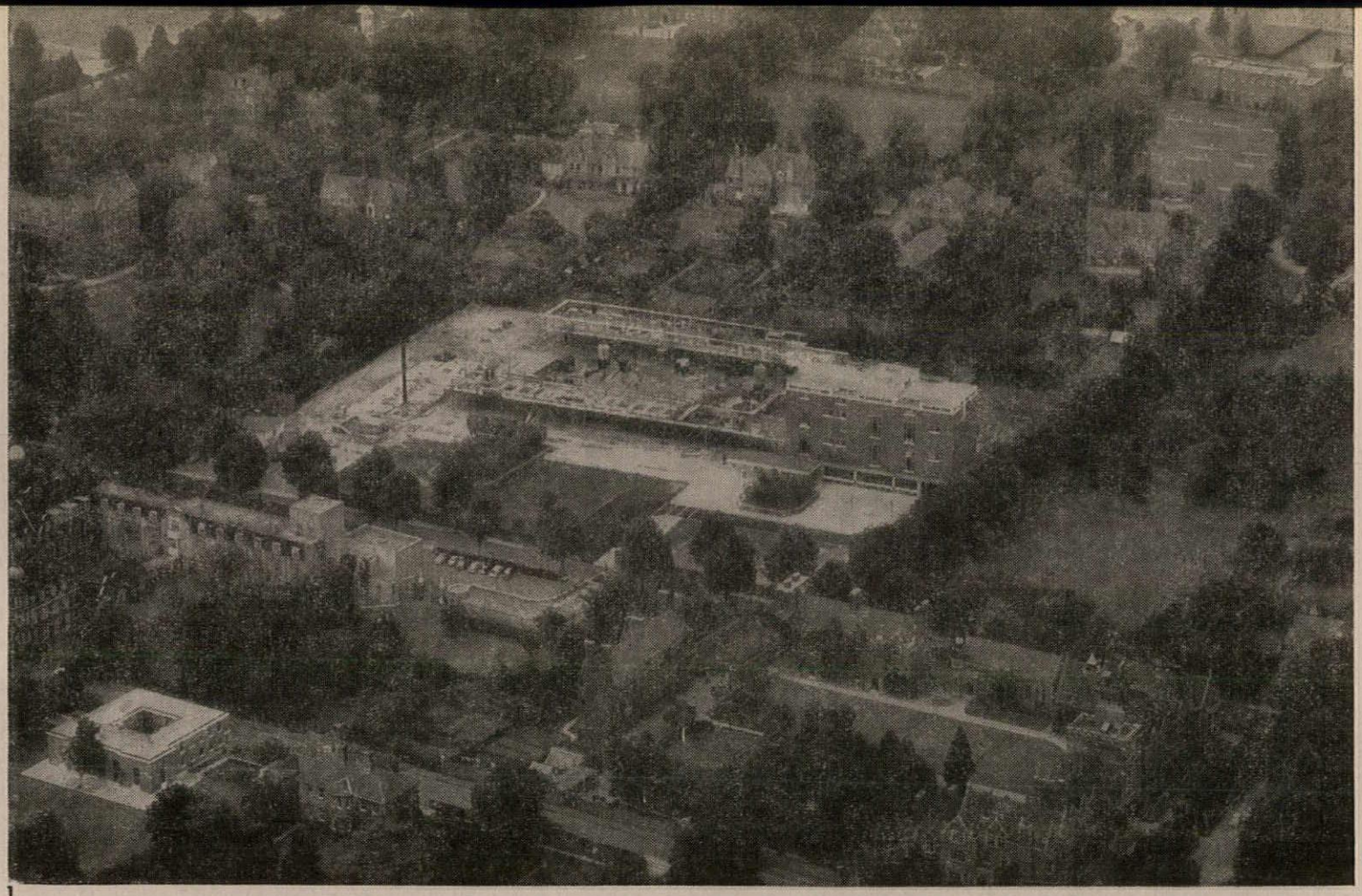
Great loggia of the Villa Madama, Rome

round Rome, at Tivoli or Frascati, and perhaps the grandest of them all was the villa at Caprarola, near Viterbo, built mostly by Vignola for the wealthy and powerful Farnese family, who already owned the largest and grandest of the Roman Palaces, on which Michelangelo himself worked.

Miss Masson has produced a book on this subject that will give great pleasure to everyone who loves Italy, or architecture, or both. She has taken some of the finest architectural photographs I have ever seen, for it is clear that she knows what to look for as well as how to make it come out on the film with all the angles and perpendiculars miraculously undistorted (she uses a 25-year-old Rolleiflex). She has chosen 193 of these photographs and her publishers have reproduced them very well in photogravure and on a generous scale. Her book is divided into five parts, preceded by a brief introduction, on Liguria and Piedmont; Lombardy; Venetia; Emilia, the Marche, Tuscany; Lazio and the Kingdom of Naples, followed by a bibliography and index. Each section has a map, a very brief introduction and then short but informative and up-to-date notes on the plates (the notes are particularly good on the present state of the buildings). The text pages are kept separate from the plates—which have no captions—for economic reasons, since this allows one set of plates to be printed for any number of languages; it does not, however, explain or justify the use of different colours of paper for each of the text sections.

The photographs themselves are so good that one has no wish to quarrel with the text, but one cannot help feeling that such a book as this ought to have a large number of plans (preferably one of every building) and that the buildings themselves ought to be illustrated in full as well as in detail—for example, Urbino has five plates but not one is of the exterior or of the Court, the supreme glory of the Palace; while the Villa Giulia, one of the most important and influential of all Italian villas, is represented by three plates but in only one do we even catch a glimpse of the villa itself*. Pienza is not represented at all and the Villa Imperiale at Pesaro has only two plates of details of the wall-paintings, which would be excusable in the case of Maser. In other cases there are too many important buildings crammed on to one page—eight photographs of the Palazzi Quaratesi, Antinori, Strozzi, Medici and Ruccellai are given only two pages—while beautiful but insignificant details like the peacocks on p. 20 get a whole page to themselves. The juxtaposition of names of the Florentine palaces given above leads to my final criticism, for they are arranged in that order without any regard for chronology and the arrangement of the regions themselves seems equally arbitrary, except in the sense of working down the map. Perhaps Miss Masson took many thousands of photographs and then selected these as the best of them; if so, she is to be congratulated on her skill and sensibility, but the art historian cannot help waiting for the day when she is commissioned by an enterprising publisher to take unlimited photographs for a book on Italian architecture with a text and notes arranged on strictly historical principles.

*** Miss Masson's note on the Villa Giulia by a slip ascribes Vignola's share to Ammanati and vice versa.**



1

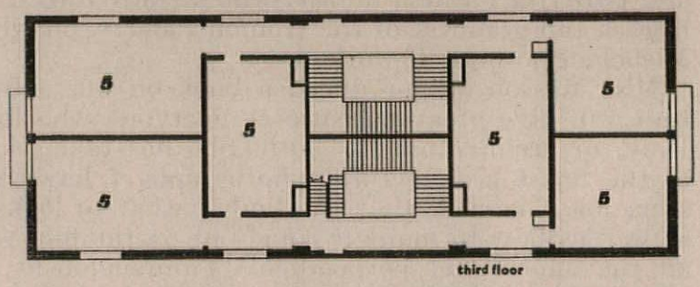
UNIVERSITY LECTURE-HALLS, CAMBRIDGE

Architects | ***SIR HUGH CASSON, NEVILLE CONDER AND PARTNERS***

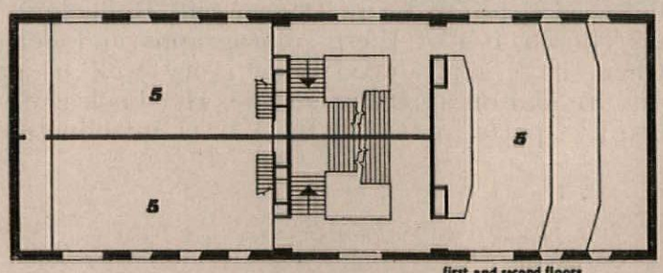
This is the first major building on the Sidgwick Avenue site, following the development plan prepared by the same architects in 1952. The whole site is shown in the air-view, 1 above, taken from across Sidgwick Avenue. On the near side of the Avenue is Newnham College with (bottom left-hand corner of the picture) the new principal's house by Louis Osman (AR, February, 1959). At the left-hand edge of the picture is Selwyn College, and at the top edge the base of the University Library.

Alongside the lecture-halls, the second major building, the U-shaped Faculty and Library building, can be seen already under construction. Between this and Selwyn College is the site of the Politics and Economics building, to begin this year and previewed last month.

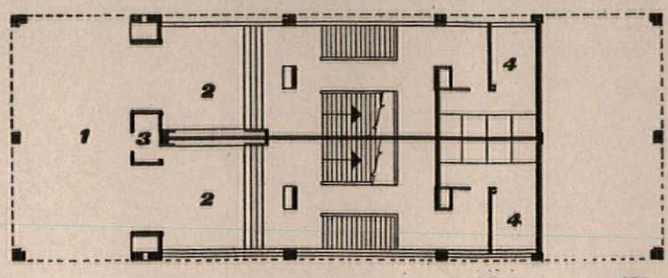
The completed lecture-hall block will be the tallest on the site. Although at present it is fully visible from all sides, in a few years' time other buildings will be seen against it and will interrupt some of the present views.



third floor

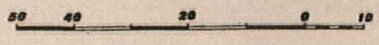


first and second floors



ground floor

key
1, portico
2, entrance hall
3, porter
4, cloakroom
5, lecture hall



2, from the south-east; 3, from Sidgwick Avenue (south-west view), with the scaffolding of the Faculty and Library building, now under construction, on the left.

The development plan presupposed that the higher part of a building on this site would be seen over and beyond other buildings but that the lower part would eventually only be seen obliquely from the south-west or at close quarters from the busy cycle parks around its base. The skyline is therefore important from all directions but the surface modelling of the mass has been considered particularly in relation to close oblique views. The building is deliberately massive and, in its main wall areas, rather neutral and tough in character so that it will act as a foil to other buildings—notably Little Hall, for which it will serve as background, and the raised Faculty Building, which is contained by this block and the future building for the Faculty of Economics and Politics.

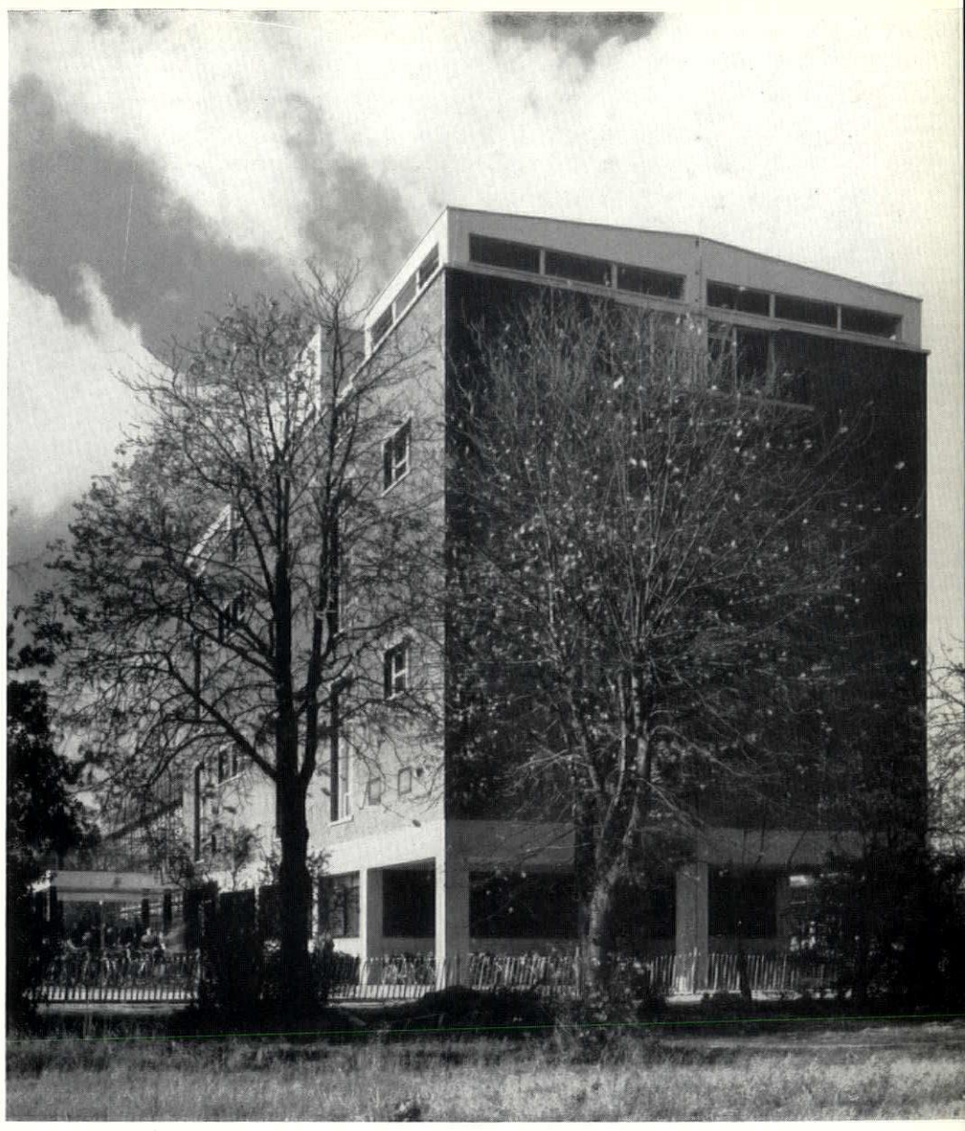
The total accommodation required in the lecture-hall building was two halls each seating 150 people, two each seating 100, two each seating 50 and four each seating 25; also cloakroom and lavatory accommodation for 900 (this has been placed in the basement), together with stores and plantroom that also serve an adjacent lecture-hall (Little Hall) to be built in the near future.

The lecture-halls are approached by two main staircases. These, although placed together, are separated by a fireproof wall and form alternative means of escape. The plan is therefore conceived as two separately entered self-contained "buildings" side by side with means of access from one to the other in case of fire. No staircases are required specifically and only for escape, and all are fully used for normal circulation at peak periods. There are virtually no corridors.

As the building stands at the point where students converge before making their way along covered ways to other points of the site, the lecture halls are above ground floor level and the general noise and bustle. The ground floor accommodates entrance halls and cloakrooms, and provides covered external spaces for assembly at one end and bicycles at the other. Balconies are provided in the 100-seat halls in order to allow them to be used for smaller audiences without any sense of poor attendance. The portico, built as an independent structure at the south-west corner, is this building's contribution to a covered way system that will eventually link it to the other lecture halls.

The basement is untanked and bears on clay at approximately 12ft. below ground level. The floor is lined with no-fines concrete and the walls with insulating concrete blocks kept 3in. clear of the structure. This allows any water that may penetrate the concrete to drain away to an internal sump. The first floor is supported on reinforced concrete columns and edge beam and a concrete spine wall and staircase enclosure. Above the ground floor the external walls are of 18in. load-bearing brickwork. The floors are solid reinforced concrete, dense materials having been chosen to eliminate noise transmission. The roof structure is of steel joists with timber purlins and boarding.

The ground floor columns and beams are in exposed bush-hammered reinforced concrete with a Penlee



2



3

Basalt aggregate. The bricks are Sussex stocks with grey pointing. The tank and plant room and the upper part of the building are rendered with white mineralite. Windows are arranged to provide a concentration of light at the lecturer's end. Small windows are situated at low level in the rooms to give a sense of release without offering distractions to compete with the lecturer. The roof covering is aluminium. In the lecture halls the floors are of rubber, the ceilings of grooved acoustic softboard and the walls of plaster, with acoustic tiles inserted in random patterns. The floors in the entrance hall are of York stone. The fixed lecture-hall seating was designed by the architects in association with T. Lupton. The University required unupholstered simple bench seating with desks wide enough for examinations. The loose furniture was provided by the university.

Generally the heating is by means of floor panel coils using low pressure hot water provided by a new basement boiler house at the farther end of the site. The building is naturally ventilated, but the larger rooms are also provided with artificial ventilation at the control of the lecturer. Air warming and purifying equipment is situated in the roof and extract is direct to the open air by means of fans within the thickness of the external walls. Lighting is generally tungsten.

The roads and paving included in this contract are all part of the general development programme. The paving is artificial York stone, the steps real Portland stone. The bicycle park immediately in front of the building is surfaced with radiating circles of granite setts around small trees. The sites of two future lecture-halls adjacent to this building have been bounded with dwarf retaining walls, filled with surplus top soil, and planted with quick growing willows to act as a foil until the halls are eventually built.

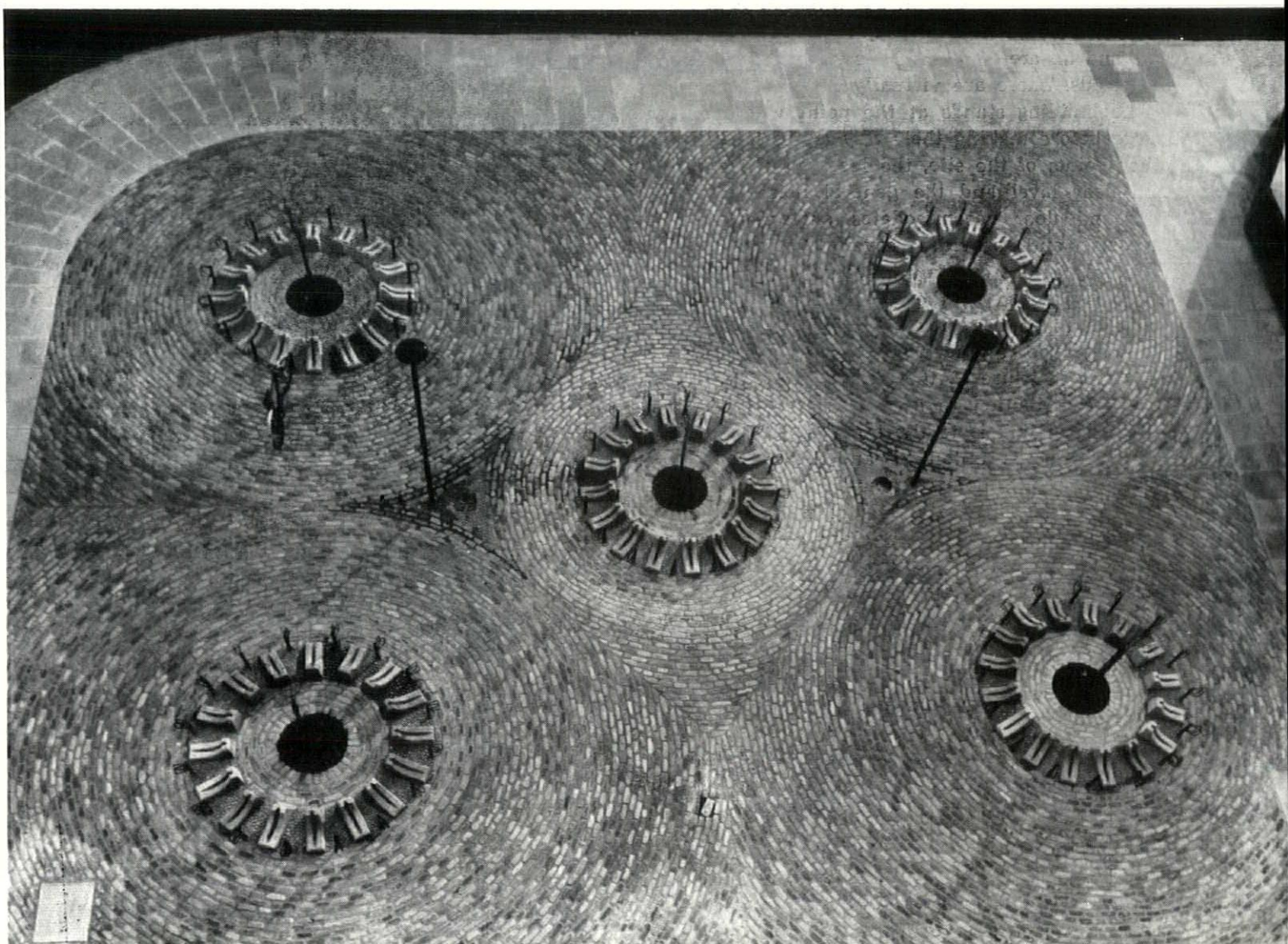
UNIVERSITY LECTURE-HALLS, CAMBRIDGE



4

4, bicycles parked in the forecourt. 5, looking down on the group of five bicycle-stands of which one appears in 4. Each has a tree in the centre. The paving is granite setts.

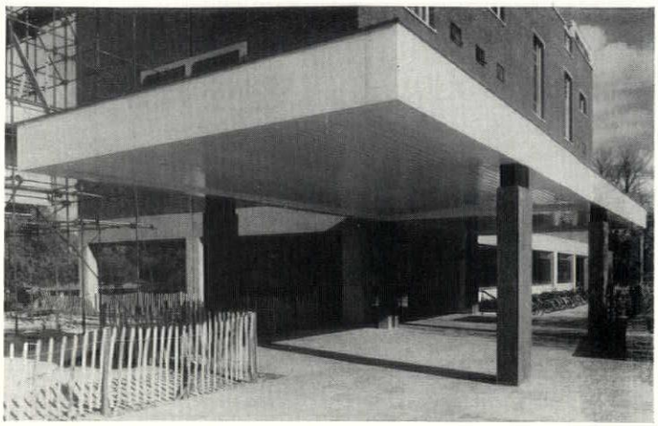
5



Below, the way in, step by step: 6, looking into the portico (part of a future covered-way system); 7, beneath the portico, showing the separate entrances to the two halves of the building; 8, the southern entrance from beneath the portico; 9, from just inside the same entrance.

10, looking out from the entrance-hall windows showing the boarded soffit of the portico. The grille over the heating tubes is of bronze.

11, close-up of main entrance door handles. They are of afromosia on a stainless steel core. The doors themselves are aluminium framed.



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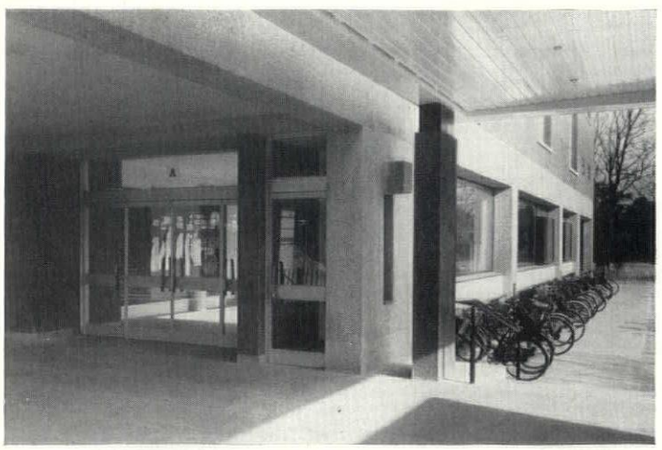

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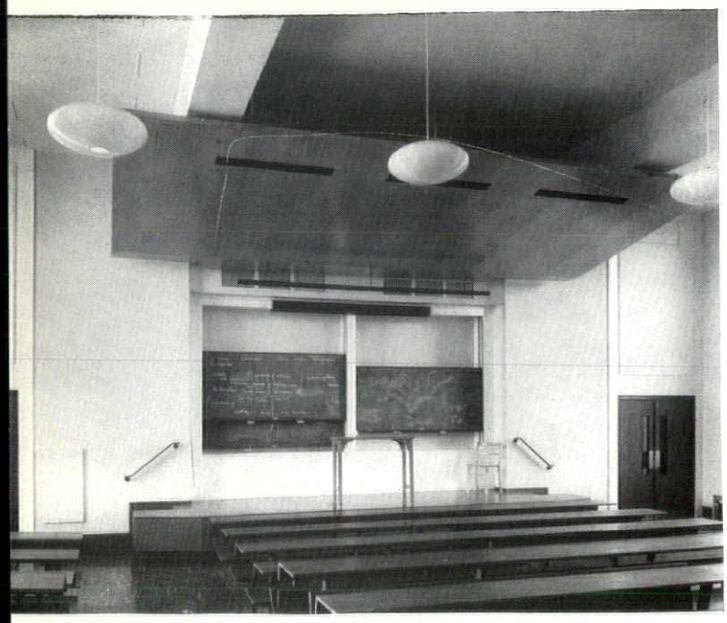
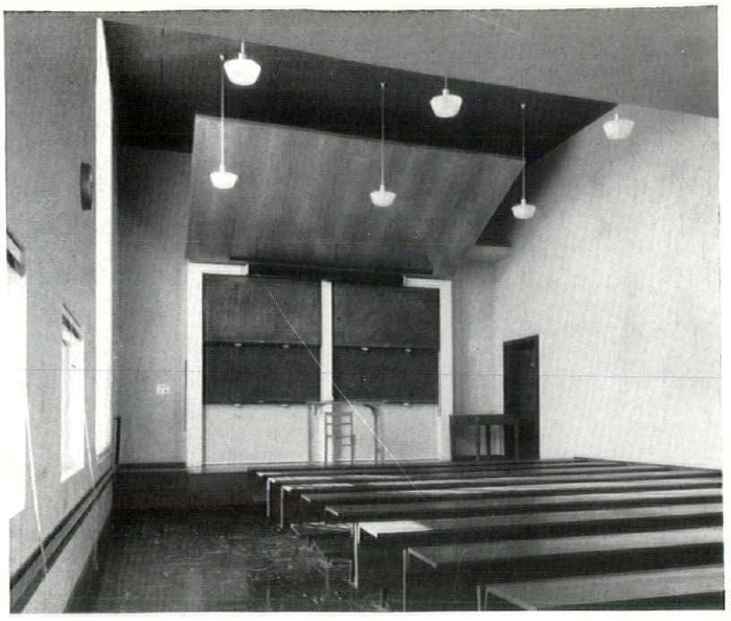
10



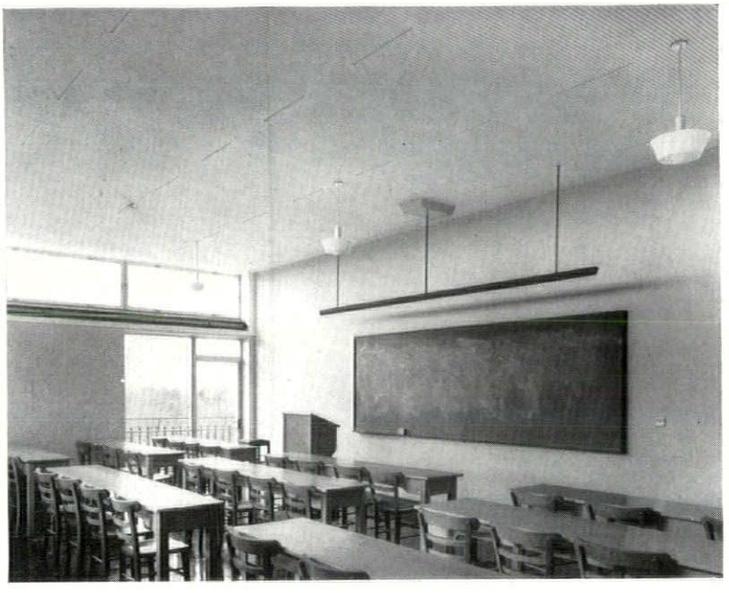
11





12, 13





14, 15

UNIVERSITY LECTURE-HALLS, CAMBRIDGE

Four typical interiors.

12, lecture-hall to seat 150, looking towards the platform. The fixed bench seating is afromosia, the sounding-board veneered lime and the doors veneered afromosia.

13, lecture-hall to seat 100, also looking towards the platform, showing also the acoustic tiling on the walls. Materials are as above.

14, the same lecture-hall from the platform showing gallery. The rear wall, faced with Danish-pattern acoustic panelling in afromosia, incorporates ducting, air-inlets, cleaners' cupboards, etc.

15, one of the small lecture-rooms (seating 50) on the top floor. The furniture in this case was provided by the university.

Reyner Banham, in taking stock of the impact of ***tradition*** *and* ***technology*** *on architecture today, finds it necessary to re-define these terms. For his purposes both words are used in a specialized sense.* ***Tradition*** *means, not monumental Queen Anne, but the stock of general knowledge (including general scientific knowledge) which specialists assume as the ground of present practice and future progress.* ***Technology*** *represents its converse, the method of exploring, by means of the instrument of science,* ***a potential*** *which may at any moment make nonsense of all existing general knowledge, and so of the ideas founded on it, even 'basic' ideas like* ***house, city, building.*** *Philosophically it could be argued that all ideas, traditional or otherwise, are contemporaneous, since they have to be invented anew for each individual, but the practical issue is not thereby invalidated. For the first time in history, the world of* ***what is*** *is suddenly torn by the discovery that* ***what could be,*** *is no longer dependent on* ***what was.***

1960

STOCKTAKING

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tradition

Architecture, as the professional activity of a body of men, can only be defined in terms of its professional history—architects are recognized as architects by their performance of specific roles that have been assigned to the profession in previous generations. Any significant attempt to extend or alter those roles will be dismissed, by most of the profession and even more of the public, as something other than the business of architects as architects. As James Cubitt wrote recently 'Designing roundabouts or doorknobs is not architecture. The idea that it is arises from a misconception of the purposes of the Bauhaus, primarily a school of industrial design. Architecture is, and always will be concerned, roughly speaking, with "carefully balancing horizontal things on top of vertical things".'

technology

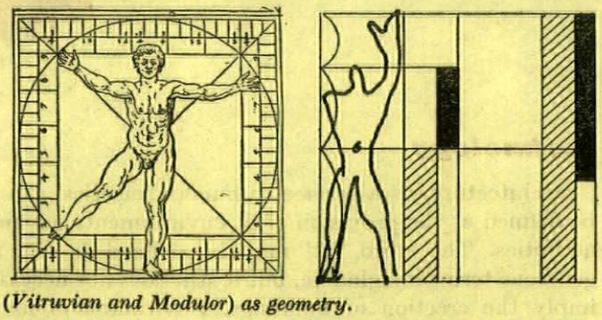
Architecture, as a service to human societies, can only be defined as the provision of fit environments for human activities. The word 'fit' may be defined in the most generous terms imaginable, but it still does not necessarily imply the erection of buildings. Environments may be made fit for human beings by any number of means. A disease-ridden swamp may be rendered fit by inoculating all those who visit it against infection, a bathing beach may be rendered fit by removing land-mines left over from the last war, a natural amphitheatre may be rendered fit for drama by installing lights and a public address system, a snowy landscape may be rendered fit by means of a ski-suit, gloves, boots and a balaclava. Architecture, indeed, began with the first furs worn by our earliest ancestors, or with the discovery of fire—it shows a

tradition

In spite of the much-debated 'revolution' in architecture in our time, the roles of architects have not been significantly extended, and certain extensions of role—into product-design, for instance—seem to have been tacitly abandoned since the nineteen-thirties. There are probably a number of reasons for this, but most of them, including the legally enforced codes of conduct that architects have created for themselves, are traceable to a feeling that modification of the accepted roles beyond a certain point threatens the integrity, or even the identity, of the profession.

Quite apart from certain obvious worries about such marginally extra-professional activities as contracting, this self-stabilizing tendency operates also in a more generalized and diffuse manner to preserve the *status quo*. We have seen a notable example of this in the past decade, one that has done much to precipitate the present confused state of world architecture. Using student opinion—articulate but disengaged from the daily routine of business—as a barometer of opinion, one could distinguish, shortly after 1950, a strong feeling that architectural theory was leaning so far towards sociology and technology as determinants of architectural form that—in practice—architectural form was not being determined at all, or—alternatively—such form as was being determined was not architectural. There were demands to *get back to architecture*—a classic response, closely resembling that which Charles Eames described in his 1959 Discourse at the RIBA as a reliance on 'the lore of the operation.' Whether or not this situation brings with it the dangers to which he also referred—'The danger of this procedure is that operational lore, being an integration of experience rather than apparent intelligence (i.e. available information), sacrifices sensitivity in order to gain stability'—whether or not this is true, it has happened, and constitutes one of the two major pressures to which architecture has been subjected in the last decade.

The first phase of this return to operational lore was Anglo-Italian, an appeal to the Classical Tradition; not to the nearer end of that tradition as summed up in, say, the work of Auguste Perret, but to the beginnings of modern classicism in the Italian Renaissance. Its symbol was the Vitruvian Man, its slogan 'Divina Proporzione,' its hero Palladio, its prophet—quite coincidentally—Rudolf Wittkower. The appeal was not to the forms and

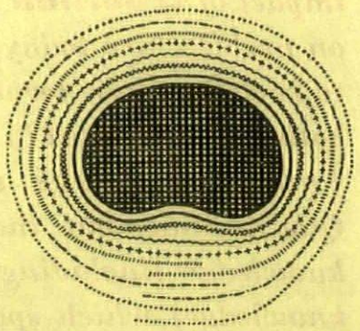


Man (Vitruvian and Modulor) as geometry.

details of Renaissance architecture, but to the underlying proportional mathematics, as set out in Professor Wittkower's *Architectural Principles of the Age of Humanism*, and echoed after a fashion—equally coincidentally—in Le Corbusier's *Modulor*. The upshot was not Neo-Georgian, but an aggressive axiality of plan, and a reliance on modular devices as planning tools. This particular moment has passed, and not left much behind—some projects for 'Palladian Power-stations,' some hotly-

technology

narrowly professional frame of mind to refer its beginnings solely to the cave or primitive hut.



Personal architecture—vest to overcoat.

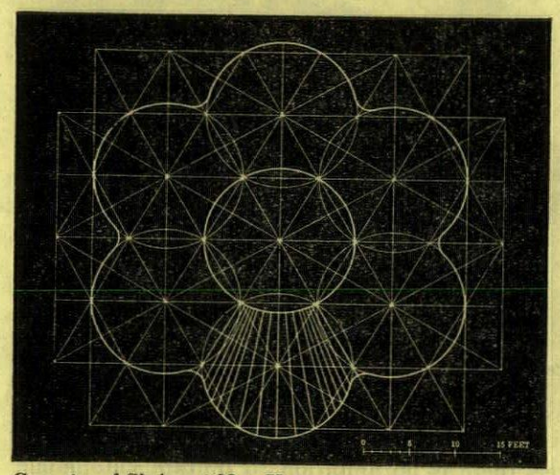
The service that architects propose to perform for society can often be accomplished without calling in an architect in the sense discussed in the article that runs parallel to this, and the increasing range of technological alternatives to bricks and mortar may yet set a term to the custom-sanctioned monopoly of architects as environment-purveyors to the human race. These alternatives, whose justification is measurable performance rather than some cultural sanction, extend, however, beyond the provision of technological services, and include analytical techniques as well, so that it becomes possible to define 'home' without reference to hearth or roof, but simply as the integration of a complex of intrapersonal relationships and mains-services. To do so would, in fact, be to depart so far from the operational lore of the society which we inhabit as to provoke alarm and discomfort even among the scientists and technicians who, within their specialities, regularly employ these techniques. Nevertheless, a moment's reflections on such phrases as *TV Theatre* or *Radio Concert-hall* will show how far technological advance has made nonsense of concepts that were hitherto building-bound, and yet has gained popular social and cultural acceptance.

Under the impact of these intellectual and technical upheavals the solid reliance of architects, as a profession, on the traditions of that profession must eventually give way. Yet the Functionalist slogan 'a house is a machine for living in' gives nothing away because it begins by presupposing a house. Far more seditious to the established attitude of architects is the proposition that, far from caravans being sub-standard housing, housing is, for many functions, sub-standard caravans. Outside the context of architectural discussion this would be a pretty radical criticism of current architectural concepts, but within the profession it stands simply as a marginal criticism of some aspects of housing that need improvement in detail.

This may be taken as typical of the profession's professional attitude to the impact of technological and scientific alternatives for the art of building. The profession tolerates a few peripheral radicals, whose ideas call the whole professional apparatus in question. Such a man is Buckminster Fuller, recently made a member of AIA, and thus accepted as relevant to architecture in the professional sense. But it is clear that Fuller is admired for his structures and accepted as a form-giver, while his elaborate body of theory and fundamental research into the shelter-needs of mankind is mostly dismissed unread. An extreme technologist more to the profession's taste is Konrad Wachsmann, whose work does not question the need for buildings but concentrates

discussed Fifth-year student Thesis projects, now forgotten, and a slowly waning admiration for things Italian—of which the slowest-waning, perhaps, is the reputation of Luigi Moretti, whose *Casa del Girasole*, discovered by Anglo-Saxons in 1952, was for some years a test of taste.

But, in a more generalized sense this moment in the history of modern architecture has left much behind. It marks the beginning of the persistent belief in modular number patterns as disciplines inherently beneficial to architecture—a belief now institutionalized in the Modular Society, where, however, attempts are being made to give it a footing in something more solid than vague sentiments inspired by reliance on operational lore. Somewhere in this moment too lie the origins of the present addiction to formality of the middle and elder generation among US architects*—the use of classical pavilion forms by Ed Stone and Walter Gropius in their recent embassies in New Delhi and Athens, or by Mies van der Rohe in his Baccardi building, or the use of multi-axial symmetries and vaulted coverings by Philip Johnson, in such examples as his Shrine at New Harmony. In the case of Johnson—early a devout Wittkowerian—the apparent historicism is backed by the resounding proclamation of faith: 'Hurrah for History. Thank God for Hadrian, for Bernini, for Le Corbusier and Vince Scully.'

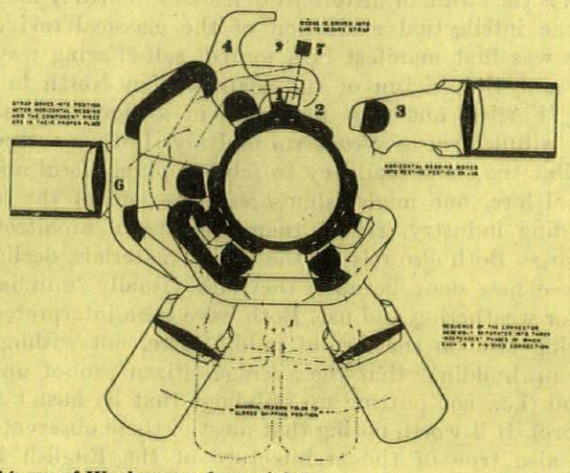


Geometry of Shrine at New Harmony.

Scully, through his celebrated lectures at Yale, has—like Wittkower, Colin Rowe, Bruno Zevi, and others—done much to give history-teaching a new dynamic, and thus to add a richness to the traditions of operational lore that has not been there since the death of Soane and Schinkel. What is new in this situation is the way that the revived interest in history has not come about in countries whose great architecture is all in the past, and the future has nothing to offer, but in countries—like the US—who appear to have a wave of great architecture ahead of them in the immediate future, and one of the effects of this new sense of history has been to produce a reassessment of the work of the masters who will set the style for that future. Thus, just before the 'rediscovery' of history, there was a current of opinion that tended to evaluate Mies van der Rohe's architecture in 'technologial' terms as a theoretically endless accretion of 'additive' units. After the rediscovery of history, this view, propagated by Richard Llewelyn-Davies and Gerhard Kallmann, was replaced by an emphasis on Mies

*This problem will be further discussed by Professor Jordy in next month's A.R.

a fanatical watchmaker ingenuity on the solution of certain problems within the given context of built structure—and here it may be noted that while his celebrated joint for the space-frame roof of the B36 hangar was associated with a fairly radical structure, his equivalent work on the General Panel House was associated with a dwelling-concept of the utmost banality.



Machinery of Wachsmann frame-joint.

Again, the research and teaching being undertaken by the *Hochschule für Gestaltung* at Ulm, while it asks some searching questions and produces some truly radical answers, does so within a mental concept that substantially accepts the limits that the architectural profession has set itself. In many ways, Le Corbusier's *Murondin* project for installing sophisticated mechanical services in mud-huts showed a greater radicalism of approach than either of these last two examples.

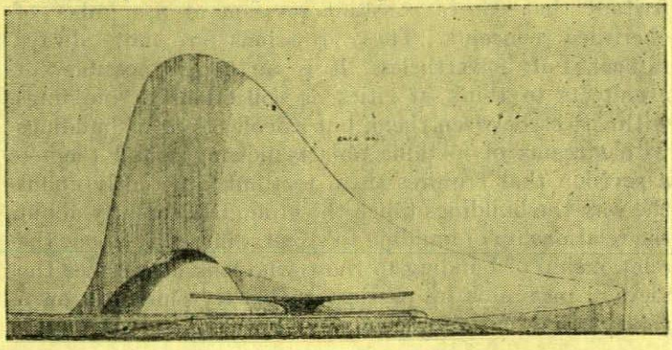
In any stocktaking of the present condition of architecture, then, it must be accepted that the human environments under consideration are constructed environments, static, more or less permanent and designed to operate without the consumption of too much mechanical energy. These last two provisos are both rather relative since no discussion of the present state of architecture could decently ignore the tented structures of Frei Otto and other semi-permanent exhibition environments, nor could it ignore the fact that some of the most permanent and static structures being built today—such as atom-proof command posts or office blocks in extreme climates—can only be kept fit for human activities at the cost of pouring vast quantities of mechanical energy into them in the form of air-conditioning and artificial light. Within these provisos, the mechanization of the total environment in which architects are called upon to work still acts as a powerful stimulus to their professional activities. Automobiles, the ever-present symbolic objects that typify the present epoch of technological culture, are the irritant that causes constant revision of a number of cherished concepts. These revisions are not always radical, but, nevertheless, it is no longer possible for architects to think of cities as collections of buildings with spaces between them, but as collections of buildings with streams of metallic objects flowing round them—a revision that requires them to think differently about the way the buildings touch the ground, differently about the relationship of building to street, differently about the relationship of building to those who look at it, since the viewers may now be passing it at sixty-plus mph on a gently rising curve or in an underpass whose sides may

as a classicist, on the axial symmetry, regularity and modular organization of his planning, and his debts to German Neo-Classicism.

Aside from these returns to the classical lore of the architectural operation, another, older stream of latent historicism has burst forth on the surface again, after a period when it was buried by classicist enthusiasms. This is the strain of historicist defeatism—entirely lacking in the intellectual exaltation of the classical revival—that was first manifest in a muted, self-effacing way as the new Empiricism of the Scandinavian North in the late 'Forties, and now reappears in a more aggressive and wilful form as *Neoliberty* in Italy. Both movements exhibit the same tendency to rely on purely *local* operational lore, one might almost say the lore of the local building industry, rather than the lore of architecture at large. Both also rely on the lore of materials, declining to use new ones because they are visually 'unreliable' under weathering and use. Both have been interpreted as relying also on the lore of public taste, not wishing to put up buildings that the average citizen cannot understand (i.e., not putting up buildings that he hasn't seen before). It is worth noting that most of these observations are also true of the architecture of the English New Towns, where the same frame of mind appears to have governed the town-planning as well.

Neoliberty also introduces another problem of acute interest in the present state of architecture, but this must be left over, for the moment, in order to consider the general import of these historicist trends. The blanket term most commonly in use to cover all the tendencies in modern architecture that deviate from the functionalist norms of geometrical purity and plan-wise asymmetry, is *Formalist*. The term is fair enough, provided limitations are placed around its usage. There is little sign at the moment of out-and-out formalism, of shape-making for the sake of shape-making. Even the paper-projects of an architect like Marcello d'Olivo keep within certain bounds, and those bounds are within the limits of the lore of the operation—nothing like Action-painting has happened to architecture yet. For this reason, the deviation from the canons of Functionalist form does not constitute *Une Architecture Autre*, as Odo Kulterman appears to believe (to judge from his article in *Baukunst und Werkform*, 8, 1958). If the concept of an Other architecture has any place in this survey, it is in the article that runs parallel to this one. New shapes notwithstanding, it is still the same old architecture, in the sense that the architects involved have relied on their inherited sense of primacy in the building team, and have insisted that they alone shall determine the forms to be employed. Formalism it may be, but it remains formalism within the limits of a professional tradition, albeit that

Great Wall of d'Olivo's Rayad University.



effectively blank off the whole of the lower storey when the viewer is on the axis of the main façade.

Conversely automobiles as the manifestation of a complex and agitated culture-within-a-culture producing discrete objects which are themselves environments for human activities, provide a standard of comparison for the activities of the architectural profession. They may ruefully compare the scale of the constructional work produced by the automobile culture with that entrusted to architects; they may enviously admire the apparently close communion that exists between users and producers, the direct way in which designers and stylists seem to be able to apprehend the needs of motorists and satisfy them, and they may also draw from the work of stylists some sobering conclusions about the possibility of tailoring aesthetics to fit the aspirations or social status of the clients. The concept of *the style for the job*, which was most recently enunciated in the ARCHITECTURAL REVIEW by James Gowan in December 1959, has frequently been explained or criticized in terms of the gradations of automobile style for different parts of the market, always with the assumption (sometimes justified) that these



Custom designed owners of Oldsmobile.

gradations are the result of scientifically accurate market research.

However, there is no ambition to imitate automobile form—the only exception to this rule appears to be the 'styling' of the Smithson's *House of the Future* on the assumption that mass-produced houses would need as high a rate of obsolescence as any other class of mass-produced goods. Such a sentiment is rare, however, because the operational lore of architecture seems not to include the idea of expendability. On the other hand, the forms of the more permanent products of technology are liable to imitation—to cite a notorious example, the development of cooling towers for power stations has been paralleled by a series of pseudo-cooling towers from Eric Mendelsohn's hat factory of 1921, to Le Corbusier's Parliament House for Chandigarh.

This sincere flattery of technology is one facet of the almost fetishistic regard afforded to certain classes of engineers, an admiration that has undergone an important change in the last decade. The respects paid by the early masters of modern architecture to the engineers they admired was not paralleled by any attempt to mimic the forms of their work—where will you find Freyssinet echoed in early Corbusian design, or Maillart in Max Bill despite the latter being the great bridge-builder's devoted biographer? Yet nowadays the desire

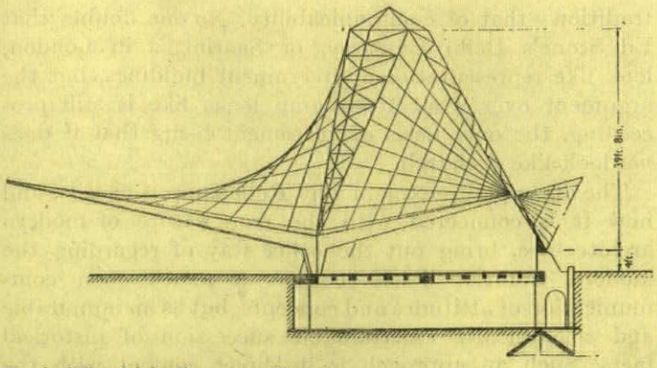
tradition is now wide enough to span from the Neo-libertarians to d'Olivo, from Mies van der Rohe to Bruce Goff.

But to return to the specific significance of Neoliberty. It is a revival, but not of an historical style in the sense that Doric or Gothic are historical styles. Art-historical niceties about the precise degree of modernity that Liberty (Art Nouveau) can claim, do not affect that it is not a style enjoying long-ingrained cultural approbation, like the great styles of the remoter past, but a style of our own time, propagated through international magazines and exhibitions by men conscious of living in a machine age.

Its revival implies a recognition that the allegedly anti-traditional Modern Movement has a tradition of its own. Reliance on the traditional lore of the operation no longer necessarily means relying on a tradition older than oneself—the men who made the tradition are, mostly, still alive. However, a further new factor, over and above the recognition of a new tradition, is the existence of two different ways of looking at that tradition. On the one hand, it may be accepted as a tradition of the sort we have known before, passed from master to pupil, teacher to student, almost subliminally as a succession of ever-mutating attitudes and preconceptions, constantly in process of change as the needs and aspirations of successive generations came to bear upon it. This, if it existed, would be the mainstream of Modern Architecture today. But the stream has practically vanished, and consists of isolated individuals, like pools in a drying torrent-bed—and the pools are drying out, too. Two years ago, one could have pointed to Wells Coates and André Sive as mainstream modernists, in the sense of men inhabiting a live modern tradition, but not any more. For the most part, this kind of smoothly-developing modernism exists nowadays in the work of large offices such as Skidmore, Owings and Merrill, or Yorke, Rosenberg and Mardall, or in solitary originals like Bakema, Goldfinger or Denys Lasdun. It also exists, with pronounced local characteristics, in Brazil and other Latin American countries.

But what, then, of the men who ought to be the great mainstreamers, the four architects whom Henry-Russell Hitchcock identified as the masters of the Twenties and Thirties? J. J. P. Oud long ago made his private retreat into local professional lore. Mies van der Rohe has isolated himself in a bronze tower more pure than ivory, driven there by a logic that would have worked equally well in a vacuum where modern architecture did not exist. Gropius has become the Dean of the Formalists, Doric in Athens, Islamic in Baghdad. And Le Corbusier?

While it is generally conceded that the apparent formalisms of a Frank Lloyd Wright were a law unto themselves, justified by the dimensions of an almost Michelangelesque personality, there is clearly a widespread feeling that the apparent formalisms of Le Corbusier answer to some law obscurely, but vitally, inherent in the business of architecture. No sooner were the implications of Ronchamp apparent than a dozen pens were at work explaining that its forms were not a wilful contradiction of everything that Le Corbusier had done before, but the fulfilment of certain aspects of himself, or modern architecture in general, that had lain dormant. It is clear that Ronchamp is not Formalism in the commonly accepted sense, because it does not gain the one secure advantage of formalizing within the



Roof of Candela's Coyoacan Chapel.

to incorporate engineering forms into architectural designs is so overwhelming that engineers like Nervi, Candela, Torroja and others enjoy a status both as collaborators with architects, and as the creators of imitable forms, that engineers have never had before.

Just how far this is merely the employment of engineers as alibis for fancy formalisms is difficult to assess, though Robin Boyd made some pertinent suggestions on this subject in *The Engineering of Excitement* (Architectural Review, November 1958). Over and above this is the possibility that the freeing of floor-space from intermediate supports which new vaulting techniques and space-frame trusses make possible, is being used in one way and explained in another. Great clear spans make possible a free and untrammelled functional disposition of interior spaces—this is one of the promises of Fuller's domes, for instance. But they also clear the floor for free and untrammelled exercises in architectural sensibility—which seems to be what happened, in fact, inside the geodesic dome furnished by Roberto Mango at the 1954 *Triennale di Milano*.

Such situations are not as rare as might be supposed—Mies van der Rohe's project for a theatre in a giant aircraft hangar is another debatable case in point—and they represent the continuance of a trend that has been with us since the beginning of the century; the marriage of the logical objectivity of abstract aesthetics to the experimental objectivity of advanced science. It goes back to Perret, it also has roots in *de Stijl* and Constructivism. In the guise of the 'logical formalism' of Mies van der Rohe it has served the important function of easing the acceptance of curtain walling and other additive prefabricating systems as 'architecture' in a sense that can be assimilated to the lore of the operation.

However, it should be noted that when prefabrication gets out of the direct control of architects, into the hands of engineers, it almost invariably ceases to be rectangular in its format. Fuller's work is again a case in point, so is that of Jean Prouvé, which has persistently relied on tapered portals, sloping walls and curved members. However, there is a division of mind here between architects and engineers that goes much deeper. The operational lore of the architectural profession has assimilated prefabrication as a technique applied to fairly small repetitive components to be assembled on site. Such an arrangement leaves the determination of functional volumes still securely in the hands of architects, and the physical creation of those volumes securely in the hand of traditional-type site labour.

But prefabrication, for most of the creative minds in the plastics business, means something quite different. It means—as Michael Brawne has suggested (*Polyester*

tradition—that of communicability. No one doubts that Ed Stone's Delhi Embassy, or Saarinen's in London, look like representational government buildings, but the argument over what Ronchamp looks like is still proceeding, the only basis of agreement being that it does *not* look like a church.

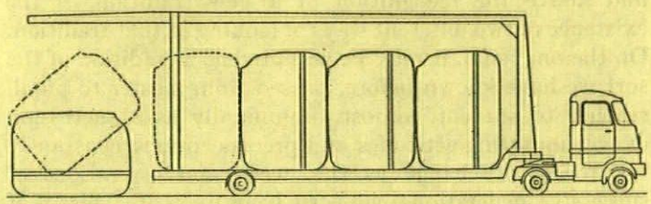
The attempts to explain why Ronchamp is as it is, and how it is connected with the true nature of modern architecture, bring out the other way of regarding the Modern tradition itself—not as a man-to-man communication of attitudes and concepts, but as an immutable and scientifically ascertainable succession of historical facts. Such an approach is in direct conflict with the 'traditional' view of the modern tradition, and has been described as 'using facts to pervert the history of modern architecture' by supporters of that view. It has also led to persistent allegations of modern eclecticism being levelled against younger architects who hold to the 'scientific' view of recent history. Very often this is true, particularly at student level where the formal vacuum of half-trained minds can as easily be filled with pickings from the Twentieth Century as from other centuries. But much of this alleged eclecticism has been the stimulus, mask, or vehicle of radical attempts to establish 'what really happened in modern architecture.'

The most important aspect of this view of the tradition is its all-inclusiveness. The other type of tradition proceeds by what might be called 'selective amnesia,' each generation forgetting anything that had ceased to be of interest in order to find room for new matters of interest that had come up in its own time. The new view, on the other hand, demands total recall—everything that wasn't positively old-fashioned at the time it was done s to be regarded as of equal value. The Futurists must be discussed in the same breath as the Deutscher Werkbund, de Klerk must be put alongside Rietveld, Maybeck alongside Wright. The guardians of the Modern tradition, such as Sigfried Giedion, have been called in question for forgetting too much, and—it is claimed—distorting the truth by over-selectivity. In revenge, every discarded formal and functional device that was dropped or ignored by the developing mainstream must now be re-examined and, wherever applicable, re-used.

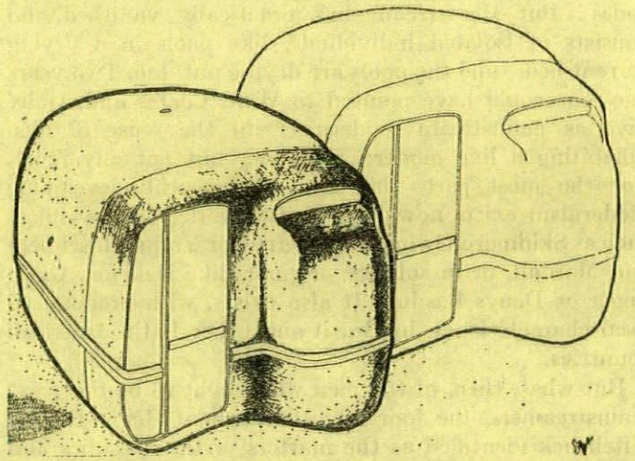
Much of what results—projects and a few finished buildings—is, indeed modern movement revivalism, the resurrection of usages (though rarely of total building forms) of the architecture of the Twenties, or even the Forties—David Gray's house at Lowestoft can serve as an example of the former, the Smithson's school at Hunstanton of the latter. But Hunstanton—the building by which the much-battered term 'New Brutalism' is commonly defined—immediately raises another problem altogether. Wherever the scientific and all-inclusive attitude to recent history is found, it is nearly always accompanied by a similar attitude to the use of materials. The mystique of materials 'as found' involves (a) a resolute honesty in their use (paralleling the refusal to allow a selective attitude to historical fact) and (*b*) an insistence that all the qualities of a material are equally relevant.

Thus, in the Hunstanton School, steel is given a far higher valuation than the rather abstract one implicit in Mies's work. Its visual quality as a rolled product with makers' trade marks embossed on it is given value, the nature of its ultimate performance under stress is acknowledged in the use of plastic theory by the engineer

Fibreglass, Architectural Review, December 1959)—the fabrication of components large enough to be effective determinants of functional volumes. Thus, the Monsanto House has only four large components to form the whole of one of its cantilevered rooms (bar the lateral windows) while some of the products envisaged by the French group around Coulon and Schein call for the off-site fabrication of complete functional volumes such as bathrooms and kitchens, a procedure which both has structural advantages and makes it possible to complete most of the fabricating work under controlled, laboratory conditions. The result seems likely to be a house put together from large non-repeating units—except for the joiners which, like railway corridors, must be universal fits. In larger structures room-units might be carried in an independent frame, but in either case the result should be that service-rooms, which need to be connected to the public mains, might be treated as expendable clip-on components, thus obviating some of the difficulties of



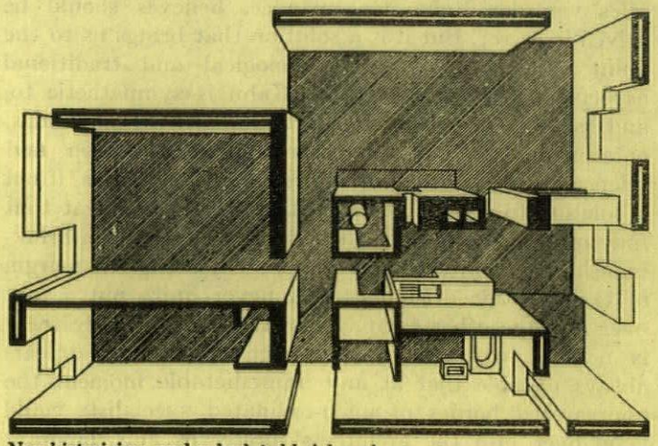
Complete Coulon/Schein plastic dwelling units.



the Appliance House project, which runs the risk of degenerating into a series of display-niches for an ever-changing array of domestic machinery.

However, such ideas have hardly touched the general body of architecture at all as yet. Much of the most painstaking and valuable research that can be shown, has been undertaken in conditions that presuppose the existence of rectangular buildings. Much of this work has been structural, concerned chiefly with prefabrication techniques, a field in which, for instance, the Ministry of Education and independent commercial experimenters can be found advancing, from the other end, into territory already being prospected by the Modular mathematicians. Elsewhere, as with the Nuffield Trust, a great deal of solid, plodding work, that most architects would rather not undertake, has been accomplished in the fields of space-requirements and the physiological effects of daylighting and colour. The fruits of such work, because of the 'logical formalist' connection discussed above, often wear a characteristic air of grid-like simplicity which, it should be noted, derives more from the mental disposition of the men involved than from the findings

responsible for the structural calculations. Or, to take another work that has been abused for modern eclecticism, the development at Ham Common by Stirling and Gowan differs from its acknowledged sources (such as Le Corbusier's Jaoul houses) by using brickwork calcu-



Neo-historicism and calculated brickwork.

lated to the limits of the load-bearing capacity—a decision that is more responsible than any Twenties-revivalism for the use of the dropped windows, with their inverted-L shape.

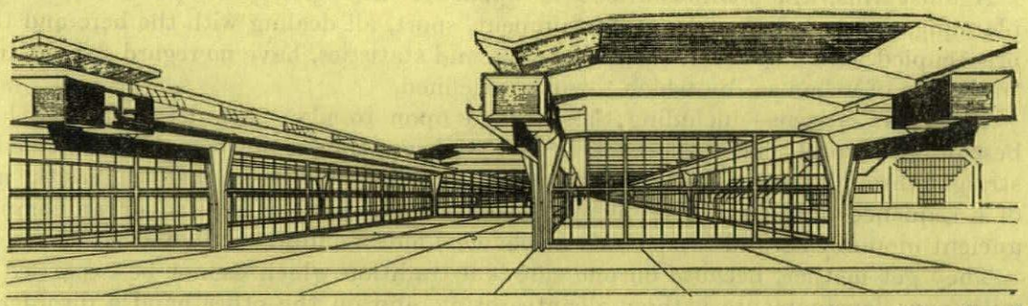
This, finally, brings us to the most significant aspect of the rigorous scrutiny of the history of the modern movement: the rediscovery of science as a dynamic force, rather than the humble servant of architecture. The original idea of the early years of the century, of science as an unavoidable directive to progress and development, has been reversed by those who cheer for history, and has been watered down to a limited partnership by the mainstream. Those who have re-explored the Twenties and read the Futurists for themselves feel, once more, the compulsions of science, the need to take a firm grip on it, and to stay with it whatever the consequences.

The consequence, in some cases, appears to be to whisk them straight out of formalism and modern historicism altogether, to make them abandon the lore of the operation, and make use of 'apparent intelligence' instead. of the research programmes.

Where research has been surprisingly thin has been in office-design, in spite of the large sums involved (although there has been some clever *ad hoc* rationalizing in this field) and in domestic work, in spite of the vast amount of housing still necessarily being built. Even clever *ad hoc* rationalization could show results in housing, but, as was said at the beginning of this article, the operational lore of our whole culture renders domestic architecture practically proof against scientific attitudes. On the other hand, it should be noted that via market and motivation research, and the long accumulation of sociological data, extensive scientific inroads into the 'sanctity of the home' have already been made, and when domestic designers can master their fairly long-standing distrust of sociologists, and their new-found distrust of 'Hidden Persuaders' they may well find that a great deal of very suggestive research is already at their disposal.

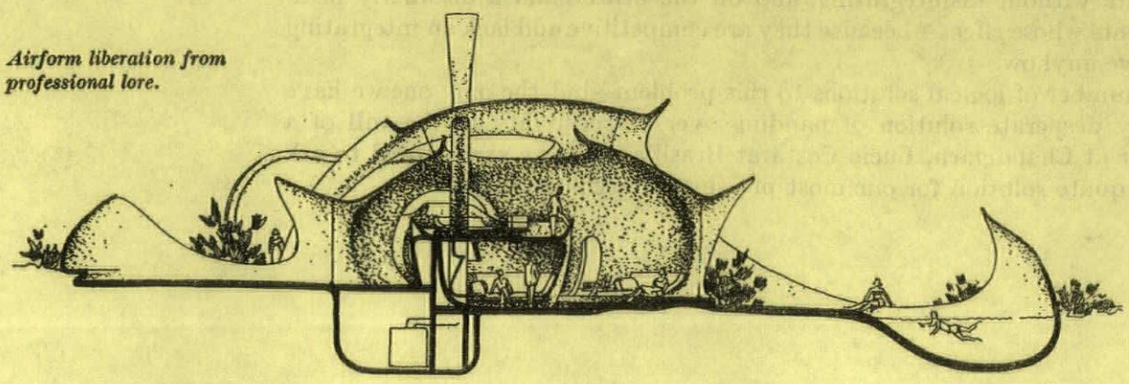
In the meantime, science and technology touch architecture chiefly at the level of structural justification and organizational confusion. One specialist consultant makes the building stand up, six others render it largely useless by means of the services that are intended to make it usable. By and large, architects have established a peaceable and fruitful technique of working with their structural engineers. In England, engineers like Samuely, Arup and Jenkins, in France men like the late Bernard Laffaille and René Sarger, in the USA men like Fred Severud, Mario Salvadori and Paul Weidlinger or offices like Smith, Hynchman and Grylls, could claim to have played a dominant and valuable role in the architectural developments of the last ten years, but no other body of consultants could claim anything of the sort—though some architects might, nowadays, find a good word for the more enterprising type of quantity surveyor.

The fact remains that heating, lighting, ventilating, air-conditioning, acoustics, office machinery and other more specialist services seem for the moment incapable of assimilation to the harmony established over the years between structural engineers and architects. The few breaks in this unpromising situation appear to derive from lighting engineers and acousticists with archi-



Zanuso integration of structure and services.

Airform liberation from professional lore.



But this may be only an appearance—certainly John Johansen's *Airform* house has the appearance of a radical reversal of attitude for a one-time Neo-Palladian of the strictest sort, but equally certainly, many of the most apparently liberated spirits of our time, the intellectual freebooters of the border-land between tradition and technology will not, in the last resort, renounce the lore of the operation. Thus Charles Eames, who has introduced the concept of operational lore into architectural thought, and made with it a plea for the acceptance of scientific attitudes of mind, could still say, toward the end of his Discourse 'Yet, in this circumstance I have described, and in these tools that I have described, I see and feel something which is a real continuity in the architectural tradition. . . . The real planning, the real architecture, the building of the future, is going to be built with something similar to these tools, and part of these circumstances. My plea is that it fall under the head of that great name, architecture, which embraces it.'

tectural training, and from a few liberated spirits, notably Lou Kahn with his 'topological' science blocks for the University of Pennsylvania, or Marco Zanuso with his integrated structure-and-air-conditioning schemes.

This may be a bull-dozer solution for a problem that Mies van der Rohe, for instance, believes should be solved in secret. But it is a solution that brings us to the point of fusion of the technological and traditional aspects in architecture today. Kahn is sympathetic to, and has been classed with, the Brutalists. On both sides, enterprising and intensive scrutiny of tradition and science appears to suggest a way out of a dilemma, if not a solution to a problem. But it is a balancing feat that may prove to need acrobatic skill and expertise in brinkmanship as architects edge temeriously along the margin of the scientific disciplines and never quite put a foot over into the other camp. From the scientific side there is neither such caution nor such finesse. It appears always possible that at any unpredictable moment the unorganized hordes of unco-ordinated specialists could flood over into the architects' preserves and, ignorant of the lore of the operation, create an Other Architecture by chance, as it were, out of apparent intelligence and the task of creating fit environments for human activities.

The Gap—Town Planning

1

viii

When all this has been said, and stock has been taken of the present situation, there remains one yawning and alarming chasm between technology and tradition, between operational lore and apparent intelligence—town planning. In a field too expensive for experiment, too full of practical minutiae for paper guesses or diagrammatic utopias to carry much conviction, the pull between the Two Cultures, as Sir Charles Snow has called them, results in a situation that would be tragic were it not more like the nihilistic farce of Ionesco and the Other theatre.

The idea of cities is an ineradicable part of the operational lore of civilization—a word which implies cities anyhow. The concepts we have of cities are as old as philosophy, and are so rooted in the language of cultured discourse that to say 'Cities should be compact' is to commit a tautology—we cannot conceive of a diffuse city, and have invented other words, such as *conurbation*, *subtopia*, to underline our inability to conceive it.

Against this, the manifestations of apparent intelligence, in communications, traffic planning, services, industries, entertainment, sport, all dealing with the here and the now, preoccupied with current information, news and statistics, have no regard for the inherited traditions of urbanism by which towns are defined.

Yet most citizens—including those called upon to plan—are determined to have the best of both worlds. They expect to be able to drive straight down an Autoroute de l'Ouest, straight through the Arc de Triomphe, and into a Champs Elysées that still has the urbanity of a sequence from *Gigi*. They demand suburban expansiveness, and urban compactness, ancient monuments and tomorrow's mechanical aids simultaneously and in the same place.

They get neither, because on one side is a tradition which cannot be expanded to deal with new developments without disintegrating, and on the other hand a disorderly pressure of new developments whose effect—because they are competitive and lack an integrating discipline—is disruptive anyhow.

There may be any number of logical solutions to this problem—but the only one we have so far is the relatively desperate solution of handing over responsibility to the will of a dictator—Le Corbusier at Chandigarh, Lucio Costa at Brasilia—and we are entitled to ask whether this is an adequate solution for our most pressing problem in design.

HOSPITAL AT SWINDON

ARCHITECTS | **POWELL AND MOYA**

assistants: S. P. Skinner; J. C. Calderhead
consulting architect: R. Llewelyn Davies
architect to Oxford Regional Hospital Board: W. J. Jobson



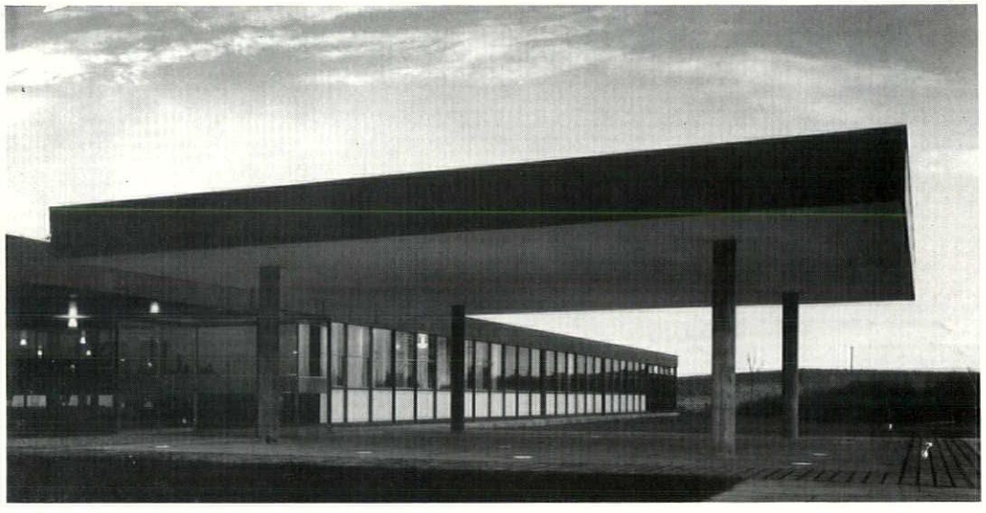
The upper parts of the building have a reinforced concret frame faced with slate. Base walls and retaining walls are faced with stone. 1, looking east between the Outpatients' and the Physical Medicine Departments. On the right is the single-storey animal house. See plans on page 104.

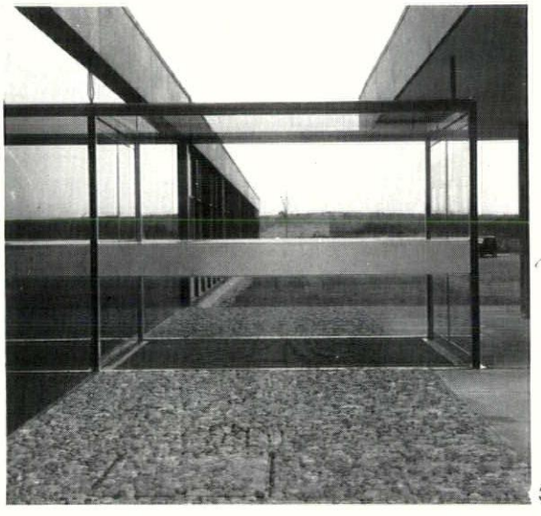
HOSPITAL, SWINDON

2, looking along the entrance front, past the Outpatients' and Casualty Departments. The main ward block, to be built as part of the second stage, is shown diagrammatically beyond.
3, close-up of porch, looking in the opposite direction to 2.
4, looking through the draught-lobby that separates the porch from the Outpatients' entrance-hall.
5, the other side of the Outpatients' Department, from the garden.
6, from the same garden, looking towards the Physical Medicine Department. On the left is the glazed link between the two departments.



2





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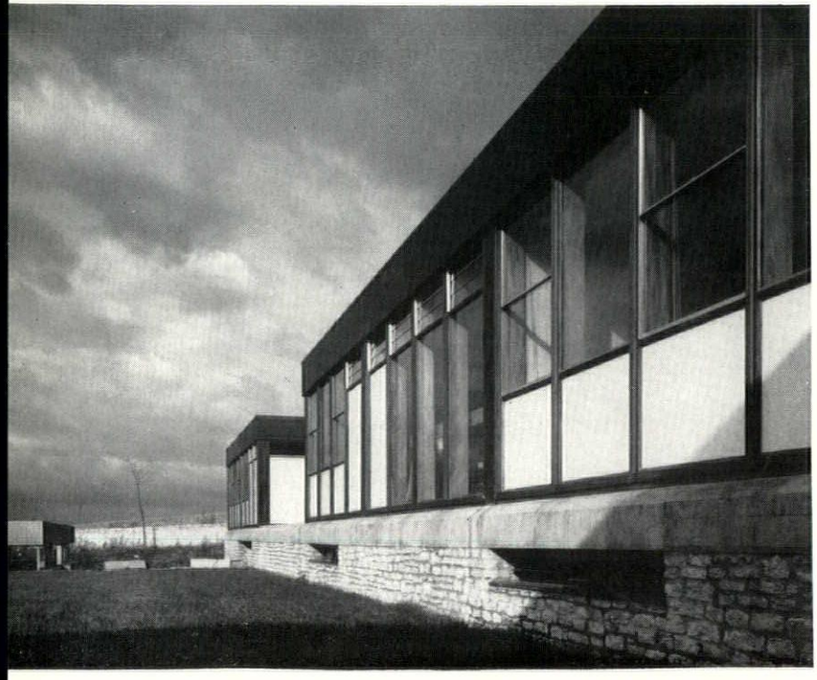



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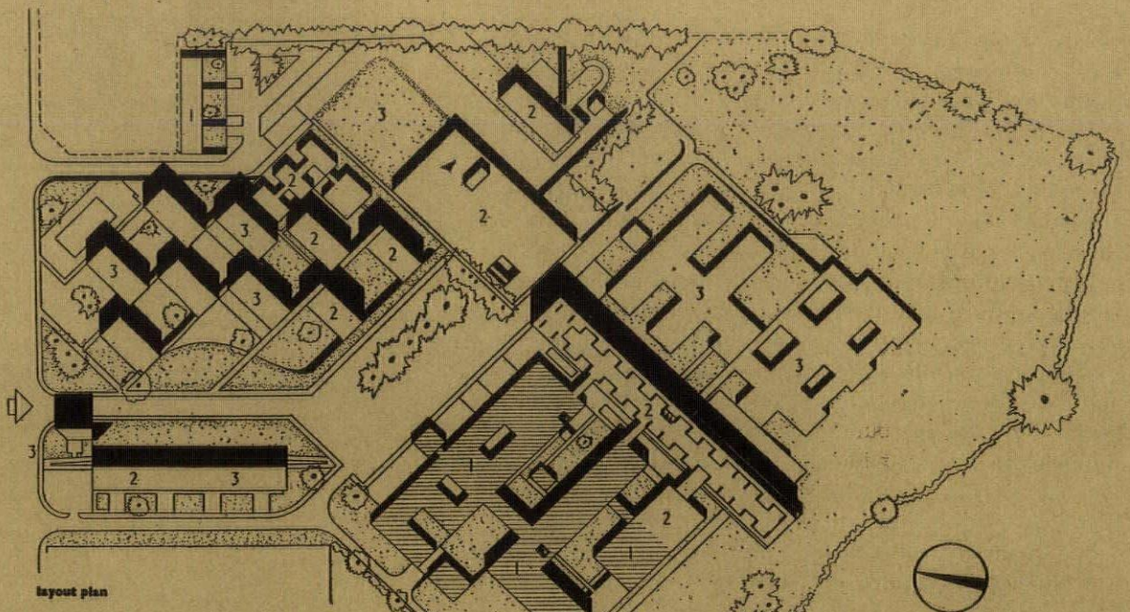


layout plan

In the layout plan of Swindon hospital, above, the numerals indicate the three successive stages in which the hospital is being built. Only the first stage, diagonally hatched, is so far complete and is illustrated herewith. The second stage will include part of the nurses' training school (diagonal blocks above), the high ward block adjoining the first stage (and shown in 2, opposite), the kitchen block between the nurses' school and the ward block and the boiler-house beyond it. The third stage will complete the nurses' school and add a laundry alongside it and two new blocks on the far side of the ward block: one a maternity unit and the other a pediatric unit.

This is the first stage of what will be a 600-bed general hospital, and consists of the following departments: outpatients', casualty, physical medicine, pathology, X-ray and the first of the four operating theatres. The part of the building reserved for the records and pharmacy departments is, in the first stage, occupied temporarily by a 39-bed accident ward, and the east end of the X-ray block is occupied temporarily by a central sterilizing and supply department, which will later be housed in the Stage II buildings. In addition, there are three staff houses and a small temporary kitchen, dining room and boiler house.

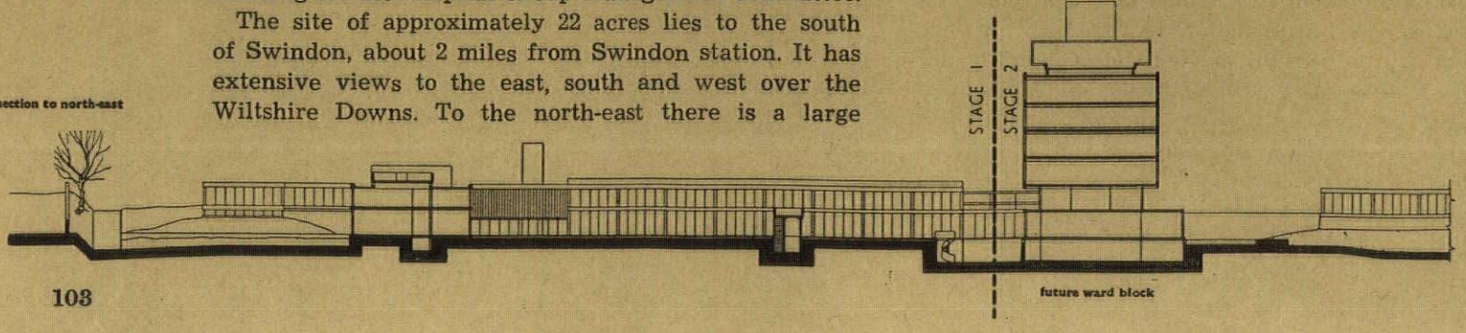
Stage II will consist of the following: a block containing four storeys of wards—312 beds (seven standard 40-bed wards and one 32-bed psychiatric ward); on the upper ground floor, the main entrance hall and hospital offices; on the lower ground floor the central sterilizing and supply department. Access from the service zone is at this level. This service zone will contain the kitchens, staff dining rooms, hospital stores, boiler house and workshops. Three hostels for student nurses and part of the block of flats for senior nursing and resident medical staff will also be included in this stage.

Stage III will provide approximately 250 more beds, sited to the east of the main ward block—maternity unit, children's wards and geriatric wards. Also a laundry in the service zone, more residential accommodation, in particular for trained nurses, and a small office building for the Hospital Group Management Committee.

The site of approximately 22 acres lies to the south of Swindon, about 2 miles from Swindon station. It has extensive views to the east, south and west over the Wiltshire Downs. To the north-east there is a large builders' works, which will be screened from the main hospital buildings by siting the service buildings for the hospital along this boundary. The site rises up from the southern boundary, flattening out to a plateau (the bottom of a worked-out quarry) at the north. Existing mounds of surplus earth and stone from this quarry are being retained and will be used as features in the landscaping.

The sloping site has enabled two ground levels to be planned to separate the two streams of hospital traffic, public and internal. The upper ground floor, which is reached from the main entrances, serves outpatients, casualties and visitors to the wards, and the lower ground floor is reserved for internal hospital circulation, distribution of supplies and food and removal of bodies to the mortuary. On this level also are the major operating theatres, X-ray department, pathology laboratories and central sterilizing and supplies department, all of which serve both the ward block and the outpatients' and casualty departments. Service buildings such as kitchens, boiler-house, group laundry, workshops and general stores are on the north-east corner of the site, down wind from the main hospital buildings and out of view from the main wards. The kitchens are connected with the lower ground-floor level of the main ward block by a short underground link, from which heated trolleys are distributed vertically by goods lifts into the ward kitchens. On each floor of the main ward block the

section to north-east



wards are grouped in pairs on either side of a central area containing stairs, lifts and accommodation which can be shared between two wards.

The main hospital buildings consist therefore of a multi-storey ward block with extensive views straddling, at right angles, the single and two-storey outpatients' and treatment departments and also the maternity and children's wards.

The buildings in Stage I are in one- and two-storey blocks, and are mainly the diagnostic departments. They have been designed to be as flexible as possible to allow for later alterations or extensions. Small individual waiting areas, planned as alcoves off the main corridors with views over the surrounding countryside or over garden courtyards, are provided for each outpatients' clinic. The large, central waiting hall has thus been avoided. Visits to clinics will be on an appointments system.

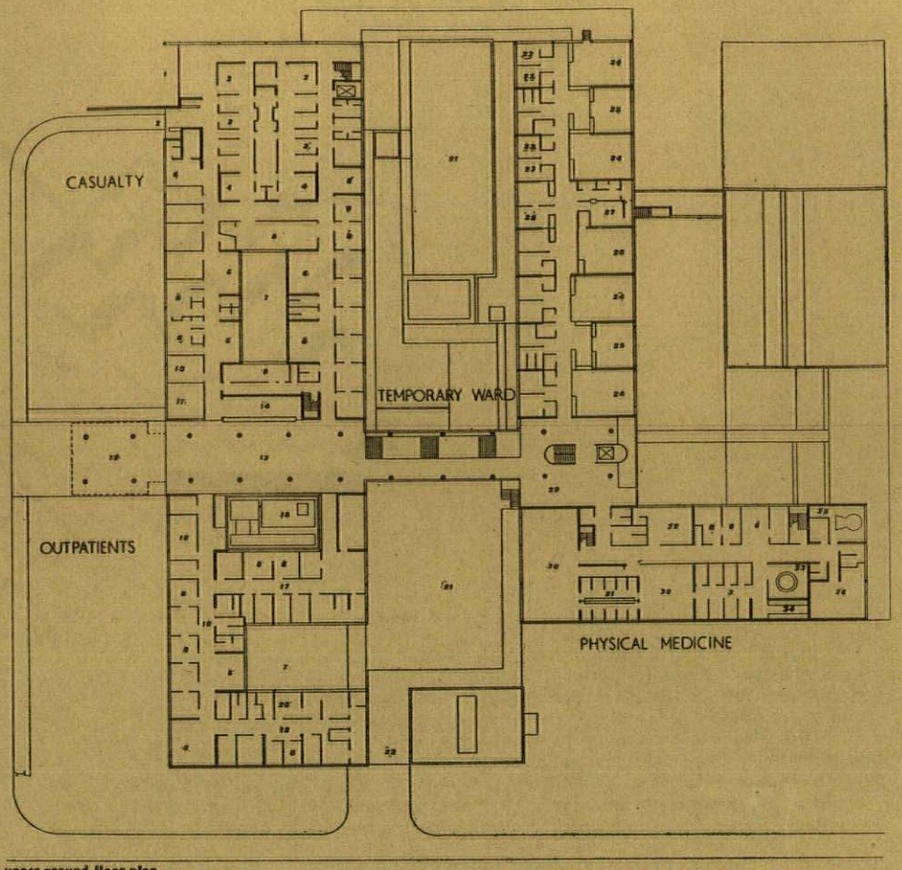
The structure consists of reinforced concrete columns and flat, in-situ reinforced concrete floor and roof slabs. The columns are supported on normal mass concrete bases. The external face of the columns and the slab upstands are faced with 1in. slate. The roof finish generally is cork insulation, screed and 3-ply roofing felt, with varying roof finishes; e.g. grey granite chippings, concrete tiles, asphalt or 9in. of earth sown with grass.

Windows consist of hardwood mullions (West African mahogany) at approximately 4ft. centres, bronze-faced externally, with aluminium sashes, double-glazed fixed lights or adjustable glass louvres. Apron panels consist of white glass with wood wool with aluminium foil backing, air space insulation and plastic-faced ply internal facings.

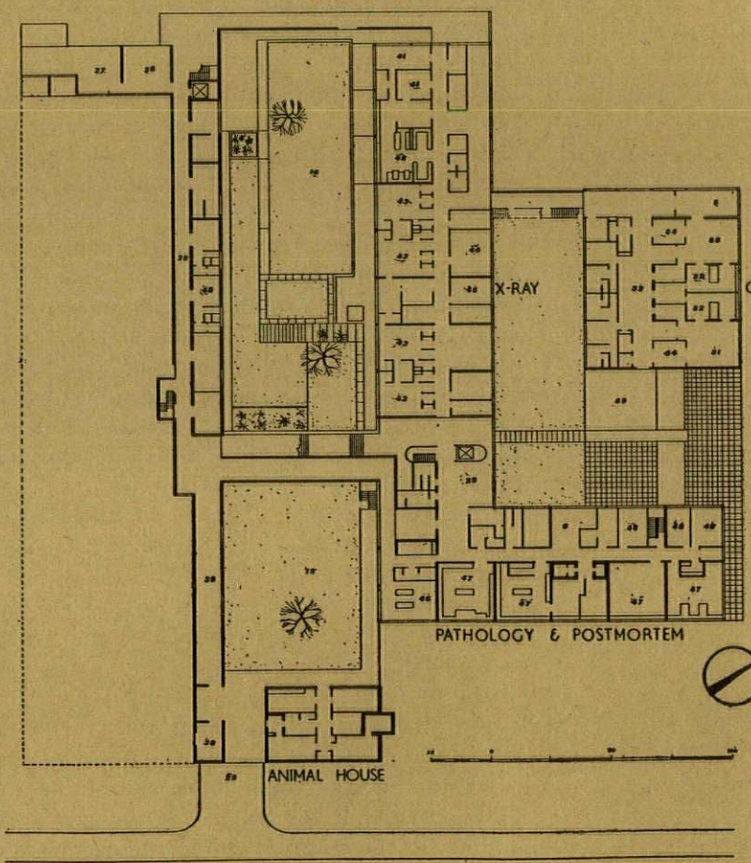
Internal partitions generally are of 2½in. clinker blocks with stretched wire reinforcement on each side, plastered and finished with emulsion paint. Joinery is hardwood (generally West African mahogany). Ceilings are plastered, but in some of the building there are false ceilings concealing services. These have perforated acoustic tiles. Floor finishes are as follows: cork tiles generally; ribbed black rubber tiles in main outpatients' entrance hall; lino tiles in some corridors and lower ground floor rooms; hardwood block (Afrormosia) in pathology laboratories and hardwood strip (maple) in the physiotherapy gymnasium; terrazzo in treatment and sluice rooms, etc.

Heating generally is by means of low temperature hot water embedded floor panels, boosted where necessary with ceiling panels or, in corridors and extremely exposed rooms, by steam convectors. Theatres and some other rooms are air-conditioned, but not refrigerated. Heat is circulated by means of a steam main serving steam to water calorifiers for heating and hot water services.

Electrical and telephone services run inside wall ducts in double partitions adjacent to corridors or on external walls under the windows. Press button and illuminated call intercommunication is provided between rooms and waiting spaces and control stations. A personal call 'wireless' system is provided for selected staff. Generally, services to lower floors are run in walkways under the floors and services to upper floors are run in spaces above false ceilings in the floor immediately below. Services rise vertically into the rooms by means of the double skin partition adjacent to the corridor, which has access panels on the corridor side.



upper ground floor plan



lower ground floor plan

key

upper ground floor

1. ambulance entrance.
2. casualty entrance.
3. treatment rooms.
4. minor theatre.
5. plaster room.
6. waiting.
7. courtyard.
8. consulting.
9. tea-kitchen.
10. health visitor.
11. pram store.
12. out-patients' entrance.
13. entrance-hall.
14. reception.
15. garden.
16. almoner.
17. ophthalmic clinic.
18. medical clinic.
19. ear and dental clinic.
20. dental surgery.
21. garden.
22. mortuary exit.
23. single bed ward.
24. six-bed ward.
25. four-bed ward.
26. day space.
27. ward kitchen.
28. treatment.
29. lower entrance hall.
30. gymnasium.
31. changing.
32. spastic room.
33. sunlight room.
34. wax treatment.
35. treatment bath.
36. occupational therapy.

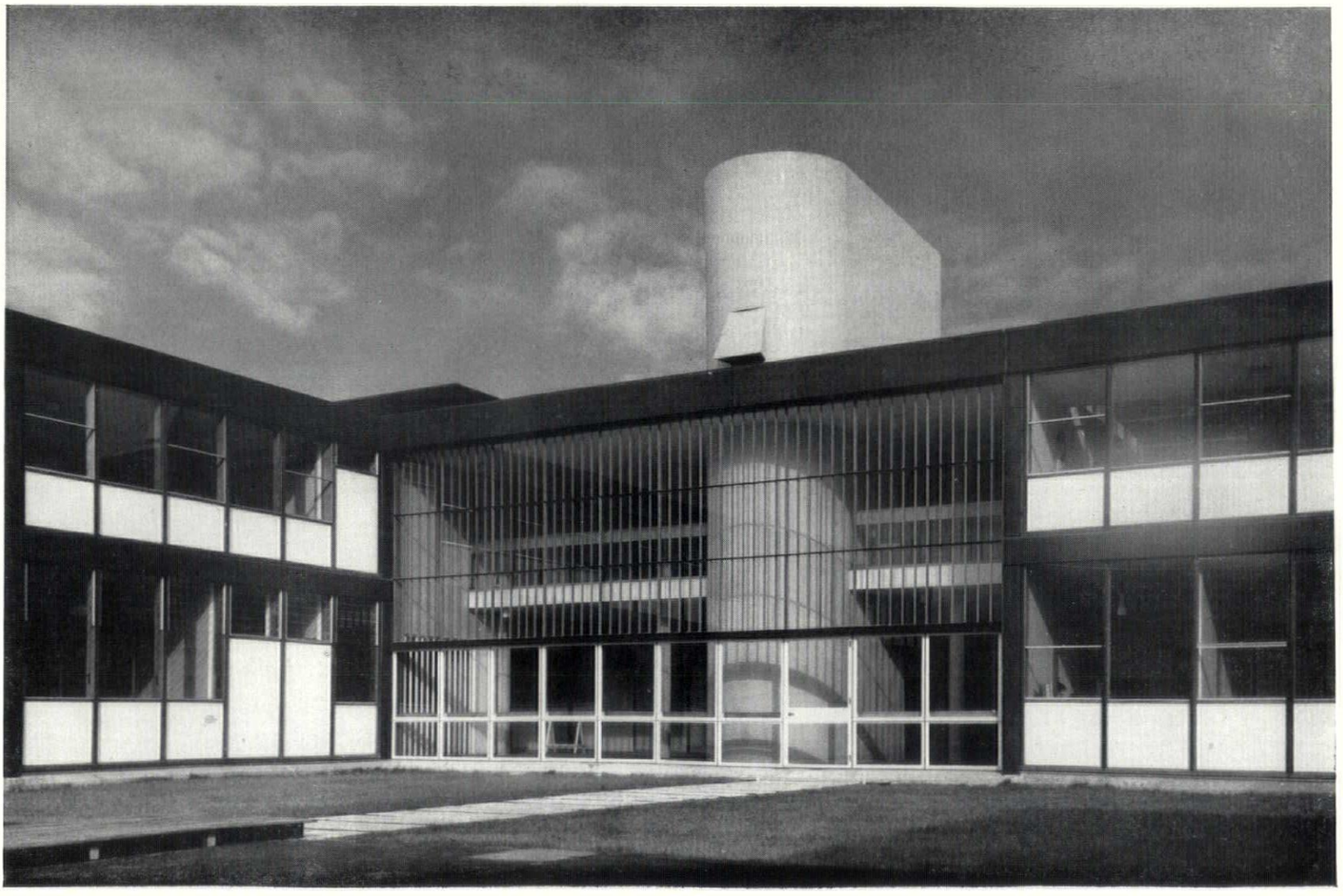
lower ground floor

37. transformer.
38. calorifier.
39. mortuary corridor.
40. lockers.
41. stores.
42. sterilizing.
43. X-ray.
44. viewing.
45. radiologist.
46. post-mortem.
47. laboratory.
48. pathologist.
49. formalin.
50. orthopaedic theatre.
51. major theatre.
52. sterilizing.
53. trolley bay.
54. anaesthetics.
55. terrace.



7

7, from the west: the superimposed Physical Medicine and Pathology Departments on the left and the Operating Department on the right, showing their stone-faced podium. 8, looking across the raised terrace between the two departments.



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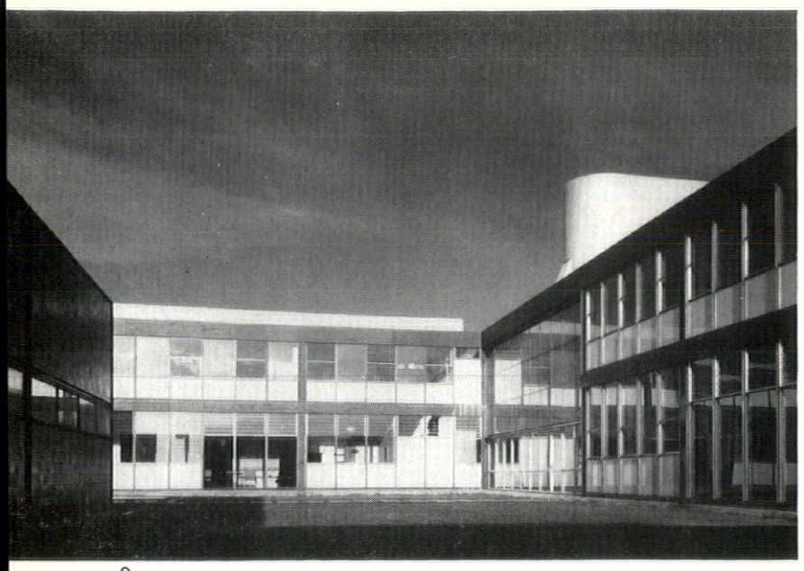

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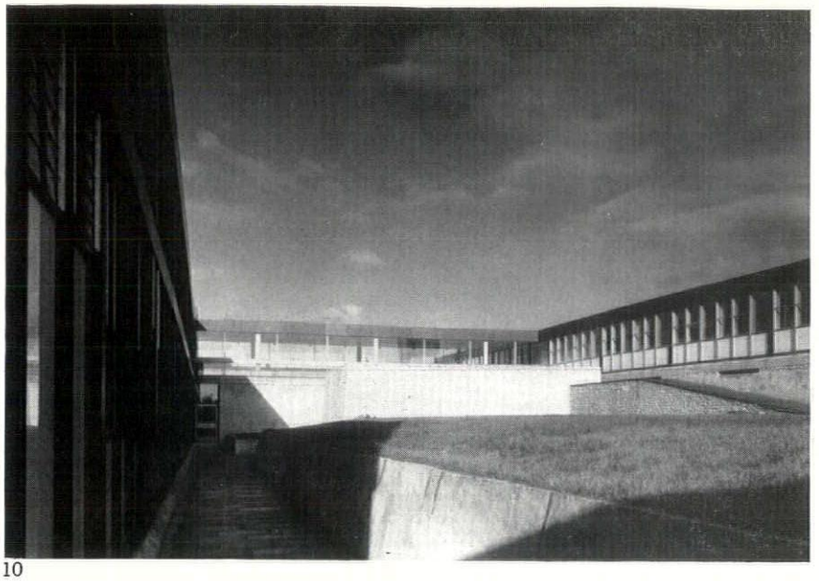


10

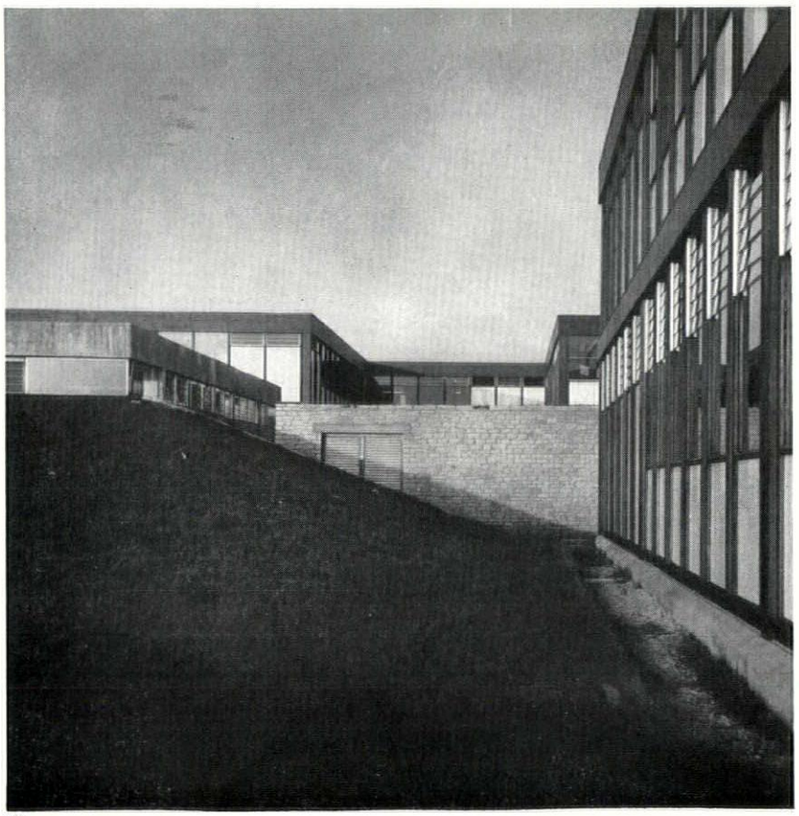
HOSPITAL, SWINDON

Above, the two sides of the temporary ward-block (later to accommodate offices), below which is the X-ray Department. 9, the outer side; looking across the terrace towards the Physical Medicine and Pathology Departments; 10, the inner side, with the Casualty Department on the right. 11, the small tiled courtyard within the Casualty Department.

12, 13 and 14 (facing page), in the sunk garden between the Outpatients' and Physical Medicine Departments, closed by the animal house (left in 14). The paved passage leads to the mortuary exit.



11



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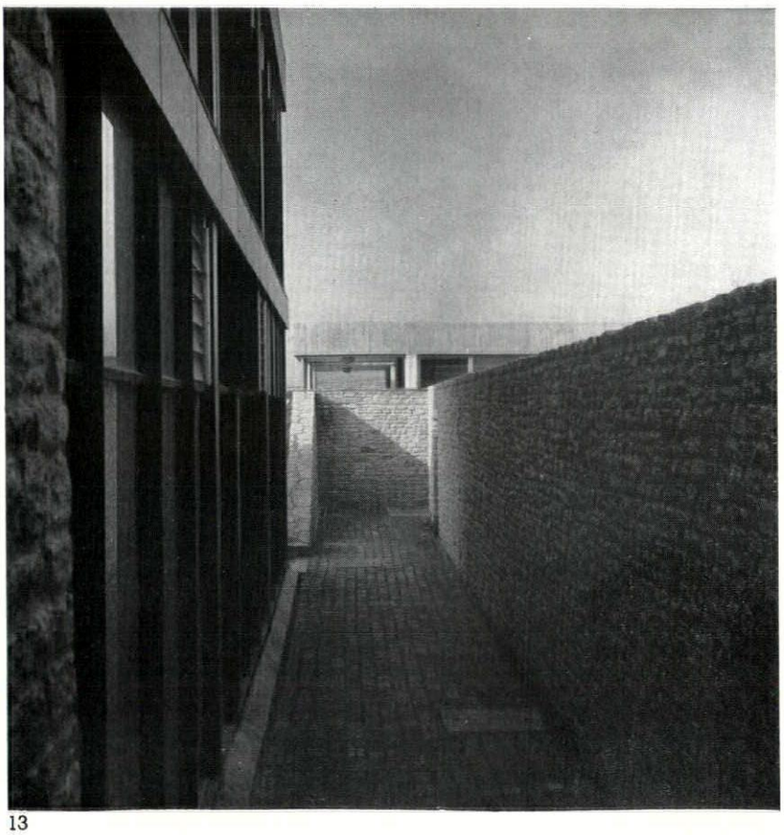
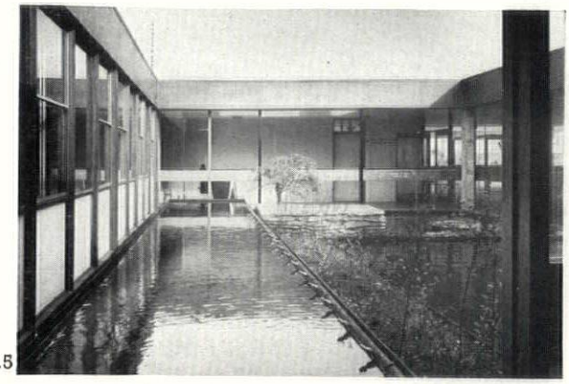


13

The garden court enclosed by the Outpatients' Department and seen from the entrance-hall. 15 and 16, by day and night, the latter with the water-spray working. 17, the pool seen from the windows of the hall.



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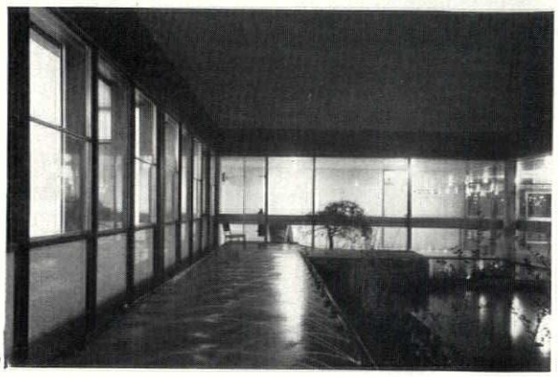

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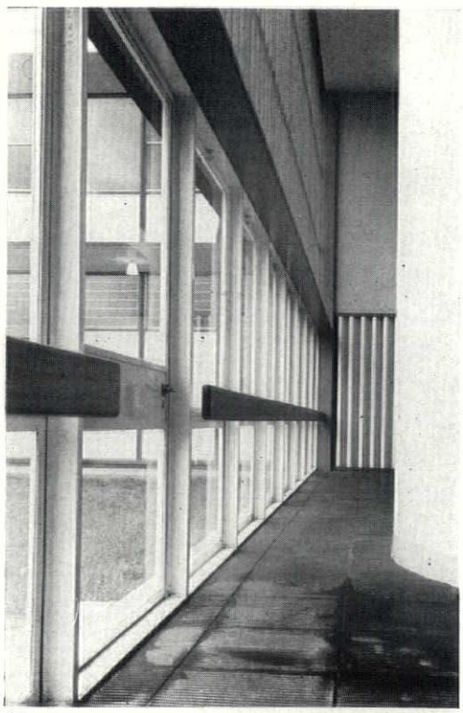
17

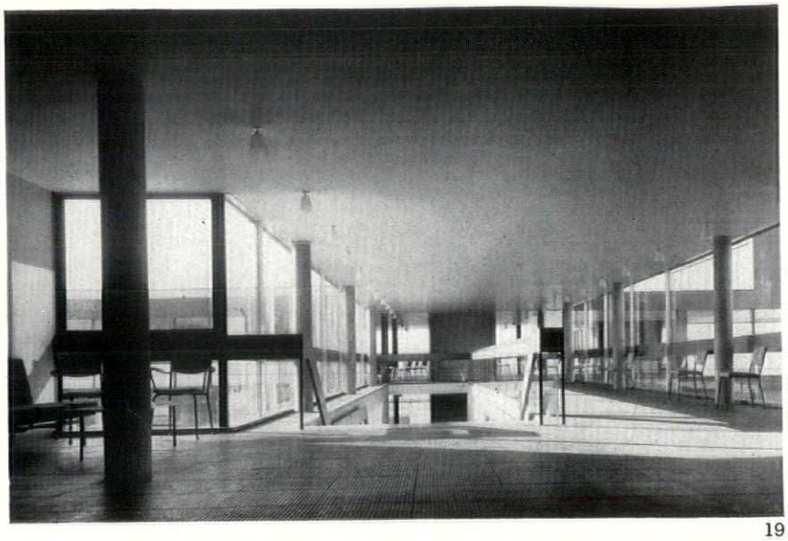


14



18

18, the lower ground-floor entrance-hall to the Pathology and Postmortem Department. The curved lift shaft is shown externally in 8 (page 105).



19



20

HOSPITAL, SWINDON

The large Outpatients' entrance hall between the Outpatients' and Casualty Departments. 19, looking from the entrance (see page 102) towards the staircase leading down to the lower levels of the two-storey blocks. 20, showing reception counter on left. 21, looking in the reverse direction, over the staircase. On the right is the garden between the temporary ward block (with X-ray Department below) and the Casualty Department.

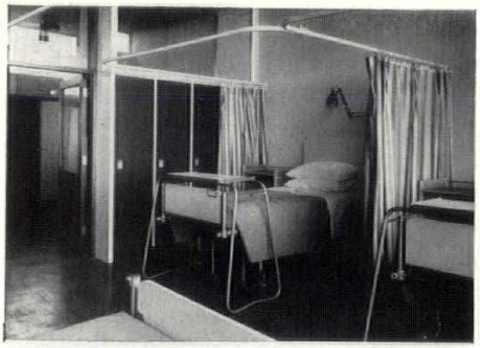


21



22

22, looking from the Outpatients' entrance hall (see facing page) into the garden and towards the ward-block.



23



24



25

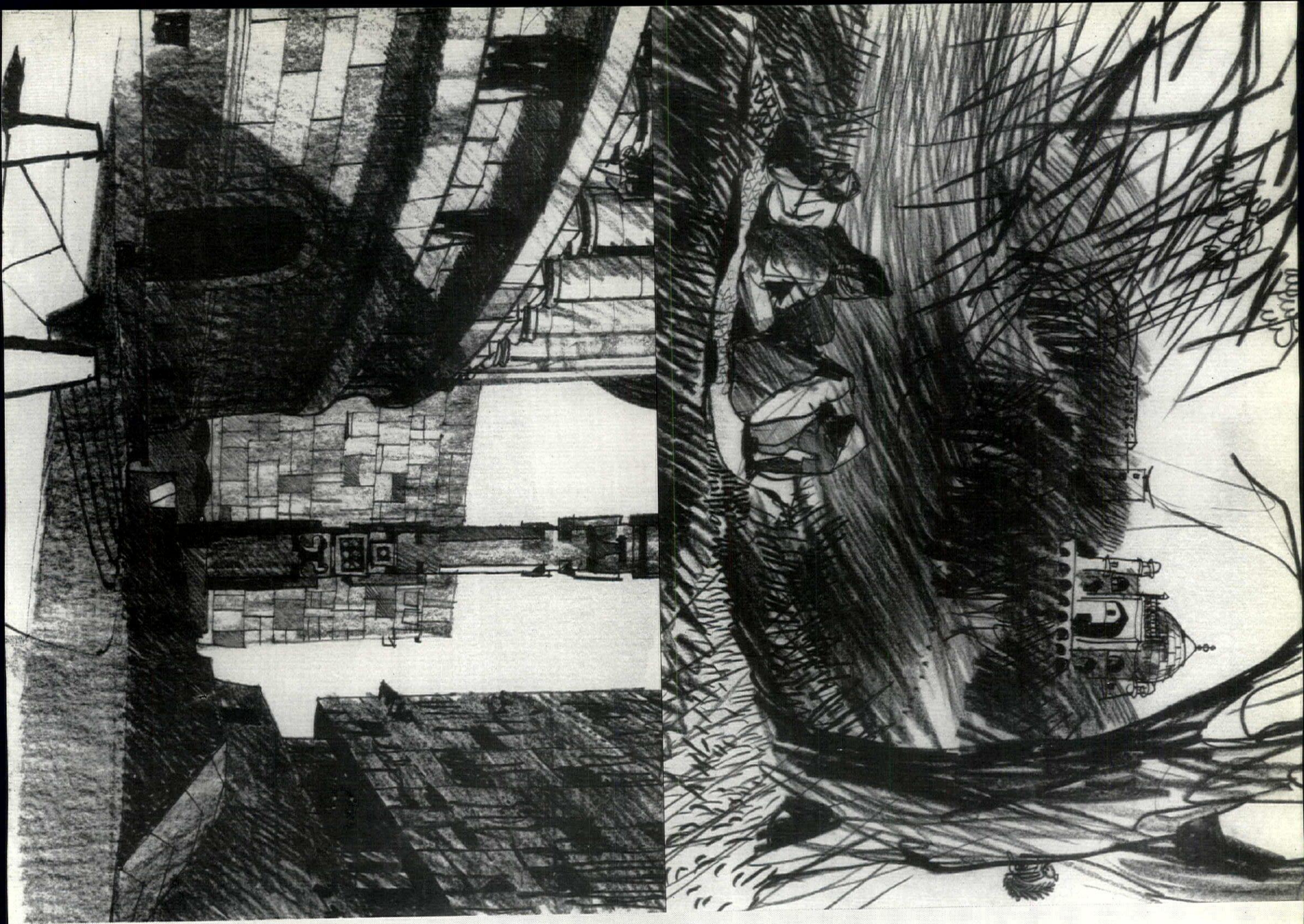


26

Some typical interiors: 23, a cubicle in a temporary ward; 24, a nurse's station in the same ward; 25, in the Casualty Department; 26, a ward kitchen; 27, treatment bath in the Physical Medicine Department.



27

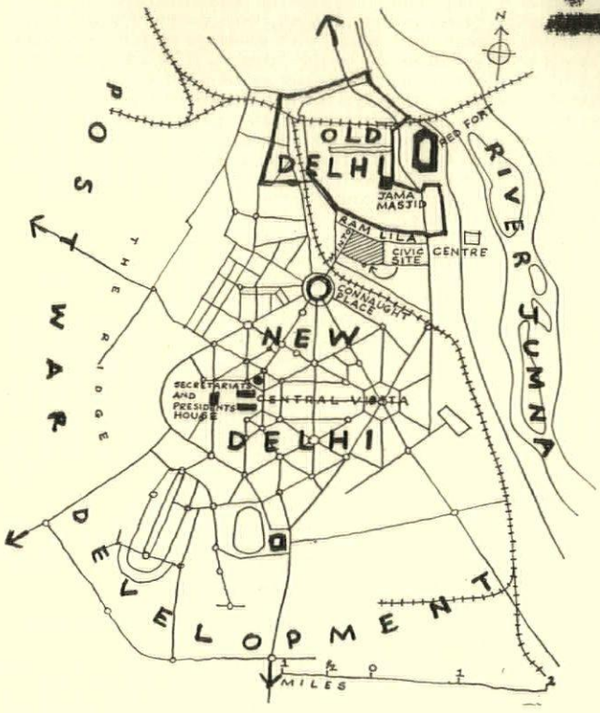


The metropolitan character of a new Parliament Square . . . . . contrasts with the foil of secluded parks.

Gordon Cullen

Effectively there have been eight Delhis in the last 900 years, most of them now but an outlying ruin such as Qutab or Tughlaquabad. Old Delhi (Shahjahanabad) and the Lutyens-Baker New Delhi bring the story up to partition. Today sees the birth pangs of the Ninth Delhi, the capital of the Republic of India. In Gordon Cullen's proposals for the capital the crystallization of a sense of place out of present confusion is advocated, as the drawings opposite witness.

IX TH DELHI



The phenomenal growth of New Delhi, doubling since 1941, has brought to an acute point the problem of organizing this largely uncontrolled and sporadic growth into a significant and viable pattern. The Town Planning Organization of the Ministry of Health is engaged in this work and, more recently, the Ford Foundation set up the Delhi Regional Plan Consulting Team in Delhi to assist the TPO in the preparation of a plan for presentation to the Government of India. The resident American planner, Edward G. Echeverria, has been able to call on specialists in the various aspects of modern planning, the senior consultant being Albert Mayer, the American architect and planner. The Civic Design consultant is Gordon Cullen, whose preliminary report is here published in precis. This report is, of course, but one facet of the whole master plan and ideally should be read in the all-embracing context of population study, regional forces and pressures, industrial potential, the balance of government and commerce and the machinery of planning which will make this unique plan an all-India prototype.

Owing to the pressure of space it is largely impossible to give the reader a description of Delhi and the region, but it is hoped that something of the background will emerge from the report.

Delhi in the Region and in Time

Delhi is a comparatively new town with little industry and yet already it is showing every sign of creating wasteland or Subtopia which does not feature in the recognized landscape categories.

Unlike many cities of the temperate zones Delhi is not surrounded by countryside, countryside in the pastoral or bucolic sense, countryside as an emotional contrast to the crowded and packed metropolis The landscape around Delhi is occupied, irrigated and cropped. If it is not irrigated it is a desert. It is an open-air factory with villages every 1½ to 2 miles. It is flat. Sometimes you can see four villages in one view. It is a pleasant enough prospect but it does not provide the pastoral contrast; the winding groves and streams, the green bowers and solitary places, the well-loved picnic spots. In England it can be found as made by nature. In Delhi we shall have to create it. For Delhi is in this respect somewhat like a ship at sea which, surrounded by salt water, must carry its own fresh water with it.

Consequently I put forward the view that the acreage of park and in particular the Ridge, should be sensibly increased in the case of Delhi and that the park should become one of the great landscape categories. We thus have a rough picture of a built-up, compact city surrounded and interpenetrated by landscaped parkland, the whole unity fitting into the topography of the great continuity of villages. There is no wasteland —no compromised land.

But now we have to think of doubling the population of Delhi. (There are quite convincing reasons for this.)

There has been and will continue to be a revolution in transport. Whereas a hundred years ago it was the actual covering of distance that was laborious, today this is not so much the case. The difficult thing is getting on and getting off. Just sitting is no trouble but it is thus that distance is covered. Hence, distance, as such, is losing some of its relevance in planning. It matters little if we sit in a bus for ten minutes or fifteen yet this could mean a distance of four miles on plan. On this basis the new environment is released, in a

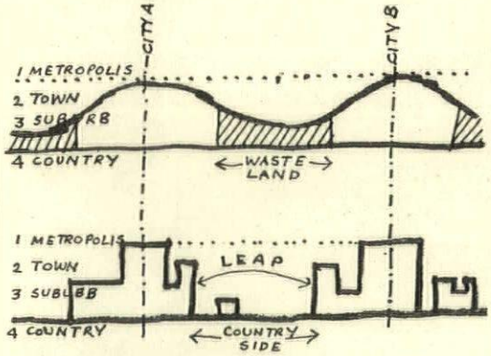
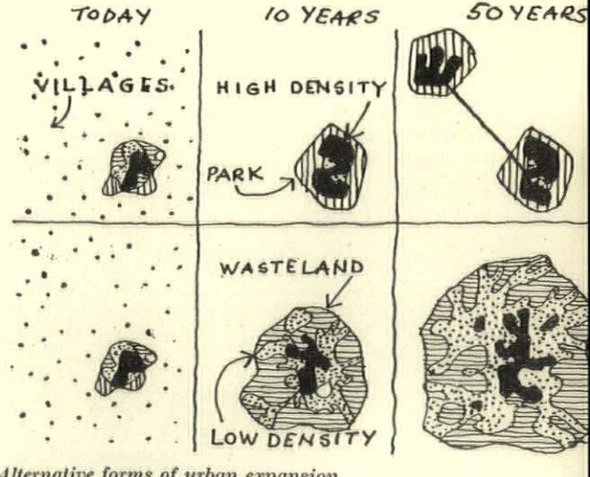


Diagram showing the effect of modern transport on landscape structure.

sense, from the crawling of a snail to the leap of the grasshopper.

We appear to be moving away from nodal points to a thinly spread coast to coast continuity of people, food, power, and entertainment, a universal wasteland.

If everyone is leaping in different directions then we simply turn the whole country into a



Alternative forms of urban expansion.

chromium plated chaos. But let us, for the sake of argument, postulate that a town shall have an edge and at that edge the countryside begins. Is there any reason why this should not be so? Man is liberated in space which means he is able to overcome obstacles of distance. That being so a town can have an edge. If the planner puts forward an obstacle it simply means at this point everyone suddenly starts jumping in the same direction which turns chaos into an *event*.

The planner is to that extent liberated, for by tapping the iron filings of spaceman into a magnetic field he is able to give leg-man, the pedes-

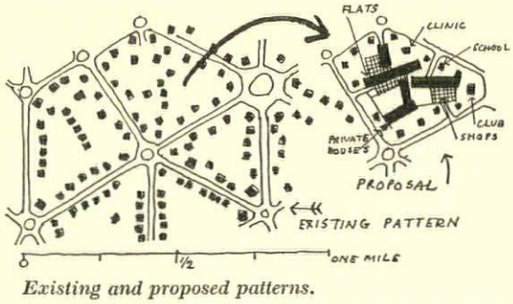
trian,' freedom to move unhampered and a lucid environment to live in and that is the core of the situation.

Here, then, in the consideration of Delhi in the region and Delhi in Time we have tried to get rid of the pernicious habit of undifferentiated sprawl going on month after month and year after year. Instead the idea of the establishment of landscape categories which differ one from another and so serve to refresh the human being is put forward. We have tried to suggest that growth taken place in controlled spasms as complete entities.

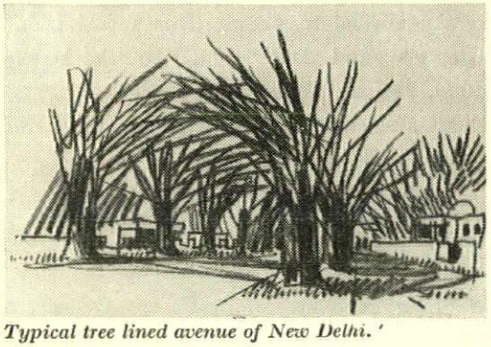
If it is found that Delhi is going to expand over 5 million then start a new town thirty minutes and 50 miles away in the continuum.

The problem of residential New Delhi

New Delhi was not designed as a city but as an extremely grand housing estate for the officials of the occupation. It was, literally, the last word in Civil Lines. A slight elevation in the plain south



Existing and proposed patterns.



Typical tree lined avenue of New Delhi.'

of Old Delhi, Raisina Hill, was chosen as the site of Government House and the Secretariats. From this three green arms spread out; to the north leading to the hospital, to the south to the residence of the C-in-C and to the east, the Central Vista, to the War Memorial. On either side of the Central Vista lay the bulk of the residential bungalows charmingly distributed in arcadia. This area is now the subject of our consideration.

Apart from the full blooded but somewhat boring Beaux Arts street layout the total effect is fine. (Most of the avenues are aimed at some remote architectural feature which keeps popping up again and again saying 'Cuckoo! I'm here.' It's like using an anti-tank gun to shoot a rabbit.) The avenues are broad and spacious, the trees arch over the road and the footways and grass verges have the kind of informality one might expect in a private avenue leading from the Gatehouse to the Great House in an English county. The traffic intersections are usually quite spacious tree-planted roundabouts picked out by the white-painted post and chain detail of the eighteenth century. The presence of houses is not insistent for they are widely spaced and well set back behind low brick walls painted Delhi red. Intersecting the main roads are the service roads which have much of the look of an English lane. The whole effect is charming. Quite apart from this the presence of so many trees serves to make New Delhi at least ten degrees Farenheit cooler than Old Delhi in hot weather.

Old Delhi: three hundred years ago Shah Jehan created Old Delhi. It was the Civil Lines of his day and inside the protective wall lay the two great monuments, Jama Masjid and the Red Fort. Also there were the spacious homes of some hundred noble families. As time went by the gardens were built on and traders encroached on to the streets, they established squatters rights and the process began again. Today Old Delhi is one of the most congested pieces of urbanism in operation.

With this lesson from the past what is to be our attitude towards the anachronism of New Delhi? Can the Capital City of India afford to preserve the present aristocratic density or are we to accept this density as a desirable normal and develop a huge, sprawling Delhi in which two storeys is the average height?

Quite clearly the centre of Delhi must be made available to many more people and the question is really how best to do this, not shall it be done at all. What we must avoid at all costs is the piecemeal encroachment that ruined Shah Jehan's Delhi and is now in the process of ruining Lutyens's.

The problem is fascinating. What we are faced with is an inversion of the landscape categories. The suburb, arcadia, is not on the edge of the city, it is right in the middle. And not only do I think that the present road layout is an investment which cannot be discarded, not only do I appreciate the fact that the abundance of trees reduces temperature, the fact is I like it. Why should Delhi copy other cities? The scale is not suburban, it is imperial.

A glance at the map shows how the road layout creates a number of sectors. At the moment villas are reached from the main avenues and the central portions of the sectors are occupied by servants' quarters and other low-cost housing. (In fact it is incredible that in the centre of the sector nearest Parliament or the Secretariat there is a mud village with painted walls.)

If, therefore, we start operations by developing the sectors from the centre outwards we have enough space to build intensely urban cores of flats, shops, schools, cinema and other interesting buildings without disclosing our hand to any significant degree.

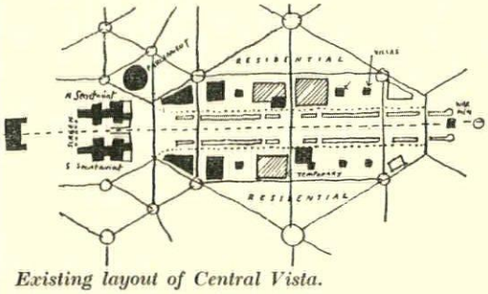
The next move is to regard the whole zone as a precinct and develop the roads to the east and west as the main through roads. This will reduce the pressure on the green avenues.

In this way the usual order of things has been inverted, instead of built-up traffic routes with shops and houses on the busy streets contrasted to green gardens behind, here we have shady green and quiet roads with enclaves of jolly and vital urbanization in the interior. It is, of course, just the ordinary precinct system but in this case the circulation system has a powerful personality of its own, it is not just the space left over between the interesting bits, the precincts, filled from time to time with traffic. It is a powerful personality in itself (which will give life to the precincts by contrast) having great climatic and historical validity.

What is the alternative? As the pressure increases private houses on the avenues will be converted into blocks of flats, shops will appear in the interstices, the Central Vista will become built up and isolated with museums and Government Departments, traffic will increase and roundabouts will fail to cope. In a few years there will be built-up streets with a few mangy trees in them and a heterogeneous wasteland in the core of the sectors. The waste of natural landscape resources in this kind of development is obvious, the streets become unbearable and the centres of the sectors are wasted.

Central Vista and Parliament

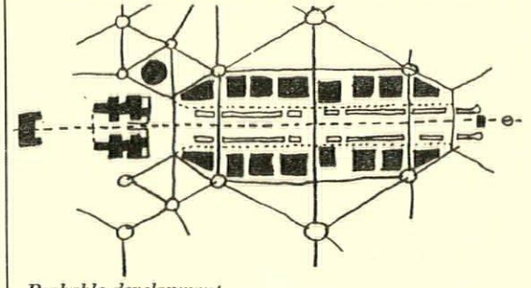
The length of the vista from Rahstrapati Bhawan to the War Memorial is nearly two miles. Its effective length and width is infinity since few buildings are more than tree height. The function of Delhi has changed since this design was crystallized. Delhi has changed from being an imperial capital to becoming the democratic capital of a republic. I am not much concerned with symbolism, what interests me is the fact that with the withdrawal of the protective government class, who doubtless would have kept Delhi as it is in perpetuity, the capital is now exposed



Existing layout of Central Vista.

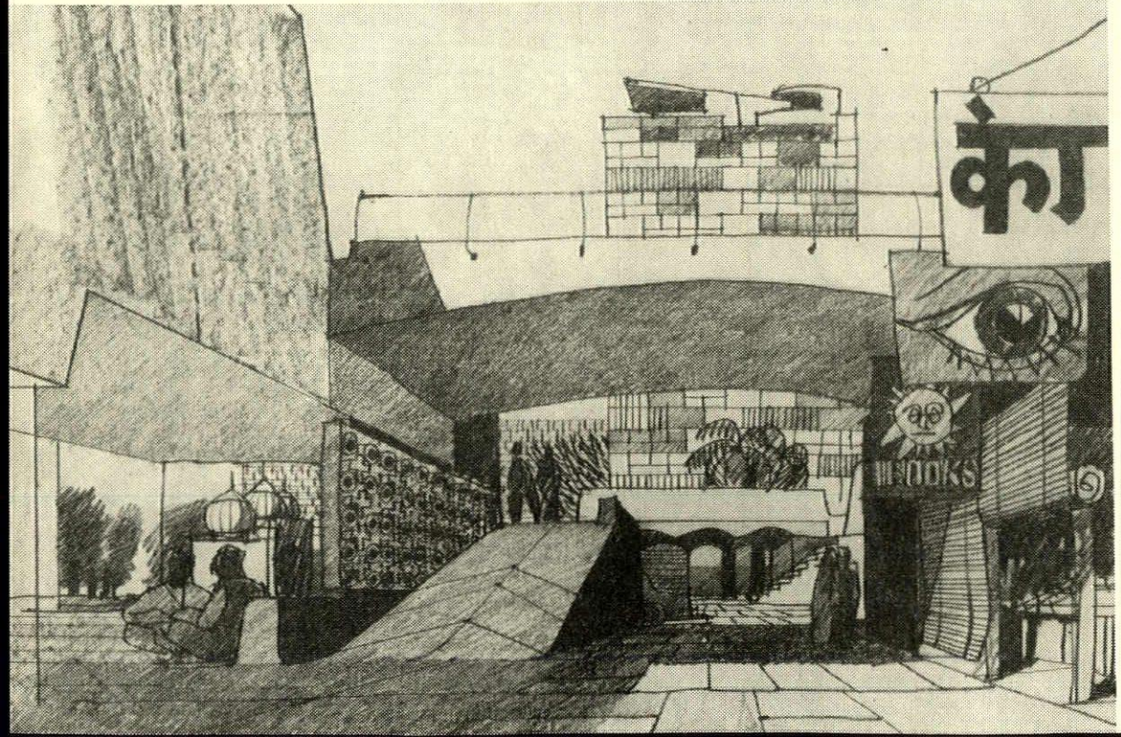
to the pressure of expansion. Densification is inevitable and welcome. The only difficulty that arises is how to weave this into the existing heroic pattern and not make the whole thing look silly or suburban, or just a colossal bore.

There are probably a hundred ways in which



Probable development.

New cores to sectors having their own life and urban vitality.



the area might be developed but here let us be concerned with two.

Firstly, what is now happening. The simple and obvious method is to line both sides of the vista with six-storey buildings or buildings of bulk in place of the present villas or bungalows. These buildings to be Government offices or public buildings. This process has started at the west and is moving east. It is therefore what in all probability will happen. Against this development I put the following arguments.

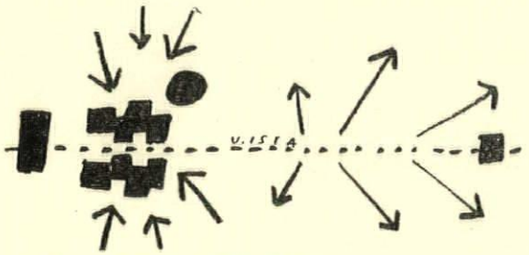
Too much reliance can be placed on the axis or vista to save the situation. The axis is not enough to pull the twelve separate buildings into life.

Again, if all the buildings in the complex, secretariats, parliament, etc., are to be separate and placed in their own settings we shall never get a city. We shall simply get a forest with buildings in it. This is safe; it is like those papier mâché containers for carrying eggs but you will never get a decent omelet that way.

In any examination of the Central Vista area the stresses operating on the site should be taken into consideration. In my view there are two distinct landscape forces at work.

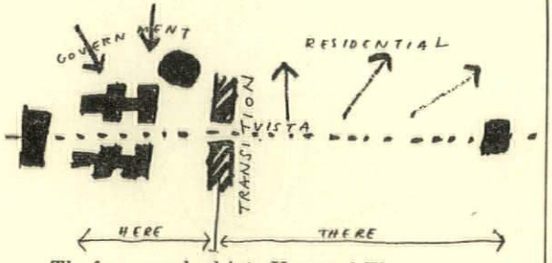
1. At the western end there is an inward thrust aimed at the two Secretariats and Parliament. Parliament Street bears down from Connaught Place (with its commercial and business potential) and the natural accretion of government floor space will be concentrated in this area.

2. From approximately the middle of the vista to the east there is an outward thrust which is generated by the parklike landscape of the central vista linking with the Beaux Arts planting of the residential zones to the north and south. (These residential zones will be subject to densification and in this case it will be desirable to maintain the volume and extent of landscaping as a foil to the high density urban cores.)



Force diagram of Central Vista.

The plan, therefore, begins to look like this. There must be a point along the line of the vista when the inward forces will give way to the outward forces and the discovery of this point becomes a key task. Since the essential view is the view of the vista then we must take as our standpoint the view from the Secretariat. What we wish to create is a division of the axis into two parts: the Here of the government complex concentration and the There of the landscaped



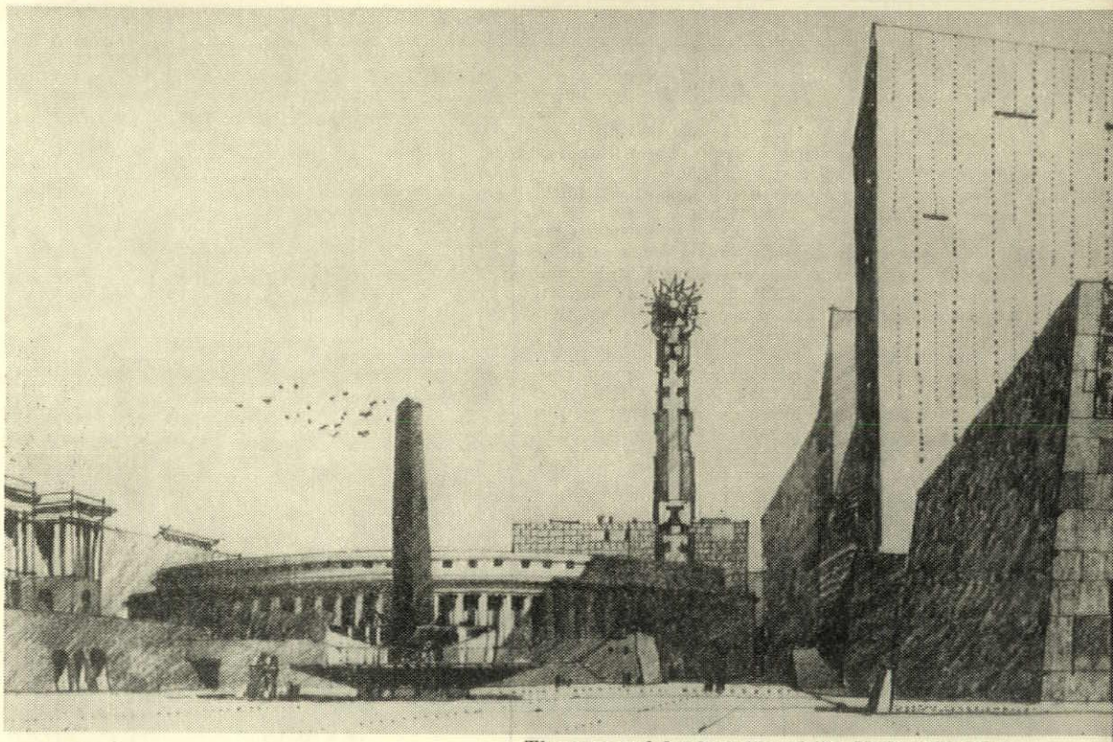
The forces resolved into Here and There.

areas. Owing to the working of the laws of perspective the division of a straight line into two parts of the same visual weight will not be achieved by dividing the line into two equal pieces. If we did that the nearer half would dominate to a ridiculous degree as the diagram shows. In fact we shall be wise to make the division close to the plinth of the Secretariat.

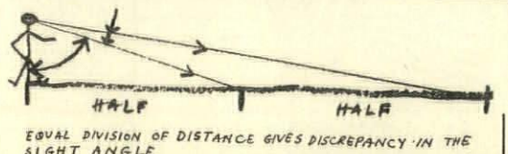
Based upon this division of space we must now create the two localities, the metropolitan locality of government and the landscaped locality of the vista which is its foil.

Any sense of metropolitan locality must be

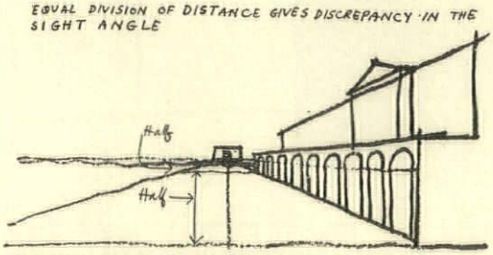




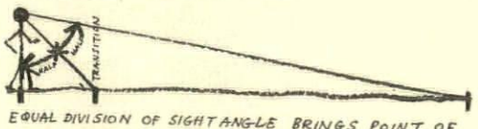
The proposed landscaping of the Vista contrasted to the new metropolitan character of the Secretariats and Parliament zone. The unifying plinth is shown as the space-creator. (*See also page* 110.)



EQUAL DIVISION OF DISTANCE GIVES DISCREPANCY IN THE SIGHT ANGLE



BUILDING EXTENDS HALFWAY BUT EFFECTIVELY GOES ALL THE WAY



EQUAL DIVISION OF SIGHT ANGLE BRINGS POINT OF TRANSITION CLOSE TO OBSERVER

generated by the existing block of government buildings which, at the moment, lies on its axis like a ship at anchor, alone on the water. It must extend its influence so that new developments will be homogeneous.

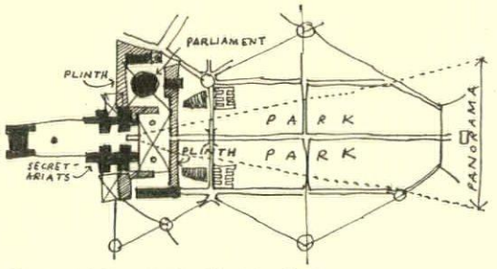
At the moment the ground in front of the building is neutral street, visually it is simply the base on which the buildings stand (the water on which the ship floats). In the process of creating locality, a sense of place, it should clearly belong to the Secretariat just as the forecourt of St. Peter's belongs to the Basilica.

Normally it is difficult to make additions to a building without the threat of spoiling the original conception. In the case of the Secretariat group, however, we find that the composition is basically that of pavilions set upon a red sandstone plinth and we can regard the pavilions as inviolable whereas the plinth can be added to without destroying the conception. If, for instance, we altered the direction of the plinth, if the plinth extended forward with two extending arms like two arms of a pier enclosing calm water, then we

would have extended the influence of the Secretariat block, the enclosed ground would belong to the parent building and the enclosure would be integral with the parent building

By the conception of the plinth we have released a unifying power, a creator of spaces and enclosure and any building erected on the plinth will immediately be in relation to the original pavilions. On this red, geometric base we can place, strategically, the new buildings; floating veils of pierced white marble. The actual manipulation of the plinth will be aimed at weaving the whole Government, Central Vista and Parliament Street complex into a coherent unity.

The plinth is hollow and in its dark labyrinthine coolness are the pedestrian ways and local haunts that the development will need. Here we can generate the drama of the interplay of light and



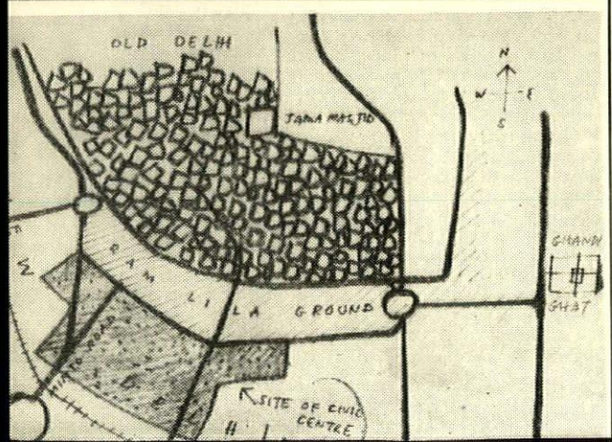
Proposed layout in diagram form.

shade of the cavern with internal fountain and pierced screen and beyond the blinding illumination and heat of the vast square.

Turn now to the foil, to the landscaped park. I find that it has two uses; it has a formal use in that it is the raw material out of which the vista is constructed and secondly it is a pleasant place for a stroll furnished with grass, trees, water and monuments. Unfortunately the formal use far, far outbalances the human use and I suggest that this be put right. Let us by all means preserve the central avenue which has its axial virtue and also its annual functions of staging the processions. But after that we can cry 'Enough.' Let the rest revert to human scale so that we can stroll at leisure through clumps of trees instead of rigid, never ending avenues, so that we can sit down by the gently curving, reeded water's edge, not the long straight tanks. Let us gently contour the ground so that the everpresent view of motor cars is, here and there, cut out. Let us so arrange the planting that monuments are revealed or enclosed to some dramatic purpose.

View looking from New Delhi to the commercial 'wall' of Old Delhi across the Ram Lila ground. Plan below.

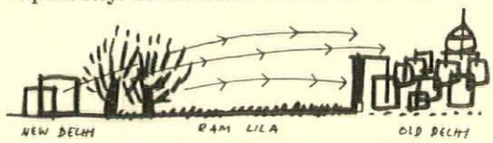




The Civic Centre

The optical and emotional stresses at work in the area are simple but should be respected.

First we have the intense polarization of the capital city. To the north of the Ram Lila ground

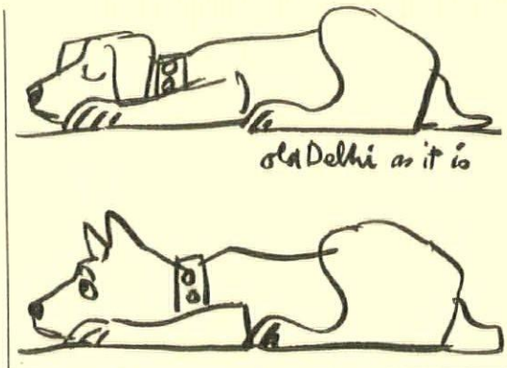


Section through Ram Lila showing optical forces.

is the Old City with its 1,000 people per acre, its slums and overcrowding; its noise, bustle and vitality, its bargaining and industry. On the other side, to the south, is New Delhi; spacious, leafy and quiet.

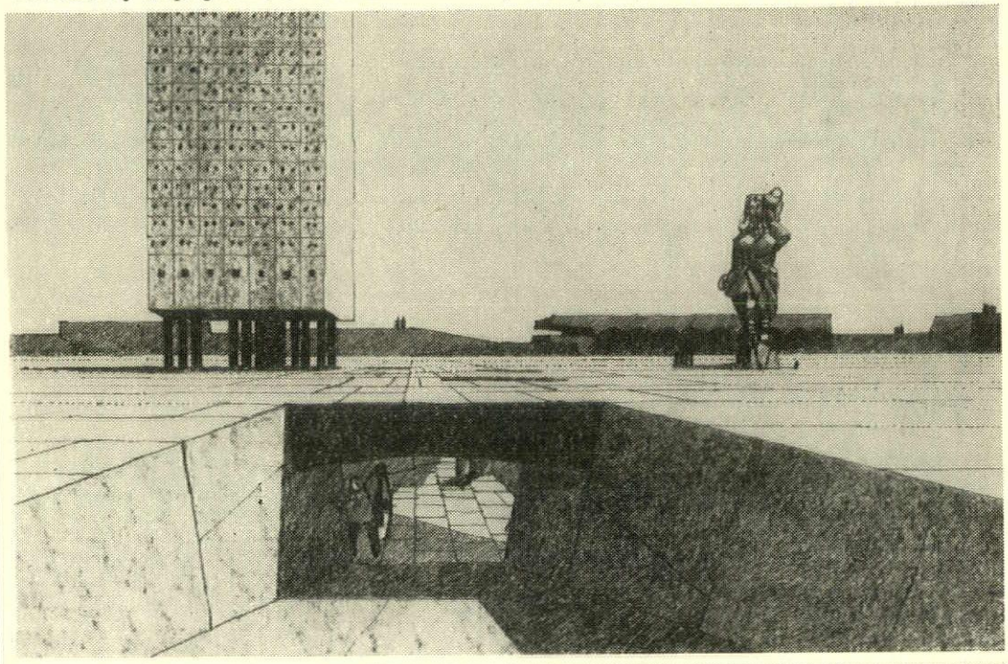
Were the two parts contiguous the contrast would be obvious enough but the hundred yards or so of separation dramatizes the situation. One literally bursts out of the jungle of New Delhi and sees across the open space the sun baked, uncompromised wall of the Old Town. It is a new commercial wall but as effective as the old wall.

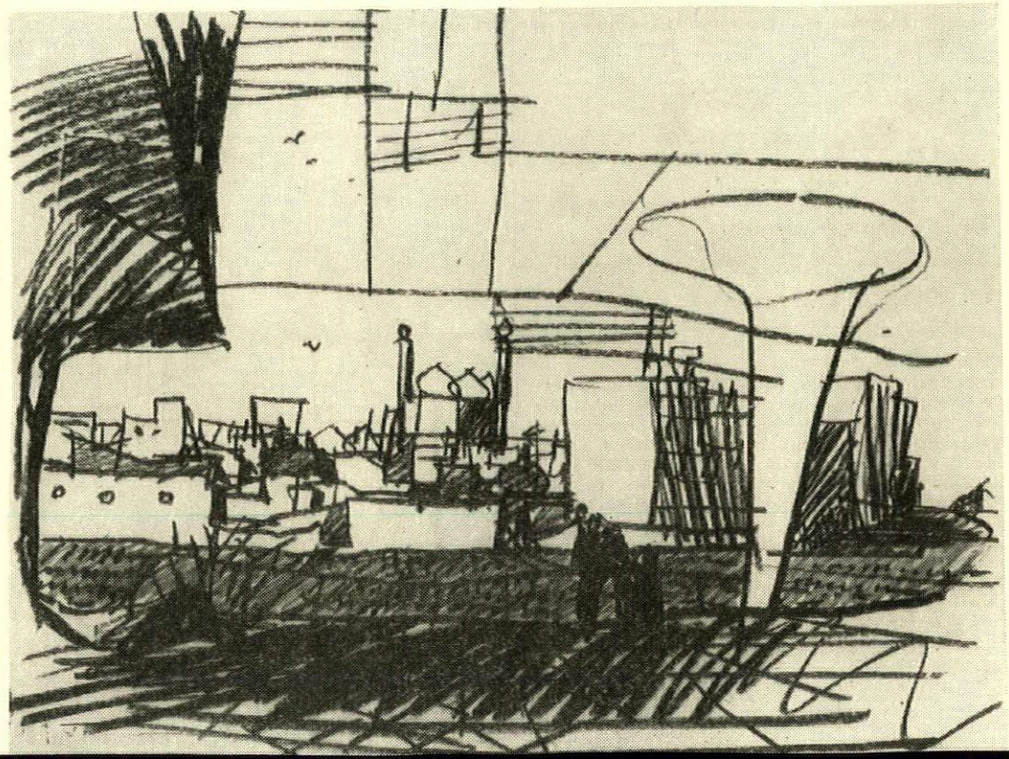
In this circumstance there exists a dramatic



situation. There is an awareness of difference running all along the facing edges of the two towns. The drama is generated from one side of Ram Lila to the other; not along it. It is vital to determine the role of the Ram Lila ground in this drama since it plays a key part. Lengthwise Ram Lila leads nowhere nor does it need to lead anywhere for it has no validity as an axis. It should appear to continue but not to lead to anything dominant (when the time comes for it to stop then, of course, it must terminate properly).

Two views of the proposed Civic Centre.





Neither is it an enclosure although to the north the wall of the Old City forms its edge and the avenue of trees performs much the same service to the south. To make it into an enclosure would be to create an identity, an identity which would, of necessity, superimpose its own personality on the actual differential. What in fact it is is not at the moment clear but let us keep it uncommitted for the time being.

Returning now to the Civic Centre it is clear that if it is to become the 'capital of Delhi' then it will have to dominate, it must do this in scale and sheer height as well as in content. On the other hand it will do this without absorbing either old or new Delhi, without absorbing or lessening the character and uniqueness of either, for this is neither necessary nor desirable. Thus we have a drama with four players, Old Delhi, New Delhi, the Civic Centre and the Ram Lila ground. Briefly we can imagine the Civic Centre as a cellular structure not isolated but attached to New Delhi. A lofty, hollow cliff forming the northerly climax of New Delhi and dominating the Old City by its size and proximity.

The dramatic situation has been created by the act of juxtaposing the Civic Centre and Old Delhi across the narrow green strip and all that remains is to exploit it.

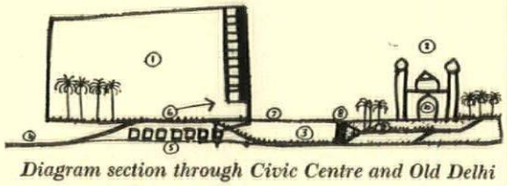


Diagram section through Civic Centre and Old Delhi

The drama is static, the situation frozen like two dancers, carved in stone. But on the ground, on the green strip we are free to move from one to the other because it penetrates north into the treeshaded courts of Old Delhi and south into the enclaves of the Civic Centre.

Ram Lila becomes the connector, the third person who performs the introduction but remains himself; who separates the two so that they do not loose their identities but who exists in both so that the whole drama can be experienced.

It is enlightening to compare the Civic Centre with the other two great focal points of the city; I mean the Secretariat and Jama Masjid. Both of these have one thing in common, their use of levels. Both are raised high above the normal road level and this bestows on them a distinction which is not only legitimate but exciting as an element in the structure of the city. What more natural than that the Civic Centre follows suit.

Imagine, therefore, a raised couryard, a raised public space contained by low walls. From the outside it is provocative, something to be attained, its surface is invisible and it has authority.

Placed upon this raised public space will be all the buildings of the centre arranged to form enclosures and subdivisions of different scales and complexity to suit the various functions.

To fully understand the nature of the Civic Centre study the development at ground level. This area, the roof of which forms the raised platform or concourse, will be devoted to a variety of purely utilitarian uses such as storage and car parking, but its main use from our point of view will be for public circulation and access to shops, cafés, gardens and the civic buildings. Here, lit by incisions in the roof, will be the cool, vaulted grottos, green with shaded plants, the underside of the vaults dancing with the reflected sunlight from pools and fountains, here will be shops and cafés. Access to this ground level activity will be from all the surrounding roads in a normal matter of fact manner so that in many cases the entrance to the Civic Centre will be effected by simply climbing a few steps and emerging from the shaded and enclosed world of the troglodytes out into the middle of the vast, sun baked geometry of square and prism. For this is the people's capital; we do not want monumentality, the formal approach, the wrot iron gates and the whole municipal bag of tricks. Instead we want immediacy, drama, scale and fluidity of movement.

In the square stands a clump of trees and you walk over to it. It is the outpost of Ram Lila which has unobtrusively ramped up, crossed the Circular Road and is now standing invitingly cool and shady. Follow down to the landscaped park and across to the courtyards of the Old City. In this way we try to weave together all the elements of the environment, the vast vault of the sky, the inside and outside, great scale and intimate scale, anticipation and revelation; we juxtapose landscape elements so that in the end a rich, living tapestry is woven out of the relationship of simple things.

Rehabilitation of Old Delhi

There are probably as many views on what to do with Old Delhi as there are observers. Briefly I can see three attitudes:

(1) Leave it alone as much as possible. After connecting up the remaining houses for sewerage and creating a bit of open space where obsolete property collapses leave it to develop in its own inscrutible way.

(2) Pull the lot down and rebuild a modern city. It is too crowded and decayed. The streets are too narrow. It is hopeless.

(3) Put it right.

I am a put-righter. My reason is simple. It seems to me that here there is a unity and homogeneity between man and his environment which is genuine, it is worth something, and to pull it down would be wrong. To leave it alone when development is occurring all round it is to give it the death sentence. I feel we have to put it right. The sore points apart from the obvious ones of dereliction, slum property and sewerage concern

(*a*) Industry.
(*b*) Traffic.
(*c*) Overcrowding.

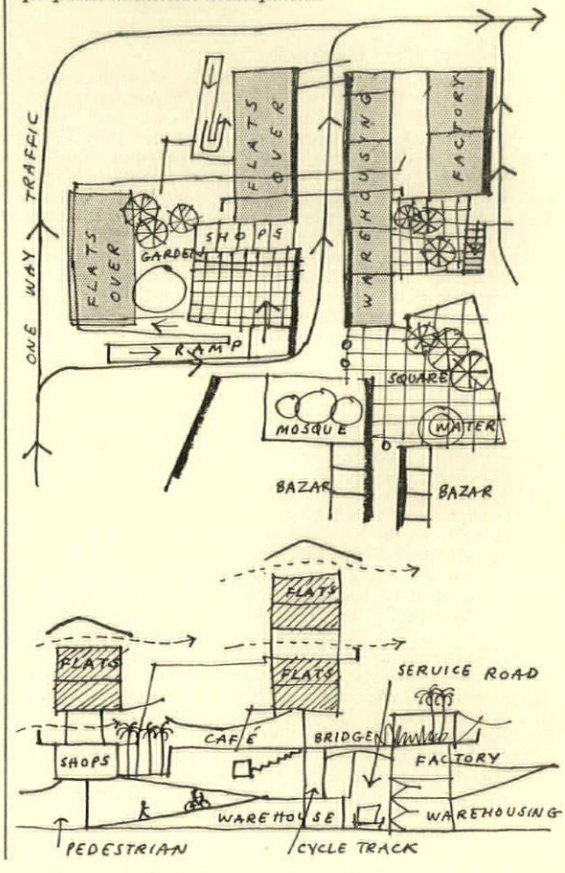
The average building height is, I am told, two storeys. In view of the position of Old Delhi in the capital of India and the land values this is too low and will crack sooner or later. Traffic conditions inside the old city are appalling. There are about twelve different road users: trams, buses, private cars, lorries, motorcycle rickshaws, bicycle rickshaws, tongas, cycles, bullock carts, sacred cows, pedestrians. The roads themselves, with one or two exceptions, cannot take two-way wheeled traffic. People who live inside Old Delhi and own motor cars are at some difficulty to know where to park them. Some form of traffic rationalization is inevitable even if that rationalization is to close the old city to wheeled traffic. Then there is the industry of Old Delhi, this is carried out with precision lathes and all modern tools almost literally on the pavement. On top are the houses. This picture does not include the shops and offices, the sudden stillness of the courtyards of mosques and the herds of buffalo.

In face of this what can we do except increase the height of buildings in the form of flats to relieve congestion, open up wider traffic routes and zone industry into proper rentable factories.

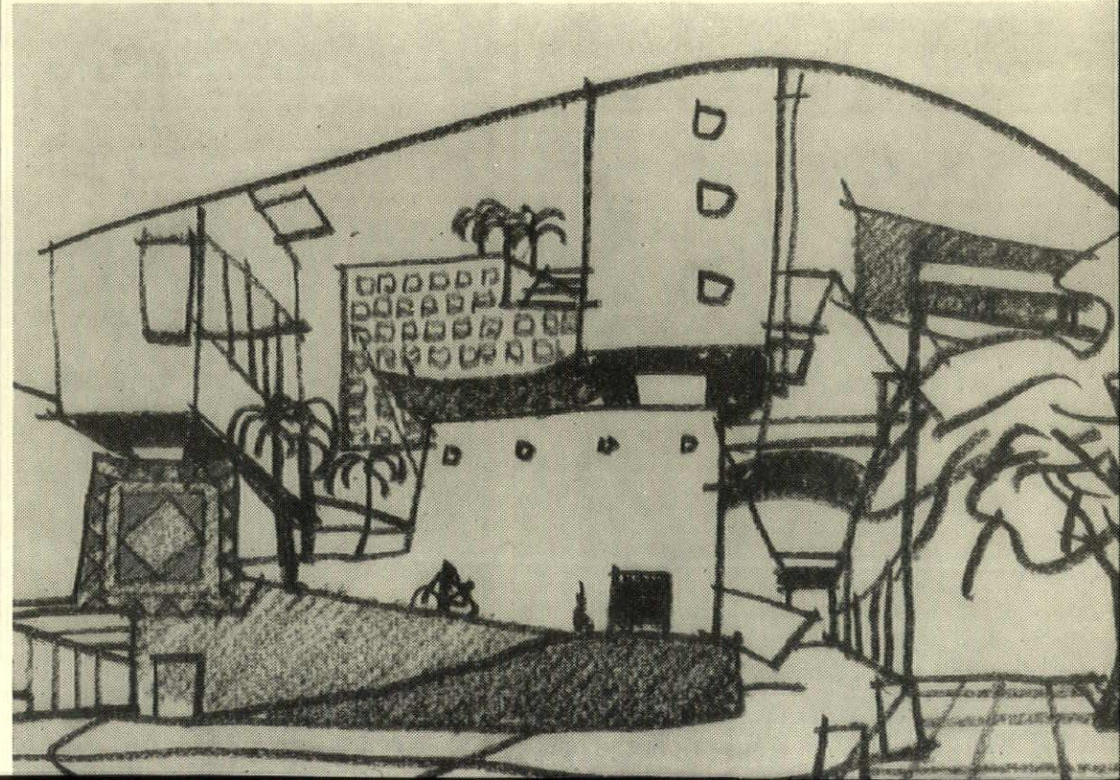
In this way I feel we would destroy a great deal of the homogeneity of the old city. By moving people from the ground up into the air in flats we disassociate them from the life of the ground. By widening the streets we turn people off the roads which are the life of the town; the roads become untenable. By grouping industry into factories we begin the disintegration of the unity, we take the men away.

You will say to me: All these things are common practice to you. You live in ten-storey blocks of flats, you go to work in the morning and come home in the evening. Your streets are full of cars. I know; I don't like it. I am not concerned with the preservation of physical things but the creation of an integrated community. It is significant that there is hardly any crime in Old Delhi.

Schematic plan and section of the old city showing proposed multilevel development.



Characteristic view of the development of the Old City.



I propose that whilst it is inevitable and desirable for the buildings to rise from an average of two storeys to an average of four the public circulation and recreational space be drawn upwards also so that the families in flats are not isolated from the ground. In other words, we plan in three dimensions, not two. We create an artificial hill town in which the different levels are unobtrusively linked by shopping streets which are, in fact, ramps.

If, for instance, we create alternative levels of circulation then traffic will sort itself out. If, instead of zoning workshops to one particular place they are arranged at suitable levels then they remain efficient and integrated. Open space and recreations need not necessarily be on the ground. They can be twenty feet up, or higher, thus developing social life at different levels and tying all together.

Chandni Chowk

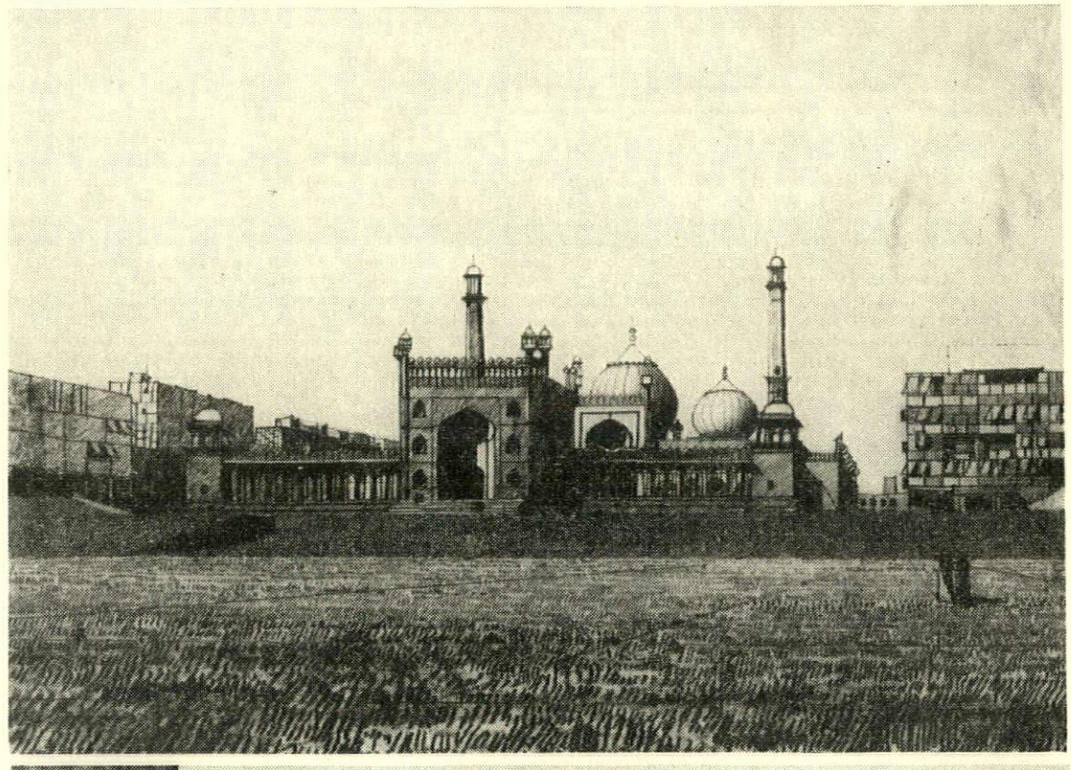
Chandni Chowk is the main shopping and commercial street in Old Delhi. Threequarters of a mile long it runs straight east and west between the Fatipur Mosque and the Red Fort. It has a dusty and faded elegance and colossal vitality. It is one of the very few streets in Delhi which has scale and incident.

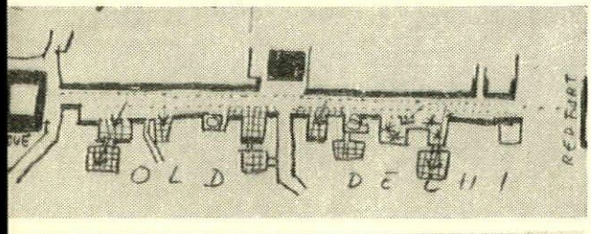
In considering the attitude of people towards their environment one of the active forces is that of possession. There is for instance static possession; the group of people sitting in the open in the favourite place. By tradition and usage there are usually recognized places of meeting in town and village. Second, there are those places which seem to precipitate the formation of groups, areas of viscosity such as shopping streets where people are always meeting friends or business associates and loitering for a chat. Thirdly there is possession in movement where someone might colonize or occupy a favoured line. Close to the parapet of a bridge, for instance, is one such line favoured for its view and immediacy.

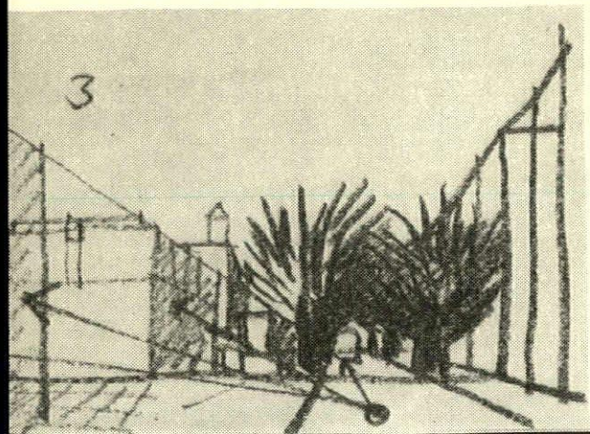
Chandni Chowk falls into the second category, it is a place of viscosity and consequently we should design for this behaviour. First then the somewhat ragged avenue of trees should be completed by new planting both for the welcome shade and for the fact that a tree is a vertical object; you can lean against it or put a seat round it; it becomes an aid to street sociability. Secondly, Chandni Chowk is a straight street, a corridor street, and this does not excite sympathy. What is needed is enclosure of some sort to provide the background for the group. The space needed could be obtained by widening the street but this would not give the required intimacy of enclosure. The solution put forward is to regard the north side of the street as a tall cliff but the south or shaded side as a cliff with caves. We do not widen

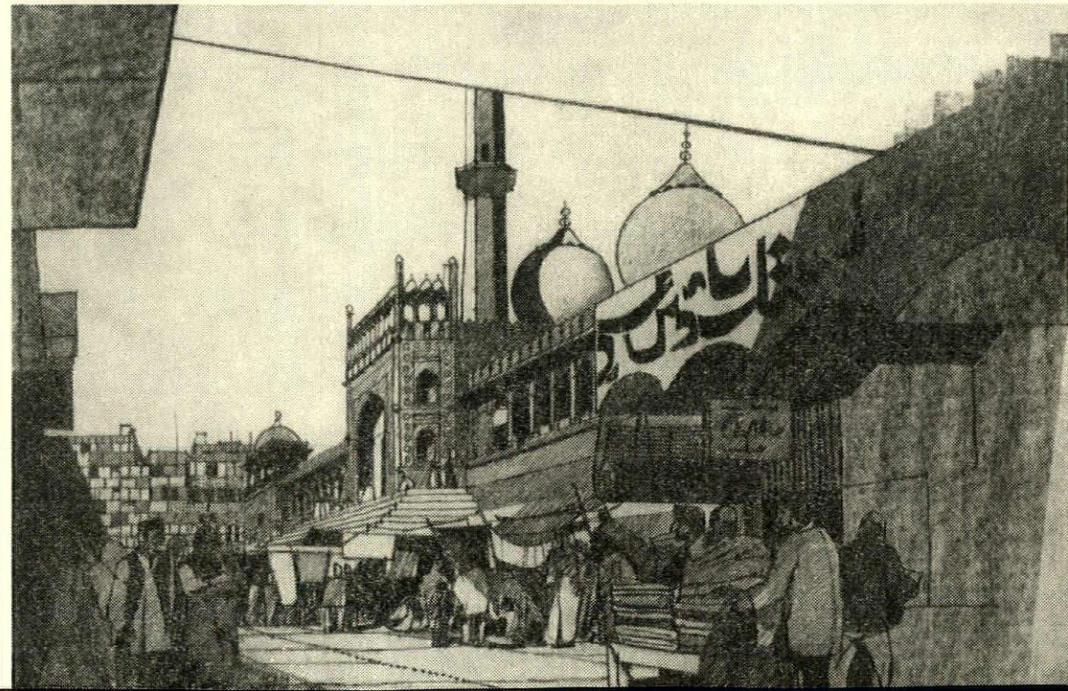
Top right, the new approach to the Jama Masjid and Red Fort unified by screened vista. Centre right, proposed landscape treatment of the Mosque. Bottom right, penetration to immediate neighbourhood of the Mosque reveals intense activity and trade. Below, plan and proposal for area between Red Fort and Mosque.











the street but where there is a derelict property it is removed and turned into an alcove, into a small courtyard open to the street with trees and shade if necessary.

Old Delhi consists of small streets and courtyards and the development proposed would penetrate to this level. It would be the precise opposite to Haussmann. This then is the functional disposition of the street.

The Jama Masjid and Red Fort

Jama Masjid, the great mosque, lies in Old Delhi but faces the Red Fort across a wide stretch of parkland. There are thus two main problems, first the siting of the mosque in the old town, the sort of enclosure and development necessary, and second the scenic possibilities of the mosque and Red Fort together.

There is little need to underline the concentrations of retail activity, the narrowness of street and alley and their crowding, the distracting noises and signs. What is so staggering is the minute concentration: there is, for instance, a row of booths in the shadow of Jama Masjid which is devoted to the motor car accessory trade. In one of these little boxes about five feet cube sits a cross legged dealer, a ray of light penetrates the roof. The box is lined, floor and walls, with speedometers, there must be about 600 or 700. After observing booth after booth of equal intricacy and concentration but of varied accessories the mind begins to boggle. In the centre of all stands the red sandstone mosque of Jama Masjid, the largest in India. The entrances, some 20 feet above the street level, are approached by steps rising out of the mass of stalls. On these red sandstone steps lie sleeping figures, some wrapped up like mummies. Contemplative goats recline there. On the top are families washing and sleeping. The floor is red with spittle You take your shoes off and go into the mosque and the miracle happens. Suddenly you are in silence, you are clean and almost alone in a vast open courtyard about 350 feet square. Instead of the smell of urine there is only the vast, pure blue of the sky. The courtyard, paved in red sandstone, is surrounded by open arcading on three sides and on the fourth stand the three domes and twin minars. Unlike a mosque at ground level you can see out of this raised courtyard.

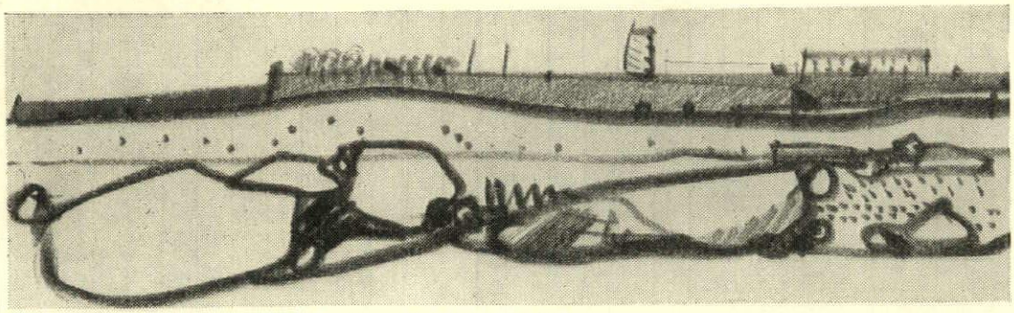
Turn now to the park. Here are two great monuments facing each other across a stretch of green which is bisected by the northbound road. The junction of the park and the Red Fort is clean, dramatic and immediate because of the moat which hides the actual junction and lets the undulating turf make visual contact with the red sandstone in a natural, almost calligraphic way. What we must do is to achieve the same contact of the turf with the Jama Masjid and to tailor the road into the park so that there is just one great continuous sweep of green uniting the two monuments across the great distance. I propose to do this by artificially ramping up the park slightly as it approaches Jama Masjid sufficiently to hide the market and give a clean, uncompromised edge, and by planting a screen of royal palms which will unite the scene into a great screened vista.

Consider the place of Jama Masjid in the internal disposition of Old Delhi. The first outstanding fact is the existence of this magic, elevated plane; this vast, quiet courtyard. Link this to previous proposals concerning the rehabilitation of Old Delhi, the advocacy of a multi-level development to preserve the integrity of the social structure, and the prospect is exciting. Can we but create public spaces at the same level as the courtyard, however tiny or distant, then the power of the courtyard will leap across the intervening space, across the noise and turbulence below, like an electrical discharge. Hence the gambit of raising the entry to the square from the Red Fort area so that access to the upper level is natural and easy. In this way, gradually we attempt to join and link and bring all the city into a significant relationship.

Neighbourhood Centres

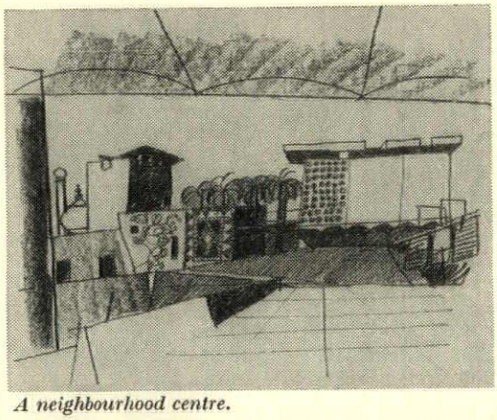
A lonely group of fishermen live in a savage valley in Spitzbergen. Their little houses cling to the indifferent surface of the great rock masses like lichen on a boulder tossed carelessly down a cataract a million years ago. In this vast desolation of naked rock, in the hopelessness and sterility they have their homes. Outside their homes they have erected posts on which cross pieces are fixed, these have no religious significance. As the fishermen come home the great wall of the valley dominates everything but as they walk on and come closer the crosses, the rough man-made constructions, gradually rise up into the silhouette and overcome the alien mountains.

It is in this perilous sense that man's home is more than economics, it is not only a roof but a cross raised up against emptiness and desperation and anonymity. If we can imagine a synthesis of the cross and the roof we are near to understanding the purpose and scope of civic design.



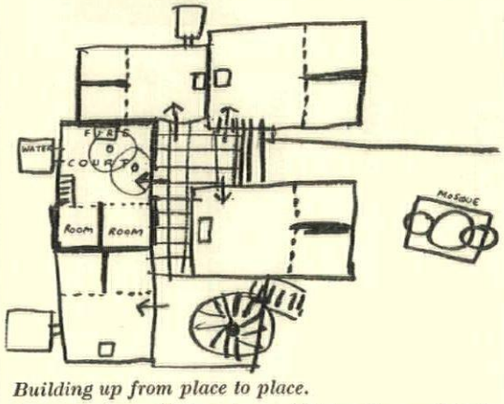
In the desert, the neighbourhood is encountered as sculpture.

It may seem odd to begin our account of a neighbourhood centre by describing the roads that lead to and from it but I want to try to put forward the idea of a centre as being a place, a locality, a personality, an object like sculpture encountered on the road. It is made of brick and steel, plaster and paint. The road we are on is one thing, it is a means of getting from A to B, it is not desirable or necessary to have it hemmed in with bazaars and ribbon development. The road should run through the belt of parkland free



A neighbourhood centre.

and uncomplicated but over there, out across the field is a white wall which appears to enclose a village. It isn't a village but it has that effect, the effect of being an incident on the route

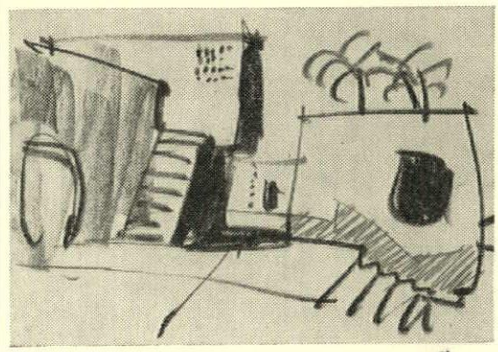


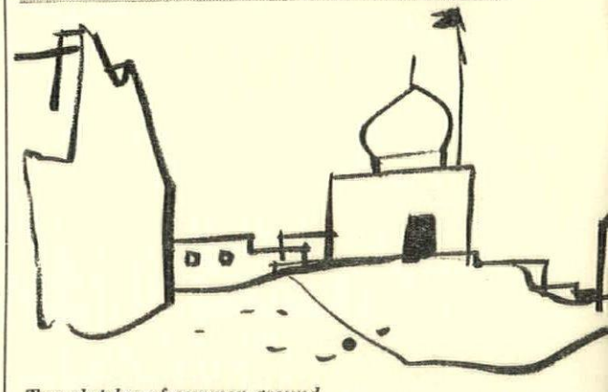
Building up from place to place.

because the wall is not parallel to the road but obeys a different internal discipline. The road landscape with its sweep of turf, its trees and its rocky outcrops is one thing and the habitation is another. The wall varies in height and composition. Here it is windowed and clearly part of houses, there it is plain and we see palms and fruit trees over it. Gates and openings occur leading to the interior life which to us is still invisible but its existence is manifested by the towers and domes visible above the wall. We are here and it is There.

Suddenly the wall juts out at right angles and the road penetrates into the hitherto secret structure. We are in the civic centre, the seat of local government, of big shops, of factories and entertainment. This brief immediacy explains the habitation to us, it gives us scale, colour and vitality of the development. It is a nodal point in the journey for we can use the centre, stop and wander about, buy things and visit.

Now start again, start in a new house, one of the humble houses that go to create the habitation. We are here in a courtyard, it is open to the sky. It is the atrium and contains the door from the street, the fireplace, the shade tree or the means of shade, it contains a door leading to water and





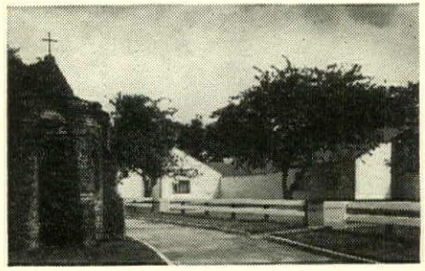
Two sketches of common ground.

sanitation. Off the main space are a sufficient number of private rooms. This is the first and greatest of places, it is sky and fire, water and sleep, conversation and worship. The family ambience reigns inside the courtyard but open the street door and we enter a large space created by the walls of ten or twelve houses, it is a street but also a space which is collectively owned by the people who live round it. It is here that the family becomes part of the community because here they meet and chat and help each other. Perhaps several of these spaces will lead into a local centre with temple, shops and bus stop. In this way we build up from place to place, from domestic courtyard to the common ground of neighbours and from this to the places of commerce and business and trade. Yet all is kept integral, all has a sense of place and belonging right up to the civic centre itself.

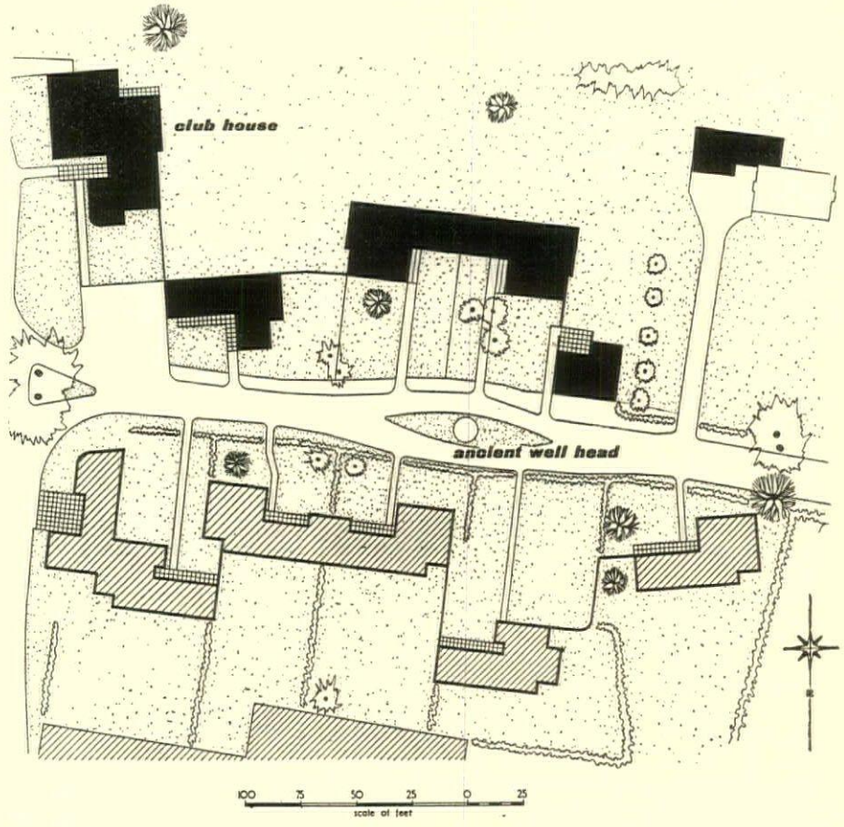
REBUILDING OF RUSHBROOKE VILLAGE, SUFFOLK

ARCHITECTS | **RICHARD LLEWELYN DAVIES AND JOHN WEEKS (executive architect, Michael Huckstepp)**

The second stage has now been completed of the project for rebuilding, as a designed entity, this small village near Bury St. Edmunds. The first stage (illustrated in the Architectural Review for August, 1957) comprised two new houses just beyond the edge of the village, built as a pilot scheme. The second stage (illustrated here) involves the south side of the village street. The third stage, not yet started, involves the north side.



1, the centre of the village with rebuilt houses, on the right, and the old well-head.



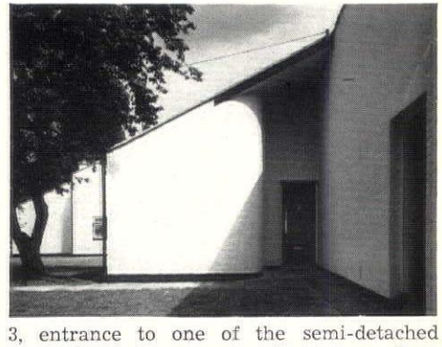
Rushbrooke consists only of a church and about two dozen houses, nearly all occupied by local farm-workers. There is no public-house, but there is a club, run by a local committee, with bar, club-room and facilities for dances and whist-drives. A new building for the club, at the end of the village street, is part of this second stage, together with the demolition and rebuilding of four houses, similar to those forming the pilot scheme.



2, Rushbrooke from the air, showing the rebuilt group of houses on the far side of the village street, those to be rebuilt at the next stage on the near side and the new club building at the corner (partly behind the tree). The group of pilot houses, illustrated in August, 1957, are further along the road running off the left side of the picture.

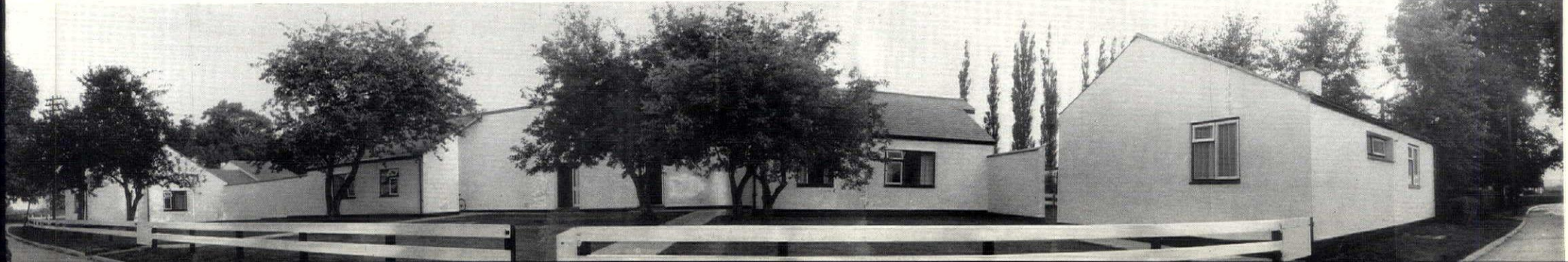
The buildings are connected by walls to form a continuous band of building along the side of the street. At the entrance to the village, the club building is set back, giving room for a small car-park. The club building is slightly removed from the core of the village as it is used by visitors from outlying cottages, some of whom come by car. The first house in the village is quite close to the road. Beyond this is the connecting wall and then the centre wall of the semi-detached pair of cottages recessed in succession. The space is then closed again by the fourth cottage which is on the edge of the pavement. The entrances to the buildings are all at right-angles to the road approach and are enclosed by wings of the building, to give a gradually increasing enclosure as the building is approached.

One of the houses in the new part of the village has the same plan as the two pilot houses first completed. Two other houses, which are semi-detached, have three bedrooms, living room and parlour and the fourth house has one bedroom and one living room. All the buildings are a variant of the architectural principles developed in the pilot scheme. A simple equal-pitched roof is used to cover each building, the plan of which is contained in a rectangle. Portions of this rectangle are cut away, sometimes right back to the ridge and sometimes to an intermediate point, showing walls parallel with the ridge, which vary in height according to their distance from it. In the case of the semi-detached pair of houses, the entrance is in a recess formed by the curved wall of the projecting bedroom and parlour wing, which is open to the underside of the roof. Each of the houses has a room in the roof which can be used for storage or as a children's playroom and each house has a storage shed enclosed by the main walls.

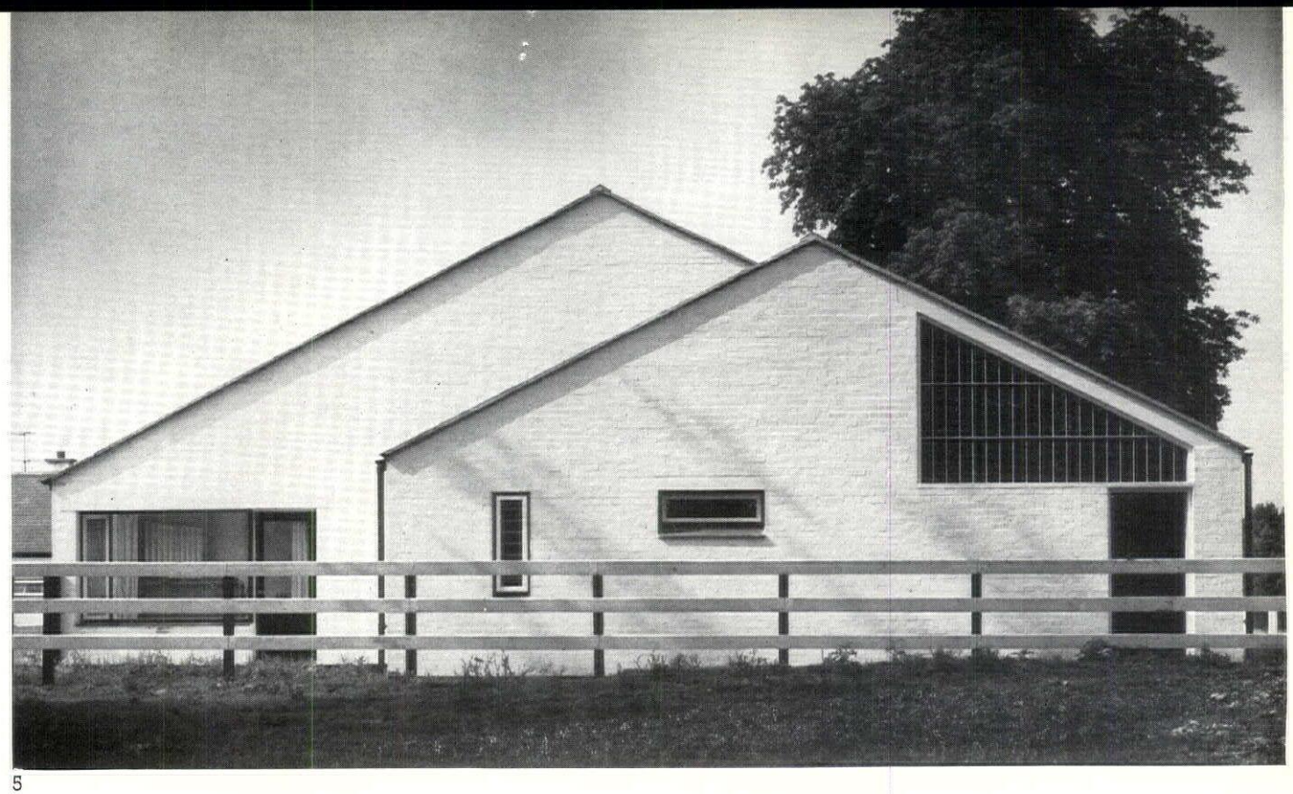


3, entrance to one of the semi-detached houses, with the curved wall of the parlour on the left.

4



The main room in the club building may be divided into two by a wall which slides away completely, the floor track being covered by a loose floor-board when the room is to be used for dancing. A free-standing fireplace is placed so as to define a small area within the larger part of the room for small evening gatherings. The ceiling of the larger part of the club room slopes with the roof. A window at the highest point in the room is glazed with red-flashed glass. Otherwise there is no applied colour. Brick walls are painted white externally. The fixed portions of windows are painted black with white opening lights.



5

REBUILDING OF RUSHBROOKE VILLAGE

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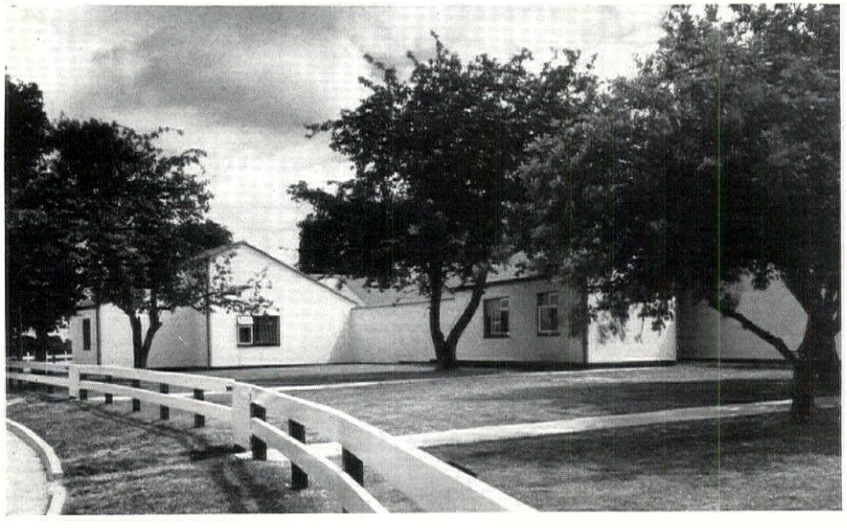

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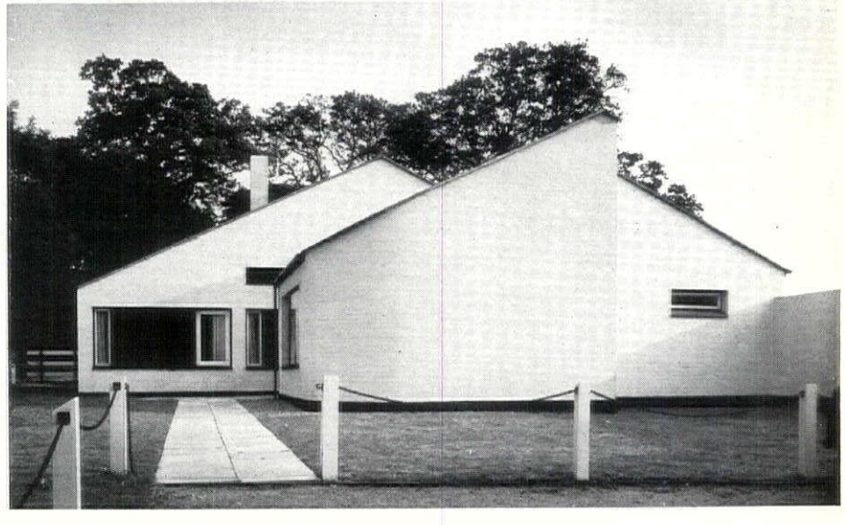
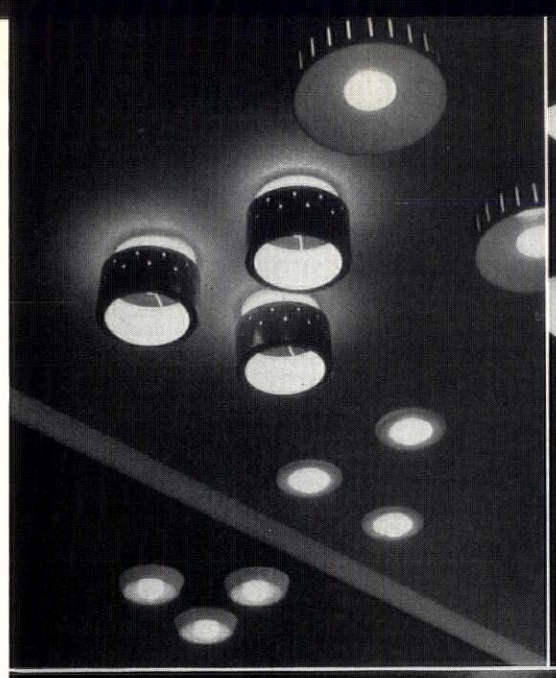
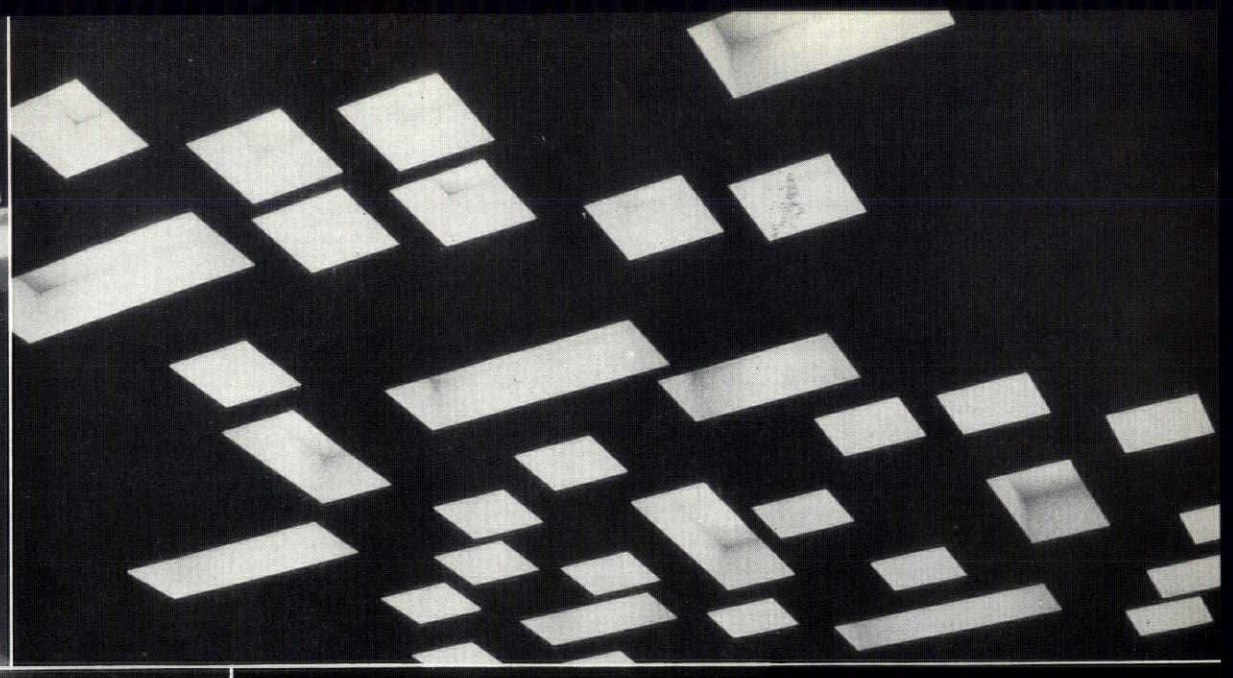
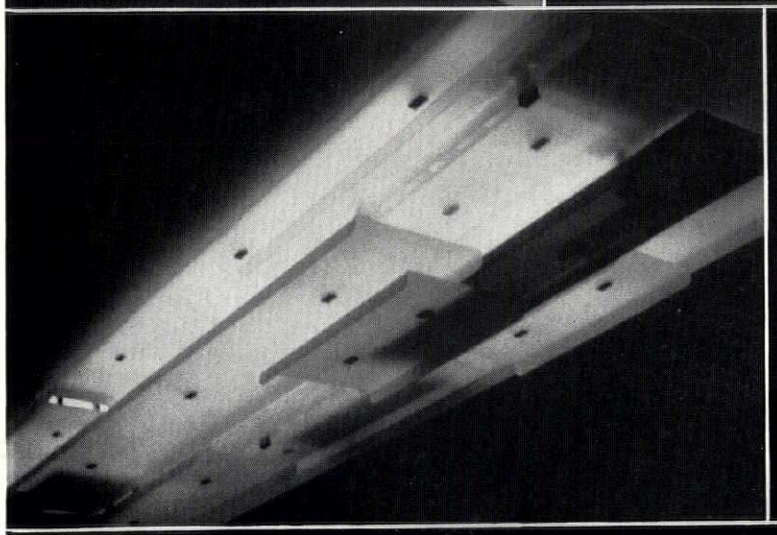


4 (facing page), the whole rebuilt village street taken by a panoramic camera (which distorts the foreground into a curve: the ends of the same straight roadway can be seen left and right).
5, the club building from the rear.
6, the recessed central portion of the group of new houses.
7, the club building from the entrance.









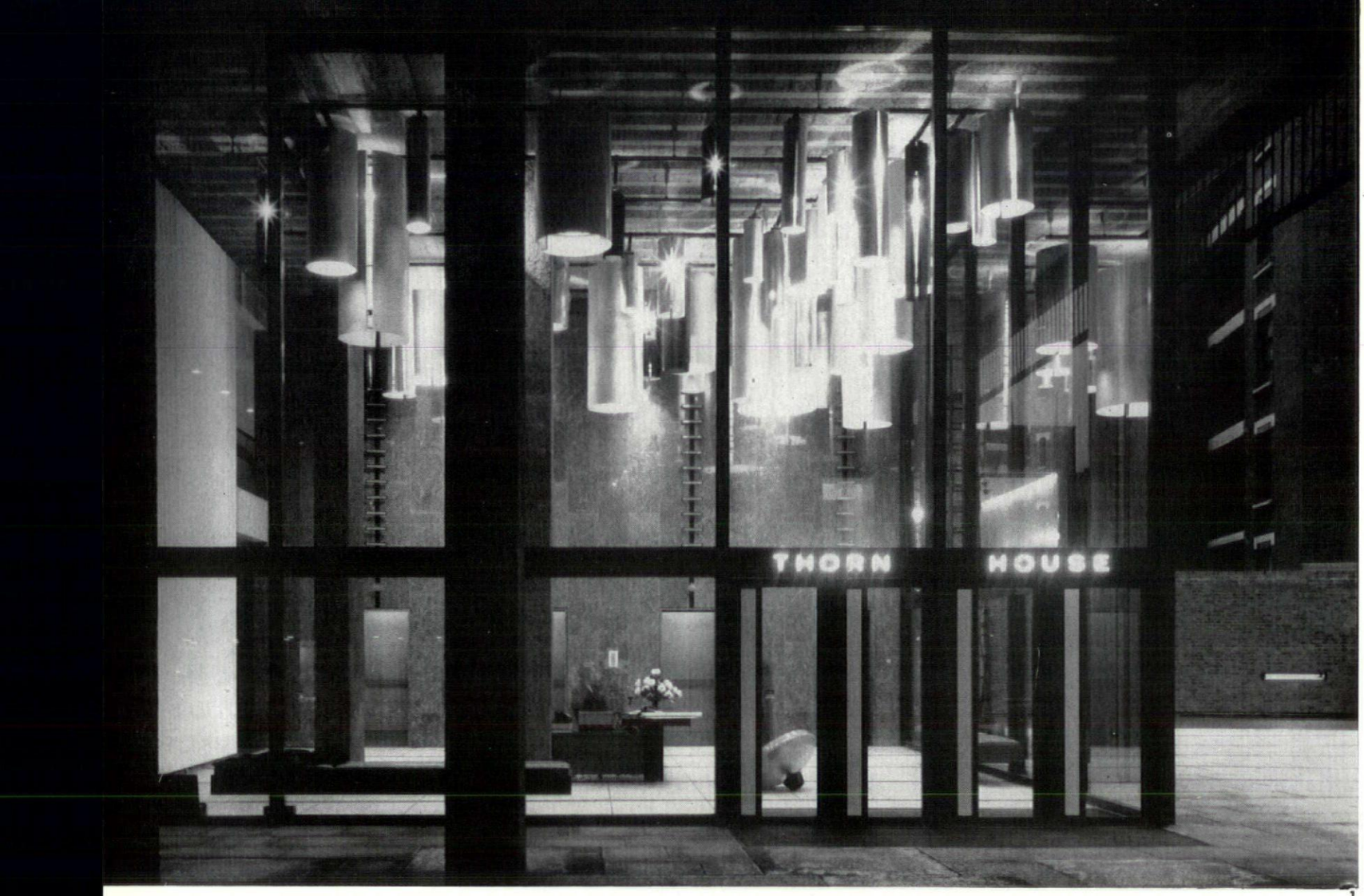
ID

a monthly review of interior design

Offices and Showrooms in Seven Dials, London

architects: Basil Spence and Partners
architects for lighting showroom interior: John and Sylvia Reid

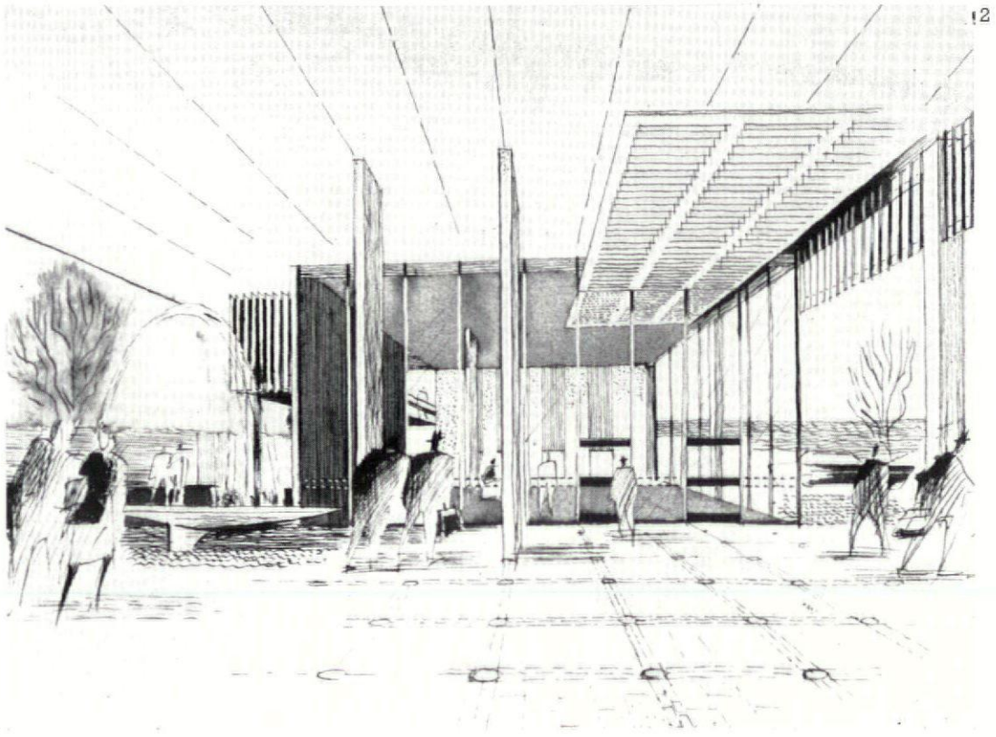
Thorn House is the headquarters of a group of electrical companies, one of whose subsidiaries specialises in light-fittings. Apart from the great showpiece in the entrance hall (see over) the illustrations on this page



1

Thorn House | Entrance Hall

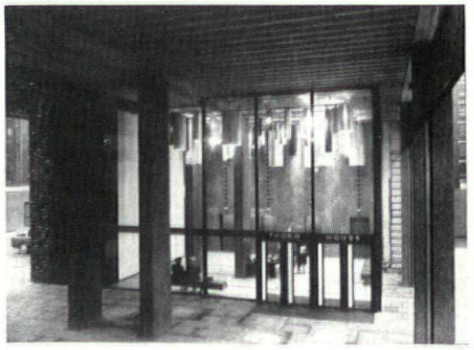
architects : Basil Spence and Partners



2

1, the entrance hall of Thorn House seen from the covered patio under the tower-block. The hall is a box with two walls of glass in dark bronze mullions, one rendered wall (left) and one faced in polished Derbydene marble covering the lift-shafts.

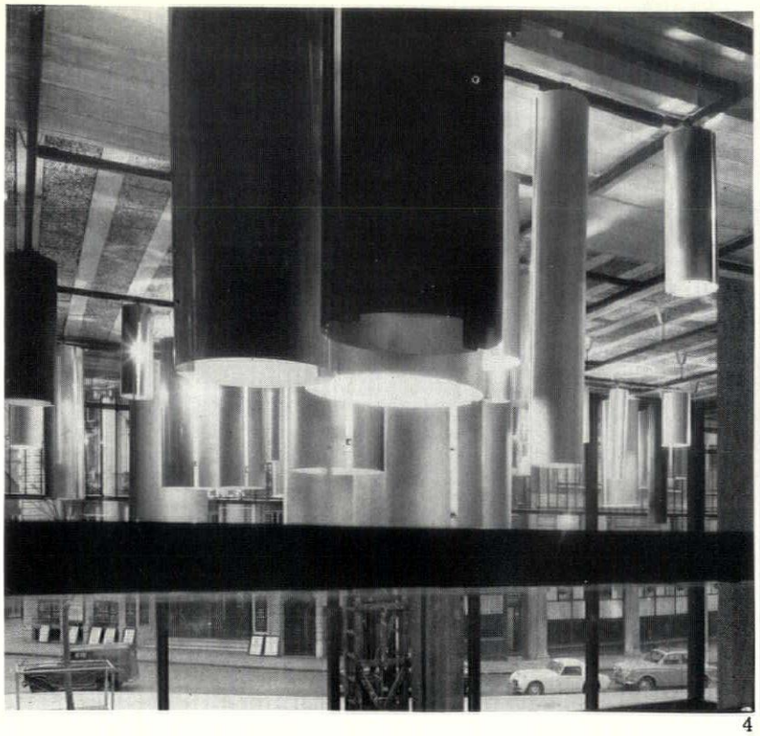
2, an early sketch for the patio and hall, by Andrew Renton, the partner in charge—the optical effect of the

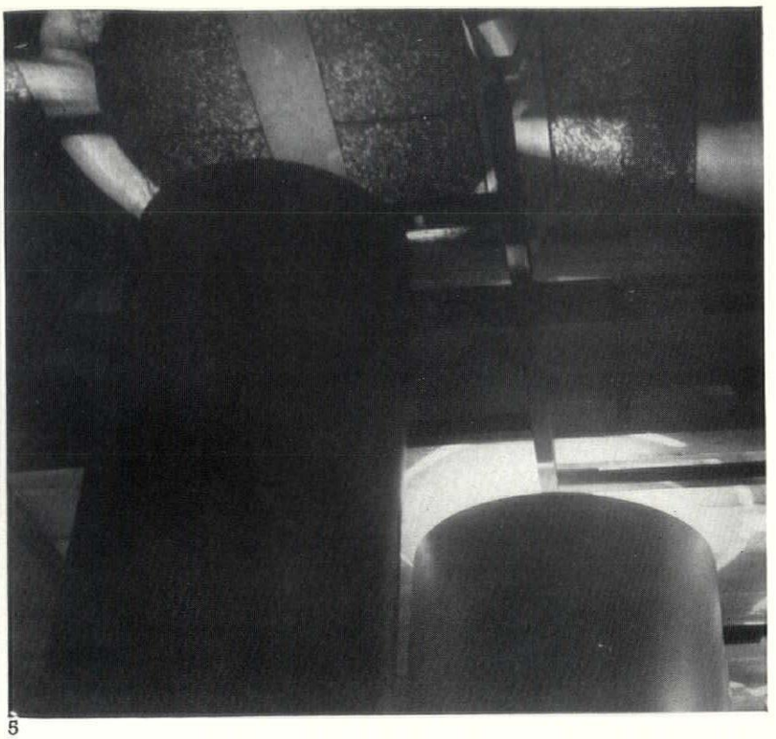


3

slatted canopy guiding the eye toward the lift-doors was replaced later by the processional grouping of the light-fittings on the ceiling of the hall.

3, the hall and patio seen from a window on the secondary stair (showroom side).



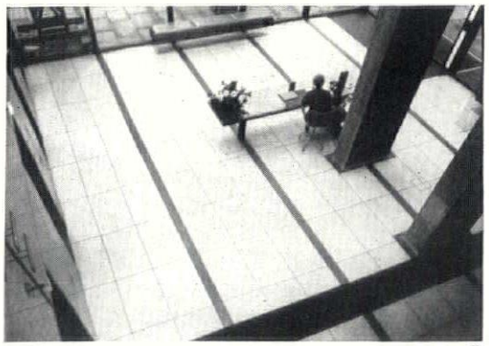


4 5

4, the light-fittings in the ceiling of the entrance hall—each shade is a cylinder, bent up from two sheets of metal (the material varies, copper, aluminium, etc.), leaving a narrow slot down the side, through which a certain amount of light escapes, to give glitter, and side-lighting to model the forms of the other shades.

5. close-up of shades and ceiling—the latter is of exposed concrete planks with shingle-faced black concrete tiles between them. The lights are suspended from a grid of standard ducting carried by strap-metal hangers.

6, the lights, reflected in the glass wall of the entrance hall. This view gives, better than the view in the opposite direction, a sense of the 'processional' arrangement of the lights, and also gives remarkable testimony to the setting-out of the work—the reflection of the structural column corresponds exactly with the position of the real column beyond the glass, and not even the presence of reflected lights reveals any doubling of the edges.



7

7, view down into the hall from the same viewpoint as 4. The floor is of marble mosaic. The columns have an exposed aggregate finish, selected for its colour and texture, the exposure produced by the use of retardants applied to special formwork. The reception desk is of Kellymount marble carried on black angle iron legs, the seats are leather covered, their wooden frames cantilevered from the window-mullions.

6



Thorn House / Standard Office-Floors

architects : Basil Spence and Partners



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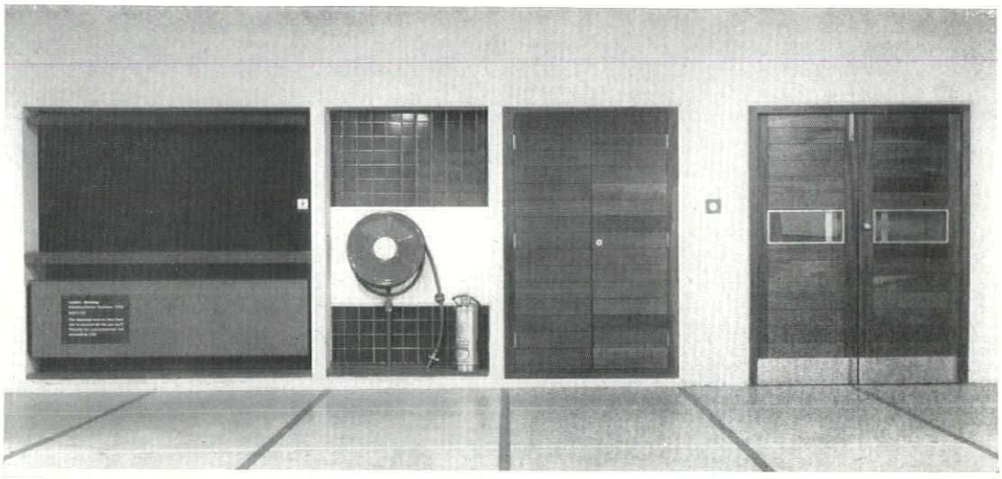

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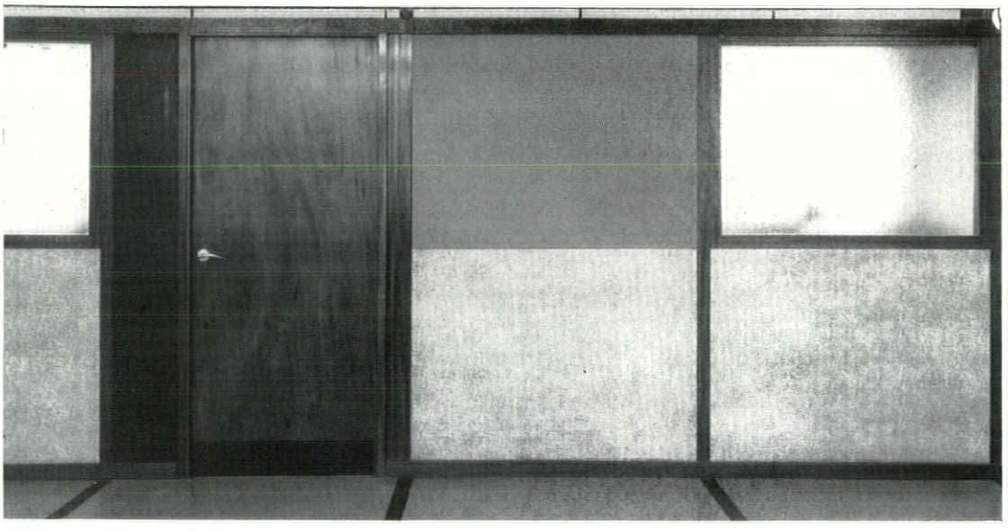

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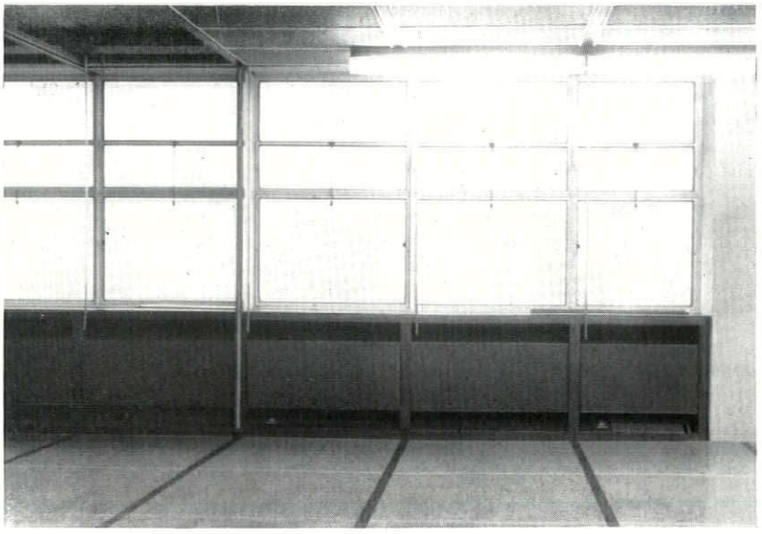
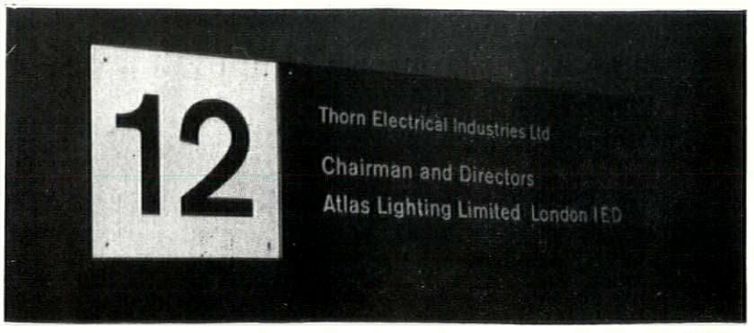
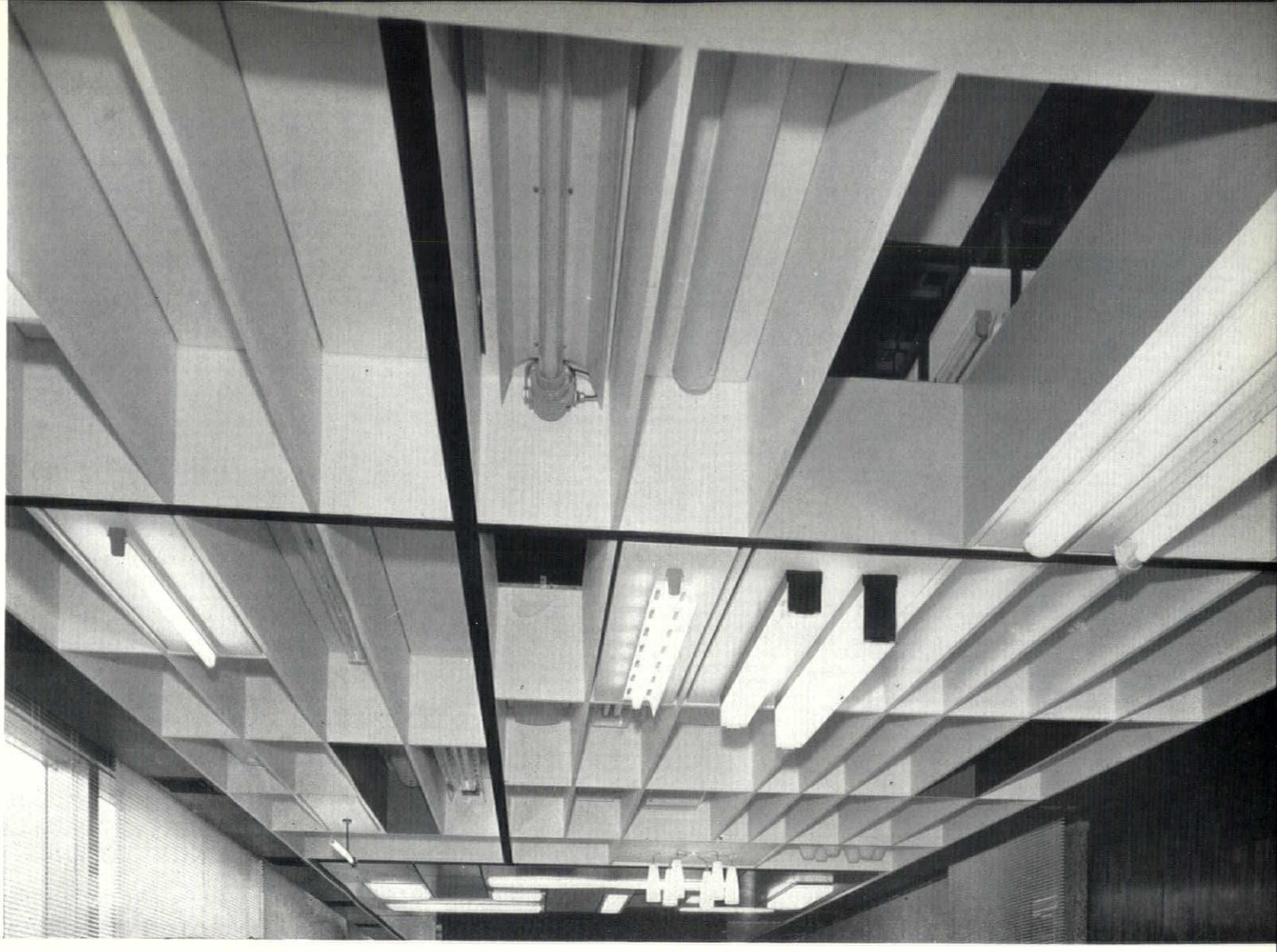


11

8, the standard office-floors of the main tower-block are identical above the first and are 'designed-empty' but fully equipped with lights and services. Ceilings (of removable perforated panels), lighting, service-outlets, fenestration and even the pattern of the floor-covering, all answer to a standard modular dimensional grid.
9, at the core of each standard floor is a standard group of services: these are, from left to right, pinboard and heater (this area becomes a corridor when the floor is partitioned off, and the radiator warms the corridor-space), standard fire-equipment station, access doors for vertical ducts, doors to secondary stairs—the main stairs are at the end of the block.
10, the standard partitioning, designed by the architects, is hardwood framed and answers exactly to the modular grid on floor and ceiling. The infill panels of the partitioning include, besides the door-unit and half-glazed units seen here, pinboards and standard filing cabinet or locker units.
11, on the window-wall the modular grid is interrupted by the structural columns and the mullions at half-span. Heaters run continuously beneath the windows and the venetian blinds are in modular lengths—hence the control rods by every vertical glazing-bar—and can be wound up above the level of the false ceiling, top left.
12, sign board facing the lifts on the highest occupied floor of the building —the executive twelfth. A similar panel, with lettering designed by Jock Kinneir, faces the lifts on all other floors. Two special light-fittings from this floor are seen on page 121—the chairman's room, top right, and the boardroom, centre left.

12



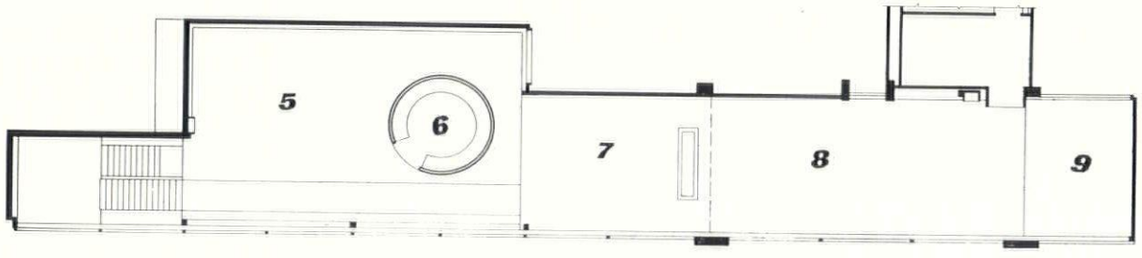


13

Thorn House / Showrooms

architects : John and Sylvia Reid

13, the overhead display of light-fittings in the upper showroom—all are contained within a deeply-boxed ceiling structure with motors and winding gear above, counter-balancing one another in pairs (as will be seen, top right, some have risen to balance the three fittings that have been lowered). Each fitting is on 'call' from the dialling-head seen below, 14, and the selection is effected through a computer behind the hardwood panelling in 14, while the dialling head may be wander-plugged at different points in the showroom.



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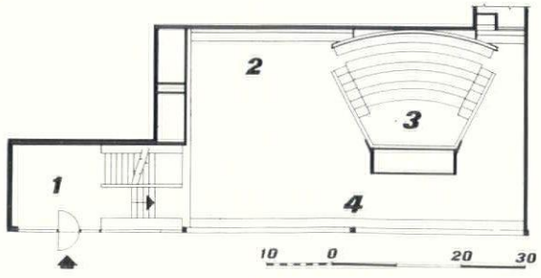
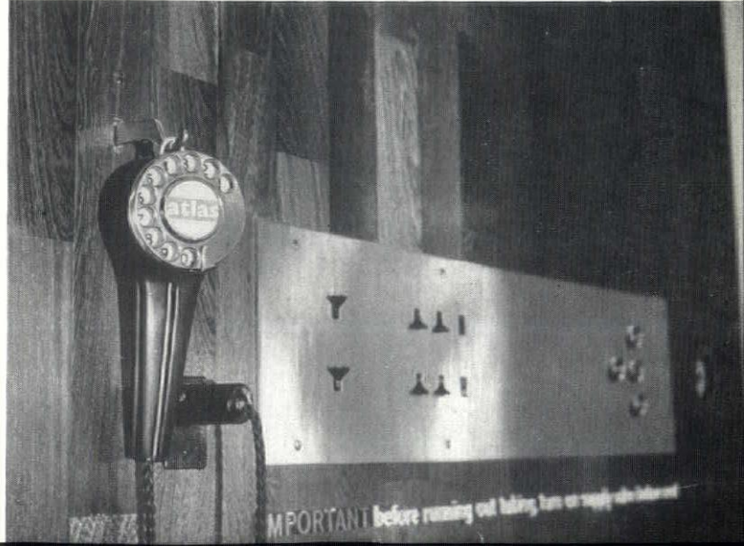


key

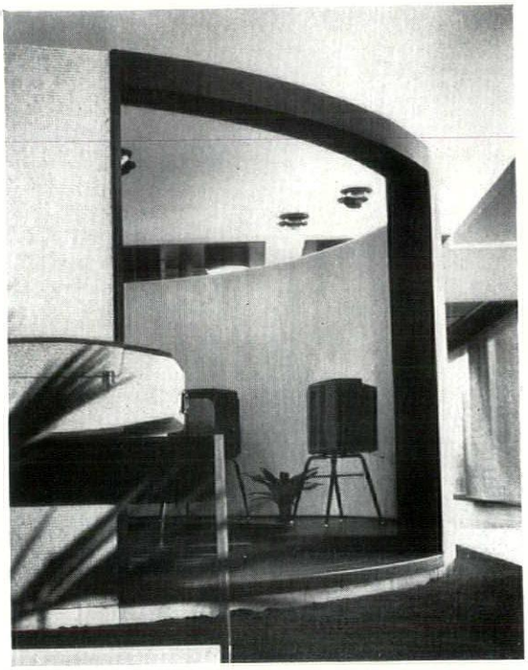
1. entrance, street level
2. cooker display
3. auditorium
4. display window
5. radio/television display
6. television rotunda
7. special demonstrations
8. overhead displays
9. street-lamp fittings



15

15, the white terrazzo path that traverses the sea-weed green carpet of the radio and television showspace on the upper floor—together with the matching panels of natural-grained fibrous plaster above it—forms, so to speak, a psychological corridor through the radio section to the lighting-displays beyond.

16

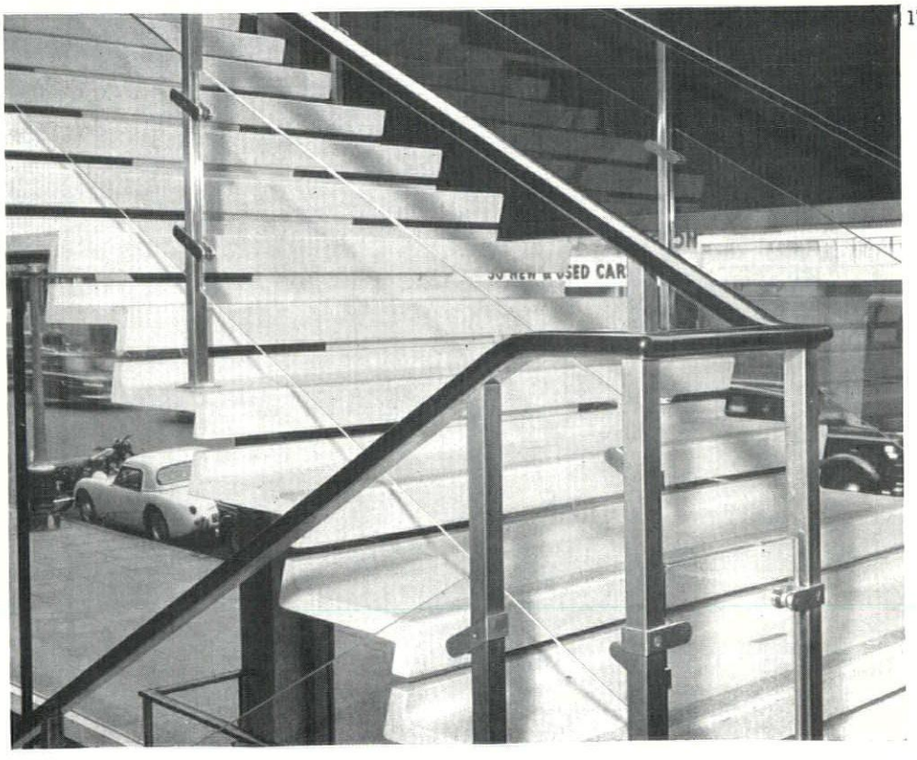


16, view into the television rotunda, seen from the opposite side in 15. The central floor of the rotunda rotates under power, enabling groups of seated clients to be brought to face different TV sets in turn.

17, close-up of stairs and balustrade. The treads are precast Z-shaped units, as shown, in reinforced terrazzo and bolted through the precast stair-beams, seen in 18 below. The balustrade is in satin-finish stainless steel, and armour-plate glass, with black PVC handrail.

18, the stairs, from the lower showroom ; the suspended lighting-canopy is in fibrous plaster, studded with 24-volt bulbs in a random pattern—see illustration at lower right, page 121.

17



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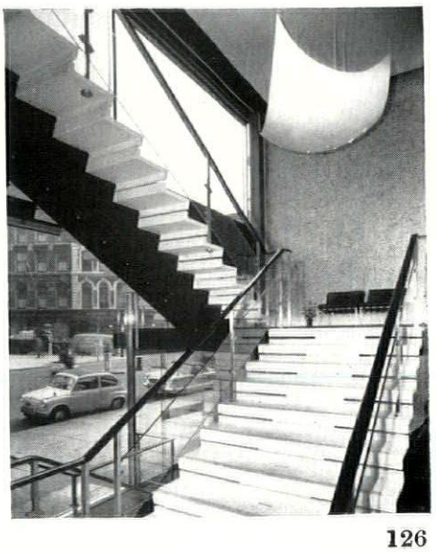
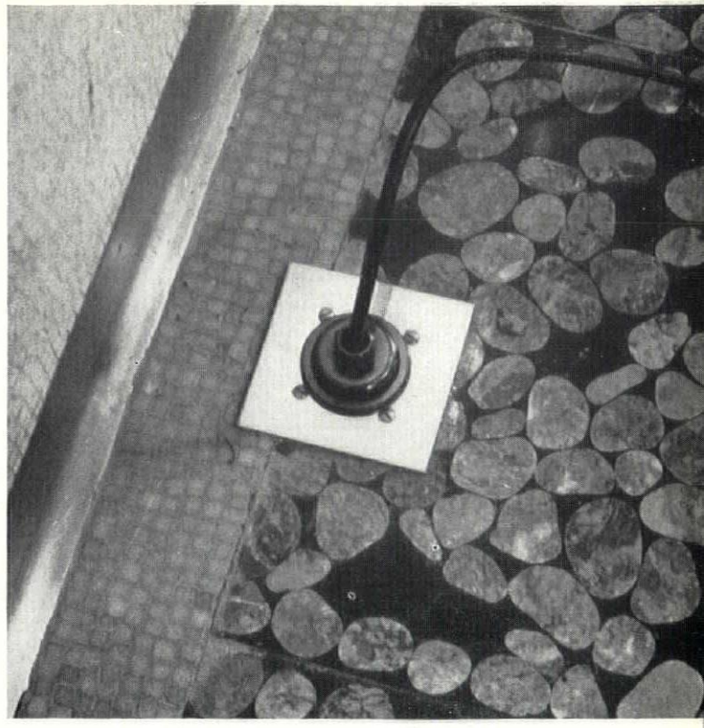






19, 20

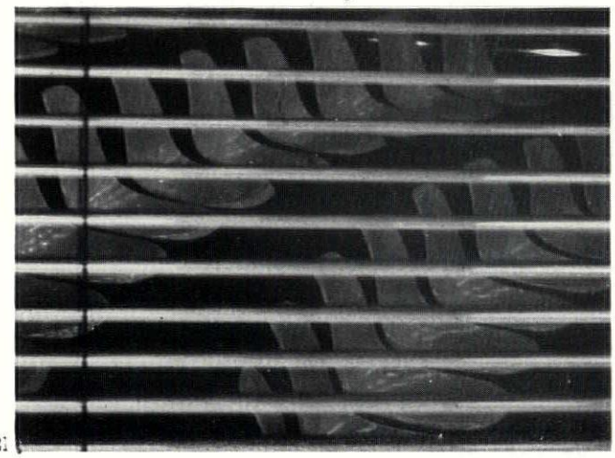
Thorn House / Showrooms

19, display of street-lamp heads at the end of the upper showroom—the end of the overhead display is seen top right. The floor is of pebble-marble tiles, and the back wall of grey mosaic. Venetian blinds, here seen lowered, cover all the main windows on both floors, and are controlled from three panels, such as that seen in 14, both the tilting of the slats, and the raising and lowering of the blinds being power-operated.

20, skirting detail from 19 ; the cove is of satin-finish stainless steel, as is the plug-plate, which is of a pattern standardized throughout the showroom. When the plug is not in use, the socket is covered by a flat black cap.

21, 22, the small auditorium demonstration-theatre on the lower floor can be visually isolated from the rest of the lower showroom by venetian blinds, the degree of isolation being controlled by adjusting the angle of the slats, which are white on one side, black on the other.

23, the auditorium, with the blinds raised. The back screen-wall and the fan-shaped sounding-board are faced in reddish panga-panga, and the carpeting on this floor is charcoal grey. The seating is described over the page.



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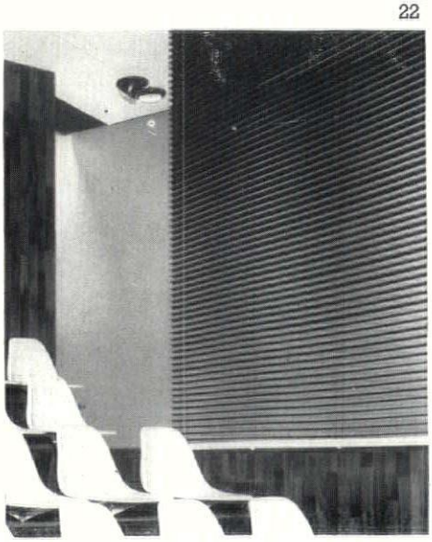
22



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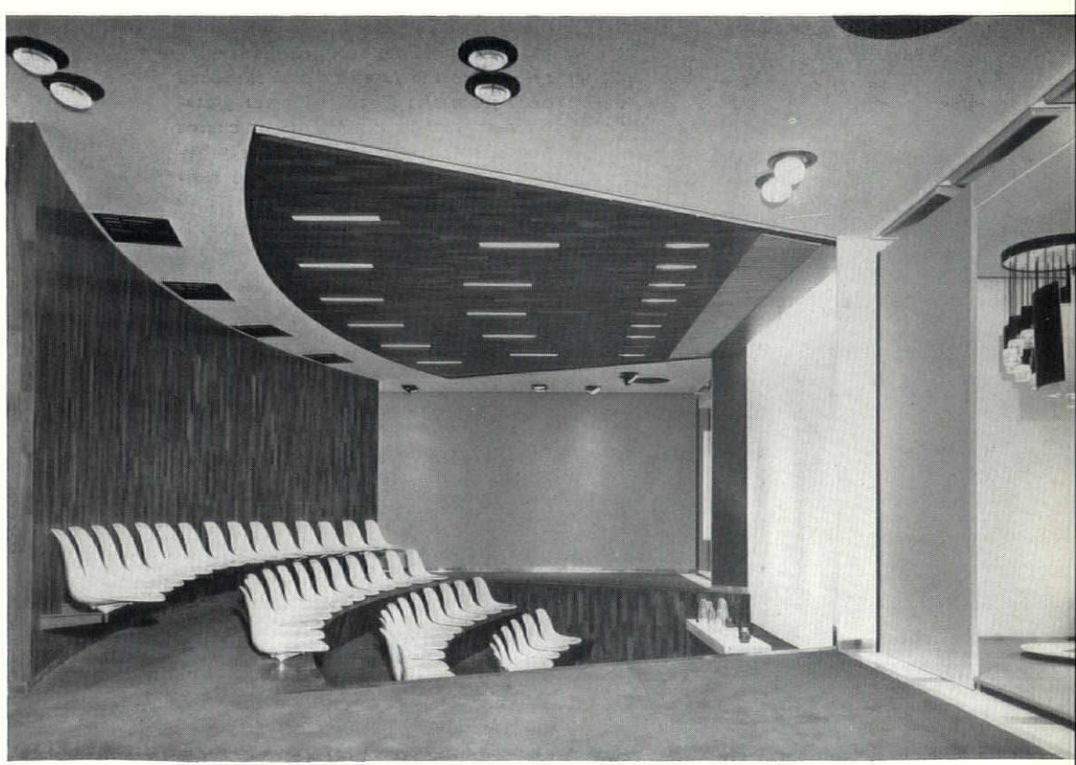




1

DR

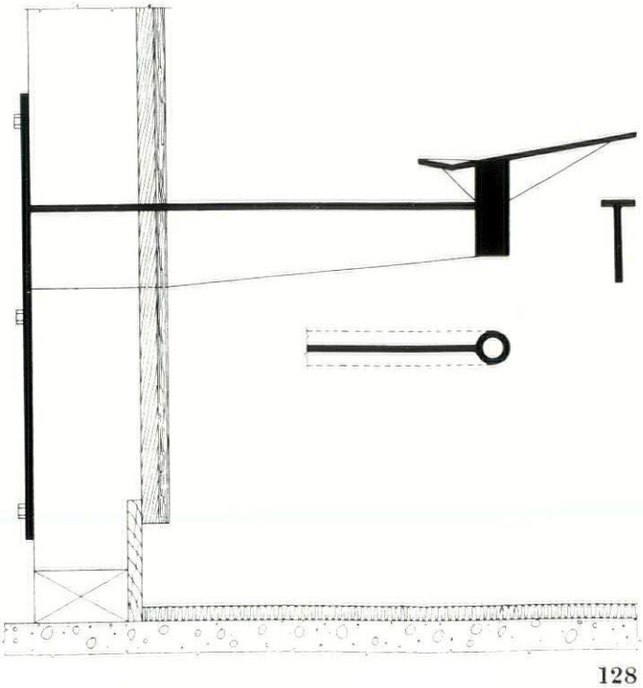
design review

Thorn House / Auditorium Seating

architects : John and Sylvia Reid

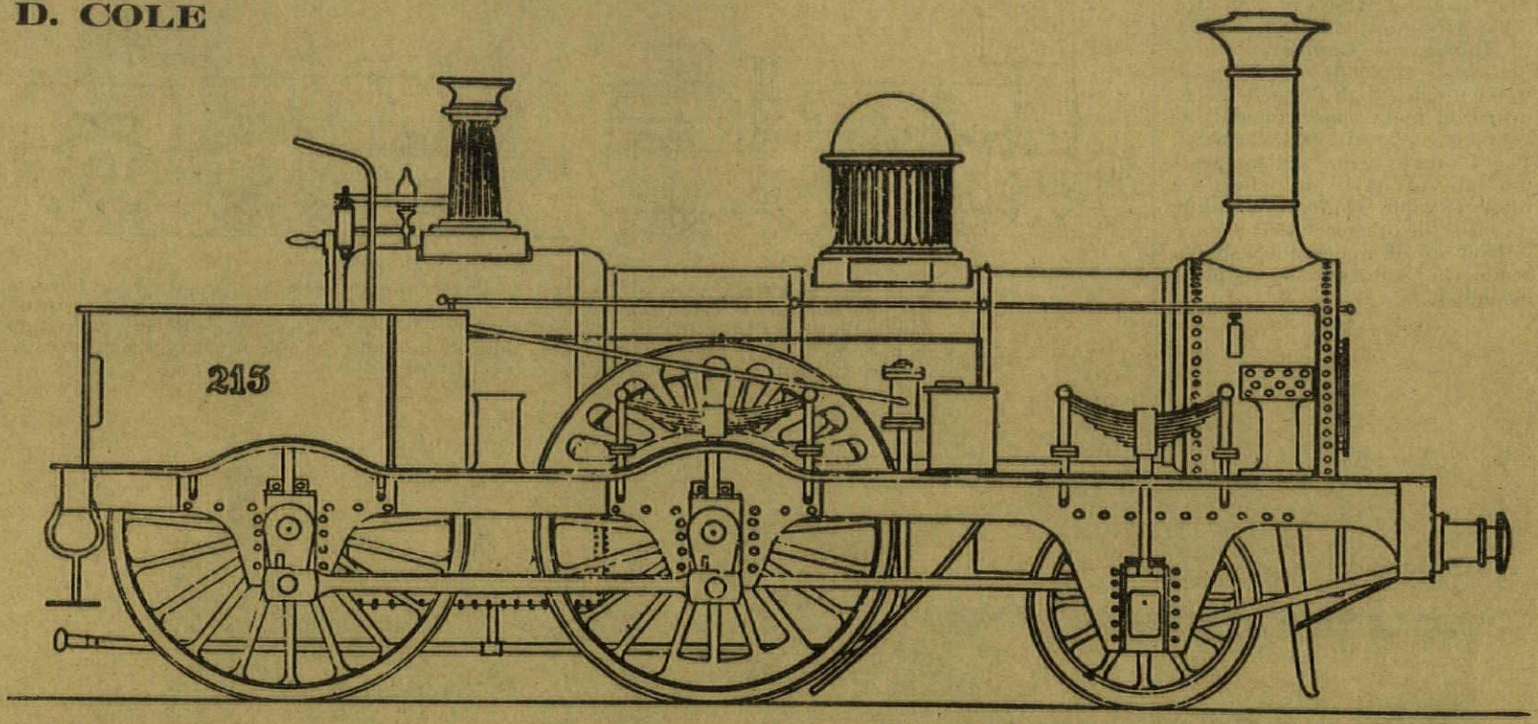
1, *the seats in the auditorium/demonstration theatre in Thorn House represent an instructive example of operations in the margin of mass-production. The seat shells themselves are the familiar and standard ones from the Charles Eames glass-fibre-polyester dining/office chair ; the carrier brackets immediately below the seat, together with the rubber pads, are equally standard and come from the office-swivelling version of this chair. Everything so far is serially produced, catalogued equipment and offers the price advantages associated with mass-produced goods drawn from stock. Below this point, the rest of the seat structure is purpose made—in so far as there is any structure, for the lower three rows of seats are spigoted directly into sockets let into the steps of the "amphitheatre." The highest row, however, is bracketed forward from the back wall of the auditorium.*

2, *the brackets, fabricated in steel by the sub-contractors for the auditorium, are passed through the built-up wall from behind, and have a massive back-plate which is bolted directly to the vertical studding of the wall.*



2

D. COLE



No. 215. One of Wilson's large Coupled Express Engines. Built 1853 for the Y.N. and B.R. 1

EARLY IRON HORSEMEN

Generations of Functionalists have pointed to English locomotives of the nineteenth century as solid proof that simple, unaffected engineering design has the same classic elegance as an ideal functional architecture should possess. But how simple or unaffected? Mr. Cole's brief analyses of the house styles of two pioneer founders of the splendid nineteenth-century tradition, shows that one was an architect by training, while the other persistently used architectural motifs, as in the drawing above, 1.

1, CHARLES BEYER

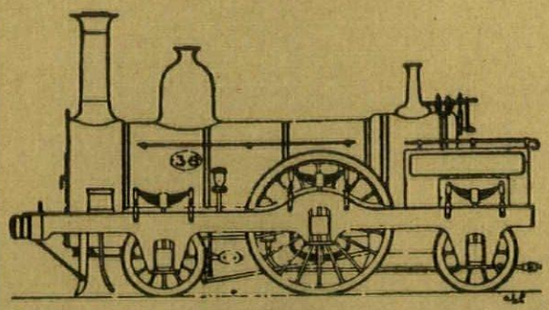
The earliest locomotives of such railways as the Stockton and Darlington were clumsy assemblies of parts lacking form and coarse in detail, and it is measurably due to Charles Beyer that British locomotive design became both functionally and aesthetically the best in the world over a large part of the nineteenth century.

Beyer was born in Saxony in 1813, the son of a poor weaver, and was apprenticed to a weaver at an early age. As a child, his great enjoyment was in drawing and modelling buildings, and, coming at the age of 12 under the spare-time guidance of an architect, his talent, thus developed, gained him a scholarship to the Polytechnic at Dresden, where he studied architecture for four years in great poverty and profited by what the course had to offer. Afterwards he worked as a draughtsman in the Hanhold engineering works at Chemnitz, and won a sort of travelling scholarship to England to study, not buildings, but cotton mill machinery. Here he met Richard Roberts, of the Manchester engineering firm of Sharp, Roberts & Co., and a year later, having decided an unsympathetic Saxony was not worth staying in, he persuaded Roberts to take him on as a draughtsman and either from necessity or by design abandoned architecture for engineering.

In 1833 Sharp's, hitherto a general engineering firm making mostly cotton mill machinery and machine tools, began to take an interest in railway engines, and after 1838 started to build them in relatively large numbers. Roberts found that Beyer had a gift for organising their various components into a shapely whole and for giving the details careful consideration, and it is said that Beyer designed many of Sharp, Roberts' locomotives before 1843 and all of them for ten years after that. These designs included standard passenger and goods engines which were very successful in service and were built in quantity with minor modifications for many different railways at home and abroad. The chimneys had concave curved caps above a small beading and a curved base: the domes sometimes had round drums with hemispherical tops on square bases, and sometimes were plain with a bell mouth at the top rather like a crinoline. The curves of the framing, splashers, and railings round the footplate were also carefully considered, 2, whilst the working drawings—and this applied to manufacturers in general—were themselves finely executed, bearing comparison with engravings like those in Britton's 'Architectural Antiquities.'

In 1856 Beyer and a partner set up their own firm, Beyer, Peacock & Co., in Manchester (where it still exists) turning out engines, 3, whose fine design was matched by fine engineering, and to appreciate how much British design owes to his influence one might look at continental Europe, where most of the earliest engines were British-built, and where later, Continental builders became more active and copied the British engines. Gradually the characteristic clean lines and careful details were lost, until the average European locomotive was merely a boiler mounted on a frame with wheels on which were hung, as on some grotesque Christmas tree, all sorts of pipes, chimneys, domes, sandboxes and moving parts. In Holland the State Railways used Sharp and Beyer engines, 4, for many years, and a number of handsome, full-blooded

designs with plenty of curves and polished brass were produced. The Holland Railway, on the other hand, until the 1890's stuck to Borsig, of Germany, whose products typically had small wooden cabs, high pitched boiler, oversized mountings, and outside cylinders placed well forward. The Bauhaus came eighty years too late to have any effect on these German engines; certainly it is surprising that such differences of appearance should occur in substantially similar machines.



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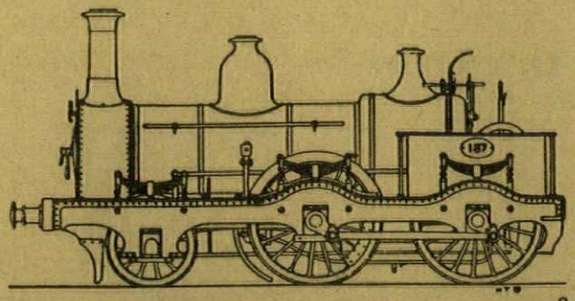
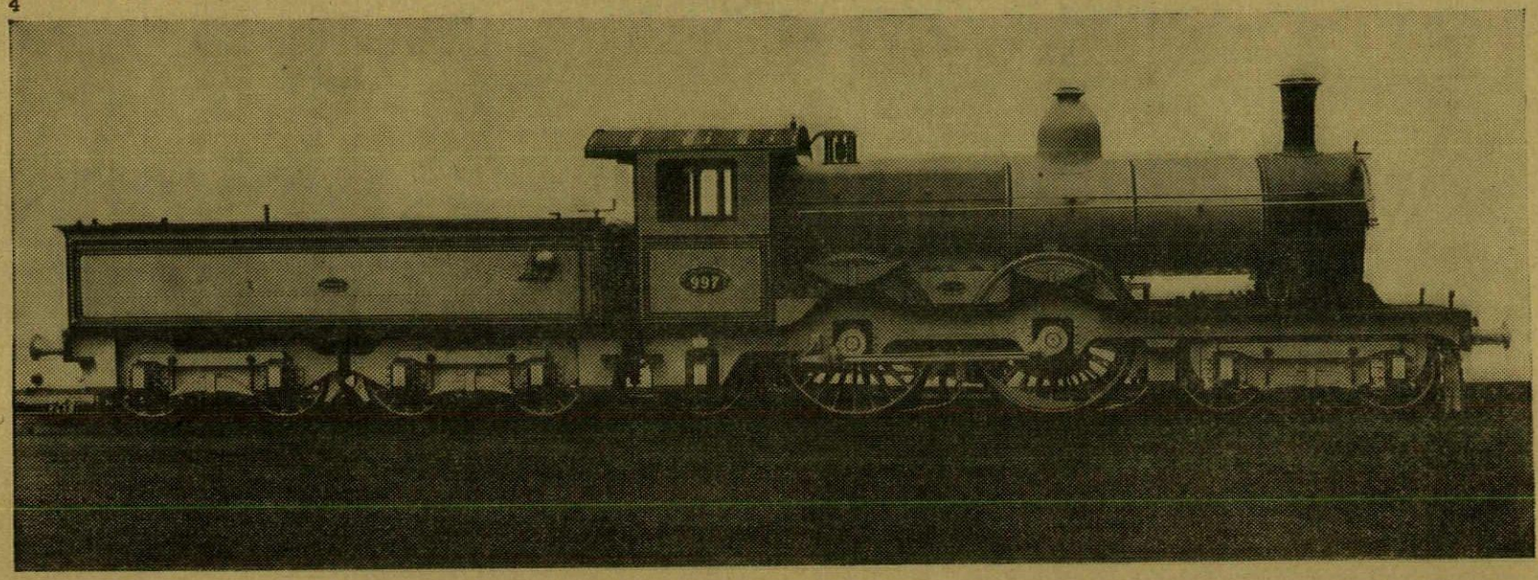


3

2, a Sharp Single (i.e. with only one pair of driven wheels) to Beyer's design for the London, Brighton and South Coast Railway. 3, Beyer Peacock coupled express engine (with two driven pairs) also for the LBSCR, 1868, designed by Beyer after he had left Sharp, Roberts and set up on his own. 4, Beyer Peacock 4-4-2 for the Dutch State Railways—the classic type of nineteenth-century locomotive, but with many Beyer peculiarities preserved.

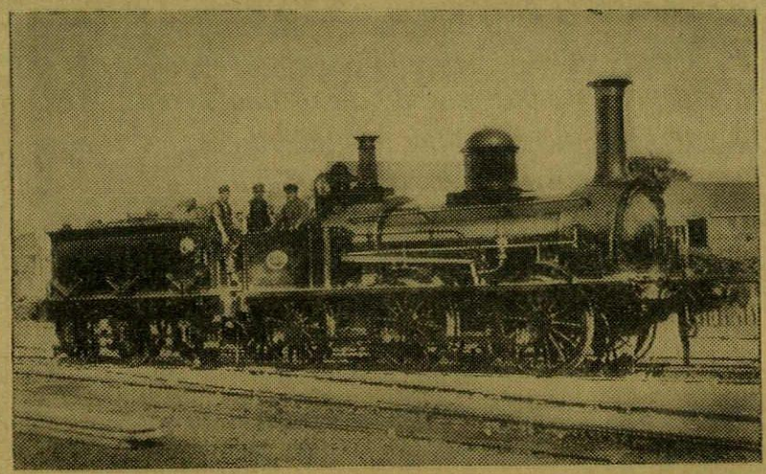
4



2, DAVID JOY AND E. B. WILSON

In 1836 the locomotive engineering firm of Shepherd & Todd was founded in Leeds, and after going through a difficult period, became in 1844 E. B. Wilson & Co. Wilson ran it until 1858, when Manning, Wardle & Co. took over, reorganised, and maintained for many years an output of small foolproof engines for contractors, with some larger locomotives. The design in Wilson's time seems mostly to have been the work of David Joy, who was the son of the manager of an oil crushing mill in Leeds, and, passionately interested in all things mechanical, became a drawing office apprentice at Shepherd & Todd's in 1843. When Wilson took over, Joy, although still an apprentice, acted as drawing-office manager and did most of the design, working out standard types which Wilson, an early apostle of standardization, continued to use during the time between 1849 and 1856 when the two men were not working together.

Joy also kept a diary which suggests that some of the carefree abandon with which the firm of William Morris approached business matters had its place here too. Stories of Wilson giving estimates for engines with tenders but forgetting to allow for the tenders in the price are interspersed with tales like that of the trial run of a new engine on the main railway line one dark night, the footplate packed with Wilson and his executives all gloriously drunk. Naturally, the engines themselves were a little out of the common run. They were generally finely proportioned, like Joy's famous design, 1, first built for the York and North Midland Railway in 1847 and named after the singer Jenny Lind. It had the sheet-metal casings of the driving-wheel splashers perforated in a radial pattern like a paddle steamer, a three-piece chimney of pleasing outline, and a safety valve cover of a short fluted Doric column on a square plinth with a curved cornice moulding at the top, in direct stylistic descent from the beam engine, with its fluted Doric columns supporting a superstructure, which is illustrated in Sir Herbert Read's 'Art and Industry.' The dome covers, too, on a square or octagonal base, were fluted and crowned by a cornice moulding and hemisphere, 5, which together might well pass in another context as a bowler hat. It is said that these boiler mountings, which often differed in detail, were all the work of one old craftsman who took great pride in them, but their peculiar design must be due to Joy.



5, Wilson 0-6-0 for the LBSCR, 'No. 219.' Although it lacks the 'paddle-steamer' pierced splashers of the earlier locomotive shown in 1, on the previous page, the design retains the Neo-classical architectural detailing for safety valve and dome-cover that were characteristic of David Joy's work.

Wilson's, though, made good engines, and one can still with luck see them at work in Spain to-day, having celebrated their centenary. Wilson's, too, trained S. W. Johnson, another engineer who cared a great deal about the proportions of the engines which he designed for the Midland Railway, as part of the same expansion for which Clayton built fine coaches and Gilbert Scott the new London terminus at St. Pancras, probably to be classed among the finest English buildings of the nineteenth century.

current architecture

recent buildings of interest briefly illustrated

OFFICES IN SEVEN DIALS, LONDON

ARCHITECTS: BASIL SPENCE AND PARTNERS

Only the exterior of this important office block, occupied by Thorn Electric, is shown on these pages. The interior of the building is fully described in Interior Design on pages 121–128. A 190 ft. high slab block, set at right-angles to the street, rises from the centre of a corner site in Upper St. Martin's Lane. A long low showroom faces the street. There is a basement car-park and a landscaped forecourt at ground level extends under the tower and covers



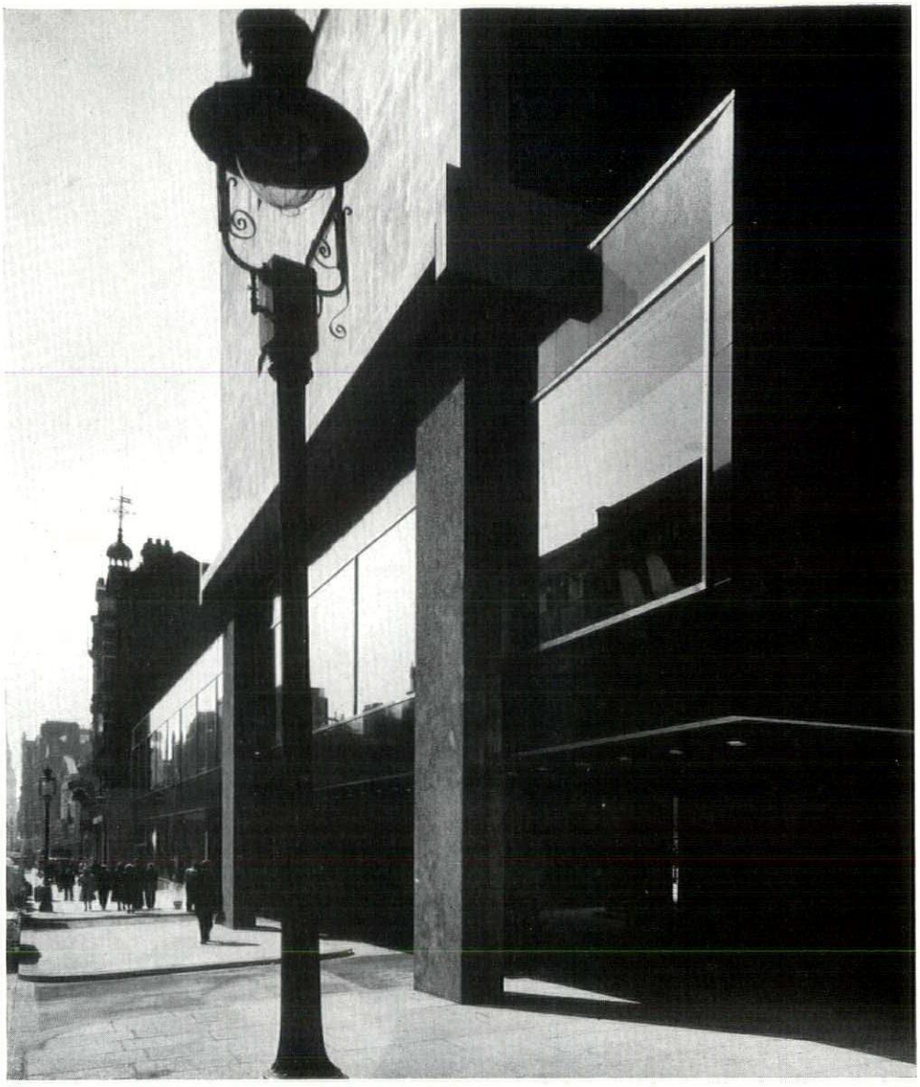
1, *looking across the forecourt, beneath the open ground floor of the building.*

most of the site. The structure is of reinforced concrete, and the tower block is supported by eighteen columns resting on block foundations on the London clay.

The basement is entered by a two-way ramp, and contains all the building services, including pressurized cold water tanks, electric power and telephone substations, and oil-fired boilers, as well as parking space for forty cars.

The two-storey showroom, extending partly under the tower, was specially designed by John and Sylvia Reid for the display and demonstration of electrical equipment, and is air-conditioned and acoustically controlled.

The north and south walls of the office tower are continuously glazed between horizontal bands of dark grey glass mosaic; non-actinic glass in the upper panes reduces direct heat from the sun. The east wall of the tower fronting St. Martin's Lane is faced with Derbyshire stone. It is to carry a work of sculpture by Geoffrey Clarke which was not yet in position when these photographs were taken.



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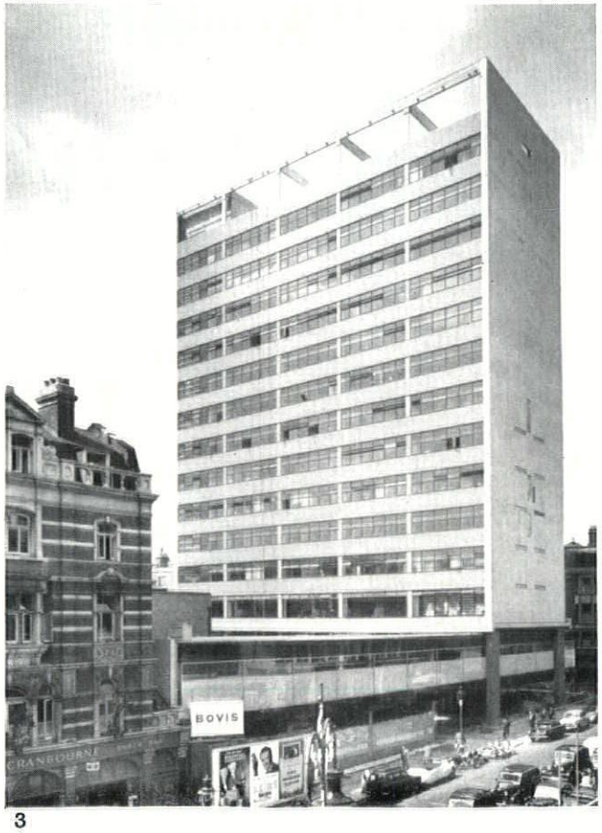
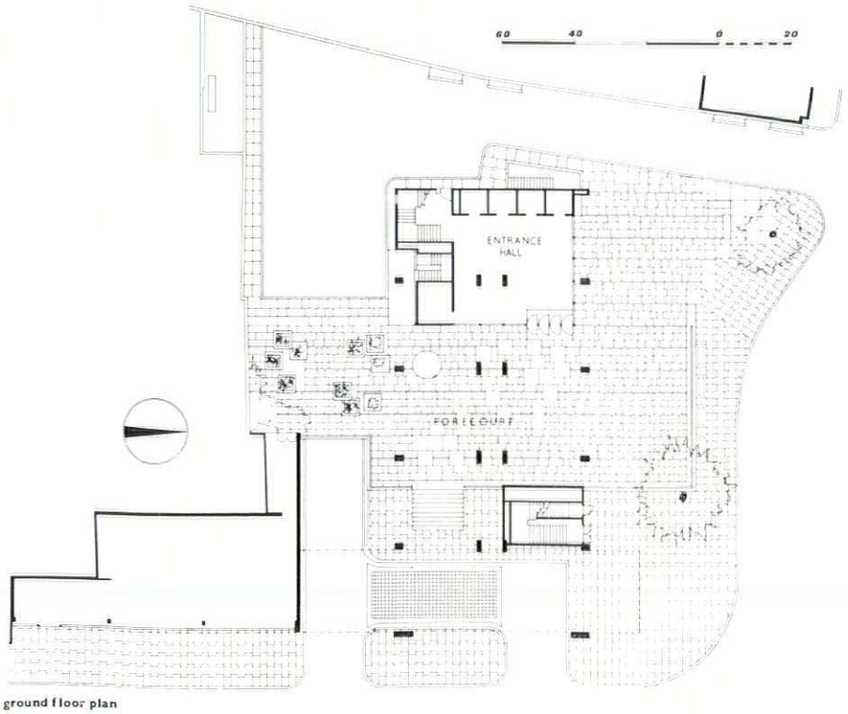
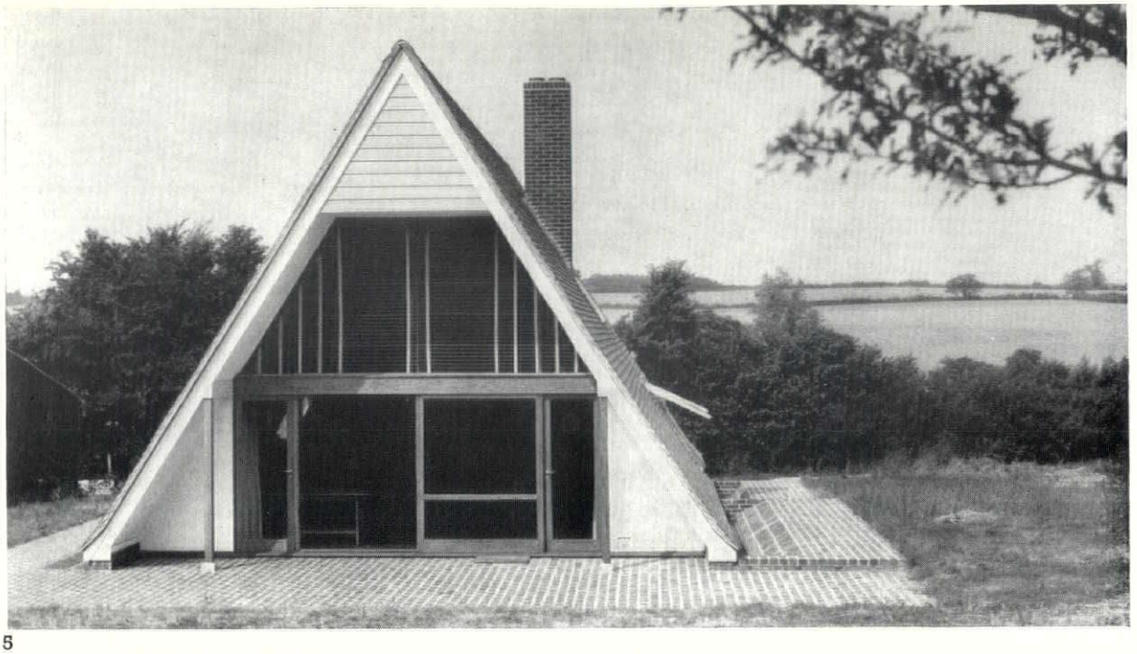


3

2, looking along the ground floor of the St. Martin's Lane front. 3, general view. The fixing for the future sculpture can be seen on the flank wall. 4, on the roof, showing exposed concrete frame.



ground floor plan



5

5, the gable end, with two-storey studio window divided by a timber transome. 6, 7 and 8, three studio interiors, showing the open timber stair to the gallery (beneath which is the kitchen-dining room seen in 6) and the central brick chimney.

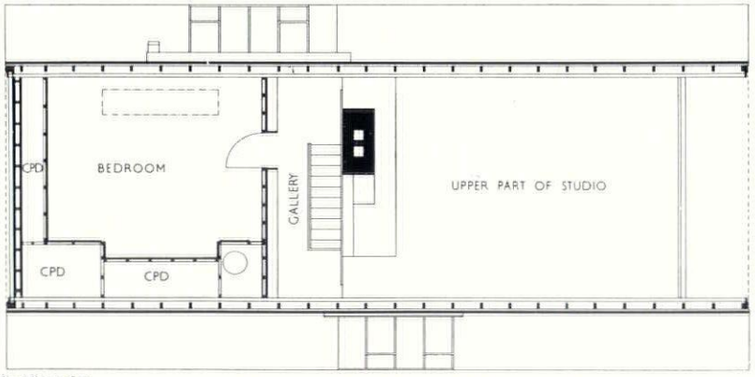
HOUSE AT MONKS ELEIGH, SUFFOLK

ARCHITECT: PHILLIP DOWSON

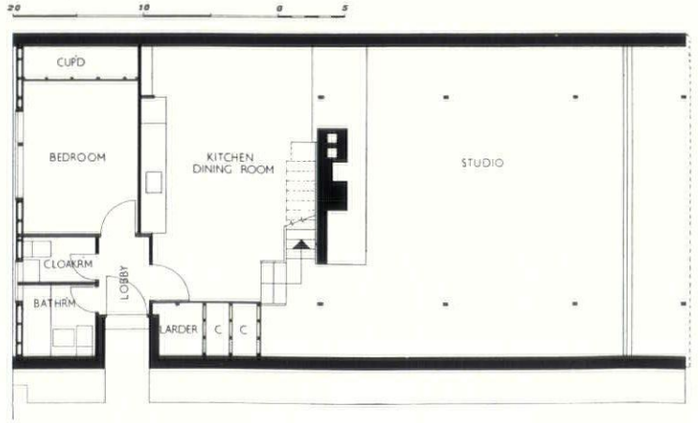
in association with Steane, Shipman & Cantacuzino

The site is on a north-sloping hill by the edge of an old sand-pit, which has been used to form a sheltered dell, overlooked by the external terrace of the studio.

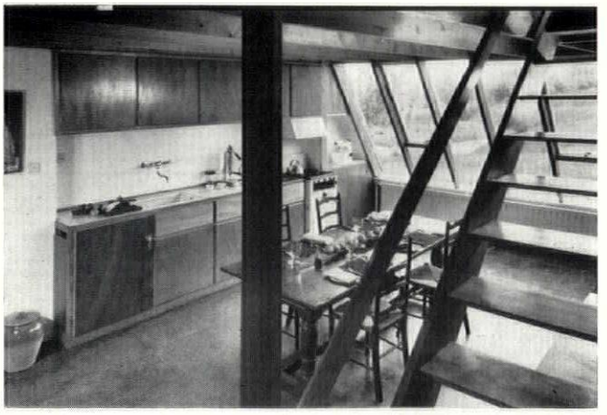
The steep-pitched roof, which is a local tradition, rests on a dwarf wall carried on the site slab, and is constructed with a series of A frames at 2-foot centres. These are designed so that the tie and purlin support point divides



first floor plan



ground floor plan



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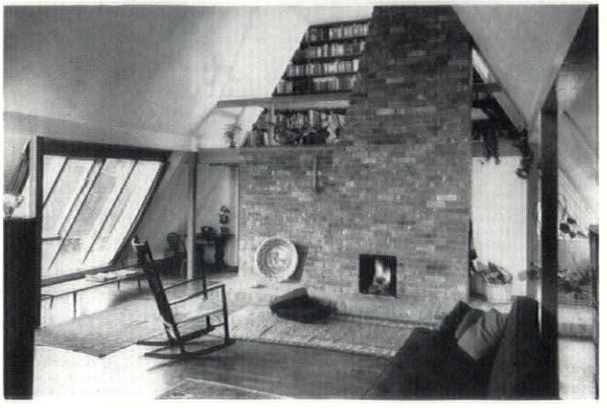

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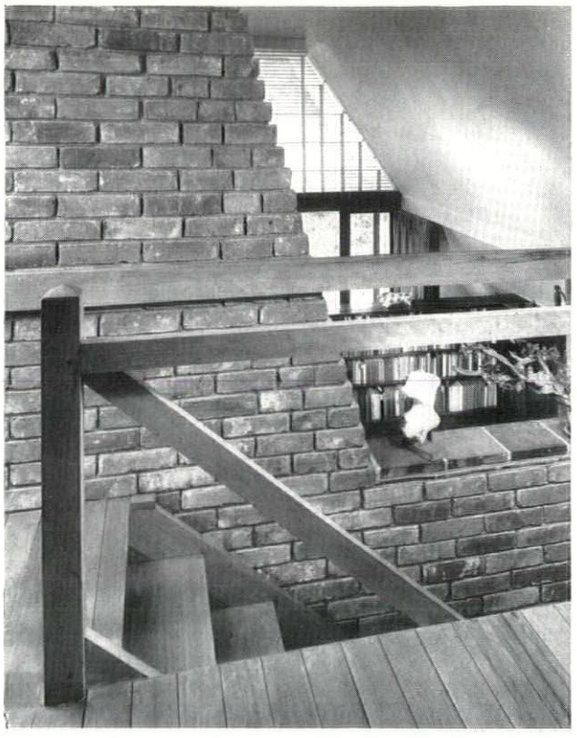


9

House at Monks Eleigh

the rafter into three equal parts, cutting down the rafter size to a minimum. Timber columns at 10-foot centres support the purlins. There are also diagonal wind braces within the roof.

Windows in the roof are top hung with friction stays, shutting on to the rafters, which at these points are exposed, with lead gutters at the window head to discharge water clear of the glass. The roof is insulated with glass wool and covered with clay tiles; the ceiling is plasterboard and plastered.

The main south window, screened by a 4 feet overhang, has a timber venetian blind pulling up from a blind box formed in the main transome at door-head height. The two-storey section at the rear has a bedroom, bathroom, cloakroom and large kitchen-dining room on the ground floor, and an additional bedroom and gallery overlooking the studio on the first floor. The main chimney is of fair-faced brickwork with a wide brick hearth and forms the focus to the whole house.

9, *detail at top of gallery stair, with chimney behind. The main bedroom is reached from this gallery.* 10, *the house lighted within.*



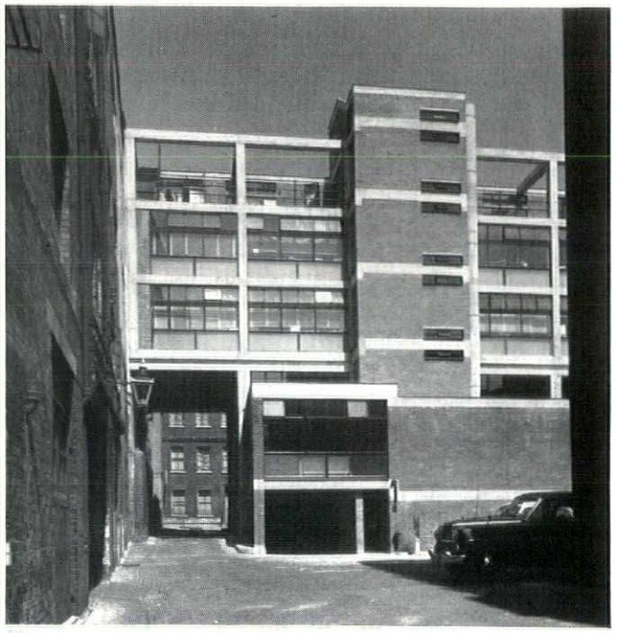
10

OFFICES IN SOHO, LONDON

ARCHITECT: DOUGLAS STEPHEN

These offices in a cul-de-sac off Dean Street have a ground-floor showroom, three floors of offices, two two-bedroomed flats set back on the top floor and garage space in the basement. The structure is of reinforced concrete with glazed infilling under window panels. Brick infilling is dark silver-grey. The upper frame of the building is faced in white ceramic mosaic and the lower section has an exposed aggregate marble slab facing. The staircase is finished in terrazzo with plastered walls and soffite, with glass balustrades and a chromium plated steel handrail.

11, *from the yard, looking through the archway into Dean Street.* 12, *ground floor showrooms, with surround of marble-faced slabs.*



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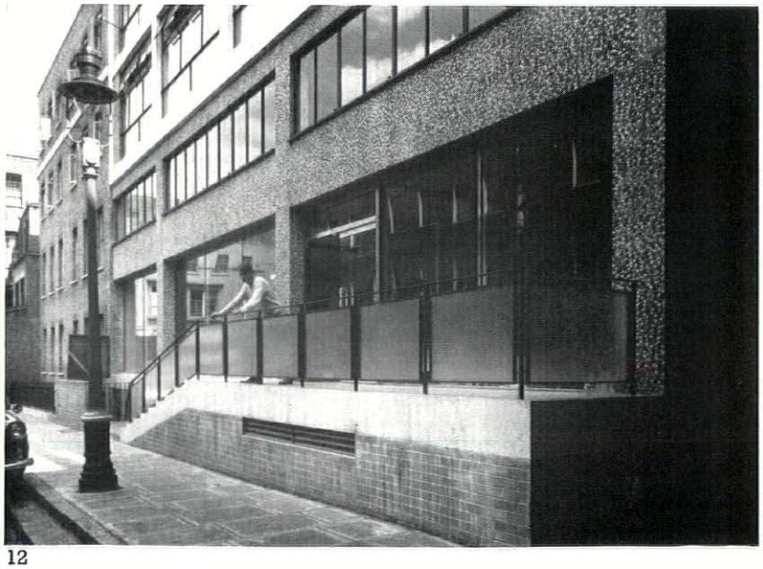

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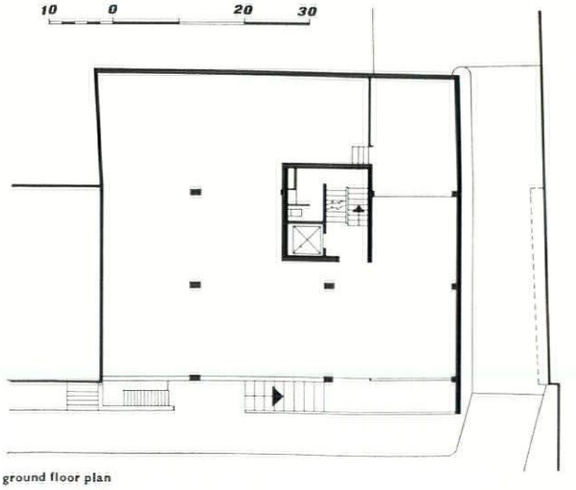
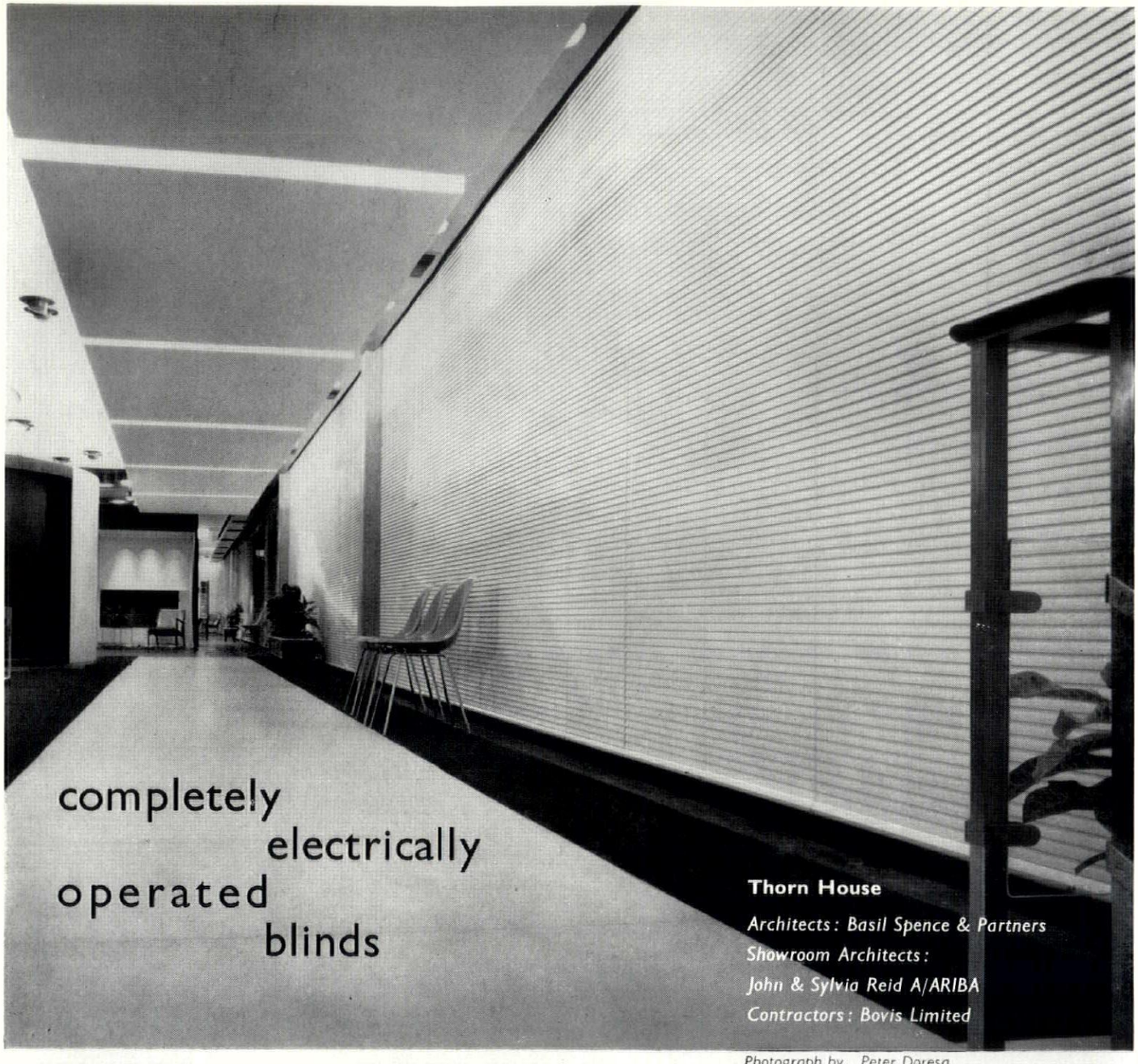


ground floor plan



Photograph by Peter Doresa

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EXHIBITIONS

PAINTINGS AND SCULPTURE

In the largest one-man show of sculpture that has been held in London for several years, the bronzes of Jacques Lipchitz confronted us with a number of unusually demonstrative encounters between mother and child, father and prodigal, Europa and bull, man and bird, etc., which were nevertheless overshadowed by the highly dramatic encounter between the two halves of his career, between the impassive cuts from the cubist cake and the impassioned shake-outs from a neo-baroque eel-tank. The show itself came nearer than any item in it to Lipchitz's idea for a sculptural encounter between the cold armour of Perseus and the warm naked body of Andromeda.

I find that my reaction to this idea for a Perseus and Andromeda (Lipchitz, by the way, says that he thought of it at the outset of his career and made a small maquette, no longer in existence) reflects my attitude to the exhibition. I don't wish to identify myself with either of the lovers, but think that I might not be unresponsive in the role of sado-masochistic witness: likewise, I found that half of the spectacle at the Tate was too cold and the other half too hot. I didn't favour either half, but was fascinated by the juxtaposition.

This division in his work has given him two separate reputations. In France, during the early twenties, he achieved fame as one of the leading sculptors of the cubist movement, but for many years he has been working in a style that might be described as lyrical expressionism and the work of this kind has brought him immense popularity in America.

A large number of the cubist sculptures shown at the Tate were four-sided reliefs with the statement of the theme—borrowed, without a glimmer of inventiveness, from cubist painting—concentrated in the frontal view, and for this reason the wall reliefs of still life subjects looked rather less arbitrary than the thicker pieces. All the same, I think that the catalogue should have mentioned that in most cases Lipchitz's early cubist works were stone carvings and that we were being shown bronze casts of them, made at a later date to satisfy museum demands for souvenirs of the cubist period, for I am quite certain that the original carvings are livelier objects than the casts, which have an unpleasantly cheesy look. But the fact remains that they did not make a serious contribution to cubist sculpture. Compared with Picasso's little bronze of a glass of absinthe and his occasional constructions and the cardboard suits he designed for the Managers in Cocteau's *Parade*, they are no more than a belated footnote to the history of cubist painting. They were no wiser for coming after the event, and made no discoveries, but they were done with great solemnity, and assumed a deliciously comical air of authority that gives them period quaintness. It is usual to praise them for their discipline and intellectual coherence, but they abound in obscurities and ambiguities; a seated man looks like a pair of lovers, a head resembles a full-length figure. They are at their best when they are invaded by an unintended, dada-like humour, as in 'Seated Man with Guitar,' 1, which looks more lucid when considered as a bird personage haunted by an owlish ancestor.



1

The obscurities in these static blocks are their link with the later works, which are usually recommended for their surging vitality and their ebullient celebration of mother love, rape and blood sacrifice. In essence, these later works appear to me to be elaborate and incoherent substitutes for the winged phalli of the ancients. Lipchitz makes his symbolical figures out of fat ropes of clay that tie his ideas about aspiration and abundance to erection nightmares. Such figures as 'Inspiration,' 2, seem to me to be sexual rhetoric, and the welcoming hand that pops out from this twisting, quivering pillar suggests that



2

the sculptor has converted a Victorian personification of Charity to a belief in the instinctual drives. An alternative title for this one might be 'I can't give you anything but lust, baby.' 'His world,' writes Bernard Dorival in the catalogue, 'is governed by a play of sweeping effects which capture the crowd by their blare and shock.' It is meant as praise, and would seem to be all too true.

The exhibition called 'Sculpture of the Tellem and Dogon' held at the Hanover Gallery differentiates between two kinds of tribal work found in the high cliffs of Bandiagara overlooking the Sudanese plain in a bend of the upper Niger, about 180 miles south of Timbuctoo. As far as one can make out from the very faint thread of information that runs through the poetic text provided by Jacques Damaise, the Dogon have lived in this terrain for something like 400 years and the Tellem were there before them. Apparently the Tellem tribe is extinct and the only clue to its existence the sculpture which is in a less 'humanistic' style than that of the Dogon tribe. We are not told how the extinct tribe came to be known as 'Tellem' or on what grounds some pieces which have certain Dogon characteristics are attributed to Tellem, but apart from a few borderline cases the Tellem works make a distinctive group. The Dogon style is well known and the pieces included in the show were no doubt there to point up the difference.

The Tellem works are for the most part highly simplified standing figures with arms raised up straight above the head, 3. Many of them have no hands and the



3

raised arms terminate in a solid block, leaving a rectangular or dagger-shaped hole above the head. In figures where the arms are not sealed off the hands have no fingers and are represented by a flat, diagonal palms-out cut. They all curve slightly backwards as if pressing against an invisible wind. They are made of wood, but some of them bear a thick incrustation that gives them the look of having been carved out of volcanic stone. This incrustation is said to have been formed by countless libations of a paste of ground millet and blood, so they would seem to have been very thoroughly involved in ceremonial sacrifices. They are perhaps more primitive than the work of the Dogon. Jacques Damaise says they are abstractions which 'stem direct from the soul.' He also says that they have 'the eternal feeling of life emerging into form,' and I think I understand what he means by this. They are the very opposite of the Lipchitz figures, for whereas the Tellem seem to be coming into human shape before our eyes, the Lipchitz figures seem to be dissolving into undifferentiated matter. The Tellem were involved in blood sacrifice but Lipchitz simply toys voluptuously with the idea of it. The Tellem figures may be stained and discoloured by blood but they are not marked by anarchy, and Damaise deserves the last word: 'they reveal,' he says 'man's capacity for salvaging himself from chaos, even if it means through blood.'

This exhibition was followed at the Hanover Gallery by the recent paintings of Stefan Knapp. He makes pleasantly decorative play with clusters of spherical forms which seem sometimes to be half-immersed in memories of *art nouveau* lily

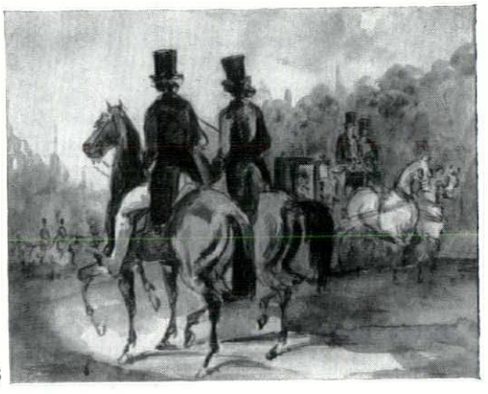


4

ponds, 4, and sometimes to be hovering, without evil intent, just outside the earth's atmosphere. These themes are modish and yet old-fashioned, but in some of them the colour, no doubt as a result of his heroic experiments with large-scale enamels, is quite wonderfully light and pure.

The latest of Arthur Tooth & Sons' 'Recent Acquisitions' shows ranges from Guardi to Picasso and includes Samuel Scott's neat record of 'The Reappearance of Halley's Comet in 1759,' 5, an earth-bound glimpse of outer-space activity which achieves a more impressive sense of far-offness than the vacant textures with which some of our abstractionists try to obtain the sensation of being out there.

Mr. Graham Reid, the son of a famous art dealer, has opened a charmingly intimate gallery in Cork Street, and intends to specialize in nineteenth and twentieth-century drawings. His inaugural show is admirable in quality and catholicity and the twenty-five works on view included many famous signatures. Among the more modest works were Paul Nash's delightful little watercolour from the series painted as illustrations for 'The Garden of Cyrus,' a precise little pen drawing of flowers by Roger de la Fresnaye, which had a faint touch of Redon about it, and a Constantin Guys watercolour of two horsemen and a coach, 6, which was in unusually full colour.



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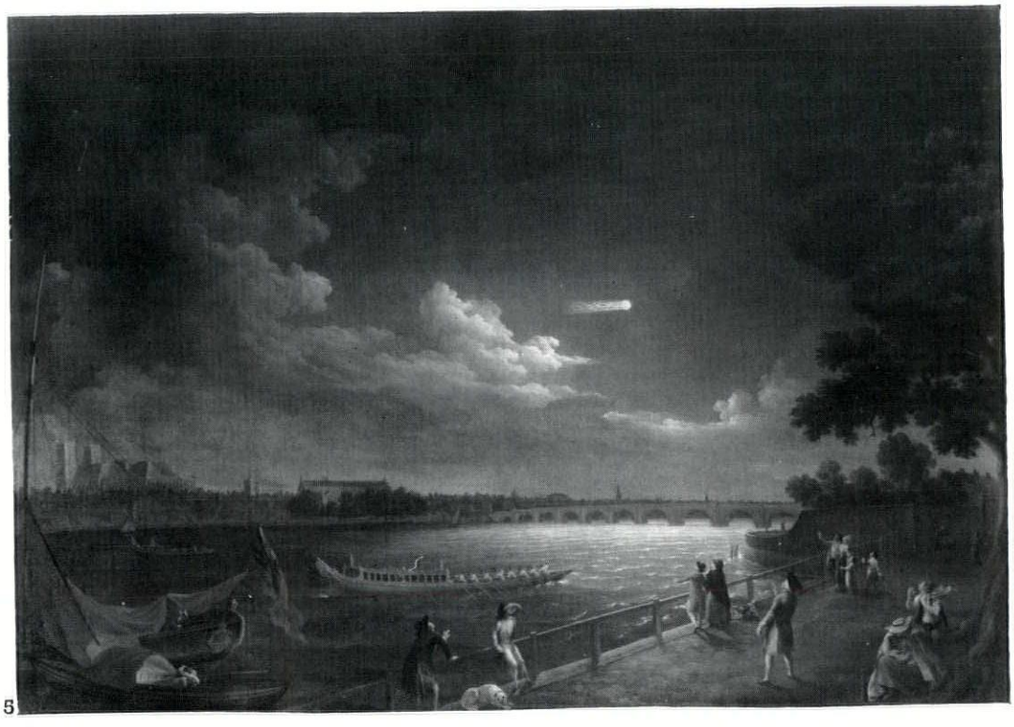
The Arthur Jeffress Gallery has been showing an interesting group of etchings by the nineteenth-century artist J. J.



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Tissot, who took an almost equal pleasure in delineating beautiful woman and the rigging of sailing vessels and brought them together in meticulously detailed paintings of social occasions aboard ships. The etchings are almost entirely devoted to studies of his mistress, and although her good looks are as old-fashioned as a cabbage rose, only a very cold eye could remain unaffected by Tissot's evident delight in her. In the studies of his mistress he was groping for the secret of her personality, but in his studies of other women he was content with an incisive delineation of character. The etching of a woman with a monocle is a good example, 7, and the



7

sharply observed hands seem somehow to bring her face into full view.

Anne Madden, who is the wife of the painter Louis le Brocquy, has been holding her first one-man show of oils at the Leicester Galleries. The most interesting works were those in which she traces out



8

the structure of rock faces, 8. These have very real distinction, for she has been able to make adept use of the contemporary technique of controlled trickles without betraying her almost Ruskinian piety towards natural forms.

Robert Melville

COUNTER-ATTACK

HADDINGTON, EAST LOTHIAN

Since the war Haddington has faced the same problem as nearly every old town in Scotland—or indeed in the whole of Britain. Through years of neglect, if not of actual provocation, decay has set in among many of the old houses. Often overcrowding, producing virtually slum conditions, has helped; but the main cause has been simply an inability or unwillingness to look after the houses as they need. Haddington (unlike, say, Banff or Harwich) has never been allowed to get really ruinous; but most of the town needed a great deal of improvement, and a few houses were quite uninhabitable.

These are things, however, which Haddington shares with other towns. In two respects it stands out: in the quality of its design and in the endeavour by all concerned to make the Town and Country Planning Acts work as they should.

There is no better small town in Scotland than Haddington: what we have today appears to be a happy amalgam of design and accident. Haddington was one of a number of towns founded in the twelfth century by David I. It was clearly laid out according to a definite plan, with an immensely long triangular market place, whose axis lay east-west along the line of the old main road from Berwick to Edinburgh. (The A1 now by-passes the town about half a mile to the north.) Quite early on, the familiar silting-up of the market place happened, with stalls in the middle becoming permanent, and then being more substantially built up into what is now a double row of quite large buildings, dividing the two parallel main streets of the town and ending at the west in the superb eighteenth-century town hall. There is no doubt that this whole range has added greatly to the formal impressiveness of Haddington. For in addition to the houses and shops in the middle, there is room for an agreeably wide street to the north (Market Street), and, to the south, High Street, which is still wide enough to be in effect an elongated rectangular market place, 1. There are many other good things in the town (including a fine fifteenth-century church standing rather isolated on the south-east edge), but the real delight of Haddington is contained in the area of the old market place, with the wide tree-lined Court Street dividing at the town hall into the two parallel shopping streets.

The real delight and the core of the real problem. One of the main planks of the approved County Development Plan for East Lothian was the development of Haddington, the county town, both to unite the various socially different parts of the county—mining, agricultural and coastal fringes—and to resist the suburbanizing influence of Edinburgh. This was to be achieved by boosting its exceptional architectural character and in-

1, *Haddington High Street looking west towards the town-hall.* 2, *the south side of the High Street.*



1



2

creasing its population by planned expansion.

The Planning Officer, Mr. F. P. Tindall, led the way by personal example in reconstructing a derelict house in the old suburb of Nungate, writing a new guide to the town (which is a model of what such things should be, informative and enthusiastic), and zoning the centre of the town as an area of great architectural interest and of special advertisement control in the County Development Plan. The Town Council, its local pride aroused, rose eagerly to the task. The Town House, designed by William Adam, with a spire added by Gillespie Graham, was reconstructed for the Coronation, with the help of a grant from the Historic Buildings Council. The historic Nungate Bridge was also repaired; and the Council have now acquired and will renovate Carlyle House, a fine miniature palace-fronted house which was the birthplace of Jane Welsh, Carlyle's wife.

Another important early move was to ensure that Market Street, much the less interesting of the two streets (but good enough, for all that), should be the main east-west traffic route through the town. This was logical enough, since it connects directly with the main bridge over the River Tyne; but it meant—or will mean—some widening and hence some demolition at the east end. The essential point at least was to prevent the breaking open of either end of High Street and to preserve it as the town's great urban enclosure. High Street couldn't, however, be left to take its chance. The houses urgently needed modernizing (most of them were without hot water or electricity), and while a good many owners were keen to do the work themselves, others couldn't afford to. The south side of the street, 2, was the greatest problem and the greatest opportunity. It represents probably the finest remaining row of eighteenth-century urban architecture in Scotland. (The north side is also remarkable; and it is of course the fitness of the whole which is so specially distinctive, 3.) Behind are the remains of the long riggs or crofts in which the owners of the houses kept their cattle at night. (As recently as 1907, on the retirement of the Burgh Cowherd, the town considered appointing a successor.) These riggs had in part been turned into gardens, and in part been built over with sheds or even (decidedly unhealthy) housing. In 1954, the County Planning Department prepared a survey of all the houses on the south side, with recommendations for treatment. Normally the work could be —and in large measure has been—carried out by the owners with the aid of improvement grants; but in a few cases more drastic action was needed, and the Town Council were persuaded to buy several houses in order to restore and re-let them to the tenants already there.

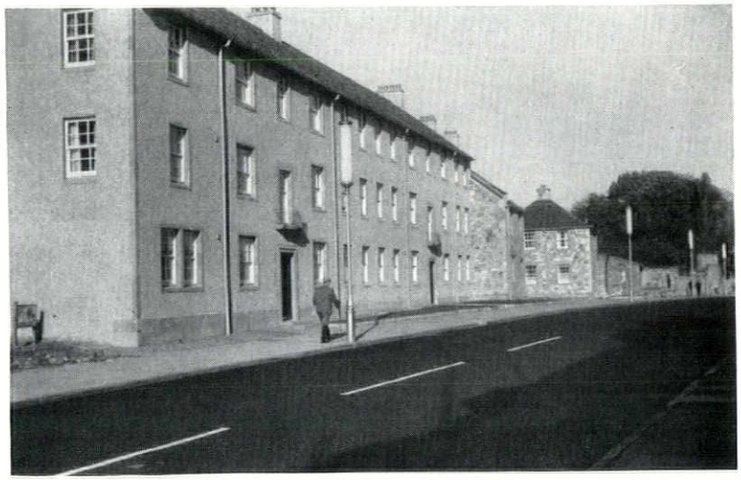
An important part of the scheme is to make a new cul-de-sac road running roughly parallel to High Street across the rather ill-used riggs at the east end. The road will fork into two, the northern limb acting as a service road for the shops and workshops in High Street (which at present have to be serviced entirely from the front), the southern to serve 27 new houses to be built partly in one long east-west terrace with gardens running south to the Butts (a lane along the old Burghers' Wall), partly in short north-south terraces along three of the riggs. In this way tenants losing their houses in the riggs (where the really insanitary ones are to be pulled down) can get new ones in the centre of the town, *where they want to live*.

In addition, two small areas north of Market Street have been zoned as Comprehensive Redevelopment Areas, the first to be started in Scotland. One of these provides a small shopping enclave in Newton Port. The other and larger one at the north-east corner of the old town is now largely complete. It is an uneasy mixture of success and failure. To begin with, the widening of Hardgate, the main street running north from the east end of Market Street, has been fixed in a typically bone-headed bureaucratic way. An original proposal to widen it on the east side was opposed by the late Sir Frank Mears because it would have meant the demolition of the ruins of Bothwell Castle, a seventeenth-century castellated mansion which was the only thing of interest on that side. So the west side was chosen, where there were a number of attractive cottages (most of them on the provisional list of historic buildings). Before anything was done the castle more or less demolished itself, and there could now be no objection to the original scheme—none except that the west side had now been chosen, and, as is well known, it is a very wicked thing to revoke decisions once made. The west side has now gone, and has been replaced by a range of flats designed by the architect to the Burgh, 5. However, the fact that this road widening was carried out under the Comprehensive Development Area procedure meant that it was carried out as a unified scheme:

3, *Haddington High Street looking east.* 4, *the new square at the corner of Market Street and Hardgate.* 5, *new flats in Hardgate.* 6, *café in High Street, with the wall used for advertisement.*



3



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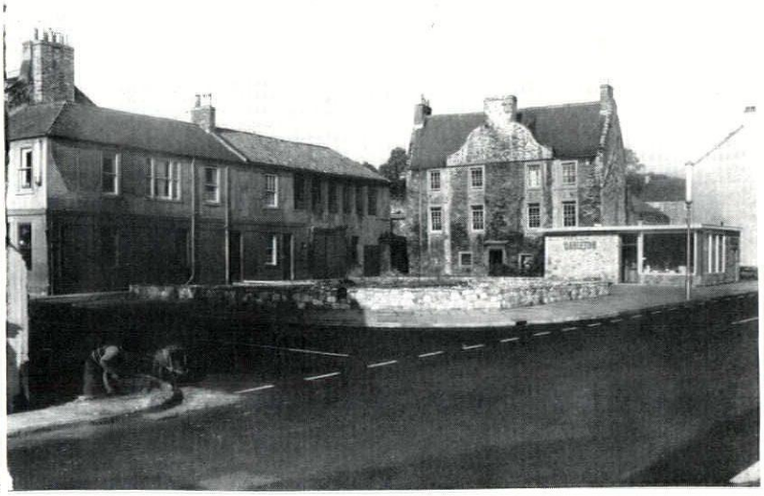

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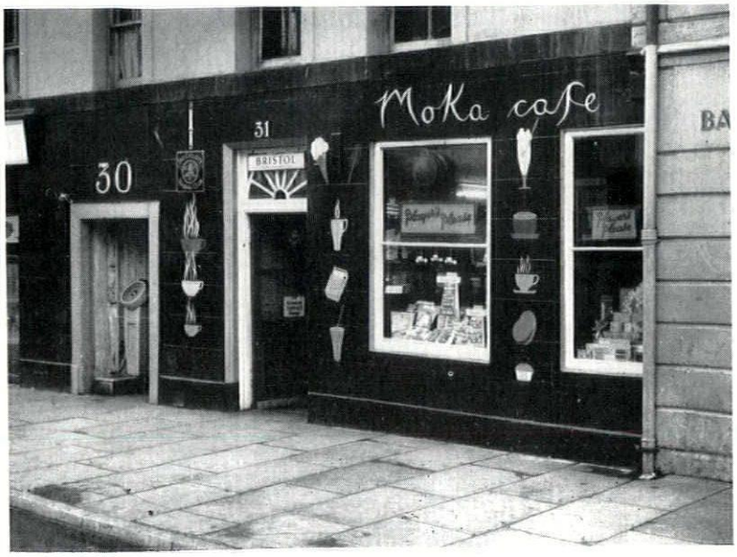

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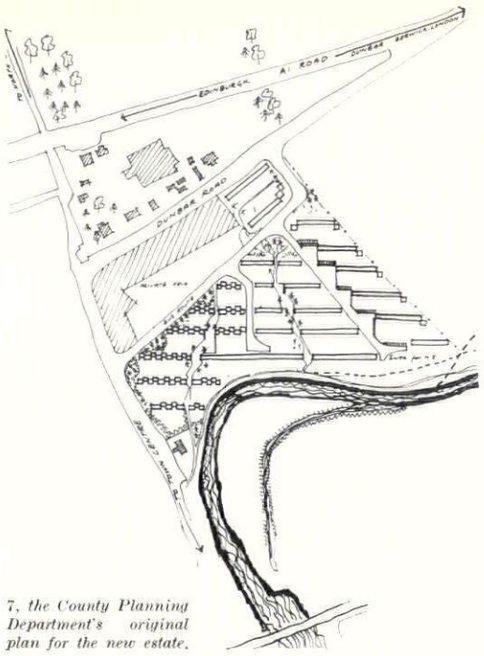
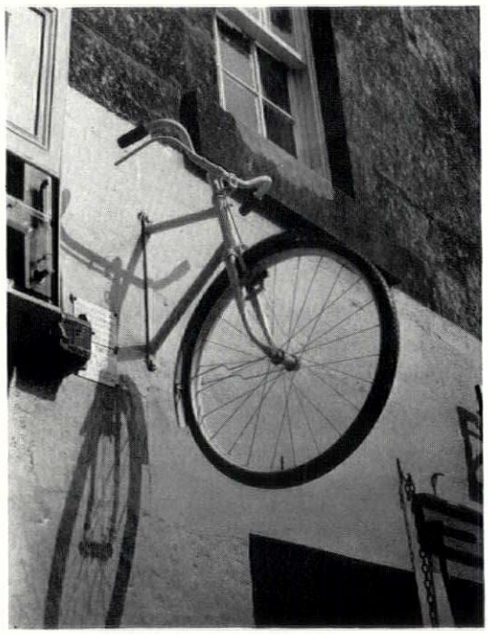


7, the County Planning Department's original plan for the new estate.

demolitions did not take place years in advance of rebuilding, enough land was acquired to make a worthwhile scheme and a new corner made in which the architectural presence of the early eighteenth-century Gilmerton Town House was allowed to be the determining factor in the design.

The original housing proposal by the architects



8, an original and imaginative shop-sign.

for the Burgh, which included turrets and stonework scattered over its brick face, has been replaced by two small stone houses (correctly detailed through training local masons) and three-storey brick-built flats. The best that can be said for these is that they are more solid-looking than most modern Scottish housing, which appears flimsy and temporary against the sturdy vernacular of previous centuries. Again, the requirement for a cobbled forecourt by the County Planning Department has been only in part achieved, and foolish and unusable patches of grass are put in front of some of them, destroying the urban character.

The corner site, 4, may well have a happier outcome. Already the simple single-storeyed café (architect, F. R. Stevenson) shows once again how well a straightforward twentieth-century building will go against an older one, in this case the Gilmerton House which is to be restored. (But the Town Council were only made to accept a flat roof by the owner's not being able to afford a pitched one.) The row of buildings on the left are to be converted into shops and the square in front paved and tree-planted. The gap on the right, between the café and the end of the new flats, is to be filled by two shops designed in principle according to a plan prepared by the Planning Department.

The passing of the Scottish Housing and Town Development Act, 1958, enabled the second principle of the County Plan to be realized, the building up of the town's population. Haddington was the first town to sign an overspill agreement with Glasgow Corporation. Two hundred and five of the 250 houses are building on the outskirts, and the remainder are to be reconstructed and new houses provided in the old parts of the town. Although the Planning Officer was first off the mark with a housing layout embodying the separation of pedestrian and vehicles, using a Neubuhl type of house, 7, the Town Council preferred the conventional scheme put forward by their architects, a scheme which looks like being as dull as most other housing estates. In such cases the County Planning Committee do not refuse permission, though here they made a condition that a landscape plan was prepared and carried out, incorporating an equipped toddlers' playground, areas for ball games, and the rebuilding and regrading of the river bank, which was liable to damage in the floods which have a habit of affecting Haddington. Thus the overspill is not only boosting the town's commercial prosperity but helping in the reconstruction of the historic parts, as well as giving an added amenity along the riverside.

Haddington also seems to have learned from the lessons of the New Towns and is trying to get a wide range of age-groups among its new population. Houses are not tied to industrial selections, but relatives of new arrivals get priority, and they will be housed in all parts of the town, not merely in the new estates.

* * *

But the thing that most people will notice



9, British Linen Bank in the High Street at Haddington, with fluorescent tube fitted to the corner.

immediately about Haddington is the almost unbelievable absence of street-clutter. Long before the Magdalene Street scheme was thought of, Mr. Tindall established a one-man Civic Trust in Haddington, ready with new and gay colour schemes, a set of amusing, if sometimes slightly arch shop-signs, 8, to replace more orthodox commercial ones, and at least one idea for using the shop wall instead of the windows and street for local advertising, 6: the effect is somewhat spoiled here because new proprietors have put back some of the old signs which Mr. Tindall had persuaded the previous people to throw out. The lamps chosen for the centre of the town are an almost unqualified success—unobtrusive and well-sited, which is quite an achievement for fluorescent tubes, 9—though unfortunately in the surrounding streets, where it has been more difficult to use the walls of buildings, we find only a chaster version of the Past President of the Royal Academy's Roman Candles (see in 5). The general effect in the centre is to make Haddington into something of a counter-attacker's dream-town, 3.

One final sticky problem in the centre must be mentioned: there is at present a hole on the south side of Market Street, where Scotland's first bomb of the war fell. The site is owned by the East Lothian Co-op., together with the block in High Street immediately behind. The design problem is a difficult one; but the success of the Hardgate café—if nothing else ought to make the point quite clear that a genuine twentieth-century building is the proper answer. Whether the Co-op. will be imaginative enough to provide one remains to be seen. At least it is worth hoping that they will leave their present shop-front on High Street as it is: it shows clearly on the left-hand side of 3, and it is one of the most successful in the town.

* * *

Haddington seems to offer no end of morals. Three are perhaps most noteworthy. In the first place, Mr. Tindall has no more power than any other planning officer. He has, however, a good deal more imagination and foresight than most, and a good deal more persuasiveness. Haddington—where the thing has been successful—is in fact a triumphant display of what can be done through persuasion, for all the new signs, colour schemes and shop-fronts were managed this way. Moreover plans were very often ready beforehand and could actually be proposed when the situation arose. And this is the second point: that the County Planning Department have very sensibly been allowed to use office time for the preparation of colour schemes and other devices for private people, which have nonetheless had a real effect on the whole look of the town (and of other towns in East Lothian too—Dunbar for example).

But finally there remains the dreary fact of the new flats and the new estate. The most persuasive planning officer in the world can't turn a timid and indifferent architect into a bold and rewarding one. If the houses in the Butts scheme are to follow the way of the rest, the best effect and pleasure will be entirely lost. There *are* a few examples in Scotland of an imaginative architect finding exactly the right solution for just such a problem—most notably, perhaps, Richard Moira's new houses at Lerwick in Shetland. And it is good to learn that he has been engaged for similar work in North Berwick. The chance of having such work in Haddington ought to be jumped at. But the other side of the moral is to remember that, alas, planning officers are only advisers, however brilliant they may be. If their plans and advice are taken, well and good (very often); but positive decisions are taken by councils who must learn about town design and about town living if they are to rise to the opportunities opening in front of them.

Andor Gomme

SKILL

CURTAIN TRACKS

by Lance Wright

Fittings influence the visual effect of a building to a degree which is quite out of proportion either to their cost or to their bulk. At different times we have considered in these columns such items as door handles, sliding gear, blinds and weather stripping. This month attention is turned to curtain tracks.

Though the window blind is a neater, more highly mechanized and, therefore, in theory, a more fitting method of closing the window openings in our architecture, the blind can never really replace the curtain as a means of cutting out the cold at night. Unfortunately, the curtain, regarded architecturally, is difficult to cope with: its unprecise forms are not easily reconciled to an aesthetic which sets such store on precision and, when drawn back, the curtain threatens to muffle the window forms at the sides, while its track causes ambiguities at the head. The Renaissance, particularly in its latest Victorian age, enjoyed the drawn curtain as it had a connotation of luxury; permitting it not merely to provide a gratuitous frame to the window (and, incidentally, to cut out a large part of the window's light) but to mask the form of the window altogether when seen from the inside. The aesthetic of today does not altogether reject luxury, but insists that luxury, when used, must not tamper with line and form. Since the Victorian age, the curtain track has gone through a great many changes: from a thick pole, with huge rings to match, to heavy brass track and pulleys; from these to the light brass snap-on tracks of thirty years ago; from these on again to their lineal descendants in aluminium, nylon and plastic-coated steel and to the recessed tracks of today. All of these changes have been in the direction of unobtrusiveness: in sound—from a rich rattle to a faint hiss—and in sight—from a display of tackle like the spars of the sailing ship to a mere line.

The object of this article is not to record the stages in this change, but to describe and comment on those kinds of track which have survived or have newly joined the throng, and between which the architect must now choose.

Window strategy

Unobtrusiveness has been so persistently aimed at in curtain arrangements that we must presume that it is a goal worth aiming at. But this is not to say that this goal is to be carried as far as complete invisibility. Some would certainly like both curtains and track to disappear from the line of light during the day. There is, however, an inherent difficulty when you have to do with the ordinary kind of window punched into the wall with a sill, head and reveals. For, if the track is to be invisible, it must be recessed into the soffit of the window. If this is so, then the curtain must, when drawn back, lie against the reveal and, unless there is a considerable space between the face of the reveal and the edge of the pane, will be obscuring light. If you are using what is known as a 'cording set' (i.e. if you are drawing the curtains by means of a cord) then there is no reason why there should not be a recess in the reveal for curtains; but in most cases this would be a rather desperate remedy. A reasonable attitude towards the curtains themselves is to allow them to show in the room provided they do not obscure either the edges of the pane or any architectural lines on the reveal. A case in point is the common one of the Georgian window with architrave. It is clear that both reveals and architrave are part of the functional attributes of the window and ought not to be obscured. Any curtain, when drawn back, therefore, ought to hang well clear of the architrave, which implies some form of rail which will overshoot the window casing by a clear six inches or so to right and left. This brings us to the rail itself and to the different attempts that have been made to conceal it. The first of these attempts is represented by the pelmet or the pelmet board. The late Renaissance enjoyed the pelmet and, by shaping it, used it as the primary means of giving an expression to the window head. Latterly this use has been abjured and the pelmet has been confined to the practical function of hiding the top of the curtain and, perhaps, shielding it from dust. The resulting square box projecting into the room at the window head has always been a troublesome thing to handle. It is visually most unsatisfactory when it coincides in length with the length of the window head; and there is a strong case for carrying it the full length of the window wall. We have already referred to the move to make the pelmet unnecessary by recessing the track into the soffit of the window. A better solution (though it may require more curtaining) is to recess the track into the surface of the ceiling and to run it the full length of the wall. Wall length curtain tracks will normally give those in the room the option of using their curtain as a wall hanging during the day. This is confessedly an expensive solution and now that tracks themselves have become so much neater (especially since the introduction of nylon), the question arises of whether full recession is really necessary. The desire to conceal gear is very rational so long as the gear itself is clumsy; but once it has passed a certain threshold of neatness it may be preferable to show it.

In addition to these, there are two other general matters to consider when choosing a system: the first is whether the curtains are to be pulled by hand or by cord, the second is whether the curtaining is to be in one or two (or more) pieces; and, if the latter, whether there is to be a 'cross-over.'

Hand or cord pulling

It is generally agreed in the trade that curtains last longer when they are drawn by cord. On the other hand, broken and jammed cords are a very common source of annoyance and the extra paraphernalia they require is an added dust trap. Also they cost more: if the average price of uncorded runners is 2s. per foot run, cords will certainly double this. The smoother running of nylon track probably makes cording a shade less desirable than it used to be, but it remains essential on very large windows and where the curtains are likely to be opened by people who have not paid for them and who may not be fussy about the cleanness of their hands.

The cross-over problem

When curtains meet over a window in the same vertical plane they will always let through a chink of light. The common way to prevent this is to provide a 'cross-over,' that is, the track is run in two pieces and one length is twice bent so that it crosses in front of the other length in the middle of the window. Nearly all the common brands of simple flexible track provide for a cross-over, with a special bracket which will hold the two rails in the right position; but some of the more recent types—particularly those which are recessed—do not allow this. When you do not have a cross-over the only way to avoid a chink of light is to make the curtain in one piece, on the understanding, of course, that when it is drawn it will hang on one side of the window only. So long as the curtain is regarded as 'framing' the window, this is objectionable, but once it is regarded simply as performing a function, the objection begins to disappear and, when the curtain is thought of as being a day wall-hanging, the objection goes altogether.

It seems logical, when considering the products now available, to group them according to type and to consider first plain track, passing thence to cord-controlled track and lastly to recessed track.

REVIEW OF PRODUCTS

Plain track

Brass: The material which made possible the first curtain track revolution was brass. The track itself was (and usually still is) a simple I section, the top flange of which is gripped by the bracket while the bottom flange (which is usually wider) forms a track for the runners, which are commonly in the form of a pair of nickel-plated brass wheels joined together by a loop of brass wire for hanging the curtains. This brass track can usually be top hung (i.e. to the soffit) or side hung. It is supplied with brackets and can also be supplied with valance rails (a valance being the same thing as a pelmet, but of loose hanging material). The brass track is usually of very light section. So light that one firm (Thomas French) sell it in hardware shops in rolls, when it is fed through a dispenser. This lightness of section has the disadvantage that it is very difficult to get it perfectly straight and, since any slight irregularities are very noticeable, it should only be used when the rail itself is out of sight. Another snag is that brass track is noisy and that the chromium-plated wheels are inclined to stick against the web of the I section. Two methods have been employed to lessen this nuisance. Chalco introduced a rib in the middle of the web which lessens the bearing of the wheel faces against the vertical surface, 1. The 505 Manufacturing Company replace the rear wheel with a ball and round off the shoulder of the rear side of the flange, 2. This means that when curtains are pulled by hand (that is, slightly from the front) the rear member will not be tugged against the web.

Aluminium: All the firms producing brass rails market a corresponding product in aluminium, usually repeating the detail. Harrison (Birmingham) Limited, the manufacturers of the '950' series of rails, have produced a new version peculiar to aluminium in which the I section is turned on its side with a shallow top flange and a very deep bottom flange, 3. The runners (which are of nylon) are of an entirely different type being in the form of a loose grip with hooks on the outside for attaching the curtains. As can be seen from the drawing, the curtains are suspended on a line with the rail itself and for this reason the rail bears the trade name 'drape.' This is the first manifestation we have so far mentioned in this article of the great revolution effected in curtain track by the use of nylon gliders. These are almost always much quieter than brass and, as far as we know, they will not deteriorate with age.

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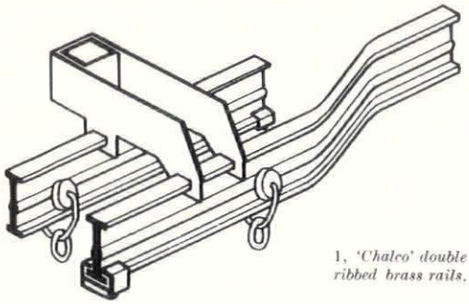
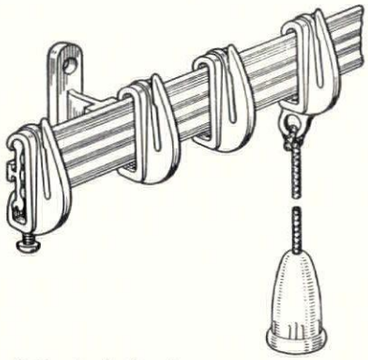


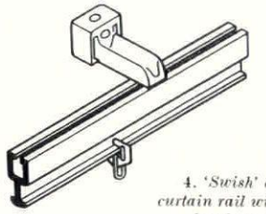
1, *'Chalco' double ribbed brass rails.*



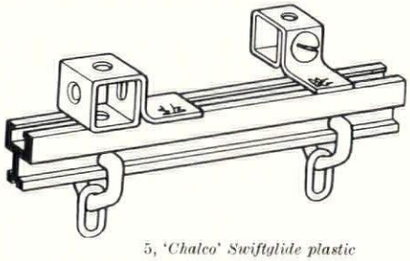
2, *variant on typical brass track and runners developed by 505 Manufacturing Co.*



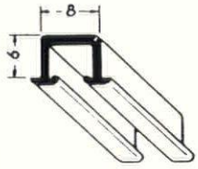
2, *Harrison's 'drape' aluminium rail.*



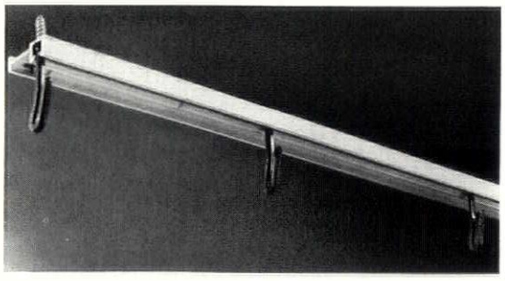
4. *'Swish' all nylon curtain rail with nylon bracket and glider.*



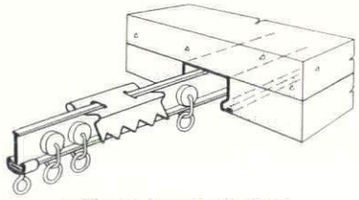
5, *'Chalco' Swiftglide plastic rail with nylon gliders.*



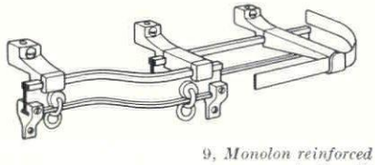
6, *Silent Gliss flush mounted single track section.*



7, *'Ghost' aluminium track with nylon runners. (Haggard Robinson & Co.).*



8, *Thomas French's 'Rufflette' recessed curtain track.*



9, *Monolon reinforced plastic rail.*

Aluminium itself has made another important contribution to the curtain rail problem, but this is dealt with in the concealed track paragraph.

Nylon: We have already mentioned nylon gliders with aluminium track. Nylon has also been used for rails. As it has less tensile strength than the metals, it needs more brackets (i.e. 1 ft. intervals instead of 3 ft. intervals), but it has the advantage that it does not get rough with age. The rail section used is quite different. Nylon track is much smaller than the usual brass I section and is commonly in the form of an inverted lipped channel above (to grip the brackets) with a squat I section below for the gliders. It can be bent sufficiently for fitting to wide angle bay windows, but not for anything approaching a right-angle bend. All versions use nylon gliders: the Chalco 'Swiftglide' uses metal brackets, 5; but the makers of 'Swish,' which is claimed to be the first all-nylon curtain rail assembly in the world, use nylon brackets also, 4. This version is easy to put up, looks very neat and has received an anti-static treatment against dust. As far as we are aware, nylon track is not available either for cording or with valance rails.

Plastic-coated pressed steel. The newest material for tracks is p.v.c.-coated pressed steel. This (it is claimed) has the advantage of nylon in that the surface will not deteriorate in any way, but, as it is stronger, it needs bracketing only at about 3 ft. intervals. Two firms make rails in this material: Harrison and The Mono Curtain Rail Company. Both use sections which are substantially the same as those used for brass and both use nylon brackets. The Mono Company's brackets (the rail is called 'Monolon') are of an ingenious clip-in pattern which makes use of the stiff, resilient nature of nylon, 9.

Concealed rails

Visible casings: The next degree of complication in curtain track design is to conceal the rail. The earliest versions of this were in brass. One in this material is Harrison's tubular brass rail. This is a comparatively heavy and bulky product, being 1¼ in. wide by 1 in. deep. Versions in aluminium are generally much neater. The 'Silent Gliss' single track section is only about ⅛ in. wide and ⅜ in. deep. This, however, is for fixing to the soffit only. A new arrival in the market for vertical and for horizontal fixing is 'Ghost,' manufactured by Haggard Robinson and Company, 7. This is an exceedingly elegant and sophisticated rail, accommodating a black nylon glider with a head only about ⅛ in. in diameter. In this way the properties of both materials are used to the best advantage and the result is so satisfactory visually that any greater degree of concealment seems uncalled for.

Recessed casings: As far as the track is concerned, full recession of the casings completes the drive towards unobtrusiveness. Apparently the first to introduce a recessed track was Silent Gliss Limited. In the class of simple track which we are now considering they manufacture a single plaster section for hand drawn curtains in aluminium. The actual curtain track fits into this and is held in place by a felt or neoprene pack which forces the track section against a range of ribs in the plaster section, 6.

Another product in this class is Thomas French's 'Rufflette' recessed curtain track, 8. This employs a sherardized steel channel into which

is clipped standard brass track with chromium brass runners.

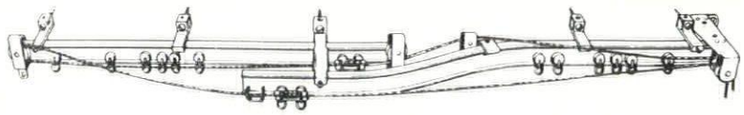
One disadvantage which is common to virtually all the concealed rails we have considered so far, whether their casings are visible or recessed, is that they can only be used in straight runs. They cannot, therefore, either be used in bays or be used with cross overs.

Corded sets

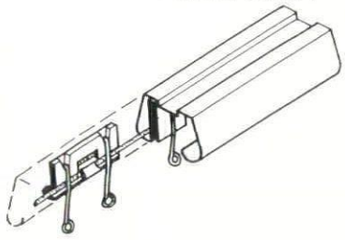
As we have already remarked, the use of cords saves wear on the curtains. Also, to pull a cord is a more elegant way of drawing a curtain. The original type of cording uses a heavy brass track similar in many ways to the track used in overhead door gear. This is called 'railway action' and rails can be obtained (to special order) to fit bays. The end pair of runners on each curtain are attached to the cord and together are called the 'master runner.' The cord doubles round a horizontal pulley at the end of the run and returns, via various guides and stops, to the side. One manufacturer of curtains of this type is Hunter and Hyland Limited.

Practically all the manufacturers of light standard brass and aluminium curtain runners provide corded sets for their curtains. They are of two main types. Those in which the cord is continuous (even though the track may be in two sections) and those in which there is a separate cord for each track, 10. With the former you have only to pull on the cord and (if you are lucky) both curtains begin to open (or to shut): with the latter each curtain must be pulled separately. The disadvantage of cording sets of these types is that the cords tend to hang down, to collect dust and to jam on the pulleys and guides. To overcome this disadvantage, there has been a move to run the cords in continuous grooves. Two firms produce tracks of this pattern. One is Thomas French who market a curtain suspension called 'Double Track,' 11. This consists of an inverted pressed steel channel (for attachment direct to ceiling or soffit) with edges curved to form the two tracks and to provide two very small ducts for the cords. Ingenious nylon gliders run on the rails and are marshalled by 'master gliders' attached to the cord. The suspension is of the continuous track type mentioned above so that one pull on the cord moves both curtains. The other firm in this particular field is Silent Gliss Limited who produce a very complete range of enclosed corded rails. For surface fixing they have a single track, double cord section (which, as it would not permit an overlap, could only be used for a single curtain), 12.; also a double track double cord section. Lastly, they produce a single track plaster section which is the same as the first of these two except that additional flanges project upwards into the plaster. All are of aluminium with nylon glides. None of these tracks with concealed cords can be used in other than straight runs, but Silent Gliss also market a 'flush-to-ceiling' curtain track with a right-angle piece at the ends which would enable returning lengths of track to be fitted to a right-angled bay. Each length, however, would have to be in a separate cording system.

To sum up: it seems that we have at last found a material—nylon—which promises to resolve the reasonable demands of architects. Curiously enough the same material has also done much to improve and to cheapen sliding doors. In an architecture which attaches so much importance to preserving the sense of the plane surface, this is a significant technical achievement. For in the long run the availability of cheap and effective hardware is of much greater influence in determining successful architectural form than we are usually prepared to admit.

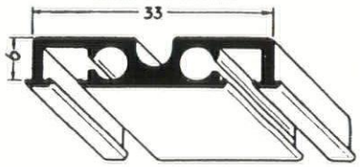


10, *typical continuous cord cording set (Smith & Davis Ltd. 'Beacon.')*



11, *Thomas French's 'double track.'*

12, *Silent Gliss flush mounting double cord section.*



MANUFACTURERS

Chalco Ltd., 35, Summer Row, Birmingham, 3. Central 4459.
Thomas French & Sons Ltd., Chester Road, Manchester, 15. Blackfriars 1887.
Haggard Robinson & Co. Ltd., 6, Stanley Park Road, Wallington, Surrey. Wallington 1181.
Harrison (Birmingham) Ltd., P.O. Box 233, Bradford Street Works, Birmingham, 12. Victoria 3421.
Hunter & Hyland Ltd., 18a, Ingrave Street, London, S.W.11. Battersea 8585.
Mono Curtain Rail Co. Ltd., Mono Works, Hockley Hill, Birmingham, 18. Northern 2619.
Silent Gliss Ltd., 29, Windmill Street, London, W.1. Museum 9484.
Smith & Davis Ltd., Friary Park Road, Wednesbury, Staffs.
Swish Products Ltd., Blenheim Works, Dawlish Road, Birmingham, 29. Selly Oak 2827.
505 Manufacturing Co. Ltd., St. Paul's Square, Birmingham, 3. Central 7505.

THE INDUSTRY

Timber buildings off the peg

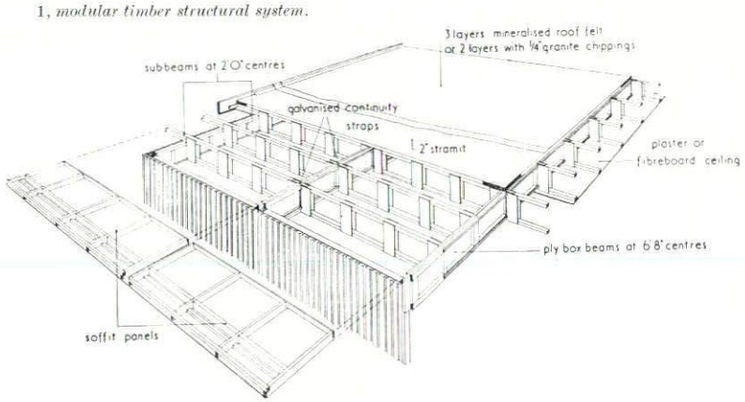
The last few years have seen the raising of the status of ready made timber buildings from the 'do-it-yourself' to the architect's class. One of the more recondite of the new arrivals in this market is the C-DA system put forward by the old-established Nottingham firm, W. J. Simms, Sons and Cooke Ltd. This is a modular system composed of storey height panels with integral framing. Posts are not required (except at angles in the wall) and the framing can be clad either with Western red cedar boarding or with external grade ply. It is essentially a 'closed system' in that the firm provide a whole building, not parts. But they are contractors as well as manufacturers; and an examination of their brochure shows that they are prepared to adapt their kit of parts to fit in with fragments of traditional building, with brick chimney stacks and the like.

The illustration of a typical roof detail shows their version of the plywood box beam—an invention which has done so much to rehabilitate timber as a structural material. *W. J. Simms, Sons and Cooke Limited, Haydon Road, Sherwood, Nottingham.*

A new partition system

Messrs. Milne Gibson and Ferguson Ltd. have recently marketed a new system of lightweight partitioning known as Cunic partitioning, suitable for use in offices, showrooms and shops. Designed by Robert Nicholson and manufactured by Messrs. Holland and Hannen and Cubitts Ltd., the system is based on an extruded aluminium post, $1\frac{7}{8}$ in. square with a $\frac{5}{8}$ in. diameter hole in the centre through which electrical conduits may be run. The post is grooved on all four sides to house the partition panels which may be glass or solid, the latter supplied in a variety of materials and finishes, such as polished natural mahogany and the various melamine veneers. Ceiling battens are supplied which are slotted at 3 ft. 4 in. centres, the module on which the system is designed, and a locating pin fixed in the hole at the top of the post fits into the slot. At the base of the post an adjustable pin takes up any irregularity in floor or ceiling levels and jacks the post firmly between floor and ceiling. No fixing into the floor or ceiling is required whatsoever which means that the partitioning can be rearranged without the necessity for structural work or redecoration. The system also includes ceiling panels on a 3 ft. 4 in. module which are fixed to the battens. These panels are optional. Standard finishes, which may be solid panels

1, *modular timber structural system.*



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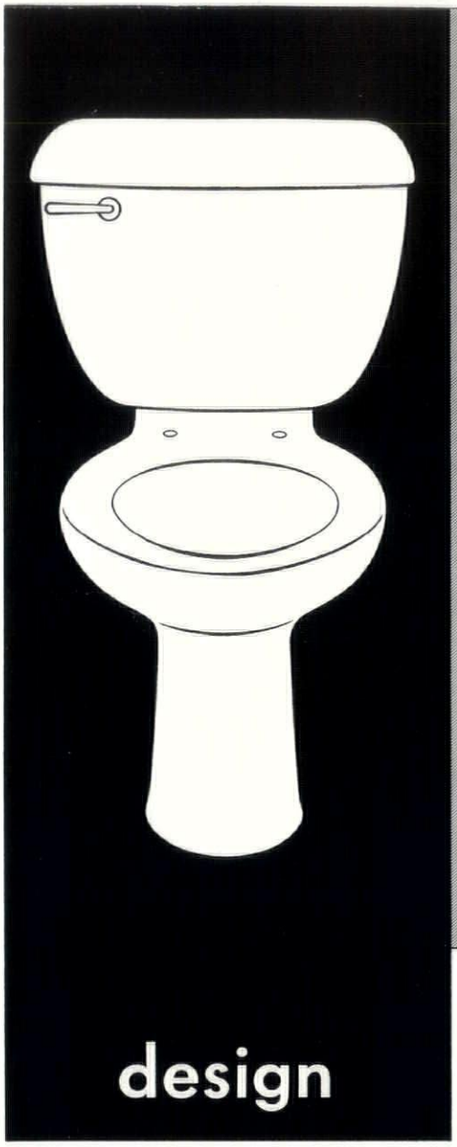

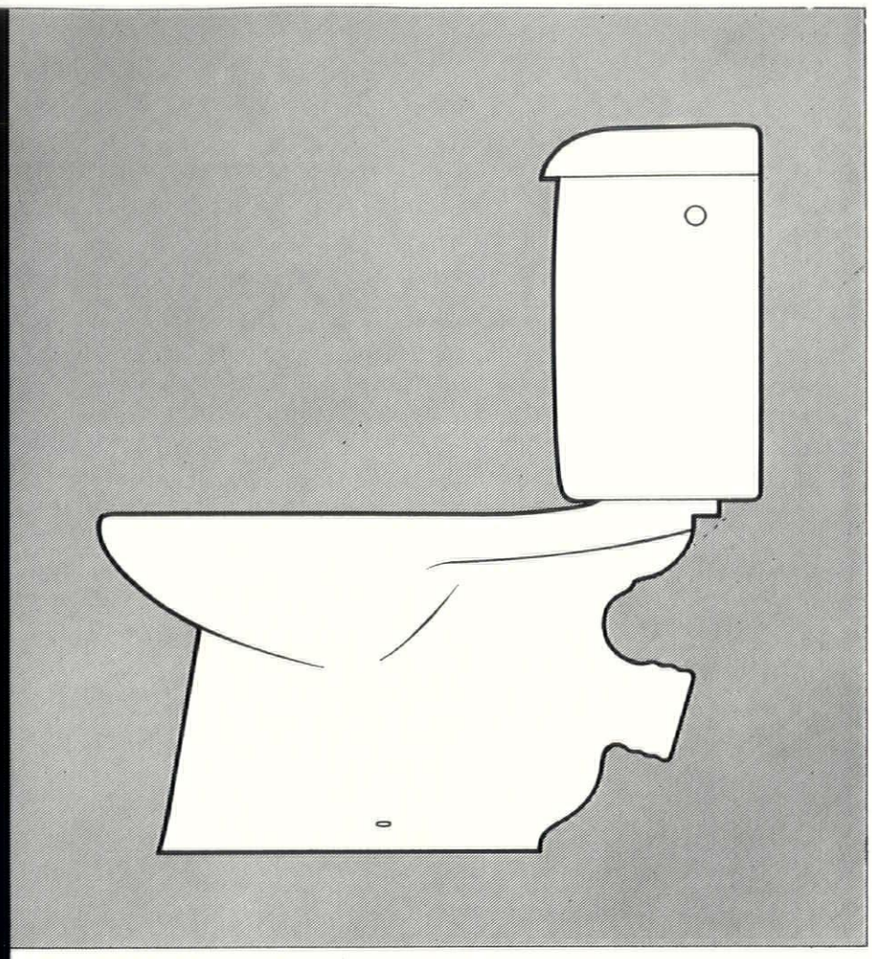

design

material

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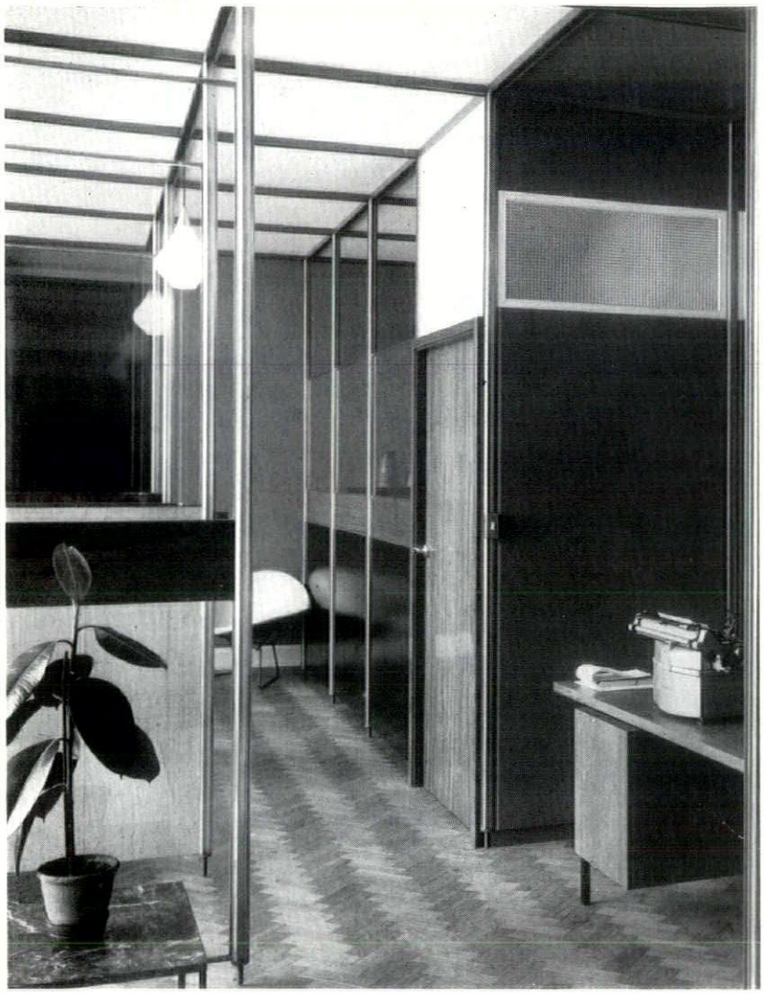

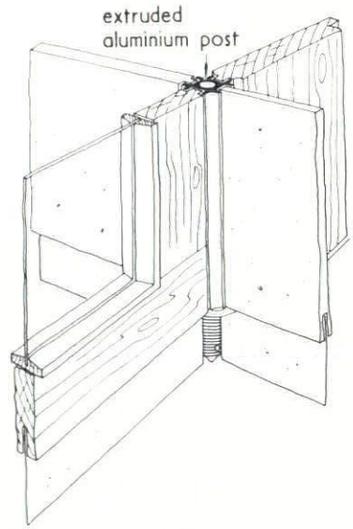

2, 3, *movable partitioning.*

for full height, or for dado or three-quarter height if half glazing is required, work out at about £5 6s. to £6 per foot run complete with posts. Skirting boards are also available together with special fittings for electric plugs and telephone cable connections.

Milne Gibson and Ferguson Ltd., 258 Grays Inn Road, London, W.C.1, and Holland and Hannen and Cubitts Ltd., 1 Queen Anne's Gate, London, S.W.1.

Copper tiles

A new development in pitched roof coverings which came on to the market just too late for inclusion in Peter Whiteley's magistral treatment of this subject* is a Finnish copper tile supplied by Marsland and Co. Ltd. 37 s.w.g. pure sheet copper is poured over waterproofed plywood sheets which are each 12½ in. square and 5 mm. thick. The tiles cost 5s. each and the average cost laid per square is round about £25. As the tiles are very light (1.3 lb./sq. ft.), they do not require a heavy supporting structure. The tiles are easy to lay (much easier than copper sheeting which is, of course, quite a tricky job) and give a roof with a copper appearance at much less cost than



4, *Finnish copper tiles.*

that of fully supported copper sheeting. The technique of laying is fully described in AJ Information Sheet 17.H2.

Marsland and Company Limited, Conington Road, London, S.E.13.

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* Now available in pamphlet form, price 1s. 6d.

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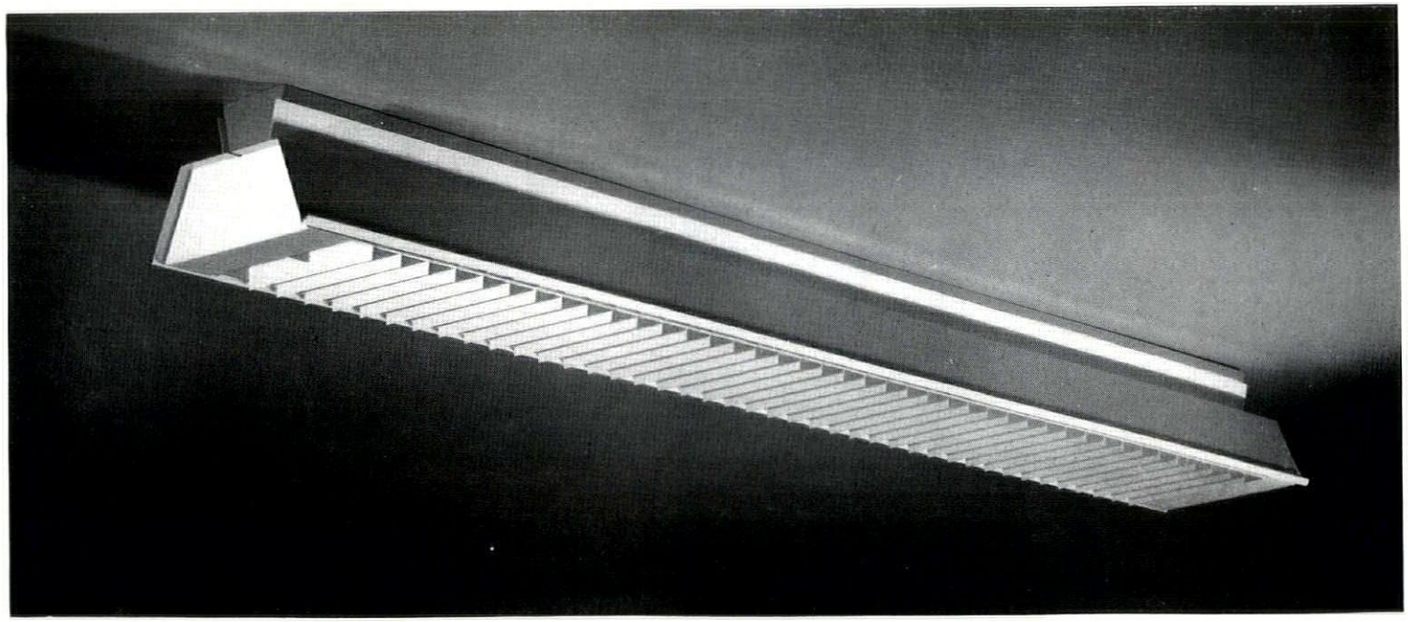

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introduction

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SERVICE

continued from page 144]

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The Universal Asbestos Manufacturing Company Limited, Tolpits, Watford, Hertfordshire.

New pile

English architects welcome a new type of pile which has recently come over from Switzerland. Developed originally by Dicht AG and now handled under licence by the Holloway Group, the 'Delta' pile is not normally reinforced. It is a driven pile (which, as it compresses the surrounding earth, is usually better than a bored one) and the driving is done by means of a withdrawable metal tube with a mandril at the foot. When the tube is sunk, concrete is poured down it and, as the tube is withdrawn, this concrete is rammed and thus forced outwards to form a bulb at the foot. Further bulbs higher up the stem can be made at will by ramming during the withdrawal process.
Holloway Group of Companies, 157 Millbank, London, S.W.1.



5, glazed walling blocks.

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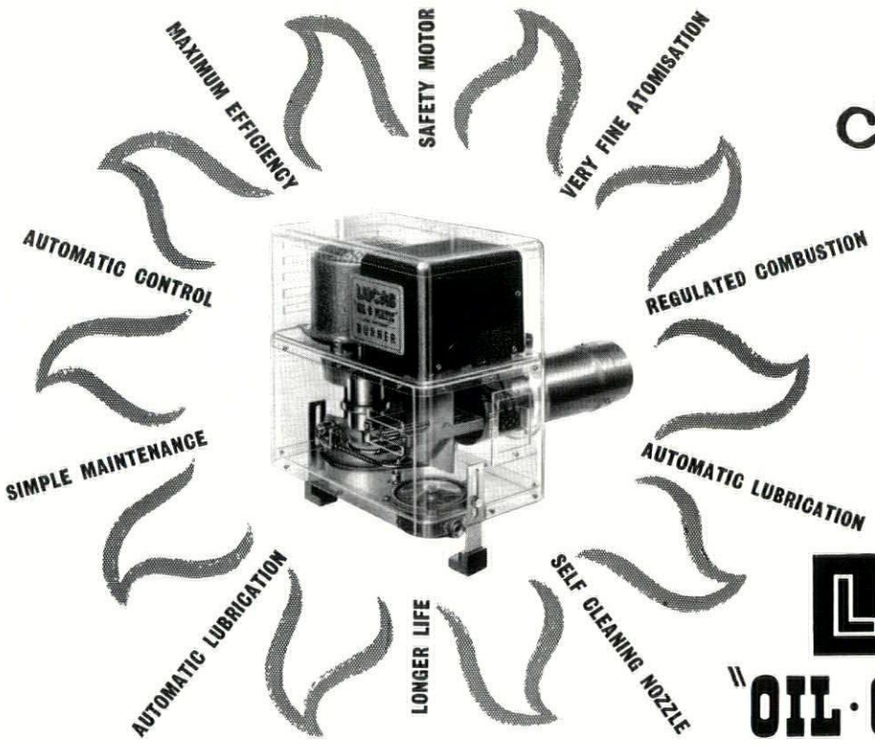
It is a fairly common practice for manufacturers to put out literature on the use of colour directed at the housewife, but it is much less common for them to direct it to the architect. 'Colour in Building,' a new booklet put out by the Walpamur Company, does not mention the architect by name, but the treatment of the subject suggests that he is, in fact, intended as the principal reader. The author of this booklet, Mr. A. E. Hurst, of the firm's design department, wisely takes MOE's Bulletin 9 as his point of departure and, throughout, he takes as the basis of this exposition the functional principles put forward in that Bulletin.

A point which he develops well is the fact that the incidence of light

[continued on page 148



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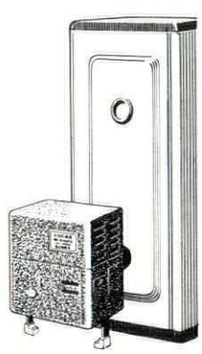

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continued from page 146]

has a more significant effect on colour schemes than is commonly attributed to it and, to allow for this, he suggests that designers should make a greater use of folding models. This is sensible, for it is in practice difficult to tell in advance the effect of shading, or of adjacent colours, on a surface. Functional analysis in colour as in other aspects of design is no substitute for inspiration, but it is an effective shield against gross error. Walpamur and the author are to be congratulated on this booklet, for, in colour, gross error is well worth avoiding. The booklet is available free from *The Walpamur Company Limited, Darwen, Lancashire.*

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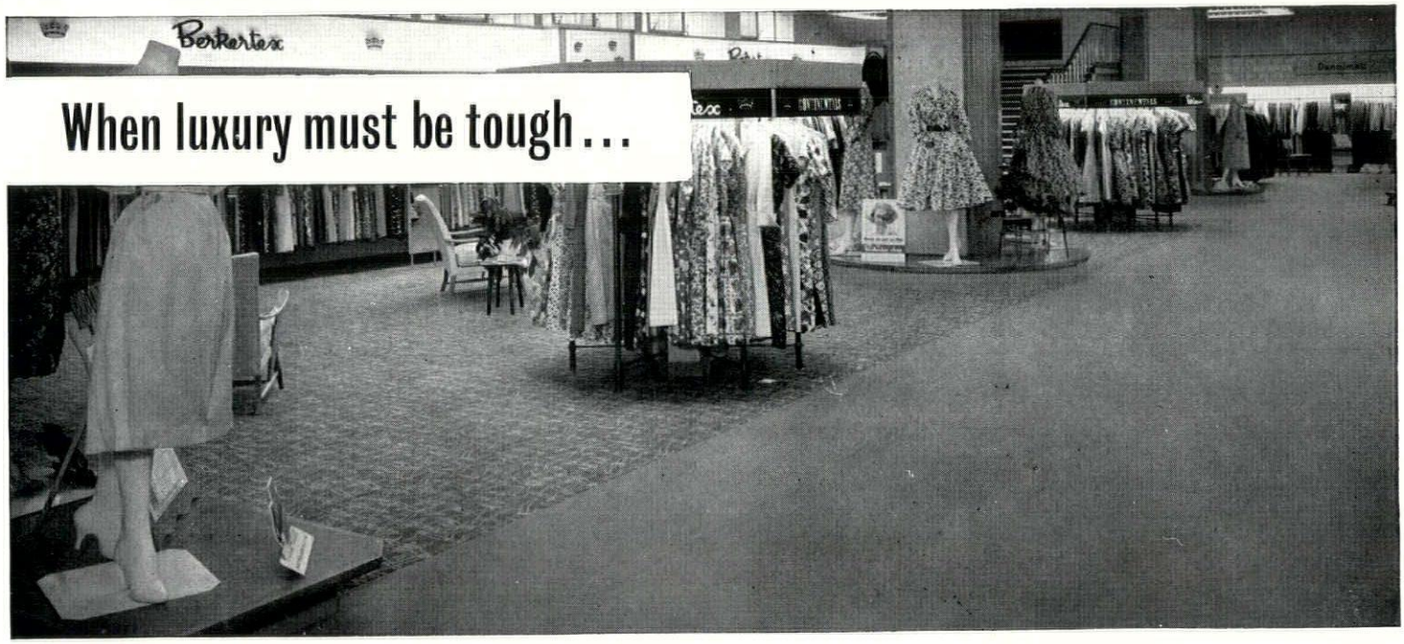

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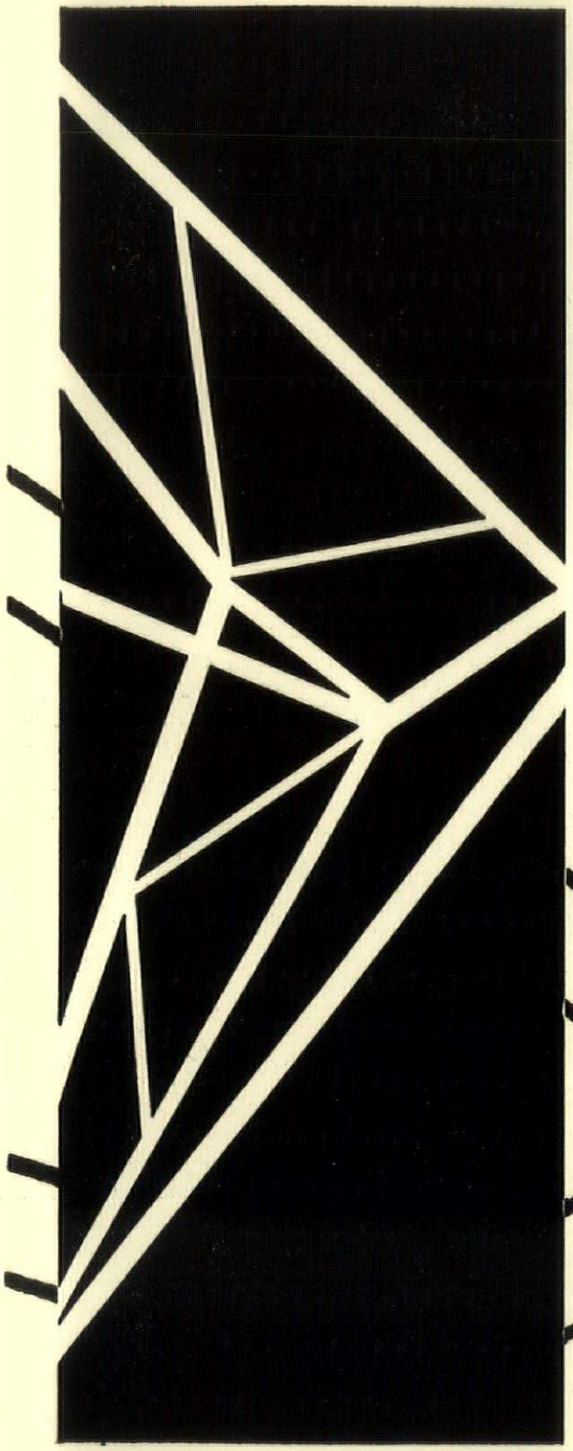

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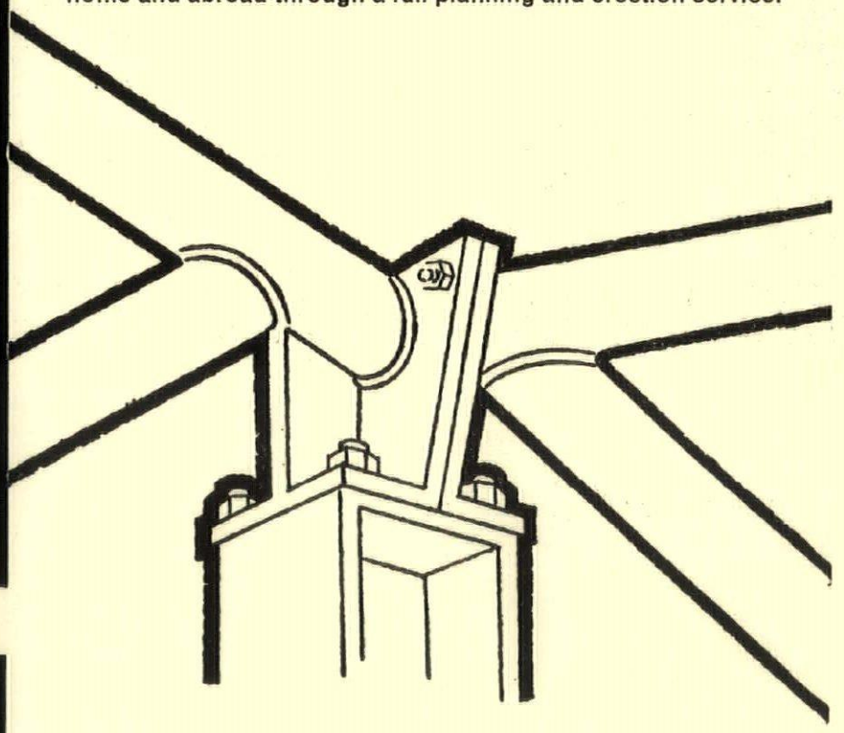

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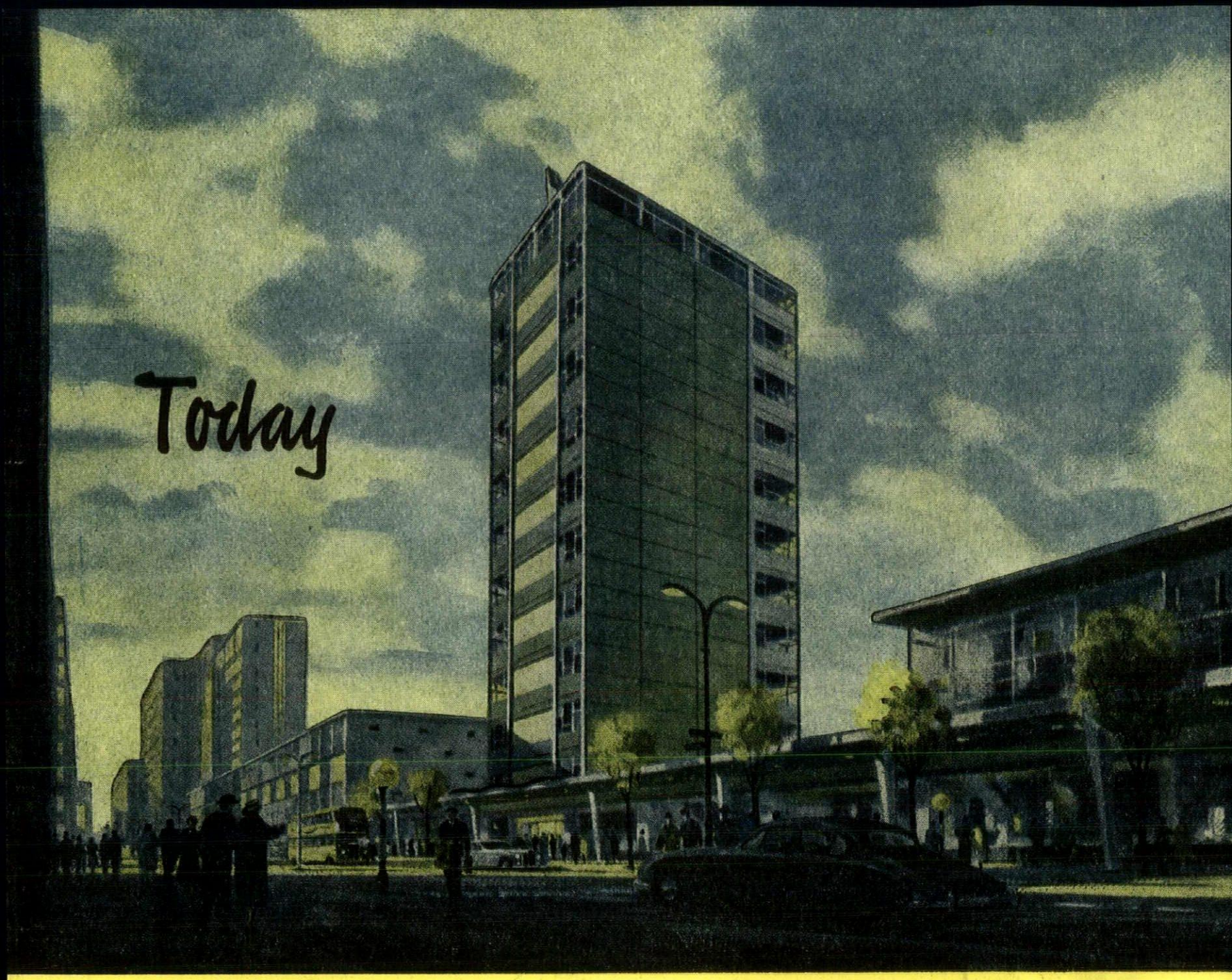

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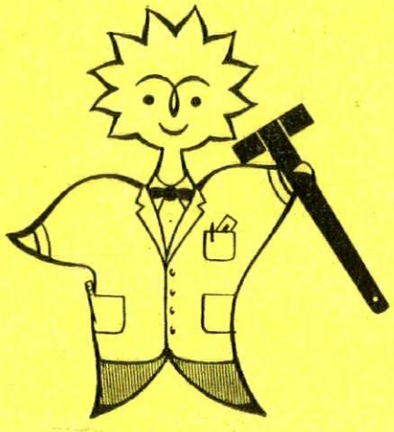

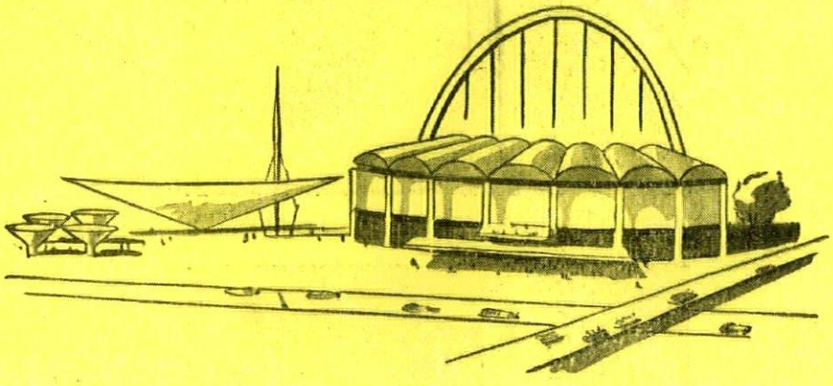

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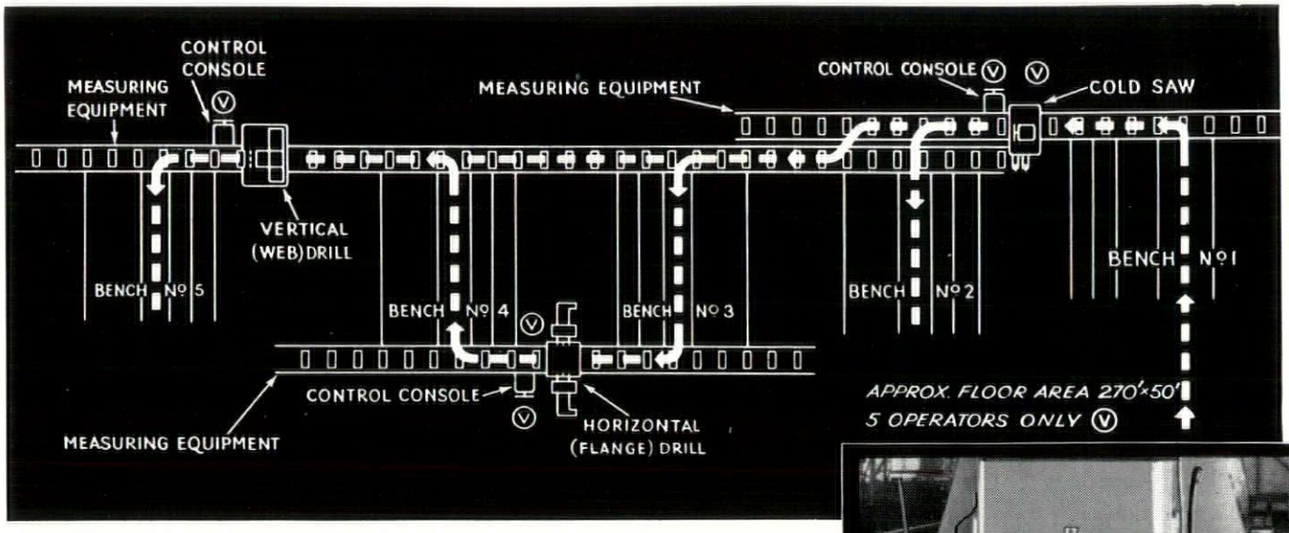

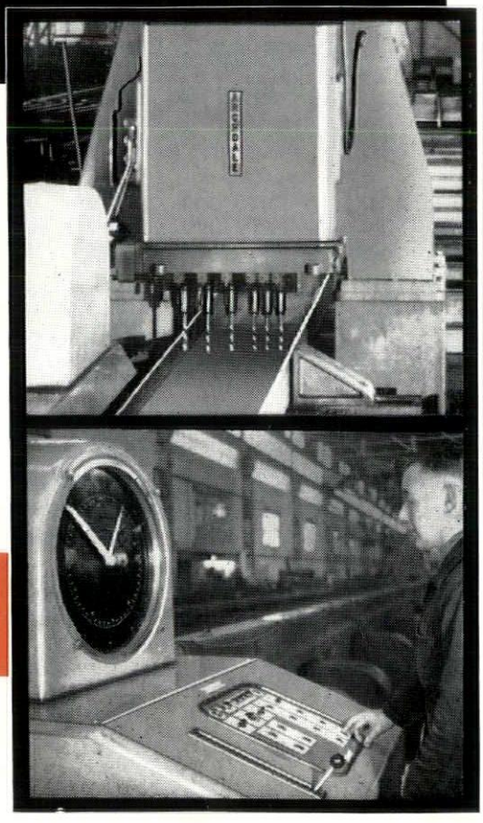

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This month's cover *is a detail form of the cast aluminium relief that covers the rear wall of the entrance hall of Castrol House, Marylebone Road, London. The building is by Gollins, Melvin, Ward and Partners, the relief, by Geoffrey Clarke, is the largest work in his now considerable œuvre as an architectural sculptor. The symbolic theme of the relief, as might be deduced from a consideration of this detail in the context of the name of the building, is the refining and discovery of oil, and this particular section of the design may be identified under the staircase in the illustration on page* 171 *— one of eight pages of illustrations and description devoted to the building in this issue.*

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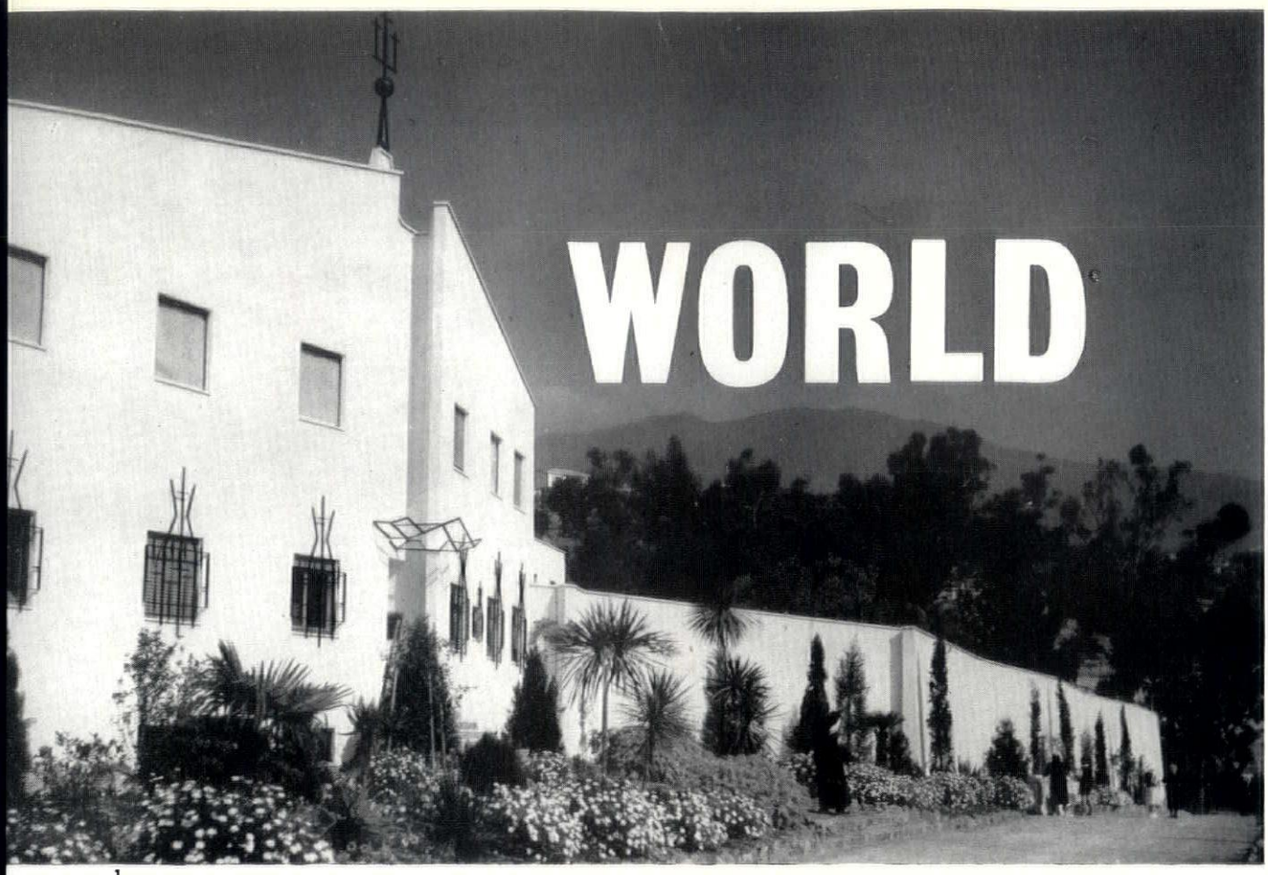


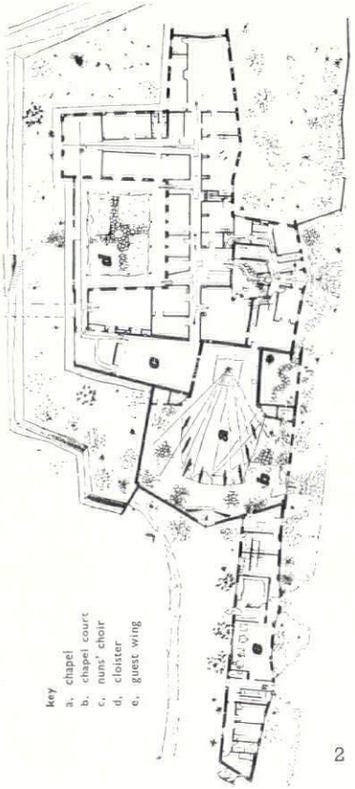
1

BONMOSCHETTO

Convent by Gio Ponti

One of the difficulties in passing an informed judgment on a work such as Le Corbusier's monastery of La Tourette (AR, November, 1958) lies in the lack of comparable works to which it can be related. The recent completion of Gio Ponti's Carmelite nunnery near San Remo, 1, goes some way to repair this lack by providing an extreme example of a completely different way of handling a similar problem. As against La Tourette's conspicuous compactness, the *Carmelo di Bonmoschetto* has an irregular and expansive plan, 2, in which characteristic 'Ponti shapes' with their projections and re-entrants—as in the long guest-wing—abound. Like all Ponti's work it will certainly arouse some violent (and probably prejudiced) objections, particularly to the curious use of an 'artisan mannerist' gable in the centre of a split facade, 3, and to the detailing which achieves that combination of luxurious sparseness and almost too-elegant simplicity, 4, that comes so easily to some Italian architects and arouses such jealousy among non-Italians.

But, aside from all such superficial matters, it is in the two main internal spaces of the nunnery that the chief interest of the scheme resides; in the cloister, 5, with its use of a supporting frame-work that remembers the screening, as well as the structural, functions of the cloister arcading, and in the chapel. But such a time-honoured word as *chapel* will hardly serve here to describe an original and complex conception of a place of worship which is both public and enclosed. The total volume of space used for worship is a polygonal garden, to which the public has access from the road in front of the convent. The nuns,



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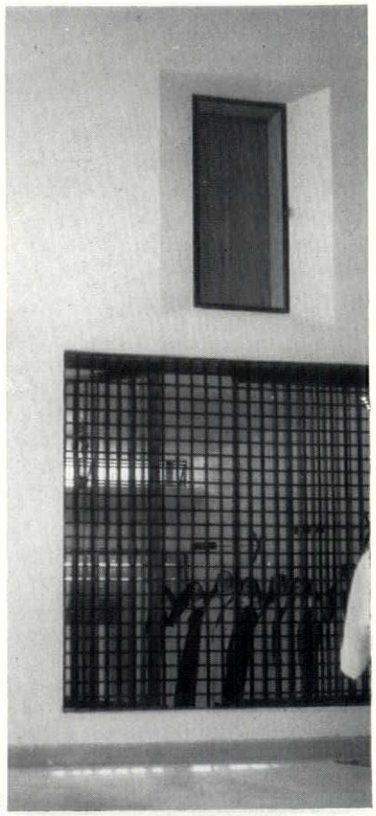

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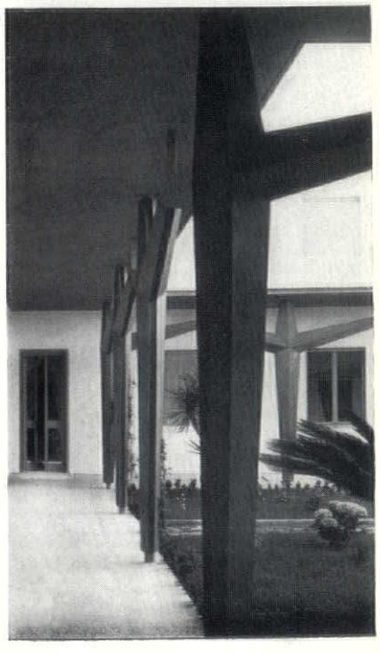
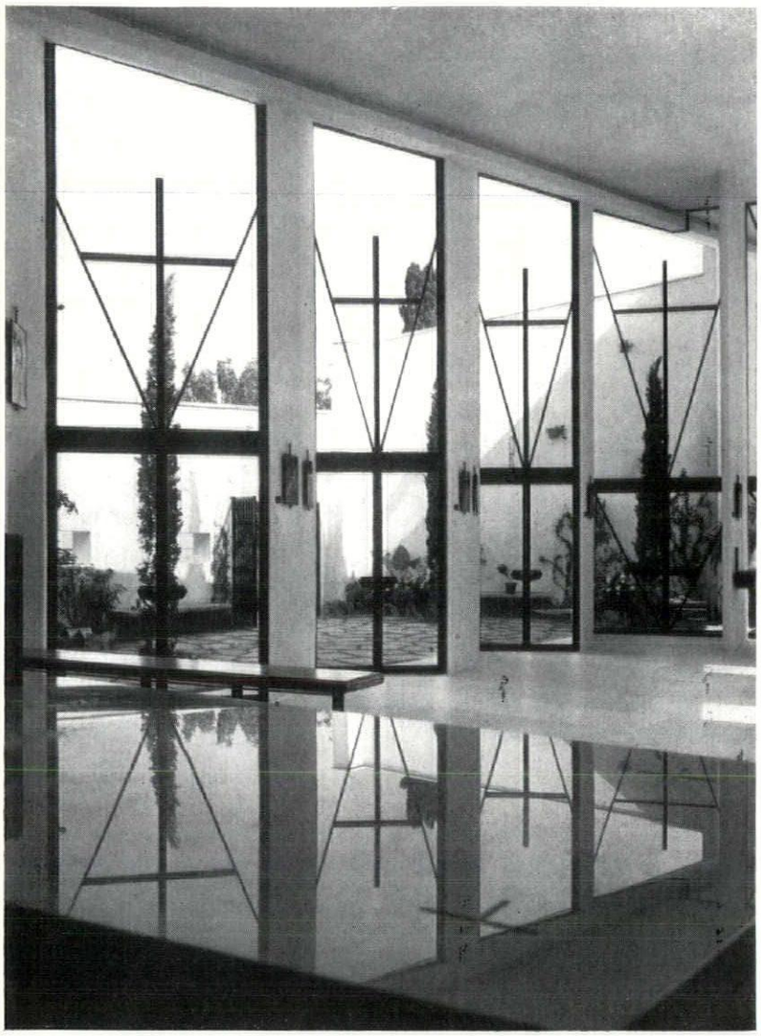


5

on the other hand, being *in clausura*, remain in their choir behind the grille seen in 4, which affords them a view of the altar. This, in its turn, stands at the more enclosed end of a building within the garden-court, a building walled in tall windows standing between structural fins that lie more or less on the line of sight from the altar, 6, so that they neither obstruct the view of the garden-court from within, nor the view of the altar enjoyed by the public worshipping in the garden.



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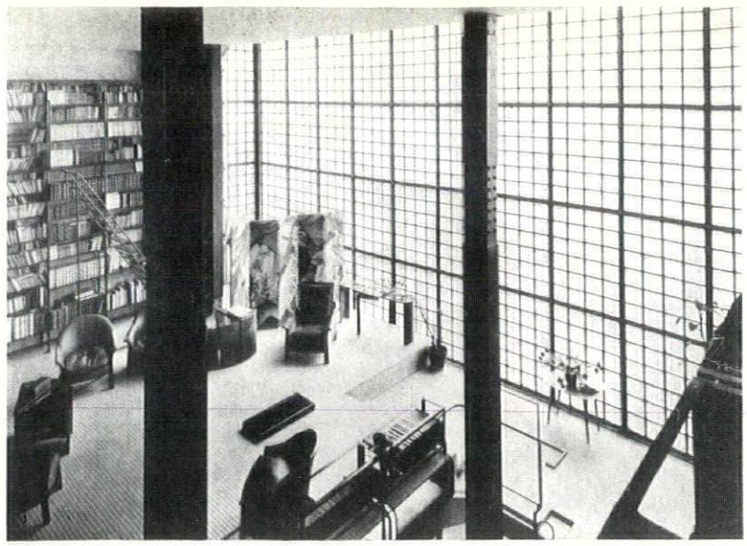
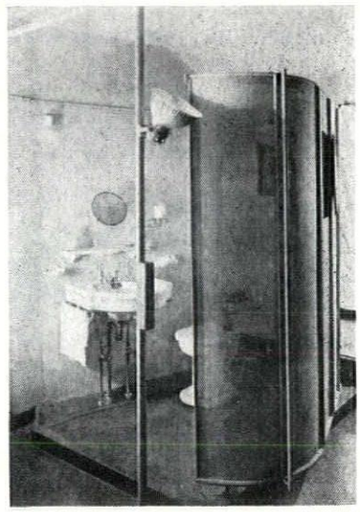


8

and the solitary masterpiece of a forgotten master, the *Maison de Verre* of Pierre Chareau. This resounding coda to the machine aesthetic of the Twenties, with its superlative glass-walled living room, 8, its pre-occupation with glass, steel and mechanical services, 9, was completed in 1931, to the designs of Chareau in collaboration with the Dutch architect Bijvoet, and became so much of a legend that the name of Mart Stam, himself something of a legend, has also been coupled with it on occasions—which is stylistically plausible though not supported by any solid evidence.

In the meantime, the slightly more senior, and much more avant-garde magazine *Cimaise*, has celebrated the beginning of its seventh year of turbulent publication by increasing its format, its number of pages, and its scope—the last by the inclusion of an architectural section under the editorship of André Wogensky, former *chef d'atelier* to Le Corbusier, with the assistance of Michel Ragon. This is a valuable addition to world periodicals on architecture since its text is multi-lingual (English, French, Spanish, German) and it provides a platform for a section of French architectural opinion which is somewhat more radical and rather younger than that represented by, say, *Architecture d'Aujourd'hui*. However, the line adopted by Wogensky in his inaugural manifesto is not so radical as to be utterly *outré*—'Architecture is an Art. We want this to be our first statement in a period where, if this truth is not denied openly, architecture is at least menaced by technique. Today technique offers means of realization that



9

are prodigiously rich. But, precisely, this richness is a danger. For, with an attitude of facility aiding it, technical richness tries to replace architectural thought just as in the decadent periods when decoration stifled architecture.' And there follows—three propositions later—a not altogether unexpected demand for the synthesis of the major plastic arts.

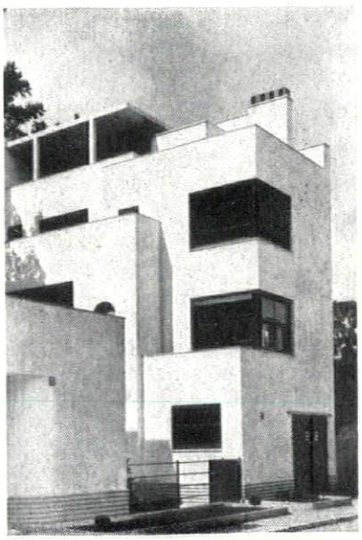
In fact, the ensuing texts and the works selected for illustration and description all stand in a line that is clearly descended from Le Corbusier himself, including the Master's scheme for Saint-Dié, and the *Maison de Brésil* in the Cité Universitaire. The one architect selected for extensive discussion is—and this too may be characteristic of the 'Nouvelle Vague'

REVUES D'ART

L'ŒIL

CIMAISE

The attitude of French 'art-magazines' toward architecture is something of an example to their contemporaries in other countries. Only New York *Art News* has what might really be called a distinguished record in this field, but even that is not to be matched against the regular monthly coverage afforded by that Parisian combination of *avant-garde* and *grande luxe*, *L'Oeil* (less avant-garde than it used to be, admittedly). Its net has been cast wide enough to cover not only recent work in France, and Peter Blake's article on the architecture of *The End of the XX Century*, but also to look back over pioneer modern works by not-quite-famous architects in Paris. In its Christmas number for 1959, it reviewed the work of Rob Mallet Stevens, including the houses in the street that bears his name, 7,



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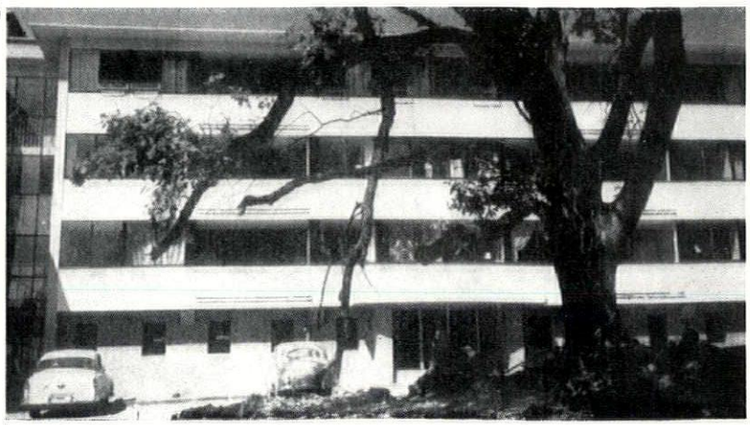


10

Revues d'Art

in French modern architecture—Jean Dubuisson, one of those Rome-prize-winners *revolté* (others are Bernard Zehrfuss and Guillaume Gillet) who add to their radicalism a degree of professional finesse rarely found in their like-minded contemporaries in other countries. Dubuisson is best known outside France for his work on SHAPE-village, 10, but *Cimaise* also illustrates projects for Africa and various sites in France, and HLM housing at Commercy.

COLUMETA

A 'cast iron brief' is something that every architect hopes for from his clients, but a rolled steel brief might be a better ideal in view of the programme given Rein Fledderus by *Columeta* (Comptoir Luxembourgeois des Usines de Metaux) for the design of their sales office in Rotterdam, 11.



11

According to the Dutch magazine *Bouw* (28 November, 1959) Columeta's house architect put down their requirements in the following terms 'Turn this old terrace house (at Eendrachtsweg 50) into a building representative of our sales organization, with maximum usability as offices and accommodation for our directors and engineers when they are working in Holland. Make it clear that we sell steel girders, piling and profiles. Make a modern building and for the rest you are as free as the budget allows.'

Fledderus's solution is mildly traditional in its section, with the familiar half-elevated ground floor and semi-cellar of the typical Dutch town-house, office space on the ground and first floor, executive suite and apartment on the balconied second, and housekeeper's flat at the top. But the elevation, as will be seen, is as modern as a progressive industrial combine could wish, and makes it perfectly clear that steel is their business—though without contrived 'advertising,' since the conspicuous RSJ that runs right up the glass, blue-green and stainless-steel facade is structural, one of a row of four stanchions at one-third span.

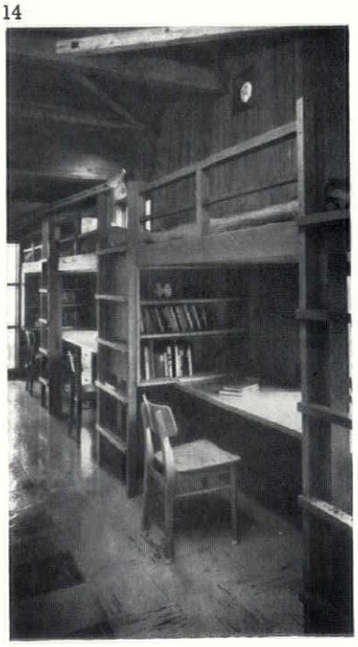
EAST-WEST DOMESTIC

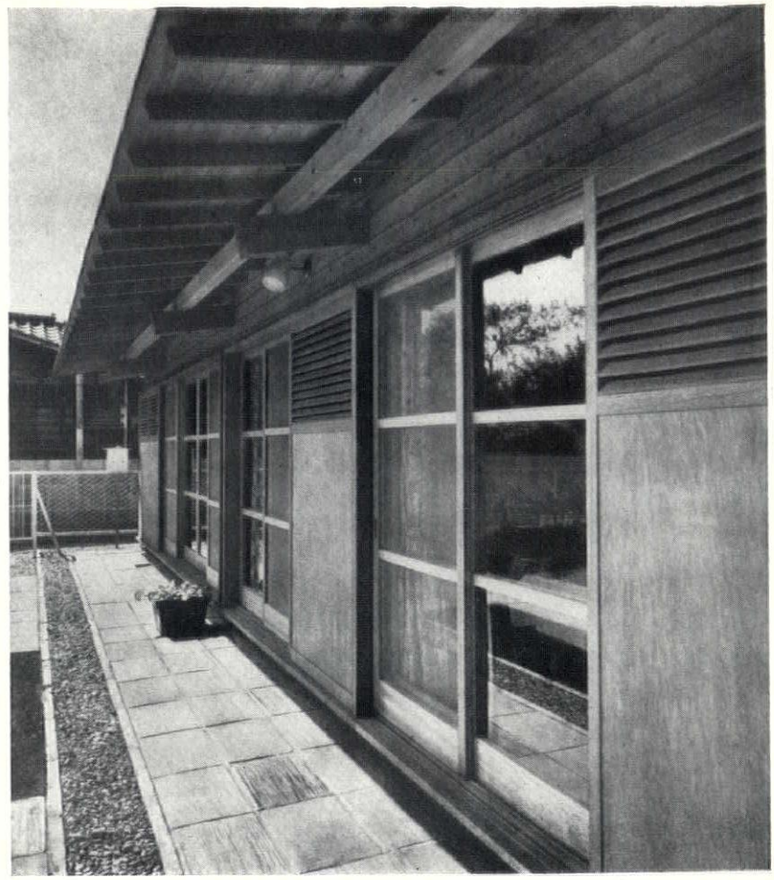
Disappointing as it may be to purists, though hardly surprising even to them, the fascination of the Japanese house for European architects seems to increase as it becomes more Westernized. Of the constant stream of charming little houses published over the last few years by *The Japan Architect*, few have attracted more delighted comment than that which the *JA* describes with its customary reticence as 'Mr. U's house,' 12. Designed by Makoto Masuzawa, who is noted for pursuing an independent line between Eastern and Western domestic design, it reveals at once, on its exteriors, an elegant fusion (that is no compromise) of the Western concept of a glazed wall with the Japanese concept of sliding screens, phrased in the most reticent and disciplined idiom.

But the planwise concept of the house is even more interesting in its combination of two differing domestic traditions, the main body being connected by a low corridor, seen in the elevation, 13, to a separate pavilion for the occupier's aged mother, whose private room has still the traditional *tatami* matted floor. The main house, however, is conceived in terms of a chair-using way of life, and achieves —in Western eyes—its most ingenious aspects in the children's room, which runs the full width of the house (its long run of windows is seen on the main gable elevation in 13) and has the desks and bookshelves proper to a professor's family, surmounted by a row of four bunks to which access is gained by the cat-ladders seen in 14. This solution—the small windows corresponding in position to the children's pillows are also seen in 13—has some feeling of the ship's-cabin aesthetic discussed in this month's Interior Design supplement, pages 191–195.

Inevitably, the lesson of Japan has not gone unnoticed in Europe, and Denmark now boasts at least one consciously Japanese house, 15, designed for his own occupation by Haldor Gunnlogsen. In plan and in general conception this remains a western house of a broadly Miesian persuasion, but it does, in such parts as the entrance hall, achieve something of the *puritansk strenghed* (as it is called in *Bonytt*, 1, 1960) of the best Japanese traditional design, although one misses, 16, the over-head elaboration, and richness of the roof construction of that tradition.

14





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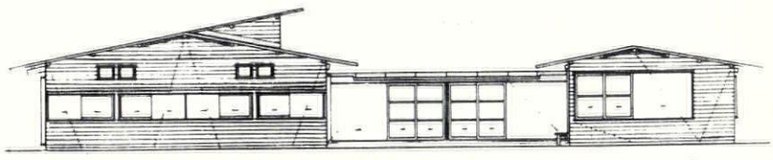
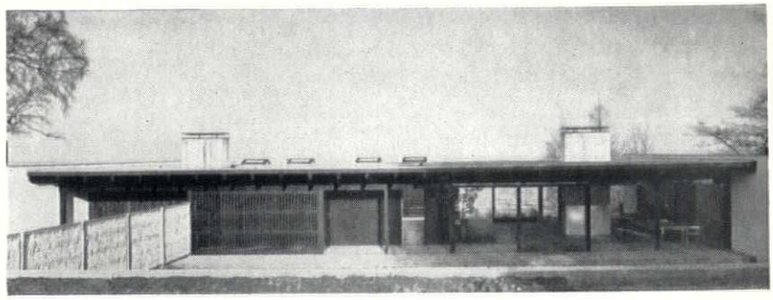


east elevation

13



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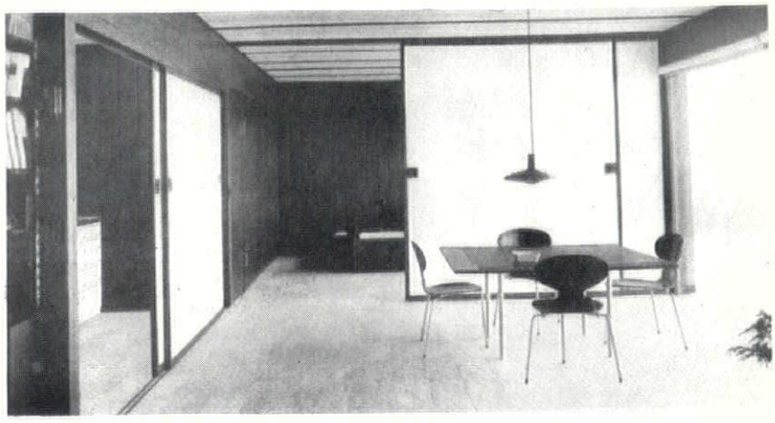

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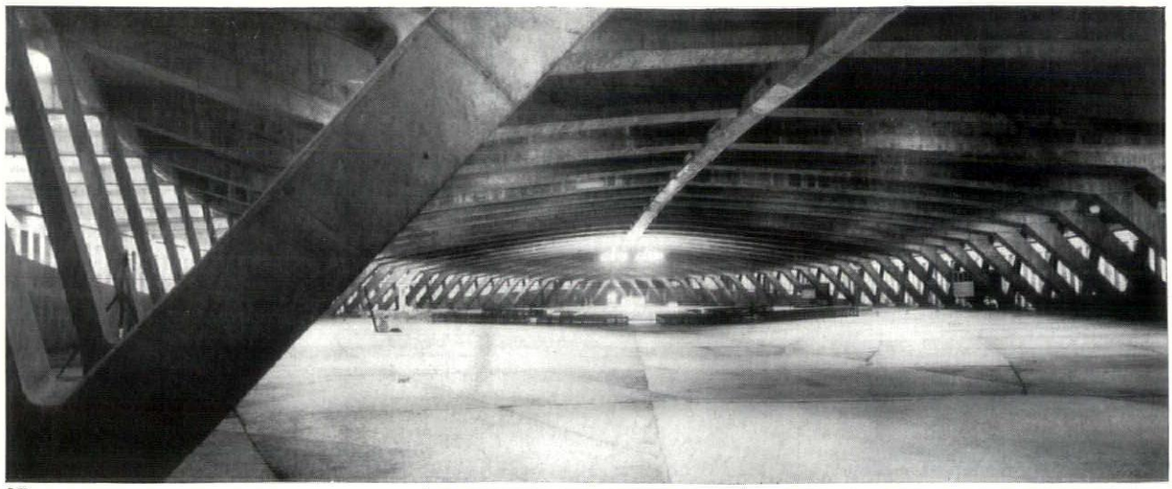
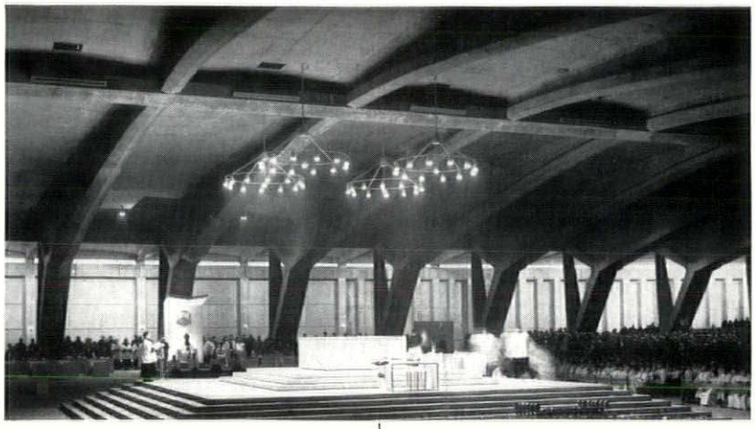


17

NON-MONUMENT

A spectacular example of what it might well be fashionable to describe as an anti-building or non-monument is afforded by the basilica of St. Pius X at Lourdes, an enormous mandorla-shaped church holding twenty-thousand worshippers but invisible above ground level. Over six-hundred feet long, this complex structure of portal frames bearing on a central bracing beam is the work of a team that brings together such great names as Vago and Freyssinet with Le Donne and Pinsard as executive architects. In spite of its length and a central clear-span of over 190 feet, this vast hall is extremely shallow, 17, the greatest height from floor-level to top of roof being just on thirty-two feet. The reason for this vertical compression of structure so ample in all other measures, stems from a fundamental decision that the creation of this church should not materially affect the traditional aspect of the approach to the pilgrimage church and miraculous grotto, and this, in turn, meant that there was no alternative to sinking the whole structure as far as possible in the soil of the watermeadows adjoining the river Gave. Since it was necessary to give the building the minimum elevation above natural ground level, compatible with not taking it too far below the natural water-table, the flattest possible vault was needed. The success of the enterprise can be judged from the aerial view, 18, of the reinstated meadow which is, in fact, some feet above its original level, though this would hardly be suspected except by a well-briefed visitor. Both in its absence of facades and the rude strength of its interior, 19, there is something Early Christian about the basilica, with the all-important proviso that—from the engineering point of view—it is a work of tremendous sophistication, both in its preliminaries (such as the surveying of the site), its design (the mathematics of these pre-stressed portal-frames is daunting), its execution and, particularly, its site organization—concrete-mixing and the preparation of rods and cables for reinforcement and post-tensioning had all to be carried on in the exiguous triangle of land adjoining the Pilgrims Hostel seen at the far end of the meadow in 18.



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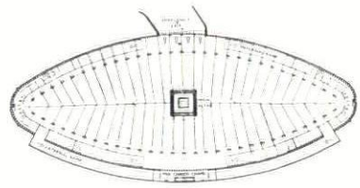
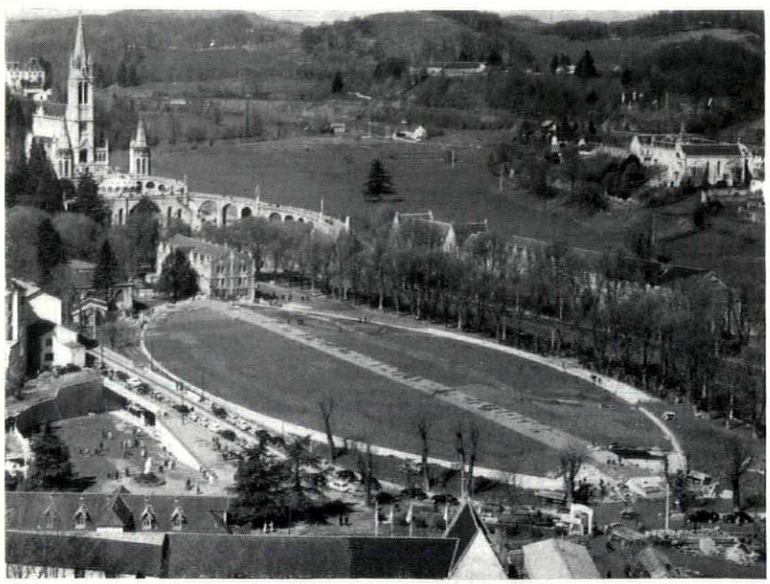


BIG DIG

Not quite architecture, perhaps, in the sense that it is not a building, but still a monumental exercise in the moulding of space, the tail-race tunnel of the Stornorrfors power-station in Sweden constitutes one of the most impressive holes in the ground. 20, recently made by man. Just over four kilometres in length, and part of an excavating programme that involved moving 2,750,000 cubic metres of rock and nearly the same amount of earth, the tunnel has a cross-section of

18



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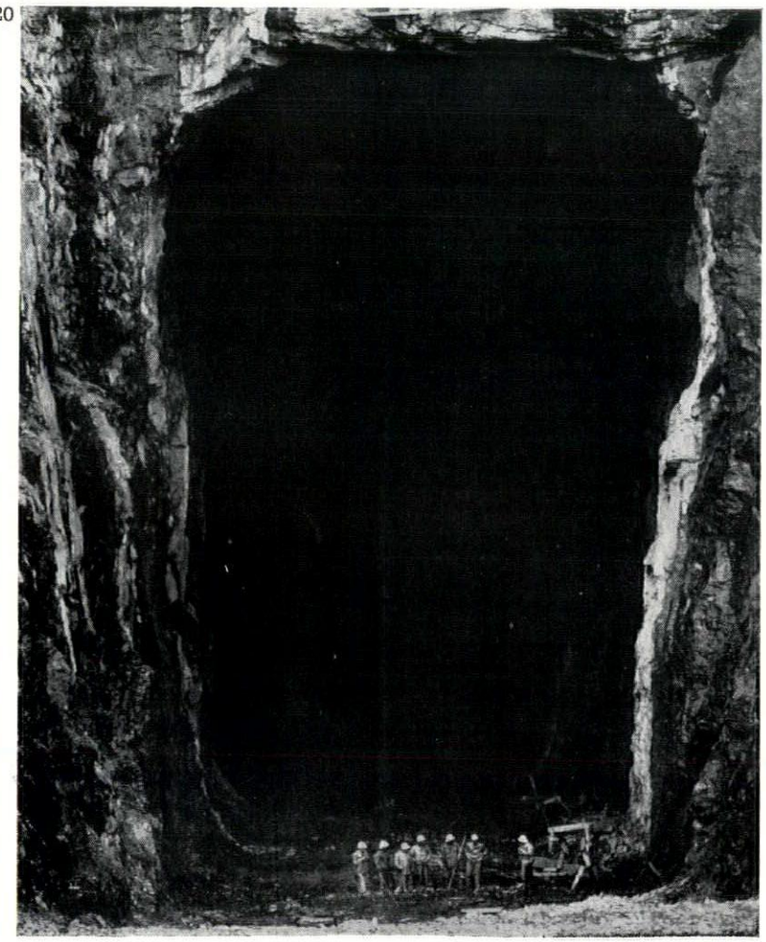
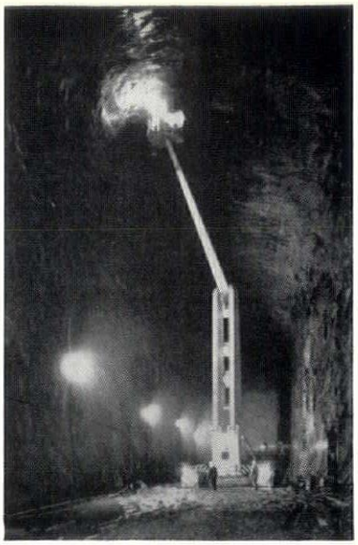


MARGINALIA



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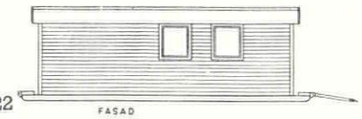


22

almost thirty feet by eighty, and involved the construction of two ancillary tunnels to give tractors and trucks access to the workings. This last point draws attention to an important change that has come over tunneling techniques almost unnoticed by the lay public. No longer to be regarded as a branch of mining, dependent on miniature railways for internal transport, tunnel-building is now a branch of earth-moving, and the familiar earth-mover's tackle—tractor-loaders, bull-dozers and dump-trucks are taking over the transport side, even though drilling and blasting still follow a version (a far more sophisticated version, nowadays) of the traditional techniques described in the heroic books on civil engineering that we read in our youth.

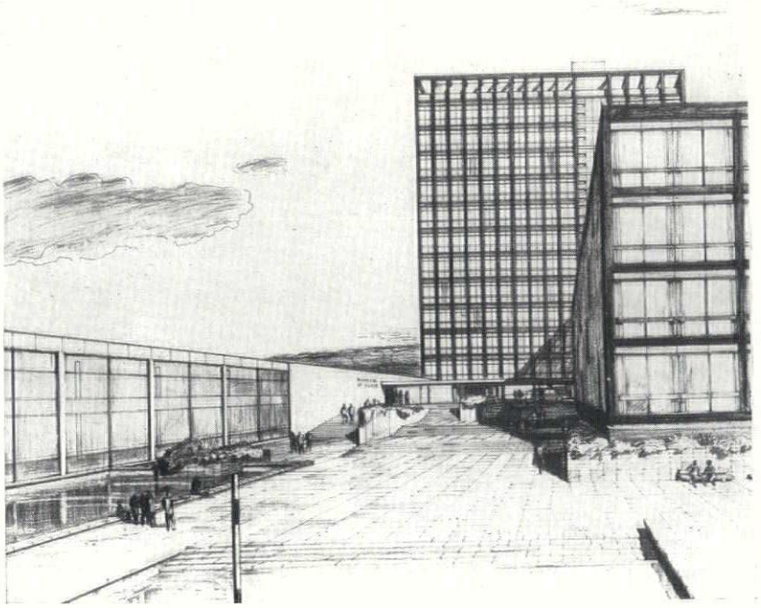
The change is best symbolized by the wide divergence of the equipment used to service and finish off the earth moving operations. The latter requirement produced the stranger-than-science-fiction Hiss-Nisse platform arm, 21, used for work and inspection at roof-level, and very necessary in an operation such as this, not only for checking the stability of the living rock from which the tunnel was cut, but also for ensuring that there is nothing that might disturb the flow of water—which will eventually reach 800 cubic metres per second—nor be disturbed by it. The actual work platform can be raised to a height of nearly eighty feet, under hydraulic control from the platform itself.

In contrast to this sophisticated piece of machinery, fairly typical of the kind of extreme development of specialist equipment that earthmoving often produces, stand the mobile workshops required for servicing the rock drills and re-setting their cutting tools, 22. These are, quite simply wooden huts on steel runners, and although they were devised in advance, the manner of their devising, suggests something of that capacity to improvise in the field with available materials—contractors' huts and steel angles—that is also a mark of earth-moving techniques at their best.

WOBURN WALK RESTORED

It is a common enough rhetorical trope to use the words *Borough Engineer* as a synonym for insensitivity in matters of Townscape, and it is therefore the more welcome to be able to give credit that is patently due, to the Borough Engineer of St. Pancras, Mr. C. S. Bainbridge, for his restoration of one of London's finest miniature shopping precincts, Woburn Walk, 1, just south of St. Pancras Church. The whole enterprise is a commendable example of a local authority making full use of its powers, first under the 1947 Town Planning Act to make a Building Preservation Order, and then under the Ancient Buildings and Historic Monuments Act of 1953 to apply for a grant to acquire and purchase. These operations—which are also notable in regarding a work of 1822 as worth preservation, well ahead of public taste—involved only the block on the south side of the Walk, that on the north was in different hands, and not likely to be allowed to fall into such acute disrepair.

The actual work of restoration has involved not only the St. Pancras Borough Council, but also the Georgian Group and the Ministry of Works, and proved far more complicated and delicate than might be expected of eight small three-storey structures. A complete report has been published by St. Pancras Borough Council as *The Restoration of* 4 *to* 18 *Woburn Walk*, and further enquiries about it (and let us hope they are many) should be addressed to the Town Hall, Euston Road, London, N.W.1.



2

PILKINGTON PROJECT

An extensive headquarters-building programme has been announced by Pilkington Brothers, the glass-manufacturers (their London showrooms were illustrated in the AR, December, 1959) and one of Britain's fastest-growing industrial concerns. The scheme, which involves the enlargement of an existing reservoir alongside their works at St. Helens, Lancs., into an artificial lake, and the grouping of a sequence of new buildings around it, has been designed by E. Maxwell Fry (of Fry, Drew, Drake and Lasdun) with Peter Bond as assistant in charge. A canteen block will span the northern end of this lake, as seen in 3, and the main office accommodation will be in the group clustered round the two open courts adjoining the other end of the water. One of these courts is effectively boxed in by the surrounding buildings, but the other is open to pedestrian access by underpasses beneath the surrounding offices and the foot of the tower-block—2 shows the view from the head of the causeway that connects the new buildings with the works on the other side of the lake.



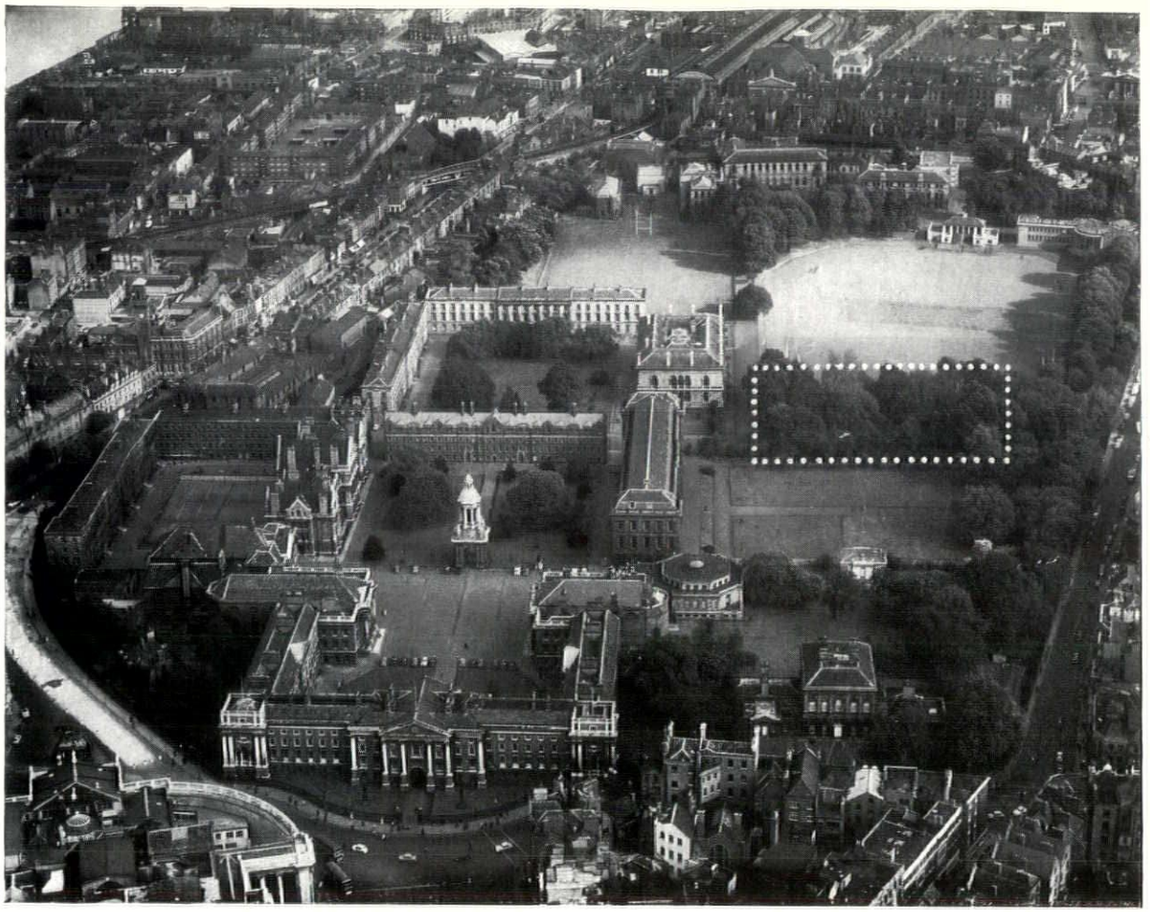
3



1

MASS SOPHISTICATION

The excursions of the 'home magazines' into the commissioning of architecture are commonly regarded with apprehension in the profession, but they remain, for all their commercial entanglements with non-architectural domestic interests, one of the most direct and effective lines of communication between architects and the general public. Much of the apprehension stems from the apparently irresponsible choice of architects, but no such criticism could be levelled at the *Woman's Journal* House of the Year for 1960, which has been built at Woolton, outside Liverpool. The architects here were an un-obvious but intelligent choice; Gerald Beech and Dewi Prys-Thomas, both on the staff of the Liverpool school of architecture, a school which still breathes the most aesthetically sophisticated atmosphere of any in Britain.



4

As a result, the design repays scrutiny—for instance, the arrangement of the windows on the upper floor, 5, which is the sort of thing that we are endlessly accustomed to see in brick, concrete, ragstone or anything else, makes much better sense when the structure, as here, is in wood (the only other place where it makes equally good sense is in the calculated brickwork of Stirling and Gowan's flats at Ham Common, but Stirling, of course, is a Liverpool graduate). Even more to the point, however, is the relation of upper and lower floors. The lower is wide and thin, occupying the site almost from one side to the other, in order to eliminate through views to the back garden, but is thin from back to front in order not to consume too much ground. The upper floor, contrariwise, is disposed the other way about, deep from back to front but standing well in from the boundaries of the site. The result would give, in a complete development of this type, a reasonable combination of terrace-house continuity and detached individuality.



5

ANOTHER TRINITY LIBRARY

A chance has arisen to make the phrase 'as fine as Trinity Library' no longer synonymous with Wren's work in Cambridge—or, at least, not exclusively synonymous with it. Very high hopes are entertained of the recently-announced competition for a new library for Trinity College, Dublin, of which the preliminary details have been given along with an appeal for additional funds to see the work through to a worthy conclusion.

As the aerial photograph, 4, shows, the site of the new library, indicated by a dotted rectangle, is an invitation to extend and enhance a classic collegiate layout, one that shows how much a courtyard scheme can profit by a variety of styles in the buildings that frame its quads. Continuing stylistic variety is clearly implied in the general terms of the competition, which propose not to demand a Neo-Georgian building, but 'a design in a contemporary idiom which will express the middle of the twentieth century as faithfully as the building of 1712 expresses the age of reason.'

The choice of the panel of assessors, international in make up, suggests that these terms will be interpreted liberally in terms of style, but stringently in terms of function and relation to other buildings on the site, since the five members of the panel are: Lord Rosse, Vice-chancellor of the University of Dublin; Keyes DeWitt Metcalf, Harvard library expert and Professor of Bibliography; Raymond McGrath, one of the few distinguished modern architects Ireland has produced; Sir Hugh Casson, and Franco Albini, Professor of Architecture in the University of Venice. Professor Albini's discretion and brilliance in introducing uncompromising new work into old settings is amply attested by his two famous museums in Genoa, the Palazzo Bianco and the Treasury of the Cathedral (also AR, November, 1959). The detailed conditions of the competition, which will follow IUA standards and procedure, are expected to be issued shortly.

OBITUARY

PETER FLOUD 1911-60

The death of Peter Floud is a terrible loss. The study of Victorian design in Britain is at last coming into its own, and Peter Floud was the only scholar who was doing consistent, thorough and imaginative research into this subject. His approach to William Morris amounted to a complete re-assessment, and his findings at the Patent Office promised to lead to a revolution in everybody's views of Victorian pattern design in general. His results up to date were published in THE ARCHITECTURAL REVIEW in July, 1959 (Vol. 126).

Peter Floud never wrote a book. He disliked the limelight and was wholly satisfied with the work done. This is why his name was less familiar



6

than those of many a lesser man. Even the exhibition of Victorian and Edwardian Decorative Arts of 1952, which is known to his colleagues internationally as Peter Floud's Exhibition, had his name only in the last line of the foreword, after those of his five collaborators. He was a retiring man, with a somewhat forbidding facade, but the most engaging smile and the warmest helpfulness once he had measured up a visitor and found him worthwhile. His capacity to work was exceptional and his face and manner, in spite of his forty-eight years, those of a young man. **N.P.**

CORRECTION

In the October, 1959, AR on page 205, the design of Massey House at Wellington should have been credited to Plishke and Firth.

CORRESPONDENCE

EARLY FRAMED BUILDINGS

To the Editors.

SIRS,—I should like to make a correction in the caption of one of the photographs in my article, 'Charles H. Caldwell and the Frame of Steel' in the November issue of THE ARCHITECTURAL REVIEW. The caption for photograph No. 3, on page 289, should have indicated that the building shown is framed in reinforced concrete, not in steel.

Yours, etc.,
LEONARD K. EATON.
University of Michigan.

OXFORD RELIEVED

To the Editors.

SIRS,—In your note 'Oxford Relieved—the Figures' in your January, 1960, issue, you mention that figures provided by the Road Research Laboratory 'support the proposals made by THE ARCHITECTURAL REVIEW as long ago as May, 1956,' thus—unwittingly, no doubt—giving the impression that the proposals originated there and then. I think it is worth remembering that they were, in

all but small detail, made by Dr. Thomas Sharp as long ago as March, 1947. They are thus thirteen years old, and the traffic thirteen years worse.

Yours, etc.,

ANDOR GOMME.

University of Glasgow.

COMMONWEALTH

To the Editors.

SIRS,—I have read your Commonwealth Issue with disappointment and dismay.

The first matter of concern to me personally is the anonymity with which the editorial has been handled, since, by reason of the credit line on the contents page, it could be inferred that I was a party to all or even some of the sentiments expressed by the author of the article on South Africa. Not only do I find factual errors, but also remarks which I consider unbecoming to a journal which I have looked upon as a responsible publication, serving the profession of architecture. Moreover, assessments arrived at in their sweeping brevity are distorted and often misinformed. In fact the whole tenor of the article would suggest an animosity and cynicism, perhaps unintentional, which is merely damning in its faint praise.

You cannot but be aware of the fact that rapid urbanization of the Union is bringing an increasing number of Afrikaans-speaking members of the community into the professions, not the least into that of architecture. The statement that 'nearly all that is worth illustrating here is English' is misleading and inexplicable when, on the following pages, you reproduce work by C. Strauss Brink, Meiring and Naude, Verhoef, Smit and Viljoen and Olaf Pretorius, and elsewhere make reference to the fact that architecture is the work of resident architects, the majority of whom have been trained in the Union. To such members of our profession and to my Afrikaans-speaking colleagues such a statement merely becomes offensive.

Reference to a 'state of tensions' which may have some political significance would seem to have little bearing on the subject since it is a state not generally apparent at social and cultural levels, nor is a statement like 'Mismanagement by the Nationalist Government' likely to promote concord. There are a number of other statements which ought to be corrected.

The census for 1956–57 gives the relative proportion of English and Afrikaans-speaking as 45 per cent and 50 per cent respectively. The earliest work of a 'contemporary' nature was initiated by Rex Martienssen, Gordon McIntosh and Norman Hanson; John Fassler entering the field later. In regard to Native housing, no reference is made to the extensive research and planning carried out by the National Building Research Institute over a period of some ten years, nor to the enormity of the problem posed by the acute shortage of housing for the urban Native peoples that arose during and after World War II, and which then amounted to some 157,000 dwelling units. It was the concentration on the war effort which put the brake on building of all kinds and which gave rise to the so-called 'disgrace' to which you refer. To date, something like 90,000 dwellings together with basic social amenities have been provided on the Reef alone, at a cost of some 24 million pounds. While visual deficiencies are admitted, nowhere else on the Continent can a similar achievement meeting a similar emergency be found.

The minor typographical errors in the issue I do not propose to refer to at this stage.

In conclusion, I wish to dissociate myself entirely from this particular article. I was personally responsible only for the article on South Africa which appeared under the title 'Building Industries,' and the supply of certain illustrations.

Yours, etc.,

W. DUNCAN HOWIE.

University of the Witwatersrand,
Johannesburg.

To the Editors.

SIRS,—I have no doubt that each Commonwealth subscriber to your October issue has carefully read the introductory matter relating to his own country in the hope of detecting an error with which to poultice the wounds of criticism or omission. In the case of New Zealand architecture, the scope and adequacy of your coverage should give rise to no such churlishness; we are presented in a light perhaps more flattering than we deserve. However, I have a bunion of a different sort which has been trodden upon so severely that I am unable to stifle a cry of pain. The last paragraph in the text introducing New Zealand work is too much to bear.

I quote: 'Physical planning is a latter day activity. It is also a matter of subtlety. Pioneers don't need it.' . . . and earlier: 'There is no town planning (in New Zealand) worth speaking of, either in central or suburban areas.'

The lack of subtlety one may readily concede. But that surely is not the whole substance of planning? The more urgent husbandry of resources and the general guidance of development are the very stuff of both physical planning *and* pioneering. The pioneer who fails to plan is a fool, and a suicidal fool at that. Your author has suspected the weakness of his standpoint in the last sentence of his final paragraph. He expresses the fear that his view of town planning may be 'looked at by (New Zealand) architects themselves as an old man's game just as much as sensitive detailing.' How right he is. While Auckland alone consumes land at the rate of about two thousand acres each year, what chance is there for subtlety? For the present we are too busy impressing upon New Zealanders that what your article claims to be a country 'on the whole cultivated throughout' is in fact only habitable over about two-thirds of its area and that only one-tenth of it is highly productive. We plan its use or we starve.

For example, after more than ten years of effort, the advice of the Auckland Regional Planning Authority is now automatically sought on all issues affecting the development of an area of over 2,000 square miles containing 20 per cent of our population. There are many others at work, among whom not the least are the three 'lay' men who constitute the Town and Country Planning Appeal Board. To them has been brought every private and public planning dispute in the country for the last five years or so. In their decisions lies a growing body of support for elementary planning principle which, by the consistency of its application throughout New Zealand by these gentlemen, represents a powerful encouragement to Local Authorities faced with the need to make unpopular planning proposals. It also represents a major advance in the achievement of a basis for that sort of town planning which your correspondent failed to detect here. What is now so nearly established is a consistent policy of land use. I am not sure that the next step is not one for the architects.

Yours, etc.,

I. B. REYNOLDS.

Auckland, N.Z.

BOOK REVIEWS

TRENDS

MODERN ARCHITECTURE IN BRITAIN. *By Trevor Dannatt, with an introduction by John Summerson. B. T. Batsford. 63s.*

This book, based on the material exhibited by the Arts Council in 1956, has all the qualities and defects of its origin. It does present a rather comprehensive picture of British architecture since the war, but in the way of a catalogue which accurately states facts and figures, without going into critical arguments and evaluation.

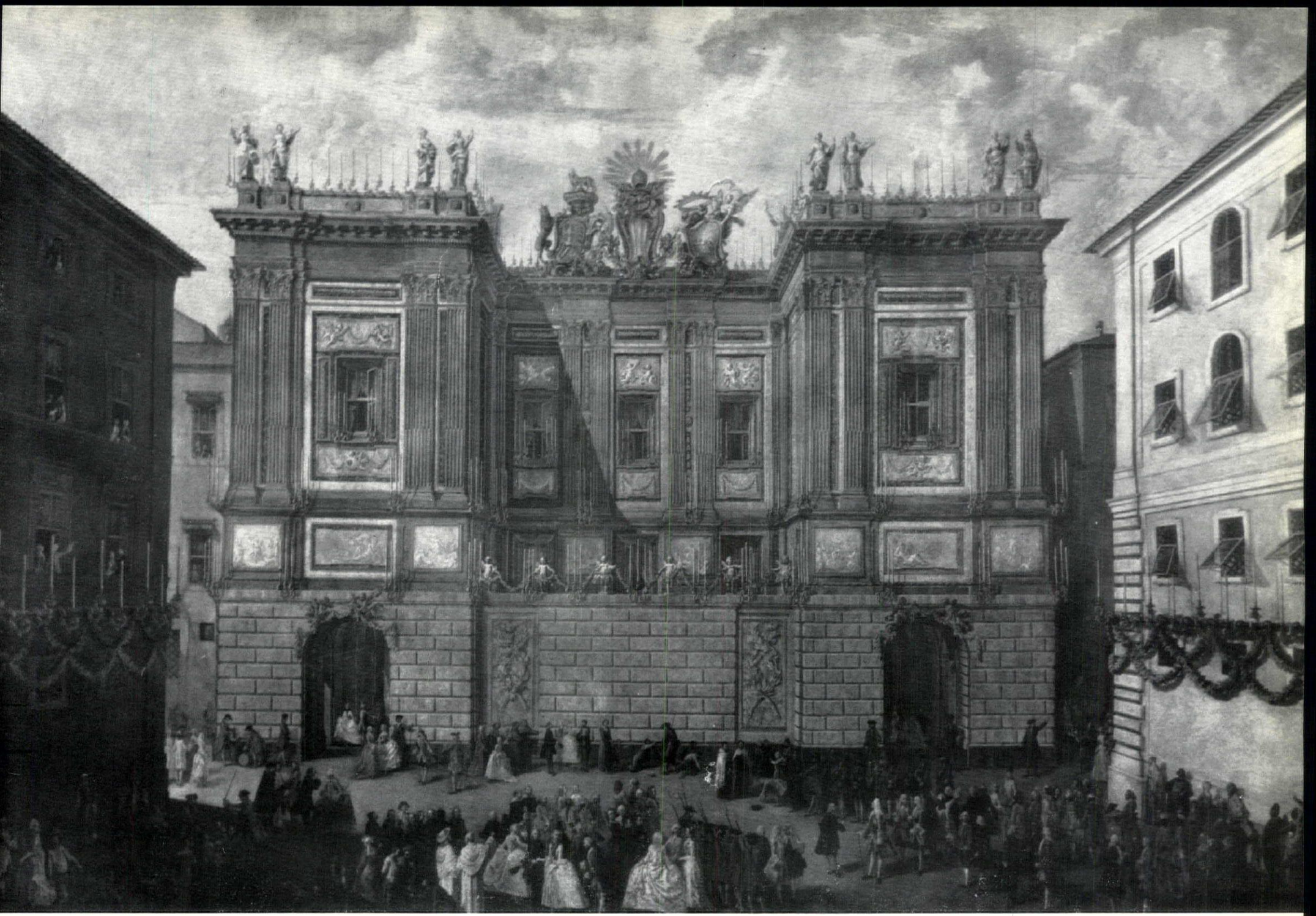
The buildings illustrated are divided into five sections according to their type (industries, offices and shops, education, housing and social buildings). Such a system makes it impossible to recognize the architectural personalities of modern Britain. One finds, for instance, three works by Powell and Moya scattered through the book, at pages 112, 137 and 207, without any reference to each other, as if the very fact that they were conceived by the same firm had no relevance whatsoever. Fifty years ago, we had a lot of books which catalogued Roman or Mediaeval capitals, Renaissance doorways or Baroque cupolas. We have now substituted functional types for formal types, but the result, from a critical viewpoint, is about the same. Just as a pediment cannot be understood if taken out of the context of the whole building organism, a 'type' is meaningless and abstract if the personal interpretation given by the architect is not considered. There is indeed more analogy between the Langham House development and the House in the Isle of Wight by Stirling and Gowan than there is between the latter and the two others by Peter Moro and Tayler and Green to which it is related in the sequence of the book. The building programme, undoubtedly, is very important, but architecture is the result of the interpretation of functions and types, and often of the very 'invention' of them. A catalogue of buildings without architects cannot do justice to the British postwar effort.

The same system of classification is responsible for the rather confusing historical *consecutio* which emerges as we turn over the pages of the book. The Roehampton Estate is published on page 130, while the Royal Festival Hall, built about five years before, is illustrated only on page 199. The Gatwick Airport can be found on page 52, while the design for the new Coventry Cathedral is on page 210. Thus, the process of architectural ideas and experiments, as it developed since the war, becomes rather hard to grasp. The transition from the 'austerity' period to the Festival, and then to the 'prosperity' of recent years does not come through as clearly as it could have done if the buildings had been published according to chronological criteria.

Sir John Summerson's introduction, however, is worth the whole book. It is one of the most profound and at the same time wittiest essays on the modern movement that one can read. His analysis of British architectural thought, from the attitude 'towards an architecture' of the 'thirties to the present 'architecture now or nothing' realism, is most persuasive. The author holds that in English architecture the years 1945–57 can more correctly be examined as the end of one phase than as the beginning of another. He sees a continuity of ideas from 1927 to 1957, which is more or less the life span of the MARS Group, of the 'intellectuals,' of the 'emigrés,' of the 'brave-new-world.' The spirit of architecture as a 'cause' or a 'programme' followed the ideologies of the Welfare State, of the schools, housing and New Towns adventures, perhaps with the parenthesis of the Festival. These ideas are now being superseded, Sir John says, 'though I am neither percipient enough nor young enough to see by what.' Actually, being a very fine critic, he explains exactly the reasons for the dissipation of the ideas of the 'thirties: 'Being adopted as *a cause*, it (modern architecture) was constantly in danger of being encouraged as *a style*,' he writes. In point of fact, Trevor Dannatt's catalogue is the appropriate editorial expression of a style, based on types. But it is quite evident that Chamberlin, Powell and Bon's Seed Factory, Ernö Goldfinger's Office Building in Albemarle Street, the School in Derbyshire by the Architects' Co-Partnership, Drake and Lasdun's Hallfield primary school, and many other buildings illustrated in the book are already out of the 'style.' To be sure, their 'cause' exists, but it is not the same as that of the 'thirties. The New Brutalism, the New Sensualism, the architectural teddy-boys' attitude is the compensation for a new realism.

Sir John Summerson believes that there is now something that was not there before the war, a real school of modern design in Great Britain. There is a general agreement on being radical, 'to be continuously critical of results and to go back again and again to the programme and wrestle with its implications till it yields an answer which has the stamp of reality.' I am happy to agree with this optimistic conclusion.

Bruno Zevi



The Royal Academy's winter exhibition offers many architectural exemplars of its theme, 'Italian Art and Britain,' but none more exotic than this painting by Pannini from the Hamilton collection, showing the Palazzo Muti Balestra in Rome. The romantic aspects of the scene are many layers deep, since the Britons concerned were the exiled Stuart princes. Their palace exhibits, not its workaday façade, but a false front drawn over it to celebrate a Festa. Beyond this point the romantic becomes the mysterious because the precise Festa has not been identified but the arms to the right of the cresting are read as those of Benedict XIV, who was Pope from 1740 to 1758, and whose major conjunction with the House of Stuart would have been the creation of Prince Henry Benedict a cardinal in 1747.

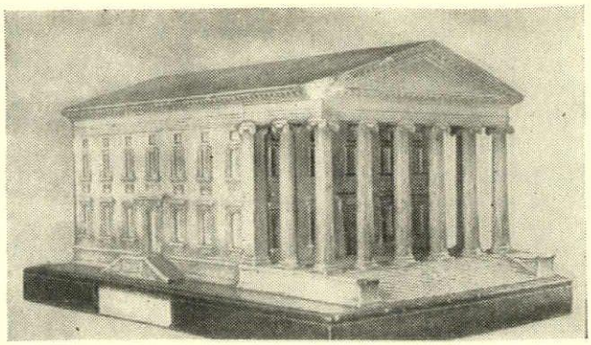
William H. Jordy

THE FORMAL IMAGE: USA

All round the world, architectural thinkers are trying to come to terms with the new classicizing trend in US architecture—as unexpected and portentous a development in the history of the modern movement as Le Corbusier's chapel at Ronchamp. In last month's AR, Reyner Banham treated it simply as a return to the professional traditions of architecture, but there is clearly more to it than that. American writers, in particular, have been assessing its implications and many of them have come to hostile conclusions, notably Peter Blake in a speech at Cornell, Serge Chermayeff in an important lecture at Harvard, and Thomas B. Hess in a review of the Museum of Modern Art exhibition in which the trend was first revealed.

But the situation is not necessarily one that calls for complaints. US architecture has seen previous classical revivals, and been permanently enriched by them. In his analytical survey of this trend and its outstanding monuments, Professor Jordy starts with the Seagram Building, which formed the subject of his earlier analytical article in the AR (December, 1958)—a building that has not attracted the same hostile comments as other recent examples of US formalism, yet goes on to discuss the technical as well as aesthetic and social mechanisms that have helped to produce the new style. In doing so he makes a distinction that has not been sufficiently clearly made before, between those modern Formalists who depend on the classical tradition, including the classical art of non-European civilizations, and those formalisms that depend like Ronchamp on other sources of inspiration. Professor Jordy deals here specifically with developments that are so thoroughly in the classical tradition that he can justifiably call them Mannerist.

It was singularly appropriate that the first outstanding monument of the new formalism—Mies's Seagram Building—should have appeared in the United States. Mysterious though the reasons are, American architects have recurrently embraced classicistic formalism with exceptional fervour. Thus, Thomas Jefferson's Capitol for Virginia, 1 (overleaf), was the first use anywhere in the world of the complete temple form in modern architecture, save for its earlier appearance as small garden structures. The Greek revival, of which this temple is the herald despite its Roman inspiration, was uniquely prevalent in the United States, while perhaps no other country so fully explored the range of its expressive possibilities. Again, in the nineties, it was in Chicago, at the Columbian Exposition, 2, that the Ecole *projet* materialized. Shortly thereafter, foreign observers registered astonishment at the greater correctness or literalness of American classicism, while Henry-Russell Hitchcock in his recent survey of twentieth-



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1, *Clérisseau's plaster model for the State Capitol of Virginia at Richmond, designed with Thomas Jefferson as a free version of the Maison Carrée while Jefferson served as Ambassador to France. It was shipped to Virginia where local builders eliminated the elegant French neo-classical detail for a plainer, more vigorous carpenter's version:* 1785. 2, *the Columbian Exposition, Chicago, showing American architecture dominated by the principles of the Ecole des Beaux Arts:* 1893.

century academicism reached the same surprising conclusion[1].

Now there are signs that a new formalism is appearing in modern architecture. And, interestingly enough, it is most evident in America. Its most conspicuous appearance is the final version of the much redesigned Lincoln Centre for the Performing Arts in New York, 6 and 7 on page 161. Here, in the Philharmonic Hall, a symmetrical axis, portico and colonnades reintroduce neo-classic formalism in a major urban complex.

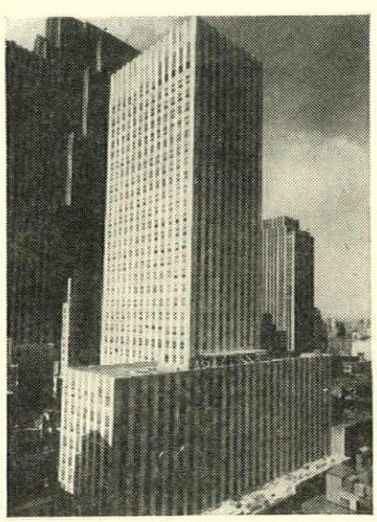
Why this recurrent fervour for formalism? Is it, to recall Mies's phrase, that the need 'to create order out of the desperate confusion of our time' seems even more desperate in the United States than elsewhere? Is it the longing for historical association which must necessarily be built into the present and, for Greek revival and Beaux Arts classicism at least, a provincial exaggeration of the correct and chaste? Or is it, as Hitchcock suggests with reference to Beaux Arts academicism, that the impersonal nature of the large office coupled with drastic time limits on design, requires ready-made guarantees of architectural dignity? The generalized nature of classicistic schemes permits universal envelopes for function, so that there need be minimal rethinking of particular forms for particular functions from job to job. Moreover, the aura of humanism clinging to classicistic forms automatically dilutes the sense of impersonality in the completed building, while their elementary nature simultaneously accords with the anonymous process which brought the building into being.

[1] *Architecture Nineteenth and Twentieth Centuries* (Pelican History of Art).

Whatever the causes of the specifically American fervour for classicistic formalism in the past, present conditions, especially in the United States but generally apparent throughout the world, encourage formalism in modern architecture. It is not so much that a full-blown 'movement' has gotten underway, as that a number of the most creative American architects have drifted toward a classicistic formalism, whether casual or convinced, whether temporary or permanent. Three developments, acting together, account for this emergent trend: technological innovations, a revived interest in ornament and a reawakened sense of history.

The technological innovations are most apparent in the metal and glass office building, and in the Seagram building Mies and Philip Johnson achieved a climactic masterpiece in the new formalism. This is no place to dwell on the well-known story of the metal and glass skyscraper in post-war American building. Suffice it merely to say that although metal and glass buildings *look* very efficient—a visual fact which has accounted in part for their success—there has probably never been a popular style inherently more anti-functional. Here, surely, is a prime example of the inversion of Sullivan's famous slogan. Here function follows form. Pioneer glass walls were thermally impracticable. They filled rooms with glare. They leaked as wind drove rain through joints inadequately sealed. Only the labours of an army of technicians and the proliferation of compensating mechanical equipment have made the metal and glass image viable.

This increasing burden of mechanical equipment has encouraged an even more abstract approach to an essentially abstract concept. With air conditioning and luminous ceilings, it was no longer necessary, except for psychological reasons, to place shallow office spaces close to window areas. The slab building, which was the type of massing most favoured for bureaucratic structures in the first phase of the modern movement, begins to give way to fatter massing. Specifically, the massing of the RCA Building metamorphoses into the post-war additions to Rockefeller Centre (like the Esso Building, 3); the United



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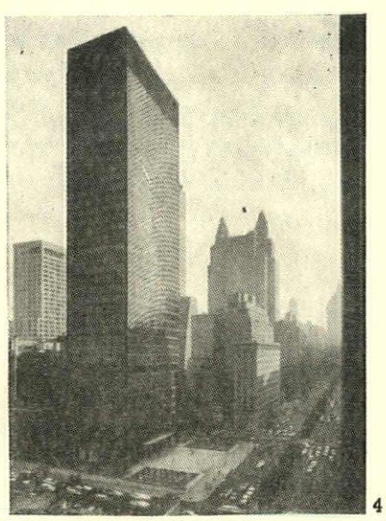

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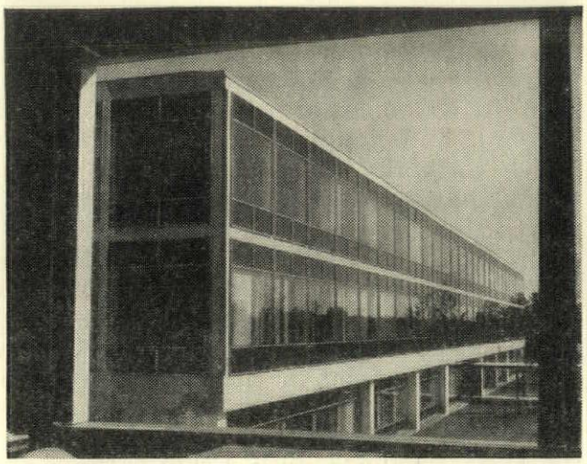
3, *the Esso Building, New York, by Carson and Lundin,* 1947*: a post-war addition to Rockefeller Centre.* 4, *the Seagram Building, by Mies van der Rohe and Philip Johnson,* 1958.

Nations Secretariat and Lever House into the Seagram, 4. Moreover, as business becomes increasingly mechanized, the architect can use the centres of deep space for machinery. Fully developed, the mechanized administrative complex follows the lead of the assembly line. It is housed in low, sprawling structures, ideally surrounded by landscape (and of course parking lots). Thus Skidmore, Owings and Merrill's lavishly austere complex for the Connecticut General Life Insurance Company near Hartford, Connecticut, 5, is a prototype as significant for the mechanized bureaucracy as the same firm's Lever House was for the first phase of metal and glass office design. The architect becomes steadily freer in the disposition and extent of his homogenized space—as homogenized in the even tension of its gridded articulation and its ideal illumination as a Renaissance perspective.



5, Connecticut General Life Insurance offices at Hartford, Connecticut, by Skidmore, Owings and Merrill.

While technology has worked to make generalized space synonymous with functional space, it has also progressively refined and polished the materials going into metal and glass construction. The primitivistic machine image which comprised Le Corbusier's point of departure in the twenties has been submerged by the triumph of Mies's vision of the elegance of the machine—another reason for Mies's phenomenal American success, since the refinement of components for mass production and their subsequent assemblage is profoundly congenial to American technology.

The simple massing with its linear articulation, the homogenized space linearly articulated too and the sumptuous materials elegantly detailed, inevitably led a classicistic architect like Mies toward the axiality and hierarchical frontality of the Seagram. Thus he climaxed a neo-Renaissance development in his work which had first markedly appeared in the Farnsworth House. From this house, neo-Renaissance formality began to influence modern American architecture.

The modern movement was ready for history. The polemical days of the blatantly contemporary were over. In the polar opposition between the Miesian appeal to an urbane tradition and the Corbusian appeal to primitivism, the American choice was obvious. Massing reminiscent of palazzo and temple forms has already emerged as among the most interesting and influential American types in recent building—and to a degree which is uniquely American. Apart from the Lincoln Centre for the Performing Arts, consider, for example, Philip Johnson's Temple Kneses Tifereth Israel in Portchester, NY, 9, Edward Stone's Embassy in New Delhi, 10 and 11, Gordon Bunshaft's design[2] for the Skidmore, Owings and Merrill project for the Banque Lambert in Brussels, 8, Minoru Yamasaki's various pavilions, 12 and 13 on page 165, and, finally—just to stop somewhere—the block which houses the visual arts in Paul Rudolph's tripartite complex for the Jewett Arts Centre at Wellesley College, near Boston, 14 and 15. All of these are temple forms, save for the project for the Banque Lambert which recalls a palazzo. There is good reason for the popularity of these types at the present time. The sense of closure in such schemes indicates a reaction against the mass produced curtain wall, too often sliced like so much bologna, until the client has either had his fill or reached the limit of his pocketbook.

Beginning, middle and end: the self-contained entity has been a perennial prerequisite of art. Modern architectural massing, however, has up to now largely ignored this ancient formula of which Beaux Arts composition made a fetish. Instead of framing their masses in the Beaux Arts manner, modern architects had sought a tenser, more dynamic composition by using open, or at least unframed, forms and 'closing' these by optical activity (usually by asymmetrically placed voids) within the mass itself. Now interest in the base of the building, its roofline and its corners returns, varying in intensity with different architects, but evident as a trend. Enframement, thus far at least, is rarely complete. Corners especially seem more resistant to closure than roof and floor, thereby testifying to the tyranny of modular articulation for the wall, although the strongly bounded corners of the Seagram Building are certainly a bellwether of the future. Moreover, even if corners are open, the compactness and careful proportioning of the block can suggest a closed composition, and particularly where they are readily related to a central axis. Finally, a growing preference for weighty, static effects in place of the poised dynamics of the first phase of modern architecture completes the roster of effects congenial to neo-classic massing.

If massing conjures the past, so does the wall. Thin, planar surfaces are disappearing in favour of the stereometric wall, often ornamented. The reticulation of the metal and glass wall prepared the way for stereotomy which the growing popularity of cast stone seems about to consummate. Cast stone not only revives the classic masonry tradition, but has also provided some of the most creative ornament in recent American buildings. It may appear as slabs slotted with coloured glass, as in Johnson's KTI Synagogue. It may appear as pierced screens, as in Stone's Embassy, with its simultaneous evocation of Indian stone lattices and Perret's Notre Dame at Raincy. It may appear as a structural outrigging, as in Bunshaft's project for the Banque Lambert, which heralds a series of similar Skidmore, Owings and Merrill designs in what is a handsome new departure for the firm. It may appear as expressionistic structural decoration

[2] With Project Manager Frederick C. Gans and Design Assistant Whitson M. Overcash, Jr.

as in Yamasaki's McGregor Conference Centre for Wayne State University in Detroit. Metal, too, begins to lose its linear and planar austerity. Thus Yamasaki creates a textile surround of overlapping circles cut from aluminium pipe to screen his Reynolds Aluminium Building, also in Detroit. Rudolph in the Jewett Arts Centre projects panels of metal mesh as a baffle between inside and out.

This decorative use of materials does more than enrich the building. It also provides a means by which the designer can reassert his individuality against the austerity of Miesian æsthetics, even as the overall massing recalls a classicistic universality. Thus these buildings reconcile individuality and correctness. And is this not the Beaux Arts reconciliation? But the ornament often serves another function. It may mask the skeletal construction which characterizes many of these buildings. A three- or even possibly a four-storey building can be so screened that the skeletal nature of its framing disappears. The skeleton is transformed into a block, as in the Banque Lambert. It becomes a temple block if columns are placed outside the screen, as in the Delhi Embassy; or if the veil is lifted just enough to reveal the vertical supports of the framing while obscuring the horizontal edges of its floors, as in Rudolph's Arts Centre.

Thus the abstract quality of the Miesian metal and glass æsthetic becomes steadily more so. To simplify, and ignore an absolute chronology in favour of the general development: the first stage was an exteriorized æsthetic which gridded simple rectangular containers, and incidentally established the basis of the stereometric wall. The second was the perfection of mechanical equipment which enabled bulk space to be functional. The third was the conscious appeal to Renaissance axial and symmetrical organization. The fourth is the transformation of the Miesian æsthetic by elements which deliberately confuse toward the ends of decorative enrichment and formal organization. Thus the potentiality for abstractness seems to burgeon in current production in opposition to the functionalism (real or polemical) traditional to modern architecture.

This ambiguity implies mannerism in some formalist buildings, just as the collision of functional *and* formal elements in the same building tends toward mannerist tension. In Rudolph's Arts Centre, for example, just where is the plane of the wall? At the screens? At the glass behind? At the glass of the main floor which is inset behind the columns, instead of in front as is true for the upper storeys? Or at the shadows of the screens in the glass? Such ambiguous layering of the wall recalls Palladio's ambiguous treatment of the Palazzo Valmarana in Vicenza, 16, where, again, the eye shuffles the planes as one might shuffle a deck of cards. Nor does the mannerism of Rudolph's building end with the screens. Although there is not space to go into detail here, fire stairs, for emergency exit only, somewhat compete with the regular entrance for our attention outside. Inside, we climb a monumental stairway to a vestibule-like gallery, only to discover that the expected climax trickles away into work-a-day cubicles. Three identical doors side by side at the end of a corridor lead to three different destinations. Space is bridged and stairs are hung as free-standing entities; but walls crowd in to negate the freedom.

There is likewise a major ambiguity in Stone's handsome Embassy, the first modern federal building of consequence. It is appropriately formal and yet exotic, as much of the new formalism seems to be. And—a welcome quality of the movement—it adapts its modernity to native architecture, just as Rudolph's Arts Centre adopts the scale and some of the angularity of its collegiate gothic environment. The unsuspected element from the exterior is the interior. Elegant, and doubtless a very comfortable place in which to work; but we cannot erase the discordant sense that we have entered a temple to find an extraordinarily luxurious motel.

Or consider, finally, Yamasaki's McGregor Conference Centre, 12, so jewel-like it appears a little unreal. Its unreality is increased by the water garden, beautiful in itself, but precious in its sunken isolation and somewhat artificial in the context of a mid-western university campus. Mannerist formalism appears in the barricade of the entrance toward the garden by the terrace balustrading. From a three-quarters view at one side of the building, an element of mannerist instability appears in the open (or windowed side) of the building being functionally closed, while the closed end walls are extravagantly open. Mannerist also is the way in which the entrance splits the building so that we see it now as a single structure, again as two. The central space inside is tall and narrow with attenuated elements increasing its apparent height. Elongated doors, wiredrawn railings, thin structural members: this attenuation characterizes the three buildings we have looked at. Here the attenuation is emphasized by the denseness of the columns and the faceting overhead which constantly draws our eyes upward so as to maximize the vertical dimension. More than the other two buildings, Yamasaki's pavilion exploits structure for decoration in an ingenious manner, to create such intricate faceting overhead that we instinctively wonder whether the structure was not forced to its ornament rather than the reverse.

Now I have raised certain questions about these three buildings because they are outstanding among recent production. All have already proved influential, explicitly for the specific visual ideas which they embody, implicitly for the general philosophy which informed their design. Hence all are genuinely creative. All reassert the individuality of the designer against forces which would relegate him to anonymity. All flatter their clients, as well as their architects, since all are 'architecture,' not just 'buildings,' and hence all are affirmations toward a civilized society. All attempt to enlarge the architectural experience beyond the thin appeal of what is narrowly functional and shrilly up to date. Indeed, some of the restlessness felt within the serenity of the overall conceptions stems from the attempt to crowd too many different kinds of experience into the building fabric. The look to the future, the look to the past; the look to the western tradition and to the east simultaneously; the look to structure, but not forgetting ornament; the sense of tension and surprise amidst serenity. This eclectic heaping of interests and experiences signifies a moment of taking stock in a self-conscious fashion

[*continued on page* 163

Model showing the final design for the Philharmonic Hall now under construction as the first stage of the Lincoln Centre for the Performing Arts, at the intersection of Broadway and Columbus Avenue, New York City; architects, Harrison and Abramovitz. 6, *detail of one corner, showing the* 70 *ft. masonry-clad columns that surround the exterior. Through the glazed wall can be seen the foyer and the terraces surrounding the auditorium. The auditorium, seating* 2,400, *will provide a new home for the New York Philharmonic Orchestra.* 7, *the symmetrical south façade of the building facing the central plaza which will be flanked by the other principal buildings of the Centre: a theatre (architect, Philip Johnson) and an opera-house. There will also be a dance-theatre and a library and museum. The Philharmonic Hall is due for completion by the autumn of next year.*



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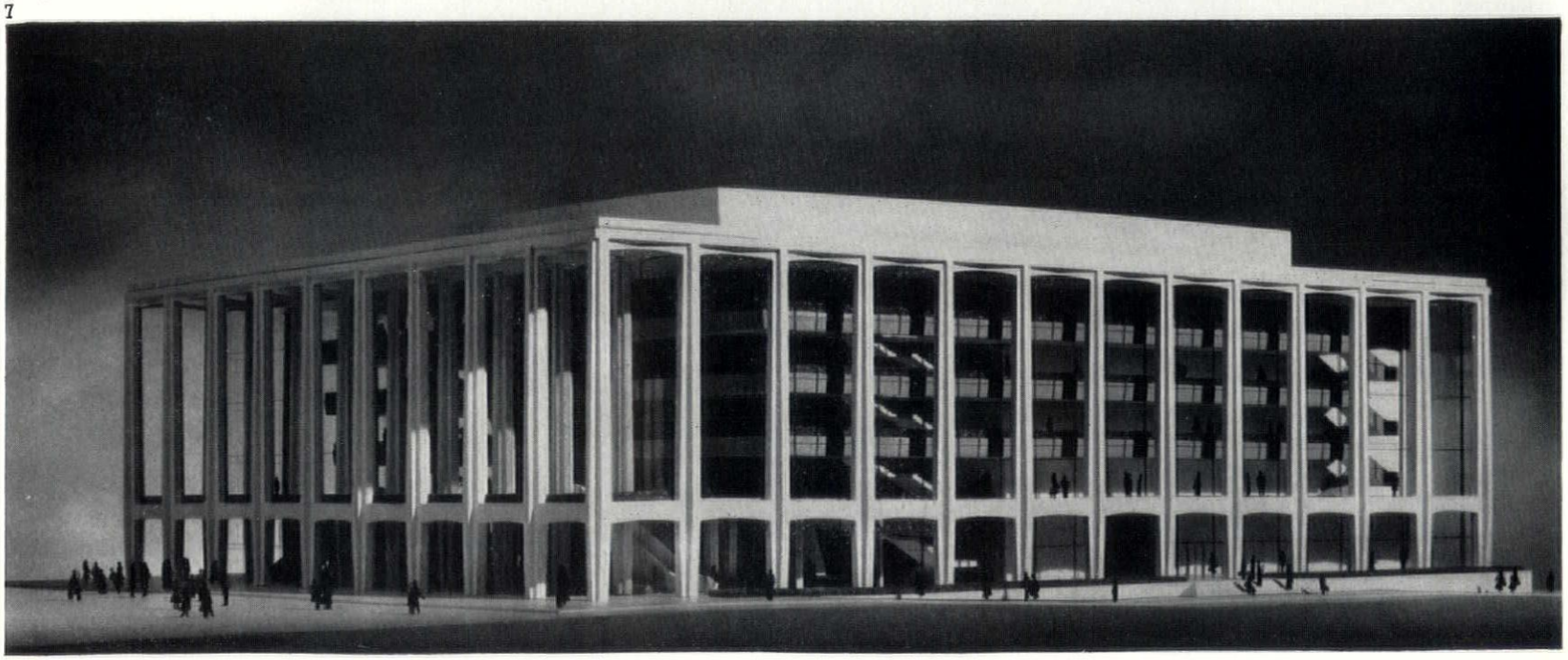
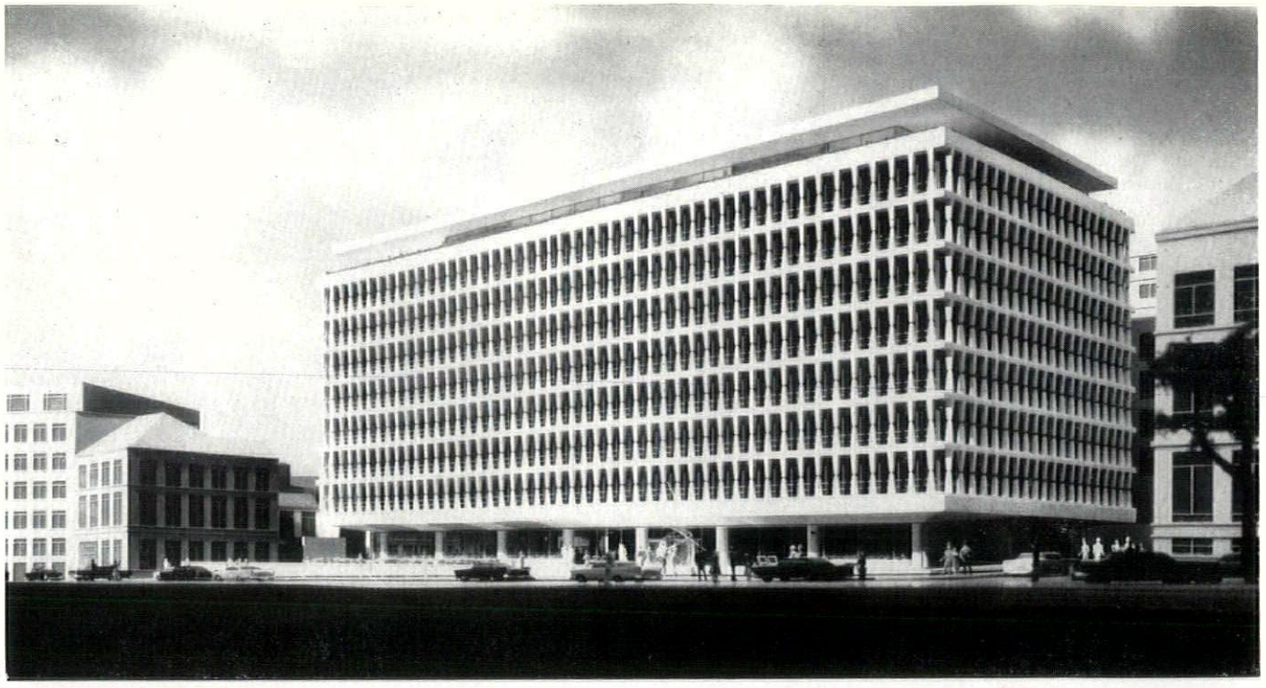
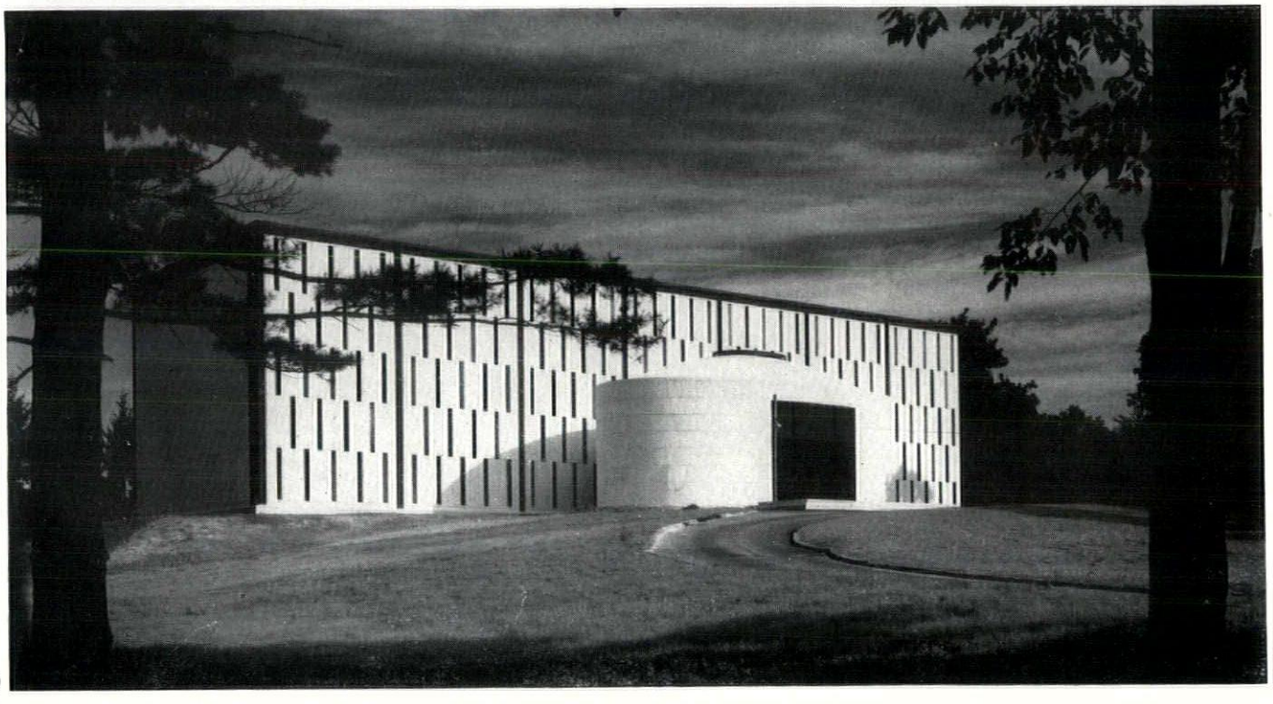


8, *model of the design (by Gordon Bunshaft of Skidmore, Owings and Merrill) for the Banque Lambert at Brussels, illustrating (together with the other examples on this page and page* 165) *the formalist trend in American architecture.*



9, *Philip Johnson's synagogue at Portchester, NY (Temple Kneses Tifereth Israel),* 1957.



Below, the new US Embassy at Delhi, by Edward D. Stone, 1958. 10, *the exterior;* 11, *internal covered court, with pool and fountains.*

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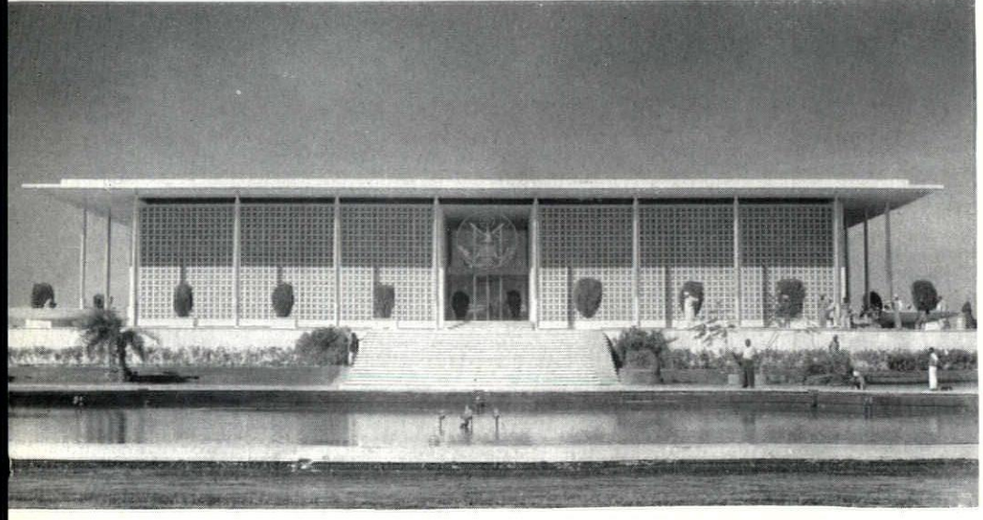

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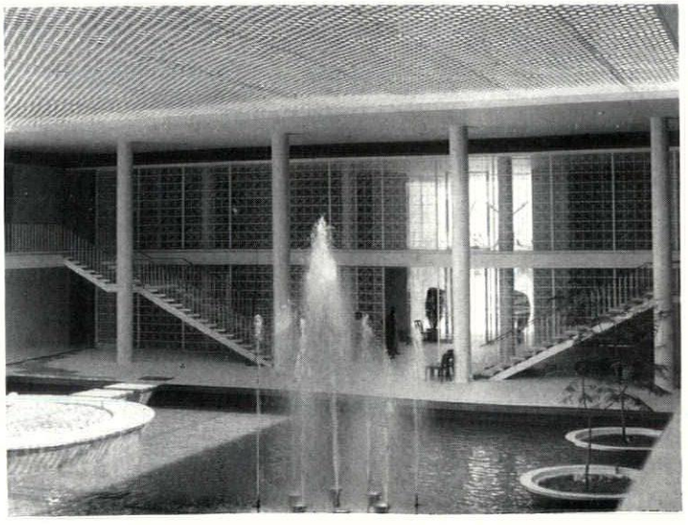

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—a moment of mannerist hesitancy and tremendous absorption, before reaching out more decisively.

But the worry remains. It is not that the buildings are abstract. We are too sophisticated now to demand naked functionalism at all costs. Nor is it that the buildings look to the historical past. We welcome the denser experience which history promises. The danger is simply that these buildings augur an increasing abstractness and historicism in much of modern architecture, such that it may quite literally cease to be modern in the sense that its imagery grows from the urgency of modern life.

This is the strength of the three great form-givers of the modern movement. To be sure, they have created exciting buildings, and have originated three kinds of space. But each has also possessed a large philosophy of modern life, and each created his building images out of this philosophy. Wright, Mies and Le Corbusier (Gropius too) had quite literally to fashion a modern world in terms of which they could build. Hence we see their buildings not only as formal entities, but as extensions of their philosophies, as images of what they conceived the specifically modern experience to be: the organic image, the structural image, the machine image (not identical with the structural image, however closely the two are allied) and the primitive image. If they gave (and still give) us their buildings, a major part of their heritage to the present is also the gift of their worlds.

Certainly, too few architects now in the prime of their practice have felt the need to tussle with the problem of the nature of the specifically 'modern' experience as the means toward a philosophy of expression. There is something Jovian in Mies's return from a lifelong quest of the modern to re-do the academic. But it is a different matter altogether to start with the Seagram and re-do McKim, Mead and White's Racquet Club across the street in plate glass and precast concrete. In short, the worry is that, with acceptance, the modern movement will academically pursue the cult of beautiful buildings, as Robin Boyd has recently emphasized[3]. Making modern architecture beautiful will predominate over making beautiful modern architecture.

I do not mean to suggest that either the architects whom I have mentioned or their buildings are academic. The architects in question have only touched on the point where academicism becomes an *issue* for modern architecture as a whole, not necessarily a reality within their own work. Rudolph, for one, has already radically shifted his architectural philosophy from the position represented by the Jewett Arts Centre, while certain elements like the run of the screens beyond the building corners and the jagged roof silhouette point to a more boldly open and plastic image[4]. Philip Johnson, for another, although the profoundest neo-classicist of all, is enveloping spaces in such a variety of large, simple, compact shapes that the image impact of the shape may predominate in some of his works now under way, as the rather too specific recall of the classicistic tradition promises to appear in others. Moreover, all five of the architects mentioned arrive at their formalism with such an arsenal of visual ideas at their command that it would be presumptuous to suppose that their future course is set. At this moment, in fact, in modern American architecture certain interests attracting the most creative architect happen to coincide with those which will make others academic. Although the situation is not precisely analogous to that at the turn of the century (for reasons which cannot be investigated here), it is nevertheless tempting to parallel present circumstances with the cleavage represented by McKim, Mead and White, on the one hand, and early Wright, on the other. Early Wright is perhaps more to the point than late Mies to demonstrate that academic formalism can itself play a creative role in future developments. He used Beaux Arts massing as a means of disciplining his early work. The Renaissance elements in the massing of Sullivan's skyscrapers are another case in point.

By way of underscoring this last equivocation, it is only fair to glance once more at some of our examples in order to indicate what does seem valid in this formalism. The exterior of Stone's Embassy is dignified without being forbidding; its screening is at once handsome, functional and (unlike certain of Stone's later buildings) articulated by the structural columns. The super-position of the Indian screens on the Lincoln Memorial—which Stone now says he admires and, up to a point at least, so now do many—is a dangerously literal use of past symbols to be sure. But the amalgamation of the two traditions and the successful adjustment of their differences in a convincing synthesis appropriate to this particular programme is admirable. As a result, the exterior possesses the authenticity of this appropriateness and the excitement of discovery, before the discovery has become formularized.

Just so with the Skidmore, Owings and Merrill design for the Banque Lambert. The simple forms of its neighbouring eighteenth-century structures, their weight, the scale of their windows and their tendency toward symmetrical organization appear in the bank. The bank compliments and completes the square which it dominates in a manner which is perfectly consonant with the structural, functional and expressive qualities of a modern building. Finally, Johnson's Synagogue, which is perhaps as important as the Seagram Building as a herald of formalistic discipline: here, the slabs may seem so ironed and dazzlingly white in the apparent attempt to dematerialize the building into a pristine, and therefore spiritualized, geometry that it becomes, like Yamasaki's Conference Centre, somewhat unreal. (Certainly, too, some of the interior furnishing lacks suitable austerity, which is not entirely the architect's fault.) But the ceremonial conception is magnificent, and the basic forms are justified by the conception. We move axially through the domed vestibule and into the lofty, beautifully proportioned space, its walls splintered with coloured light, its ceiling billowed with plaster handkerchief vaults lightly caught at the corners in a manner reminiscent of Sir John Soane. The purity of this ceremony in its simplicity is far more transcendent than the lugubrious expressionism of the average modern synagogue.

[3] *Architectural Forum* (July, 1959), pp. 98-103.

[4] As G. M. Kallmann has pointed out in 'Action Architecture,' *Architectural Forum* (October, 1959), pp. 182–187.

In each of these three instances the formality and much of the refinement seems justified with reference to the significant human experience which called it into being. But, in each instance, how easily the manner can be frozen once the particular experience has fled! Such forms are so generalized and so suave that they are readily refined from the realm of experience to that of mere appropriateness. As Louis Kahn, whose teaching and philosophy are among the most stimulating to those among the emerging generation of architects in search for a rationalized version of Le Corbusier's highly personal plasticity, protested recently: 'Here the modern movement is only thirty years old, and we are already polishing and perfecting it. We should be in the archaic phase. Our buildings should reflect this crudeness.' Being the architect he is, Kahn happens to emphasize the quality of crudeness in his distrust of the sleekness which the American situation tends to impose on architecture, much as Pollock, Kline and de Kooning represent the same protest in painting, and the Beatniks in writing. It is Kahn's sentiment I would emphasize here, not necessarily his own creative action on this sentiment. For those who boggle at the quality of crudeness as an unreal goal in a highly developed technology—and, in any case, the precast structural elements in Kahn's latest work are far from Chandigarh crudity in both their perfection of fit and surface—alter a word and the essence of the statement remains. 'We should be in the archaic phase. Our building should reflect this search.' After all, Mies has repeatedly said the same. 'Form is not the aim of our work, but only the result. . . . Architecture is the will of an epoch translated into space; living, changing, new'[5].

[5] The emphasis on space is characteristic of the first phase of the modern movement. Most architects would say 'space and mass' today.



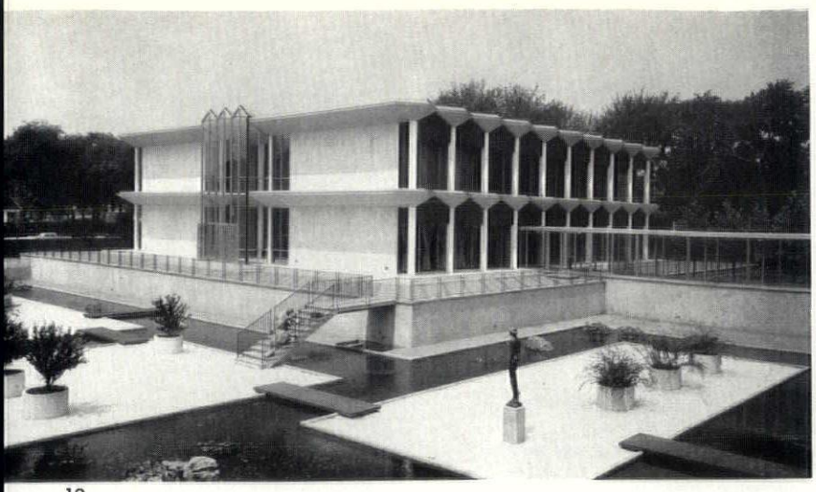
16, *Palladio's Palazzo Valmarana at Vicenza, the ambiguous layering of whose walls, typical of Mannerist architecture, is echoed in Paul Rudolph's Jewett Arts Centre,* 14 *and* 15 *opposite.*

Certain it is that the simple functional and structural logic of the pioneer phase of modern architectural theory has become paradoxical. During the first phase of the modern movement, function and structure provided a discipline within which the architect could work to create buildings which were meaningfully modern. But the most abstract buildings can now be functional. Those which are self-consciously structural can be the most fantastic. Where the range for individual design is so great, the temptation toward abstraction and novelty is considerable. It will be all the more important, therefore, to root architecture in human experience. But any building can be somehow rationalized in terms of human experience, and none more readily than those rationalized in terms of a nexus of function, novelty and tradition. It works; it's new; it's sanctioned: how convincing such justification! And how salutary all of these characteristics!

In absolute terms, however, the most significant architecture of our time possesses something beyond this nexus of valued, but secondary, characteristics. The true successors of the great pioneers must also create within the larger framework of some world of their own which, nevertheless, taps something vital in modern experience and makes tangible the 'will of the epoch.' What is lacking today is the spirit which produced *In the Cause of Architecture*, *Vers une Architecture*, the Bauhaus books or the magazines *di Stijl* and *G*. Perhaps inevitably so, although there are already abundant signs of revolt, in part toward a more deliberate use of mannerist elements for positive æsthetic effects and even proto-baroque indications of an eventual reconciliation of mannerist tensions, but especially against the formalist threat.

What Reyner Banham termed New Brutalism several years ago, for example, G. M. Kallmann has recently more comprehensively analysed as Action Architecture[6]. Such *avant gardes* will gain recruits. But so will the new formalism. For the immediate future at least, it may have the upper hand, even if, in the long run, it does not seem likely that neoclassicism can again play the same central role as it did at the turn of the century. It even promises a few masterpieces. In so far as one can judge from the model, the Lincoln Centre for the Performing Arts may well be one of them, much as McKim, Mead and White's Boston Public Library is among the triumphs of late nineteenth-century American architecture. Only when we measure the Public Library against such near contemporaries as Richardson's Marshall Field Wholesale Store, Root's Monadnock Building or Sullivan's skyscrapers do we have reservations. Ultimately the urgency of the conception counts most.

[6] 'The New Brutalism,' *Architectural Review* (December, 1955), pp. 355–361. For Kallmann see footnote page 163. Thomas Creighton, 'The New Sensualism,' *Progressive Architecture* (September, October, 1959), pp. 141–147 and 180–187, furnishes yet another sobriquet which, however, gathers formalists with their opponents.



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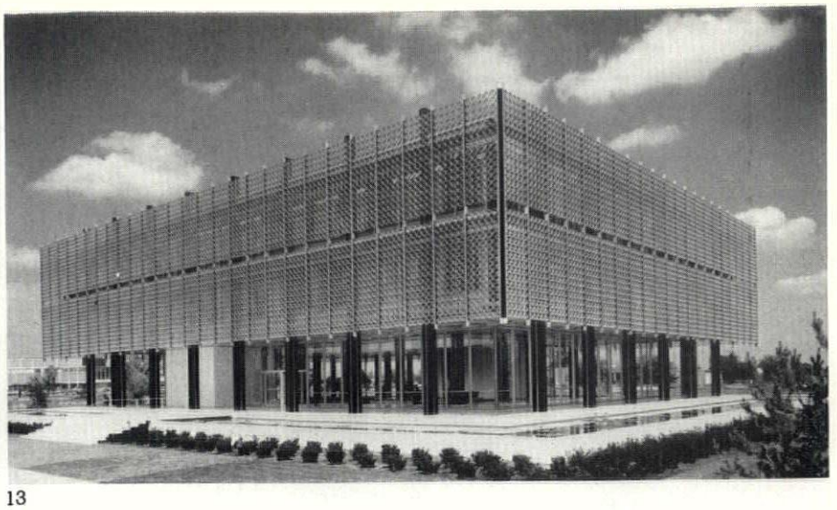
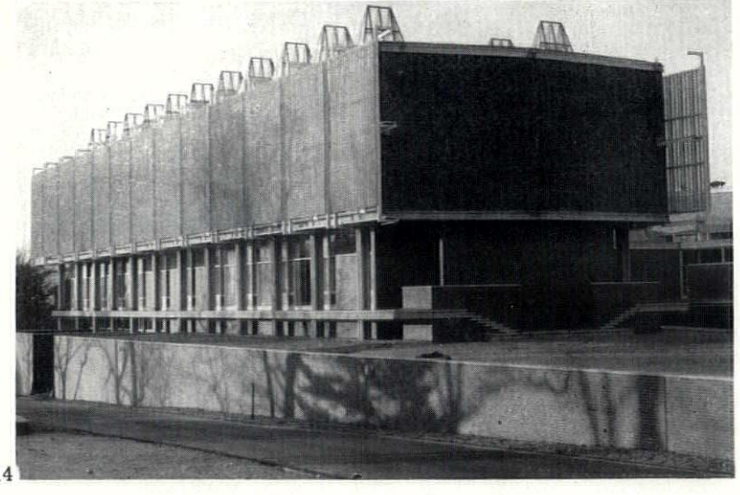


13

Recent instances of the formalist trend in American architecture. Above, two 'pavilion' buildings by Minoru Yamasaki. 12, *the McGregor Memorial Community Conference Centre, for Wayne State University, Detroit,* 1958. *Triangular box-beams of concrete are supported on marble-clad steel columns.* 13, *office building (also at Detroit) for the Reynolds Metal Company,* 1959, *faced above the first floor with aluminium screening.*



14



15

The Jewett Arts Centre for Wellesley College, near Boston, Mass., by Paul Rudolph, 1959. 14, *the art building facing the older university campus—a reinforced concrete structure with brick and stone walling.* 15, *detail of a corner of the building, showing the aluminium screen set forward of the structural frame.*

OFFICES, MARYLEBONE ROAD, LONDON

ARCHITECTS | **GOLLINS, MELVIN, WARD AND PARTNERS**
assistants: A. J. Hoffman; H. Prime; T. Stutely



1

An office block, known as Castrol House, nearly opposite St. Marylebone Town Hall, erected by the Hammerson Group of Companies and rented by C. C. Wakefield and Co. The preliminary plans for the building, establishing the principle of a tower block rising from a low podium, were prepared by Sir Hugh Casson and Neville Conder. At this stage, by agreement with the clients, the project was entrusted to Messrs. Gollins, Melvin, Ward and Partners. It was a condition imposed by the ground-landlords that the whole area of the site should be built on. The building consists of a 13-storey tower springing from the roof of a two-storey block, with a set-back third storey on the roof of the latter, alongside the tower but detached from it. It was originally hoped that the tower block could have been at least four storeys higher, which would have allowed the omission of the second floor to the low block while preserving the same site coverage, but negotiations with the planning authority produced the present scheme. The low block surrounds two internal courts. The basement contains a garage.

The ground floor beneath the tower is largely given over to an entrance hall, separated from the street only by a glazed wall, from which a free-standing staircase leads to an upper hall designed for exhibitions and displays. The wall on the far side from the entrance is covered by a cast aluminium relief sculpture by Geoffrey Clarke, 50ft. long and rising 24ft. to the ceiling of the upper hall. A third side of the entrance hall provides the connection to the two-storey block, and on the fourth side are the lifts and escape-stairs. These rise into the corner of the tower, leaving an L-shaped area on each floor for sub-division as offices. On several of the upper floors are specially designed reception-suites, board-rooms, etc. A circular staircase from a lounge on the top floor gives access to the roof. The top floor of the low block contains visitors' bedrooms and lounges and a caretaker's flat.

To allow flexibility in internal planning and in the running of services, a flat slab structural system was adopted. A series of beam strips, approximately 6ft. wide, span between columns within the depth of the floor-slab (a system that also saves concrete form-work). Columns are standardized in three basic sizes: 30in. square in the basement, ground and first floors of the tower-block, 24in. square in the next four floors of the tower-block, and 21in. square in the upper part of the tower-block and throughout the two-storey block. Items like column-caps and staircase flights were designed for precasting in most cases. Lift enclosures and fire-break walls were incorporated in the structural design to give rigidity. For the same purpose the tower-block has two continuous reinforced-concrete diaphragm walls, visible on the upper floors. They are 12in. thick and are taken right down to the main foundations.



2

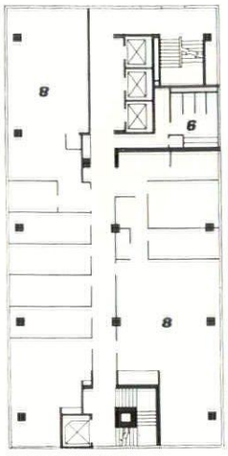
The whole building is enclosed within an aluminium curtain-wall. In the low block this is based on a 7ft. 9in. module, divided in two for partitioning; in the tower the module is 4ft. In the low block the curtain-wall consists of black anodized mullions at approximately 8ft. centres, connected by deep transomes, cills, etc. (anodized natural finish). The window inserts are mainly horizontal sliding sashes. The spandrel panel inserts on the three main elevations are white Sicilian marble; on the fourth they are glass.

The curtain-walling to the tower consists of a deep anodized aluminium grid of mullions, cills, etc., with sliding sash inserts with a black anodized finish and spandrel panels of green glass. Floodlighting behind the panels gives an external effect at night of a series of illuminated trays. The artificial light throughout is by cold cathode, automatically controlled by photo-electric cells according to the daylight factor.

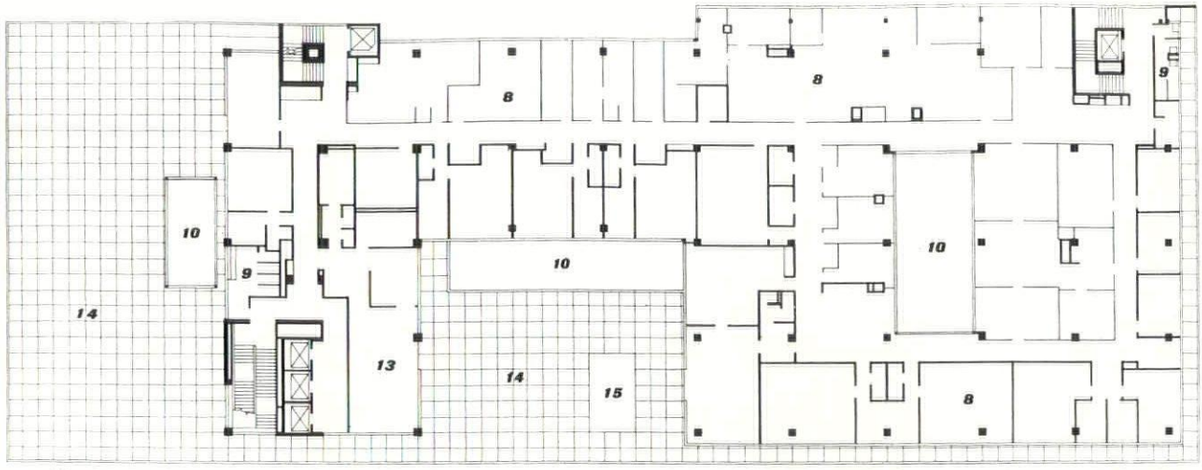
Space-heating (from three oil-fired boilers) is by means of tubes suspended beneath the floor-slabs within the depth of the suspended ceilings. These ceilings are of perforated aluminium demountable panels of a type produced in Denmark. Only the basement garage, the internal lavatories, the kitchens and a cinema have mechanical ventilation. The plant for this is in a sub-basement. There is a Lamson postal tube delivery to all departments.

The external walls of the tower-block will be cleaned from electrically controlled gondolas suspended from a cantilever cradle trolley running on tracks round the roof. The two-storey block will be cleaned on three elevations directly from a similar trolley and on the rear elevation from a cradle suspended as in the case of the tower block, because ramps, loading-bays, etc., would obstruct the passage of a trolley.

1 (facing page), Castrol House from the top of Montagu Street, looking north-east across Marylebone Road.
2 (above), the tower rising above the houses in Dorset Square.



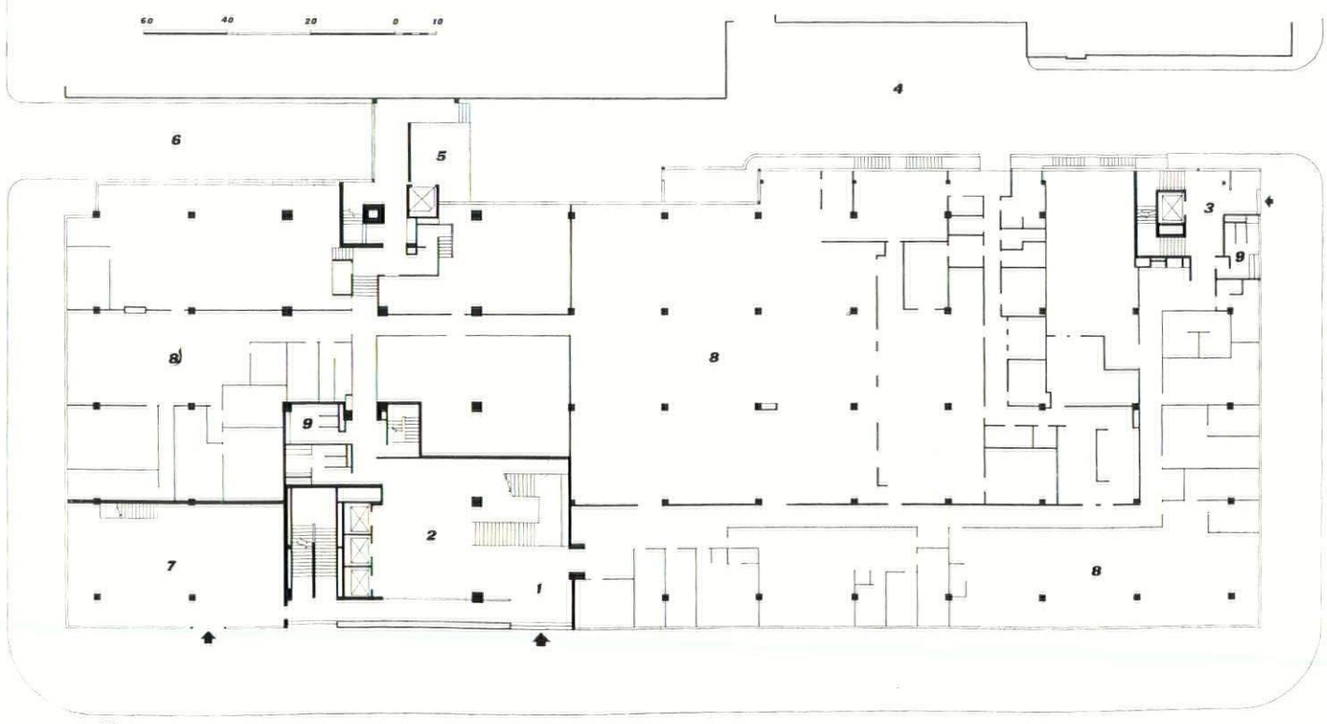
typical tower floor



second floor



first floor

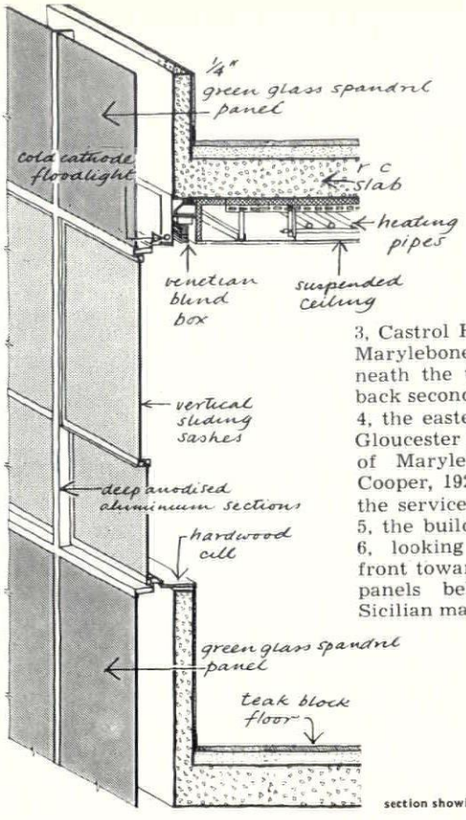


ground floor

key
1. main entrance.
2. entrance-hall.
3. rear entrance.
4. service yard.
5. loading bay.
6. ramp down to garage.
7. bank.
8. office space.
9. lavatories.
10. light-well.
11. canopy.
12. upper entrance-hall.
13. boardroom.
14. roof terrace.
15. pool.



3



section showing curtain walling of tower

3, Castrol House looking north-west across Marylebone Road. The entrance is beneath the tower. On the right is the set-back second storey of the lower block.
4, the eastern front of the building, facing Gloucester Place. On the left is the tower of Marylebone Town Hall (Sir Edwin Cooper, 1920); on the right the entrance to the service yard.
5, the building lit up at night.
6, looking along the Marylebone Road front towards the tower and entrance. The panels below the windows are white Sicilian marble.



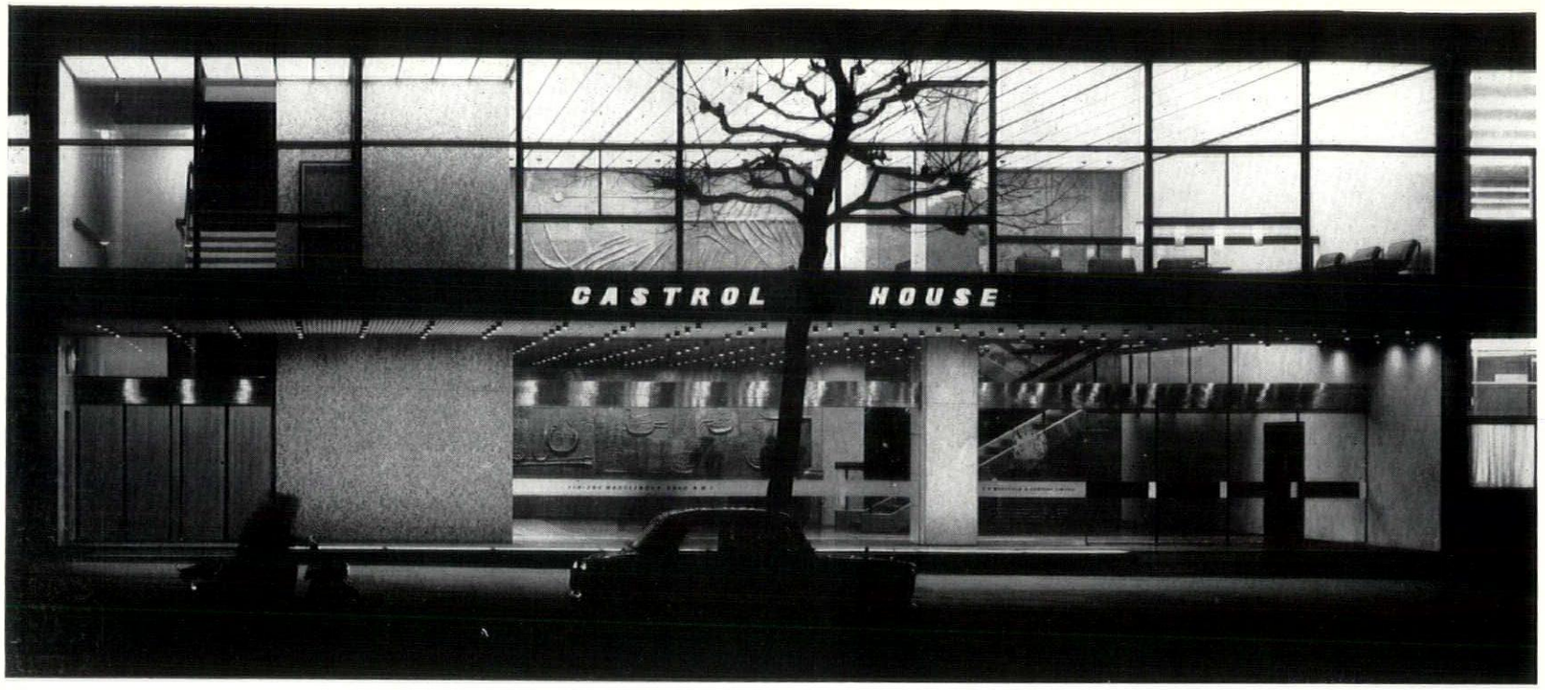
4



5



6

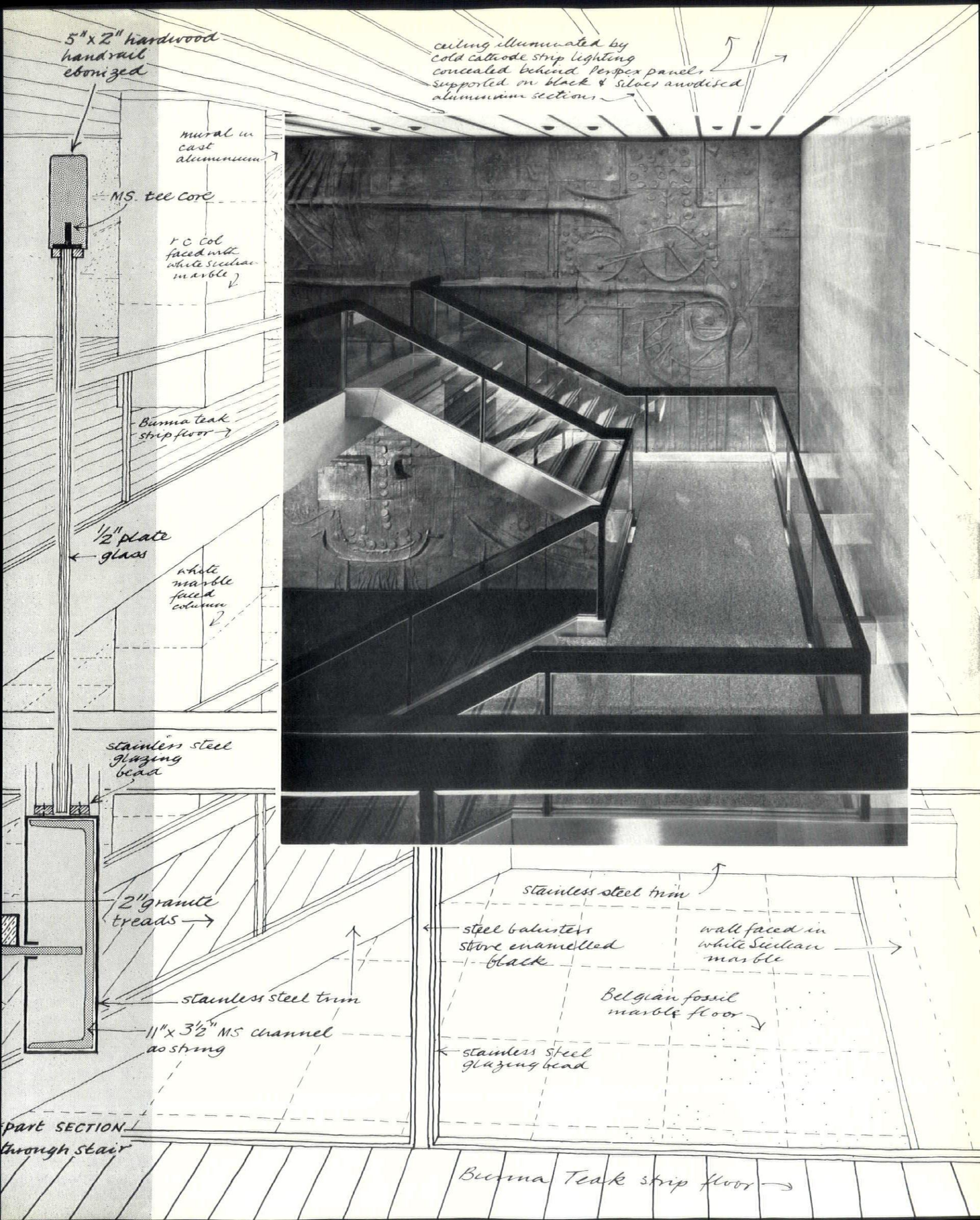


7

OFFICES, MARYLEBONE ROAD, LONDON

7, close-up of entrance, taken at night with the two-level hall illuminated.
8, inside the entrance-hall, looking east towards the staircase leading to the upper hall (see detail opposite). On the left is the cast aluminium sculpture by Geoffrey Clarke (see also cover). Facing page, the free-standing staircase.

8


5"x2" hardwood handrail ebonized
ceiling illuminated by cold cathode strip lighting concealed behind perspex panels supported on black & silver anodised aluminium sections
mural in cast aluminium
MS. tee core
r c col faced with white sicilian marble
Burma teak strip floor
1/2" plate glass
white marble faced column
stainless steel glazing bead
2" granite treads
stainless steel trim
11"x 3 1/2" MS channel as string
part SECTION through stair
stainless steel trim
steel balusters stove enamelled black
wall faced in white Sicilian marble
Belgian fossil marble floor
stainless steel glazing bead
Burma Teak strip floor

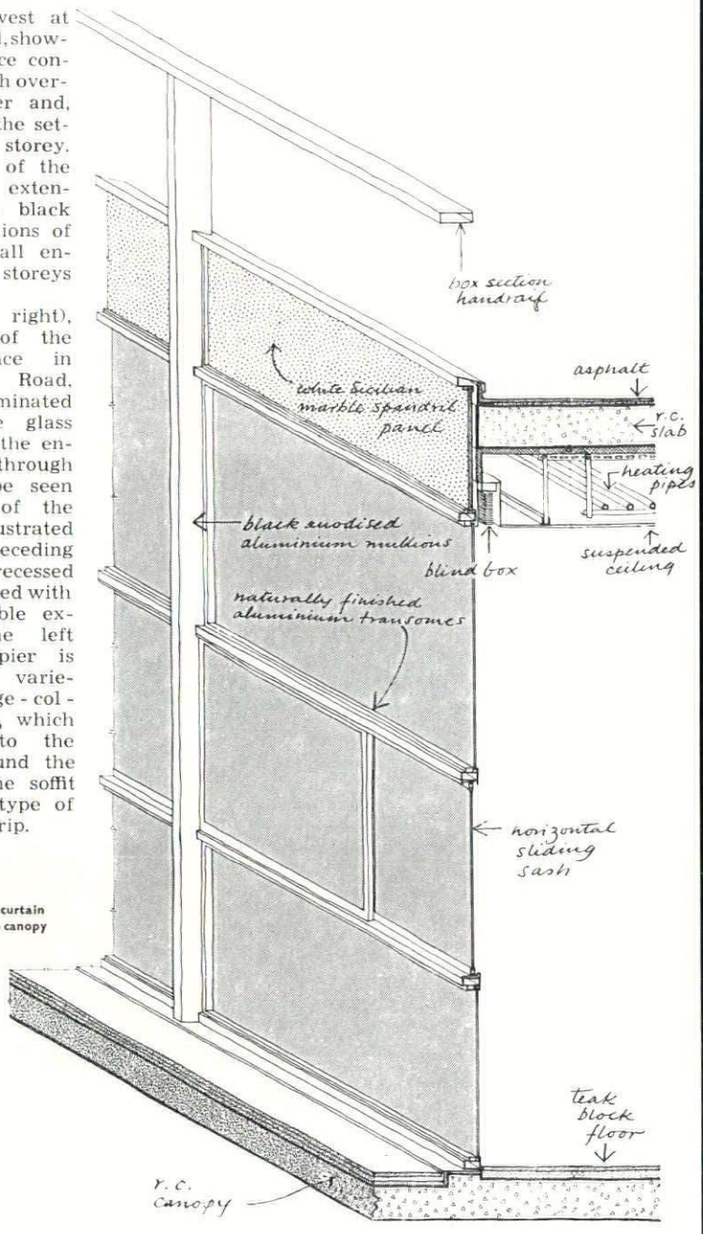
OFFICES, MARYLEBONE ROAD, LONDON



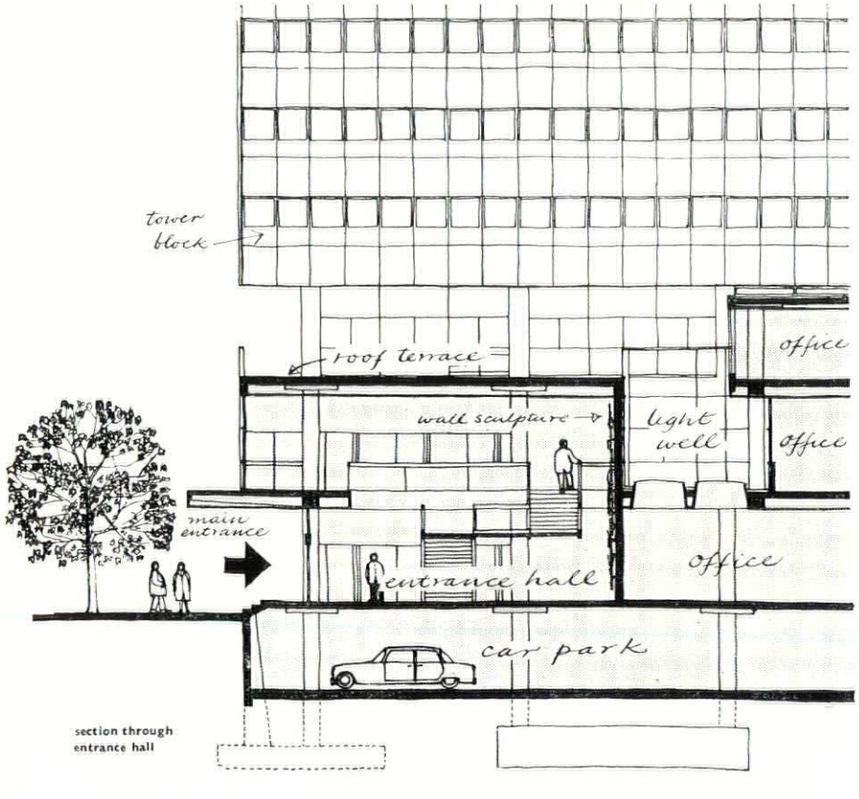
10

10, looking west at first-floor level, showing roof terrace continuing beneath overhang of tower and, on the right, the set-back second storey. The uprights of the handrail are extensions of the black anodized mullions of the curtain-wall enclosing the storeys beneath.

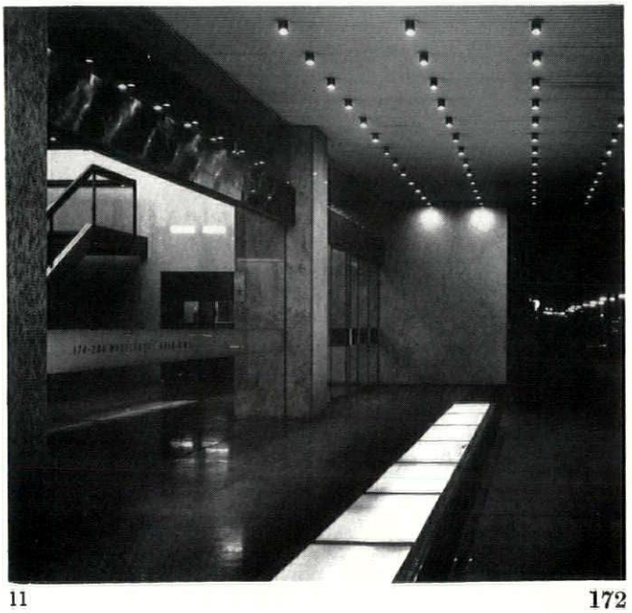
11 (bottom right), night view of the main entrance in Marylebone Road, showing illuminated step and the glass front-wall of the entrance-hall, through which can be seen the corner of the staircase illustrated on the preceding page. The recessed entrance is lined with Sicilian marble except on the left where the pier is faced with variegated orange-coloured mosaic, which continues into the hall and round the lift doors. The soffit is a Danish type of aluminium strip.



right, section showing curtain walling above entrance canopy



section through entrance hall



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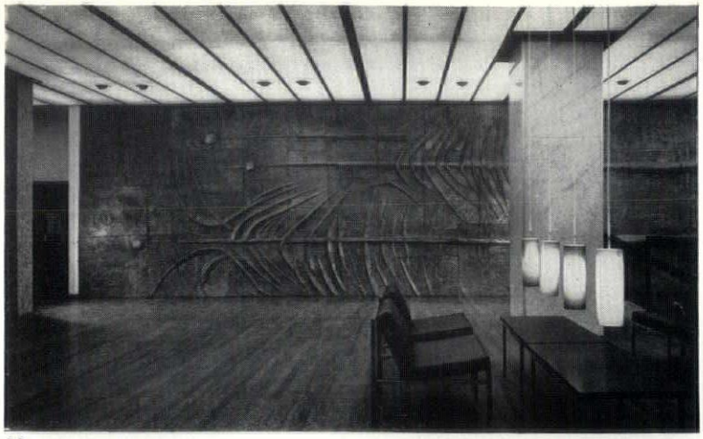

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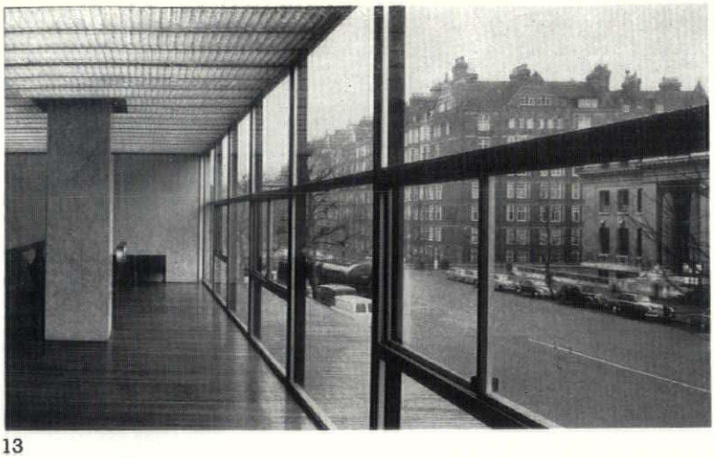


13



14

On this page, views inside the upper-level hall (designed as a waiting-space and for exhibitions, etc.) which is reached by the free-standing staircase illustrated on pages 170-171.
12, looking away from the window towards the back wall, showing the upper part of the Geoffrey Clarke cast aluminium sculpture, which extends downwards to ground level (see page 170 and cover). The ceiling panels, illuminated from above, are of corrugated transparent plastic. The tables have black plastic tops. The floor is of Burma teak strips.
13, the window wall, overlooking Marylebone Road.
14, looking towards the lift doors, which are surrounded by variegated orange mosaic and separated by panels of ribbed aluminium. The upholstery is black leather.
15, looking outwards towards Marylebone Town Hall on the other side of the road.
16, south-east corner of upper hall with staircase balustrade.



15



16

17

OFFICES, MARYLEBONE ROAD, LONDON

17, the boardroom on the second floor. Wall-panelling is natural leather, carpet dark blue and curtains oatmeal colour.
18, on a typical office floor, showing the removable partitioning system used throughout the building to subdivide the open office areas. The framing is an extruded aluminium section and the solid panels plastic-faced vermiculite. The continuous ceiling (above which all services are run) is a Danish type of perforated aluminium strip.



18

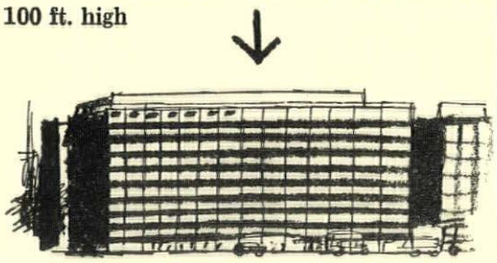
Kenneth Browne

HIGH LONDON

A study of tower buildings in relation to the townscape

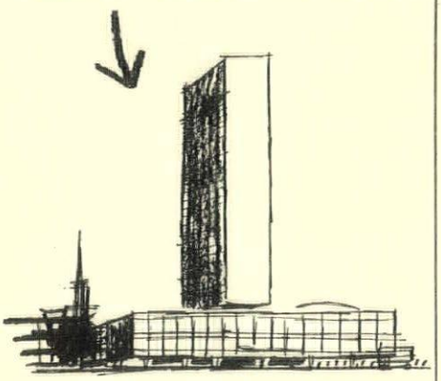
During the next ten years the familiar skyline of London will be completely changed by high building. This change will be for the better only if there is a really imaginative town planning policy to control it; a policy which can state where high buildings should be encouraged and where disallowed.

Building high is inevitable and is the logical answer to the apparently inexhaustible demand for living and working space in central London; a demand which encourages developers to cram as much lettable space on to every site as they can, checked only by the relevant plot ratio laid down by the LCC. Simply stated, this means that where the ratio is high (e.g. 5 : 1 in the City) the developer has the alternative of either building ponderous cliff-like blocks say 100 ft. high



solid building

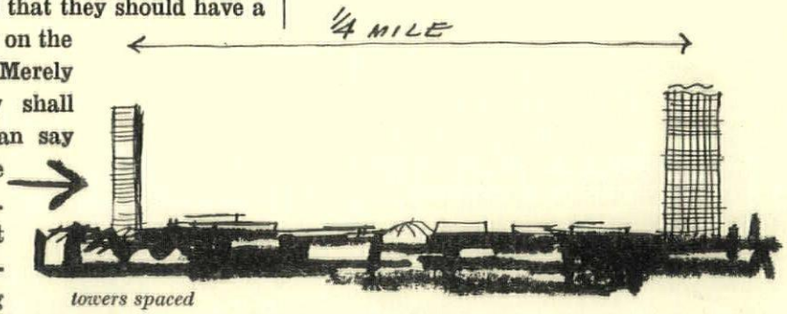
or towers twice as high rising from a base of lower buildings. Whichever he does he will only be allowed the same amount of floor space, for higher building is not synonymous with higher density. Obviously the latter type of building is more likely to produce a human scale environment at street level and for this reason the LCC planners rightly encourage it wherever possible. In consequence they are likely to be inundated in the near future with applications to build high.



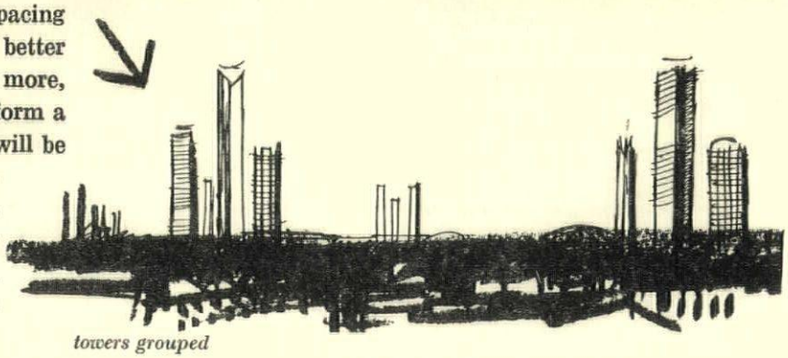
high building

Now this raises a considerable problem, for the siting of really high buildings which are seen over a wide area, cannot just be left to chance. Has the LCC a policy? The exhibition at County Hall last December was presumably intended to show they had, but in fact showed nothing more positive than pious hopes and the assurance that high buildings would be well spaced out. It is true that they have a list of conditions which every new high block must satisfy but it is surely essential that they should have a more creative policy on the question of siting. Merely deciding that they shall never be closer than say a quarter of a mile apart, is not enough.

It may be that groups of tall buildings of varying height with wide spacing between groups is a better solution. What is more, the council should form a policy now or they will be swamped by demands for tall buildings whilst having no overall pattern to which to relate them.



towers spaced



towers grouped

However, when you get down to trying to work out a creative, rather than a merely restrictive, policy the difficulties become apparent. Where do you start? It is not enough to consider the effect of each building in isolation, for the relationship of high blocks will change constantly with the viewpoint and the screening effect of other buildings. To gauge the effect from every aspect is obviously impracticable. However, because some accidental effects, good and bad, are inevitable, that is no reason for throwing in the sponge altogether. One answer surely is not to try to formulate a book of rules but examine particular cases.

Which are the London views that must on no account be accidentally spoilt? These should be listed, surveyed and then protected, not in a dull spirit of preservationism, but so that every new project is considered in relation to these points of view. They occur

particularly in and around the royal parks and, being generally more distant views, are particularly vulnerable to badly placed high building. The amount of open space, the height and the proximity of trees will all affect this vulnerability. For example, St. James's Park is not so vulnerable as one might expect considering its small size, for the trees are thick and high and open spaces few. In consequence, the adjacent mass of Queen Anne's Mansions (180 ft.) is hardly noticed.

On the other hand, the world famous view of Whitehall reflected in the lake, right, could easily have been wrecked had the new Shell building (which is 351 ft. high but half a mile away) been sited slightly farther down river (see opposite). We may not be so lucky next time.

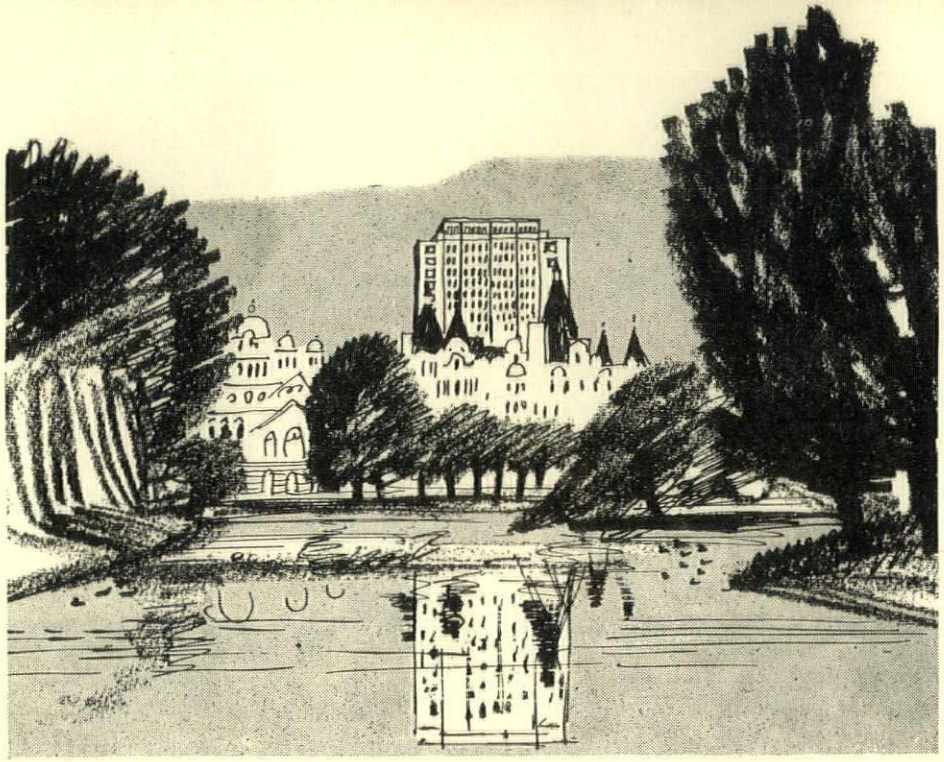
In Hyde Park vulnerable views occur all along the Serpentine and in the open area near Marble Arch. From the Serpentine



The famous vista of Whitehall from St. James's Park still looks like this . . . . . .

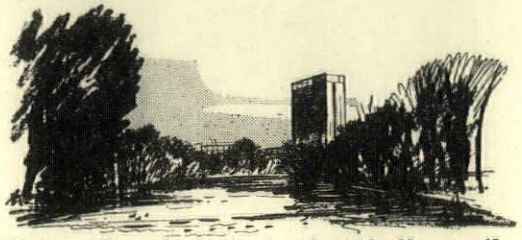
1. Illusion

Until quite recently, you could stand here and imagine yourself in a country park with woods stretching away for miles to left and right. This was fine whilst the illusion



. . . . . *but this is what might have happened.*

bridge itself looking north you can now see a high building (Elsom's Eastbourne Terrace tower, 170 ft.) which by accident makes a good focal point at the end of the Long



Water (though it is in fact half a mile beyond it). The view looking east from the same bridge (see below) is far more vulnerable. It is one of the most open views in Hyde Park and is also one of the best known vantage points with three-quarters of a mile of lake stretching in front and wooded banks on either side. In the far distance you can see the Victoria Tower of the Houses of Parliament (340 ft.) over two miles away.

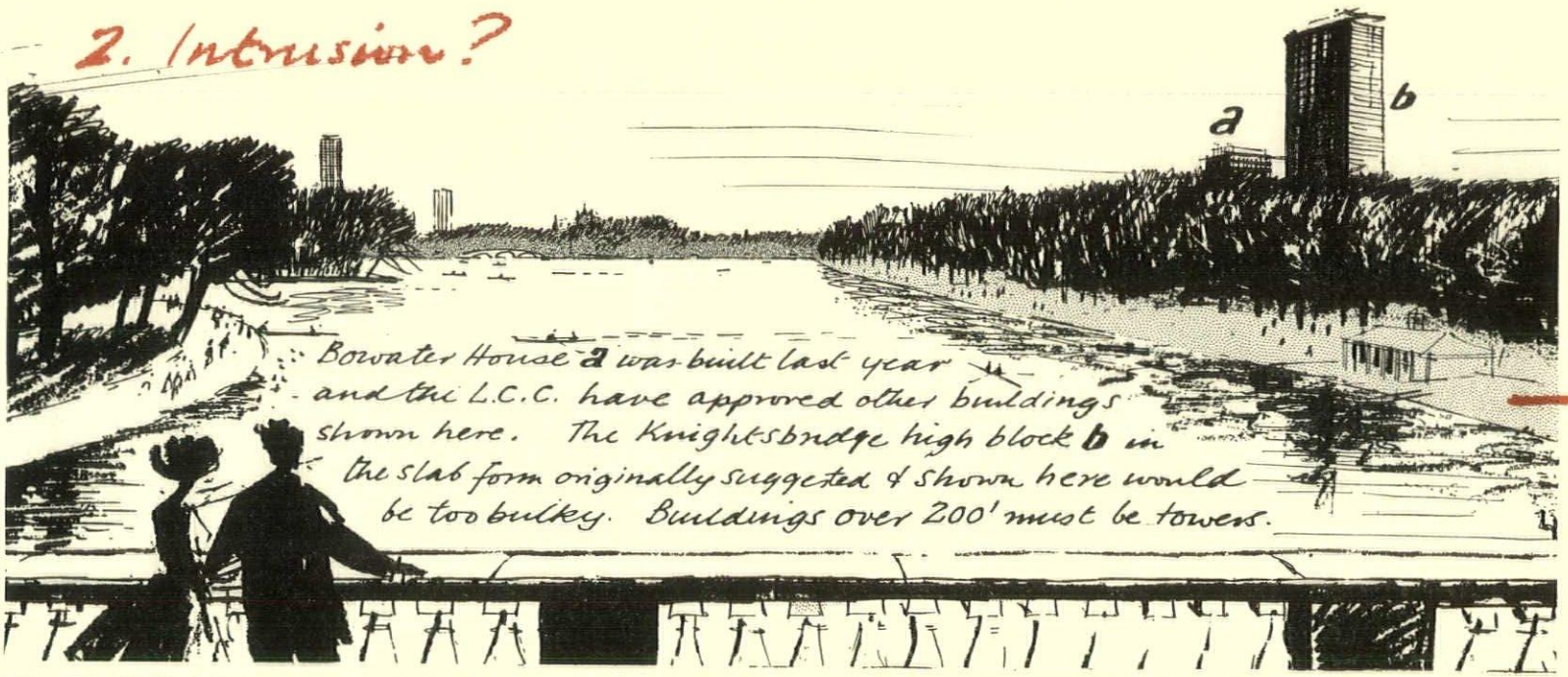
could be maintained, but building pressure on the perimeter of the park now makes it impossible. What we must ensure is that an equally good landscape takes its place

What is intended here?

turn page

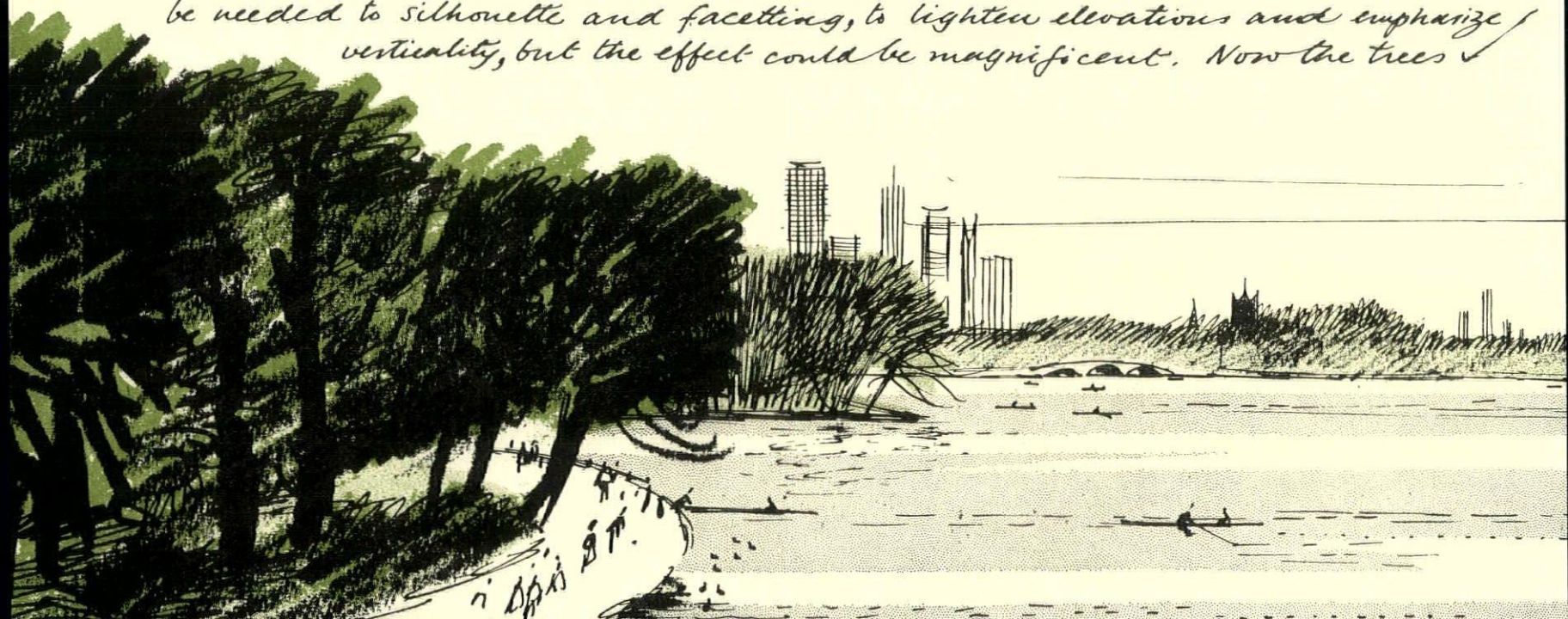


2. Intrusion?



Bowater House **a** was built last year and the L.C.C. have approved other buildings shown here. The Knightsbridge high block **b** in the slab form originally suggested & shown here would be too bulky. Buildings over 200' must be towers.

This, on the other hand, is what could happen if, by using their planning powers, the L.C.C. encouraged the development of widely spaced groups of tall buildings of varying height, insisting that all buildings showing above the trees (i.e. over say 120') must be towers. Much attention would be needed to silhouette and facetting, to lighten elevations and emphasize verticality, but the effect could be magnificent. Now the trees



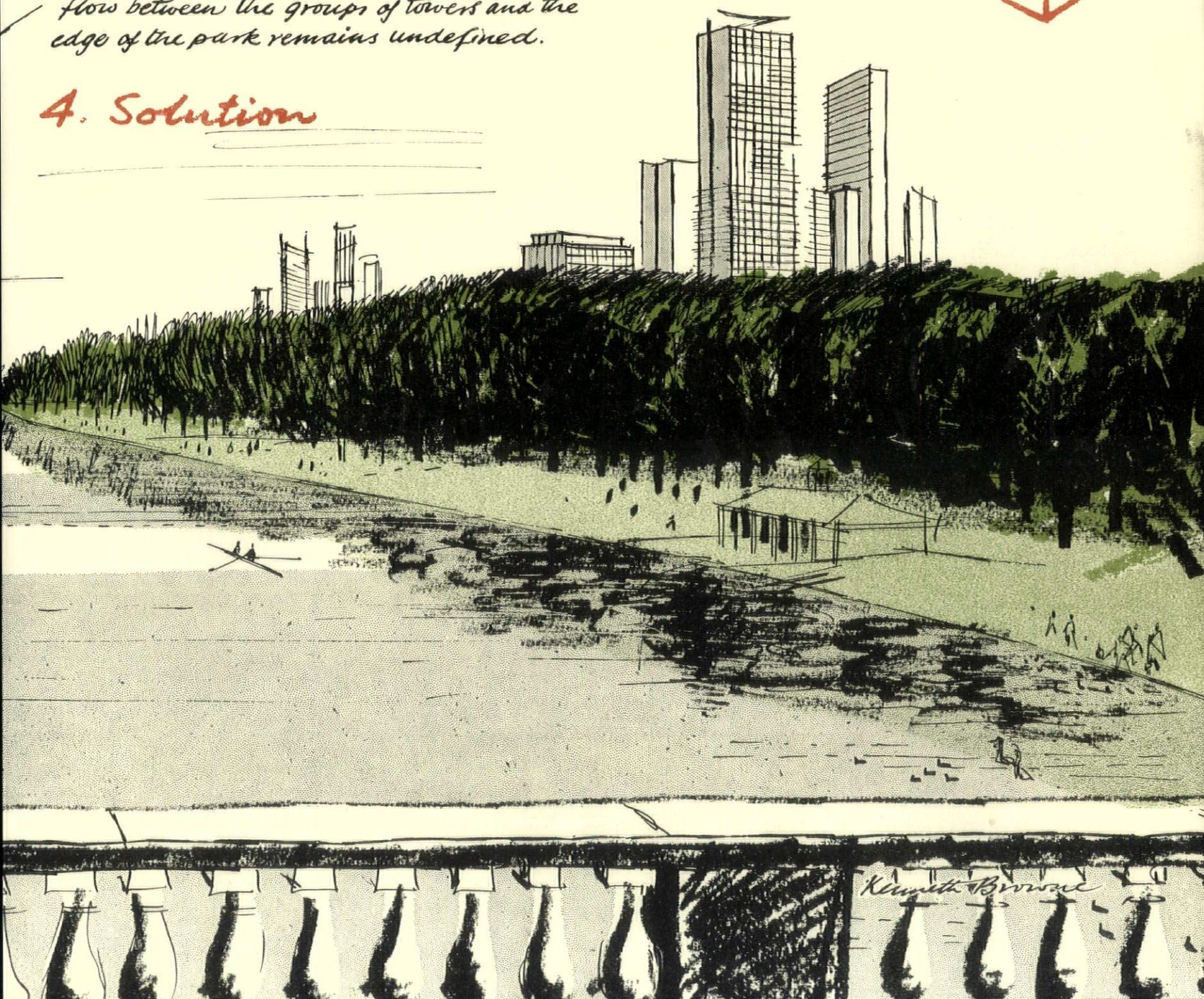
3. Imprisonment

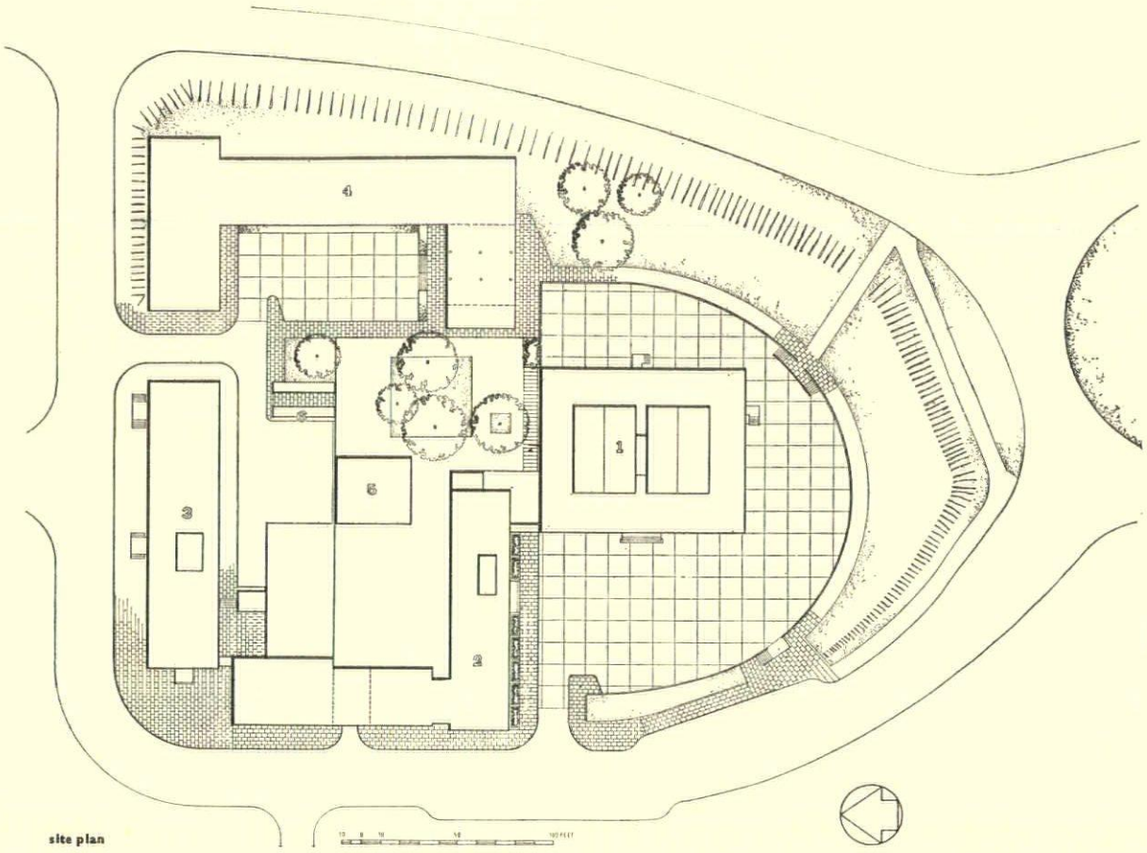


This is the danger. Spaced out buildings of medium height (150'-200') would appear from this angle to form a solid wall and sharply define the edge of the park, ending all illusion as to its size

flow between the groups of towers and the edge of the park remains undefined.

4. Solution



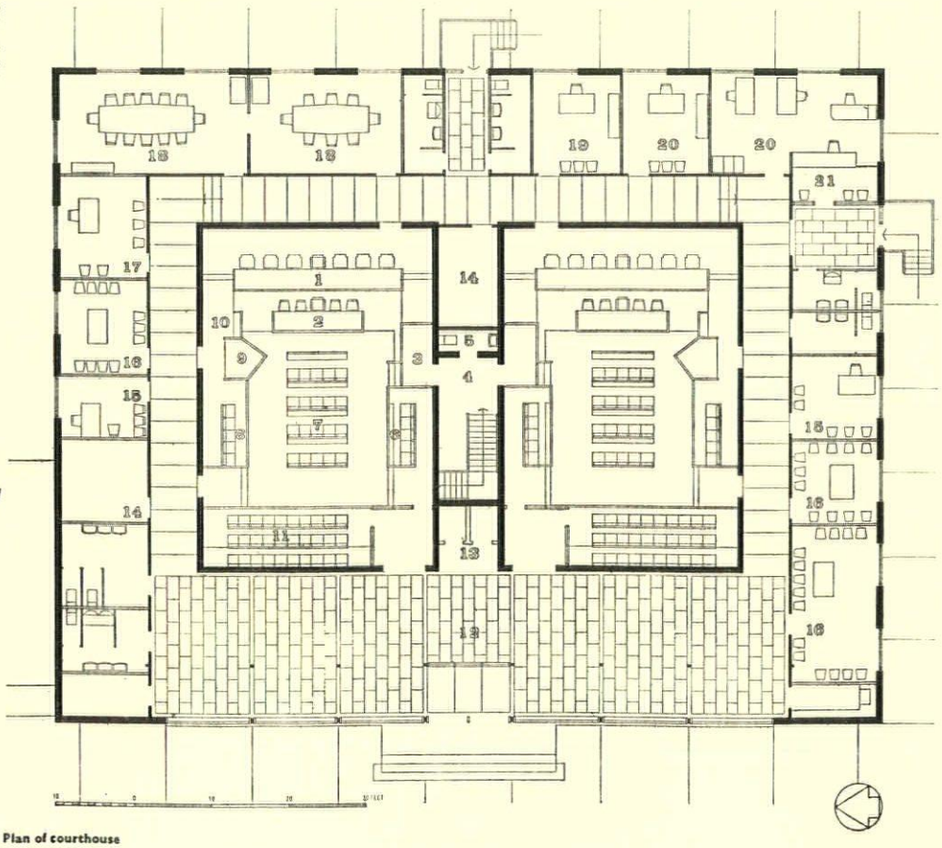


key
1, magistrates' courthouse.
2, police station.
3, crown offices.
4, professional offices.
5, garage.
6, bicycle store.

site plan

The site plan above shows the position of the courthouse on its paved platform in relation to the remainder of the group of civic buildings south of the town centre.

COURTHOUSE, HARLOW NEW TOWN



key
1, magistrates.
2, clerk.
3, dock.
4, prisoners' entrance.
5, prisoners' lavatory.
6, press.
7, solicitors.
8, witnesses.
9, witness box.
10, shorthand writer.
11, public.
12, concourse.
13, telephones.
14, store.
15, solicitor.
16, waiting.
17, probation officer.
18, magistrates' retiring room.
19, clerk.
20, office.
21, collecting and enquiries.

Plan of courthouse

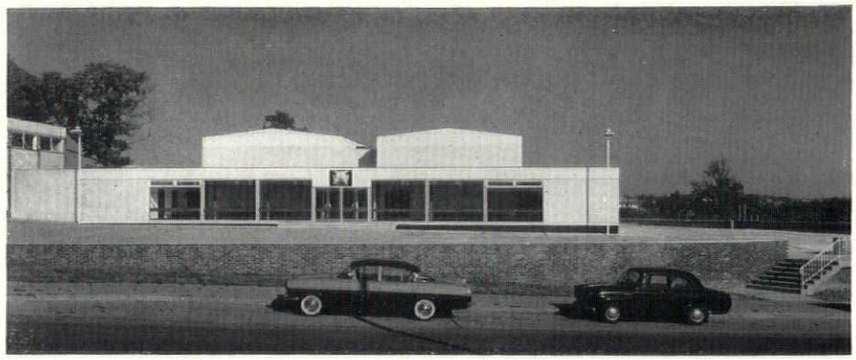
COURTHOUSE, HARLOW NEW TOWN

ARCHITECT	**FREDERICK GIBBERD (in association with H. Conolly, Essex County Architect)**
partner in charge	**G. T. Goalen**

These Magistrates' Courts are on the south-east corner of the group of civic buildings that forms the southern boundary of the town centre, overlooking the landscape valley.* Other buildings with functional affinities, planned in relation to the courts, are the police-station, Crown offices and an office block for professional people.

The site is a key one in the design of the town centre, as it lies at the foot of the roundabout where the main approach roads join the town centre roads—it marks one of the entrances to the town centre and is identifiable by traffic by-passing it. The office-type buildings are grouped tightly together around rectangular spaces, but the courts project towards the roundabout and the landscape as a free-standing composition, with the offices as their background. They stand on a semicircular concrete plateau above the level of the approach road and the landscape. The brick retaining wall to the plateau is designed to reflect the form of the roundabout while at the same time dissociating the building from passing traffic.

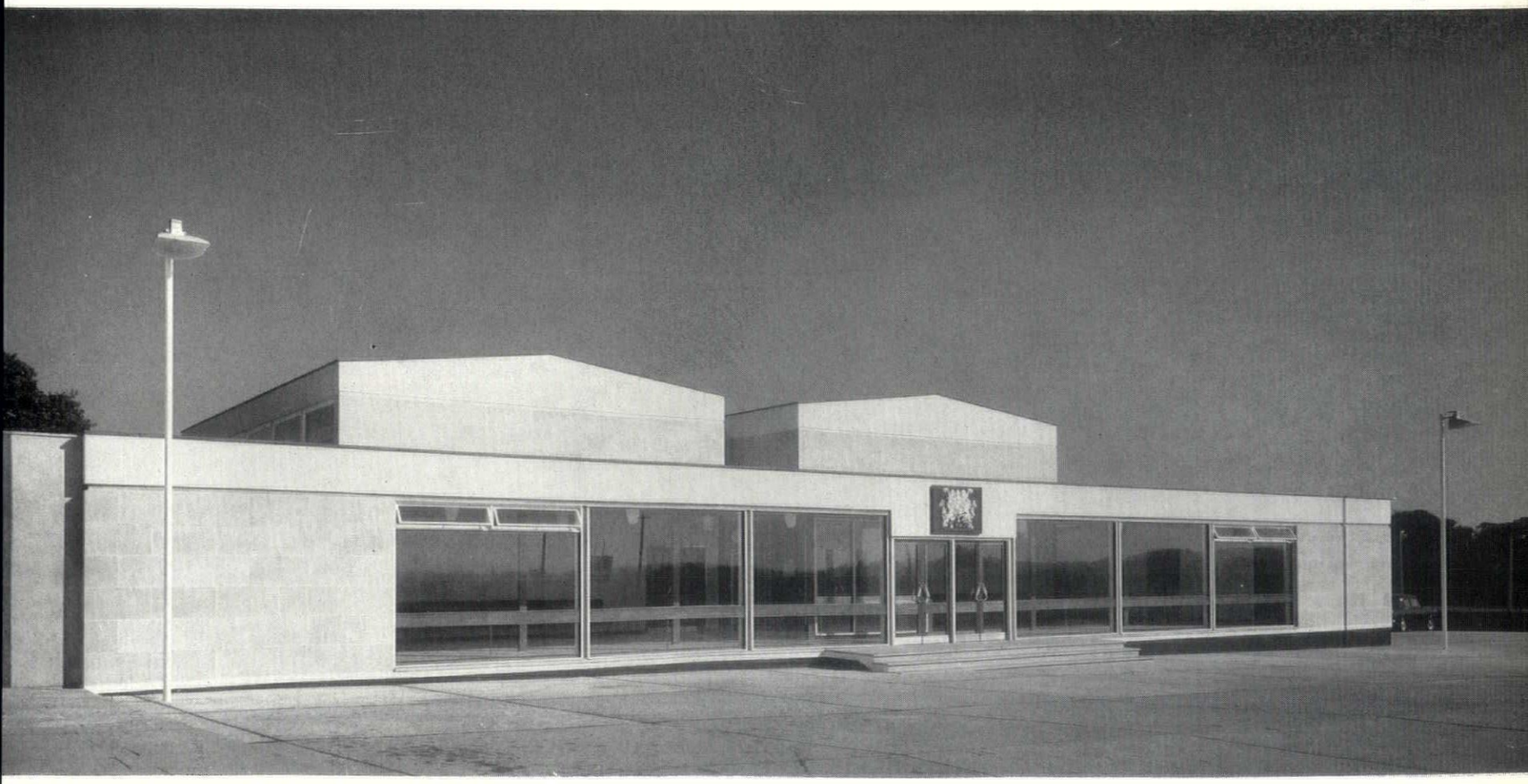
* See AR, June, 1958.



1 (above), the courthouse on its paved platform, showing the curved brick retaining-wall. On the left is the police-station; on the right the central landscaped wedge. 2, the west front, with the two courts rising behind the concourse. The royal cipher over the doors, designed by Walter Hoyle, is of cast aluminium.

The plan is a mirror symmetry in which a pair of identical Magistrates' Courts are surrounded on three sides by ancillary rooms and are united on the fourth by an entrance concourse. The building is one storey

2

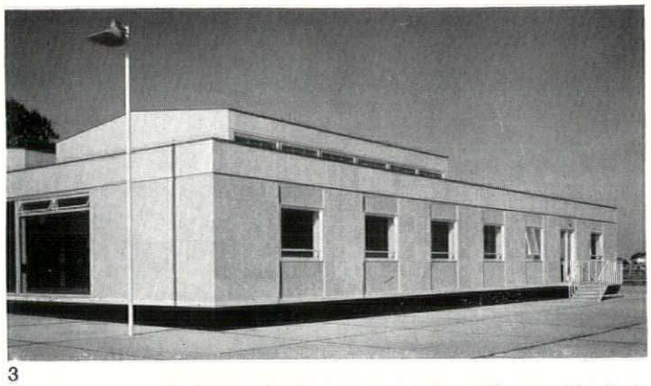


(as part of the broken silhouette of the town centre) but the courts rise above the level of the surrounding rooms, to obtain clerestory lighting and to be visible externally. The two courts are separated from each other by a narrow gap in which is placed the prisoners' access stairs (connected to the police station by a tunnel), and the ventilation plant common to them both.

The entrance concourse stretches across the frontage of the building and has a glass external wall to unite it with the forecourt and to contrast with the solid forms of the rest of the building. The floor is in white marble and the courts themselves are expressed in the concourse by being faced in Hadene stone. A toplit corridor surrounds the courts, separating them from the offices and other small rooms on the flanks and from the magistrates' retiring rooms at the rear. Separate entrances are provided for the magistrates and the offices.

Construction is of load-bearing brick and concrete walls, as apart from being more economical than a frame, the mass of material assisted in sound insulation. The main external wall unit consists of brick piers and concrete blocks faced with grey Cornish granite alternating with metal windows under which are grey rendered block panel walls. The cornice is of concrete slab faced with crushed Derbyshire spar and mother-of-pearl and has a thin slate coping. The roof of the courts consists of steel roof-trusses supporting a copper roof on boarding and timber joists, from which is suspended a perforated fibrous plaster ceiling backed with resin-bonded fibre-glass. The roofs to the lower buildings are timber, covered with asphalte on screed and wood-wool slabs.

The gilded and painted royal ciphers over the entrance doors and the magistrates' desks were designed by Walter Hoyle; the external one is in cast aluminium and those to the courts are in carved linoleum. The fittings and furniture in the Courts were designed by the architect. The panelling generally is in teak veneered blockboard and the furniture is in afrormosia and blue-grey leather.



3

3, the south front containing offices with their own entrance. Above are the clerestory windows of the magistrates' courts.
4, interior of one of the courts, looking towards the bench with witness-box on the right, extended to show construction and materials. The royal cipher, by Walter Hoyle, is carved in linoleum.

COURTHOUSE, HARLOW NEW TOWN



4

key
1, perforated fibrous plaster ceiling.
2, intake louvres (heating).
3, teak veneered ply panelling.
4, leather covered tip-up seating.
5, barriers with leather panelling and afrormosia capping.
6, gurjun strip flooring.

Reyner Banham
1960 series editor

A. C. Brothers ENGLISH ELECTRIC
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R. Llewelyn-Davies THE NUFFIELD FOUNDATION

1960

THE SCIENCE SIDE

WEAPONS SYSTEMS
COMPUTERS
HUMAN SCIENCES

2

In February's **1960** article, *Stocktaking*, a firm line was drawn between the traditional and technological aspects of architecture. Leaving the line drawn for the moment, this month's papers examine the kind of information and mental techniques to be found on ***the science side.*** The three main topics discussed have all been suggested by recent architectural writings or discussion as having something valid to say about architecture. The first, for instance, takes off from the increasingly widespread opinion that rocketry—because of its relative lack of financial restraints—has gone further into the fields of ***total planning*** and teamwork than architects have yet dared to dream. Has it, in the process, called in question any other dreams entertained about the technological world by architects? The answer appears to be that 'components off the peg'—a concept enjoying the reflected glamour of the mystique of

standardization in architectural circles—is an obstruction to total functional planning at the practical as well as the theoretical level.

Such an outcome was only to be expected. Throughout the present century architects have made fetishes of technological and scientific ***concepts out of context*** and been disappointed by them when they developed according to the processes of technical development, not according to the hopes of architects. A generation ago, it was 'The Machine' that let architects down—tomorrow or the day after it will be 'The Computer,' or Cybernetics or Topology.

A. C. Brothers

WEAPONS SYSTEMS

2

ii

Until a few years ago aircraft and guided weapon designers relied on remarkably hit or miss ideas. They would design an excellent airframe which, if it was given an engine of a certain power, weight and size, would fly magnificently. But usually the engines which were available had been developed without any particular regard to any airframe which was on the drawing board at the time. The result was a compromise—the airframe was wedded to an engine which was either rather less, or a little more, powerful than the optimum one which the designer had envisaged, perhaps a little unrealistically, for his new machine. And probably it would not fit snugly into the nacelle of the airframe—it was too big or too small. So the wonderful airframe lost some of its efficiency. This was the beginning of a slow process which inevitably resulted in an indifferent aeroplane.

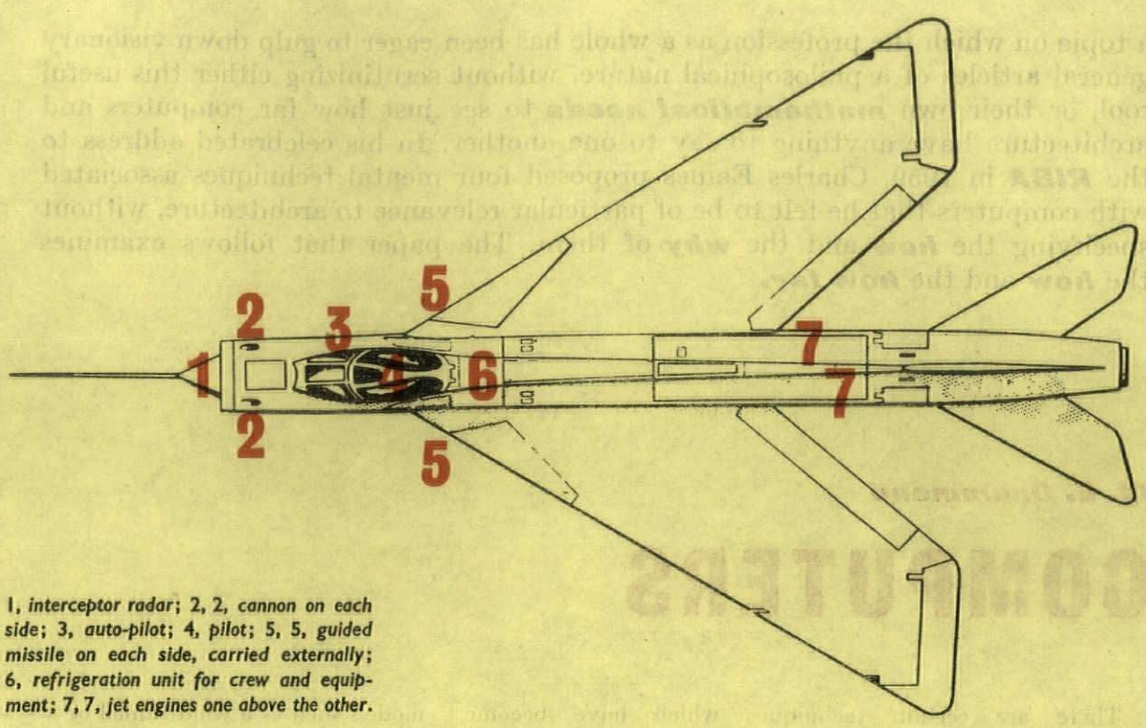
The air force would decide that four cannon and some rocket projectiles were needed. The cannon could be fitted into the wings if some of the fuel tankage was removed, and the rockets could be carried if the wings were strengthened a little and special attachments put on them. So there was more sacrifice—less fuel, a heavier wing and more aerodynamic drag! The situation could rather easily get out of hand, and that is what usually happened when aircraft, introduced in advance as wonderful by the publicists, later turned out to be failures.

systems engineering

To get away from this danger, aircraft, engine and accessory designers evolved the technique of systems engineering. Instead of designing a good basic aeroplane and then spoiling it by fitting it to do a job which was only vaguely in their minds when they conceived it, they decided to work backwards so to speak, and to agree first on the job which it would be expected to do when it reached the squadrons. It meant a complete re-thinking of the old design concepts. It was no longer good enough to take off-the-shelf items and find room for them in an aircraft; instead it had to be decided what items of equipment were necessary in a new aircraft before it was even designed, and to design them into it. The designer of a complete weapon-system (a term covering the actual aeroplane, its armament, radar instruments, crew, etc.) such as the Lightning interceptor which will soon enter service with the Royal Air Force, was faced with this sort of complex question: how to provide a method of destroying any enemy bomber many miles from the coast in any weather, any season and by day or night. In the simplest terms the problem was to put an explosive charge into a position many miles from its point of launch, in a given time—which was inevitably short—and to ensure that it went off with enough force to kill the enemy. It was also essential to recover the carrier, under which name the aeroplane itself has become known, for further use. Every effort was directed to this one goal. There were to be no compromises, and the design team responsible now enumerated what equipment was needed for the weapon system they visualized.

missile

First, a small, reliable guided missile was needed. It should have a fast flight speed, a simple accurate guidance arrangement and a powerful warhead. This was to be carried most of the way towards the enemy and then launched to home the last few miles by itself. Next a radar set was required to guide the aeroplane into the right position for launching the missile. It would have to be able to work at very high speed, be extremely accurate and foolproof and work as a partner to the missile. There needed to be an automatic pilot which would fly the aeroplane while the human pilot had his hands, eyes and ears fully occupied in monitoring the radar, missiles and information being radioed to him from the ground. There were several missiles, radars and auto-pilots available which might have done the job—more or less. But by installing any one of them the overall performance of the weapon-system would have been compromised. All those items which were on the shelf were rejected. New ones, it was decided, were needed, each tailored to fit, and work effectively with, the others and the actual aeroplane being planned to carry them. The airframe and its engines were similarly tailored to carry the equipment now being designed for it. This meant that the equipment had to be given at least equal consideration in the design stage with the aerodynamic and structural problems of the aeroplane itself. In this paper only three typical items are mentioned; there are, in fact, very many more including special instruments for the pilot's dashboard (not just the standard altimeter or airspeed indicator then available), many electronic and electrical



1, interceptor radar; 2, 2, cannon on each side; 3, auto-pilot; 4, pilot; 5, 5, guided missile on each side, carried externally; 6, refrigeration unit for crew and equipment; 7, 7, jet engines one above the other.

devices which are too numerous to mention, and even a refrigeration unit for cooling both the crew and some of the electronics.

All these items were designed and developed in parallel. Each firm involved in them kept in close touch with the chief designer's team and with each other. This prevented sub-contractors going off at a tangent in their work which might have made it easier for them to produce their particular item, but would have adversely affected the overall system, perhaps by being too large or maintaining its required performance only under some of the conditions in which the system as a whole had to function.

carrier

Once it was decided what equipment was needed to make the weapon-system work and it was established that this could be developed in a realistic time-scale, the design of the carrier itself had to be completed. After an exhaustive investigation it was shown that the equipment could be packed into a long, fairly thin, fuselage with most of it in the nose section. The rest of the fuselage carried the two engines and, running the entire length, were the ducts through which air was fed to the turbojets, and from which the jets exhausted.

But the fully equipped fighter and its crew do not comprise the whole weapon-system. It is the most glamorous part, but without comprehensive ground support, both material and human, it cannot do its job. A complete hangar design, with all the necessary power points at the right values, special jacks and servicing platforms and specialized tools, was necessary to enable the ground crews to keep the aircraft serviceable at all times. On the human side technicians are being trained as system-engineers who understand how and why each part of the aircraft is dependent upon the rest. For instance, fitters concerned primarily with the hydraulics will also understand, and be able to deal with, the electrics; the radar technicians will understand the other electronic items in the aircraft, and the electricians will have a bosom feeling for the problems of the engine maintenance crew.

The weapon-system concept has been successfully carried out only after a new design-philosophy had been accepted. But coupled with it were many of the old problems which beset aircraft designers, for the whole system had to achieve a very high performance over a wide range of altitudes. The result is a system which is immeasurably more effective than the old method of building the airframe, finding a suitable engine and then making room for the necessary off-the-shelf equipment.

2

iii

One of the reasons for the persistent disappointments of architects with 'science' is that they rival St. Paul's Athenians both in their enthusiasm to 'hear some new thing' and in their failure to pay proper attention when the true word is finally delivered to them—an exception to this rule will be found in the author of the last paper this month, and, of course, there have been others who have backed up their enthusiasms with application to the facts.

But ***electronic computers*** in general, can stand as an example of

a topic on which the profession as a whole has been eager to gulp down visionary general articles of a philosophical nature, without scrutinizing either this useful tool, or their own ***mathematical needs*** to see just how far computers and architecture have anything to say to one another. In his celebrated address to the ***RIBA*** in 1959, Charles Eames proposed four mental techniques associated with computers that he felt to be of particular relevance to architecture, without specifying the ***how*** and the ***why*** of them. The paper that follows examines the ***how*** and the ***how far.***

M. E. Drummond

COMPUTERS

2

iv

There are certain techniques which have become popularized with the advent of computers, in particular

Operations research
Systems simulation
Linear programming
Queueing theory.

Let us analyse each of these topics to see what they are and how they could be used.

First of all the term 'Operations Research' is a generic term and is synonymous with 'Management Science.' Operations Research implies an orderly approach to a problem, generally using scientific methods. The other three topics: systems simulation, linear programming and queueing theory may be thought of as being specific techniques within the field of Operations Research. The general scientific method is in five steps.

1. Define the problem as exactly as possible.
2. Measure all quantities involved.
3. Distinguish between necessary factors and informative factors.
4. Set down the relationship of the factors and the problem.
5. Test relationships and try to improve the system.

This is not a one-time process, but may be repeated many times. One can almost always plan to start on item 1 again after finishing item 5.

systems simulation

Consider now the topic 'Systems Simulation.' Again, this is an all embracing term. Simulation, as defined in a dictionary, 'implies assumption of a false appearance.' To simulate is 'to assume the appearance of, without the reality.' Simulation means to use some device such as a blueprint or a scale model or a mathematical model to represent some item or action.

People have been using simulation for some time without calling it that. Consider a boy with a model aeroplane. He is 'simulating' the real thing. This, of course, is the scale model principle. This principle has been used in designing bridges, buildings, dams, complete refineries, etc. The building of models, in themselves, produce static conditions. In other words, after it is finished it just sits there and looks at you. This principle can be extended to 'dynamic' models such as a wind tunnel or a system for measuring the effect of tides and waves.

Extending further into electro-mechanical devices, we come to such things as the 'Link Trainer' and the Electric Network Analyser. The Link Trainer is used to train pilots by simulating conditions of flying. The latest flight simulators not only give simulated conditions on dials and balance of the human, but visual and audible effects as well.

The electric network analyser is an instrument specially made to simulate the effects of various loads on a power network. There is provision in the system for setting up 'power stations,' 'lengths of line,' 'transformers,' etc.

The electric network analyser is in fact a special purpose computer. It is possible to do a similar type of analysis on general purpose digital computers. To do this, one must set up a model of the problem. But, in this case, one must set up a 'mathematical model.'

A mathematical model is a description of an item or action using the language of mathematics (rather than a physical model). In a mathematical model, one sets out the quantities and their relationship to one another. There may be few equations or many equations. In the simulation of a nuclear reactor there are up to 16,000 equations. In the other extreme the expression '36-24-36' fairly well describes, mathematically, the item in question.

To a computer, the mathematical model is the equivalent of the blueprint or three-dimensional mock-up for the architect.

Consider now some of the simple problems in the field of simulation. There is the 'cut and fill' application where the computer takes rod readings from a surveyor, calculates according to certain formulae, and produces results which tell a highway engineer how to move the earth in such a way that a minimum amount is either hauled away or brought in. Items such as road gradient may be specified in this application. In this case, the computer is cutting out guess work by simulating the laying of a road bed. In this category, there are the applications of truss analysis, pipe stress analysis, calculations of moments, and calculation of hydrostatic properties of a ship.

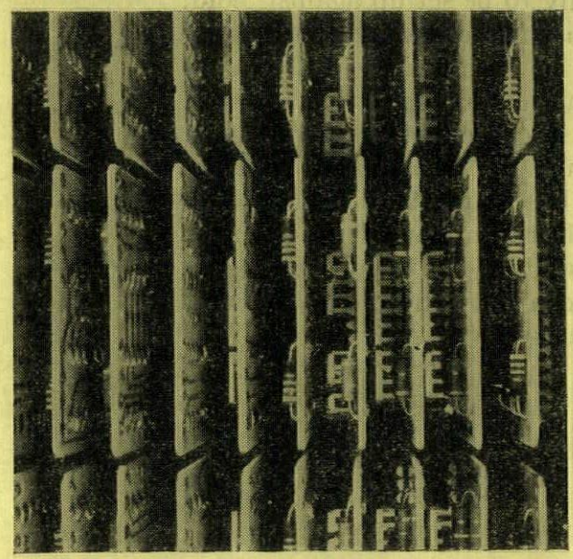
It is possible to formulate even larger problems for solution. For example, the multicomponent distillation programme is used in the design of fractionating towers.

The problem here is to find the optimum location of plates in the tower to distil off required products. It is also possible to go a step further and simulate a complete refinery. This, though, is generally used as an operations application as opposed to a design application.

Other possible applications would be the effect of wind on various structures, the effect of various moving loads on structures or the effect of vibration on structures. All of these may be formulated and computed.

linear programming

The second technique to consider is 'Linear Programming.' The precise definition of this technique is the solution of a set of simultaneous linear equations with linear restraints. A linear equation is an equation where each variable quantity is multiplied by some constant and added into a resultant



Part of the transistor-bank of IBM 7070 computer: each standard interchangeable modular unit is a printed circuit card (slightly larger than an ordinary playing card) carrying the necessary transistors and resistors to perform its assigned function.

sum. An example of a linear equation would be calculation of a bill from a wine merchant. Assume that one buys two bottles of sherry (S) at 15s., one gin (G) at 35s., six tonics (T) at 9d. and six beers (B) at 4s. 11d. (flagons, of course). To complicate matters assume one returns four empty tonics (E_T) at 3d. and five empty beers (E_B) at 6d. The cost (C) would be

$$C=180S+420G+9T+59B-3E_T-6E_B \text{ (in pence)}$$

In this case we have

$$C=180(2)+420(1)+9(6)+59(6)-3(4)-6(4)=1{,}152\text{d.}$$

or 96s.

(As an interesting exercise, try to arrange the quantities such that you spend exactly £10. You must have at least one of each quantity.)*

In the parenthetical problem there has been introduced the concept of 'restraint' or condition. In the solution of the problem these conditions must be fulfilled. These restraints must also be linear. If the problem were extended to many other items of stock with prices varying from supplier to supplier and many other restraints, such as stock availability, one would have a system of linear equation. If you tried to juggle the figures in the above equation, you might have a feeling for the amount of computation necessary in trying various values in a system of, say, 50 variables and 70 equations. In this particular problem, it would probably be solved to obtain the required number of items with a minimum cost.

Instead of this facetious example, linear programming techniques can be used to calculate optimum combination of materials at lowest cost. This could be finding a concrete mix of a given minimum strength combining various amounts and grades of cement, sand and gravel.

These principles can also be applied to the problems of finding the optimum locations of columns and beams for various loadings; or placement and size of windows for required ventilation and daylight-factor.

queueing theory

The final technique to consider is 'Queueing Theory.' This is basically a study of traffic flow, or lack of flow. It is a specialized part of systems simulation. Queueing theory is generally applied to a complex system of throughways, obstructions and intersections. ('Obstructions' includes, bridges, flyovers, etc.) From empirical data, information may be established as to the given capacity of individual throughways and intersections. A street plan is then specified so that the computer can calculate the flow and waiting times for any number of vehicles. (As a matter of interest, some programmes treat larger vehicles as one unit, other programmes as two units and still other programmes make special consideration of large vehicles.)

After specifying a street plan, the numbers of vehicles and their routes are specified along with the rate of flow trying to enter the system. All this information is combined with the data of the basic capacities of the various components of the street plan. The answer usually given is rate of flow throughout the system and waiting time at the various components.

This type of application may be used not only for highway planning and town planning, but also traffic flow within a warehouse, a factory, or an office building. It is particularly helpful in planning the floor plan of large retail stores. It could also be used in determining entry and exit points for public buildings such as auditoriums and stadiums. And this technique can also be used in planning corridors and stairways of any buildings where there is a critical traffic flow.

In the three techniques outlined, i.e. systems simulation, linear programming, and queueing theory, the principles have been known for many years. The advent of electronic computers has made possible the study of larger and more complex problems. But in every case each new application must be analysed and set out in a form suitable for computation. This can be, and usually is, an extremely difficult task.

To set out in a form suitable for computation means that quantitative data must be obtained for all relevant information. This generally eliminates 'rules of thumb.' The only sound approach is what I have called the general scientific method.

Computer manufacturers maintain large staffs of people who specialize in scientific applications. In my company these people are called applied science representatives. In other companies they may be called technical representatives or computer specialists. But these people are trained to have an expert knowledge in the equipment and techniques and an understandable knowledge in applications.

To define a problem effectively requires knowledge of the field of study, plus a knowledge of methods, plus a knowledge of equipment to be used. It is not necessary for one person

* If you desire a more complicated problem, now try to total exactly £10 with the least number of bottles. Count empties as well as full; do not try to cancel.

to have all of this knowledge. In fact two persons with specialized knowledge overlapping can produce excellent results.

Just one final point on the use of computers. They deal in cold hard facts. They have no aesthetic sense whatsoever. Furthermore, they have no imagination. So, although I feel they may be used as aids to architecture, it is still for the human being to create that which is beautiful.

The mathematician having bowed himself out of architectural creativity, with a modesty that will please those who still insist that such men are 'mere technicians,' an architect now leads him back into the centre of the stage as the master of a discipline essential to architecture.

The basis of this manoeuvre is not only that mathematics is part of the traditional equipment of the architect, but that aesthetics and other aspects of human psychology are no longer mysteries necessarily to be set up against 'cold, hard facts.' Insofar as ***psychological matters*** can be assigned ***numerical values***—and statistical techniques make it increasingly feasible to quantify them—they become susceptible to mathematical manipulation, and the paper which follows makes it clear that an increasing proportion of the most jealously-guarded 'professional secrets' of architecture are already quantifiable.

No longer can architects assume that only the basest material functions of architecture come within the purview of science. If the magic of Late Gothic is now susceptible to scientific analysis, as is suggested below, then a very large part of the psycho-physiological relationships between man and environment is likely to fall to the mathematician, not—as heretofore—the mystic.

2

vi

Richard Llewelyn-Davies

HUMAN SCIENCES

Architecture is like the Greek giant Antaeus, who drew fresh strength from the earth whenever he was knocked down, and was therefore difficult to kill. So architecture draws strength from the basic sources of human knowledge with which it renews close acquaintance periodically. Hercules killed Antaeus by lifting him off the ground and strangling him. The nineteenth century Beaux Arts theorists very nearly did this for architecture. Under their influence we were cut off from the ground for a dangerously long period, in the fallacious belief that architecture could exist isolated from the fundamental sciences and humanities. We regained contact with reality about 1920 (Vers une Architecture *was published in* 1923 *and the first Bauhaus opened in* 1919), *but we only got one foot on the ground. Roughly half the intellectual pabulum on which architecture feeds is concerned with the* means *of building—engineering and materials—and half with the* needs—*function and human requirements. With the former, the physical and engineering sciences, we are now in effective contact; with the latter, the biological and social sciences, we are still almost completely out of touch. This article attempts to map the area we still have to explore. Developing contact with those whose work is concerned with the human being as an individual and as a member of a group may be as revolutionary for the architecture of the next thirty years as contact with the engineers and physical scientists has been in the period since* 1920. ***R.Ll.D***

Individual

The sciences concerned with the individual are principally biological and psychological, and include physiology, psychology and psychiatry. Applied experimental psychology includes ergonomics (human engineering) and work study.

The most direct and practical examples of the impact of these sciences is on the physical environment created within buildings. We have seen, in the last few years, the development of control over heat, sound and light blocked by lack of research into the subjective reaction of human beings to the environment. In each case the objective approach from physical sciences gives us all the tools we need to measure temperatures, noise or light, and we know how to design to give stated conditions. But the question is: what should these conditions be? What do people want? What might they want under new conditions? Active research is in progress to answer these questions, research in which human subjects are exposed to experimental environments and their reactions

gauged by various techniques.[1] In sum, this work is developing a new sophistication in our knowledge of how buildings affect people.

At present the lighting work is perhaps the most interesting, as it already goes beyond providing a technical tool for the designer, and opens up a new vision.[2] It offers, to any architect who takes the trouble to master it, a new understanding of what light does. For example, Hopkinson's work helps to explain the astonishing impact of late Gothic, as in the Lady Chapel at Ely, which many architects have noticed without fully understanding. Our new understanding of light is already stimulating the appearance of new forms in architecture. The planning of new hospital buildings at Greenock and Belfast[3] and the roof shape of a new laboratory at Cambridge[4] are examples.

Light, colour and shape are interrelated and visual perception involves all of them. Research into perception psychology is active and exciting at the present time, and discoveries in this field may influence architecture profoundly. One of the better known studies is that of Ames at the Institute of Associated Research, New Haven, USA. Perhaps because Ames used full-size model rooms of distorted shape in his experiments, his work has already attracted the attention of architects, although in fact they are of less immediate impact on our work than much other research in perception. His experiments, which are discussed in a paper by Ittelson and Kirkpatrick,[5] point to the important, if disturbing conclusion that what we 'see' is not directly related to the actual shape and colour presented to us, but is a construction of our own, based on what our mind 'bets' as to the probable meaning of our perception. For example, when observers looked into his distorted room they found it easier to see the room as having parallel walls, floors and ceilings, even when this involved seeing a giant standing at one side and a dwarf at the other. From our point of view the significance of this is that human beings inject an element of stored visual experience into the act of seeing, which is not therefore directly controlled by a new visual experience. However there are many other studies in this field, including some by Ames, which come nearer to the immediate problems of design. This is particularly true of studies in colour and shape perception, several of which are reported by Beardslee and Wertheimer.[6]

An interesting angle on these questions, as yet little explored, arises from psychiatry. It seems that a major symptom in some forms of acute psychosis is a loss of comprehension of space. The patient may revert to a condition similar to that of a newborn baby—he is unable to perceive space. During treatment he may gradually recover his powers of perception, stage by stage. The importance of this phenomenon in the design of psychiatric hospitals has been recently pointed out.[7] It is apparent that the architecture of the hospital may profoundly affect the patient's treatment, and perhaps even his chance of recovery, and it is almost certain that most of our existing mental hospitals present positive obstacles to effective care. Further psychiatric research in this area may have important by-products for architecture in general, and architecture may have something to contribute to psychiatry. 'It has been found repeatedly in science that the discovery that two branches are related leads to each branch helping in the development of the other.'[8]

social

The social sciences are concerned with the behaviour patterns of groups of people. They include anthropology, sociology, and social psychology, and in their more applied forms range through social psychology and group dynamics to operational research. These are mostly young disciplines, and they are vigorous and active. Their relation to architecture is obvious; they provide us with an understanding of what people need in buildings. They offer the hope that we may break through the rigid, nineteenth-century convention of the architects 'programme' and get back to a broader, more imaginative comprehension of our task, a comprehension which we can hope to share with our clients.

Already several multi-disciplinary teams, including architects and social scientists are at work. Study has been focused on practical problems in fields such as housing (the work in the early thirties of the Swedish Co-operative Society team is particularly interesting) or hospitals,[9] and has been mostly at the applied end of the spectrum, employing the methods of operational research, counting and measuring human activities and applying statistical analysis. Examples include work on hospital outpatient departments[9] which applied the mathematical theory of queues,[10] and a recent study of scientists' work in laboratories by the technique of random survey.[11] We are beginning to explore the more difficult, but fascinating field of what people think about the buildings we provide for them. A recent study records the judgments of a group of people on whether a room is spacious or the reverse, and attempts, by regression analysis, to establish a connection between subjective judgment and objective factors such as free floor area, ceiling height, room shape and so on.[12]

Conclusions of more general significance have resulted from work undertaken without a direct architectural objective. Group dynamics, in particular, is building up a picture of the functioning of human groups, which will affect room shape, room size and general planning.[13] For example we now know a good deal about the optimum size of groups for various purposes, and we know that a meeting around a long narrow table will be very different to one held around a circular one.* But traffic between architecture and the social sciences is not all one way. One of the most important variables in the study of human behaviour is the building envelope within which this behaviour is observed, and architects and architectural historians are needed to define and explain this factor. The long life of buildings, when compared with the life of human organization, makes their design a conditioning factor in many of our existing habits of living and of work. This sort of feed-back is apparent in a recent French sociological study of housing, which included a series of interviews with architects, who were asked to explain their approach to the design of housing.[14]

mathematics and architecture

Apart from the local and immediate impact of certain sciences on aspects of design, there is a much deeper, slower, effect due to the development of new ways of thinking. Architecture has always been dependent on the general technical and philosophic climate of its epoch, a climate most easily understood in terms of mathematical ideas. Wittkower and others have shown how directly the mathematics of the Renaissance reflected the ideas of that time, and it is no exaggeration to say that the basic form of much Renaissance architecture was inspired by a mathematical attitude. In our time we have seen new branches of mathematics develop of which the most important to us

* Sir Winston Churchill was using sound group dynamics when he argued that the new House of Commons should be too small to seat all the members, and should have no rostrum for speakers.

may be probability and cybernetics, and which are changing and enriching our ways of thinking in every field of human activity. Our architecture is influenced at an unconscious level by our ways of thinking: and beyond this the architecture of an epoch may express, in symbolic form, the most creative and dynamic ideas of the time. The new mathematics, developed as it partly is from the need to solve human and biological problems, problems of organized complexity, as Warren Weaver has called them, is worthy of great architecture.

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The sting of this paper is in its ***bibliography,*** a necessary minimum sampling from the more accessible parts of a body of knowledge that is unknown to architects as a profession, and directly feared by some of them as a threat to their creative architectural personality. That body of knowledge constitutes the beginning of ***the facts on environment,*** which as they accumulate may yet become an avalanche that could sweep away architecture as we know it now and leave in its place, precisely, that ***other architecture*** produced by the team-work of specialists in colour, heating, lighting, acoustics, market-research, group psychology—an architecture comparable to other aspects of creative technology—such as aircraft design or television—that are neither encumbered nor ennobled by a great tradition such as architects carry with them everywhere they go, and to every job they undertake. It seems to be no longer a question of whether architects *should* try to master this mass of information or not, but how much longer they can put it off—this week or the week after? Just what will happen to architecture and to architects when this happens is one of the subjects discussed in next month's ***1960*** paper.

ID

a monthly review of interior design

Among the persistent interests of that group of younger British architects who are sometimes grouped together as the harbingers of a Modern Vernacular in English domestic design (cf. AR, August, 1958, p. 219) is the use of plain planked timber, usually tongued-and-grooved boards, as one of the major visual elements in interiors. Increasingly this seems to stem from a fusion of the built-in furnishings with the interior structure, so that both vertical and horizontal space-divisions, between floor and floor, room and room or even cupboard and cupboard, tend to become an independent wooden structure dropped into the main brick frame of the house. The result of this structural and visual homogeneity of the interior, coupled with the usually ingenious use of rather constricted spaces, is something of a ships-cabin-aesthetic, though the resemblance to classic ship interiors stems from a similarity of problems and techniques of solution, rather than any attempt at stylistic imitation—indeed, one could wish that some British ship designers would take a leaf out of the sketch-books of these architects.

On the following pages are illustrated a small house that takes this trend about as far as it can go at present, and a conversion scheme by one of the offices that first pioneered this type of interior, although in this case the ingenious space-handling and bold use of wood has been applied to the individual pieces of furniture rather than the general interior structure which was not equally within the designers' control.

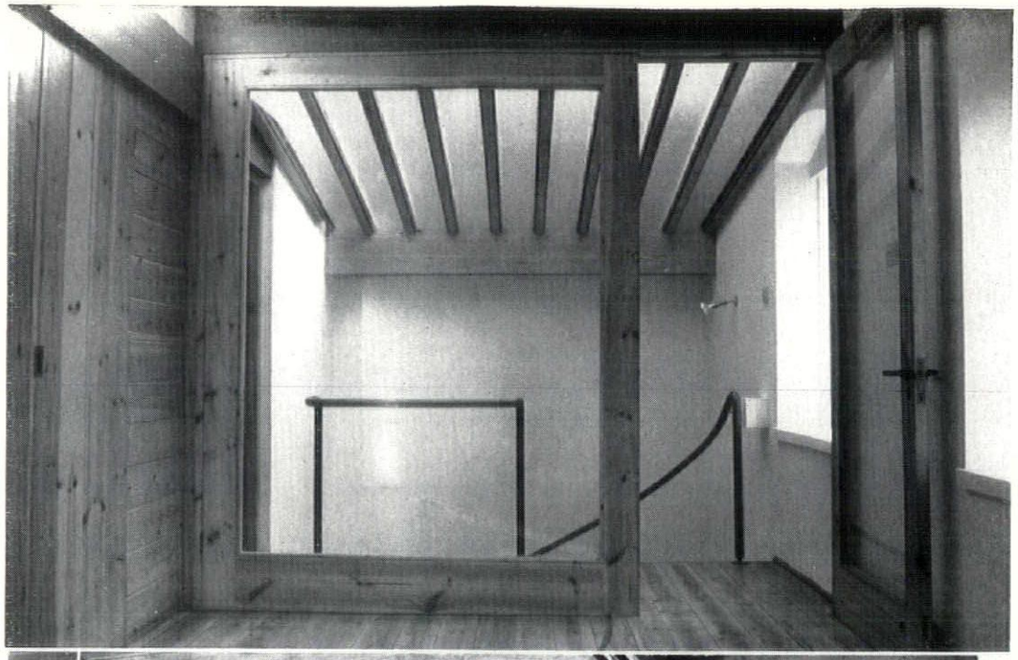


1

House in Kensington

architects: *James Stirling and James Gowan*

1, stairwell of the house in Kensington, looking upwards toward the glazed roof. The house is fitted into a very small site of difficult shape (see 6, page 193) and the two floors of living accommodation occupy most of the ground-space available, with the staircase jutting out into an adjoining area. In this view the edge of the first-floor landing marks the limit of the main site. Since the two floors are so small the maximum use has been made of transparent screens wherever feasible, to increase the sense of space, and the open, strongly top-lit stairwell gives a feeling of spatial connection between the two floors—dramatising a functional connection, since the front room of the upper floor can be opened up to serve as an extension of the lower floor when entertaining.



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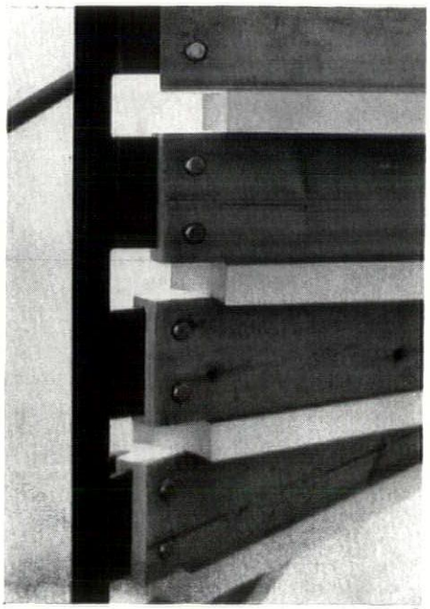

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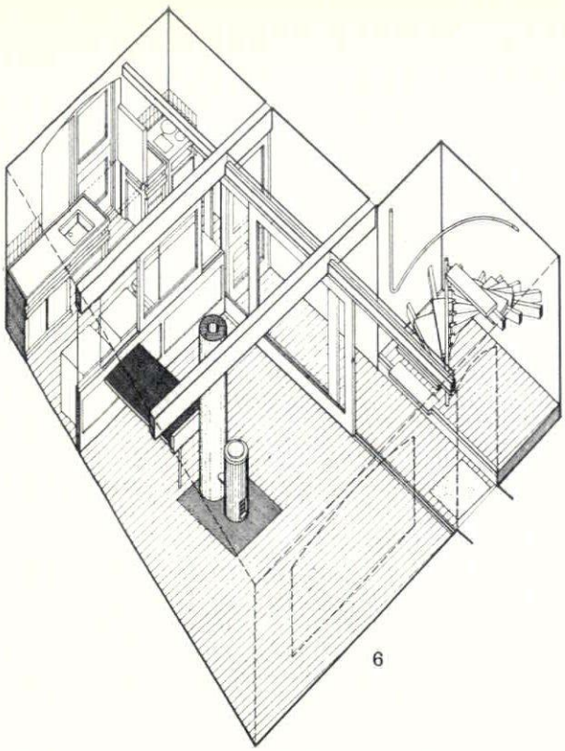
2, the upper landing and stairwell of the house in Kensington, seen from the upstairs front room. The extreme simplicity of the basic elements is summed up here by the plain rendered and painted inner faces of the exterior walls, the waxed soft-wood floor and sealed soft-wood boarded interior walls with their ' secret ' doors, black painted tubular hand-rails and the two glass doors which can be folded right back to open up the landing into the room.

3, detail of staircase; timber risers are secured to brackets projecting from the central tube (see also 1, on previous page) by bolts capped over with furniture gliders, and the soft-wood treads add up to an exact semi-circle in plan.

4, 5, two views of the ground floor from the front of the house—in 4, looking down the corridor from the street entrance, with the stairwell on the right ; in 5, from a point inside the front room itself. Corridor and room are divided by floor-to-ceiling glass screens that can be slid back to open up the whole of the down-stairs front of the house. Further glass panels, above servery and work-top level, divide the front room from the kitchen, and when these are closed they help to generate a play of reflections that lighten and brighten what would otherwise have to be a rather tunnel-like interior. At the back of the free-standing stove-and-chimney complex is the end support for the dining-table—even when this is flapped up out of the way, against the kitchen screens, the support serves as a barricade to ward the occupants off the hot chimney.



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7



8

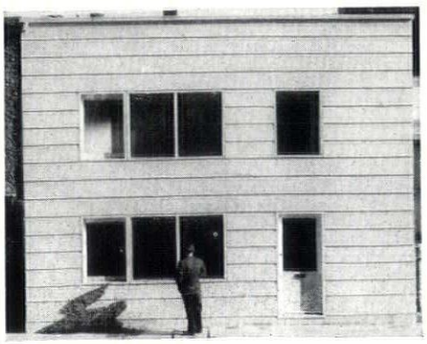
6, axonometric view of the ground floor and the main timber structure, including the two 12in. by 6in. pine binder-beams that support the upper floor and provide the nucleus of the whole interior construction—two similar binders carry the roof.

7, detail of the junction of the rear binder, runner beam for sliding screens and the jamb of the kitchen door. In fact, these separate wooden elements do not join but pass across one another, each preserving its identity as a structural element.

8, glass screen and corridor door at landing level ; in the corridor leading to the back bedroom the ' secret ' door to the bathroom has been left open, indicating the presence of a central, top-lit wooden box of cupboards, service-spaces and so forth, occupying most of the volume between the two sets of transverse binder-beams.

9, the road front of the house, showing the distribution of the windows—the stairwell lies entirely to the right of the door and the window above it. The precise shape and distribution of the windows and the ' rusticated ' walling were conditions of the brief and outside the architects' control.

9





1

Conversion in Fitzjohn's Avenue, Hampstead

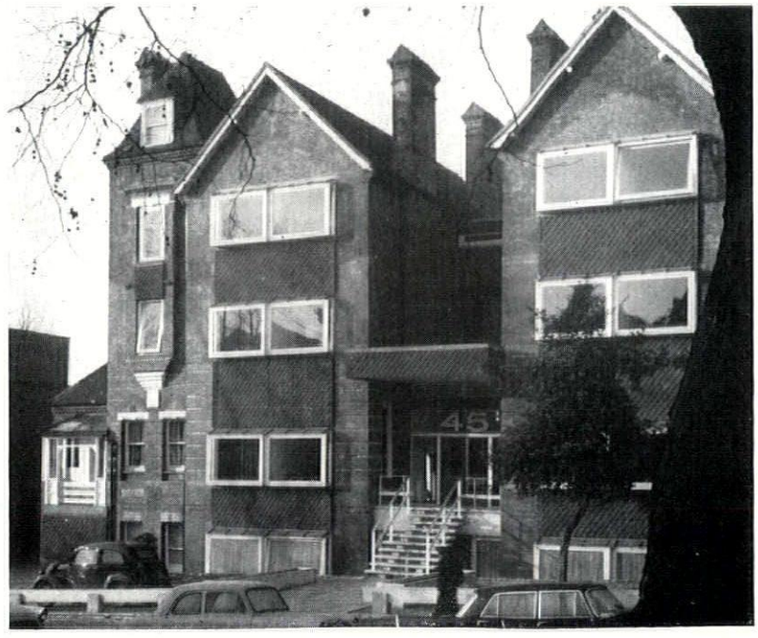
architects: *Howell, Killick and Partridge*

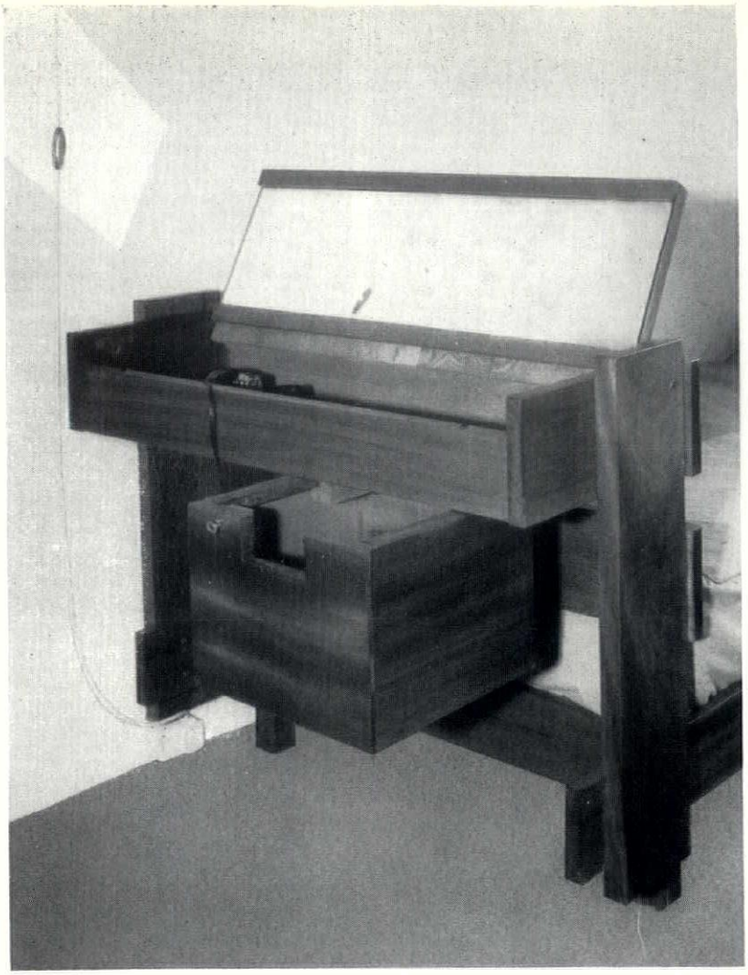
Described as a 'Do it yourself hotel' this conversion involved the gutting and remaking of two adjoining Victorian houses as a group of one-room flats with extensive communal services and facilities.

1, one of the thirty-two standard bed-sitting-rooms that make up the bulk of the accommodation. All the furniture is purpose designed and built in the contractor's own workshops. This view shows the main part of the room, the rest of which forms a miniature kitchen space and an entrance corridor, separated by a wardrobe-storage unit—see plan and 5 opposite.

2, the exterior shows how the conversion has been fitted in to the existing structure. The entrances from the outer porches have been stopped off (the porches becoming balconies for the two-room flats at ground-floor

2





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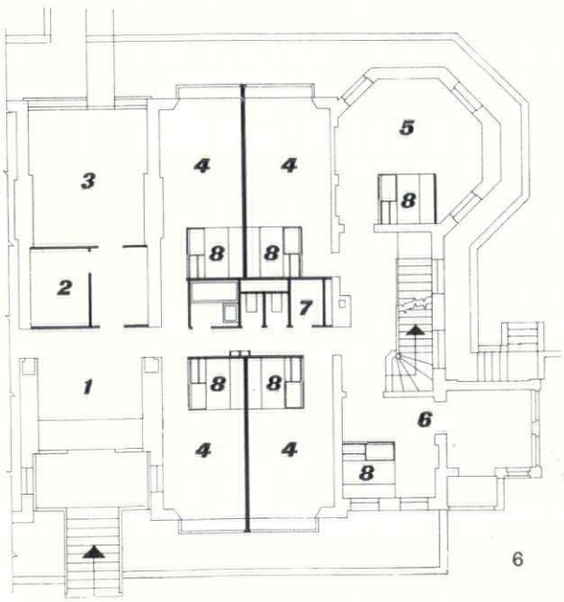
level) and a new entrance hall and other rooms created in what was originally a gap between the two houses. In the main bay of each house, a double-window indicates the presence of two rooms fitted between the structural walls of the old house, while the tile hanging serves to regularise the consequences of dropping the ceilings (which was visually necessary) without varying the positions of the floors.



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3, the construction on the end of the bed (see 1, opposite) opens up to form a small dressing table, with a mirror in the lid, and a deep drawer beneath. Although well away from its traditional English location blocking the light from the window, the table is not ill-lit, as will be seen from the switched cable and reflection on the wall, and is, in any case, handily placed for the wardrobe fitment, whose extreme edge may be seen in 1 also.

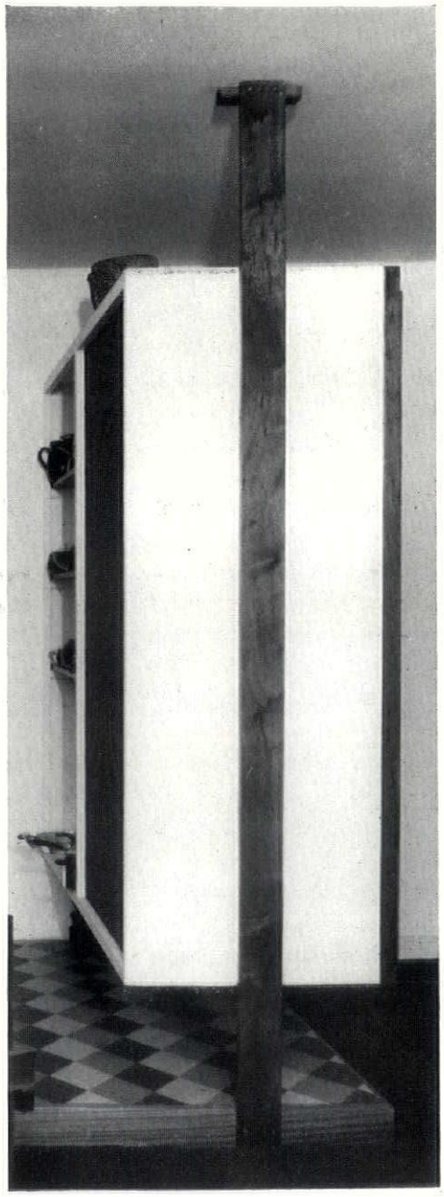
4, small chair, with seat-cushion removed. The structural principle employed here, with the wooden members passing over one another without interpenetrating is the standard constructional method for all the purpose built furniture the architects have designed for this scheme, and is, of course, directly comparable in method, if not effect, with the structural woodwork of the house in Kensington illustrated on the immediately preceding pages.

5, the wardrobe/storage unit and a corner of the kitchen dais. The elevation of this part of the room's floor by some three inches and the use of patterned lino instead of plain carpet makes a sufficient distinction between the kitchen area and the rest of the room, while the carrying of the wardrobe unit on a floor-to-ceiling bracer is part of a general policy of carrying all built-in units clear of any existing cornices and skirtings. The tableware on the shelves was, like everything else not designed by the architects, of their selection.

6, ground floor plan; on other floors there can be no corner porch-flat (6) while on the third floor the turret room (5) has a small staircase to the room in the roof above, and thus becomes part of a two room, duplex apartment.



4

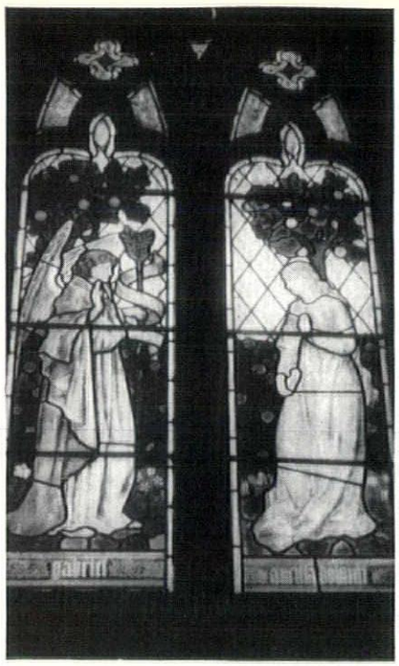


5

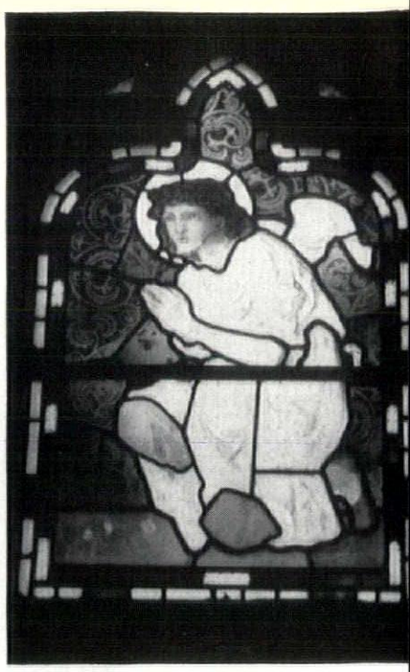
key to plan

1, entrance hall.
2, housekeeper's room.
3, garden room.
4, standard flats.
5, turret room.
6, porch flat.
7, baths, w.c.-s, etc
8, standard kitchen units.













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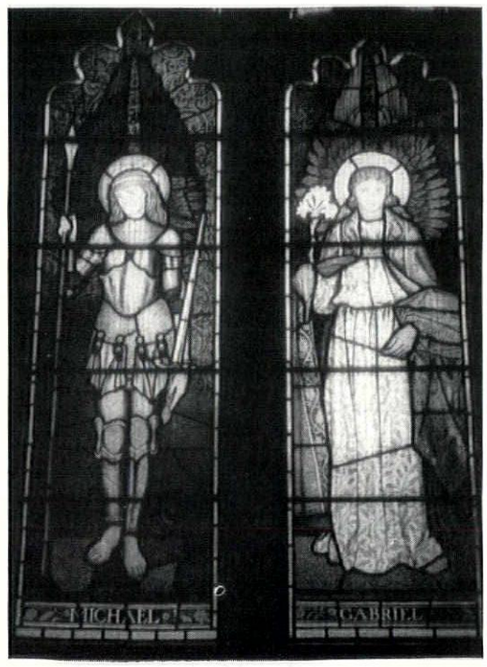
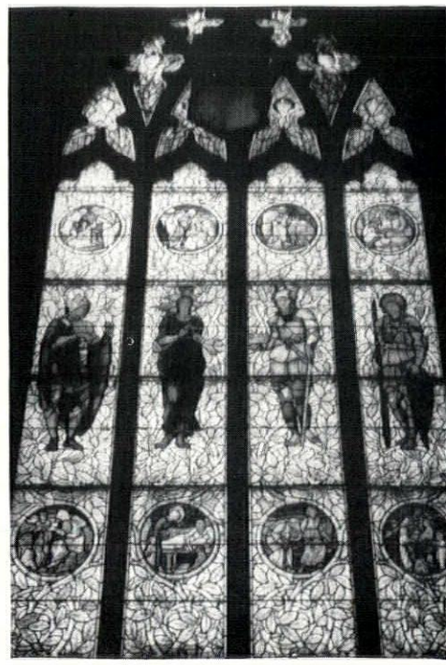
5|6
7|8|9

1, St. Matthew, in a window at Christchurch, Southgate, c. 1862–3; figure by Morris; canopy-work and the angel at the top by Philip Webb. 2, Annunciation window at Marple, Cheshire, c. 1873, with background in a style frequently used about that date, but rarely later. 3, minstrel angels at Tilehurst, near Reading, 1869, with background of wave- or shell-pattern and stars. 4, Daniel by Burne-Jones at St. Martin's, Scarborough, an early example of dark scrollwork background. 5, Samuel and Absalom, from a window of 1872 at Knotty Ash, Liverpool; figures by Burne-Jones; background by him or Morris, pointing the way to Morris's later scrolled foliage backgrounds. 6, St. Andrew, at Brown Edge, Staffs., 1874; background by Morris; figure from a cartoon by Ford Madox Brown. 7, St. Peter, by Burne-Jones, and St. Andrew, by Madox Brown in a window of 1874 at Alderley Edge, Cheshire; background (showing Celtic influence) probably by Morris. 8, the archangels Michael and Gabriel, from a window at King's Walden, Herts., c. 1869, designed by Morris. 9, west window at Gateacre, near Liverpool, 1883; backgrounds by Morris; figures and roundels by Burne-Jones.

Mr. Sewter, who is head of the History of Art Department in the University of Manchester, has been engaged for about four and a half years on a detailed investigation of the stained glass of William Morris and his associates. His survey of the material is still incomplete, but he has already seen a total of something like a thousand windows, in some four hundred buildings scattered all over Great Britain. He here draws some conclusions from this material.







A. C. SEWTER

WILLIAM MORRIS'S DESIGNS FOR STAINED GLASS



10, *Minstrel figure with mandolin: a stained-glass panel after a cartoon by William Morris, with a background of square quarries with stylized flowers—c.* 1872–4.

It is a surprising fact that, in spite of a pretty widespread acknowledgment that the stained glass made by the firm of Morris & Co. in the last four decades of the nineteenth century attained a higher level of quality than had been seen for three or four hundred years, no thorough and systematic examination of the material has ever been made. Thus a fundamental misconception about Morris's own share in stained glass production has remained in currency, even among scholars who have made detailed studies of other aspects of his astonishingly varied activities.

This misconception is primarily due to a passage in Mackail's *Life*, which runs as follows:

> 'He (i.e. Morris) seldom at any time, and never in more recent years, made complete designs for windows himself. From the first, the figure-subjects were mainly supplied by those of his colleagues who were professional painters. As time went on, they came almost exclusively from the studio of Burne-Jones, who supplied no cartoons for glass except to the firm (of Morris & Co.). But backgrounds and foliage were, as a rule, of Morris's designing, the animals and certain kinds of ornament being often drawn by Webb.'[1]

As a highly condensed summary of the practices of some thirty-five years of production from Morris's stained glass workshops, this was fair enough. It is that single word 'seldom' to which too much force has been allowed. Mackail's statement would hardly lead one to expect what other evidence conclusively demonstrates; and it is not surprising that a general impression prevails that Morris's work as a figure designer was confined almost exclusively to his contributions to the Oxford Union 'frescoes,' the angels on the ceiling of Jesus College Chapel, one or two cartoons for embroidery, a few painted panels on furniture, and one oil-painting.

Figure Cartoons

In various museums, however, there are a number of figure cartoons for stained glass, attributed to Morris on the basis of information deriving from excellent sources. To quote but a single instance, the cartoon for an Ascension of c. 1861 at All Saints' church, Selsley, Glos., in the City of Birmingham Art Gallery (534'04), was presented by C. Fairfax Murray in 1904; and there are others in the Tate Gallery, in the William Morris Gallery at Walthamstow, and elsewhere. These attributions are entirely borne out by the style of the designs themselves, which is recognizably different from the work of D. G. Rossetti, Burne-Jones, Ford Madox Brown and the other artists who designed glass for the firm during Morris's lifetime.[2]

Even this evidence, however, hardly prepares one for the surprise that must result from a study of some MS volumes of notes and indexes, and annotated volumes of photographs compiled by the late H. C. Marillier, last managing director of the firm of Morris & Co., which now belong to the City of Birmingham Art Gallery.[3] One of these (604'40-D), an alphabetical index of stained glass cartoons by subjects, gives the clearest indication of the position. It attributes to Morris himself no fewer than 129 cartoons, not counting a few which, on the evidence of Philip Webb's account-book with the firm for the years 1861 to 1876,[4] were in fact by him. A large proportion of this very considerable number consists, it is true, of small minstrel angels for tracery lights, but there is also a considerable number of designs for large figures, including for example a St. Catherine, a St. Cecilia, a Jacob, St. James the Greater, a Joseph, St. Luke, Martha, several St. Mary Magdalens, two Ruths, St. Thomas, Zacharias, etc., as well as a number of compositions of several figures, such as The Annunciation, The Marriage at Cana, the Last Supper, St. Paul Preaching, the Presentation in the Temple, and several scenes from the set of designs illustrating the story of Tristram and Yseult done for Harden Hall, Bingley, and now in the Cartwright Memorial Hall, Bradford. On the basis of these secure attributions, some dozens more may quite confidently be ascribed to him also, bringing the total up to something in the region of 150 designs. This certainly throws a totally new light on Morris's activity as a figure artist. There is, moreover, still every reason to attribute to him most of the designs for background quarries used in the windows,[5] as well as the foliage and other patterns often used in backgrounds.

Webb's Contributions

On the other hand, credit for the general arrangement of a great many window schemes must be taken away from Morris and given to Webb. It has generally been concluded from the passages in Mackail's *Life* immediately preceding and following that quoted above, that the layout as well as the colouring of a window were due to Morris. Webb's account-book entries, however, are specific on this point in a number of instances: for example the very first entry in the book (undated but presumably 1861): 'Glass (stained) for King's Stanley Church, Designs for.[6] Scale-drawing of arrangement of nave windows with scheme for whole church . . . £3.' Similarly in the cases of St. Martin's, Scarborough, Christ Church, Southgate, Dedworth Parish Church, etc. It was plainly Webb who worked out the general scheme.

It is also possible to define precisely the 'certain kinds of ornament' which Mackail mentions

[1] J. W. Mackail, *The Life of William Morris*, Pocket Edition, 1912, Vol. 2, p. 44.

[2] The others were Philip Webb, Simeon Solomon, Arthur Hughes and Val Prinsep, with the possible addition of C. J. Faulkner, P. P. Marshall and George Campfield, the foreman painter.

[3] I am greatly indebted to the Director of the Birmingham Gallery for according me special facilities for the study of these important documents.

[4] Now in the possession of Mr. John Brandon-Jones, who very kindly allowed me to use it; a transcript of it by J. R. Holliday is in the library of the Birmingham City Art Gallery.

[5] Only 8 or 9 of the many quarries used can be shown from the account-book to have been designed by Webb; and there is no evidence, so far as I am aware, that Rossetti, Madox Brown or Burne-Jones designed any.

[6] In fact for the church of All Saints, Selsley, newly built by Bodley to serve an area formerly in the parish of King's Stanley.

as 'being often drawn by Webb.' These were in fact of three kinds: firstly, the architectural canopies and pedestals, in a late Gothic manner, in which many of the figures of saints were placed in the firm's early windows, as for instance at Amington, Langton Green, Southgate, Camberwell, Haywards Heath, Cheddleton, etc.; secondly there was heraldic work and designs to be treated in a heraldic manner, as with Emblems of the Passion, banners of the Tribes of Israel, etc.; and thirdly, in Webb's own term 'pattern-work,' which was generally of an extremely bold and geometrical character. Excellent examples of this last can be seen at St. Edmund Hall Chapel, Oxford, at Cranborne, Berks, and in the little gallery windows at Kentish Town Parish Church, with four subjects in roundels by Burne-Jones.

All of this information helps to make clear what parts of the designs were Morris's own; they must include, besides the background features already mentioned, scrolls and inscriptions, borders,[7] and, most important of all, the colouring and the interpretation of the design, which Mackail emphatically states came under his personal direction. This amounts, it must be said, to a well-nigh incredible addition to the activities of a man whose life, quite apart from this field of work, was filled with a greater output than most busy artists could accomplish in twenty times as long. But with Morris normal measures of what is credible simply do not apply.

Morris's Backgrounds

Possibly the most interesting aspect of all these contributions as designer to the stained glass studio of his firm is Morris's backgrounds, since these can be readily related to his work in other media (tapestry, printed fabrics, wallpapers, etc.), and because these backgrounds influenced in a fundamental way the whole style and appearance of the windows at different periods. The earliest Morris windows, in the years 1861–3, do not yet show any awareness of the possibilities of using backgrounds as a means of relating together the several lights of which most windows were composed; nor was there any sign of this conception of the function of backgrounds in Burne-Jones's designs, made by Powell's, for windows at Bradfield College and Waltham Abbey. The figure-subjects, as at Selsley for instance, were simply provided with a framing of borders running independently of the outlines of the lights, and contrasted with areas of pale, almost transparent quarries, or with Webb's bold geometrical pattern-work. In those instances where the subject consisted of a single figure, as in the four Archangels at the west end of St. Michael's, Brighton, the figures were designed in such a way as to fill the whole space, or else, as in the Adam and Eve at the west end of St. Martin's, Scarborough, they are again set as panels with a surround of quarries. Another type of solution to this problem was used in the case of the set of four Evangelists designed by Morris and Madox Brown in 1862 for Southgate, 1, where the greater part of the space between figure and border is occupied by a Gothic canopy designed by Webb. Amongst the earliest examples I know where the background begins to form an important ingredient in the total effect is the east window at Amington, made in 1864, where each of the three main subjects (Christ on the Cross, with the Virgin and St. John) is set against a pattern of tall straight pale-green palm leaves, which must have been designed by Morris. The device was used again at St. Michael Penkevil, two years later, and at Catton in Yorkshire, with slightly greater complexity; but it did not lead at once to the more elaborate foliage backgrounds that Morris was to use habitually later on. In many windows typical of the later 1860's and early 1870's the figures are set simply among quarries, as in the east window at Marple (1869–70), 2, or maybe with a rose-hedge background to the lower parts of the figures, and quarries above, as in the 1873 window over the sedilia in the same church. But within this phase there occur several examples of attempts to develop a richer texture in the quarries themselves, by setting them in herring-bone patterns, as at Edgehill, Liverpool (1873), or interspersed with diagonal bands of inscription, as at Beaudesert, Henley-in-Arden. And there are also one or two instances of the use of a sort of wave- or shell-pattern, in combination with scrolls (as in the Chancel south window at St. John's, Tuebrook, Liverpool, c. 1868), or with flaming stars (as at Tilehurst near Reading, 1869), 3.

That these last examples belong to a phase of conscious experimentation with background treatments is confirmed when we find the Melchisedek at Scarborough (1873) set against a kind of mosaic pattern spattered with dots; and in the Daniel window of the same year, next to him, we find an early example of the dark grounds covered with rather abstract scrollwork, 4, which continue to recur during the ensuing decades. Already by 1872 the very striking Absolom window at Knotty Ash, 5, had employed bold, large-scale and rather naturalistic tree-foliage (for which, however, Burne-Jones may have been responsible), while other bold experiments with scrolled and intertwined vines hold together the three-light east window at Brown Edge, Staffs, 6, of 1874, and the two-light window of the same date at St. Philip's, Alderley Edge, Cheshire, 7. The influence of Celtic art may certainly be detected in these.

From Scrollwork to Foliage

The variety of these background devices is, indeed, astonishing. As early as 1866, in the east window at Middleton Cheney, Morris had used a foliage background of oak, rose, pomegranate and apple, with fruits, in the narrow spaces between and around his figures, but kept the tone to a pale blue-green. In the extremely beautiful Archangels window at King's Walden, 8, of c. 1869, the background is still the rather abstract scrollwork patterning; and in the 1873 west windows at Speldhurst small trees in a rather stylized Gothic manner are set in a field of simple flat pattern. But by this time the naturalistic tendency had become dominant. Sometimes pale in colour and open in texture (as at Bramley near Leeds, 1875), sometimes rather dark in tone and densely packed, with no clear spaces between (as at Tadcaster, 1879), these naturalistic foliage grounds become typical of the later phases of Morris's windows; and the general tendency seems to have been for the paler, more open type with prominent stems running in long continuous curves, to give way, especially after about 1883, to the dense type, though there are exceptions.

Almost every one of these backgrounds—and there are hundreds of them—must have been individually and separately designed; if Morris undertook all this work personally, which is what the authorities lead us to believe, he must have been occupied for a major portion of his time on them. It is, in fact, impossible to conceive

[7] Borders used by the firm are, on the whole, the least interesting part of their stained glass. There is little, if any, evidence in them to suggest Morris's own hand, and they may quite possibly have been left to Campfield or other members of the studio to design, under Morris's direction.



11 (*left*), *The Ascension;* **12** (*right*), *St. Paul Preaching: cartoons by Morris for Selsley, Glos.*—1861. *In these early designs there is an obvious power of imagination, but an awkwardness due to his inexperience in drawing the human figure. There is a lack of form beneath the draperies.*

that Morris designed every one; no doubt the master-type, so to speak, was due to him personally, but the variations and adaptations of it must have been drawn by some assistant in the studio. In the same way, when we come across an exceptional background, like the draperies unevenly hung from rods over the heads of the figures in the St. Nicholas window of 1882 at Welton, Yorkshire, it is needless to assume that it was actually designed, rather than perhaps suggested, by Morris himself.

In a number of the firm's later windows, these foliage backgrounds disappear, as an increasing use of architectural and landscape backgrounds develops in Burne-Jones's cartoons; and this tendency continues after the deaths of Morris and Burne-Jones, when Henry Dearle became chief designer to the stained glass workshop. In repetitions of many of Burne-Jones's figures their original backgrounds were replaced by landscapes.

In the words of Lewis F. Day, who knew Morris well, and who knew as much about ornament as anyone in his generation, Morris 'preferred pattern which did not hide its structure; much ingenuity, he thought, was wasted in masking the constructional lines of design, they gave largeness and nobility to it; and "the obvious presence of geometric order" prevented the effect of restlessness.'[8] This comment seems very relevant when we look at the splendid west window at Gateacre (1883), 9; but unless Morris's own views changed, the supplanting of this style by the dense, rich type of foliage with fruit and flowers should perhaps be attributed to other influences than his.



13, *The Presentation in the Temple, left panel: a cartoon by Morris for Bishop's Tachbrook, c.* 1863. *This is one of his most ambitious figure compositions.*

[8] *The Art of William Morris*, Easter Art Annual, 1899, p. 19.



14, *Angel of the Resurrection, a cartoon for 'The Three Maries at the Empty Sepulchre,' a window in St. Michael's, Brighton,* 1862. *The figure, and especially the draperies, have more grace than in the Selsley cartoons (facing page) but the angel does not rest very convincingly on the tomb and Morris evidently had difficulty in placing the lead-lines in the lower part.*

Improved Drawing

At any rate there can be no doubt that Morris's personal participation in the work of the stained glass studio declined very much after the first decade of production. So far as his designs of figures and figure-compositions are concerned, these apparently ceased altogether by about 1873, perhaps several years earlier; and the vast majority of them belong to the first phase of production from 1861 to 1868, though repetitions of some continued to be produced long afterwards.

The early cartoons reveal clearly enough both the quality of his pictorial imagination and his lack of experience and facility in drawing the human figure. The Selsley *Ascension* cartoon at Birmingham (534'04), 11, or the *St. Paul Preaching*, for the same church, 12 (Walthamstow A24), both of which were done in 1861, are characteristic. The scenes are vivid and expressive, but the draperies are awkward and the forms of the figures beneath them are in places hardly considered. Morris rapidly improved in his ability to design draperies, and by the date of the Minstrel Figures, 10, of which there are a small series at the Victoria and Albert Museum (designed c. 1867, made c. 1872-4), his figures had acquired a more relaxed and easy posture; but always in his figure designs Morris tended to use draperies as a means of avoiding the drawing of the figure. It is significant that whereas Burne-Jones nearly always made nude studies for his figures before draping them, no nude studies by Morris are known.

The most elaborate and ambitious of Morris's figure compositions is the *Presentation in the Temple*, 13, in two separate panels, designed for Bishop's Tachbrook about 1863, and repeated on a smaller scale later elsewhere. The cartoons are at Walthamstow (A13-14). One cannot help noticing that although there are altogether



15, *The Virgin Mary, a variant version of a figure in 'The Three Maries' at Brighton (see above). It shows the advance in Morris's power of designing draperies.*

nine figures, only eight hands between the lot of them are actually revealed. Another two-panel design, *The Three Maries at the Empty Sepulchre* for St. Michael's, Brighton, 1862, of which the cartoon for the left panel, 14, is in the Tate Gallery (5223), still shows some awkwardness in the placing of the lead-lines and in the uncertain relationship of the Angel's figure to the tomb on which he supposedly sits, but the draperies are certainly more graceful; and the variant cartoon of the Virgin from the right-hand panel, 15, which is at Walthamstow (A42), marks a very great improvement in his control of drapery forms and rhythms.

Morris and Burne-Jones

None of Morris's figures ever proved so popular with the firm's clients as certain of Burne-Jones's, which were used over thirty times. Apart from small angels and minstrel figures, the most popular of Morris's single figures was a St. Peter, done in the first place for All Saints, Cambridge, and repeated at least ten times elsewhere. This may be significant, for all his figures have certain qualities of strength, weight, and stiff dignity, appropriate in this particular subject, which distinguished them from Madox Brown's more dramatic and Burne-Jones's more elegant designs. Had he continued to design figures, however, very likely Morris would have steadily acquired a more easy and graceful style. In any case, in a window like that representing St. Mary Magdalen, Martha and a Minstrel Angel in the tracery, at Edgmond, Shropshire, 1876, his designs are capable of a not unfavourable comparison with Burne-Jones's figures of about the same date.

Nevertheless, it would be impossible for the most ardent of Morris's admirers to claim that he brought to the designing of figures any gifts which his colleague and friend did not possess more abundantly, and it was presumably the realization of this fact, as much as the pressure of other interests, which induced him to give up designing figures for stained glass. His close familiarity with the processes of the workshop, however, as well as his genius for exploiting the technical possibilities of whatever medium he worked in, opened up for him new potentialities in pattern-work which could be applied to the enrichment of figures, whether his own or those of others.

Yellow Stain

The technical aspects of Morris glass require closer study than I have been able to give them as yet, but it is clear that he gave particular attention to the use of yellow stain. He used it to tremendous effect, not only as a major element in colour-schemes, for draperies, hair and other details of figures, but especially for rendering on glass an equivalent of embroidered and damask designs on costume. Many of Morris's own later figure-cartoons show draperies very broadly and simply designed, so as to provide ample fields for the use of yellow-stain ornament, which told most effectively, of course, against a white ground, but was also used in combination with a variety of other colours. The *St. Cyprian* cartoon of 1864 for Bradford Parish Church (now Cathedral), 16, which is at Walthamstow (A15), is a good example. The Morris workshop, indeed, attained in time an unrivalled mastery in the use of this stain, and was able to produce a range of tints and tones of gold from the palest yellow to the most intense reddish bronze. It was only when experience with this technique had been acquired that some of the glories of the firm's output, like the Cheddleton Angels window of 1869, and the Baglan St. Cecilia window of 1880, could be produced. The window which perhaps shows most perfectly this minor-pattern aspect of Morris's glass is one which has been referred to already, namely the Archangels window at King's Walden, c. 1869, 8, where, incidentally, all the figures are from his designs also. The figures are covered from head to toe with intricate decorative ornament, and the backgrounds also; but so broad and simple are the main lines of the designs that there can be no question of over-ornamentation. This window is among the greatest successes in all modern stained glass; and the credit for it belongs almost entirely to Morris himself.



16, *St. Cyprian, a cartoon by Morris for Bradford Cathedral*, 1864. *The embroidered patterns were designed to be carried out in his famous yellow stain.*

MAISONETTES, CAMBERWELL, LONDON

ARCHITECT: F. O. HAYES (Borough Architect) Architect in charge: H. P. Trenton

Two fifteen-storey blocks, forming part of a large housing scheme known as Sceaux Gardens, which consists otherwise of six-storey maisonettes, six-storey flats and single-storey houses, together with shops, garages, etc. The various blocks are planned to enclose a number of spaces furnished with well grown trees. The fifteen-storey blocks illustrated here are parallel with one another, near the eastern and western boundaries of the site.

The maisonettes are of the interlocking type, reached by corridors on alternate floors. On the floors between, kitchens and living-rooms alternate along the building on both sides. They are separated only by a glazed screen.



1, *west side of one of the two fifteen-storey blocks of maisonettes on the Camberwell Borough Council's Sceaux Gardens site. The detached chimney, partly hidden by a tree, belongs to the boiler-house, occupying half the basement of the block, which serves the whole site.*



2

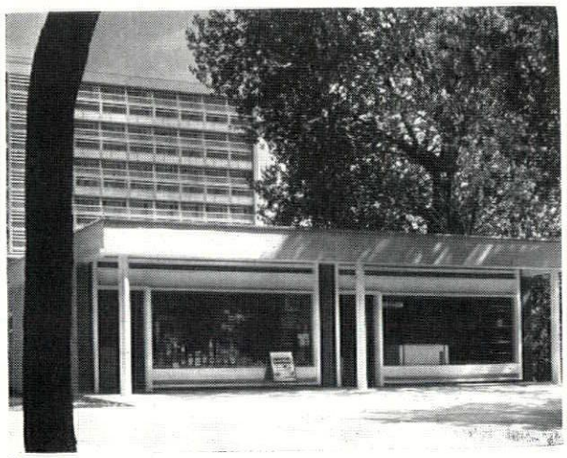
2 (left), view from one of the fifteen-storey blocks looking towards the other, with one-storey houses (still under construction) between. On the left, six-storey flats forming part of the same development. 3, a pair of shops facing the paved space in front of one of the fifteen-storey blocks, with the other seen in the background.

Maisonettes, Camberwell, London

Access is at the lower (bedroom-floor) level, from which internal stairs lead directly to the living-rooms. A central staircase and lifts serve the whole block.

The ground floors contain a laundry and, in one of the blocks, a boiler-house. The other block has stores on the ground floor and a mezzanine floor above left open as a play-deck.

Construction is reinforced concrete, with the flank walls faced with grey mosaic. On the ground floor the concrete is left untreated. Panels beneath the windows are glazed, with an aluminium-faced plaster-board backing. The boiler-house is enclosed by obscured glass.



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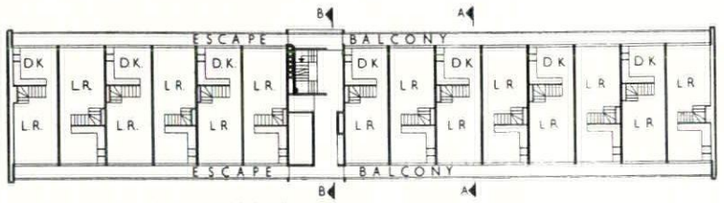
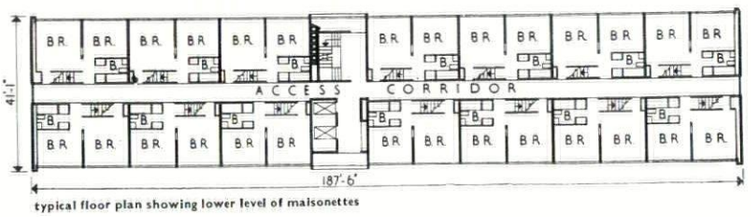
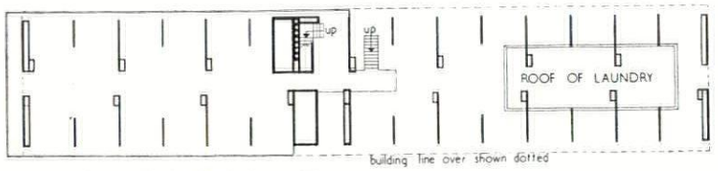


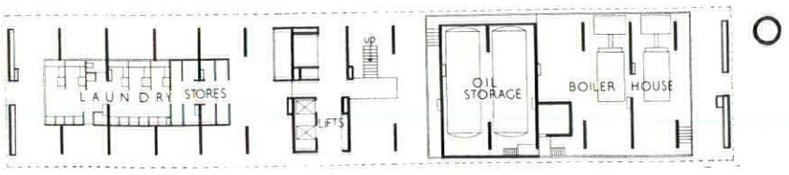
typical floor plan showing upper level of maisonettes



typical floor plan showing lower level of maisonettes



mezzanine of eastern block, with play-deck on left



ground floor plan of western block

HOSPITAL, ALDERNEY, CHANNEL ISLANDS

ARCHITECT: R. LLEWELYN DAVIES

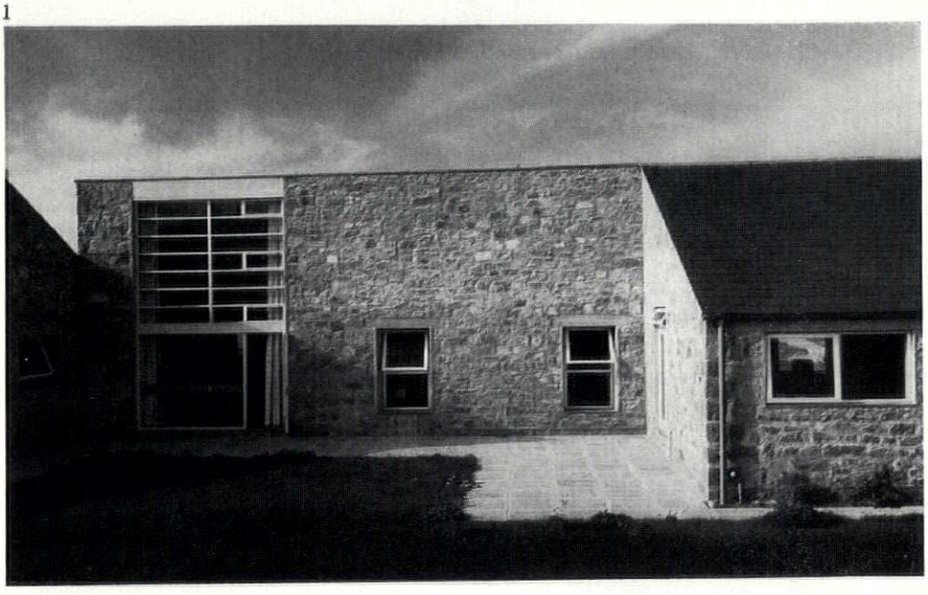


1

An eight-bed hospital, paid for out of funds made available to the Mignot Memorial Trust by the Nuffield Provincial Hospitals Trust. The site is extremely exposed and slopes upwards to the south. To the north there is an extensive view.

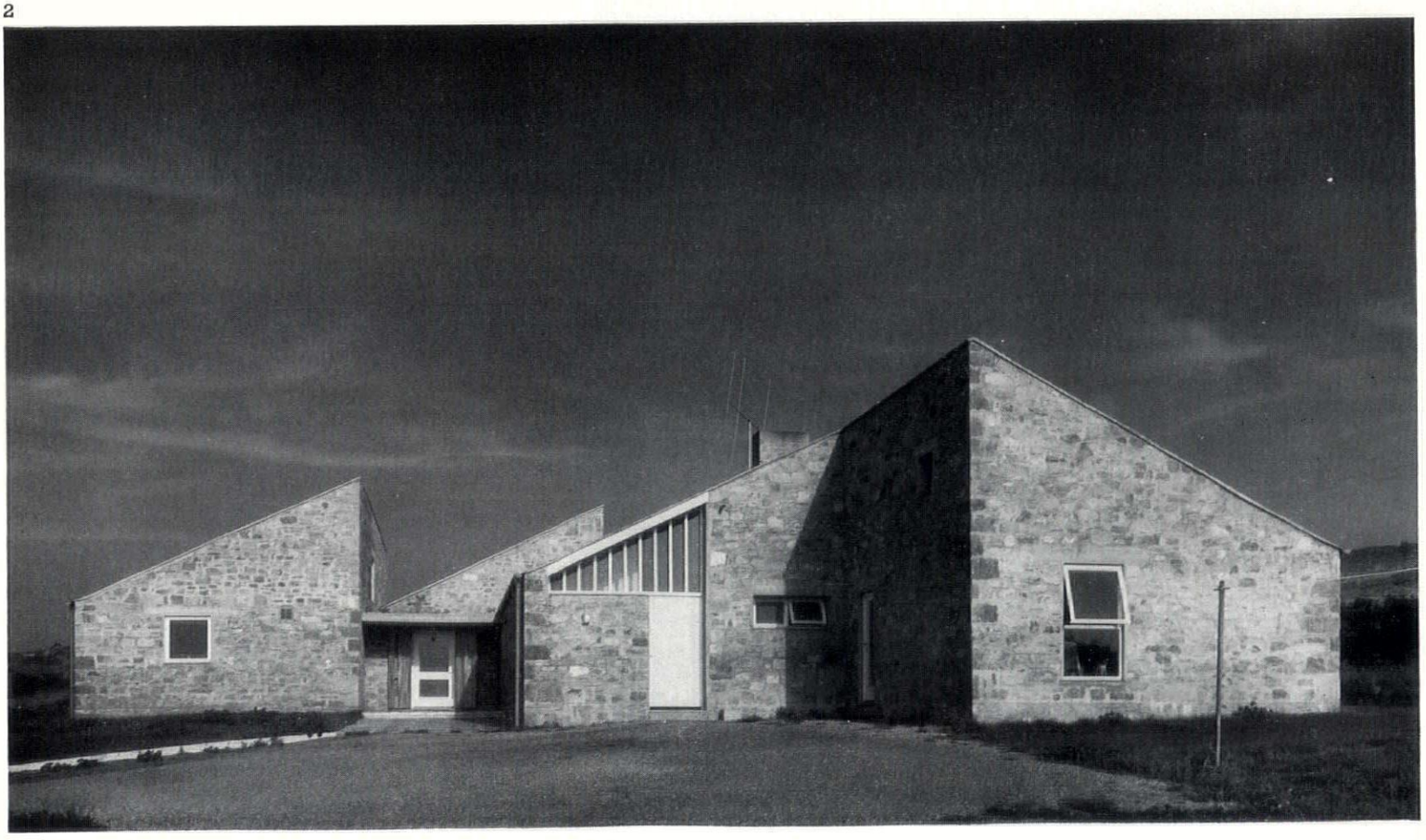
The eight beds are in two three-bed wards and two single-bed wards. There is a day space and the usual ward facilities. These are shared with a small out-patient department and there is also a combined operating theatre and delivery room. There is also staff accommodation for the matron and two nurses.

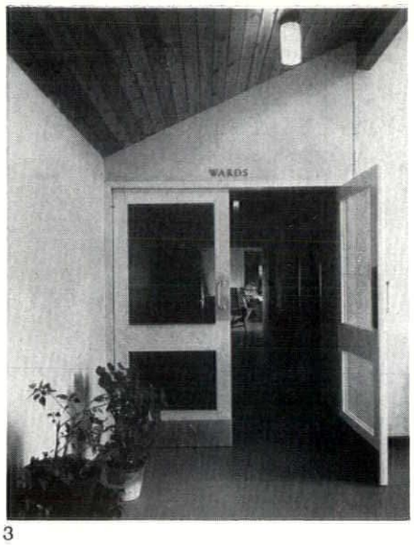
The hospital is built of local stone salvaged from a nearby derelict chapel. The external walls are of cavity construction, with an inner leaf of 3-in. locally produced concrete blocks. The roof is of slate and the larger rooms extend up into the roof space. The hospital is centrally heated from an oil-fired boiler.



1, *from the south, showing the large window lighting the waiting-space between the entrance and the wards.* 2, *from the west (the direction from which the hospital is approached). The staff quarters are on the right and the clinic and operating theatre on the left, with the recessed entrance between.*

2





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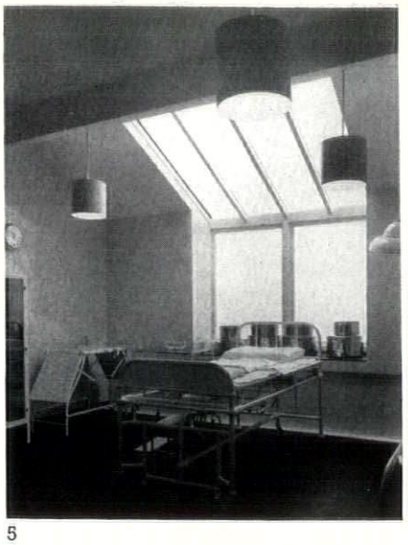
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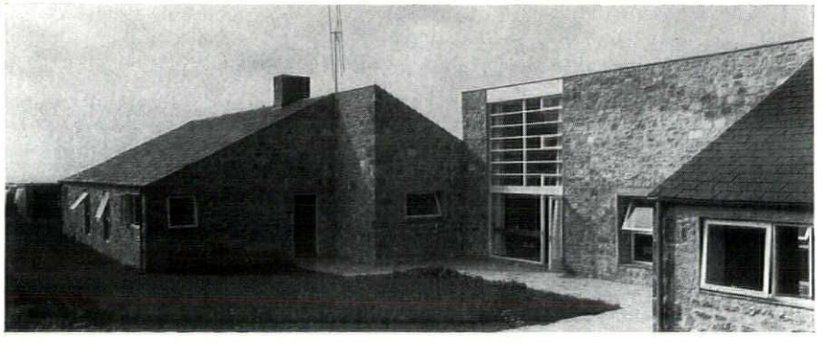
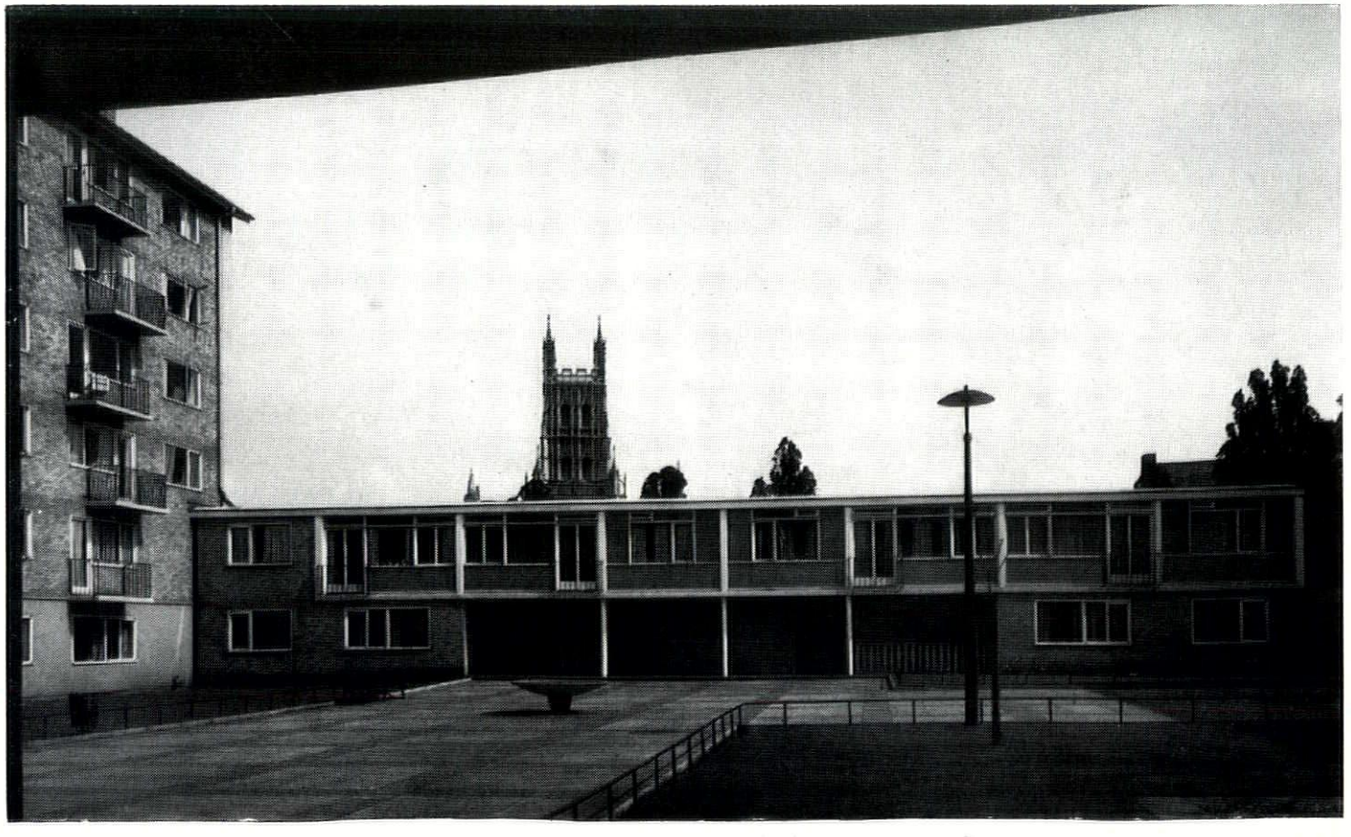


3, entrance to the ward area, showing ceiling following the slope of the roof. 4, waiting space at entrance to wards. 5, the operating theatre (also used as a delivery room). 6, the hospital from the south-east; staff wing on left. Walls are load-bearing. The outer leaf of the cavity wall is local stone; the inner leaf concrete blocks. Roofs are slate.

Hospital, Alderney, Channel Islands

FLATS AND MAISONETTES, GLOUCESTER

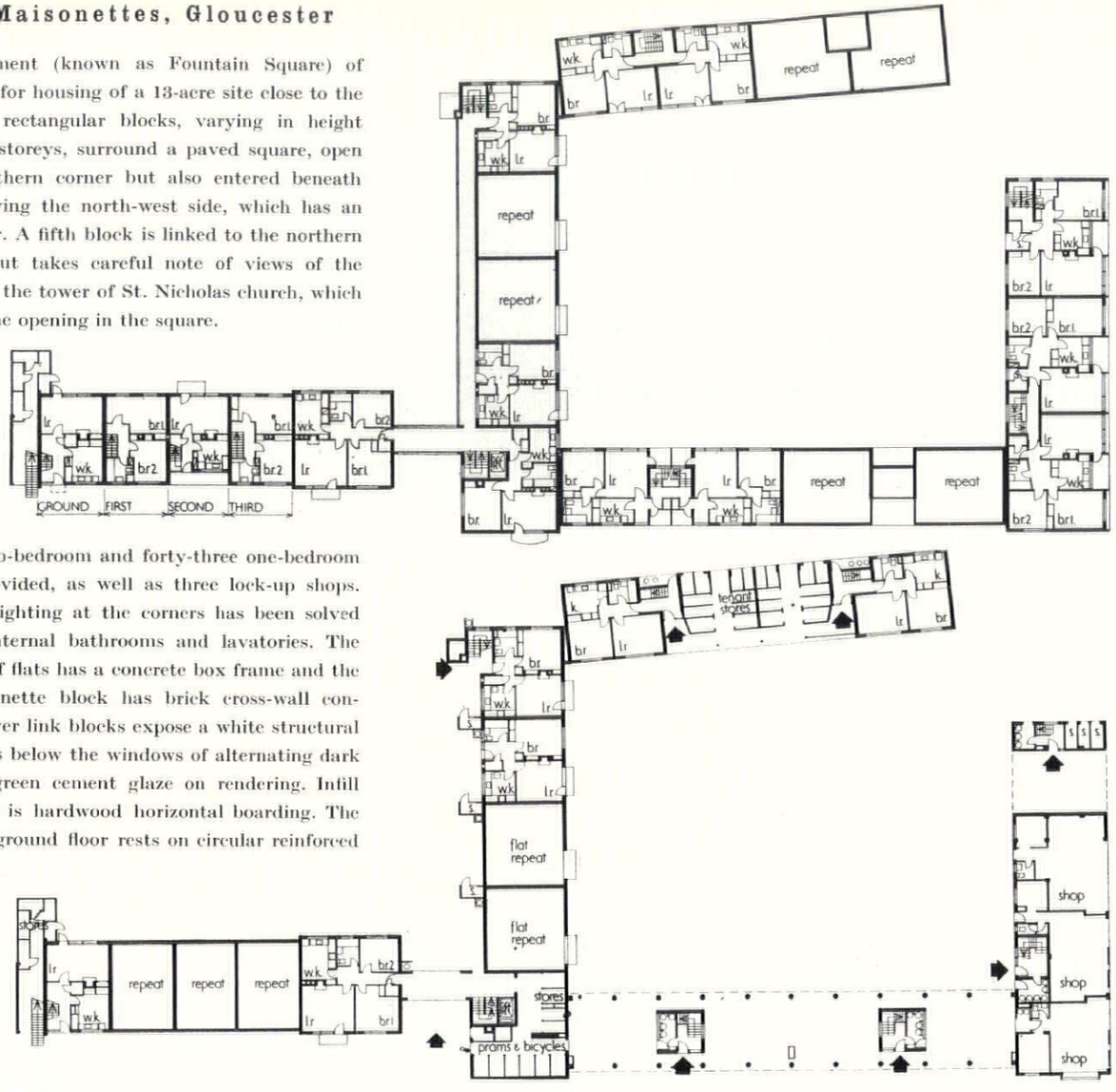
ARCHITECT: J. V. WALL (City Architect) Architect in charge: J. V. Ault



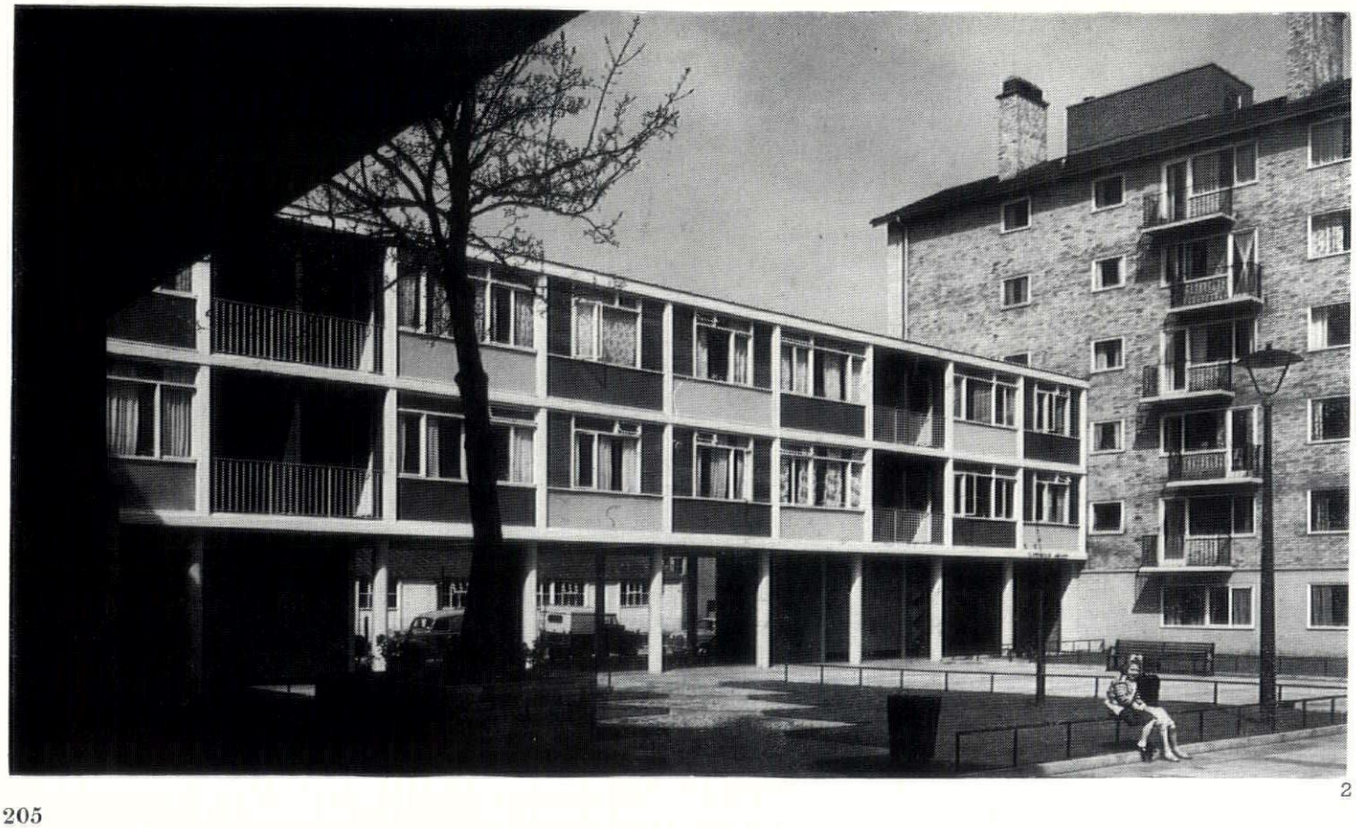
1 (right), from within Fountain Square, with the cathedral tower visible above the two-storey block.

Flats and Maisonettes, Gloucester

The first instalment (known as Fountain Square) of the development for housing of a 13-acre site close to the cathedral. Four rectangular blocks, varying in height from two to six storeys, surround a paved square, open only at the southern corner but also entered beneath the block occupying the north-west side, which has an open ground floor. A fifth block is linked to the northern corner. The layout takes careful note of views of the cathedral, and of the tower of St. Nicholas church, which is seen through the opening in the square.



Twenty-one two-bedroom and forty-three one-bedroom dwellings are provided, as well as three lock-up shops. The problem of lighting at the corners has been solved by the use of internal bathrooms and lavatories. The six-storey block of flats has a concrete box frame and the four-storey maisonette block has brick cross-wall construction. The lower link blocks expose a white structural frame with panels below the windows of alternating dark green and light green cement glaze on rendering. Infill between windows is hardwood horizontal boarding. The block with open ground floor rests on circular reinforced concrete columns.



2, the three-storey block raised on columns, linking the two high blocks.

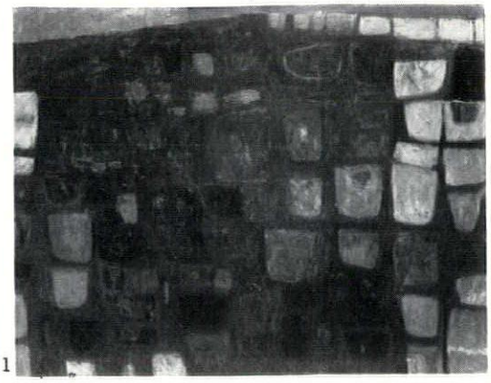
2

EXHIBITIONS

PAINTINGS and SCULPTURE

Prize-giving lends the John Moores Liverpool Exhibitions something of the solemnity of a cattle show. This is all to the good, and if members of the public could be admitted while the judges go about their highly specialized work they would soon realize that these art adjudicators are as knowledgeable in their way as the men in long white coats who tap the chests of bulls and stare thoughtfully at the underneaths of cows. Paintings and bulls which have been awarded prizes naturally tend to look fatter and sleeker than the others, but the public is not as obtuse as it's made out to be; it knows that there's more to a bull than its appearance, and only needs to see a few experts going over a painting—counting its colour values, testing for communication quality, measuring the depth of flat space and so on—to become a little less certain that the exhibits it likes best ought to be given the prizes.

At the first of the John Moores exhibitions, held in 1957, the realist painters who at that time were regular exhibitors at the Beaux Arts Gallery were represented in force; they dominated the show, and Smith and Bratby deservedly carried off the premier awards. Something similar has happened at the second exhibition. But between the two shows, the Beaux Arts team disintegrated, and the painters represented in force at the second exhibition were the Cornish abstractionists who regularly exhibit at the Waddington Galleries. The premier award of £1,000 went to Patrick Heron; a smaller prize went to Roger Hilton, and Terry Frost's exhibit was bought by the Walker Art Gallery, where the exhibitions are held. The £500 prize for painting was awarded to William Scott, who exhibits at the Hanover Gallery, and the £400 prize to Peter Lanyon, who is one of Gimpel's men, but both of them are allies of the Waddington group. Lanyon is a Cornish abstractionist and Scott likes to think of himself as belonging to the 'West Country School.' 'I call it "West Country School",' he recently explained to a correspondent of *The Times*, 'to include me, as a painter in Somerset, with those of St. Ives who since Ben Nicholson worked there have become a group to be reckoned with.' So I think we can take it for granted that the outstanding successes of the Cornish abstractionists at Liverpool are due in no small measure to efficient organization. I took it as another sign of effective group intervention that a totally incoherent painting by the Cornish abstractionist Trevor Bell was one of the 113 open entries chosen for exhibition out of a total of 1,620 works submitted. It only remains to be said that the prize-winners I've mentioned painted some of the best pictures in the show. They're all drunk with the idea of painting about paint, and they paint very well. Scott's 'Blue Abstract,' 1, would probably be outstanding in any exhibition of contemporary art. The Heron, 2, although unbalanced in composition, is among his most notable works. The Lanyon, 3, is a typical example of his unremitting efforts to paint as if he were a rough sea, but Roger Hilton, pursuing too adeptly the role of roughneck aesthete, has finally produced in 'Yellow, April, 1959,' 4, a painting that can be called *chic*.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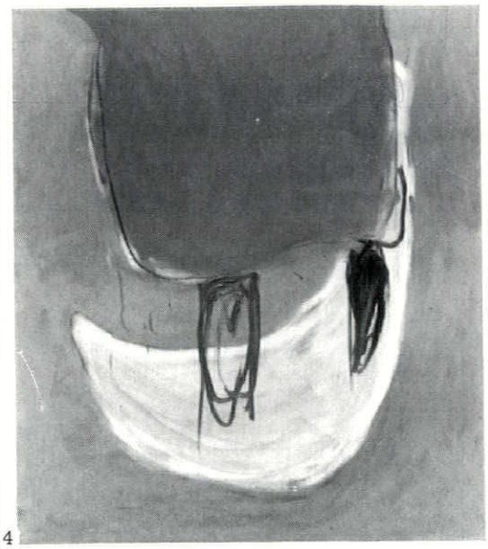
2


3

The first prize for sculpture was awarded to a lopsided egg with excrescences executed in unpolished aluminium by Hubert Dalwood, 5, and although I think that the lopsided egg with excrescences made by Paolozzi a few years ago is more lively and original, the Dalwood was undoubtedly the most pleasantly calligraphic piece on view.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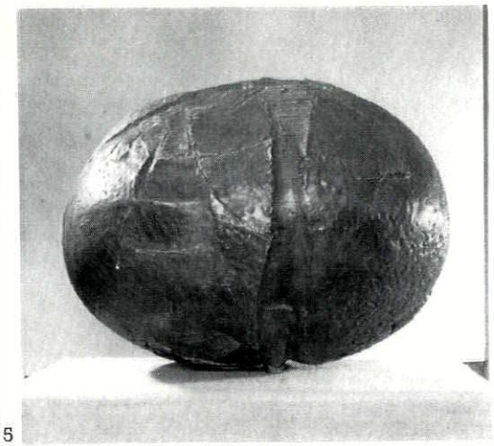
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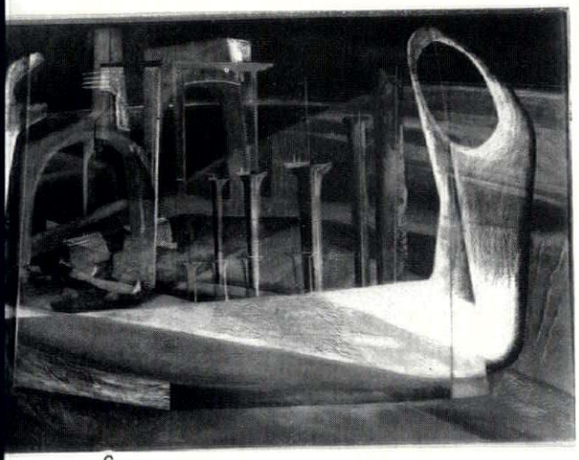
John Moores intends to make the competition a biennial event, and it will be particularly interesting to see what happens next time. The Wadd ngton group will probably become stronger still during the next two years, Beaux Arts policy may well be re-integrated around school of Bomberg, and there are indications that another London gallery is signing up a very strong team of painters and sculptors without invading either Waddington or Beaux Arts territory, and if it should become interested in the Liverpool enter-

prise the results could be very lively indeed, with sculpture playing as important a part as the painting.

An elegant new gallery, McRoberts and Tunnard in Curzon Street, has opened with an exhibition of paintings by John Tunnard, who is a cousin of one of the proprietors. Although this is Tunnard's first exhibition in London since 1942, his early work made a big enough impression to be included in important anthologies of contemporary British painting for several years after he stopped exhibiting. He, too, is a Cornish abstractionist, but not of the kind that figured so prominently at Liverpool. He owed something to Nicholson and something to Paul Nash, but invented a mechanistic imagery with surrealist overtones. In his latest work he has not attempted to bring his aesthetic up to date, but some of his pictures look 'modern' in the sense that they would be suitable for some of the high class advertising put out by the big electronics companies.

His painting of an abandoned Cornish tin mine, framed by an imaginary abstract fossil and backed by 'treacherous' space, 6, would be typical of his work if the apparatus were more a matter of trans-



6

parent screens and sensitive-looking wires.

The exhibition of Italian Paintings from British Collections at Burlington House is perhaps as much a triumph for English art historians as for Italian art. Galleries X and XI celebrate not only the Seicento but the enthusiasm, scholarship and brilliant finds of Denis Mahon, and the Central Hall is placed at the disposal of David Carritt's dazzling discovery of five large decorative paintings by Guardi.

The exhibition would appear to be dedicated to the notion that the twentieth century has taken a great leap forward in sensibility, and that the enlargement of the historical sense has banished period taste for ever. All periods and styles are now supposed to be of equal interest. It's a nice thought, and anyone who can honestly say that he finds the large, awful, neoclassical 'Nolime Tangere' by Mengs,



1

in Gallery VI, as interesting as, say, Tiepolo's rococo 'The Meeting of Anthony and Cleopatra,' in the Architectural Room, might conceivably claim to have greater 'awareness' than either Mengs or Tiepolo since they must have hated one anothers work: on the other hand it could be argued that such awareness is too passive to be of much consequence and that loving and hating might be more indicative of awareness than an evenly spread liking. In any case, I have a sneaking suspicion that we are expected to be extra sensitive when we reach Galleries X and XI, where the seventeenth-century paintings acquired by British collectors in recent years fill the air with histrionics. Serious and valuable researches as well as inflated value judgements are concomitants of this latest fashion in collecting, and it is to be hoped that some of the pictures—I have particularly in mind Guercino's 'The Mystic Marriage of St. Catherine,' which is a superbly efficient essay in sentimentality—will not be too drastically demoted when the revivalist fervour dies down.

Saraceni's 'The Spinario,' 7, lent by Benedict Nicolson, is in Gallery II instead of X or XI because it was brought to England in the seventeenth century. I reproduce this 'youth taking a thorn from his foot, done after the Antique' for mixed motives. In the first place, as a slight bow to the Seicento, secondly, because I am easily seduced by simple stereoscopic effects, but most of all because the youth has something of the same build as Caravaggio's magnificently impudent 'Nude Youth with a Ram'—one of the highlights of the Wildenstein exhibition 'Artists in 17th-Century Rome' which could be described as the first public announcement of England's re-discovery of the Seicento.

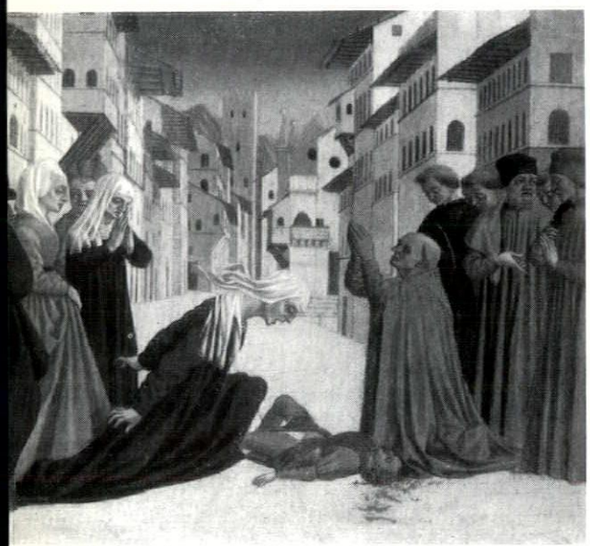
The Guardi decorations are based on some Piazzetta engravings of romantic episodes from Tasso's *Jerusalem Delivered*. In 'Carlo and Ubaldo resisting the enchantments of Armida's nymphs,' 8, the resistance is understandably slight, and not altogether out of touch with Tasso's poem, for Armida, the wizard king's niece, is, like her nymphs, charm itself, and when Rinaldo, prince of Este, goes to rescue all the Christian knights she holds prisoner, he settles down with her very happily in her enchanted garden until someone reminds him that he is supposed to be on a crusade. Each of the paintings is concerned in one way or another with the intervention of a beautiful maiden, and the paint acknowledges her presence with a rich, sensual tenderness.

The collecting of those thirteenth, fourteenth and fifteenth century Italian paintings known as 'primitives' did not begin seriously until the nineteenth century, but the wonderful group of works by such



3

masters as Martini, Lorenzetti and Giovanni di Paolo in Gallery IX testify to the enthusiasm and discernment of a very mixed collection of English collectors which included Liverpool business men and the son of a bookmaker of whom it was said that he 'must have read Vasari on the sly.' I reproduce, 9, one of the Venezianos from the Fitzwilliam, bought in Florence round about 1815 by Joseph Fuller of Chelsea. It depicts a miracle of St. Zenobius, who brought back to life a widow's son who had been trampled to death in the



9

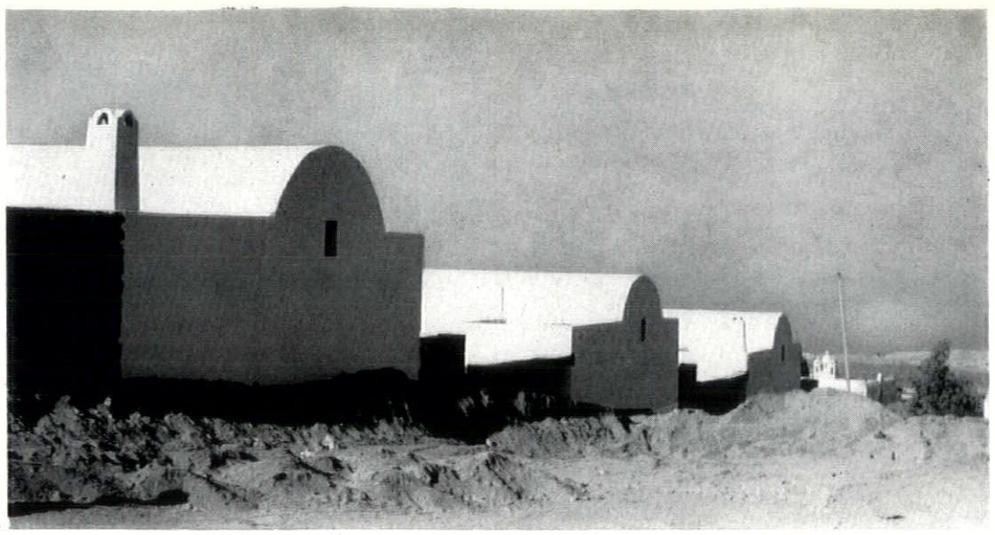
Borgo Albizzi. The despairing widow breaking out from the group of lamenting women is one of the most dramatic conceptions in the exhibition and the architectural background attaches the Borgo Albizzi to heaven. **Robert Melville**

FUNCTIONAL TRADITION

THE RESTORING HAND

The vernacular architecture of Santorin 'May survive the last wave of earthquakes but may not survive another,' said The Exploring Eye in AR, December, 1958, apprehending that conscious rebuilding with modern techniques might see the end of the local tradition. But the rebuilding of Santorin is now under way, 1, and the apprehensions of the Exploring Eye may be checked against the work of the restoring hand illustrated here from information supplied by Mr. S. Neufeld.

The reconstruction project is unusual in that, although it is sponsored by the Greek Ministry of Housing and Reconstruction, and backed up with military technical aid, the direction of the programme is in the charge of a group of architects, led by Constantine Decavalla.



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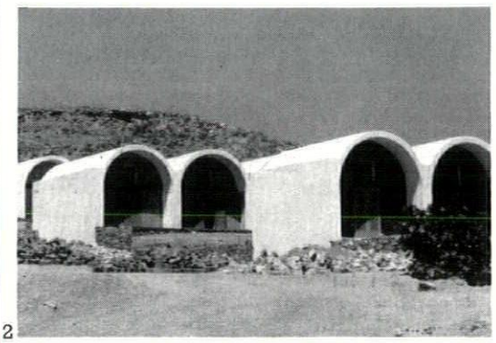

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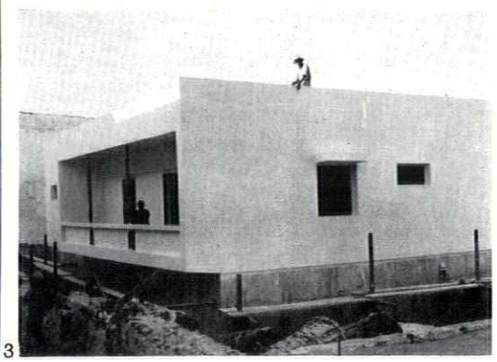

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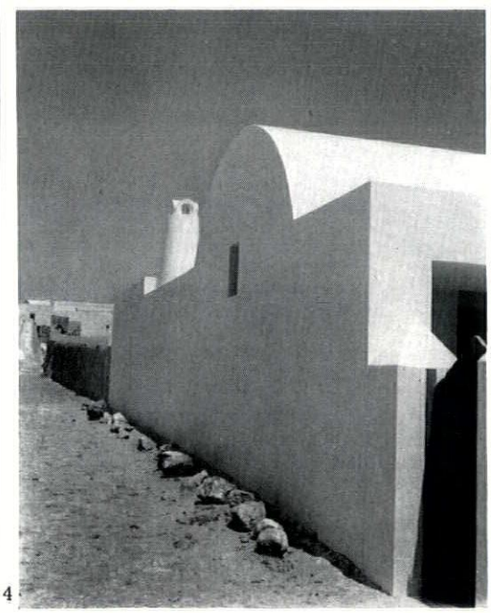
Constructionally, this team have opted for a variant of the local vernacular form of vaulting, 2, that generations of modern architects have admired but had no cause to build, although a more conventional modernism, with straight beams and flat roofs is seen in their works of privately sponsored reconstruction, 3. However, the vault-work does not follow tradition in methods and materials, and consists of thin concrete ribs with pumice-block infill, erected over de-mountable and re-usable shuttering, while the joinery-work was made in a central workshop and is largely standardized.

The forms, then, remain as they were, and the re-housed inhabitants have not undergone such a domestic architectural revolution as that of the people of Matera/La Martella, Lodovico Quaroni's celebrated UNRRA re-housing project in southern Italy (AR, August, 1958). But it is instructive to pursue the parallel with La Martella; in both cases the inhabitants have been moved from precipitous, densely packed and not-too-sanitary mediaeval quarters on to more level and less congested land, and there spread out only one dwelling deep—on Santorin this is a reasonable earthquake precaution.

1, shows the extreme simplicity and sculptural quality of Santorin houses, seen also in 4.
2, part of the resited and rebuilt village of Kamari on the south coast of the island. Note the use of earth colours to reduce glare in the patios.
3, an individual house, built for a private client in the old part of the town by the same group of architects.

In doing this, age-old patterns of sociability are broken up, but Quaroni and his team compensated by creating natural



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social foci, group-spaces, or call them what you like, around which sociable and family relationships could re-group. On Santorin, this does not seem to be the case—much of the housing appears to be laid out borough-engineer style, 5, and the only sociable group space appears to be in the walled back yards, 6, already occupied by such things as earth-closets.



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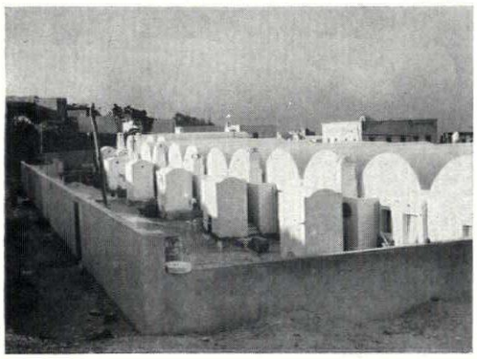

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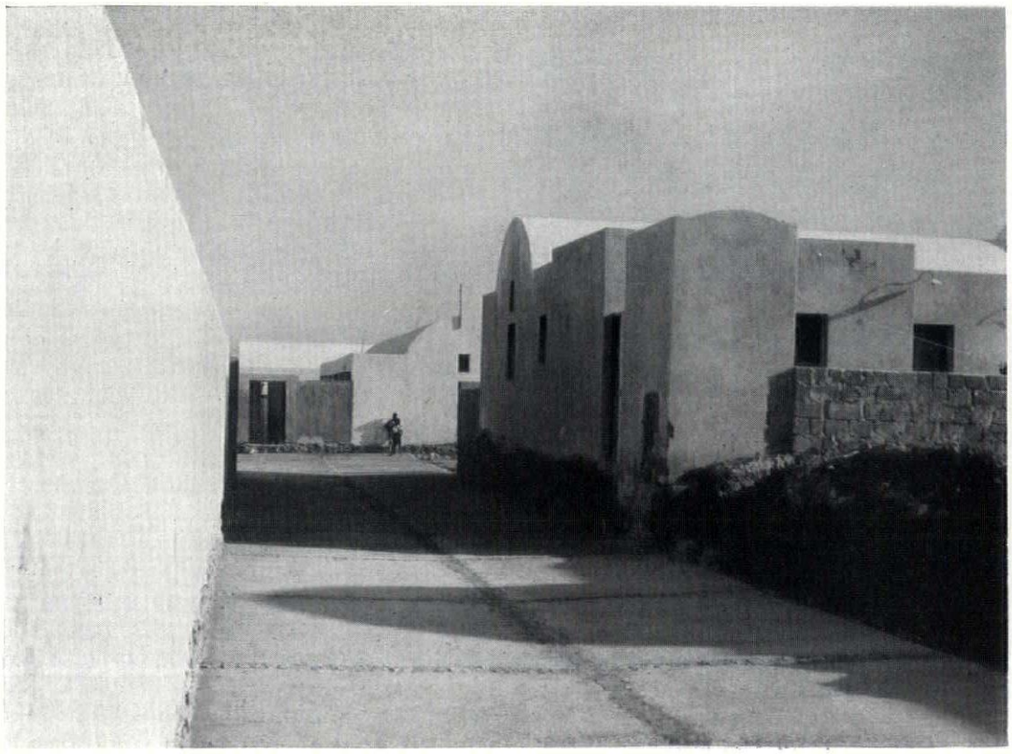
5, shows both main house types—single cell units on the right, and two and three-roomed houses on the left. In the background are ruins of houses destroyed by the earthquake and some houses in the course of construction.
6, the back of a block of single cell units, showing external earth closets.
7, one of the access ways, illustrating how far the traditional scale and character have been preserved.

Thus the houses, while individually vernacular in appearance, are grouped and laid out in a manner that is anti-vernacular visually, and may also prove to be so socially, as well.

But this may be too severe a judgment on a reconstruction project whose problems are clearly well outside the experience of most western architects. The carrying-through of such a programme with modern techniques and materials is part of an accelerating process of change that is affecting all the Greek islands, and vernacular densities might have proven too tight an urban garment for a society that is growing again for the first time in centuries. Perhaps the compromise townscape seen in 7, with its more generalized Aegean character, vernacular vaults and equally vernacular pebble-guttered road-surface, is to be welcomed as the new pattern of island urbanism. Certainly we should welcome it for all the disastrous things it might have been—packing-case prefabs in grid-iron rows, for instance—but conspicuously is not.

Michel Santiago



7

COUNTER-ATTACK

COLERAINE, CO. DERRY

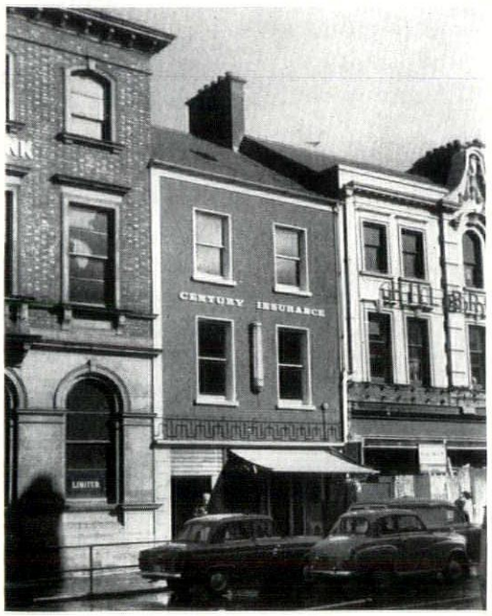
Anyone coming fresh to Ireland must be struck by the comparative newness of the towns, especially in the North. The buildings remaining in Ulster from before the rising of 1641 *are pitifully few* — one or two castles, a couple of semi-fortified manors (but even these may be later), an occasional round tower, some piles of rubble that once were churches; only Armagh Cathedral of the larger medieval churches is intact (though heavily restored)—and it's commonplace enough. The successive rebellions and partial peaces which made any permanent villages continually liable to be reduced to ashes by one side or the other, gradually gave way to a more settled state with the coming of William III. The change in living habits was immediate and marked; and the real period of Irish town-building began.

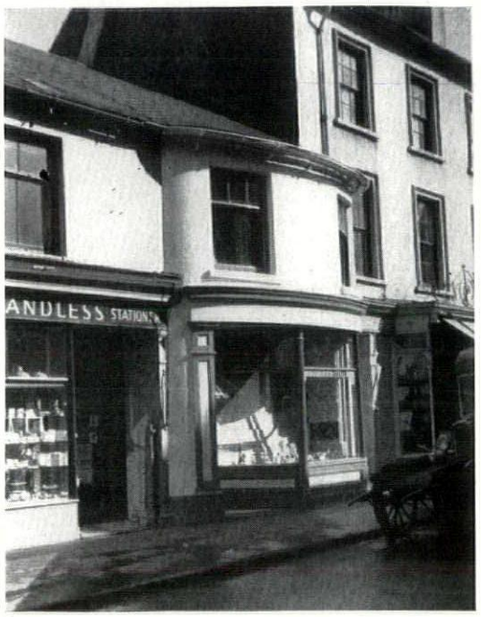
It could hardly have come at a better time; and during the next 150 years, but especially at the end of the eighteenth century, a great series of towns was built over the whole province: most of them remain substantially as they were built. Some, like Armagh and Newry, have superb architecture; some make fine use of a dramatic site, like Armagh or Dungannon or Rathfriland; Enniskillen contrives to be exceptionally graceful on an incredibly cramped site; Lisburn makes proud and masterly use of all the space it can find.

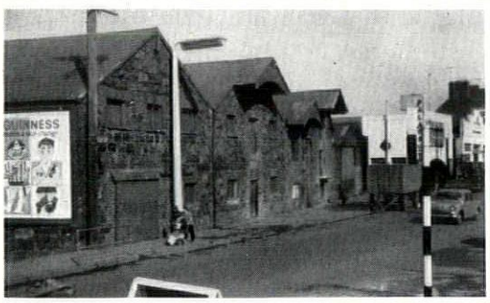
Coleraine is a fairly typical Ulster town, though bigger than most, with a population getting on for 15,000. The present town, which is mainly late eighteenth- and early nineteenth-century, is actually built according to a plan laid down for a new town early in the seventeenth century when the London Companies were beginning to develop their plantations: a map of 1622 shows the shape of Coleraine much as it is today, with a large rectangular marke



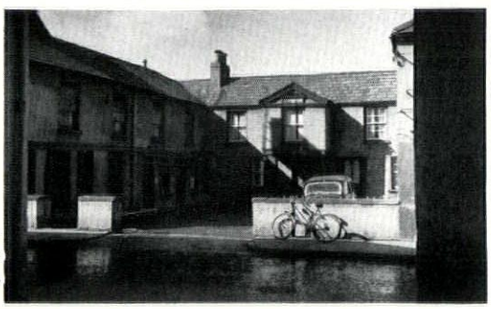


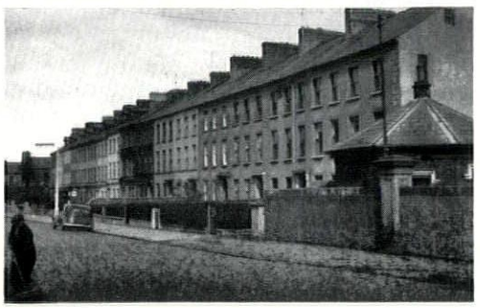












1 | 2
3 | 4
5 | 6
7 | 8

place, surrounded by a simple grid of streets enclosed within an irregular rampart and ditch. The town stands handsomely grouped on a low hill on the east bank of the River Bann. Or rather it stood: it now sprawls shapelessly everywhere with a huge ungainly suburb on the other side of the river. For Coleraine is that rare thing in Ireland at the moment, a comparatively prosperous and expanding town; and the expansion is an insult to the fine qualities of the old town.

These qualities are compactness, civility, dignity and order. The grid, which is so dispiriting on a large flat site, works very well in Coleraine where everything is on a small scale, and where the town hall steeple can be seen from most parts of the middle of the town, 1, and acts as its natural focus, visually as well as socially. The town hall stands on an island in the market-place (called, as in many Irish towns, the Diamond—though why doesn't seem to be known), where the ground flattens out after rising from the river bank. The buildings group themselves round it to make a fine urban enclosure, 2, where most of the buildings have so far been fairly well treated. An insurance company has set a good example with a sensitive treatment of a nice little Georgian house, 3. Modern detailing hasn't spoiled the façade, which is now harled and painted a bright greyish-green; and the lettering, though a little too small, is in a good tradition. (There is plenty more elsewhere in the town, new and old—see for example the I.T.L. Café in Queen Street, or Erwin's Bar at the top of Bridge Street.) The whole is sympathetic to the scale and freshness of detail of many of the older buildings, 4—which is more than can be said of some shop-fronts. Aside from the inevitable jam of parked cars, the square is reasonably free of clutter.

Away from the Diamond things are less happy. The east end of the town is a dismal muddle of factories, railway yards and decrepit housing. A large, featureless factory has been built on the eastern edge and is the first thing one sees of Coleraine, coming in from that side; and though some of the early industrial buildings have considerable character, 5, the general effect is very depressing, and the whole area needs drastic replanning. Nearer in, next door to the church, the modernistic 30's did their worst with a pair of ferociously ugly buildings, 6, which have now, however, been surpassed by the contemporary 50's in the shape of the deplorable new Post Office. The GPO—which shows signs in England that it knows that there is such a thing as good design—should be thoroughly ashamed.

The Post Office is on the edge of an area to the south of the Diamond which looks like becoming a slum-clearance area at any moment. A good many of the houses would doubtless be better out of the way. Others have much charm and only need a coat of paint and some internal refitting to have a much longer pleasant and useful life, 7. But whatever stays or goes, the rebuilding that will certainly come needs to be done tightly, with regard to the convenience of people wanting to live near the centre, and with respect for the buildings close by.

Good town architecture shouldn't be too much to ask for: but, looking around, one feels that nothing short of a miracle will provide it. For all the evidence Coleraine shows, there might not be an architect with a sense of style and a feeling for place in the whole of Northern Ireland. The council estates are as drab, featureless and uninteresting as one could find anywhere, though even they are a relief after the utter fatuousness of the private developers' wares. Even up to the mid-nineteenth century, 8, the Irish were building towns as good as any in Britain; now they're fumbling and scratching about to produce things which are, if possible, even worse.

SKILL

TIMBER ROOFING COMPONENTS

by G. C. A. Tanner

With the rise of the structural engineering profession in the early nineteenth century and the consequent need in structures for materials with precise calculable characteristics, steel ousted wood as a structural material. But during the last few years wood has been the subject of intensive research and techniques have been evolved which greatly increase its structural application. 'Timber engineering' is a phrase associated chiefly with spectacular, 'one off' structures; but quite recently a number of firms have been manufacturing standard timber structural components which aim at establishing timber as a serious alternative, in lightweight roof design, to light steel trusses, rolled steel joists and concrete planks and decking. In this article G. C. A. Tanner describes and discusses those which have so far come to his notice.

Timber used structurally is undergoing a revival. The reasons for this are many. The most significant concern advances in adhesive technology, stress grading of timber and the development of metal connectors. The latter need not concern us here, but the first two are of some importance in laminated construction and plywood/solid timber assemblies which are the subject of this article.

Stress grading

From the viewpoint of structural design the first difference between timber and steel is that the one is a natural material, the other is not. The properties of steel may be fairly accurately controlled. Those of timber are subject to enormous variation not only between tree species, but within the species themselves. The need to grade timber according to agreed rules is essential to avoid uneconomical design, yet stress grading is comparatively new. Factors which influence grading include density, slope of grain, shrinkage, freedom from rot, termite and so on. CP 112 (1952) 'The Structural Use of Timber in Buildings' and data available from the Forest Products Research Laboratory give effect to this. The designer thus can assume higher stresses, resulting in a saving in material, provided he specifies his timber to accord with a particular stress grade.

Adhesives

Developments in the field of adhesives, such as the introduction of synthetic resin glues, coupled with a forward-looking attitude on the part of adhesives manufacturers has, more than anything, set the pace for advances in timber techniques. The subject of adhesives is too big to be covered comprehensively here, but a brief outline of its history and of the types and characteristics of adhesives on the market is possible.

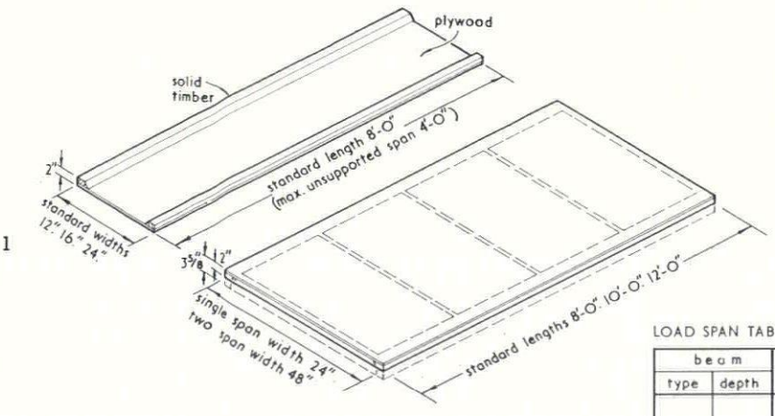
Until the development of synthetic resin adhesives the common glues were manufactured from starch, offal, blood albumen and casein. The latter was most commonly used for structural purposes and blood albumen in plywood manufacture. Both unfortunately are susceptible to attack and decomposition by bacteria and moulds and their use was thus limited to internal situations. Improvements have been made, by incorporating fungicides in casein glues to increase resistance to micro-organisms, and by adding formaldehyde to blood albumen to increase water resistance.

However, it is the development of synthetic resin adhesives in general and that group known as thermo-setting in particular which is of special value to the building industry. This group includes urea-formaldehyde, phenol-formaldehyde and resorcinol-formaldehyde resins. In each case the resin produced is the result of the reaction of formaldehyde with the other compound.

The relevant British Standard, BS 1204 'Synthetic resin, phenolic and aminoplastic adhesives for constructional work in wood' specifies three classifications:—

(1) weather and boil-proof (class WBP);
(2) moisture (water) and moderately weather-resistant (class MR);
(3) interior (class INT.).

In the USA casein is still widely used where the structure is fully protected from the elements. Both pure resorcinol and phenol-resorcinol resins are used for external work. In Europe common practice favours urea-formaldehyde, not only because it is much cheaper, but also because much work has been done in evolving higher grade urea-formaldehyde glues



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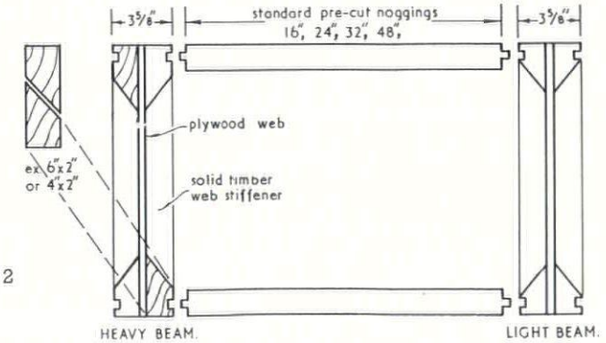


2

1, left, standard Tecton gutter unit; right, standard decking unit.
2, Tecton I beam sections and some typical sizes from the load/span table.

LOAD SPAN TABLE.

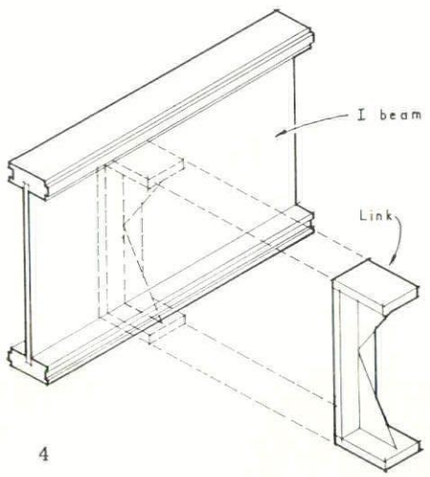
beam		S	effective span			
type	depth		25lb.	30lb.	35lb.	40lb.
L80	8"	16"	19'-5"	18'-3"	17'-4"	16'-6"
		24"	16'-11"	16'-0"	15'-2"	14'-5"
		32"	15'-5"	14'-5"	13'-9"	13'-1"
		48"	13'-4"	12'-7"	12'-0"	11'-6"
L120	12"	16"	27'-0"	25'-5"	24'-2"	23'-0"
		24"	23'-7"	22'-2"	21'-0"	20'-2"
		32"	21'-5"	20'-2"	19'-2"	18'-3"
		48"	18'-8"	17'-6"	16'-8"	16'-0"
H120	12"	16"	20'-6"	27'-9"	26'-4"	25'-3"
		24"	25'-9"	24'-3"	23'-0"	22'-0"
		32"	23'-4"	22'-0"	20'-10"	20'-0"
		48"	20'-4"	19'-3"	18'-0"	17'-0"
H240	24"	16"	51'-0"	48'-0"	46'-0"	44'-0"
		24"	45'-0"	42'-4"	40'-0"	38'-0"
		32"	40'-9"	38'-0"	36'-6"	35'-0"
		48"	35'-6"	33'-6"	31'-0"	30'-0"

S= spacing, L= light, H= heavy.

LOAD SPAN TABLE

type	depth	wt. lbs ft. run	beam crs. ft.	clear spans in ft.; loads as total lbs u.d.l and lbs./ft sq at given beam crs. 10	12	14	16	18	20	22	24	26	28
8	8"	5·18	2	2027	1690	1450	1266	1125	1013				
			3	1013	705	518	396	313	253				
			4	679	470	346	264	208	168				
				506	352·5	259	198	156	126				
15	15"	6·0	2						3120	2830	2600	2400	2230
			3						780	643	542	460	398
			4						578	478	403	342	297
									390	321·5	271	230	199
24	24"	7·30	2										4250
			3										760
			4										505
													380

3



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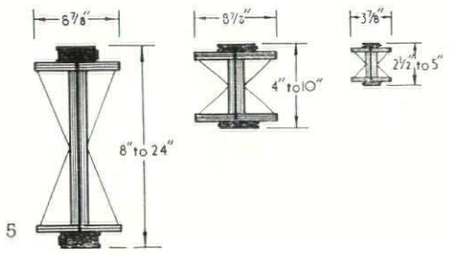


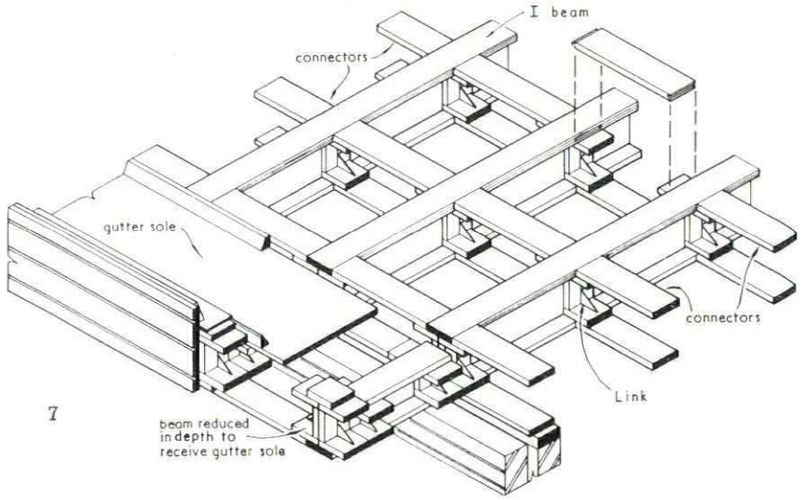
5



6

roof type	max. clear span	critical consideration	depth	width	S
BMF	18'-0"	horizontal shear	9½"	2⅛"	48"
CMF	22'-0"	length	12"	2⅛"	48"
ELG	38'-7"	deflection	20"	4¼"	48"
EMG	40'-9"				
EHG	41'-9"				

S = spacing.



7

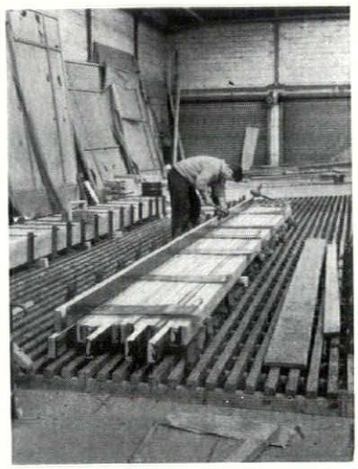
3, typical sizes from the major series load/span table of Newsum's Girdaline beam sections.
4, the Girdaline I beam and its link unit, usually spaced at 2 ft. centres.
5, Newsum's Girdaline beam sections, left to right, major, minor and mini.

6, the Cawood Wharton I beam section and some typical sizes from the load/span table.
7, a Girdaline flat roof assembly.

for structural work. In this country casein glues and urea and resorcinol resins are all used, but manufacturers of beams and roof systems seem to favour the resorcinol type principally because it is the only one entirely suitable for use in exposed conditions. The fact that, in most cases, the timbers are covered up and the glue-line thus protected does not influence these manufacturers, who feel that the risk of exposure, even temporarily (say during transport to the site and subsequently on the site until erected and covered up) is worth avoiding even at the extra expense of using a resorcinol resin. Other reasons, however, also influence their choice. The Forest Products Research Labora ory has cast some doubt on the ageing quality of urea resin glues as the result of long term tests. It must be realized on the other hand that the tests carried out on a large number of proprietary urea resins show a wide diversity of performance from as little as 5 per cent loss of strength up to 60 per cent. It is hardly fair, therefore, to condemn all urea resins on the basis of an average of the above performance figures, particularly as urea resins of the gap-filling variety have been brought to a standard of efficiency suitable for structural work. As for phenol-formaldehyde there are certain difficulties in application which can result in increased labour costs and a risk of faulty joints. The fact is that each resin has its peculiarities and where there is any doubt the advice of the adhesives manufacturers themselves should be sought.

Laminated timber

Laminated construction is the process of joining layer upon layer of pieces of timber of comparatively small cross section to make up a member of a required shape, 8. It is a process of building up rather than, as is the case with solid sections, cutting down. By using stress-graded material, so that only that part of a member required to resist the highest stresses will be composed of the structurally better grades, economy of material results.



8, laminated beams under construction at the workshop of Gabriel, Wade & English Ltd. Southampton.

Certain rules apply in designing laminated members. For instance, where laminates are joined in their length by scarfing, the slope of cut should not exceed 1 in 12. Alternatively finger jointing may be employed but, though it wastes less material than scarfing, is not so efficient. Generally the critical position for joints is in the tension face of the member. Joints in adjacent laminates should be staggered and should be kept away from areas of maximum stress.

A number of manufacturers specialize in the construction of laminated timber beams and a list of these manufacturers is available from the TDA. Laminated beams have been used extensively by various local authorities in their school building programmes and, in the London area, there are some notable examples in schools designed by the LCC architects department. Generally beams are purpose-made for each job, as it is not usual for manufacturers to stock-pile standard sizes and lengths of beams. Variation in depth of beam for example only means the addition, or omission, of laminates.

Laminated beams have been used over the gymnasium at Star Cross Primary School, London, to support Trofdek decking units, 16. The beams are made up of 5 in. by 1 in. laminates glued with a resorcinol-formaldehyde resin and bearing on brick walls at either end. They span 40 ft. at approximately 17 ft. 7 in. centres. Two of the beams support tracks

[continued on page 213

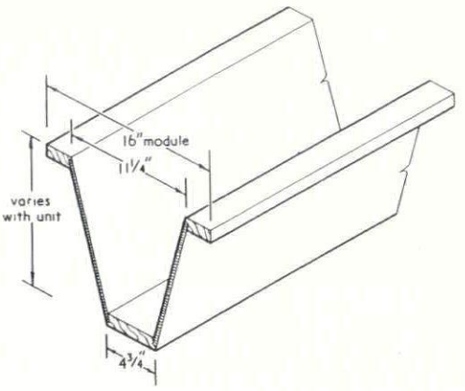
LOAD SPAN TABLE

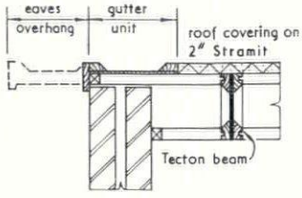
Spans quoted in feet are clear spans and loads are quoted in lbs per sq.ft.

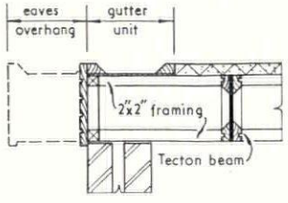
type	depth	wt lbs sq ft	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
21	9"	3·75	46	41	37	31	30	28	25																					
26	11½"	4·00						43	39	36	33	31	28	25																
29	13½"	4·50							46	42	39	36	33	31	29	27	25													
34	15½"	4·75														36	33	31	29	28	26	25								
x42	19¼"	5·25																				37	35	33	31	30	28	27	26	25

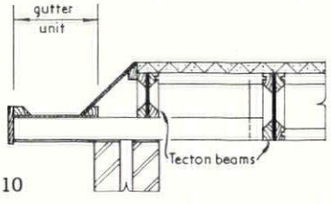
9 x plus prefixed firrings rising to 3¾" max at centre of span

The loads shown are governed by an Ay not in excess of 0·003L ins or a fibre stress not in excess of 800 lbs per sq in whichever is greater









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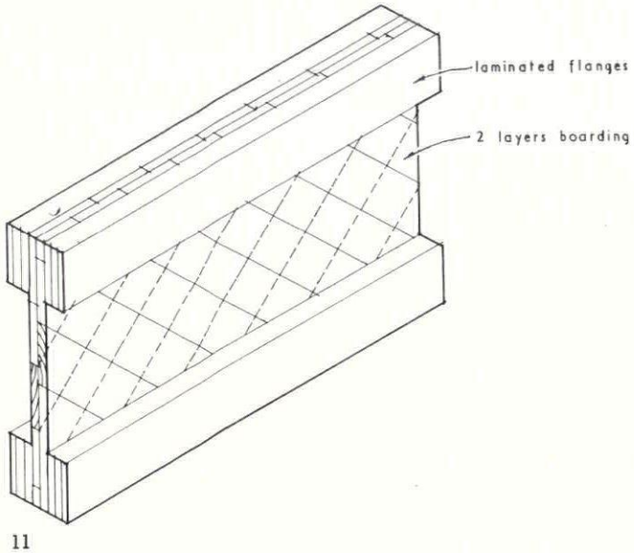

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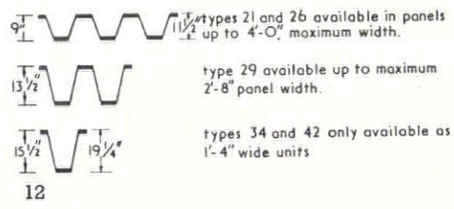

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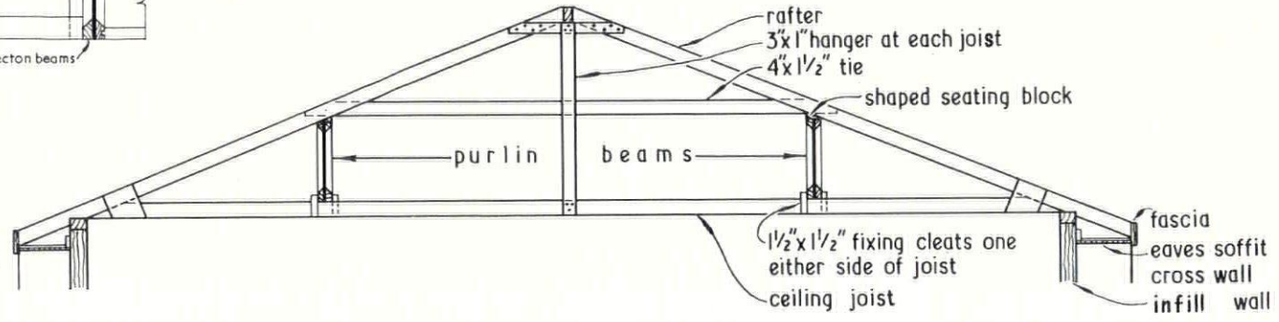


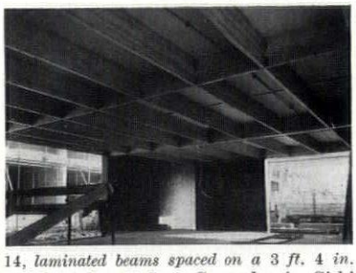
13

9, typical sizes from the Trofdek load/span table.
10, three alternative Tecton eaves details.
11, Beves H.B. beam showing the principle of the paired web boarding.
12, Trofdek standard sections.
13, pitched roof framing in cross wall construction using I beams as purlin beams.

continued from page 212]

from which ropes are suspended and are each 34 in. deep. The remainder are 33 in. deep. Cost of each beam was about £100. The need to carry a considerable live load from the gym ropes persuaded the architects to use beams to support Trofdek rather than have Trofdek span the 40 ft. In this case the timber construction was found to be considerably cheaper than steel but not appreciably cheaper than precast or in-situ concrete, its primary advantage over the latter being in a lower self-weight.

At Garratt Green Comprehensive Girls School laminated beams are also used, this time on a module of 3 ft. 4 in., 14. The beams are exposed on the underside and treated with three coats of alkyd varnish. All beams are 16 in. deep but vary in width from 2 in. to 6 in. according to the span, which in turn varies from 3 ft. 4 in. for the stiffeners to 53 ft. Most common spans are 13 ft. 4 in. and 26 ft. 8 in. and, as a guide to cost, the latter, supply only, were £17 13s. each. Fixing of beam to beam was carried out with steel anchor brackets.



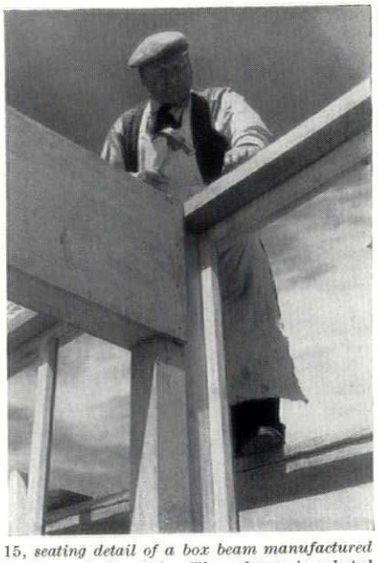
14, laminated beams spaced on a 3 ft. 4 in. module at Garratt Green Comprehensive Girls' School, London.

Plywood/solid timber assemblies

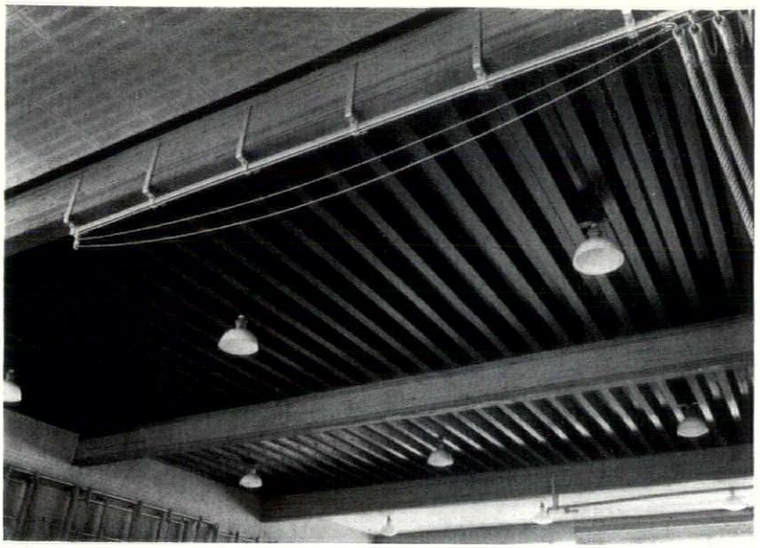
Like laminated members, glued plywood/solid timber assemblies in box or I beam form are built-up sections. Structurally this means that their cross section can be more closely related to the stresses normally applied than can that of a solid section where much of the material is only partially stressed.

Several manufacturers use the I beam and to a lesser extent the box beam as the basis of complete roof systems, which are described later in this article. The question arises, sooner or later, as to when such systems may be used to economic advantage. How do they compare in cost with traditional timber construction, on the one hand, and concrete or steel on the other? Before going to the manufacturers themselves for competitive quotations the following points are worth considering. For spans up to 16 ft. and normal loadings traditional joist construction still holds its own. Beyond this and up to the limit of 50 ft. to 60 ft. spans the 'systems' should take over. Fixings are not difficult, which is a virtue of timber, and I beams or box beams will not present fixing problems with which a competent carpenter cannot cope. A typical fixing for a box beam to a timber post is shown in 15.

Within the span range 18 ft. to 50 ft. the timber systems should compare more than favourably with steel (plus suspended ceilings) or concrete. They have the advantages of lighter self-weight and therefore easier handling, as well as reflecting lower foundation loads, no formwork compared with concrete, simpler fixing and much easier working in



15, seating detail of a box beam manufactured by Beves & Co. Ltd. The column is rebated 1½ in. to provide seating for the beam, the plywood sides of which are extended past the column support and screwed and glued to it.



16, *laminated timber beams, spanning 40 ft. and supporting Trofdek over the gymnasium at Star Cross Primary School, London. Colour variation is due to laminates of different stress-grading. Beams have a matt cellulose clear finish and the underside of the Trofdek is painted black. The foreground beam is supporting a track with gym ropes.*

laying out service runs and so on.

All the systems are designed in accordance with CP 112 'The Structural Use of Timber in Buildings'. The plywood most commonly used is Douglas Fir which is the only type available in large quantities in this country suitable for structural work. Stress grading figures are available from the Plywood Manufacturers Association of British Columbia who maintain a technical service. The Forest Products Research Laboratory of DSIR should be consulted where it is intended to use British plywoods. Their Technical Bulletins 29, 33, 39 and 42 deal with working stresses and other design information.

The following firms manufacture standard plywood/solid timber assemblies:

Cawood Wharton & Co. Ltd.

This firm was one of the first to produce a 'package' roof in timber. They prefer to supply and fix and their quotations include everything above plate level—beams, nogging, ceiling lining, roof decking and covering. They claim that their system is competitive with other forms of construction over a range of spans from 18 ft. to 58 ft., 6.

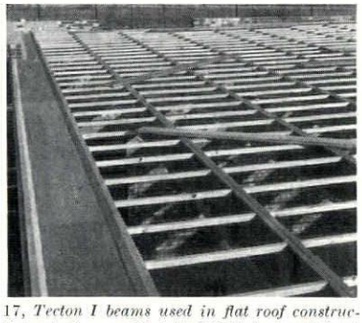
The I beam consists of a web of exterior grade Douglas Fir plywood glued to pairs of laminated flanges top and bottom. Beams are spaced at 4 ft. centres to suit standard 2 in. thick Stramit roof decking, and have prefixed firring pieces on top to provide roof falls. Solid timber noggings are cut between beams top and bottom to take roof decking and ceiling linings, the latter usually a fire-retardant fibreboard. They do not recommend plasterboard and skim coat for ceilings as even a maximum allowable deflection of 0.003 x span can be considerable over long spans. Roof covering is built-up felt. An alternative decking to Stramit is $\frac{5}{16}$ in. sheathing plywood with 1 in. fibreglass thermal insulation over the ceilings.

Dexion Ltd.

To many people the name of Dexion is synonymous with the slotted metal angle, that versatile component of any man-size Meccano set. Early last year this firm entered the field of timber engineering with a system of standard roof beams, noggings, decking and gutter units known collectively as Tecton.

The standard beam is an I section, comprising a web of Douglas Fir exterior grade plywood and solid timber flanges of Pacific Coast CLS hemlock. Solid timber web stiffeners, cut from the same material as the flanges, are provided at intervals along the beam. Glue is resorcinol-formaldehyde resin. The flanges are cut from either a 6 in. by 2 in. or a 4 in. by 2 in. member, and are grooved along the side to receive the tongue of the pre-cut noggings. The cut is diagonal, so that when each half is placed against the plywood web a maximum glueline is achieved. This refinement is not common to other versions of the I beam.

The standard decking unit consists of an exterior grade plywood glued to a solid timber frame around all four sides and with stiffeners at 2 ft. centres in the length of the unit. The decking is laid with the plywood uppermost and is fixed on the site to the beams and noggings by nailing. It is made in standard widths of 24 in. (single span) and 48 in. (two



17, *Tecton I beams used in flat roof construction at Corpus Christi RC Primary School, Romford, Essex. Pre-cut noggings for roof decking are in position and in the left foreground are the standard gutter units. Architect, D. Plaskett Marshall.*

span) and standard lengths of 8 ft., 10 ft. and 12 ft.

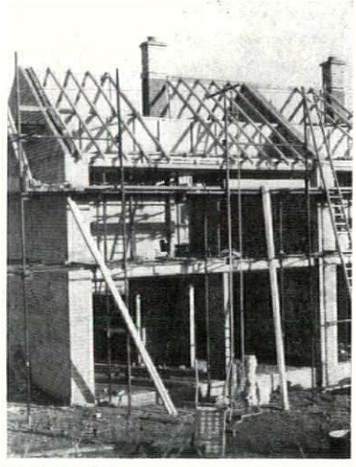
The standard gutter unit consists of an exterior grade plywood glued to a solid timber batten along each side of its length and is laid plywood downwards to form a trough, 17. It is made in standard widths of 12 in., 16 in. and 24 in. and a standard length of 8 ft. (see also 1).

Apart from flat roof construction Tecton I beams are recommended for use as purlin beams in pitch-roof cross wall 5, 2, 18, the usual method of seating at either end being on concrete or m.s. angle corbels built into the brick cross walls.

H. Newsum, Sons & Co. Ltd.

This firm has been active in the field of timber engineering for some time and is probably best known to architects for its timber decking, Trofdek, described later. After a good deal of development work they introduced, towards the end of last year, a system of I beams and connectors or noggings, known collectively as Girdaline, 3, 4, 5.

The beam departs from the usual section of most manufacturers in



18, *Tecton I beams used as purlin beams in cross wall construction for housing at Ipswich.*

that the long dimension of the solid timber flanges is parallel with the neutral axis. The flange is grooved to receive the plywood web. In addition one side of each flange is grooved and the other tongued to take the ends of the connectors. A significant feature of this beam is the link or web stiffener. In fact it is more than just a web stiffener. Constructed from flange material it can best be described as a 'U' lying on its side with triangular plywood gussets in the internal angles. Links are normally placed at 2 ft. centres along the beam and are glued to it at the factory. Apart from stiffening the web they act as seating and additional fixing for the top and bottom connectors. However, additional links may be supplied separately and inserted on the site for trimming to roof lights and openings.

The beam is made in three standard depths bearing the rather curious names Major, Minor and Mini, the Major series is suitable for spans up to 49 ft. The idea behind the Girdaline section is that it may be used on its own as a structural member, and not just within the context of a standard roof system. Newsums point to its use as a purlin beam in pitch-roof cross wall construction as a case in point.

For some years now Newsums have produced a roof unit known as Trofdek which is unique as a patent decking system in timber, the first and only one of its kind on the market. Economical for spans from 20 ft. to 40 ft. carrying normal loadings it is supplied in three basic widths on a module of 16 in. It consists of a trough or series of troughs in section rather like a blunt 'V.' The sides are plywood and fit into grooves in solid softwood members top and bottom 9, 10.

Beves & Company Limited

Recently this company were appointed the sole licensees in this country of the HB system of timber construction invented by Hilding Brosenius, of Stockholm. The HB beam is an I section comprising laminated timber flanges and a web which consists of two layers of boards laid diagonally to the length of the beam and at right angles to each other, 11. The flange laminates are glued together, as are the two layers of web boarding, but flanges are fixed to web by means of pattern nailing. Web stiffeners are included.

To some extent plywood/solid timber beams are limited in size by standard sizes of plywood sheet, usually manufactured in 4 ft. widths. An advantage of the HB system is that no such limitations apply. Greater depth of beam can be achieved resulting in spans of up to 100 ft. The same firm also manufacture standard box and I beams.

Costs

As a rule plywood/solid timber box and I beams are cheaper than laminated timber, but require deeper sections for the same spans. Mention has already been made of the range within which the various systems of plywood/solid timber assemblies represent an economical roof construction. Generally speaking, this is in spans of from 16 ft. to 50 ft. where a complete roof including ceiling and roof covering is required.

Apart from the systems themselves, however, there is no reason why virtually any of these beams should not be used in conjunction with traditional joist construction or anywhere else in which a load-bearing long-span member is required. Newsums with Girdaline (following their own precedent with Trofdek) and Beves with HB beams are the only firms apparently anxious to exploit this. Newsums publish unit prices for both Girdaline and Trofdek. In the Girdaline Major series, for example, the price per ft. run (supply only) varies from 9s. 4d. for the shallowest beam (8 in.) to 11s. 1d. for the deepest (24 in.). Trofdek prices are quoted per square foot including ply cladding and erection, but not including extras for special fixing details. The figures vary from 5s. 6d. for the 11¼ in. deep section to 10s. 5½d. for the 19¼ in.

Conclusions

Visually one of the shortcomings of many of these systems is the massive fascia which results from expressing the full depth of the beam. This may not be a problem with large buildings but, on small ones the effect on scale could be serious. A little thoughtful detailing is called for and, in one or two cases, has been achieved. Choice between box and I beams usually resolves itself into a visual one. I beams allow easier fixing but a box beam is more suitable where the underside will be exposed.

Some firms, such as Cawood Wharton, prefer to supply and fix, acting as specialist sub-contractors. There is something to be said for this at the present time when, competition being keen, unreasonable quotations are not likely. In some cases developments in timber engineering have been so rapid as to outstrip field experience in the building industry. On the other hand other firms see the need to add new techniques to the common pool of building knowledge and aim to see their product as an integral part of the carpenter's trade. The development in standard beams, as distinct from whole roof systems, is evidence of this. Whichever approach prevails, however, the subject lends itself to standardization and the modular co-ordinators would be well advised to keep track of developments, which are likely to be rapid.



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THE INDUSTRY

Colour dispensing machine

It is now common practice in America for manufacturers to use a colour dispensing machine which will mix colours on the spot to virtually any requirement. The advantage of this to the users of colours lies not so much in the quick supply of what may be a relatively out-of-the-way shade (though this, of course, is a substantial advantage) but in the fact that the shade can be exactly repeated. How many architects have accepted a colour which was not quite what they want, simply because the shade they really want would have to be specially mixed and they feared that they could not get an exact match in any further order? It is interesting to note that Walter Carson and Sons Limited have now brought this machine over here. Called the Spectromatic Dispensing Machine, it can dispense (so they claim) 1,000 different colours with perfect accuracy. Carsons are holding a series of demonstrations at different centres during the first part of 1960 and architects are asked to send in their names if they wish to receive an invitation.
*Walter Carson and Sons Limited, Grove Works, Lombard Road, Battersea, London, S.W.*11. *Battersea* 2451.

Ventilation ducts in the floor

Now that air conditioning is becoming more common in office buildings in this country, it was to be expected that the makers of hollow flooring units should tumble to the fact that, with a slight adjustment, their product could be made to serve also as a duct. In this, the manufacturers of steel floors have an obvious advantage in that so large a proportion of their floor cross section is void. Robertson Thain Limited have taken advantage of this to introduce their Q-Air Floor. This uses their standard Q floor sections pierced on the underside to receive the main header and cross-under ducts; and on the top side to receive the junction with the room outlets. Though Robertson Thain are careful to point out that they are not themselves ventilating engineers, they will supply cross and header ducts and outlet boxes. As the additional ducts fit tight under the floor units they will not project below the structure which is supporting them and the total saving in floor-to-floor height in an air conditioned building will be quite significant and should help to make steel an economic choice.
Robertson Thain Limited, Ellesmere Port, Wirral, Cheshire.

Standard roof lights.

Of all types of window, those which lend themselves most readily to standardization are roof lights for flat roofs. It is, therefore, surprising that these have, generally speaking, been the last to receive the standard window maker's attention. One new arrival in this class is the range of standard aluminium roof lights by Quicktho Engineering Limited. These are manufactured in four sizes: 2 ft, 3 ft and 3 ft. 6 in. square, and 4 ft. by 3 ft.; and they are made both fixed and with hinged opening lights. The latter type (which we illustrate in the photograph) is provided with the now usual shield to keep out the weather when it is opened to its fullest extent. Price (including $\frac{1}{4}$ in. wired cast glass) of the 2 ft. square fixed light is £7 5s., and of the 2 ft. square opening light £18 5s.



*Quicktho Engineering Limited, 5 Grafton Street, London, W.*1. *Hyde Park* 1806.

Aluminium windows

It is only a very few years since aluminium windows first became popular in this country. It we are to be honest we must admit that so many of the first aluminium windows to come on the market were made to so poor a finish and with such clumsy detailing that there was a real danger that the material for all its virtues would quickly become unpopular. Later versions, however, have shown an improvement: mitres have almost attained timber joinery standards of neatness and those exceedingly visible screw heads are beginning to disappear. An entrant in the field who is making aluminium windows to this new and better standard is Heywood-Helliwell Ltd., the patent glazing manufacturers. This firm has recently marketed a new range of windows which they call 'Continental.' There is some possible confusion here since the term 'Continental' has been commonly applied to the horizontally pivotted, inside-out, type of window first brought to this country by Carda. Heywood-Helliwell's 'Continental' windows do include this type, but they include also vertical hung windows and traditional side hung casements. We must assume, therefore, that 'Continental' refers to the sections (which are, on the whole, more robust than those usual with British manufacturers) and not to the mode of opening. These windows are made to three specifications in an ascending scale of robustness. In all three series, corners are flash butt welded and fixing screws are concealed, while in the two heavier types the sashes close on neoprene gaskets.
Heywood-Helliwell Ltd, Bayhill Works, Huddersfield, Yorkshire.

Lightweight concrete blocks and slabs.

The Danish engineering firm of Christiani and Nielsen was one of the pioneers in lightweight concrete, manufacturing it first in 1924. They have now arranged for Celcon Limited to manufacture their products in this country. Celcon have two principle ranges of product in this field: lightweight building blocks and lightweight precast concrete slabs, both being made of pulverized fuel ash. The building blocks are 18 in. by 9 in. and in thickness from $2\frac{1}{2}$ in. to 9 in.; the slabs are all 1 ft. 6 in. wide in spans up to 10 ft. and in thicknesses which are variable according to span and imposed load. Both slabs and blocks have a density of 50 lb./cu. ft.: blocks have a crushing strength of 600 p.s.i., slabs of 750 p.s.i. Lightweight p.f.a. concrete is a comparatively new product in this country: it can be cut and nailed, gives excellent fire and thermal resistance, but must be carefully

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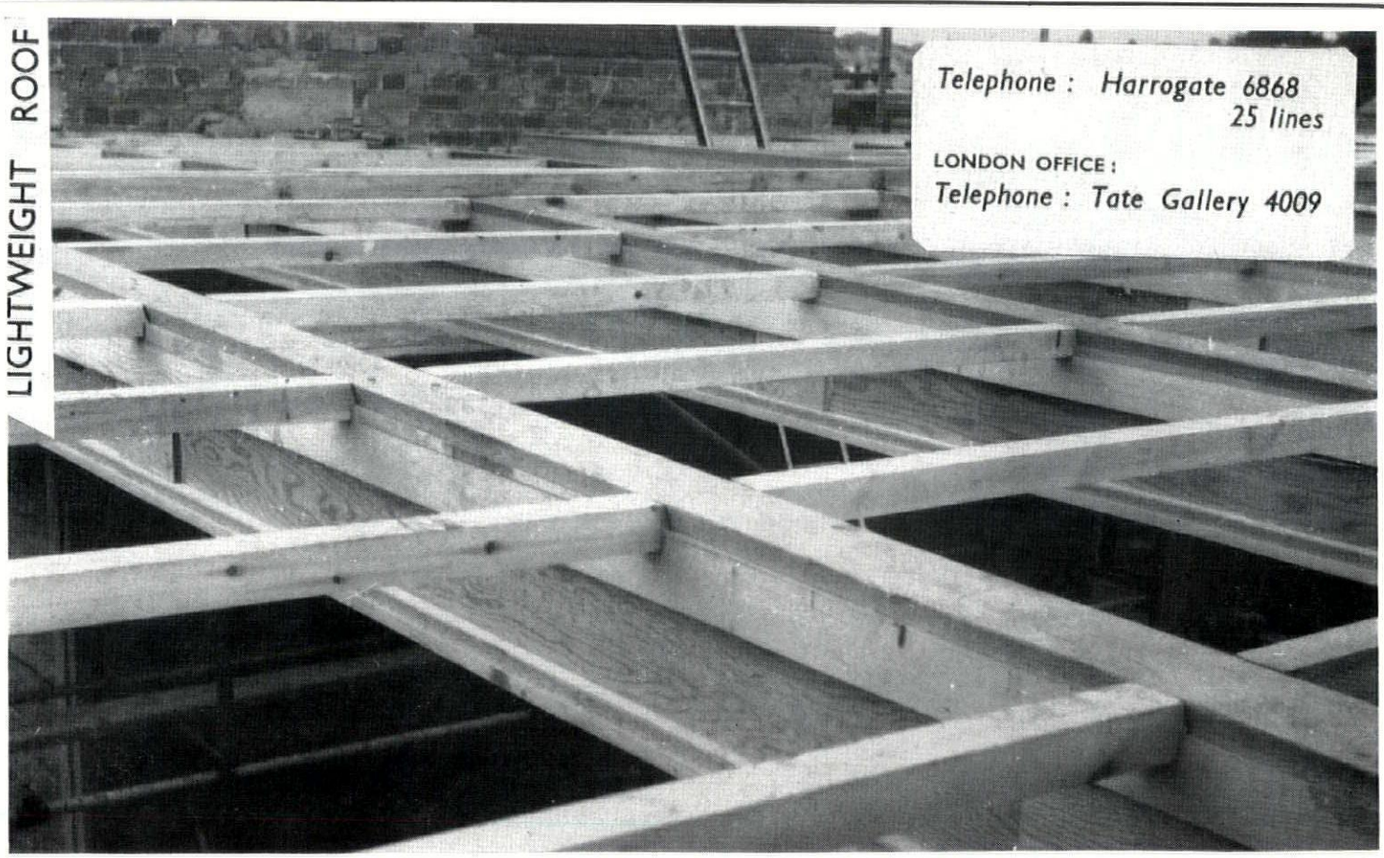

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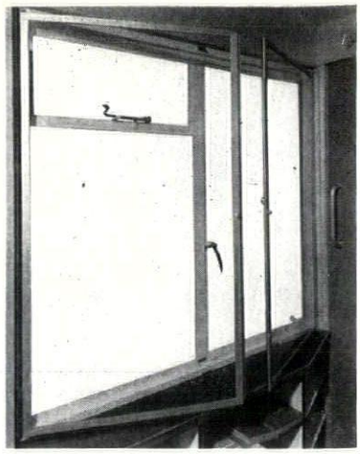
continued from page 216]

handled on site to prevent damage. In the opinion of the manufacturers, the blocks can often be left unplastered and painted, the slabs only in industrial type interiors.
Celcon Limited, Universal House, 60 Buckingham Palace Road, London, S.W.1. Sloane 0324.

More domestic windows off the peg

Since the last article on domestic windows was published in THE ARCHITECTURAL REVIEW there has been a Building Exhibition and a number of developments have taken place which, though minor in themselves, promise to make a considerable difference in the long run. Crittall are among the firms who have new things to offer and this note is confined to their contribution. One such is the 'Storm Sash.' This is an aluminium window which has been designed for fitting on the inside of the firm's 'Campaigner' windows. (The 'Campaigner' is a steel window with wide frames to simulate wood.) The restriction of this idea to this particular window range was presumably prompted by the fact that the 'Campaigner' has a wide surface on to which the inner window can be screwed; but there is no reason why the idea should not be extended and it seems likely that this will happen. For the purpose is not to keep storms out, but to keep the heat in; by giving, in effect, double glazing.

Crittall have now put on the market a new range of Aluminium Casement Windows covering the same sizes as their Medium Universal Steel Sections. The Aluminium Section is similar in its visual effect to the steel which prompts the question of whether the possibilities of the different material have been fully



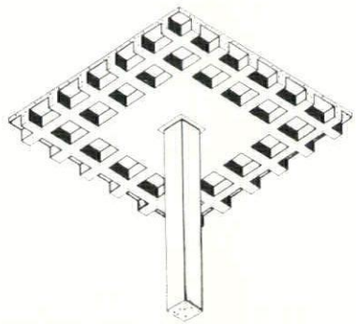
realized; but it is interesting to note the use of a clip-on bead, of plastic glazing inserts and of plastic weatherstrips. These last can be seen on the third new product, an Aluminium Horizontal Sliding Window; but in this case the weatherstrip takes the form of a long strip of nylon pile (like an unending tooth brush). For some reason the horizontal sliding window in aluminium has had a much happier introduction than the vertical sliding sash. The sliding window looks as though it was conceived in aluminium, the sash as though it is a substitute for wood.
The Crittall Manufacturing Company Limited, 210 High Holborn, London, W.C.1. Holborn 6612.

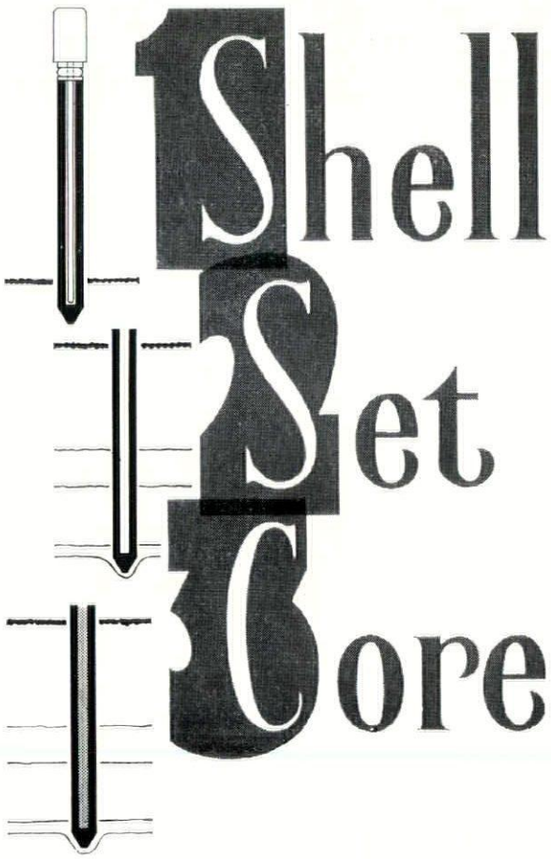
Patent Glazing

Of all glazing techniques, the one which has come to be called 'patent glazing' (though, presumably, it is no longer such) is the most characteristic of this country. Though the earliest technique for glazing walls, it is far from being out-of-date and in the recent discussions on curtain walling it has emerged triumphant as one of the approaches which gives least trouble. Henry Hope have now been making patent glazing for over 70 years and there must be few, if any, snags which they have not overcome. They have now produced a very handsome booklet giving half full size details of all the established types, in lead coated steel and aluminium, for fixing to steel, concrete or timber and for north lights, span roofs, and for vertical glazing; for continuous opening, for sliding rooflights, for double glazing and for lanterns, skylights and domelights. We call this a booklet, but folio would be a better word, for it has been prepared with an almost insulting disregard for the B.S. Standard Sizes for Trade Literature. As usual with this firm, it has been carefully prepared and printed and is a first rate drawing board reference. It is obtainable free on request from *Henry Hope and Sons Limited, Halford Works, Smethwick, Birmingham. Smethwick* 0891.

Lift slab

Bearing in mind that it was only in 1948 that P. N. Youtz and Thomas B. Slick invented 'lift slab' at San Antonio, Texas, the technique has made comparatively rapid progress. But despite the visit of O'Neill Ford, the chief architect protagonist of the system, in 1951, this country has not been by any means a pioneer in the system. It is interesting to note, however, that a special contracting firm has now been formed for handling the technique in Great Britain. This firm, British Lift Slab Limited, has now issued a brochure describing what the system is and what are its advantages. The advantages affecting the finished product are that, since slabs are cast at ground-floor level, they can be given a sufficiently good finish to dispense with plaster; also that, since there are no projecting beams, there is usually a saving in floor to ceiling height. The chief advantages, however, are in the speed and facility of erection and in the possibilities of saving which these give. By the use of this method the process of erecting a tall building becomes something the mind can take pleasure in. The limitations in design which the system implies are little greater than those which an architect would apply to any tall building. The only visible developments in flat slab since early days is the use of slabs with voids to increase spans. An example of this is the Waffle slab (see illustration) which permits spans of up to 40 ft.
British Lift Slab Limited, 395 George Road, Erdington, Birmingham, 23. Birchfield 5261.





The sequence of operations in West's Shell Piling System has an important bearing on the stability of the pile.

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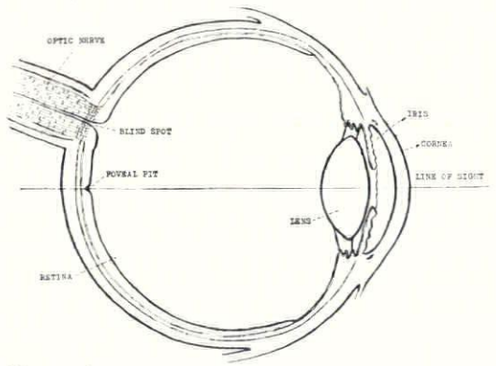
A5

COLOUR

the logical use of colour in building–No. 2

Upon the properties of a square millimetre of retina with its more than 50,000 cones contained within the foveal pit is built all our measurement of colour.



Sketch of a horizontal cross section of the human eye.

colour vision

The human eye is the receiver of all colour messages. Yet mystery still surrounds even the initial light reaction in the colour receptors (the so-called "cones") of the retina of the human eye, let alone the final emergence of a colour sensation in consciousness.

There are many reasons for this state of affairs. The cones in the centre of the retina, where colour vision is at its best, are very small. This area is fitted to give us acute vision and colour vision at the same time. Upon the properties of this square millimetre of retina, with its more than 50,000 cones, is built the measurement of colour.

Colour vision is also dynamic in nature. Some people are capable of maintaining a steady fixation or stare for long periods. Such people find that quite large differences in colour rapidly disappear when viewed steadily. It has been shown that colour vision rapidly disappears when the image is fixed on the retina. For acute vision and colour vision the eye must rove over the picture and the image pass across the retina. In other words, in visual perception an essential part is played by the movement of the image across the retina.

It is extremely probable then that a single colour is not seen by the eye and that unconscious comparisons are being made all the time.

In order to use colour satisfactorily, variety and texture, to give the moving image, must always be kept in mind. In order to emphasise the colour of an object, such as a door, it should be framed, the surround being painted another colour. Abutting colours should be avoided unless similarity of appearance is desired.

The next announcement in this series will be on "The Age Effect."

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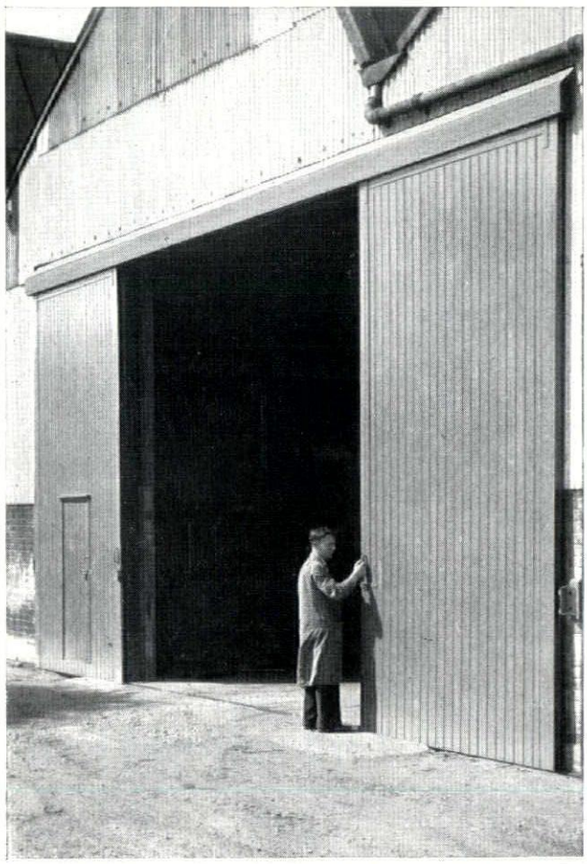

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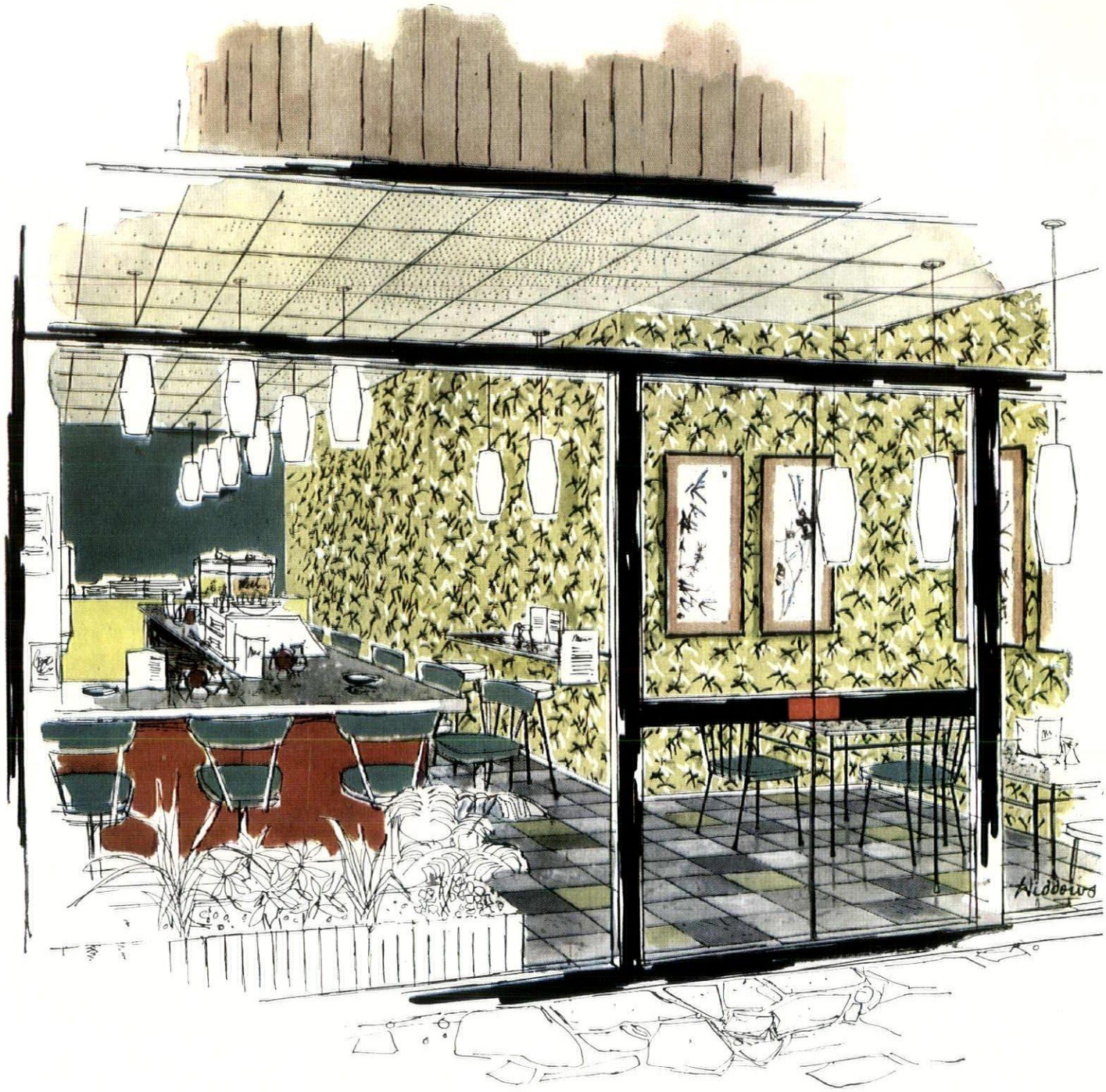

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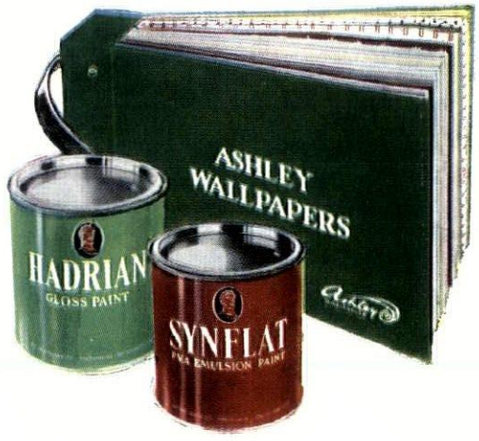
Push Bar of Door, exterior	HADRIAN GLOSS, BLACK AND FLAME



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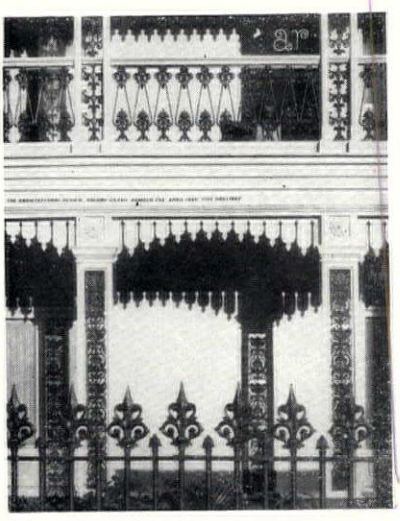

On the cover, *the rich iron tracery and dagged valances of the canopies to a house in Melbourne, draw attention to a forgotten flowering of a unique architectural art—Australian cast-iron of the nineteenth century. On pp* 238-245, *Dr Graeme Robertson, who has made a special study of this early industrial art, describes both its history and the elaborate richness of its achievements.*

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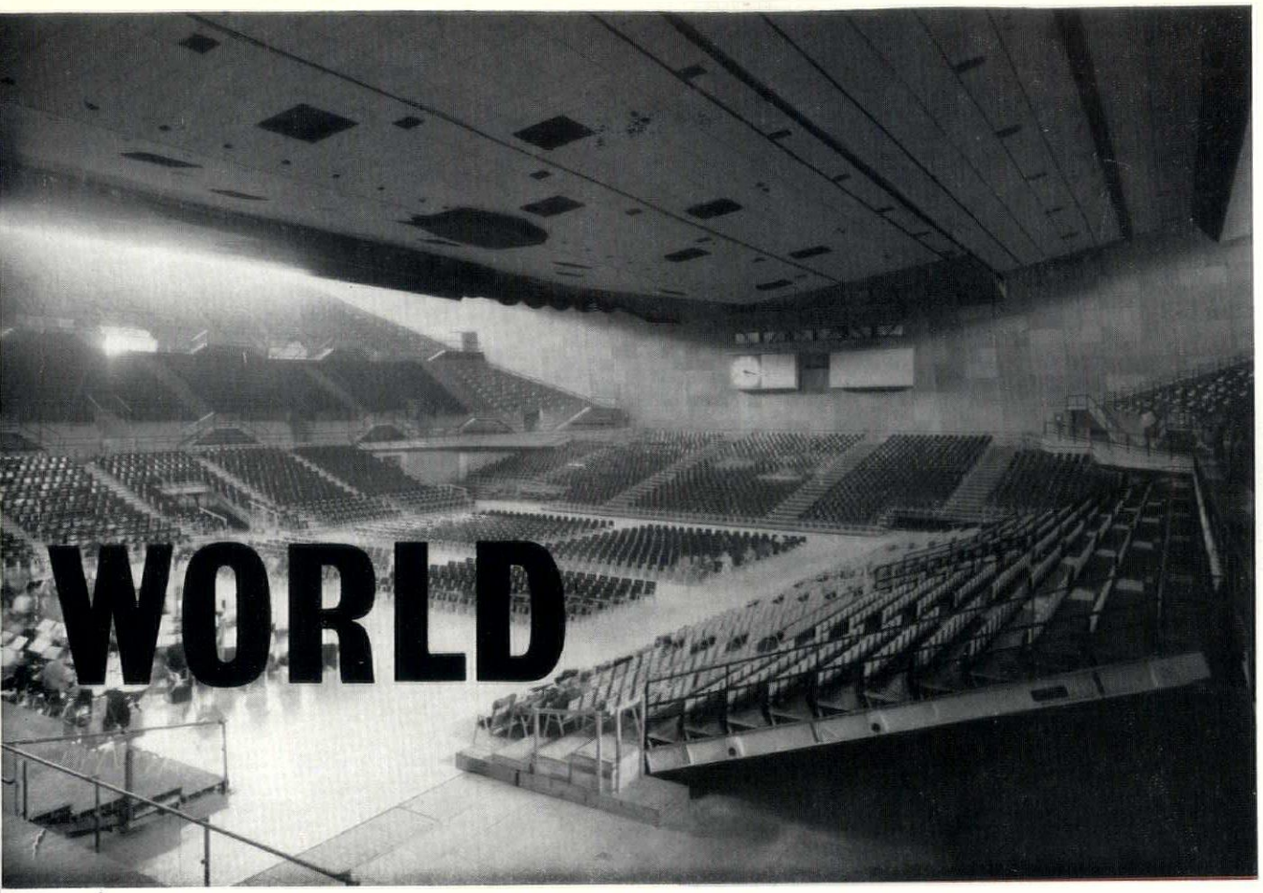


1

WIENER STADTHALLE

Auditorium/Sports Hall by Roland Rainer

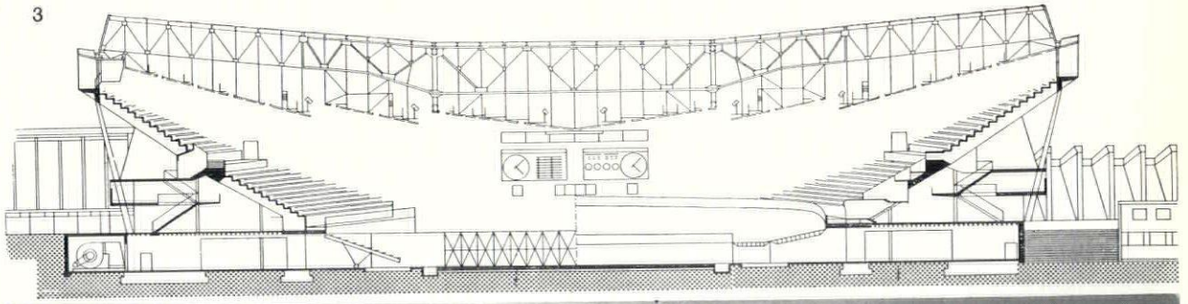
The wide-swinging interior above, 1, shows the Vienna Stadthalle with seating disposed for an audience of maximum capacity. It represents the end-product of one of the most interesting but least-noticed competitions that has been held in Europe since before the war. The earlier history of the competition will be found set out in AR, June, 1958, and —as there stated—the executed design is that of Roland Rainer, in spite of the fact that Alvar Aalto split the first prize with him.

The executed version shows a number of variations from the prize-project, notably in the section. Thus, while the basic concept is still that of two giant ramps of seating flanking the *spielplatz*, with the roof carried between the tops of the ramps and the central services gantry—2 shows the structure before the side roofs were in place, and the gantry half roofed—the form of the truss-work in the roof, and of the visible ceiling has been considerably modified, giving the section seen in 3. This cross-section also gives some idea of the variety of ways in which the lower part of the hall can be modified for different purposes. The structure of the ramps does not come right down to ground level, and the lower tiers of seating, visible in 1, as well as left of centre in 3, are on trolleys and can be wheeled away. A false floor can then be built up at the level of the bottom of the ramps, or a banked cycle track can be inserted, as in 4, or right of centre in 3.

Externally, the basic section of the hall is frankly expressed, 5, but the general treatment does not—as so often happens with such buildings—leave the noble simplicity of the main structure islanded in a visual slum of car-parks and hot dog stands. The



2



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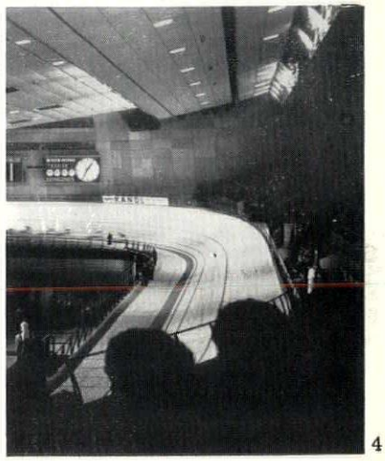

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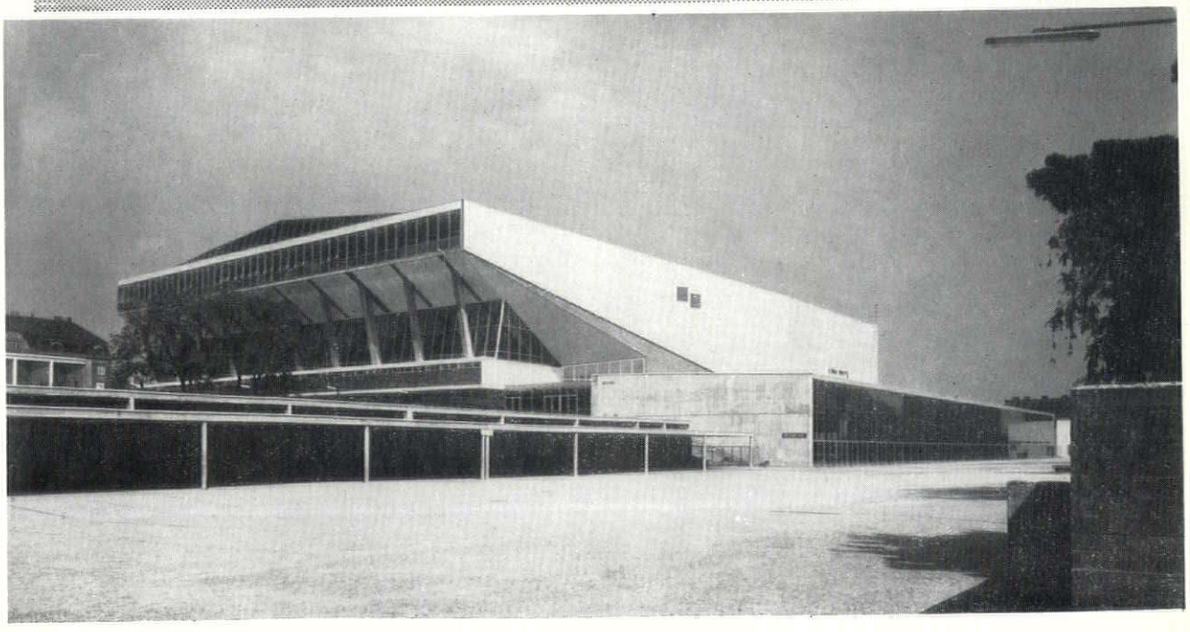


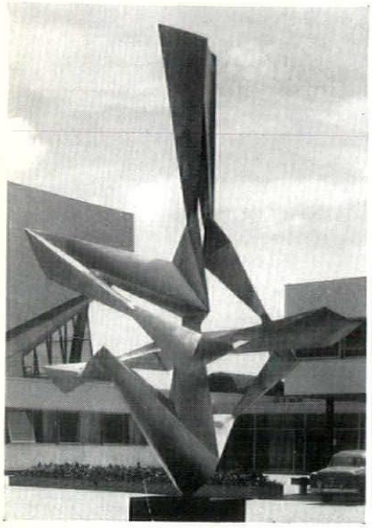
5

Stadthalle

6

approaches have been decently townscaped, 6, and the formal areas between the hall proper and its numerous ancillary buildings have been laid out not only with planting and paving, but also works of art—7 is a sculpture by Wander Bertoni in the parking/entry courtyard on the administration side of the hall.

7



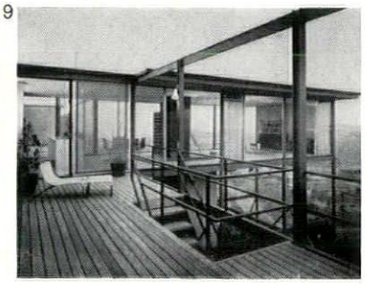


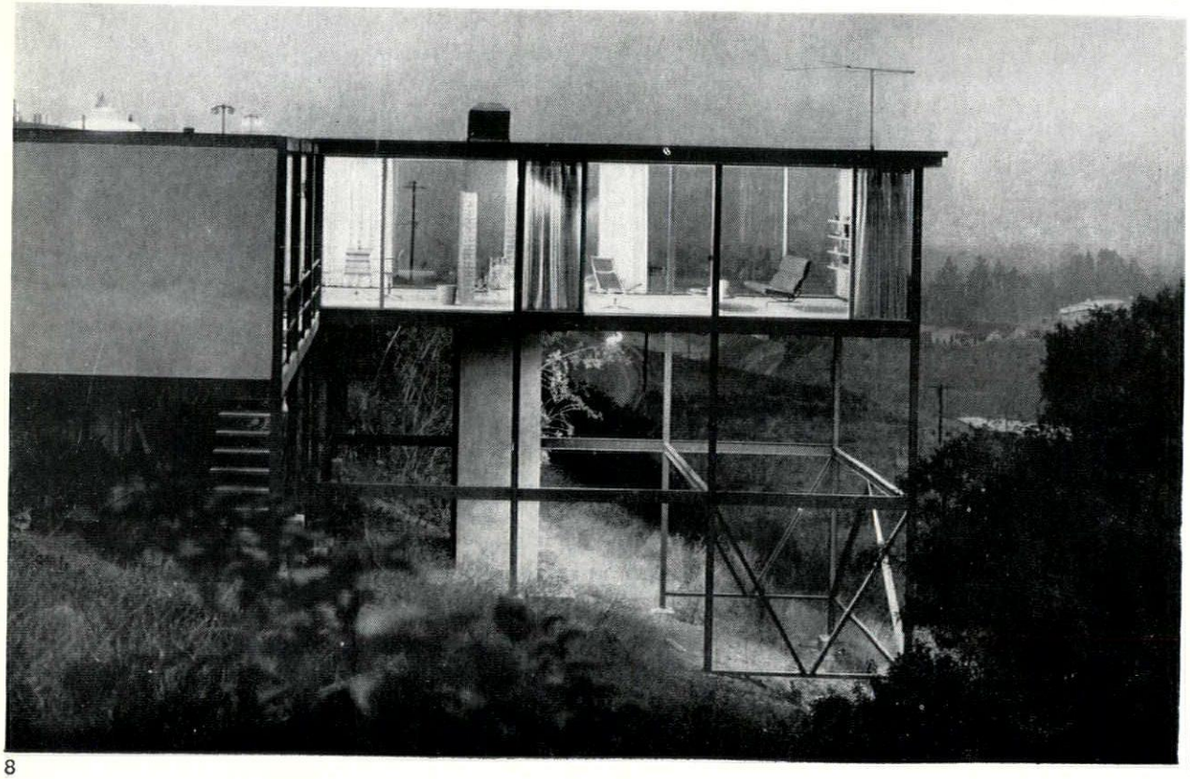
SPACE-FRAME-GAME

Periodically there comes to light a building that—whatever its other merits—seizes the attention by the way in which it exemplifies or dramatizes some aspect of modern architecture. Such a structure is the hillside house in California by Craig Ellwood, 8, recently illustrated by *Arts and Architecture* (January, 1960). Here seems to be the ultimate demonstration of modern architecture as an erector toy, a private myth that has lurked not far below the surface ever since the Crystal Palace, and frequently erupted in our own century—most recently, perhaps, in Charles Eames's own house. But here it reaches an extreme point, the whole structure becomes a neutral space-grid of horizontal and vertical members, with no apparent scale of their own, and the house is made by skinning over the top range.

The chances are that another viewpoint, or another photograph, like 9, taken from the flanking sun-deck, will reveal the house in a completely different light, but we must still remain grateful to Marvin Rand for having taken just one photograph that reveals an aspect of architecture with such startling clarity.

9





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CIRCULATIONIST MANIFESTO

Debord on Planning

It may well be that the spectre haunting town-planning is a Situationist. Certainly, the promise of Guy Debord's early researches into the micro-psychology of towns, his plotting of gradients of psycho-geographical drift, as they were reported in AR, July, 1958, has been fulfilled in the creation of the concept of Urbanisme Unitaire.

To recapitulate briefly, the Situationist Position (to use one of the movement's pet phrases) is this—that the function of creative activity is to construct situations, that is, the 'factual construction of transient ambiences for our existence, and their transformation on to a higher emotional plane' (the translation is rough, but the terminology of the original French is specialized). For example, the function of a work of art is to create a momentary ambience, or environment, for the beholder, and to raise his responses to a higher plane.

But, equally, there are any number of pre-existing constructed environments (a phrase that might almost be used by either Situationists or Italian Neo-Libertarians) which have some emotional effect on those who occupy them, and the various parts of towns are clearly in this class. Thus one finds the Situationists simultaneously manufacturing *machines à épater les bourgeois* (such as Debord's notorious anti-film *Hurlements en faveur de Sade*) and making systematic attempts to map the intangibles of town planning. Much of Paris has been so mapped, and Debord has published the results (AR, July, 1958); an English member of the group, Ralph Rumney, was lost to the cause in an attempt to survey the urbanistic jungle of Venice, and a psycho-geographic study of Amsterdam is promised, the fieldwork to be done this spring.

Two main techniques seem to be employed in these explorations—one is clearly a simple mass-observation of the way people behave (*comportement* is a good word among Situationists) in different urban environments, the other, and more publicized technique is the assessment of psycho-geographical drift, that is, the way in which an undirected pedestrian tends to move about in a particular quarter of the town, tending to establish natural connections between places, the zones of influence of particular institutions and public services, and so forth. It may well be objected that these techniques are un-scientific, disorderly and too subjective, but the fact remains that the Situationists are studying the actual texture of towns and their relationship to human beings more intensively than most architects and in a more down-to-pavement manner than most town-planners.

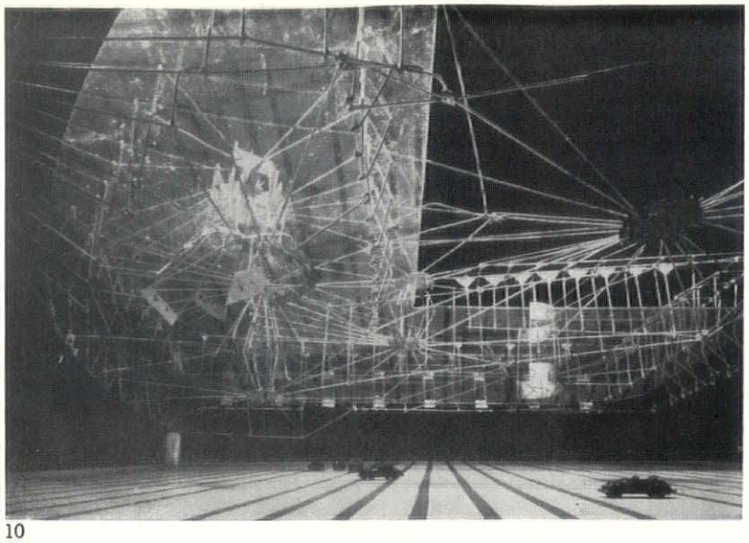
For this reason, their positive proposals are worth study. Some of them are only of the nature of a current project to colonize that mysterious eyot in the Seine (the *Allée des Cygnes*) whose main function is to carry the intermediate piers of railway bridges between the fifteenth and sixteenth

Circulationism

arrondissements. A gimmick? Possibly, but why should the third isle of Paris be uninhabited, and what a marvellous place to live, anyhow! Of more general application, however, is Debord's formal taking up of a Situationist Position on traffic circulation. The document in question appeared in No. 3 of *Internationale Situationniste*, and though some of the detailed positions may alarm and shock, the general tenor of the argument is close to much that has been said already in the pages of AR.

Debord's point of departure is that the motor-car is not a means of transport but the 'supreme good' of a way of life that has gone adrift, and that time spent in travelling is merely extra work. We must rid ourselves of this state of affairs and make transport extra pleasure. To remake architecture in terms of the demands of motor-traffic alone is to be unrealistic; architecture must be re-made in terms of *all* forms of mobility. Even if it were possible to divide a town into zones of work and residence, there would still have to be a third zone, that of life, liberty and leisure; in any case the intentions of Unitary Urbanism are against such divisions. It is not a question of fighting the motor-car, but of preventing it destroying its own function through congestion. The motor-car is not necessarily here to stay, in any case—other forms of transport may supersede it. Thus most of the allegedly practical propositions for dealing with it are quite unreal.

As will be recognized, much of this



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argument lies close to the lines of thought pursued by AR and the *Architects' Journal*, but the peroration reminds us that we are in another country. 'Revolutionary town-planners are not concerned solely with the movement of things, and of men stuck in a world of things. They will attempt to break these topological chains, and experiment with terrains for the circulation of men through a more authentic life.'

Rhetoric? Again, not altogether so. A recent edition of the Dutch magazine *Forum* (6, 1959), devoted to the integration of the arts, had a kind of Situationist supplement, expounding the concept of Unitary Urbanism, which is defined, among other things as a 'Theory of the employment of *all* the arts and sciences . . .' in the construction of urban situations, and here was an example of the creation of such a terrain—a project by the Dutch Situationist who signs himself simply as 'Constant,' for a Covered City. This would indeed break the topological chains, since it calls for nothing less than the clearance of all the ground surface for vehicular circulation, and the suspension of the rest of the city, 10, in a giant space-frame above it. In a characteristically Situationist manner this reverses the normal solution of clearing the ground for pedestrians and putting the vehicles up in the air, as in the expressways of the US.

HOUSE FOR 1960

In the first article of the AR ***1960*** series (February, 1960) reference was made to the possibility of a prefabricated house in plastics, conceived as a number of service or amenity units plugged together with standard connectors. This concept may be seen admirably exemplified in a project by Jacques Baudon which gained an honourable mention in the *Maison Européenne* competition held in connection with the 1959 *Foire de Gand*. The basic concept, as the plan shows,

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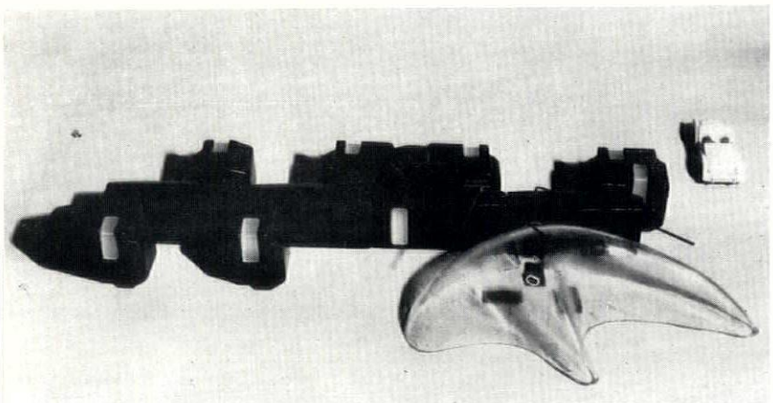
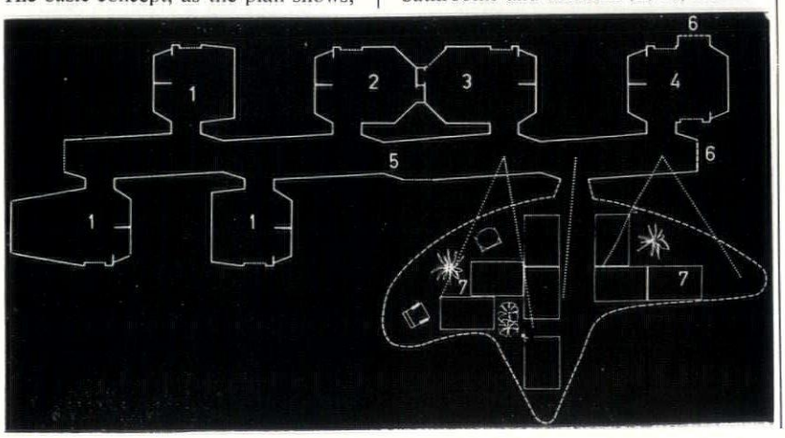


11, is for a series of standard corridor units (5) plugged together and each having two side openings. To such side openings can be plugged bedrooms (1), bathrooms and kitchens (2, 3), cloakrooms (4) or living spaces (7). As the plan also shows, the living space is conceived in completely different terms to the other units, and the model shows how different. While the service and sleeping units are all self-supporting plastic shells, 12, the living room is conceived as a transparent tent, carried on four arms cantilevered from the corridor structure.

11



Although space-consuming, the scheme has obvious attractions, but these were not apparent to the writer who reviewed the competition entries in *Habiter* (6, 1959) and announced 'It will be like living in a railway carriage, going up and down the corridor looking for the eating compartment or the sleeping compartment; as for the living-space it is no more than an attractive fantasy.' Men have had to eat milder words than this before now, and a close study of the detailed drawings for Baudon's project suggests that the fantasy is well grounded in practical fact. The kitchen/bathroom units, 13, which span over two plugging-points on the corridor chain, have been thought through in a manner that recalls the similarly thorough studies of Coulon and Schein, or the Phelps-Dodge bathroom of Buckminster Fuller. In addition, the concept of the

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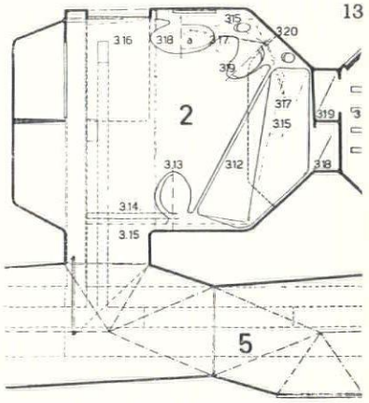

house as a long-chain structure, 14, affords a means of creating a genuinely expandable house without formal or domestic disorder—single bedrooms could be unplugged and replaced by doubles, or a whole extra section of

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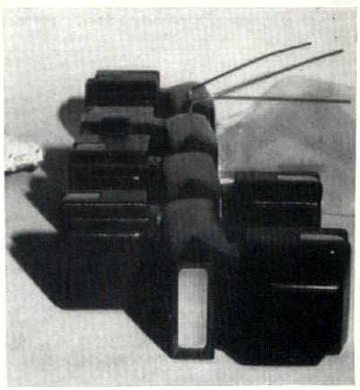


corridor could be plugged in, making provision for two more bedroom additions. Conversely for a dwindling family; but in either case one interesting aesthetic point remains: it would clearly be more economical to have much shorter corridor units, but would the design then be as convincing visually?

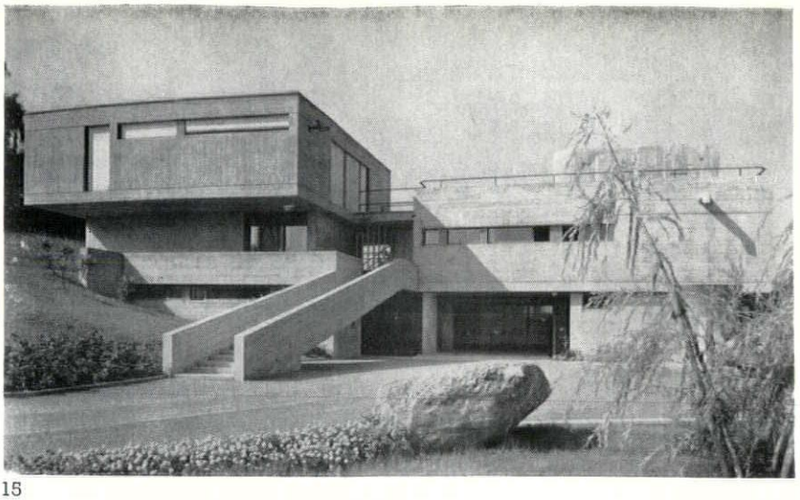
EPIGONEN

The Swiss magazine *Werk* saw out the Fifties with a leading article on the problem of 'epigonism' in modern architecture. The trend of the argument was not altogether what might be expected—a multiplicity of 'styles' within the modern movement was deplored, whether caused by a commercial desire for novelty, or by the tendency of those with a more serious approach to adhere to the following of a 'Master,' be it Wright, Mies, Neutra or whom-you-will. As a result, there is no general style of our time,

Epigonen

as there was in 1927 at the Weissenhof exhibition, and 'everything in the way of research and actual projects is being done on an individualistic basis.'

Against the background of these propositions, how is one to assess the villa at Cologny, Geneva, 15, by the Swiss architect Georges Brera which is illustrated in the same number of *Werk* (12, 1959)? At first sight this is School-of-Late-Corb, in such a way that it links immediately with Kenzo Tange in one direction and Andre Wogensky in the other—here are the same pattern-shuttered walls, muscular stair structures, hither-and-thither windows, even the same gargoyles. Here the status of epigonism is to make for international unity, rather than an excess of diversification. But the moment one looks at the elevations in their totality, 16, the picture changes, and this is no more Corbusian than is the work of a Johansen or a Bakema. The colliding and overlapping volumes belong to an altogether different tradition, and Brera's individuality appears to reside somehow in his mediation between two seemingly exclusive traditions. In this sense, at least, he contributes to the creation of a general style in exact measure as he is a true epigone of two different ways of conceiving architecture.



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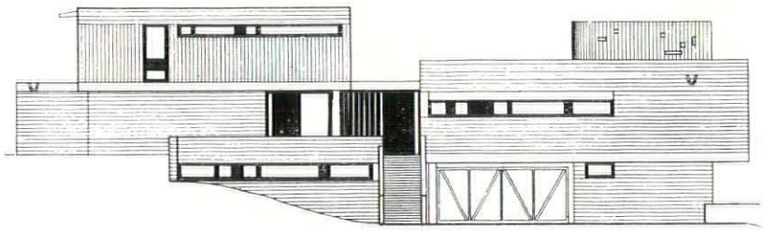

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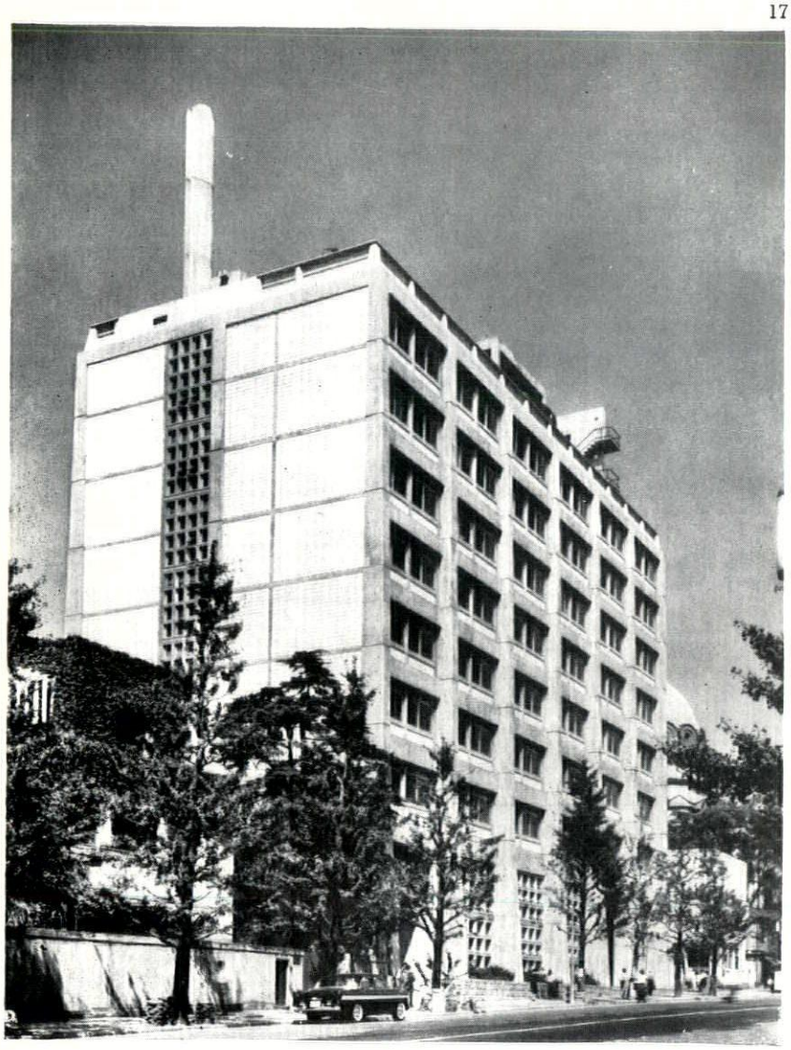
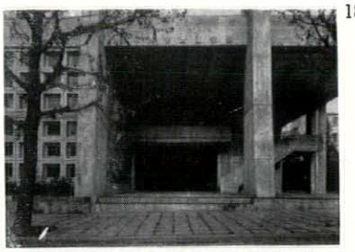


no.5 BUILDING

The Japanese custom of giving their new university buildings simple numbers, instead of naming them after public figures or benefactors, must often give Western readers a feeling of inadequate respect for worthwhile buildings. Eiji Miyagawa's science block for Nihon university, 17, surely deserved a more dignified fate than to be known as *No. 5 Building*. A tough-minded design in raw concrete, hollow-blocks and aluminium sashings, it is much admired, simply as good educational design but also because 'the brutalistic approach (to quote *Japan Architect*, 34, 1959) gives the edifice a distinction of its own, and the style is certainly more appropriate to a genuinely urban college than an artificial attempt at ivied walls and spacious lawns.'

However, the brutalism, and the need to pack a great deal of teaching accommodation on to a very restricted urban site, do not mean that Building No. 5 is without its graces—nearly a third of the ground floor is devoted to the entrance loggia, 18,19, with its mural

18



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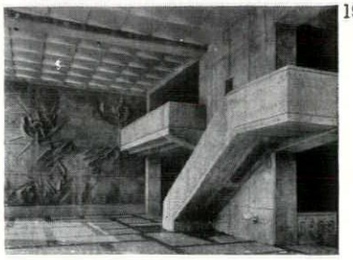


sculpture in concrete by Yazuru Ono, and the roof which is—as so often in Japanese universities—practically the only free space, has been treated as an open terrace with low sitting out of the wind, and high sitting under a three-legged canopy, 20, for the view.

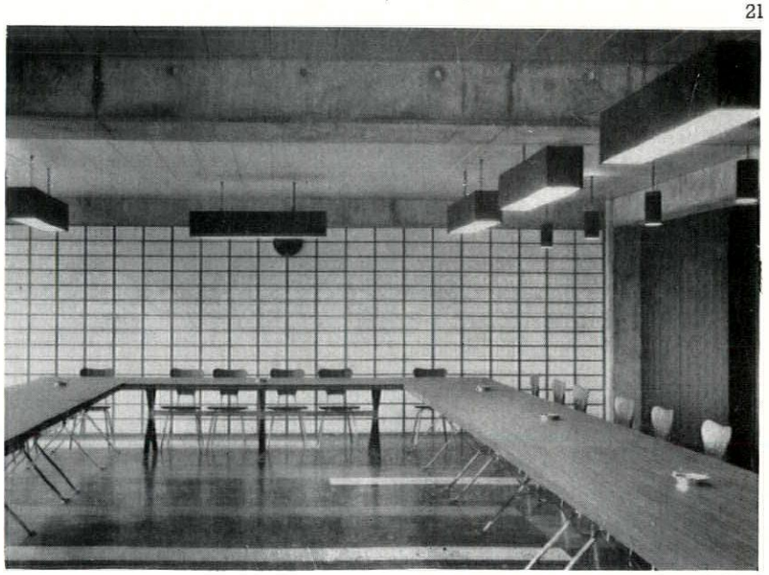
There are four floors of laboratories, and two of drawing offices, above three floors of communal facilities,

20



library, offices, etc., and the interiors are—like the exteriors—tough but elegant in a very Japanese way, as exemplified by the second-floor conference room, 21, with its *beton brut* and spindle-shanked furniture.

21



MARGINALIA

STRUCTURAL HISTORY AT SHEERNESS

It is not often that a large building of considerable historical importance is quite unknown one year and stands fully documented and recorded a couple of years later, but this has happened in the case of the boat-store in the Royal Naval Dockyard at Sheerness which is the subject of our frontispiece this month—page 228.

It was noticed by Mr. Eric de Maré when he toured the naval dockyards taking photographs for the special issue of the REVIEW entitled 'The Functional Tradition,' published in July, 1957.* The interest of the building was evident, and he and Prof. A. W. Skempton decided to investigate it further. They did so with great thoroughness with the co-operation of the Admiralty and the Public Records Office and the help of Miss Carlotta Hacker and Mrs. Charlotte Baden-Powell. The results were given in a paper read by Prof. Skempton to the Newcomen Society on February 3 this year.

'A mere eight years later than the Crystal Palace,' he said, 'it (the Sheerness boat-store) seems to belong to a different age in spite of the advanced technique of that work. Moreover the boat-store was completed twelve years before the famous Menier factory in France, traditionally though quite incorrectly considered to be the first multi-storey iron-framed building. Also, the Menier factory is far less elegant structurally, whilst architecturally it is altogether typical of the late Victorian period.'

The boat-store, on the other hand, looks forward to the frame-and-fill aesthetic of a hundred years later. It is in fact just a hundred years old. Prof. Skempton was able to examine the original working-drawings, which are dated 1858; the iron columns bear plaques dated 1859; Admiralty records show that the builder's final account was settled in August, 1860.

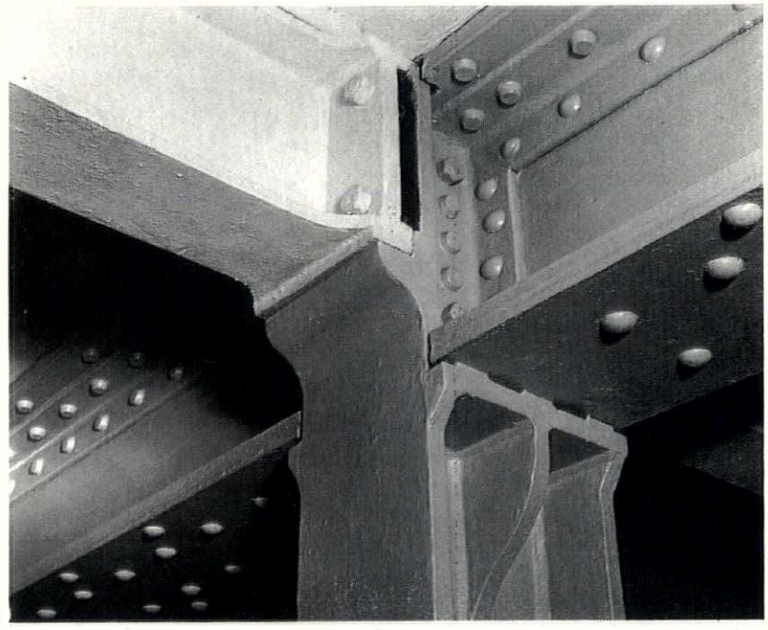
The drawings are signed by G. T. Greene, who was Director of Engineering and Architectural Works to the Admiralty from 1850 to 1864. Prof. Skempton's researches prove that Colonel Greene designed the building personally and he thus emerges as a significant figure in the development of iron structures. The boat-store is not only a very early example of a multi-storey building with exposed iron frame, but is perhaps the first to use the simple H-section columns and beams in place of the more elaborate decorated forms typical of the period. In his paper Prof. Skempton analysed in some detail the building's relationship to other pioneer iron structures, and also paid some attention to its builder, Henry Grissell (1817–83), proprietor of the Regent's Canal Iron Works, who was an iron founder and constructor of some note, pupil and assistant of Bramah and collaborator with Robert Stephenson. Prof. Skempton described the workmanship of the boat-store as first class.

The inside of the building is as impressive as the outside. It consists of two four-storey aisles flanking a high central nave. The latter is spanned by three travelling gantries, one at each floor level. Boats are manoeuvred into position on the floor, hoisted on to a trolley on one of the travellers which is moved to its destined position, and the trolley carrying the boat is then run off on to the adjacent upper floor. The whole structure is 210 ft. long and 135 ft. wide and is lit through lights in the roof of the nave and by continuous windows along either side at every floor level, interrupted only by the exposed iron columns, 15 ft. apart. The spandrel panels are of corrugated iron, set in behind the column flanges. The internal columns, including the main columns either side of the nave (spanned by riveted plate girders) are spaced 30 ft. apart longitudinally, and each aisle has four rows of columns 14 ft. 6 in. apart transversely.

With only minor alterations the building stands exactly as it did, but within the last few months, in accordance with the previously announced plan for the reduction of naval establishments, the Admiralty has withdrawn from Sheerness and the dockyard has been taken over by Building Developments Ltd. for use by private industry. The best of the early buildings there are scheduled, but experience makes us aware that that does not do enough to safeguard buildings which, as in this case, are of outstanding historic value.







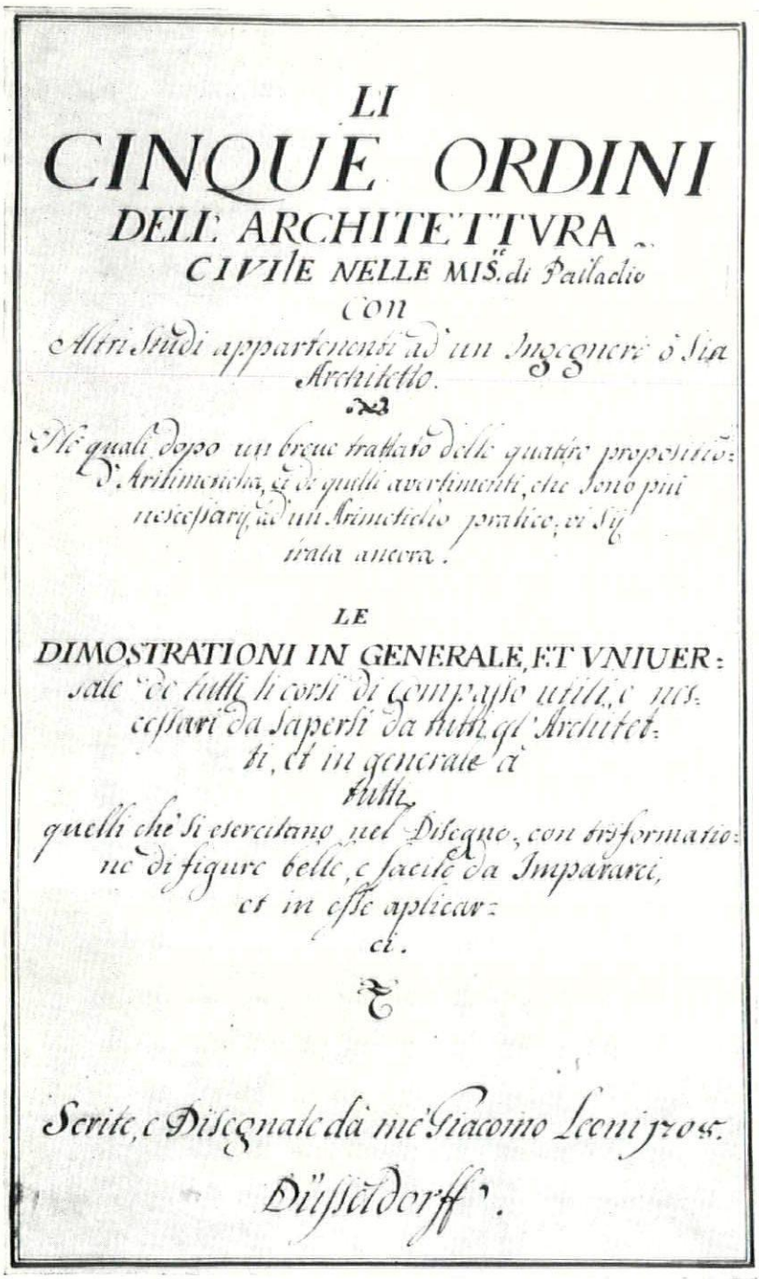
1, *interior of the boat store at Sheerness, showing one of the four-storey aisles.*
2, *a date plaque from one of the iron columns.*
3, *detail of the junction of column and beams.*

NEW LIGHT ON LEONI

New information concerning the early career of Giacomo Leoni, especially as regards his relationship with Nicholas Dubois, has recently been brought to light by the discovery, in the library of McGill University, Montreal, of an unpublished manuscript by Leoni dated Dusseldorf, 1708, and consisting of studies of the Five Orders, together with a treatise on elementary mathematics for the use of engineers.

According to Professor Wittkower's article on Leoni's great edition of Palladio, published in *Arte Veneta* in 1854, Leoni is first heard of working at the Elector Palatine's castle at Bensberg, near Cologne, where he probably arrived in 1708 or 1709 (although it may be noted that he is not mentioned in G. M. Raparini's MS. of 1709, which contains biographies of the artists then working at Bensberg).

* And for the book arising out of it: *The Functional Tradition in Early Industrial Buildings*. Edited by J. M. Richards. The Architectural Press, 36s.



LI
CINQUE ORDINI
DELL' ARCHITETTVRA
CIVILE NELLE MIS.ti di Palladio
con
Altri Studi appartenenti ad' un Ingegnere ò Sia Architetto.

Ne' quali dopo un breue trattato delle quattro propositio: d'Aritmeticha, et di quelli avertimenti, che sono più nescessarij ad un Arimeticho pratico, vi sij trata ancora.

LE
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Scrite, e Disegnate dà me Giacomo Leoni 1708.
Düsseldorff.

4, *title page of the newly discovered Leoni manuscript.*

Similarly Leoni's meeting with Dubois, who later 'provided the English as well as the French translation' of the 1715 Palladio, is ascribed by Professor Wittkower (for want of any other evidence) to the period after he arrived in London (c. 1713). Yet the McGill MS. suggests that by 1708 Leoni was already in Germany, was already re-drawing and amending the 1570 woodcuts of Palladio's Five Orders, and was already collaborating with Dubois (then a military engineer with Marlborough's forces) since four-fifths of the MS. is in French. Furthermore, certain errors in translation suggest that Dubois, far from providing a French translation from the Italian in Leoni's trilingual edition of 1715–20, merely used the existing translation of Fréart de Chambray (published in 1650) and re-translated this into English.

Peter Collins

NEW PRINTING-HOUSE SQUARE

One of the most surprising examples of enlightened patronage of modern architecture in a place where superficial thinking might not have expected to find it, is the commissioning of new buildings for *The Times* from Richard Llewelyn-Davies and John Weeks (in association with Ellis, Clarke and Gallanaugh). Llewelyn-Davies, whose reflections on the impact of new sciences on architecture appeared in last month's AR, has been one of the hero-figures of the tough-minded intellectual approach to architecture in England since the war and his contributions to research (through the Nuffield Trust) and to design (usually in partnership with John Weeks) have constituted one of the most radical aspects of recent English architecture. To find him now as architect to *The Times*, not long after his appointment to the head of the Bartlett School, suggests that 'The Establishment' is not what it was—and also, possibly, that Modern Architecture has matured somewhat and gained the kind of authority that impresses men occupying positions of authority.

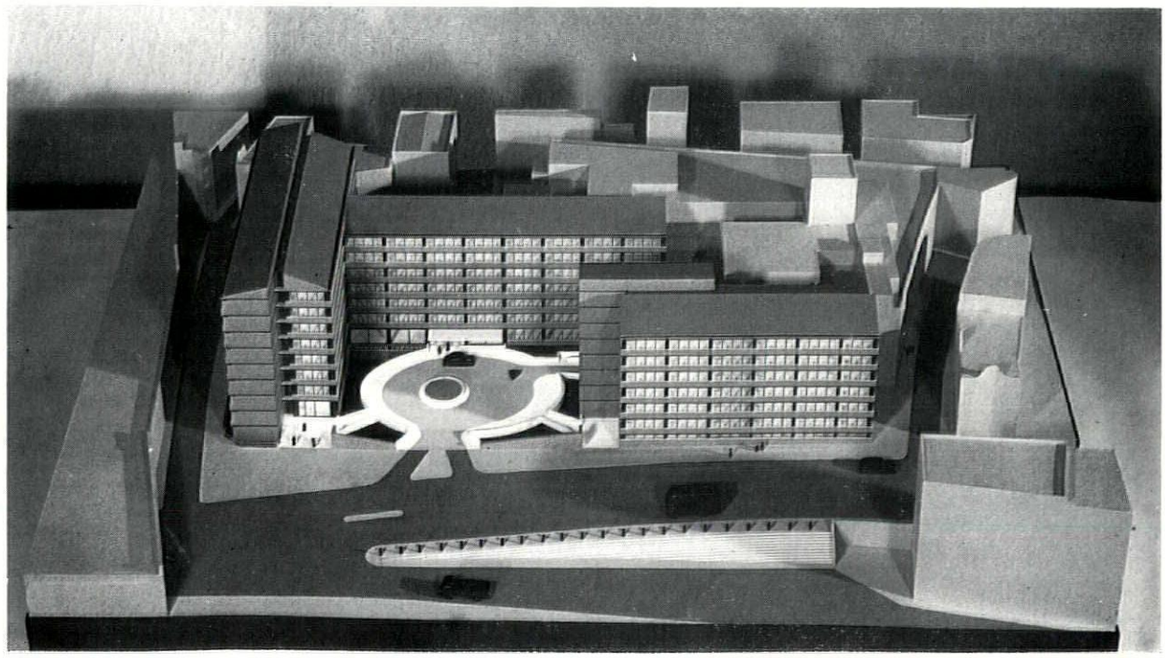
The new buildings, as seen in the model, 5, are grouped around a new Printing House Square, the traditional (and only) home of *The Times*, but the square itself has been opened out to Queen Victoria Street, which is (in terms of town-planning history) a newcomer to the area and lies in the foreground of this picture—with Blackfriars railway bridge on the left and Lower Thames Street sloping down to the bottom right-hand corner and the Mermaid Theatre. The rebuilding programme affects only the editorial and administrative offices of the paper, since the printing works has been rebuilt and modernized quite recently. Work is expected to start within a few weeks of these words appearing in print, and the scheme may be completed some time in 1964. Re-development will be phased to avoid any complete breaks in the production of *The Times* on its time-hallowed site.

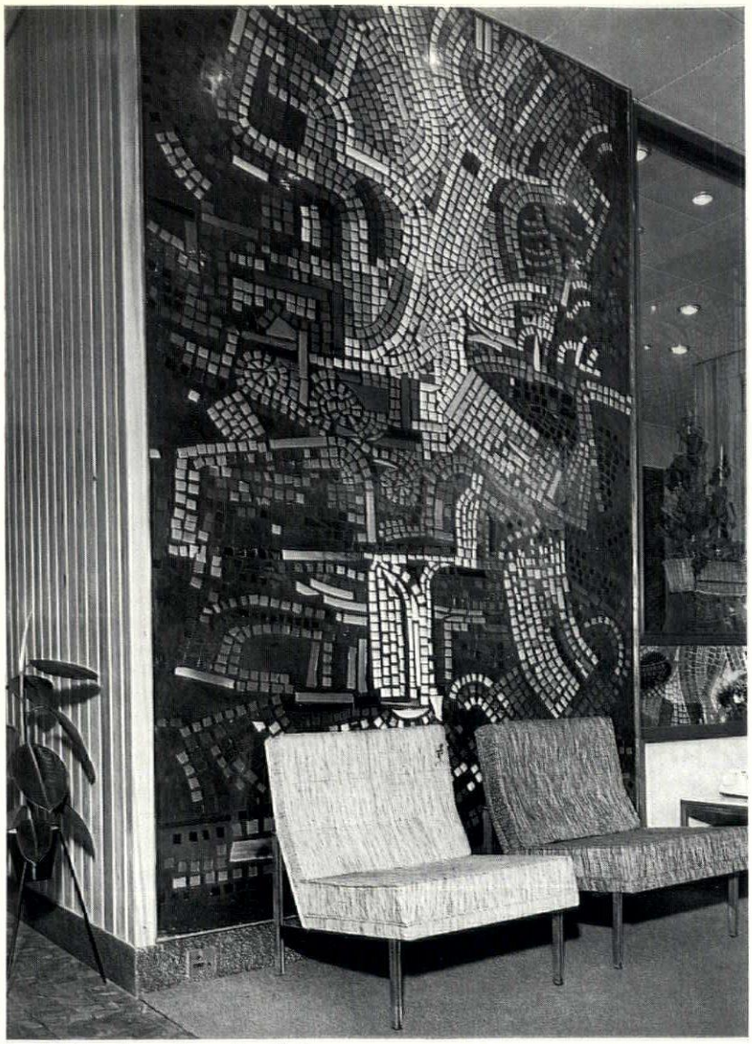
PRE-CAST MURAL

One of the side benefits of recent theorizing about the integration of architecture and the major arts—a side benefit for which architects might be more openly grateful—is the rapid evolution of techniques of mural art that give an end-product more brilliant in its optical qualities, more stable (in the sense of needing less routine maintenance) and more adaptable to current building techniques, than were the traditional methods of fresco-painting and mosaic. The mural by Keith Sutton, 6 (over page) in the entrance to a factory at Harlow New Town (architect, Z. P. Slaski) represents one of the extreme points to which a traditional technique—mosaic—can be brought by new methods and new ideas. The work was executed *à premier coup* by the artist's hand, the sections of coloured glass being cut to size by him and laid directly on a horizontal 'Layout table' so that the developing design could at all stages be directly assessed in terms of its ultimate effect (though reversed mirror-wise) and adjusted accordingly. When it was completed, coloured concrete was poured over it, and suitable reinforcing rods and attachment tags were cast in to the slab, which thus became a pre-cast and—so to speak—prefabricated element ready for transportation to the site, and installation.

The suggestions for further integration of the arts contained in this technique may well be worth pursuing. Clearly, this approach demands greater architectural sensibility from the mural designer, since he will not be able—as he would be if he worked on the site in a nearly completed building—to examine the progress of his effects on the surrounding space, as the work proceeds, but it may also demand even greater all-round aesthetic sensibility from the architect, since there will be, in many cases, some pressure on him to commission the mural mosaic at a very early stage in the design, especially if it is to be applied to structural members. As will be seen, this is in essentials a procedure already known to the building industry from the opposite viewpoint, i.e. the application of special aggregates to concrete surfaces

5, *the model of the new* Times *offices with Queen Victoria Street in the foreground.*





6, Keith Sutton's mosaic mural at Harlow.

by spreading them in the bottoms of moulds before the concrete is poured in. Suitably adapted it could be applied to the creation of external decorative works cast into structural elements before erection, and thus obviate difficult and expensive operations on the scaffolding while the building is actually going up. But, under these circumstances, there will be no chance of last-minute changes of mind or taste, the mural works will have to be part of the conception of the building from the very beginning.

OBITUARY

SIR GILES SCOTT, 1880-1960

The triumphs and tragedies of Sir Giles Gilbert Scott's career were both signalled by cathedrals and power stations—a situation that is a fair mark of his transitional position between a traditional architecture and a technological world. The triumphs were his winning of the competition for the new Liverpool cathedral in 1902, at the remarkably early age of 22, and his creation, in the classically-chimneyed power station at Battersea, of one of the half-dozen landmarks by which London is recognized and by which the viewer on high places can orient himself. The tragedies—the tragedies of an age that had outgrown his approach to architecture—were the disputed but completed Bankside power-station, opposite St. Paul's, and the acrimonious discussions over his proposed design for the rebuilding of Coventry cathedral—discussions so heated that he was led to resign the commission, an action which paved the way for the subsequent competition and Basil Spence's winning design.

But by the time he died in early February, Scott had much more than these four schemes behind him; his total output may not have rivalled that of his grandfather, Sir Gilbert Scott, but it was considerable and included, besides a variety of religious, university and secular buildings, the difficult collaboration with engineers that resulted in the final form of the new Waterloo Bridge. His work has been much praised, much abused, but often little understood. As a contribution to the better understanding, THE ARCHITECTURAL REVIEW will shortly publish, as an appropriate tribute to him, a small selection of photographs drawing attention to the forgotten good qualities of some of his early work.

BOOK REVIEWS

NASH TENANTS

VILLAS IN REGENT'S PARK. *By Enid Cecil Samuel. Published by the Marylebone Society. 5s.*

This pamphlet of thirty-six pages with fifteen illustrations in half-tone and a plan was brought out by the St. Marylebone Society as their first publication. May it soon be followed by others. It is valuable and entertaining. It deals with the villas in Regent's Park, and chiefly their tenants. The architecture is treated in two or three pages, based—as could not be otherwise—on Sir John Summerson's *Nash*. The Park Villages, East and West, are unfortunately not included. As for the tenants, the pattern is curiously similar in most cases. The villas have always had an attraction for outlandish characters. This reached its climax about and after 1900, but, when the bloodless revolution of the mid-twentieth century had swept through Britain, their cost made them inaccessible to private people and they went to public or semi-public bodies. Among early tenants was Baldemero Espartero, Duke of Vitoria, Duke of Morella, Prince Vergara; there were also Baron de Bunsen and Joseph Bonaparte, brother of Napoleon. Among later tenants we may pick out the Count de Avellano de Ramirez, Lady Ribblesdale née Ava Willing, of Philadelphia, and former wife of J. J. Astor, the Countess Haugwitz-Reventhlow née Barbara Hutton, Prince Serge Obolensky, William Meyerstein, of Hanover, and the Marquesa de Brecera. Now it is the Nuffield Foundation, the Islamic Cultural Centre, Bedford College, the American School. The lists of tenants are not without mistakes. Sigismund Goetze is Goetze and not Goertze, and the most recent Astor connexions have also gone slightly wrong (page 23).

N. Pevsner

DECORATIVE REPRINT

L'ART DECORATIF D'AUJOURD'HUI. *Le Corbusier (2nd edition, with new preface by the author). Paris, Vincent Freal. No British price given.*

The famous images of cars and aeroplanes, Greek temples and grain elevators that adorn the pages of Le Corbusier's *Towards a New Architecture* have been worn flat with familiarity and use; they have no more impact than the platitudes of a retired revolutionary. The images in *L'Art Decoratif d'Aujourd'hui*, re-published after thirty-five years, have the impact of a rediscovered tape recording of the revolutionary in his prime, and their own freshness restores the shine to those that had become platitudinous. If one had tended to forget that the pictures in *Towards* proved a unique command of culture, ancient and modern, this alternative sampling from the same spectrum—modern equipment to ancient art—will awake the recognition that Le Corbusier's tastes in 1925 had the same catholicity as the Brutalists' long reach from Delos to Detroit today.

The text, by contrast, is a disappointment—the rhetorical bones of an ancient quarrel, since the book is made up of essays written in *L'Esprit Nouveau* to discredit the Exposition des Arts Decoratifs in 1925 in advance. However, the text sheds marginal illuminations; the new introduction gives the history of the *Pavillon de l'Esprit Nouveau*, and the last chapter is a primary source of biographical information on the days when C-E. Jeanneret was preparing to pupate and metamorphose into Le Corbusier.

But it is the illustrations that matter—they occupy more than half the printed page-area, and no one who claims to know his Corb can afford to be ignorant of them. **P.R.B.**

SHORTER NOTICES

ARCHITECTS' WORKING DETAILS: 6. *Edited by D. A. C. A. Boyne and Lance Wright. Published by The Architectural Press. 25s.*

For the first time a volume in this series is devoted to foreign examples, most of them collected by the Journal's travelling students. The examples are most interesting and the volume as a whole is the most authentic international record of architectural detailing extant anywhere in the world.

SPECIFICATION 1960. *Edited by F. R. S. Yorke, FRIBA. Assistant Editor: Penelope Whiting, ARIBA. Published by The Architectural Press. 35s.*

New this year is a section on Landscape work (but limited to the shaping of earth and laying of lawns). Both the Painter and the Lighting sections have been excellently re-written and there is a long-overdue (but not *quite* sufficient) note on site investigation. Apart from this, there is the usual necessary tinkering all along the line.

RESTAURANTS, CAFES, BARS. *By Alexander Koch. Verlagsanstalt. Alexander Koch. GMBH, Stuttgart.*

A companion volume to the same author's *Hotel Building*. Captioned in English, French and German, this forms a useful reference book of recent designs throughout the world. The photographs are excellent with clear plans and informative captions.

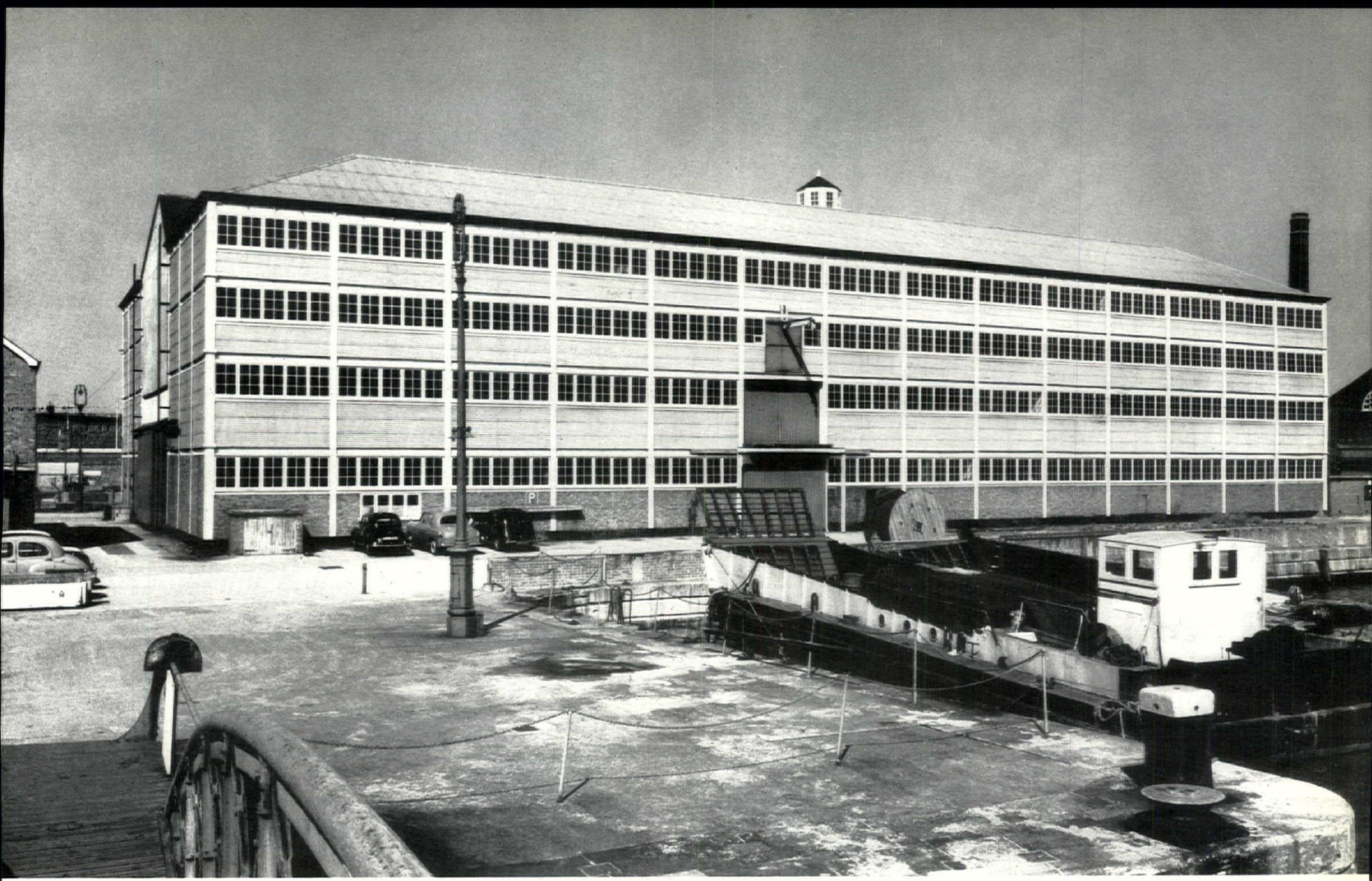
A PICTURE HISTORY OF THE ENGLISH HOUSE. *By R. Furneaux Jordan. Edward Hulton. 35s.*

The photographic collection of the National Buildings Record has been drawn upon to compile this useful pictorial narrative of English domestic architecture, which has the unusual merit of devoting a good proportion of its space (about 160 pictures out of 390) to the nineteenth and twentieth centuries. Visually the subject is somewhat confused by the inclusion of blocks of flats in the later sections, though if the book is to be regarded as a picture of how English people have lived, there are obvious justifications for doing so.

Mr. Jordan's text, in the form of an introduction to each of seven sections and captions to the pictures, is fully informative, not only about changes in taste but also about the social changes that gave rise to them.

DECORATIVE ART, 1959-60. The Studio Year Book of Furnishing and Decoration. *The Studio. 35s.*

This useful annual round-up shows fewer variations in taste and lapses in judgment than in some previous years. In fact it now offers a useful cross-section, based on material drawn from all over the world, of current interior design in the COID-sanctioned idiom, with only a few discreet excursions into fashionable pastiche. As usual the volume opens with illustrations of a number of houses (chosen on no very clear principles from half a dozen countries), with exteriors as well as interiors, but no plans. It then deals with their various types of contents, grouped under furniture, tableware and silver, textiles, glassware, ceramics and metals and light-fittings.



The boat-store in the Royal Naval Dockyard at Sheerness, which occupies a key position in the known history of iron structures as well as anticipating in a remarkable way the expression modern architects have given to the framed building, is exactly a century old. It was the subject of a paper read to the Newcomen Society in February by Prof. A. W. Skempton of the Imperial College of Science, following research into its origin and significance carried out by him and Mr. Eric de Maré (who took this photograph). This important building, unknown until Mr. de Maré discovered it when collecting examples for the *Review's* 'Functional Tradition' issue two years ago, stands almost unchanged since it was completed in 1860, but now that Sheerness Dockyard has been handed over by the Admiralty to private industry, there must be anxiety about its future until assurances are given that it will be properly looked after—see also page 225.

Ian Nairn

THE MINDLESS MASTER

In many ways the biggest problem for the second half of the century is whether man can win the war against the various technological tools which his extreme ingenuity has created in the first half. More and more, the struggle begins to look less like Communism versus Capitalism (this is a kind of family squabble anyway) and more like man versus his creations. Smog, insecticides, strontium 90, the misuse of penicillin, all seem to point in one direction—that man has fiddled a bit too much and too stupidly with the natural order and it is coming back and hitting him. Frankenstein is on the run from his monsters.

Of all these depressingly various alarm bells, the most immediate and most personal is, of course, the motor car. The apposition here is point blank: you can have unlimited use of unlimited cars in their present form and you can have urban communities but you cannot have both. Which is going to win? In the long term there can be only one sane answer—the town or community, if for no other reason than that every new-born human being will have this desire to congregate and make a pattern out of living with his fellow men. It is ineradicable, and it can never be replaced by a substitute—the new patterns of mobility, as they are thought of at the moment, are illusions which destroy what they seek to enjoy.

If the long term objective is agreed to, then the only sensible short term objective must be a vast holding action, done with psychological subtlety and sleight of hand—a retreat *to* Mons, if you like, because Mons, with one of the best town centres in Belgium, represents exactly the sort of urban community whose pattern must be presented intact. Every piecemeal road amelioration—it can be nothing more—must be

directed to maintaining the shape and pattern of towns so that when the means of transport change we will not be left with a mess of unreconcilable fragments in a sea of roadways. And the prime requirement for this is a continuous framework of buildings operating in man-sized streets—no holes and no scorched-earth swaths of asphalt. In particular this must inevitably mean multi-storey garages rather than car parks or street parking—garages preferably built with a shrewd eye to possible conversion when they no longer need to be used. Because sooner or later (and how soon depends entirely on ourselves) cars are going to be obsolete as road vehicles inside towns. There is no way around this: it is towns (not just 'towns as we know them' but towns, period) or cars —man as any kind of civilized social animal, or man as a tiresomely inefficient cog in the society set up by his mindless masters.

To take this a bit further I need (not before time) some facts and figures. They are taken largely from a recent issue of *The Architects' Journal* called Motropolis, edited by Malcolm MacEwan, which described the extent of the problem more clearly than has ever been done before:

First: We have the most crowded roads in the world (one vehicle to every 42 yards), yet our level of car ownership is less than one-third that of the U.S.A.

Second: The number of vehicles in Great Britain has increased by fifty per cent in the last five years.

Third: At the moment, only seven per cent of London's commuters arrive by car. If this were to be increased to twenty-five per cent, the parked cars would occupy 1.9 square miles, or approximately the area of Mayfair.

Fourth: Approximate calculations by the LCC show that, in central London, multi-storey off-street parking costs about £1,500 per place; but the cost of widening streets and then allowing cars to park on them has been worked out at about four times as much.

Fifth: The traffic plan for Cumbernauld New Town, now being constructed outside Glasgow with an eventual population of 70,000, has been designed on the basis of a realistic traffic forecast for the next fifteen years. To keep the traffic moving properly it requires a road plan as elaborate as that of an American city.

Sixth: A similar traffic forecast up to 1980 for Washington DC, has come to the conclusion that to provide enough space for the calculated increase in the number of cars—what they called an auto-dominant system—is simply not possible. The balance would have to be made up with improved public transport.

Add to these facts an observation, which I think is generally acceptable: that in and around most conurbations, traffic will obey a kind of Parkinsons Law and fill the space made available for it. Congestion in cities is not a straightforward and static problem to be relieved by building more roads, but a continuous shifting dialectic between the convenience of having a car in town* and the difficulty of getting about in one. As long as this operates, traffic will never seize up entirely. Secondly, in the British road system at its worst—the two-lane main road carrying heavy traffic—the speed becomes that of the slowest vehicle. The traffic only stops or jams if a bottleneck is added to this.

There are probably several conclusions to be drawn from all these facts—the British Road Federation, for example, adduces something quite different from what they seem to prove to me. What I see in them first is that any attempt to provide space in towns for the natural growth of automobiles in their present size and shape is out of the question. It can only lead to universal Los Angeleses, with each unit the size of East Anglia, and Los Angeles doesn't even work in traffic terms, on the Americans' own admission.

Once this is realized the problem becomes one of removing the bottlenecks, giving as even a flow as possible on the existing system and allowing *laissez-faire* to take over. (I am not talking here about motorways from one urban centre to another and I hope I can make clear that I mean the *laissez-faire* to apply only to the new road construction part of the traffic problem.) We have got to face this in fact, whatever fancy names we give it to deceive ourselves and public opinion: new roads are no solution. The only thing to do is to smooth out the rough places and let the remainder be. There I find myself in surprised agreement, for quite different reasons, with the Committee on London Roads. Tied to a tight budget, and operating with traditional British conservatism, this is just the sort of programme they have produced and been berated for—though significantly, in the list of schemes proposed for a hypothetical £200 million 20-year programme instead of the present likely £120 million, there are already a number of widenings which are by this standard relatively useless; i.e., they are simply uniform enlargements of roads which are without intractable problems—Kennington Lane, New Kent Road, the South Circular Road at Dulwich, Waterloo Road—as well as attempts to improve the unimprovable, e.g. King's Road, Chelsea.

And, outside London the borough engineer of a provincial town, will, all too often, solve his road problems by widening everything. The LCC have realized and proved, as far as such a thing can be proved, that uniform street widening is so expensive that even the remarkable solution of building multi-storey flats for cars will work out much cheaper. This

* Private cars are always assumed to be the nigger in the woodpile, and this is largely true. But a typical London street view, apart from the rush hour, is of half empty buses in convoys and completely empty taxis in ranks. Mr. Car-Owner is obviously not the only problem.

is of immense value to those concerned with trying to keep the shape of cities, even though it was probably carried out purely as a financial calculation. Apart from the destruction of existing buildings, and without envisaging anything on the American scale, indiscriminate street widening can only be a bad thing from the pedestrians' point of view. Apart from physical discomfort there seems to be a point beyond which a wide street becomes a definite psychological barrier (Piccadilly is just all right, Kingsway is too wide) which will kill the total life of the city by chopping it up into insular fragments. Occasional wide streets for special recognizable purposes like the Mall are quite another thing, and so is the idea of a ring road wide enough to mark the division between inner and outer city, as may happen at Birmingham.

Now *laissez-faire* on the roads, however valid, is not something to be maintained in public. Public opinion, accustomed to our code of well-shod falsehood, might well boggle at such an unlikely thing as the truth presented *tout court*. If nothing constructive is done, urban motorways might become the key issue in the next election but two, and result in a vast programme of useless public works which will leave our city centres maimed.

But there is another way out, on the Mahomet-and-mountain principle. If changing the roads is impracticable, why not change the vehicle and the mechanism by which some of the blockages occur? The money we are proposing to spend on road works would be better split three ways—on improving the real bottlenecks, on research into gadgets to make the best use of existing roads and on research into completely new types of vehicle.

These in fact are the means for diverting the direction of public opinion so that by the time it realizes that nothing drastic is to be done about urban roads there will be so many alternatives that the resentment will be dissipated or eliminated. It sounds and is Machiavellian, but the issue is really psychological, not legal, and it does occur to me that this is perhaps what our senior civil servants, who are certainly not unsubtle, are trying to do. One example of what I mean is the parking meter. It certainly allows fewer cars to park in Mayfair, yet it demonstrably makes traffic flow easier and allows the legitimate man-about-town to park when he needs to. The man in the street or in the car will apparently accept this whether he enjoys the consequent advantages or not. He will surely accept any similar kind of change—one that is unequivocally aimed at cutting down the *total* amount of traffic and also at making circulation easier for what remains and for the pedestrians to whom the city really belongs anyway. One way systems, reverse flow systems (like the lanes on Chelsea Bridge), blocked streets, rearranged intersections have all scarcely been tried out at all, sometimes for lack of people with time enough to sit down and think them up. With millions of pounds being allocated semi-casually, this seems very shortsighted.

The next stage ought to be research into better control mechanisms, which is just that we are supposed to specialize in, with our computers and electronic brains: traffic lights for the main intersections which can assess exactly the approaching traffic from any given direction, linked to advance lights to give warning of an overloaded junction; 'no-waiting' streets with some form of burglar alarm (photoelectric?) set to go off after a parked car has been there ten minutes. They may all sound utopian and costly, but not as costly and as hopelessly utopian as an urban motorways programme.

But the greatest benefit can come from redesigning the vehicles which are the cause of all this bother, the first of our self-created robots to get out of hand, if you exclude organized false religion. This is happening naturally but not nearly quickly enough: scooters and bubble cars are here to stay but are only the beginning. Research properly directed could perfect the personal helicopter or ornithopter and could make the bubble car no bigger than a man, and collapsible. Self-drive taxis might be made out of some kind of clip-together unit which could seat one or two or four. Nobody can tell whether these things might work because nobody is doing the research—everyone is concerned with giving different names and genealogies to the various fancy dresses of standard four-seat saloon cars. We did it in the war on every kind of subject: we can surely scrape up enough cash in peacetime to solve just one problem.

At the same time if public transport is to play its full part in this pattern as it must do, another kind of research is needed—into the organization, rather than the means of transport. Put bluntly, London Transport and possibly several others are too big and hold a monopoly as of right, instead of as of results. The vehicle pattern, size, frequency of service and temperament of the driver on a no. 11 route are quite different from an outer London cross-service, and with the way 'organization men' are constituted I do not think that this can ever be adjusted in one mammoth company using one or two standard vehicles and paying a standard wage.

The organization of bus garages seems a long way from architecture and a civilized pattern of life in cities, though in fact the future efficiency or otherwise of London Transport is going to be vitally important to the future appearance of London—what brings the private car into the cities more than anything else is an inadequate and unobliging pattern of public transport: people don't like being slapped. What I am trying to say, with what may seem to be harebrained suggestions, is that American experience is rapidly showing us that building motorways is no solution to urban congestion, though at the moment it is an adequate solution for cross-country traffic. The true solution can only be found by adapting existing roads to make the best of existing traffic, and by diverting the enormous resources of time and money which run the risk of being shortly misspent on urban motorways to the other end of the problem entirely. If you can't change the roads, and you can't change the vehicle growth, then change the vehicle. It is not only an alternative way out; it is probably the only way out. Shortsightedness is relative; and to propose wholesale widenings and motorways to solve the problem for ten years at the cost of throwing city life into the abyss for good may be the most shortsighted step of all.

Facing page: 1, the teaching-block from the east; 2, from the north-east, showing the use of the sloping ground—see also east elevation at foot of this page.

This is the twenty-fifth school to be completed by Mr. Clarke-Hall and occupies a site adjoining that of the first school he completed, exactly twenty years previously, the Richmond High School for Girls. That school, the outcome of a competition organized by the *News Chronicle* in 1937, can claim to be the first of the modern schools for which Britain has achieved such a high reputation in the subsequent years. In particular, it pioneered the open type of plan, which the best school architects followed for several years after. The school illustrated here represents, in complete contrast, the alternative highly compact type of plan, which was likewise pioneered by Mr. Clarke-Hall in his school at Cranford, Middlesex, completed in 1953 and illustrated in the *Review* in June, 1954.

SCHOOL AT RICHMOND, YORKS.

ARCHITECTS | **CLARKE-HALL AND SCORER**

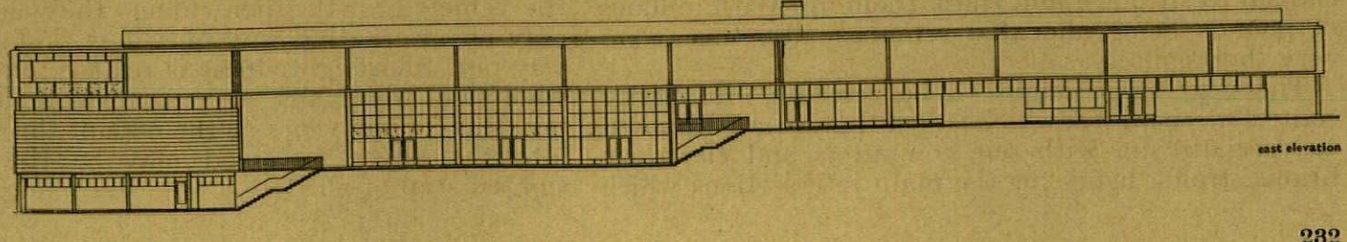
A four-form entry secondary modern school sited alongside the Richmond High School for Girls designed by the same architect in 1939. It is immediately south of the main Richmond-Darlington road, about three-quarters of a mile from Richmond. There are views to the east and south over playing-fields and farmland. The site slopes to the south and bears well-established trees, mainly ash.

The school is in two blocks: a main teaching block two to four storeys high, 300ft. long and 70ft. wide, running across the contours; and a single-storey workshop and laboratory block (also containing a greenhouse) on relatively flat ground to the west.

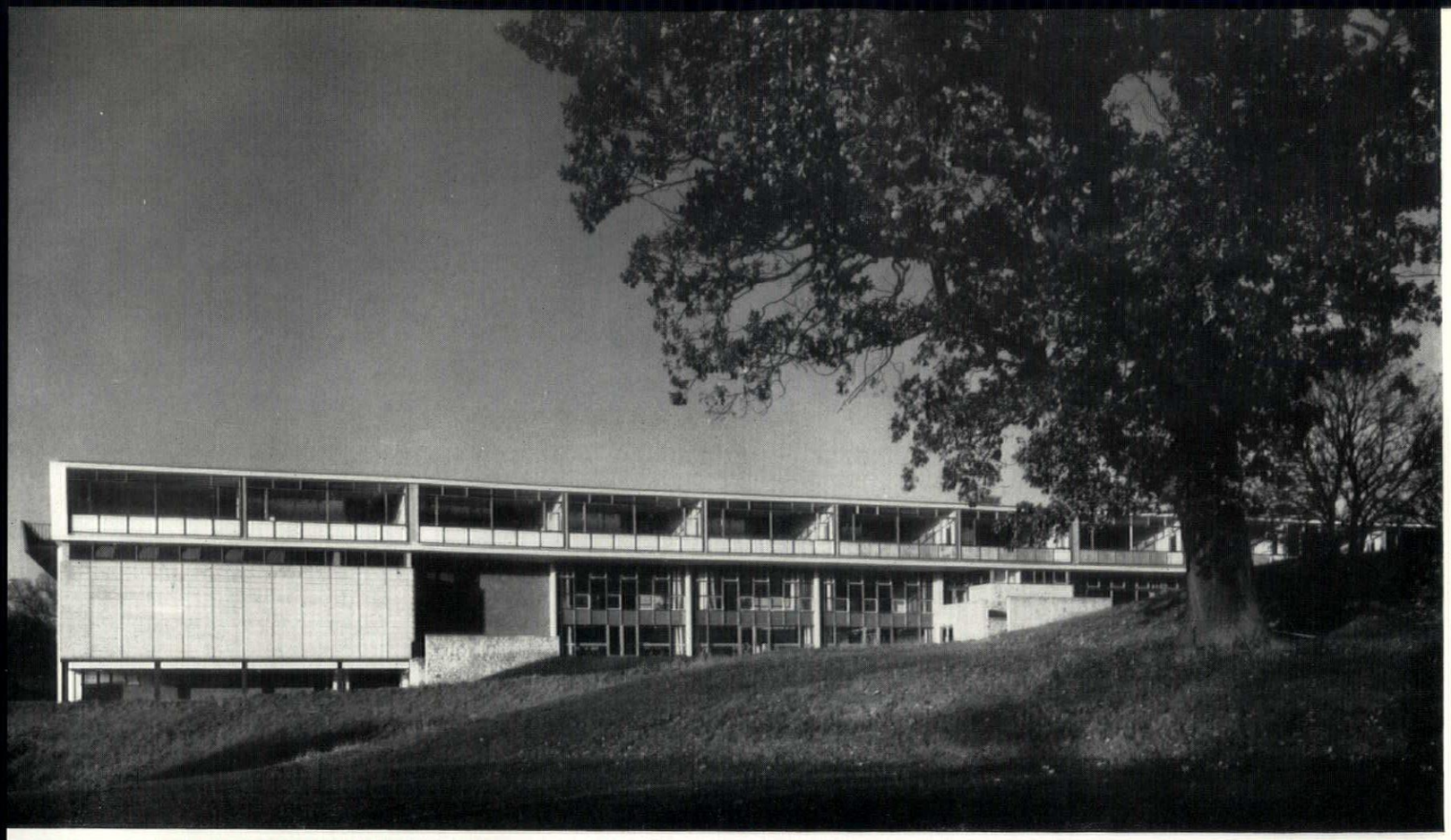
The upper floor of the teaching block contains 19 classrooms, two art-rooms and a library, arranged on either side of a central corridor with cloak bays off it. This floor is served by three staircases: one linking it with the main entrance and staff rooms, one linking it with the gymnasium, changing-rooms and the stage of the assembly-hall and one (the main central staircase) linking it with the pupils' entrance and the dining area and continuing to a lower level to the assembly-hall and the pupils' exit, which leads to the playground and the workshop block.

The staffrooms, cloakrooms and kitchen are at the north end of the block and the gymnasium at a lower level at the south end; between, at an intermediate level, are the dining-area and assembly-hall. The changing-rooms are in a basement beneath the gymnasium. Construction is in-situ reinforced concrete with a structural bay of 25ft., each bay consisting of a beam-wall 10ft. high, 70ft. long and 8in. wide, with openings for doors, supported on two columns, giving a 50ft. span with a 10ft. cantilever on either side. Prestressed beams span 25ft. between these walls to form the floors and roof. This form of construction has the advantages of giving a clear soffit under the first floor, the minimum of columns on the lower floor and a clear span of 50ft. for the assembly-hall. The structure for the last two bays at the gymnasium end is varied to give a large end window to the library above and to reverse the axis for the gymnasium.

External walls consist of honey-coloured random rubble stonework with 4½in. brick backing, dark blue-grey brick to the sides of the stage and exposed aggregate panels of a light terra-cotta colour to the gymnasium. Structural concrete is exposed, and panels below windows are of painted plywood, faced with ribbed glass. Each 25ft. structural bay has four such panels, three of which are blue and one red. For the red panels the ribbed glass is reversed (with the ribs on the outside) giving a variation in the light reflected. The soffit to the top floor is deep yellow. Internal structural concrete is exposed and painted.



east elevation



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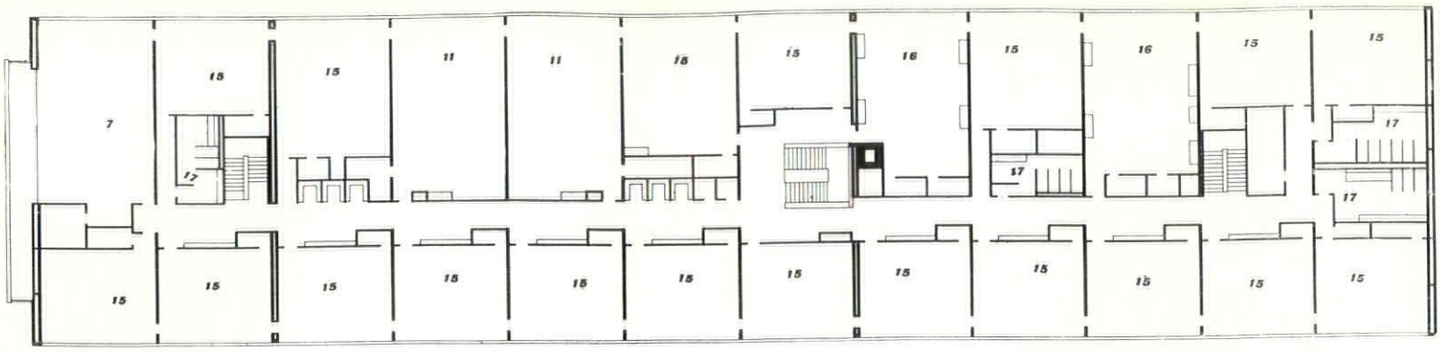
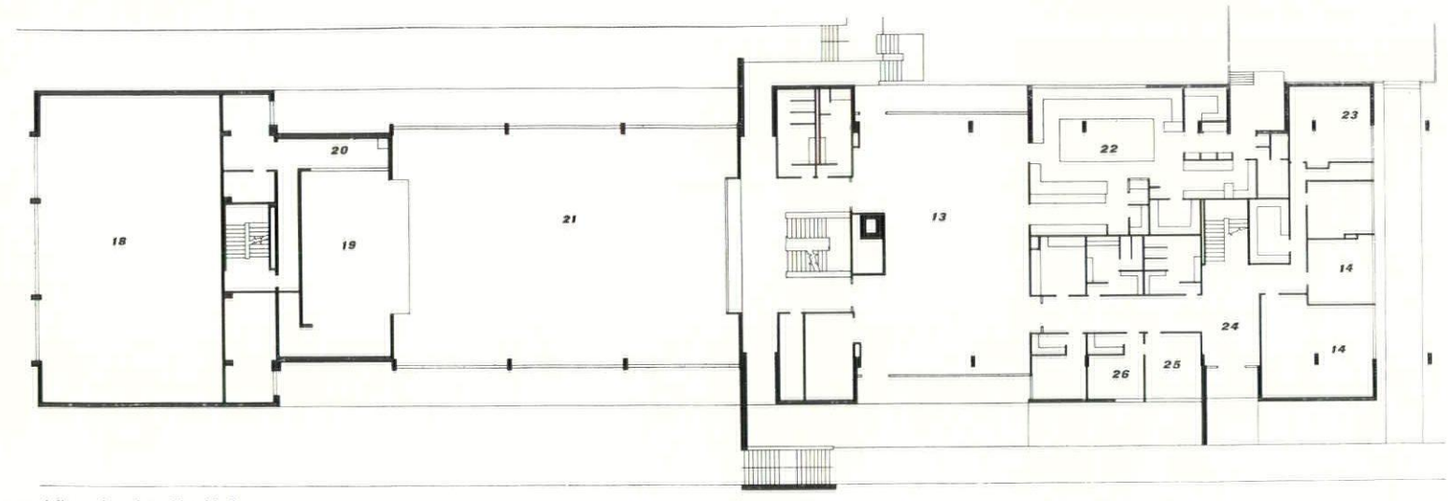
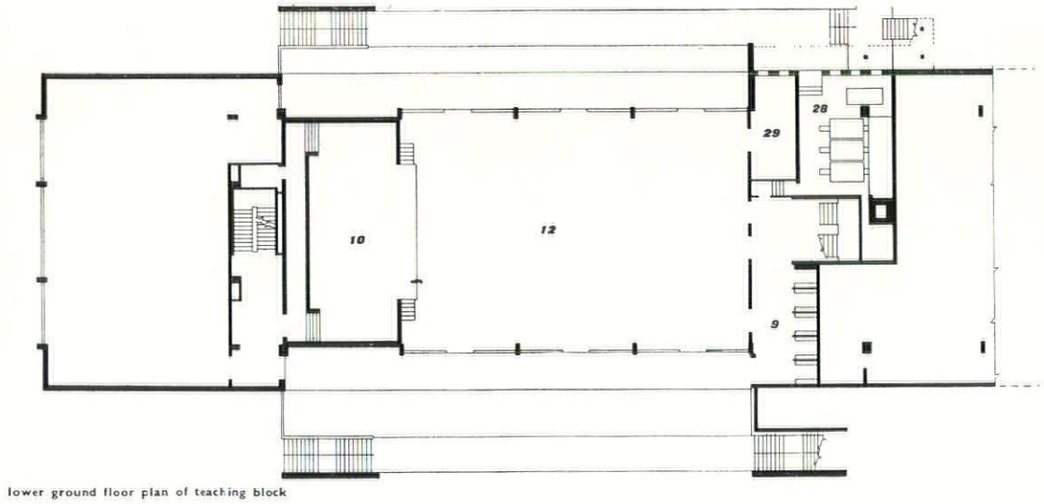


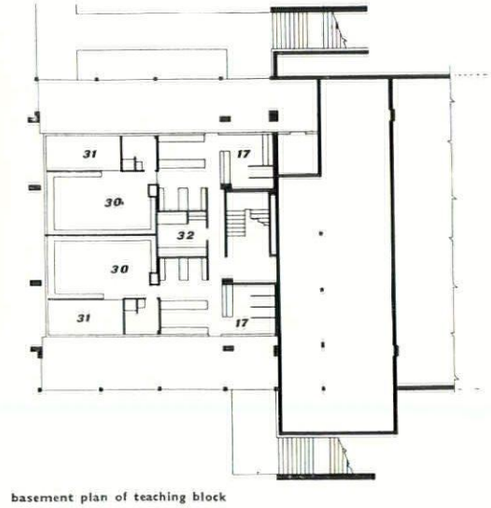
first floor plan of teaching block



ground floor plan of teaching block



lower ground floor plan of teaching block



basement plan of teaching block

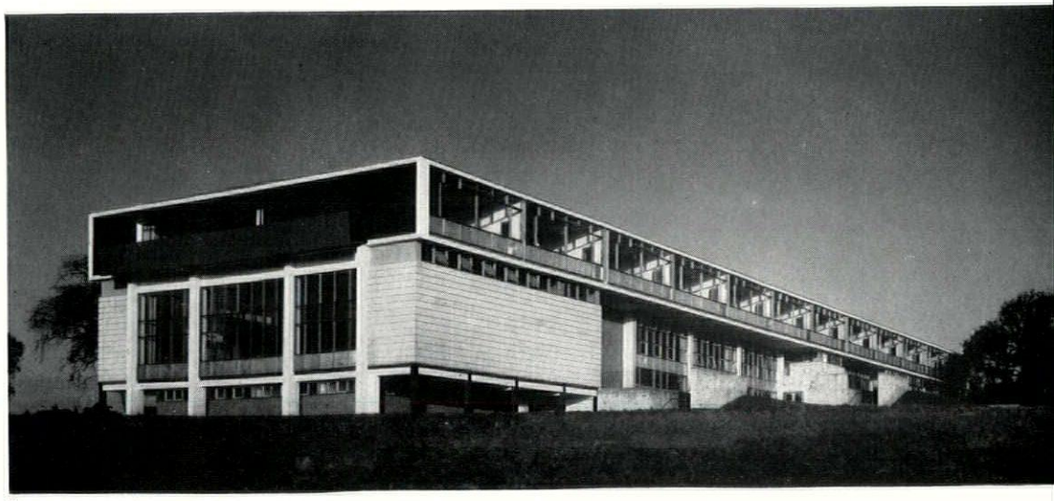


key

7, library.
9, cloakroom.
10, stage.
11, arts and crafts.
12, assembly hall.
13, dining hall.
14, staffroom.
15, classroom.
16, housecraft.
17, lavatory.
18, upper part of gymnasium.
19, upper part of stage.
20, lighting gallery.
21, upper part of assembly hall.
22, kitchen.
23, medical inspection.
24, entrance.
25, headmaster.
26, secretary.
28, boiler room.
29, chair store.
30, changing room.
31, showers.
32, laundry.

SCHOOL AT RICHMOND, YORKS.

3, from the south-east, showing gymnasium with large window facing south and changing-rooms beneath it.
4 (facing page), close-up of south-east corner of teaching-block. The exposed aggregate facing slabs are a light terra-cotta colour.



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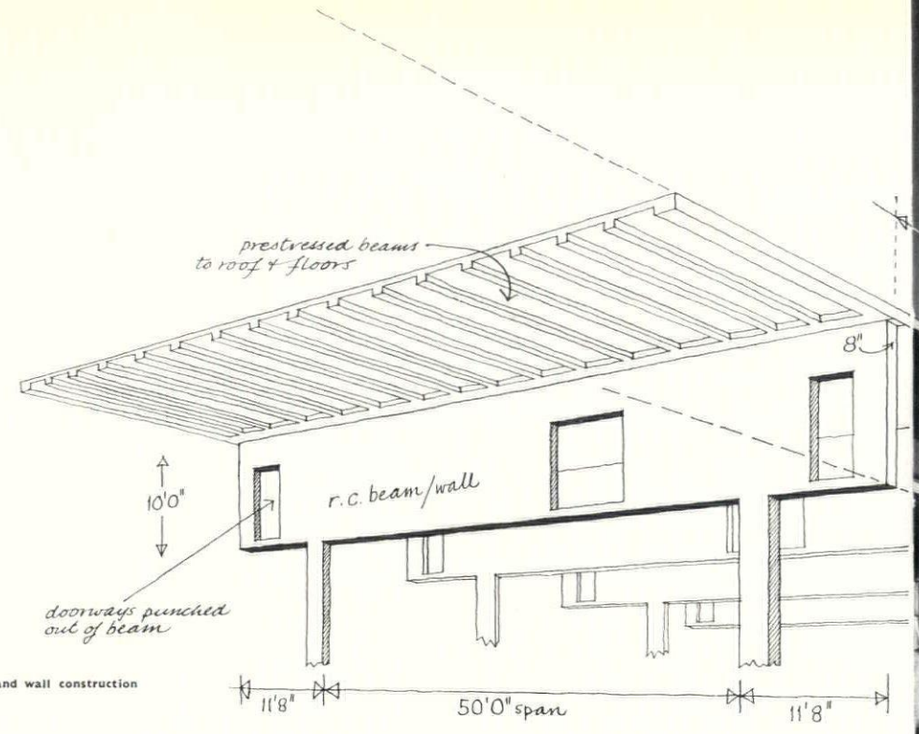
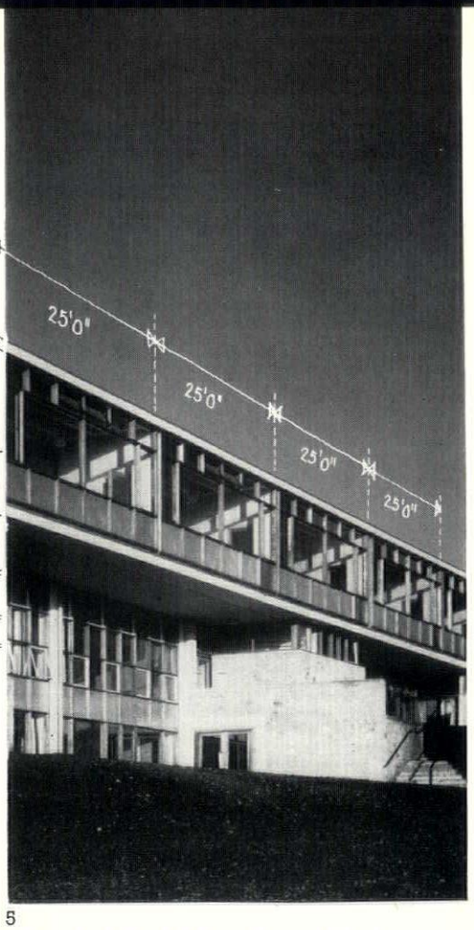


diagram showing beam and wall construction



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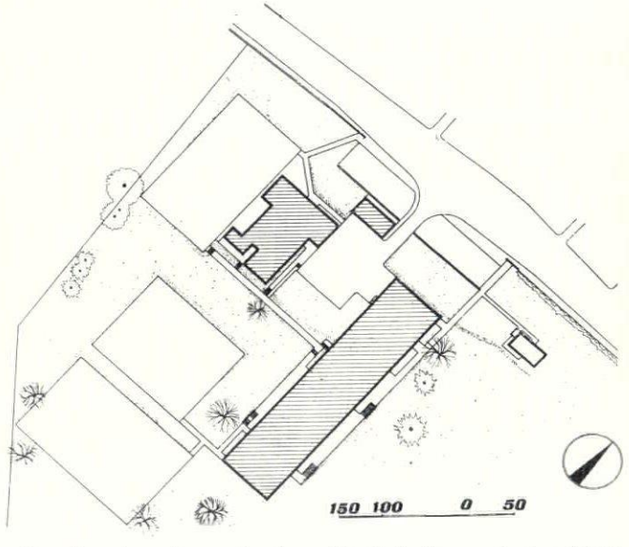
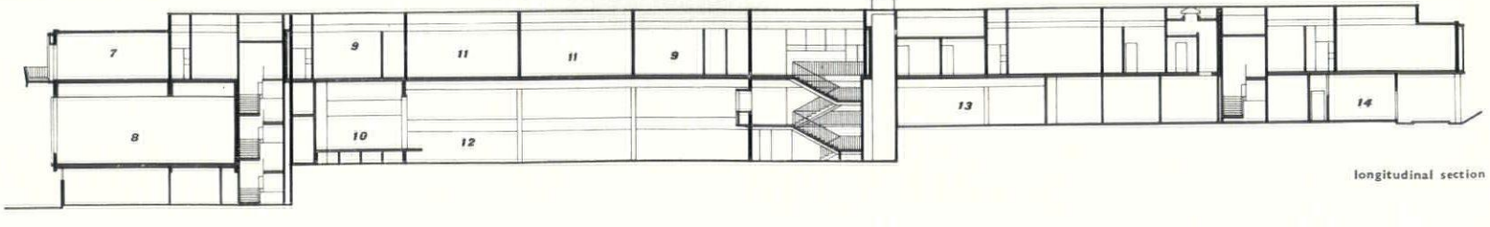


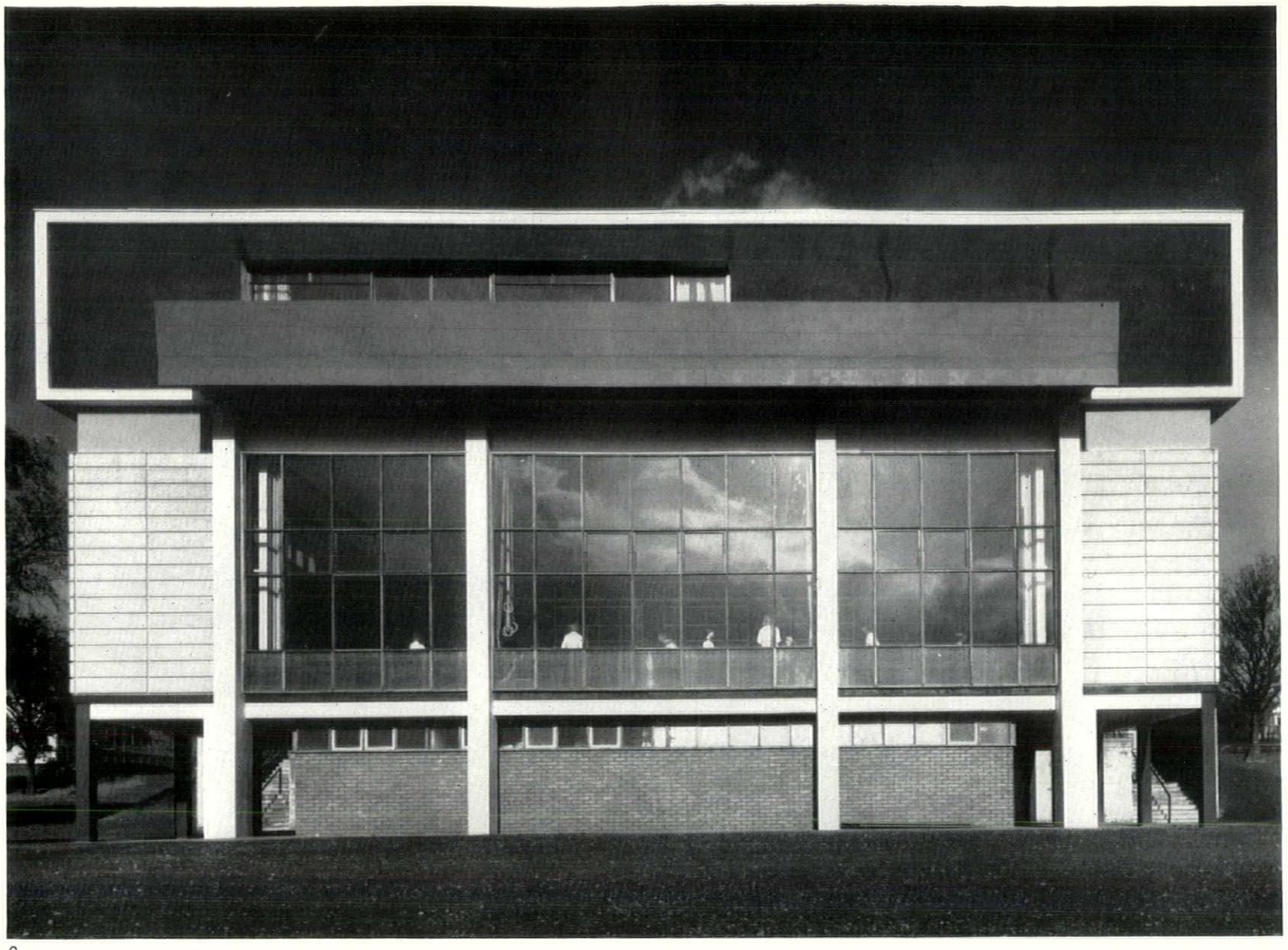
In the site plan above, the long block is the main teaching building illustrated on these pages; the square block behind it contains the workshops and laboratories and is illustrated on page 237. The ground slopes from north to south.

key

7, library.
8, gymnasium.
9, cloakroom.
10, stage.
11, arts and crafts.
12, assembly hall.
13, dining hall.
14, staff room.



longitudinal section



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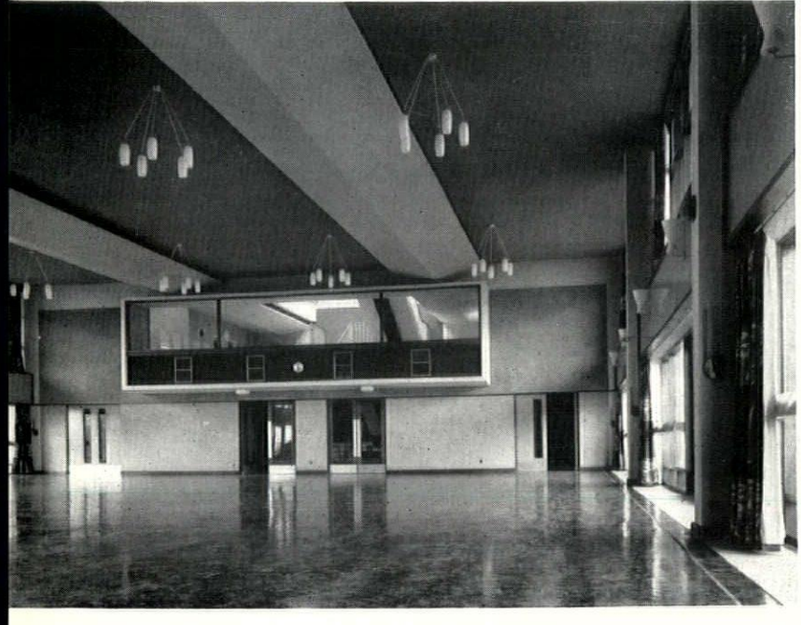
6, south elevation, looking into the gymnasium window, with balcony outside first-floor library above it.
7, interior of assembly-hall, showing glass panels in end wall, giving view down into the hall from the staircase landing.
8, the other side of the glass panels shown in 7: the central staircase landing with view into assembly-hall.

SCHOOL AT RICHMOND, YORKS.

7



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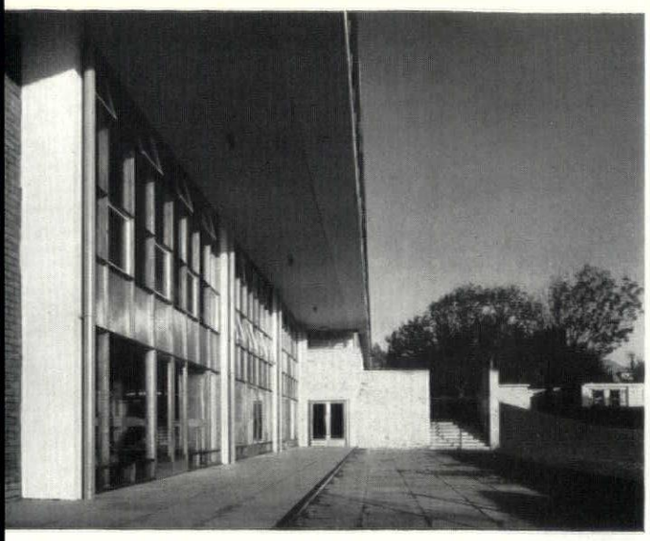

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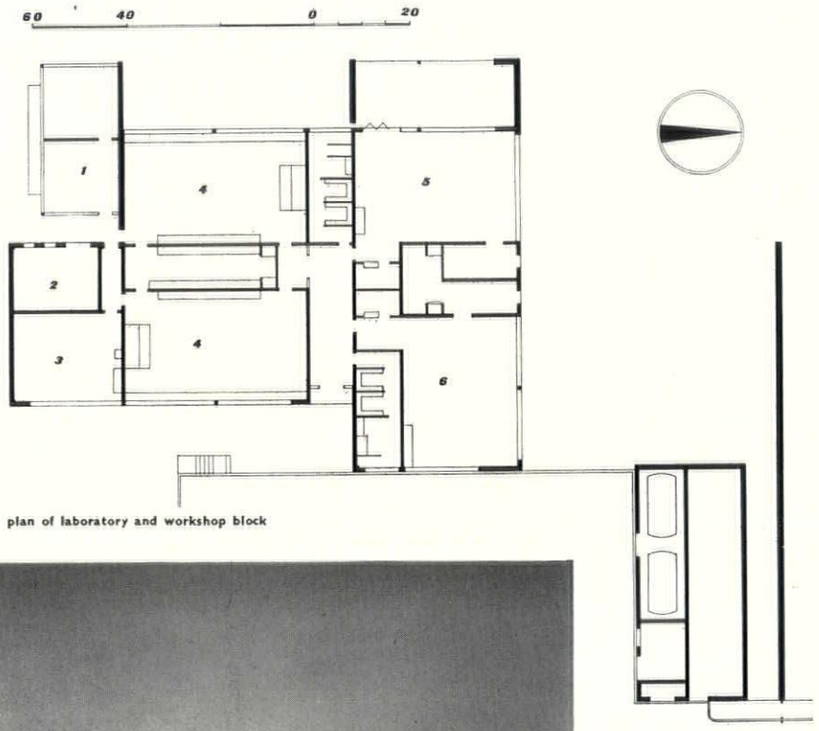
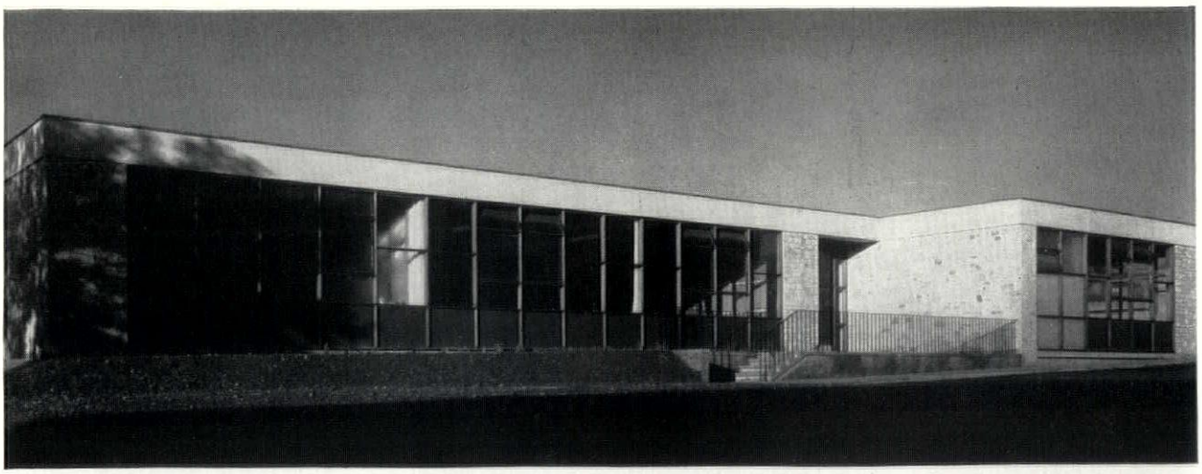
9, looking north along the east flank of the teaching-block, showing the overhang of the classroom floor. On the right of the picture, on the higher ground, is the caretaker's house—see also site-plan on preceding page.



plan of laboratory and workshop block

key
1, greenhouse.
2, tool shed.
3, potting shed.
4, science laboratory.
5, metalwork.
6, woodwork.



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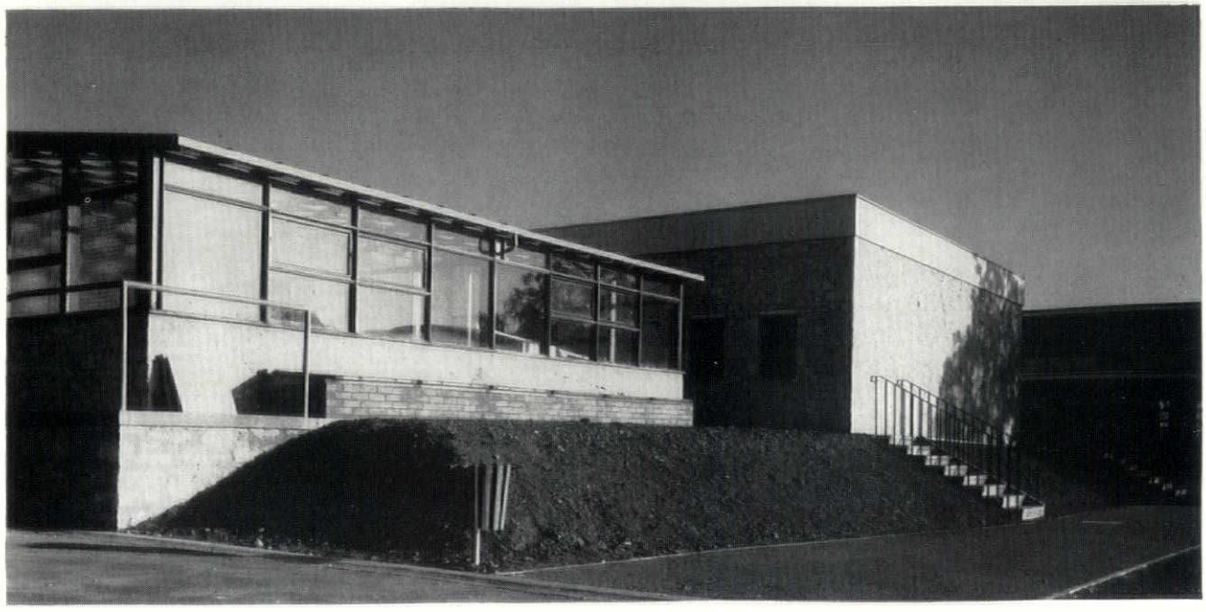

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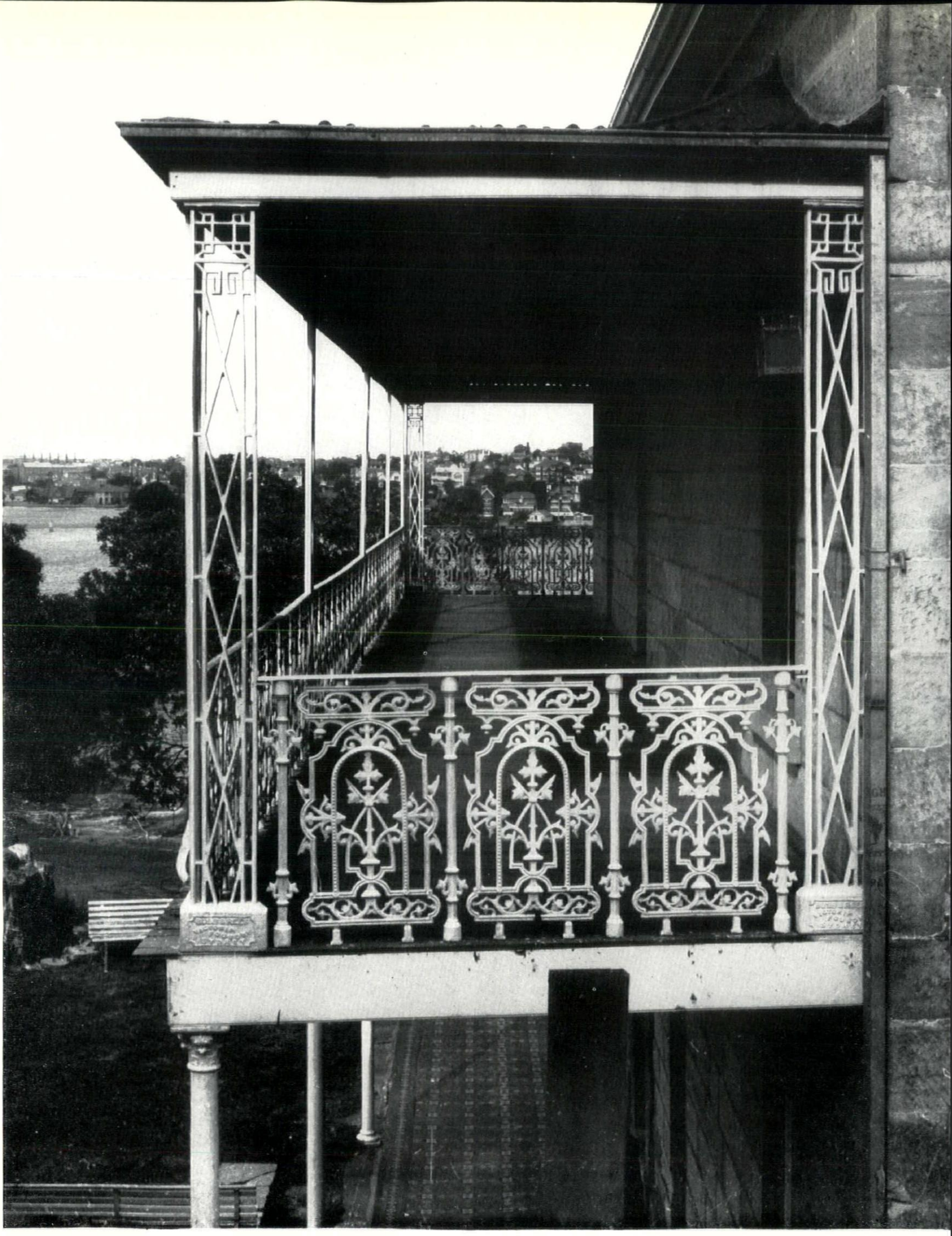
10, laboratory and workshop block from the east (that is, from the direction of the main teaching-block).
11, from the south, showing greenhouse wing on the left. The base and the laboratory walls are of honey-coloured stone.





1, cast iron verandah of an early house in Sydney, with roof supported by openwork panels, cast by Bubb and Rees in Chinese Chippendale style.

E. Graeme Robertson

THE AUSTRALIAN VERANDAH

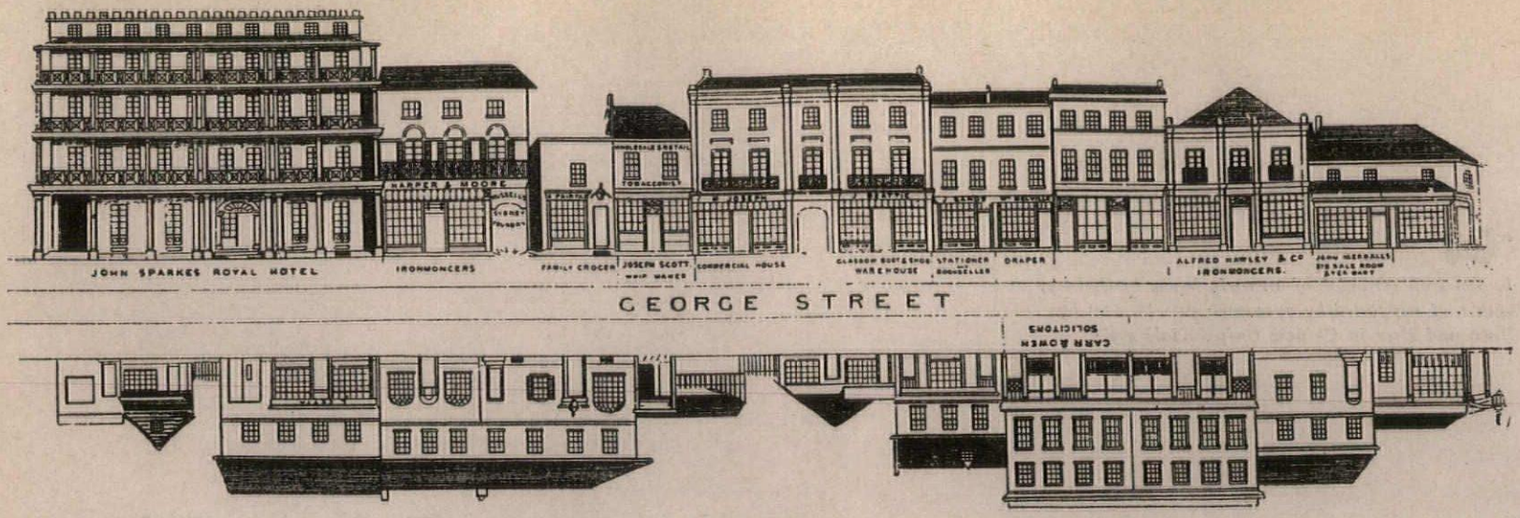
The elaborate cast-iron frills embellishing the verandahs and other parts of late nineteenth-century houses are an Australian speciality that is far less well known than the equivalent ornamental ironwork of, for example, Louisiana. Yet in its way, especially in the state of Victoria, it is quite as remarkable and enjoyable. Dr. Graeme Robertson (a fellow of the Royal College of Physicians) has made a study of its history and patterns, and is the author of a book shortly to be published in Australia under the title 'Victorian Heritage: Ornamental Cast Iron in Architecture.' In the following article the results of Dr. Robertson's investigations are summarized, and a selection of his own superb photographs reproduced. The houses illustrated were built mostly between 1860 *and* 1890.

The first European settlement of New South Wales was made by Captain Arthur Phillip in 1788, its object being to receive prisoners sentenced to transportation for life. The first settlers lived under canvas, but within six months a number of huts, a cottage for the governor and a storehouse had been built*. The cottage, largely of canvas, was brought with the First Fleet from England; and a prefabricated hospital was erected.

For several decades, the housing built was of the crudest type, for a dearth of skilled workmen, of material, of means of manufacture, and of shipping from England were inseparable from an expanding colony in an inhospitable land so far from the mother country. However, the difficulties were gradually overcome; timber cut in saw pits and, later, brick and tiles made from local clay replaced the primitive vegetable materials. At some stage the first adaptation to climate appeared as a crude verandah to give shelter from the hot sun.

Conditions were hardly such as to induce successful architects or builders to leave countries where money, materials and demand for buildings were plentiful. Yet two architects arrived in Australia in 1813 and 1814. They had little lasting influence, and seemed to mishandle their opportunities, thus, perhaps, explaining why they left their homeland. So it came about that two others who arrived, as it were in the course of duty, played the greatest part in early Australian design. John Watts, as military architect, was responsible for a number of official buildings and by adding covered colonnaded verandahs to the symmetrical Georgian buildings, established a style which may be called Australian Early Colonial. However, Mr. Herman has pointed out that verandahs and wide eaves were an importation from the tropics, via England. Watts had spent some of his military service in the West Indies. The other architect, Francis Greenway, played a still greater part. He practised with his brothers in Bristol and Bath; but in 1811, when he was about thirty-four years of age, the firm became insolvent. In 1812, apparently to justify a claim

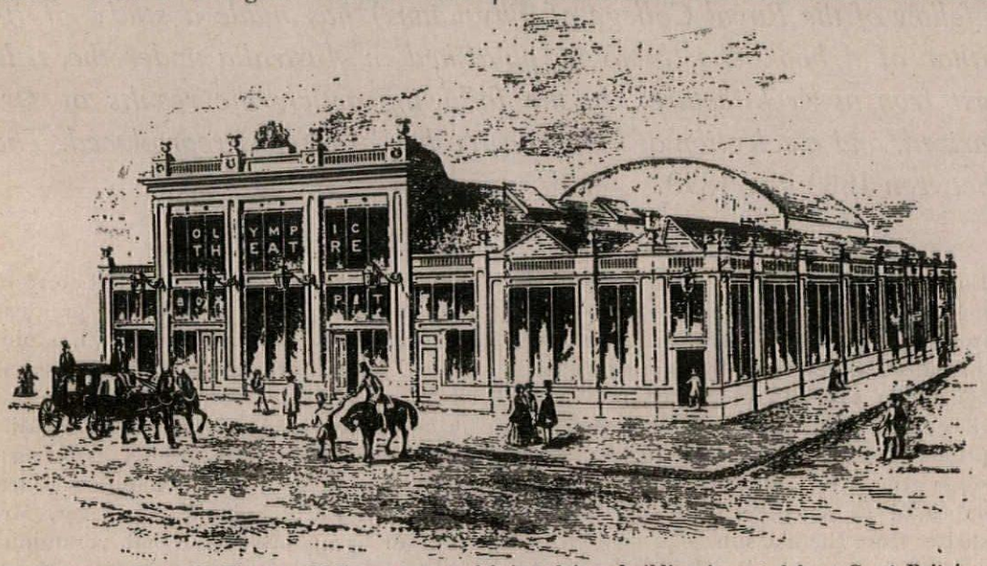
*In such a paper as this, only the briefest reference to the beginnings is relevant. The interest and accuracy of *Lachlan Macquarie* (Sydney, 1947) and *Francis Greenway* (Sydney, 1947) both by M. H. Ellis, and of *The Early Australian Architects and Their Work* (Sydney, 1954) by Morton Herman, will more than repay their perusal.



2, buildings in Sydney following the Georgian tradition, some embellished with verandahs, as delineated by Fowles in 1848.

which he had made, and perhaps to right a wrong, he forged an 'instrument purporting to be an agreement between Colonel Richard Doolan and the said Francis Greenway,' in an attempt to establish a claim for £250 connected with his professional services and denied by the former. Had he succeeded, the money would have been seized by his creditors. Instead, he was arrested on a capital charge, to which he pleaded guilty, apparently thereby securing transportation for life. He arrived in New South Wales in February 1814, and afterwards, on ticket of leave, he designed buildings and drew up plans for the city for Governor Lachlan Macquarie, who visualized a destiny other than that of a penal settlement. Thus a Georgian tradition was established by early architects; and, at a humbler level, building remembered from home undoubtedly contributed to the dominance of this type of architecture.

By 1848, the streets of Sydney were lined by houses of Georgian symmetry and simplicity, so wondrously recorded by Fowles, 2. Some houses were of the unaltered tradition, others showed verandahs, such as Watts added to some of his military buildings; while yet others, influenced by the Regency period and the terrace houses of London, had first-floor balconies with ironwork balustrades. Many of these were unroofed, but in some instances a roof was added. Occasionally, a colonnaded verandah supports a balcony. The Royal Hotel, indeed, has four tiers. Thus Fowles illustrates stages of development of what was to become the most individual feature of Australian architecture; for cast-iron ornamentation was to assume a form unlike its origins. In Sydney, the cantilever roofed first-floor balcony was to become the most characteristic motif. It was broader and more substantial than its regency counterpart. However, varied usage of iron-work is another characteristic of Sydney.



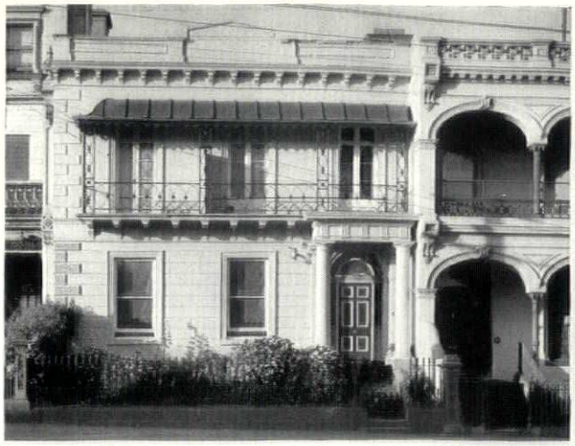
3, Coppin's Olympic Theatre, Melbourne, a prefabricated iron building imported from Great Britain.

The history of Melbourne begins in 1835, with the separate arrivals of Batman and Fawkner from Tasmania. The wide spaces available for grazing attracted settlers from the small mountainous island. The primitive hut stage was multiplied by the gold rush, which more than quadrupled the population of Victoria within five years. (By 1857 it had reached 410,766.) After the supply of gold had fallen, many stayed in the colony. Those whose fortunes had been bad had little opportunity but to remain as artisans and labourers, and the diligent amongst them soon needed comfortable cottages. Others, whose fortunes had prospered, and these were largely the merchants who had served the gold diggers, required larger houses. At first, there were too few trained persons to supply the demand, and prefabricated buildings were imported from Great Britain. Cottages were landed at the cost of £25 each, and sold at from £60 to £75. Two cottages of corrugated iron, with iron window frames and iron doors may still be seen in Argyll Street, Fitzroy. Larger houses, warehouses, theatres and churches were all imported intact. Coppins Theatre, 3, erected in 1855, was a complete portable theatre of iron, 88 feet in length, 44 feet wide and 24 feet high. Its cost was said to exceed £4,000. Messrs. Bellhouse undertook to have the complete shell of the building, the ornamental façade, and the principal framework of the interior on board ship in about thirty days from the date of the contract. It was erected in six weeks. Its exterior appearance was pleasant, while 'the interior of the theatre presents a light and exceedingly elegant appearance, and a true idea of its capacity is certainly not indicated by its exterior view.'* Such buildings followed the principles of Paxton's Crystal Palace and the speed of production and erection of the theatre is reminiscent of that of the far larger original building.

Portable iron churches for the colonies

*See *Year Book of Facts*, London, 1855, and *The Australian Builder*, August 16, 1855.

[*continued on page* 243



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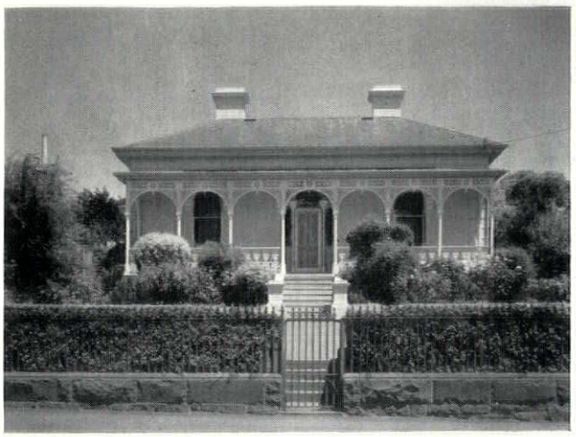

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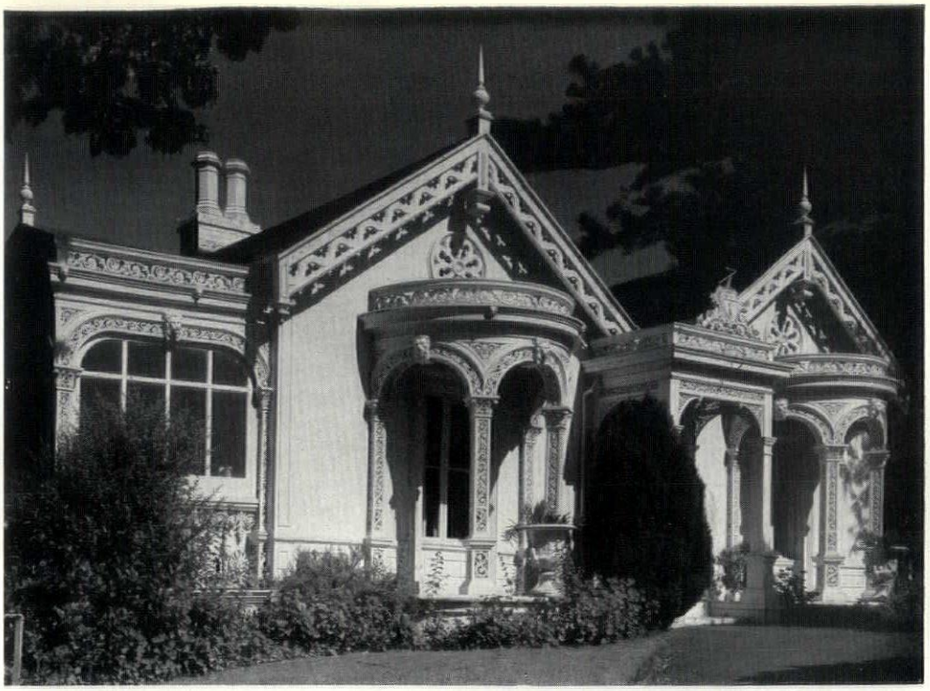

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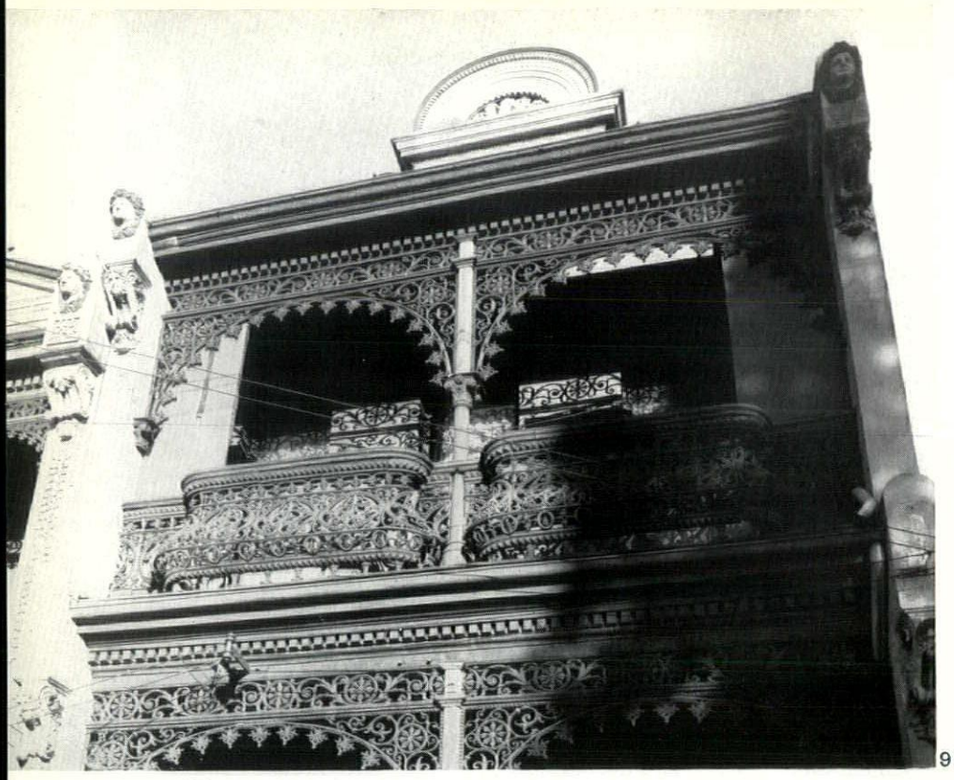
8

4, a covered verandah in Regency style in Victoria Parade, Melbourne. 5, house with cast-iron verandah across the whole of its front in Yarra Street, Hawthorn, Victoria. 6, 'Como,' South Yarra, Victoria, a house built in about 1859, *to which a two-storey iron verandah was added somewhat later. The fence-like design of the balustrades is unusual. On the lower floor there is an ornamental head and a small openwork panel in the centre of each spread. 7, 'Corio Villa,' Geelong, an elaborate iron house, prefabricated in Scotland and landed at Geelong in* 1855. *8, one of a sequence of seven terrace-houses, two of which have been demolished, in Parliament Place, Melbourne.*



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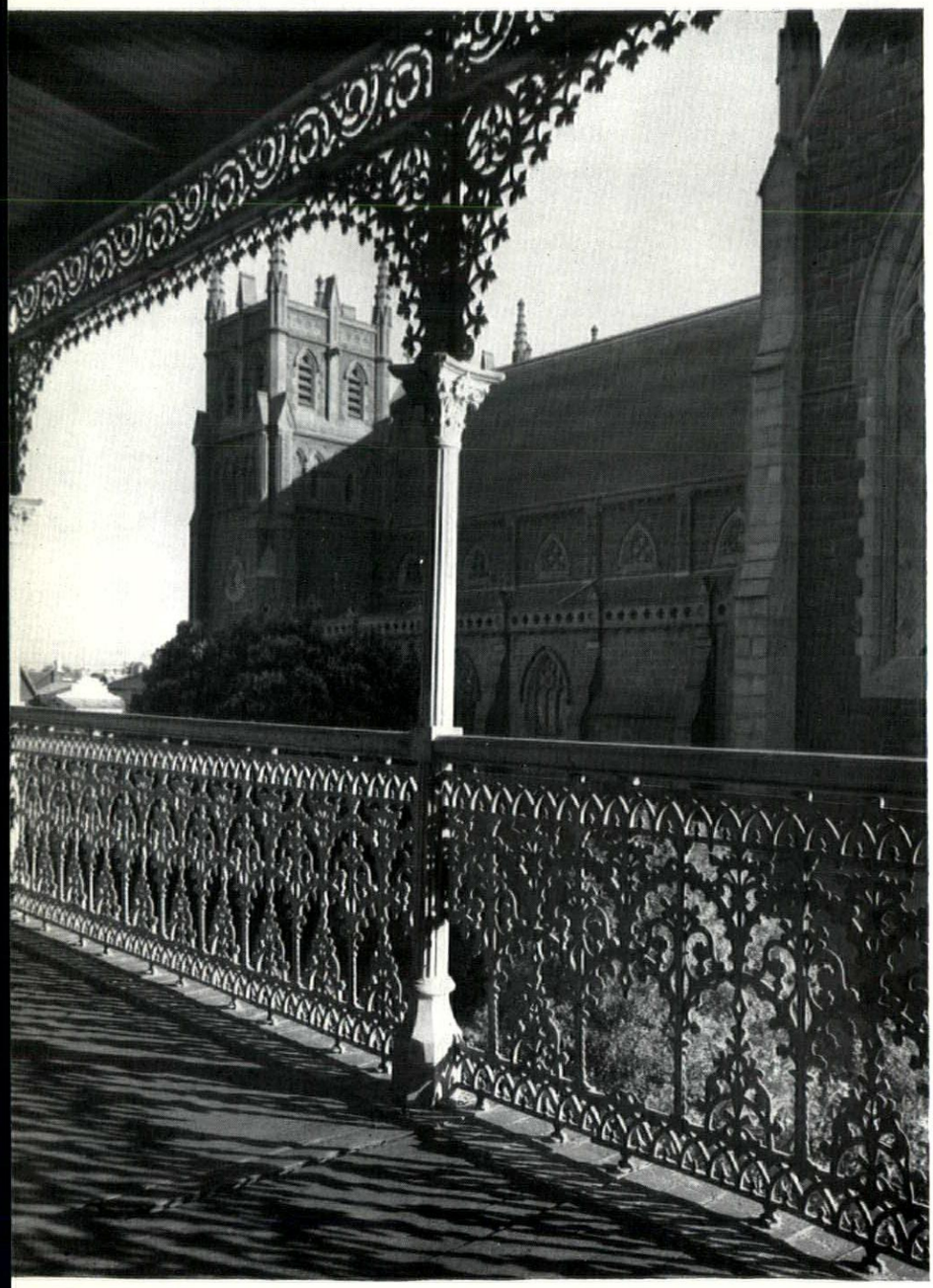

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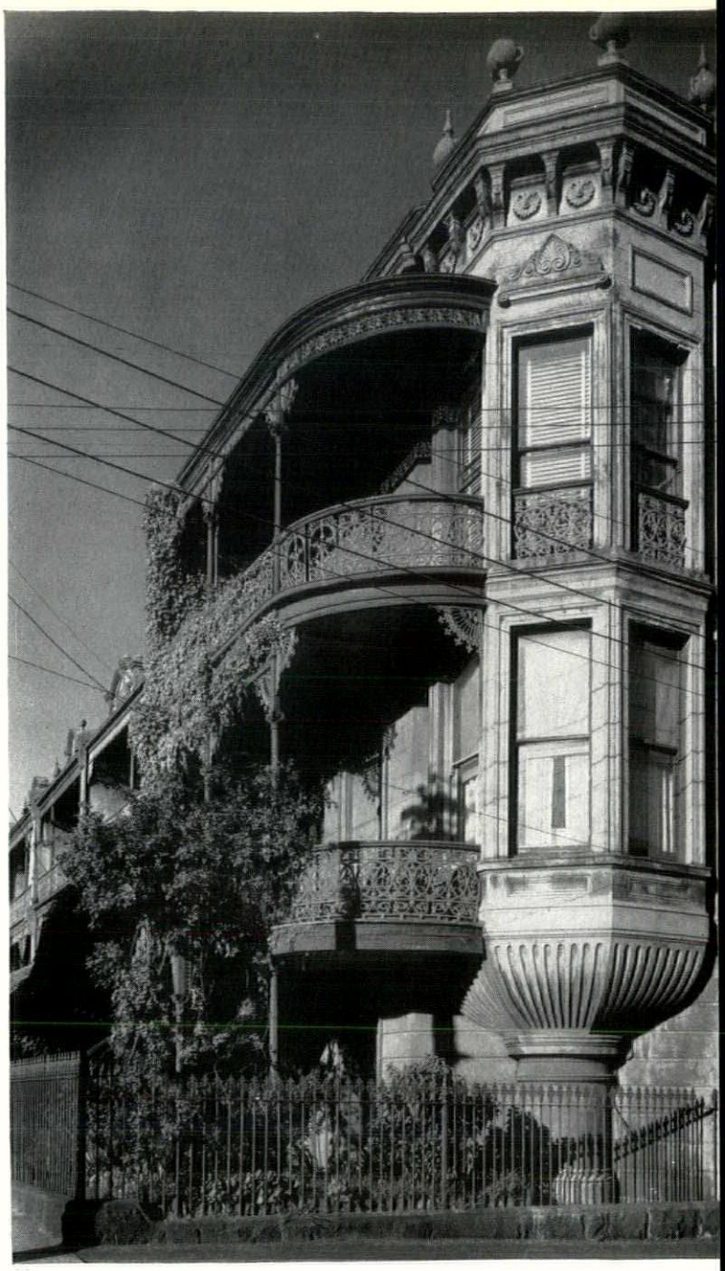


11



12

9, *an unusually elaborate example of the multi-storey verandah and balcony front.* 10, *the church of St. Mary of the Angels at Geelong, Victoria, seen from the verandah of the presbytery.* 11, *a terrace of houses with two-storey verandahs in Murphy Street, South Yarra.* 12, *detail of a baluster from a verandah front. It was designed and cast by Cochrane and Scott, and the design registered in Victoria in April*, 1892.

continued from page 240]

were made by a number of manufacturers, prominent amongst whom were Messrs. Hemming & Co. of the Clift-House Works, Bedminster, Bristol, 13. *The Illustrated London News* of April 30, 1853 states:

Portable Iron Church for the Diocese of Melbourne, South Australia

'Nothing like iron' is one of the most practical 'modern instances.' The employment of iron may be traced through a long vista of ages; but it was reserved for our generation to produce the iron bridge, the iron road, the iron ship, and the iron house; and within the last few months towns of iron houses, to shelter the hordes of emigrants to newly-discovered lands of gold. A remarkable instance of the new manufacture, and its rapid extension, to meet the demands caused by the exodus to South Australia, has lately occurred in the city of Bristol, at Clift-house, Bedminster, where the stock of galvanized iron houses for emigrants has increased in a comparatively short time from a single model cottage to a sufficient number of dwellings in progress to form a little town; besides stores, villas, an hotel, parsonage-houses for missionaries; and, last of all, a church, which has been ordered by the right rev, the Lord Bishop of Melbourne, and which it is believed is only the first of several which will be sent out to supply the means of public worship to the diggers. The smallest house made is the 'cottage for the million.' It comprises two neat rooms, measuring 16 feet by 12, and can be purchased as low as 35 guineas. A house, in course of completion for the auditor of Melbourne, comprises four rooms, of 14 feet square, with an entrance-hall, closets, and a detached kitchen, and fitted with venetian blinds to every window, and a verandah running all round the villa. A parsonage-house has been made at a cost of 250 guineas, to the order of the Bishop of Melbourne; it contains a sitting-room, kitchen, servants' room, store-room, pantry, and four bed-rooms. The hotel or lodging-house is to comprise fourteen bed-rooms, so constructed as to divide into four compartments each, thus enabling the occupier to make up fifty-six beds.

We have engraved the church which Mr. Hemming, the proprietor of Clift-house works, has just completed for the diocese of Melbourne. It comprises a nave, and two side aisles, with pulpit, reading-desk, baptistry, vestry, and a tower; the whole covering an area of seventy feet by forty-eight feet. The outside casing is entirely of galvanized corrugated iron; the inside walls being lined with half-inch boarding, canvas, and paper. The ceiling, under the roof, is of inodorous felt, also lined with canvas and paper. The church contains nearly 700 sittings, besides every fitting complete, for divine service; and the whole has been erected in five weeks, at a cost of £1,000.

The Clift-house factory commenced with the proprietor's endeavour to make a light portable house for a son about to emigrate; and his success led to the present establishment, where hundreds of workmen are employed.

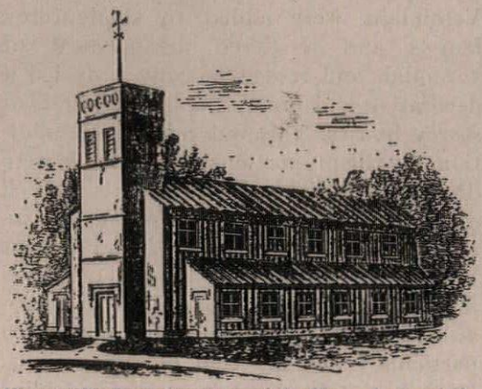
Three such churches were erected in Victoria, but they were not well received. George Goodman* wrote:

Moreover, the colonists had ample reason for disliking these buildings. They are hot, ugly and perishable. The scorching sun draws the nails, curls the iron plates, and makes the interior as hot as a baker's oven. The style of architecture is hopelessly unpleasing, and such as suggests the factory or the warehouse. It cannot, therefore, excite surprise that one parish after another declined these corrugated makeshifts.

The Church in Victoria during the Episcopate of the Right Reverend Charles Perry, Melbourne, 1892.

The Olympic Theatre had been dubbed 'the Iron Pot' by the populace. As the manufacturers had clearly designed their buildings for a colder climate, it is not surprising to find that the theatre and the churches have all been demolished.

A large prefabricated house, Corio Villa, remains at Geelong, 45 miles from Melbourne, in a perfect state of preservation, 7. The walls, window sashes, doors are all of



18, portable iron church, made by Hemming and Co. of Bristol in 1853 *and erected in Victoria.*

iron, and adequate insulation was provided, for the house is most comfortable. The external decoration is elaborate and ornate, a little surprising since the house was made in Scotland. It was consigned to the port of Geelong, and unloaded in 1855. The packing cases lay unclaimed, and when enquiries were addressed to the makers, it was found that the foundry and all its records had been destroyed by fire. The owner was never traced. Eventually the iron was bought for a small sum and—an extraordinary feat—the complex building was erected without the aid of plans, for these had not been included.

Such an artificial means of supply was quite inadequate, and most building had to be done locally. It was natural that the style should be founded upon the houses which the settlers left behind. Most builders would be familiar with the simple cottage design, the nobler Georgian style, the Regency styles which were gaining ground, and the terraces of their home country. Literature and plans would illustrate current trends. However, the latter played a small part. The only typical Regency balcony appeared in Melbourne as late as 1902, 4. Styles established much earlier in Sydney would undoubtedly influence the architecture and the use of iron-work in Melbourne. However, communication between the two towns was poor, and remembered styles from outside Australia probably predominated.

Ornamentation by iron-work was remembered by local builders and fostered by British manufacturers. The earliest iron-work was imported from Great Britain, and later it served as an example to local manufacture. It is said that sailing ships, requiring ballast for the outward journey, carried this weighty material very cheaply. Large quantities were imported. One pattern, common in Melbourne, may also be found in profusion around Walton Street in Kensington. This design is from a catalogue issued by McDowall, Steven & Co. of Glasgow, a firm which exhibited in the Melbourne International Exhibition of 1880. It dates, however, in all probability from before 1860.

With the demand for houses which occurred with the expansion of Melbourne after the gold rush, local foundries began to produce decorative cast iron. Such letters as the following showed pride in the city of adoption, and perhaps business acumen as well.

In the *Australian Builder and Railway Chronical* of July 23, 1856, that hardy correspondent VERITAS writes, with the utmost frankness.

The New Gas Lamps

(To the Editor of the AUSTRALIAN BUILDER)

Sir,—My attention has been drawn to several huge, rough, rugged pieces of cast iron springing out of the footpath curbstones of Melbourne, said to be the long looked for city lamp posts. Now, Mr. Editor, my object is not to cavil about trifles, for had the above named articles had the least spark of beauty about them, not a drop of ink from my pen should have stained their memory, but I cannot in this instance look coolly on without expressing my indignation, by saying, that the corporation of Melbourne, including their whole staff of practical scientific satellites, must have utterly yielded up their intellects when they sanctioned the abortions, now erecting in our streets, to be exported from the mother country; for my own part I have no hesitation in saying, that a more disgraceful design for a lamp-post, to say nothing of the rough casting, has never been perpetrated, and I am confident that a far better article as regards design and workmanship could easily have been obtainable in any of the Melbourne foundries, and, if I am not mistaken, at nearly the same cost.

Trusting you will, in your valuable paper, give insertion to the above remarks.

I am, Sir, &c., VERITAS

P.S. Is it true that one-third of the pipes were fractured on the voyage?

The first advertisement for ornamental castings to be found appeared in the *Australian Builder and Practical Mechanic* (Melbourne) on June 12, 1856.

To Contractors and Others.—Girders, cantilevers, ornamental railings, and corner pieces, bevil, and other wheels, pinions, and furnace bars. Quartz stampers, from 2¼ cwt. each. All other castings to patterns or drawings, brasses, turning, and boring, at moderate prices.

SCOTT, CLOW, and PREBBLE, Richmond Foundry, near the Admiral Napier.

Soon it came about that many foundries produced castings to supply the local needs. Records have been found of one hundred and six foundries which produced ornamental castings, and undoubtedly many more existed, even away from the large cities; for example, there is a bandstand in the now quiet country town of

Maryborough, the castings of which bear the legend Robinson's Soho Foundry, Maryborough. This town was once a very important centre of a gold mining region. Many designs were registered for copyright purposes, and recorded photographically, the records being stored at Canberra after federation of the colonies of Australia. Thirty-two Victorian foundries registered 118 designs between the years 1870 and 1900, while twenty foundries registered designs in New South Wales over the same period.

Balustrades, columns, friezes and brackets, fringes, crestings, spandrils and fences were produced freely by the local manufacturers. The designs for imported balustrades were largely geometric, but the Australian designs soon became more florid. All sorts of motifs were incorporated, ranging from stylized flowers to copies of Adam patterns. When examined closely the patterns may seem complex, but the passer-by rarely analyzes them. A baluster embodying symbols of good fortune is shown in 12. Others incorporate indigenous fauna such as the silver-crested cockatoo, registered as a design in New South Wales in 1880. The columns used in Melbourne are usually round, and provided with a modified Corinthian capital, of stereotyped design. Only one example of an openwork column has been seen in Melbourne, that illustrated on the cover of this issue, though openwork columns, true to the Englith style, are common in Sydney—an example is 1, page 238.

To return now to the house which is ornamented by iron work, styles were necessarily modified by memory and were often quite inconsistent. The prevalent Victorian influences from England probably played a greater part than local copying. Few large houses of Georgian elegance are to be found in Melbourne, all the more remarkable since such houses abound in Tasmania. Fashion, rather than form, had the dominant influence. Yet, shed of all decorative material, the façade and design of the Melbourne house were simple and quadrangular. Heavy Victorian forms replaced the delicate Georgian woodwork of fanlights, doors and windows.

The smallest houses were single-fronted, with a narrow verandah, decorated only with a cast frieze, and separated from the street by an iron fence of stereotyped design. Often a narrow strip of garden intervened between verandah and fence. Basements were uncommon. In larger and later houses a certain flamboyance was likely to appear in the work of the untrained designer, and a desire for it existed in the newly enriched member of the community. Hence, houses of basically simple proportions were given towering ornamental parapets, lacking in function, and often an aesthetic encumbrance. By serving as a target for the symbols of the classical and romantic revivals, however, the parapets perhaps preserved the dignity of the house itself. Urns, shells, Egyptian and classical motifs, decorate the only parts of the exterior which were not ornamented by the iron-work, 9.

This desire for ornamentation, and the need for adapting the house to the hot summer climate, resulted in a domestic style prevalent between 1860 and 1890. Verandahs were added to single-storey houses and a tiered arrangement of verandah and roofed balcony provided a decorative and protective 'apron' for two-storey houses. This was not a mere addition, for the proportions of the façade were designed for this structure (as is so well demonstrated when a desire for 'modernization' prompts its removal) and it was 'functional.' It served as a porch, a modifier of climatic conditions and provided for outdoor living, to be appreciated particularly in the cool of the evening. However, the verandahs were applied irrespective of aspect. Even in Tasmania, with its colder climate, the country houses faced south, a habit ingrained in England. A roofed verandah is an excellent feature when the house faces north, since it excludes the high midday sun of summer, but allows the low winter sun access to the windows. The westerly balcony affords shelter from the early afternoon sun of summer. The evening and morning sunlight enters the westerly and easterly windows, whether there is a balcony or not. However, applied to the south, a verandah merely darkened the rooms, though perhaps it might be useful for outdoor living on some hot days. It follows that the colder the climate, the less useful were these roofed structures.

The ornamental ironwork allowed of wide variation of appearance of otherwise stereotyped structures. The visual contrast between decorated and undecorated balconies is sufficient to convince the sceptic of this. Further, sunshine on the ironwork provides a constantly changing shadow pattern; and the decoration, acting as a frame, often enhances the external view, 10. In Melbourne many such houses faced extensive parks, and sometimes historic buildings. On hot days, the ironwork allowed for a freer movement of air, and, viewed from the outside, it secured privacy for those on the inside by breaking up the pattern of what was within.

Houses of the period are shown in 5, 8, 11, 14 and 15. The raised verandahs of single-storey houses were given a protective balustrade of cast iron, as in 5. More expensive houses were usually of two storeys, and were garnished by the complete apron, 14. In the central, early-settled areas, the houses abutted one upon the other, whether of individual designs, or in pairs, 15, or terraces, 8, and 11. Where land was cheaper, the suburban tradition of surrounding houses with their own gardens was begun. In these houses the ironwork decoration frequently extended to the sides of the building.

Fortunately, one of the finest early houses in Melbourne, 'Como,' 6, has been well preserved and has been delivered from imminent destruction by the recently established National Trust of Australia (Victoria). Even though the estate has been attenuated, it still stands in extensive grounds, three miles from the city. It is of great interest, since it combines a true Georgian style, modified to Colonial by verandah and balcony.

It is of interest that local rules of usage apply even in one continent. The building materials used in the early houses naturally vary according to the local supply. In Tasmania and Sydney yellow free-stone was used, in Melbourne, a much harder and more intractible blue stone (basalt). Brick, later covered by plaster, became the commonest material for walls, while slates roofed the houses. Galvanized iron solved the problem of roofing verandah or balcony.

Local rules for the usage of cast iron also existed, dictated by the availability of materials, the distance between cities, the poor transport, the action of external influence, and local ideas. Some of the differences have been indicated. In Adelaide, a distinctive style arose from the width of the footpaths in the city. The columns of the verandahs were inserted at the edge of the pavement, while the balcony was frequently recessed.

The use of cast iron for decorative purposes ceased in Melbourne quite abruptly in the last decade of the nineteenth century, with the end of 'the boom.' During the subsequent depression, building fell to a very low ebb, and few would pay for inessential decoration. When building became free again, new styles, which had appeared abroad in the preceding years, were unimaginatively used. International communications were now much freer, and the long time-lag in the earlier transfer of ideas was shortened. Iron was used but little, except sometimes in the curvaceous form of Art Nouveau.

There is now a rebirth of interest in ironwork, much of which has already been destroyed. The trends to destroy and to preserve it seem to be almost equal in the community. The occupiers of houses with iron verandahs treasure them and are content and happy in their lofty, well-proportioned rooms, even if they lack some of the conveniences of the modern dwelling. But the speculative builder is still their remorseless enemy.

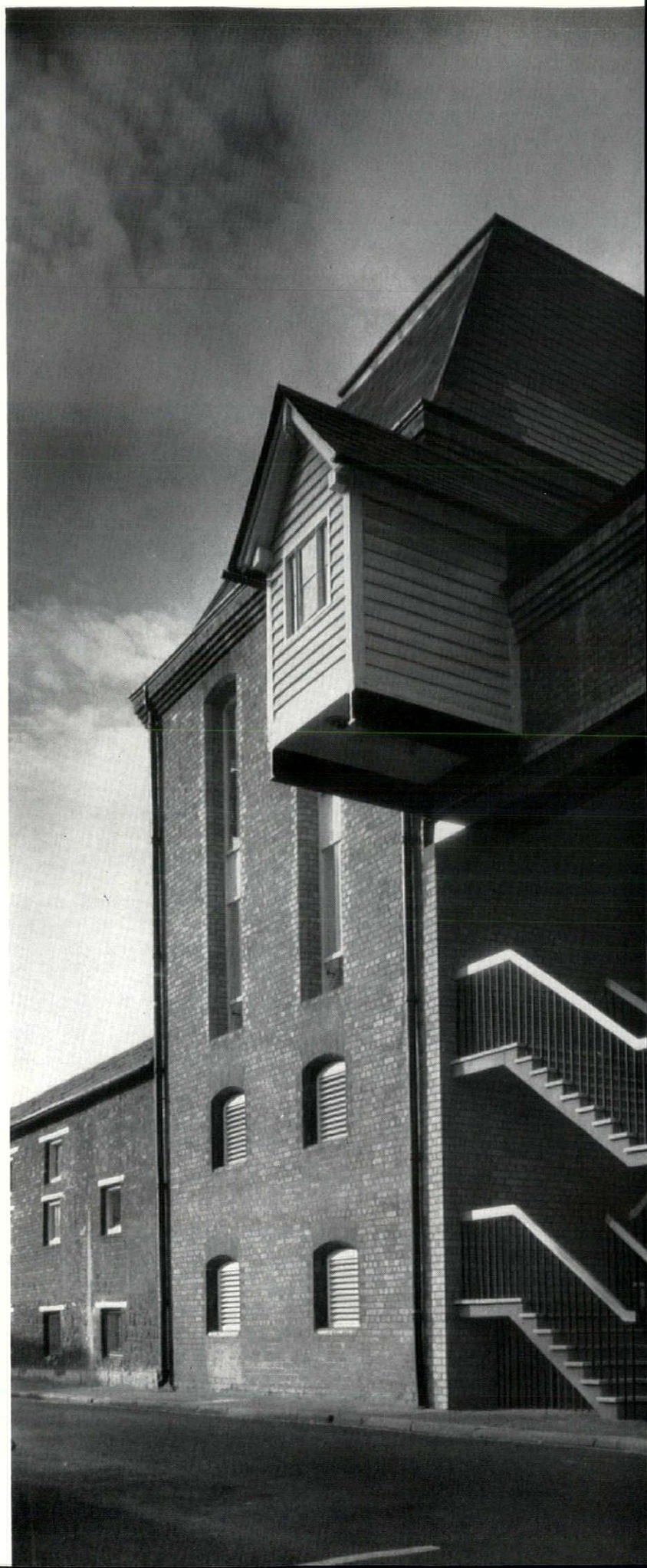


14



15

14, an unusually rich example of the two-storey cast-iron verandah: a suburban house in Millswyn Street, South Yarra, Victoria. 15, a pair of houses in Morrison Place, Melbourne.



1, looking southwards along Tidmarsh Lane, showing features of the old maltings restored, larger windows inserted where needed and an external staircase set into the old façade.

This conversion is an instance of the Functional Tradition being kept alive today. The Functional Tradition is a term that has recently been employed in the *Review* to describe that plain, forthright style of building, arising directly from the challenge of function, that is woven into the fabric of English architectural history alongside the more self-conscious architects' styles. It emerged particularly strongly at the time of the Industrial Revolution, to the buildings of which a special number of the *Review* was devoted in July, 1958. In that issue attention was drawn to the hitherto neglected architectural qualities of maltings, and their several affinities to the work of modern architects. In converting an old malting into offices and workshops for the use of his department, the Surveyor to Oxford University and his deputy have clearly been aware of these affinities and have taken pains to design the new details of the building in the same functional tradition.

OFFICE CONVERSION, OXFORD

ARCHITECTS | ***J. LANKESTER, Surveyor to the University***
N. R. RILEY, Deputy Surveyor

The malthouse, which was built in the nineteenth century, is situated in Tidmarsh Lane, on the east bank of the Isis opposite the Castle Mound. It was in use as a malting until it was badly damaged by fire in 1956. After the fire, the site and buildings were bought by Oxford University for conversion to offices and workshops for the University Surveyor.

The buildings on the site were in two main groups. First, the malthouse proper, solidly built in brick, which contained the malting floors topped by two "malthouse-type" chimneys, and storage rooms for grain and malt. An attached older building measuring about 100ft. by 60ft. was divided into three low floors on which the barley was spread out to sprout. The second group of buildings was in the shape of an L along the north and west boundary of the site fronting on to the river, and was originally used for storage and stabling.

As now reconstructed, the whole of the ground floor has been used to house the Surveyor's direct labour staff, which is organized as a more or less self-contained building unit and used for maintenance and minor works. The upper floors of the main building are used for offices. The L-shaped range of buildings has been partly demolished and adapted for use as a wood-working machine shop with an assembly room and joiners' shop over it, and also as a garage and fitters' workshop, with a service flat on the upper floors.

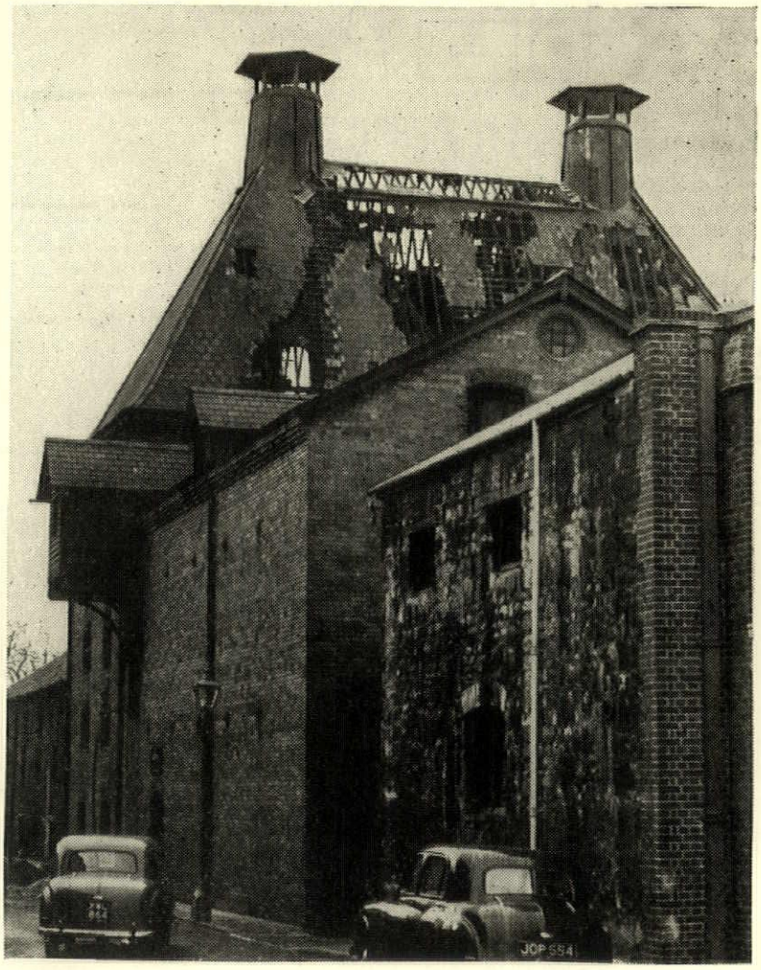
It was decided at the outset not to use the open space round buildings for the storage of building materials, these being kept in the older part of the building on the southern end of the site. The space has been paved with a combination of paviours, sets, and areas of concrete with an exposed aggregate surface, and is used partly as circulation space, and partly as a car park. The river bank, which faces Fisher Row, has been laid out as a garden.

That part of the building now used for offices originally had very few windows, and the storey heights were too low for conversion into habitable rooms as they stood. The old floors were removed (five storeys in all) and the materials reused as far as possible to turn the central building into a three-storey one, the upper two storeys of which form the offices. Because of the shape of the central block, it was practically impossible to devise a system of fenestration that would adequately light the central part of the first floor, and for this reason, and to isolate the offices as far as possible from the noise of the yard, the general office, the Administrative Officer's room, and the Surveyor's room were placed on the top floor. Other rooms demanding less light, such as dark-rooms, lavatories, etc., occupy the central part of the first floor.

Most of the windows are of sliding plate glass in brass tracks with timber frames. In the main block the original windows lighting the drying floors have been converted into long vertical windows in timber frames. The two large metal chimney cowls on the tower were found to be beyond repair and had to be taken down, and the roof is now in the form of a mansard with a lead flat. Generally speaking, an effort has been made to maintain the character of the old building as far as possible, and, since funds were limited, as much as possible of the original structure has been left.

Internally the finishes are simple, the walls being fair-faced brick treated with two coats of white emulsion paint, and the floors (except in the Surveyor's office where Missanda strip has been used) are covered with cork carpet. The ceilings are of acoustic board or, in less important rooms, untreated insulating board, whilst one or two walls in selected positions have been covered with Columbian Pine vertical boarding. Electric floor warming has been used for the offices. The electric wiring was simplified as much as possible, all the lighting controls being in the entrance hall with one switch for each floor, there being no switches in rooms, and this system has been found to work extremely well. There are no skirtings or architraves, plastic beading being used to fill the irregular space between door frames and brickwork. The doors are solid

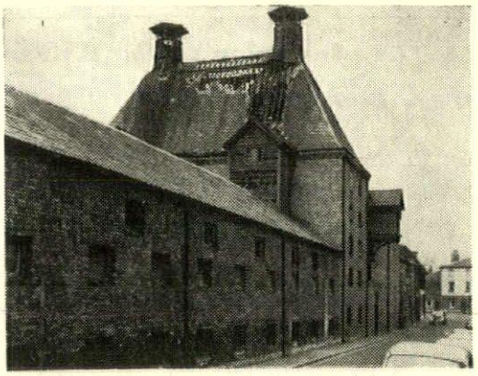
2, the maltings before conversion, showing the extent of fire damage. The view-point is approximately that of 1, opposite.



cored and faced with utile veneer. Doors, frames and window boards are also of utile. The entrance staircase is in concrete with Portland stone treads and wrought iron balusters with a pitch pine handrail, the timber for this being part of the original structure.

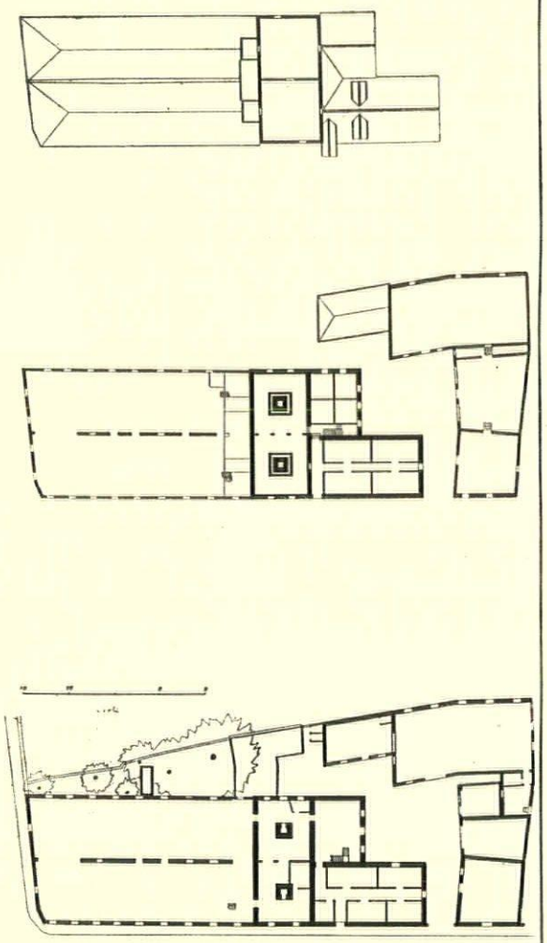
In order to obtain enough head-room in the joiners' shop, the floor of this entire block was lowered 2ft. on jacks. It is now reached by means of an external timber staircase in afrormosia with elm treads.

Recent alterations in the Botanic Garden resulted in the acquisition of the stone hound which now stands watch on the river bank.

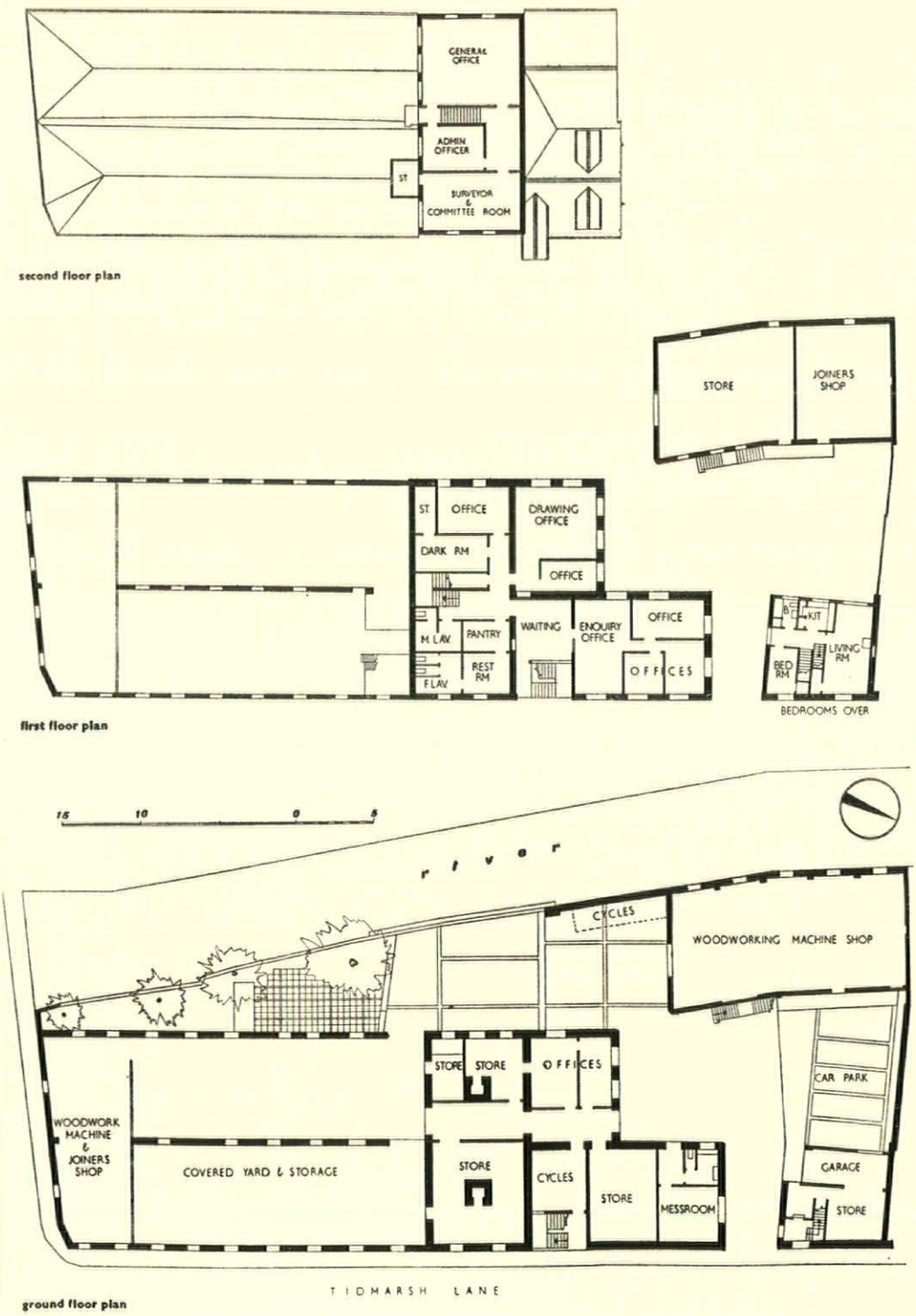


3, before conversion, showing the condition of the maltings after the 1956 fire and the outline of the high roof before the removal of the chimneys. 4 (opposite) shows the same view after conversion.

before



after





4



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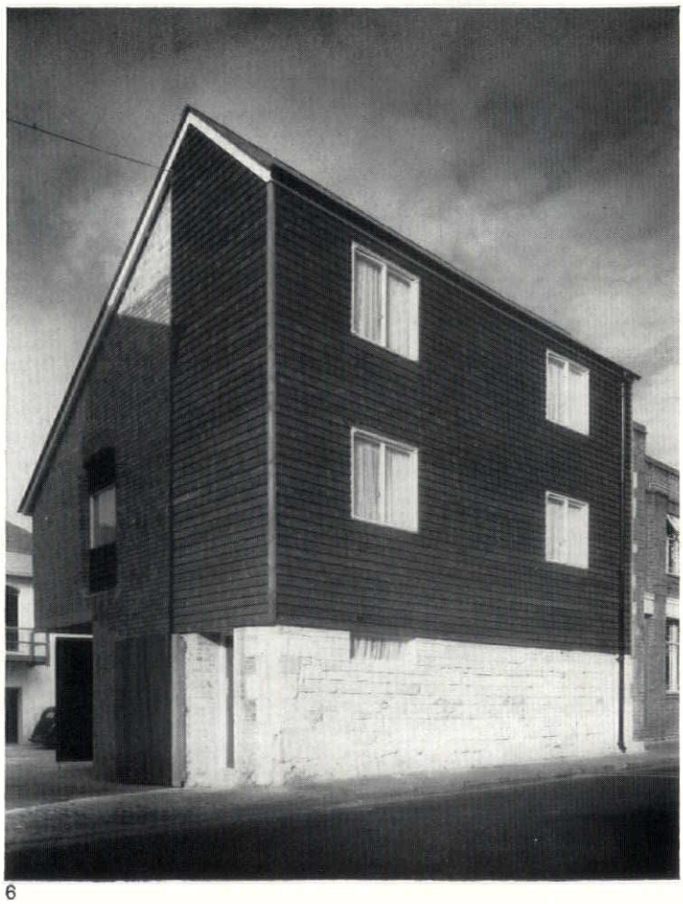

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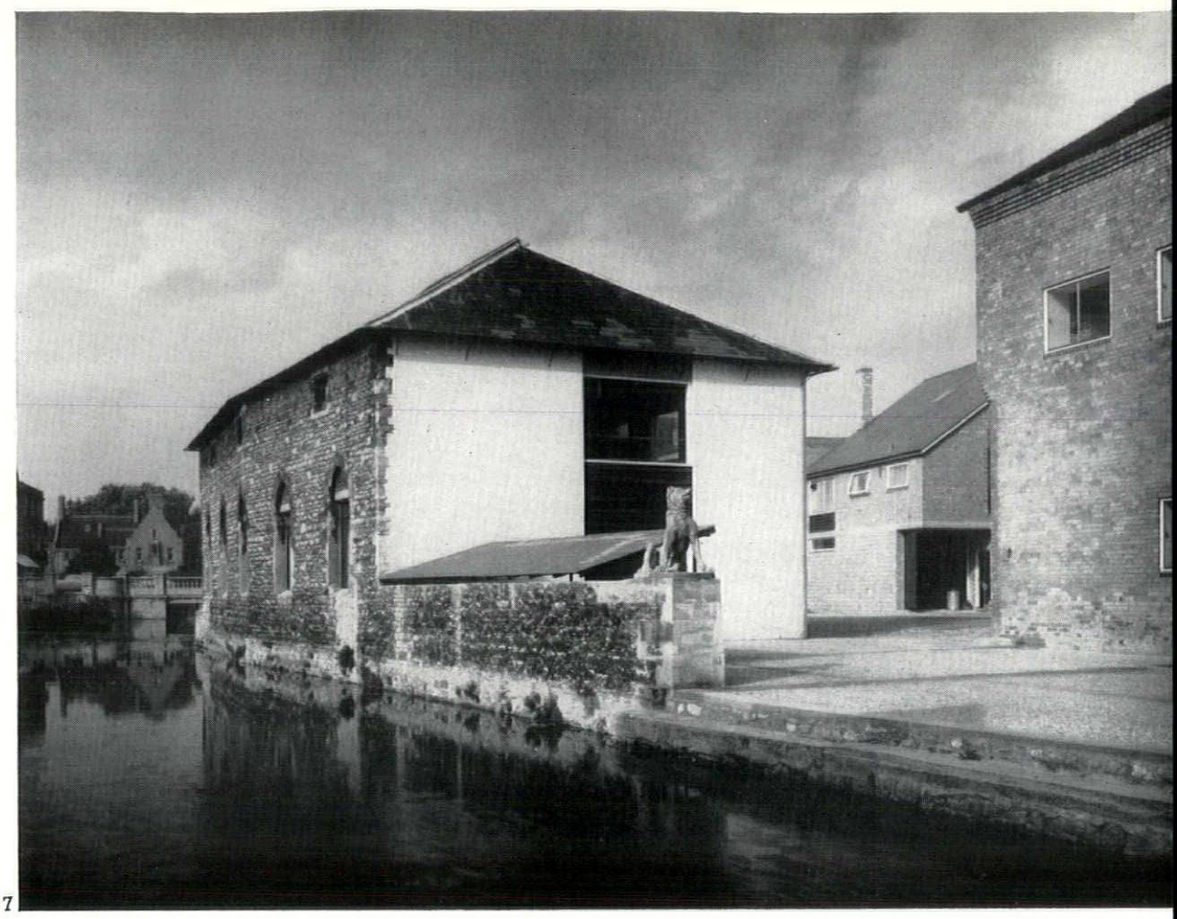
4, the Tidmarsh Lane front, looking north, with the old malting-floors converted into workshops and the central block into offices.
5, the newly inserted outside stair leading to the main offices at first- and second-floor levels.
6, the store and garage, with flat over—seen also at the far end of 4—made out of part of the old stables.

OFFICE CONVERSION, OXFORD



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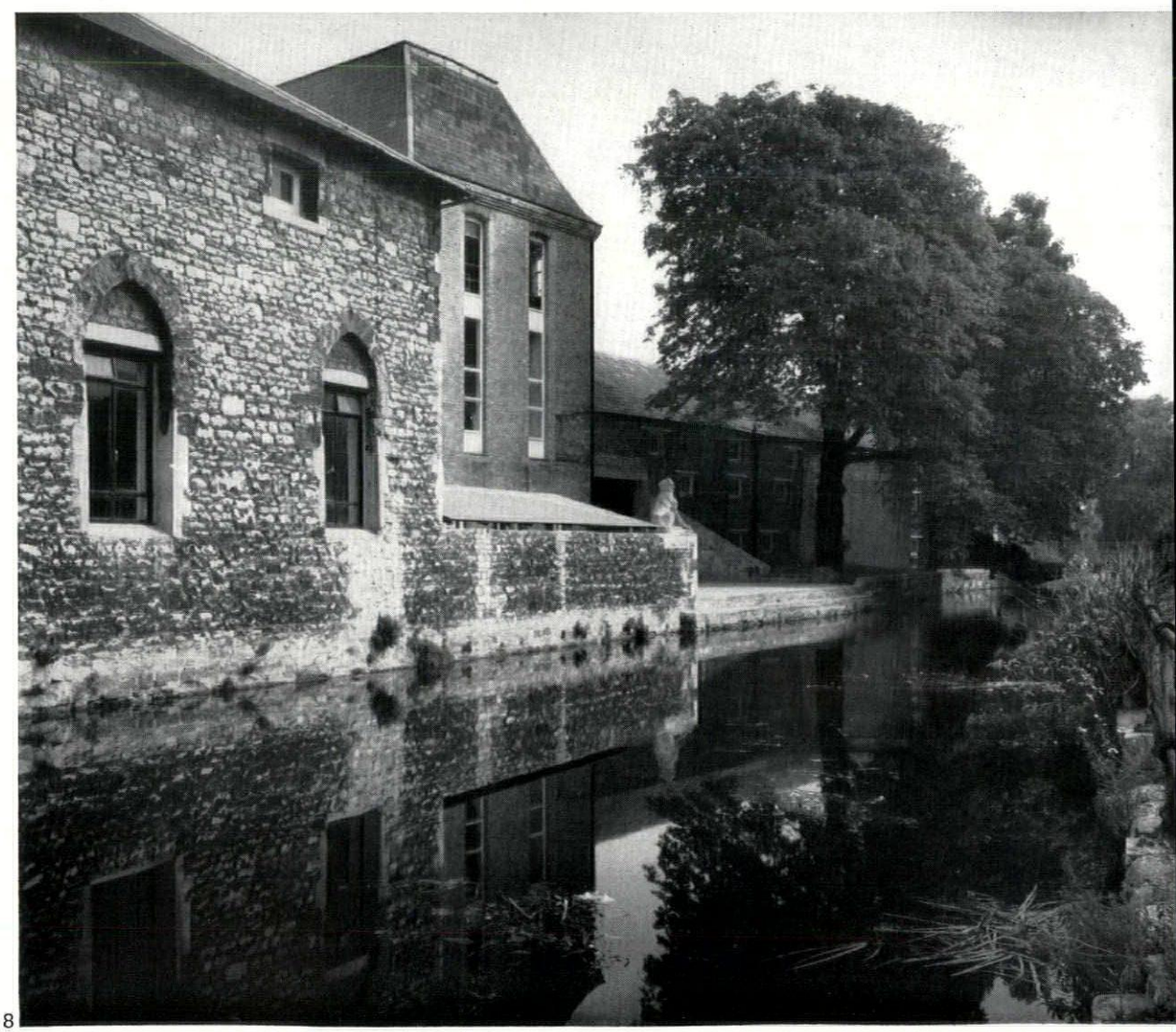

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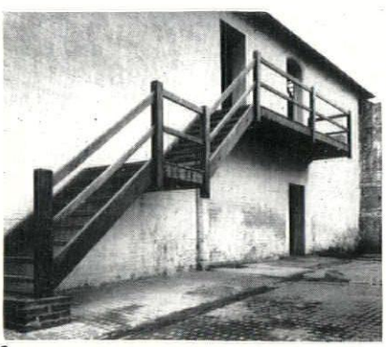
7, from the river, after conversion, showing on the right new windows to light the office and drawing office and on the left the old stone building in use as a joiner's shop.
8, looking along the river from the opposite direction, showing the garden that has been laid out between it and the restored building and the stone hound from the Botanic Garden.
9 (below), new external stair to the first-floor joiner's shop, in afrormosia with elm treads.



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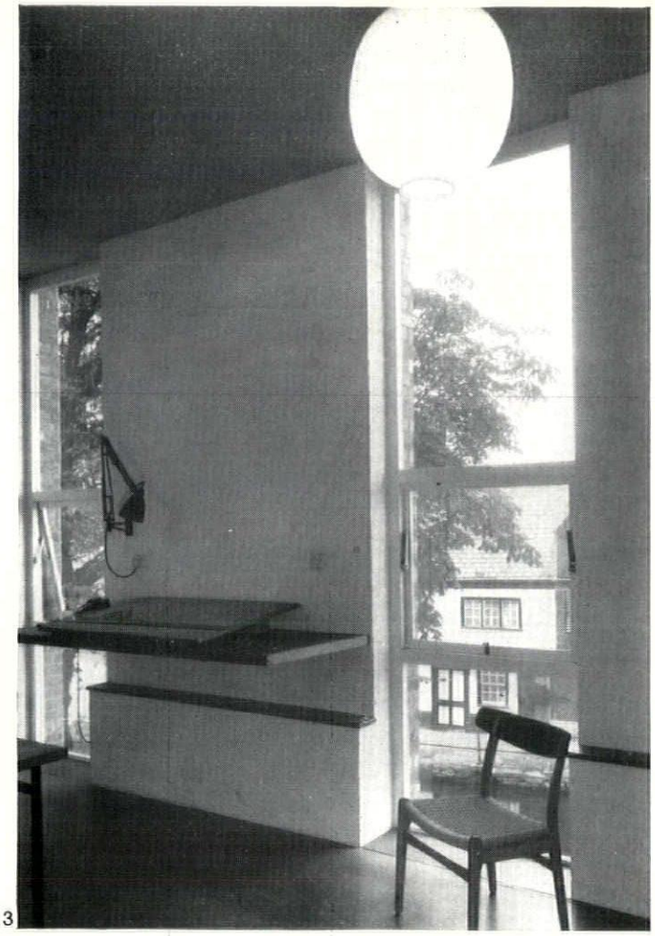
10 and 11 (above), paving patterns in the small garden laid out between the buildings and the river; Fisher Row is across the river in 10.
12 (below), the University Surveyor's office on the second floor, showing the new large windows inserted in the old walls.



12

OFFICE CONVERSION, OXFORD

Internal trim in accordance with the Functional Tradition:
13, inside one of the offices at the rear of the building, looking out through one of the new tall windows across the river to Fisher Row.
14, looking down the new internal stair and across to the open second-floor landing with escape-door leading to the roof of the old malting-block—now the workshops.
15, waiting-space and enquiry-office on the first floor, at the head of the outside entrance stair shown in 1 and 5.
16, looking into the waiting-space shown in 15 from the foot of the interna, stairs. Note the thick wall, set back in stages, of the old central block.



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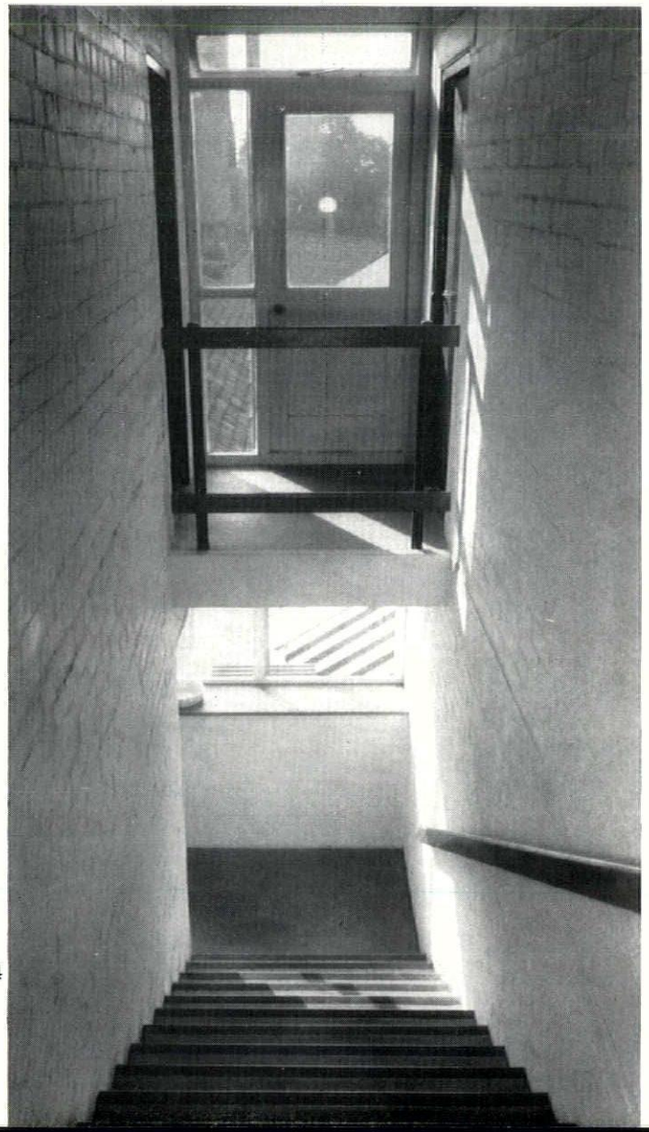

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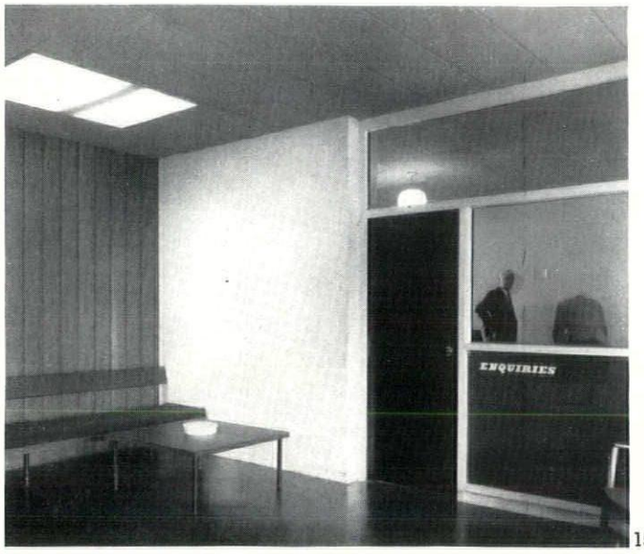

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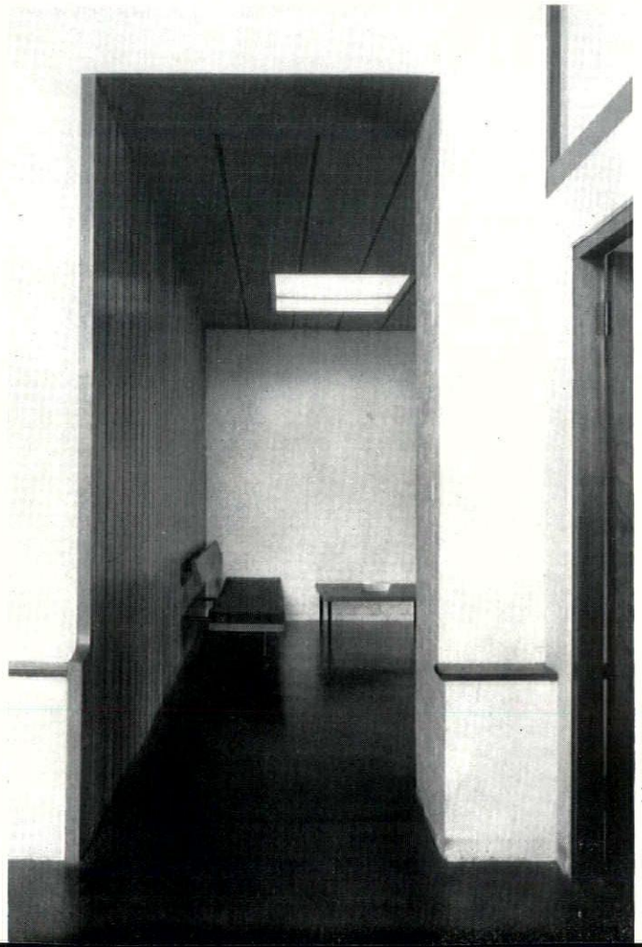

16

Reyner Banham
1960 series editor

1960

3

THE FUTURE OF *Universal Man*

Symposium with
ANTHONY COX, GORDON GRAHAM, JOHN PAGE & LAWRENCE ALLOWAY

This was no brains trust or round table of men selected to cancel one another out and offend nobody while keeping a weather eye on the reactions of an audience—this was a symposium in the sense that Socrates or Alcibiades would have recognized, the sense that Plato codified. The empty glasses stood on the table with the rest of the wreckage of the chicken lunch that had been eaten by everybody except ***Anthony Cox,*** who had been embroiled with clients, and arrived only in time for coffee and 'Yes, I would like a glass of wine'.

Apart from Cox who, as a senior partner in Architects' Co-Partnership, was present as a representative of the more substantial but progressive metropolitan type of practice, the others around the table were: ***Gordon Graham,*** a partner in a lively provincial office, Architects' Design Group of Nottingham, and—among other things—leader of a post-graduate seminar at the York Summer School; ***John Page,*** lecturer in Building Science at Liverpool University, whose appointment to the newly created chair in the same subject at Sheffield was known, but not then public; ***Lawrence Alloway,*** critic and, as programme director of the Institute of Contemporary Arts in London, an inside viewer of the recent drastic changes of opinion in many fields of creative activity; and

Reyner Banham, ***1960*** series editor, to act as moderator and service the tape-recorder.

The subject of discussion was not one that can be summed up in a single word or even a compact phrase. In general terms, it was the intellectual climate of the profession of architect that was under review, within a range of reference that extended from the possible need for a more general scientific training to keep the separate building sciences under control, to the problem of what aspects of the traditional view of architecture were worth preserving under the present changed circumstances in which it is practised. But it was the changed circumstances that dominated the discussion, the confrontation between ***architecture*** and a ***technological society.*** Thus, during the preliminary banter, before the coffee had gone cold in the heat of debate

> **Banham**—How about this drawing on the back of envelopes and menus? Why do architects do it all the time? Haven't they any other way of expressing . . .
>
> **Graham**—Well, they are concerned with visual matters . . .
>
> **Alloway**—Isn't it just an occupational gimmick? You know, like the way scientists always carry slide rules in their top pockets.

Within this field of references, the discussion swept both wide and close, on a very eccentric orbit. At intervals some distance apart, it twice passed through the 'hot' zone of direct ***architect/science relationships*** approached from the opposite standpoints of (*a*) what architects do to the sciences and (*b*) what the sciences might one day do to architects. In both cases it was, as might be expected, the 'human sciences' as Richard Llewelyn-Davies called them in 1960/2/vi-viii (AR, March, 1960). On topic (*a*), the debate had been seeded some time earlier by a reference, by Page, to ***architectural pseudo-sciences,*** a concept that the moderator picked up as a pendant to the problem of generalized scientific training.

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ii

> **Banham**—This is your point about the pseudo-sciences on the fringe of architecture, or the architectural verge of the sciences. An architectural student, on the whole—the profession at large—doesn't command the overall scientific discipline that would normally go with these things. So you get a special kind of sociology which is used only by architects.
>
> **Graham**—What is this special kind of sociology used only by architects?
>
> **Banham**—You've heard these discussions, all the stuff about the people in the Piazzetta in Venice and that kind of thing. I imagine that was what you had in mind, wasn't it?
>
> **Page**—Yes, but I think the essential thing is that it's not based on observation; it's what the architect would like to believe about society rather than what he observes about society. You see, we really had this whole trouble with local authority housing, this sort of middle class image which the architect took to the problem—so you got all the rumpuses in the New Towns. Because they thought *that,* they left out all communal facilities for a long time, you see. They failed really to see what actual relationships were taking place in the East End of London—you know, the importance of the grandmother in the set up. Well, they didn't really know family structure, and took instead a special concept of family structure which was their own family, which they then used as the sociological background for purposes of architectural design; that's what I call architect-sociology.
>
> **Graham**—I feel there's an implication that if architects stopped using their own sociology and really got sociological about sociology, they'd find a much better, clearly defined answer which wouldn't be so comic. And I just don't think that's true.
>
> **Alloway**—If they found a way to collect sociological information properly and to put it to proper use when they got it, then—
>
> **Page**—I think it's probably rather more a question of approaching people who are competent to answer this kind of question and getting their views. You see, we're fortunate in Liverpool University to have Doctor Chapman, who is a social scientist and has been extremely interested in some aspects of building sociology. And I think he would dispute very much that he couldn't offer concrete advice on a lot of the sociological problems which occur in building. So I think it's not a question really of training the architect how to use sociology, but making him aware of the fact that there are people who can give reasonably competent answers on these things and that his own ideas of society may be very biased and extremely limited.
>
> **Banham**—In order to use this information properly, may he not need to have a training which is far less heavily slanted towards the arts, and much more slanted towards the general disciplines of science, or the sciences?
>
> **Page**—I wish I knew what the Arts meant. (Angry voices in protest.) To go back to training again,

it seems to me terribly important that architects in training during their five years should be in contact with sociologists. And that they should respect their point of view and realize that they have something to contribute. And that sort of thing forms their attitude. I think the point is they mustn't pretend to be any one of these other things . . . to know when they're out of their depth and when to go and ask somebody else for an opinion rather than guess.

Banham—As you said before, there's a responsibility on the other sciences as well. You do mention Chapman, but Chapmans aren't ten a penny.

Page—Yes, quite. But they won't know which questions to ask and they won't know which opinions to respect unless they have some knowledge of the sociologist's discipline. I don't think they should be taught sociology, but they should be aware that there is such a thing and what it can do for them.

Alloway—You mean be aware of it in the way that they're aware of a Roman architecture, or something, do you mean in that kind of way?

Page—Well, just as aware as that, yes.

Alloway—It's just really assimilating enough information to be O.K.

Page—No, I should say they should be aware of it in the sense that if they design a project during their school course, they should be in contact with the sociologist—the sociologist should be the chap who tells them what the problems are; just as the structural engineer should be there and the heating engineer should be there. There isn't an individual architect who can solve all the problems, so he's got to draw on these people.

Banham—Will he know *how* to draw on these people?

Page—He's got to be taught.

Graham—And yet Schools of Architecture, as you say, are staffed by architects who aren't architects, you know . . .

Banham—This is my own particular professional problem, that the history of architecture is taught by architects who are vaguely interested in history, not by architectural historians. Which is, I think, a big problem right through the profession; that on the whole the profession would rather listen to an architect with a smattering of a speciality than the specialists themselves. But this may be a real problem in actual communicability of scientific ideas—this business of how far science can be interpreted in non-scientific language.

Alloway—That's a decreasing problem, though, surely, because there are a great many more crossovers now, and popularization isn't a dirty word any longer and so on. It seems to me that kind of barrier is disappearing.

Banham—But is what is coming over really good? I mean you, personally, have got a certain amount of experience in the way sociology comes over into, say, the visual arts. Is the stuff coming across really valid or . . .

Alloway—I think it's as good as the people who get it.

Banham—How do you mean? There's no margin?

Alloway—There's no margin . . .

Banham—If they suddenly got better or wanted more, would they command the subject—their *capability* to command a subject—would it be sufficient?

Alloway—I think so now because it seems to me, especially coming out of America, that there are a great many books giving this kind of information. I can't think of many English books, but a great many American books give it.

Page—I think the information is there and that one can build up now, especially the social sciences.

Banham—Yes. And presumably, as social science seems to sort itself out, and categorize itself, it may become more remote and harder to deal with. I mean architects understand structural engineers pretty well, but from then on you get an increasing degree of incomprehension, as you get towards the more statistical sciences, ones that literally depend on statistical theory, and depend less and less on simple, neat little equations. I mean as the stuff becomes harder to diagram in visual form, put it that way, so the architect loses . . . more and more loses contact with it. Do you find any practical teaching problems in this sort of thing?

Page—I should have said one of the problems of 'numeracy'—if I can use a new word—is lack of statistical training for the layman. We still teach in schools all sorts of peculiar things, but the elements of statistics, the very crudest elements, are not taught at all and people can't distinguish between an average and a statistical group with a range of deviations. They can't distinguish between a statistical answer—a corridor that is big enough to carry the average number of people walking down through it, or a corridor that is big enough to carry say 99 per cent of the load that is put on it. If you get a blockage it is the other one per cent of the time. They have great difficulty, most architects, in seeing the meaning of this kind of statement, *statistical* statements.

Banham—Yet, most architects know roughly speaking that door heights have to be designed a certain degree over the average height of a human being and that chair seat heights have to be a certain percentage below the average sitting height of a human being . . .

Alloway—But that's just operational lore, isn't it?

Banham—It is to a large extent, on a purely intuitive level. But they have that sort of—stick and string appreciation of some statistical method at least. They know which way the averages have got to be biased.

Page—I think one thing is very important to the architect. He should learn how to observe and look at things as they are and not as he wants them to be. They *want* to believe things so often

they are not prepared to look, particularly on these sociological issues. They very rarely go and look at how houses do work and the sort of difficulties that occur—where the washing is actually hung, not where they thought it was going to be hung, and these kinds of problems.

Banham—My private worry in this is less the lack of the observant, than the lack of predictive power in the architect's hands, I mean, there is the classic example which turns up in every third block of flats you look at—the difference between paths laid down by the architect and the paths worn in the grass by the natives. Now it should be possible with certain buildings to draw a flow diagram, showing where the paths should have run.

Graham—The paths as laid down were drawn as you say on a bit of paper in the plan in relation to the heavy black rectangle, and which looked jolly nice, you know. That is the way they are done.

Page—Just like *Mon Oncle* . . . the film . . . You know, that wonderful path with so many people approaching each other and wobbling along the path. I think all students should be shown that film as part of their course.

Topic (*b*), the ***effect of the human sciences*** on architectural design, grew out of one of those desultory passages that occur in most real-life conversations, when everyone is busy with his own thoughts, but occasionally utters one, cautiously, to see if anyone else is working the same line of country. A brief interchange, perhaps no more than a definition of position, flares up, only to be killed off, as here, by the least outside disturbance—in this case it was the need to change the tape, which had run out, but the next tape turned out to be something quite different.

3

iv

Graham—You mean . . . churches?

Banham—Churches . . . buildings of a sort where the appearance may be in the initial brief to some extent. (Silence.)
This is something which is almost undiscussable. (***Uh-huh's*** of assent.) It obviously applies not only to churches, but to . . . say, spec-building, where people want something that looks like a house. A large part of what they *need*, is what would normally be written off as merely something that they *think* they want, which is a building having a certain atmosphere or having a certain appearance, or certain other sub-functional, meta-functional qualities. How are architects going to square up to a brief of that kind?

Cox—This is surely where the visual man rises to—to be the most important man in the team.

Banham—But has he the information to do it? Does he know how a church should be? . . .

Cox—. . . information? It seems to me that this aspect of information is something on which some research programme might well be done . . . by some scientists—psychologists, perhaps. With the effect of shape on people. In what sort of volumes and shapes do you feel comfortable or uncomfortable or relaxed or angry? At the moment we merely go on our hunches, don't we? On our previous experience.

Banham—This seems to me to be a point where the architect as the visual man lags behind the other members of the putative team. He doesn't have the backing of positive information, tabulated materials, that the other ones can throw in. They can say the heating system can be made to work so-and-so and so-and-so, but not so-and-so whereas he can only say 'Well . . . ' and start drawing on the back of a menu.

Graham—But is there anybody else at the moment who has? This is surely . . .

Banham—Studies in perception . . .

Alloway—All the architects can go on is a kind of disreputable tradition of certain colours and certain shapes having certain functions which we don't understand.

Page—I have always in a limited way tried to communicate the possibilities of this form of approach in architecture, because I think one needs more knowledge of the processes of communication, if one may call it that. But one would then be able to see how to organize your pattern in an effective way that worked. And one thing we are trying to do in Liverpool is to move off two dimensions into three dimensions whenever possible, particularly with students, so that they learn to think three dimensionally. You do a colour scheme on a board, but put it in a building and light it the way it is lit in a building, and the thing is . . . You could, I think, deal with the psychology of perception as the central part of the training, the way you perceive colours, the way you organize shapes . . . information on this kind of thing. Some of the concepts of rhythm, proportion and so on, do come into psychology and I do feel that research in the psychological aspects of the subject would be useful and I think one must always remember we have got our full scale experience which is what architects do rely on at the present moment. If they are visually aware they gradually become conscious of what sort of effects do work and don't work. We mustn't reject this, we must accept this traditional approach but we can add to the traditional approach the knowledge given by study of the psychology of perception.

Banham—Am I right in saying that there is in fact an enormous amount of material on these subjects now? Which no—schools or architects have tapped at all yet. What I find worrying is that they have tapped it to some extent, but nobody has really exploited it.

Cox—I think if more work was done on this, or even if what was known were co-ordinated and brought together we might have, as architects, some very troubling questions to ask ourselves. I mean, it seems to me of very great importance, say, in designing a hospital, take the out-patients' room, that you should provide an out-patients' waiting hall that reduces the anxiety of the out-patients waiting. One does one's best, say, to make it what we call humane, and not like a railway station or something, but you don't really know. If we did know, our whole concept of what is architecturally pleasing might be changed completely.

This was the only direct formulation of the idea of the sciences as a ***threat to architecture*** as we know it, but the idea is distinguishable, in retrospect, in much of what was said—on education (the compulsive subject of all spontaneous discussion among English architects), on relations with the public (what is the proper image of the architect?) and on professional self-criticism (is there a real design conscience?). But, most clearly, it formed the focus of a discussion, sombre, nervous and occasionally barbed, on the position of the architect in the building hierarchy and his chances of staying there. This topic saw the two architects at bay, for much of the time, against the scientist and the critic, in what was really the crucial argument of the afternoon—the ***future of Universal man.***

Page—I think in the schools there is still a great tendency to push the concept of architecture as being not a team effort, but essentially the creation of one mind of artistic ability.

Alloway—Universal man again.

Page—It is—you see it leads you into all the problems of the universal man, this lack of specialization that you get and the architects who have to branch into absolutely every field of knowledge, which of course they can't do competently. You can't really be an authority on the history of architecture, on current sociology and current building techniques and so on, and I feel that specialization is bound to come and one has to recognize—with the scale of building we're beginning to accept—that it cannot be the creation of one mind.

Banham—So that the universal man concept, which is part of the sort of professional heritage of architecture, has got to go?

Cox—I wouldn't agree to that. I wouldn't disagree with John Page that building now is team work it must be; but I still feel that there must be one person—whether you call him a universal man or not, he must be as near it as possible—who can hold that team together and whose concept, whose general concept can override everybody else's. Otherwise you just get a railway accident.

Alloway—But the point is . . . this unifying man need not be an architect any longer; he might be a public relations man, he might be someone who is good at organizing jobs, an expert in operations. You know, somebody who can handle . . .

Banham—. . . including visual appearance which he will order from the sociologists and market researchers.

Graham—He could manage the production team but he couldn't conceive the building.

Alloway—He's got to be the guy who can make the vivid little drawings on the paper, not necessarily a person that has the overall say.

Cox—But what has he got to do before he can make the vivid little drawings on paper?

Page—He's got to make the team work . . . the visual man or what we call him now, might be one of the people on the team, but not necessarily the head of the team, surely?

Cox—I think he should be the head of the team.

Banham—*You* would think so, but why?

Cox—Professionalism. I think that the sort of thinking that is demanded is architectural thinking.

Page—I mean it's already been said, I think by you, that architects are interested in beautiful buildings and you said rightly so, but it seems to me a man who is interested in beautiful buildings may not in fact be the person who may be able to relate a building to the block, a block to the neighbourhood, the neighbourhood to the large area. And somebody who doesn't give a damn about the beauty of the building might be able to do so.

Graham—Which team are we talking about now? City planning or designing a building?

Cox—The team putting up a building.

Page—I was thinking in terms of people putting up a big building.

Cox—Well, so was I.

Graham—I still think, and I may be out of date, I may perish, I still think that a big building must be one concept; a concept that includes the electricity, the structure, the ventilation. All the techniques and the functional requirements. And I think that is—

Page—Why is the architect the only person to do this? I thought we had already agreed that architects were failing to do this and that they weren't being taught in ways which would

P.S. by Page
I was inferring co-ordination of functional relationships like traffic-flow problems, rational layout for communication purposes, smoke control, etc. The traditional skills of the architect are hardly suitable for handling this kind of problem. In other words I was referring to rational aspects of town-planning as opposed to Civic Design as an aesthetic problem. The latter is clearly important, and is a problem on which the architect may be competent to give advice, but is not necessarily the dominant.

accustom them to handle quantities of information from all kinds of specialists. We want somebody who can handle them.

Graham—Yes, but I think potentially the architect can more easily than a new type of chap.

Alloway—Where are the architects at the moment, who are doing it? Or is there somewhere people are being taught in ways that might equip them to do it? I gathered from the earlier conversation the answer was 'no' to both those questions.

Banham—Well, the early conversation was somewhat loose!

Alloway—Well, does architectural training fit a man really to do this job, to assimilate everything?

Cox—Well, I think that is one of the things that is wrong with architectural training at the moment. But I don't think there's anything *fundamentally* wrong with it . . . I mean, this scientific way of looking at it has only happened fairly recently, hasn't it?

Page—Yes. I think I would agree with Alloway. I don't necessarily see why an architect should lead the team. This is obviously a point always made by architects because it is in their interests to make it, but there are a lot of other groups that don't believe that this is necessarily so. Now obviously the leader of any group organizing the construction of a building, there must be a leader and he must have the ultimate say. And it is most important that he should be able to co-ordinate the activities of a large number of specialists, both architectural and from the building profession—heating and ventilating engineers, all the other people. He has to do this. Now this doesn't mean necessarily that his aesthetic perception, if I could use that term, need be the most developed of all the people in the team. The aesthetic conception might come from somebody else in the team and he might say to the rest of the members of the team well this idea for this sort of formal relationship and so on, seems to be excellent. Let's accept this and work to it. What do you think, Mr. Heating-and-Ventilating-Engineer, and so on. And he doesn't have to be an architect.

Alloway—There's an analogy to this kind of teamwork in film making, where the architect is the equivalent of the director of the film, perhaps, he makes creative decisions and is talked about and the film bears his name, but often the crucial organizing decision in the assembling of the talent is the work of the producer. It seems to me that you would make the architect both the director *and* the producer always, instead of allowing for the producer being somebody who would hire the director, who would be the architect.

Cox—What you really mean is you want a good co-ordinating chairman. You do obviously on the larger sort of project.

Graham—What exactly is he going to do, I mean apart from just welding this team together and keeping them happy. I mean what is he going to do exactly?

Banham—That's quite a job.

Cox—If you've got to organize the construction of a million pound building there's a tremendous amount of . . . he's got to set about it first of all by producing definition of the brief and the client may think he knows what he wants, but in actual fact most clients don't.

Graham—This seems to me a part of architecture, but go on.

Alloway—But the point is, it isn't being solved at the moment.

Graham—I agree with that; I agree it's not being solved.

Cox—Having got the brief, then he asks to co-ordinate the various people that are going to take part in this operation of producing a design, to produce a design which meets the brief; and finally he's got to see that the building is built effectively and economically, which is co-ordinating and organizing the site supervision, instructing the site staff.

Alloway—I can't see one bit of that—I don't see it as part of the architect's responsibility.

Cox—I see no reason why the architect shouldn't do that effectively and we should have more architects who are able to do it effectively if training at the moment was geared in that direction, rather than in the Great Man, you know, producing a piece of architecture.

Alloway—In this case, the function of the architect is going to become purely synoptic. He's going to be a man who's got to master, in a fairly able sort of way, a great deal of current information and work with it. It seems to me you're much more likely to get top level pure architecture if you have the architect as one of the specialists whose contribution has got to be cemented by the co-ordinator, along with other specialists. Because the more kinds of knowledge that you require the architect to master, the less time he's going to have for anything besides synoptic exercises of one sort and another.

Cox—Yes, I grant that.

Alloway—I think you ought to keep the visual side as one kind of information to come in with other sources of information, like sociology, economics, etc.

Banham—Can it in fact be done like that, do you know?

Alloway—Well, it's not working out the other way—

Banham—No, quite!

Alloway—I mean . . . it is this plea which I detect from the other side of the table, that quite simply all you need is more universal men and architects' problems will be over. But every other field of human activity admits the day of universal men is gone.

Page—We still teach the architect as though it is possible for him to produce a universal man. Now if the talents of people were so great they could absorb all this information, then I would accept your point of view that we can have this concept of the architect as a single mind that can embrace all aspects of a job. I don't think we can possibly train people to do this. My very limited experience of teaching architects has already convinced me that we'll have to either

have a sort of intermediate profession, one might call it a building co-ordinator, or alternatively will have to accept specialization within the architectural profession and the word 'architect' will then not have its present final aesthetic connotation. But you could have a man who was qualified to be called an architect, one who was a specialist in the aesthetic aspect and another who was a specialist in co-ordination, work organization. Another man might be a specialist in problems of construction.

Alloway—I agree, but there's a tendency to give aesthetics . . . far too much to do; to call aesthetics any chance hunch or decision. Anything that the architect dreams up is called aesthetic and thought to have some sort of absolute value. I mean aesthetics is not necessarily the over-riding thing in a building, any more than it can be in a film, just because it's felt to be a good thing. It's not like in a one-man business; like writing poetry or painting pictures, where you can have absolute aesthetic control. You can't in a big group enterprise, like a building.

P.S. by Page

Universal man in this context implies somebody with a general grasp of the values and the working concepts of civilization. Contemporary architects often believe they have this, but their education is, in fact, very narrow for, in acquiring the large amount of specialist knowledge they think they require, they are very liable to be forced to neglect their general studies. It is possible to train people to have a broad outlook, but is not possible simultaneously to give them a lot of specialist knowledge. The real choice is between less specialization with more genuine delegation of responsibility to other specialists, or greater specialization on design at the price of being prepared to work under a co-ordinator.

Banham—I think, yes—it arises, I think, from the sort of *prima donna* concept of the architect. Within all other fields of creative engineering activity, you work in a team. You don't know who the designer is; you may know the leader of the team, but in actual fact in an aeroplane, there's some 2,000 or 3,000 who have designed the aeroplane.

Page—Do you feel the architectural profession is prepared to accept some specialization?

Alloway—Only if they stay at the top. Specialization under them, then the hierarchy—then they're O.K., aren't they?

Page—With this phrase universal man, doesn't it sort of presuppose that man can do everything. I'm not suggesting . . . I've rather been supporting universal man, but I'm not suggesting that the universal architect can do everything, but he should be as aware as possible of what is going on in all these fields. That somebody has got to be aware in order to co-ordinate it. It may not be an architect . . .

Alloway—. . . if it weren't an architect. It would be better if it weren't an architect.

Page—Well, I don't know—it doesn't matter whether it's an architect or not, but somebody has to be.

Graham—I still think it's an architect.

Alloway—And he's read all the books and be good at drawing, you mean?

Page—Well, he's got to be able to think in three dimensions and think in technical terms in three dimensions; and he's got to be able to think in terms of not just three dimensions in the abstract, but in terms of concrete and steel and building materials and electricity and heating and cost—various things—and read all the important books, yes.

Graham—So you *do* need a universal man?

Page—Yes, but his degree might be for instance a doctor in economics, something like that.

Alloway—I think he's more likely to be somebody like that.

Page—I am convinced that we must move towards the design team and concepts of the design team. I wouldn't like to say offhand—

Banham—Isn't that the professional tradition of your speciality, though, as against the professional tradition of the architects, who rather hanker for the idea of the universal man?

Cox—No, I'm not opposing you on this design team because—

Banham—one man can't do it—

Cox—In my practice, most of the work is done in that way; sort of fundamentally we are in agreement; the only thing . . . (several voices together) . . . I don't think the computer is the way. It's our only point of disagreement.

Page—So you say really the building organizer must be an architect. I don't know if you can use the word architect at all; they're such a different type of species we're envisaging that once you use the word architect you get all these connotations and meanings that we're used to for the architect. I think if you use the word building organizer and not attach any other specific name to him is a much safer way.

Cox—Would you accept the fact that, if there is to be an organizer at the head or co-ordinating this team, then he is going in some way to stamp his attitude of mind on the particular building that is produced as a result of that team work?

Page—He can't help it, yes, he must, of course.

Cox—Would you agree also that he must essentially be a leader and people who are selected to enter this aspect of the profession must be selected, amongst other things, on their capacity for leadership?

This was a good question, and a good point at which to leave the discussion, partly because the argument had become repetitive—both sides, having reached positions from which they would retreat no further, were glad of an easy way out —and partly because the ensuing attempt to discuss leadership-psychology soon ran aground in general admissions of ignorance and uncertainty.

Yet, on reflection, ***leadership*** is the problem. The architectural profession's claim to be 'captain of the building team' is based largely on a claim to hereditary divine right of kingship, even if it is defended on the grounds that there is no one else who can do the job. But when, as in this discussion, positive proposals for

alternative claimants to captaincy are brought forward, the hereditary nature of the claim becomes evident—'I still think it has to be the architect.'

The hereditary stand may be a good one; it implies practice, and the habit of command, a tendency to comprehensive thinking, however nebulous. But what are the tolerable limits on nebulosity? Are the conditioned reflexes of habit a satisfactory substitute for conscious action based on knowledge? It becomes increasingly clear that many thinking men, not actively engaged in any struggle for captaincy (and Page and Alloway spoke here for a considerable body of opinion) feel that the ***tolerable limits have been exceeded,*** that conditioned reflexes—operational lore, in fact—will no longer suffice.

Architects, for their part, feel that they are being manoeuvred out of their rightful position by a horde of specialists who don't care about architecture. But the division splits down far deeper than a straight struggle for power at the top, the whole ***basis of thinking*** of the two sides is ***different.*** To use Charles Eames's terminology again, it is 'apparent intelligence' on one side versus operational lore on the other.

This is not to say that the technicians are not interested in aesthetics or social morality, or any of those other subjects that architects continually bring forward as the contribution they are uniquely qualified to make. Alloway rightly drew the parallel (or divergence) with film-making, but automotive design would have served equally well, since in both cases there is a design hierarchy in which ***aesthetics*** and ***social content*** are in the hands of men with like minds to the technicians—architects may not like the results, but that is another matter.



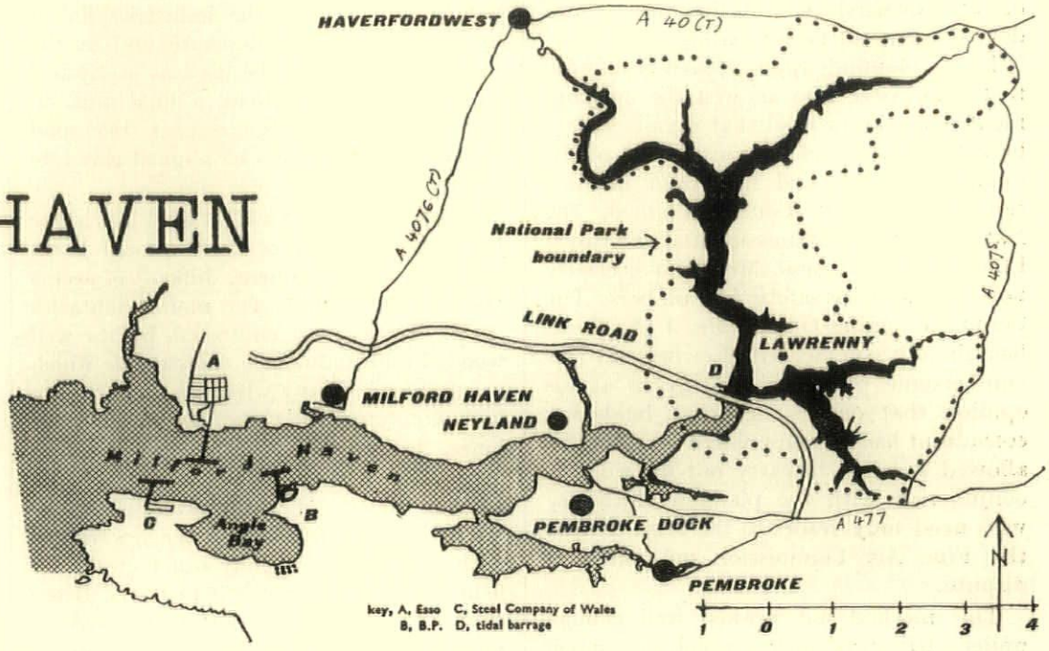
In any case, Alloway drew his comparison to make another point—the structure of the ***design hierarchy,*** and the probable place of the architect in it. This problem will surely prove to have a manipulative solution—anyone can boss the hierarchy provided he has the leadership qualifications. But—and this again is crucial—he is likely to be so busy with what Alloway called ***synoptic exercises*** in over-all management, that he will still need someone else to do the designing for him.

And it seems likely that—beyond this—whoever does make the visual designs will only be able to stay in the hierarchy by becoming like-minded to the technicians in it. That is, whoever gives a building its symbolic or expressive values cannot expect to do so on the basis of an inherited mystique dating back to pre-technological times, He must now move on to the more solid footing of ***quantitative and qualitative experimental information,*** even if this means the abandonment, as Cox suggested, of positions that architects now hold dear. An increasing number of architects now see this, as Cox does, as a likely development, a smaller number see it, as Llewelyn-Davies does, as a necessary development. The future of universal man, if he is not to become a battered relic, like the title block of this article, appears to lie in his becoming first a qualified technician. Repeat, ***first.***

Raymond Spurrier

MILFORD HAVEN

THE IMPACT OF INDUSTRY ON AN UNDEVELOPED AREA



Now that the hue and cry has subsided and the development of Milford Haven is actually taking place, we are able to judge just what effect industrialization is likely to have on the rather special landscape of Pembrokeshire. Rightly or wrongly, major decisions have been made which allow three important developments to take place in the National Park, and it is to be assumed that if these decisions were wisely made, no undue prejudice to amenity would arise. The least one can expect is that as mere precursors these schemes should be setting sufficiently high standards of design and siting to give future developers something to emulate.

In this respect BP look like creating a model of how to absorb twentieth-century technological installations into the landscape. Popton Fort, a massive naval structure of 1865, was providentially placed for an enlightened developer to take advantage of, and there can be nothing but praise for the way BP have seized the opportunity. A decaying monument has been restored practically intact and made to serve as well as camouflage the functions of a modern ocean-going tanker port. Eight crude oil balancing tanks, originally thought to be needed close by, have now been sited on low land 1½ miles away where they will cause little disfigurement to the landscape and where some tree planting is feasible to soften what might appear to some to be a too rigid geometry.

On the other hand, and on the other shore of the Haven, the Esso refinery is an altogether bigger development, a much bigger problem and therefore a greater challenge. But it looks here as if technology will be merely superimposed on the land surface. How much this is attributable to American methods is uncertain, but since both companies are equally fortunate in being advised on landscape matters by S. Colwyn Foulkes (who is being retained by The Steel Company of Wales) it would seem that the advantages lie with the company backed by an enlightened design policy which began with posters, has progressed to petrol filling stations, and is now paying off visual dividends at the Popton Terminal. Alternatively, or perhaps in addition, the tangled web of administrative procedure may be found to have some bearing on aesthetics.

Of course it must be practically impossible to conceal a whole refinery on the Esso site. Little thought can have been given to this aspect at the land acquisition stage, and aerial views show how unsympathetic to the contours is the grid-iron layout adopted. Despite careful siting in the valley the installations are already very visible, and perhaps the only thing to do now is to make a virtue of simple geometry and paint in bright colours so the whole thing will appear as a clearly artificial toy in the scenery. No amount of tree planting afterwards will completely hide it or the associated industries which must surely creep up the slopes to fill the rest of the thousand-acre site.

The projected Tidal Barrage, however, is one significant piece of development which need have no detrimental effect on the landscape; in fact it could have an enhancing effect and at the same time act as a visual symbol of planning policy—a policy postulated by THE ARCHITECTURAL REVIEW* for a close-knit industrial Haven distinct from an intensely rural hinterland, and one which the County Council as Local Planning Authority are trying hard to pursue against heavy odds.

Milford Haven, by Ian Nairn, AR, March, 1958.

Parts of the Pembrokeshire National Park have already been fouled by the Service departments, and as if this were not enough, the Steel Company of Wales with its proposed iron-ore dump 300 yards from pretty Angle village—ironically the 'best kept village in 1958'—has been allowed to make a further disastrous incursion. This results from a straightforward planning application rejected by the County Council in accordance with its principles of confining industry within limits, but perversely allowed later by the Minister of Housing and Local Government—perversely because of his own views that the planning of the Haven area should be far sighted and take into account from the outset the whole area that can properly be regarded as appropriate for industrial and commercial development.

The key to this and other proposals is of course the availability of deep water berths. Yet technical evidence on navigational aspects of this case seems to have been by no means conclusive, and the lack of any expert overall knowledge not only makes it difficult for the Planning Authority to prevent the squandering of unique facilities but probably led to a bad decision on this particular application.

An iron-ore dump could have been easily concealed on a fraction of the site Esso acquired for their refinery, and for which purpose it is not particularly appropriate. Nor, for that matter, was it essential to have a refinery here; oil can be pushed along pipes. BP oil will be pumped 60 miles to the refinery, so the Popton Terminal demonstrates that the use of large areas of immediate hinterland is not a necessary corollary of marine installations. The administrative system does not, however, enable the reshuffling

of land ownerships and the direction of development to the best sites.

Esso's planning application was referred to the Minister who allowed the development with the proviso that details should be submitted direct to him instead of the County Council, and he would in turn consult with the County Council, the National Parks Commission and the Royal Fine Art Commission. Mr. Brooke clearly believes there is safety in numbers. The County Planning Officer, Mr. J. A. Price, has already commented elsewhere on this cumbersome procedure and given as his opinion that once a first-class landscape consultant has been appointed he should be allowed freedom to carry out his work in conjunction with the planning authority who need only resort to the Minister and the Fine Art Commission on points of dispute.

This method has worked well enough under BP procedure, which is much simpler and has produced admirable results. The private Act empowers the construction of jetties, tank farm and pipe line; it requires the employment of a landscape consultant and leaves him to deal with all visual aspects of the work including the siting, design and painting of structures, fences, sea walls, the deposit of spoil, planting, etc. Here it should be noted that under normal planning legislation, fences for instance are generally not subject to control—a small point perhaps but one with enormous visual implications. BP fences, whilst not beautiful, are at least an improvement on the ubiquitous concrete used by Esso.

One final anomaly in the administrative picture concerns the Tidal Barrage Bill. The Government is presumably in agreement with the industrialization of the Haven; Mr. Brooke, Minister of Housing and Local Government and also Minister for Welsh Affairs, has approved some development and anticipates more. So in 1957 he stressed the need for far-sighted planning. The County Council, in trying to comply with his request, saw that the key to the whole thing lay in an adequate and large-scale water scheme. Esso, for instance, will require 5 million gallons per day by 1970 although the Minister has already curtailed what they can extract from the Western Cleddau to 2½ million. So it is somewhat surprising that when the County Council in conjunction with the Prescelly Water Board promoted a Tidal Barrage Bill in 1958, the principal opposition came, and still seems to be coming, from Mr. Brooke.

Apart from providing a maximum of 40 million gallons per day at cheap rates, a secondary function of the Barrage would be to bridge the Haven with a much needed road. Connecting roads will provide a way out to the east for the industries linked by it along the north shore and at the same time it should be used as a physical barrier to contain them, a final limit to urbanization. In this respect the road could with advantage be aligned closer to the shore.

The barrage itself will be sited just in the Daucleddau sector of the National Park. This is a delightful area, difficult of access and so far unspoilt. The main tributaries of the Haven are embraced by its well wooded and undulating countryside which in summer is heavy with the scent of hay and honeysuckle; there are deep leafy lanes, hedges filled with foxgloves and verges thick with yellow iris; there are sudden sheets of calm water between wooded slopes, little inland beaches fringed with seaweed, and many quiet creeks for fishing and messing about in boats. Being tidal, there are also large stretches of mudflat. The effect of a barrage would be to produce a more or less constant waterline and provide improved conditions for small boat sailing; the County Council see this area as a smaller version of the Norfolk Broads. And in this lies a great opportunity to compensate for some of the spoliation in the other sectors of the National Park. Apart from any profits that may accrue from industrial water, some financial benefit is likely to result from increased use of the waterway for pleasure and there is no reason why a few improvements should not result—for example at Lawrenny which would make a suitable place for experiment. Here is an old quay originally used to export anthracite coal. During the war it was used by the Fleet Air Arm as a supplies dump; the hardstandings are still there (used as a caravan site), the rotting nissen huts (used by the Yacht Club), and the chicken wire fencing (used to keep visitors off the very place they would like to wander—the quay itself). Here are all the ingredients of a pleasant waterside place squandered amongst squalid remains—a minor outrage in a National Park.

Lawrenny village itself could do with some renovating and clean whitewash and this too could happen if a few more yachtsmen brought a little extra money to the locality. There are plenty of examples in Pembrokeshire to inspire a rehabilitated Lawrenny Quay and there are plenty of precedents too for a barrage design which would be fitting in the land and waterscape; there is no need for fake rustic, crenellated and bastioned work, or even arid concrete when the vernacular styles, both nautical and rural have so much to offer.

In this way a barrage that belonged could be both useful and ornamental.

[*continued on page* 265

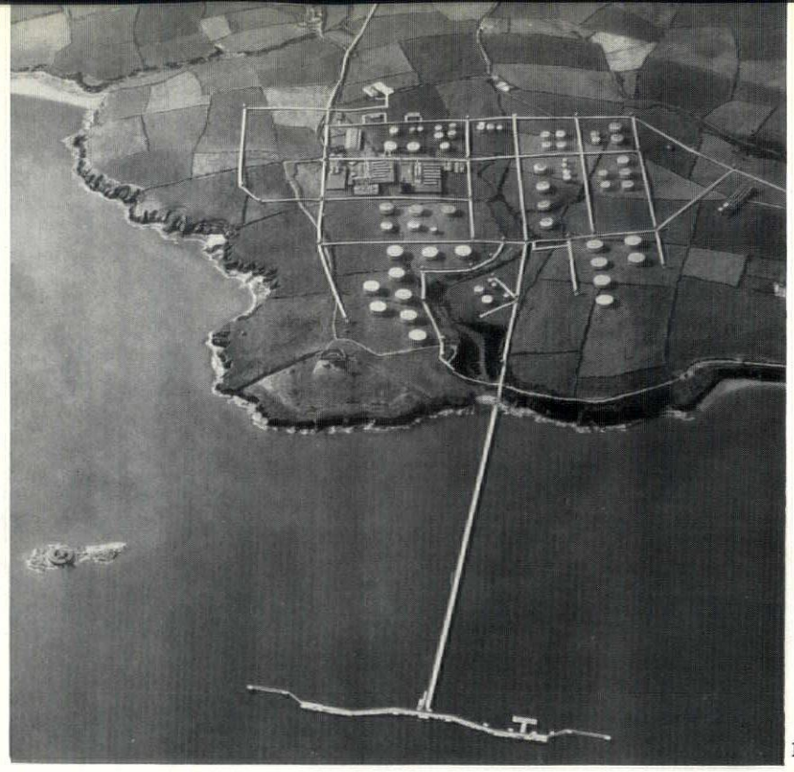
Progress at Milford Haven in terms of physical development by the two oil companies, provides these contrasting aerial views : 1, *the organic design of the BP terminal planned around Popton Fort with the road pattern tailor-made for this particular site;* 2, *what appears to be a standard grid layout for the Esso refinery, superimposed on the site with scarcely any concession to the land-form.*

It is as well that the insistence of the pattern is lost when seen in perspective from a lower viewpoint, 3, *but the glum squat cylinders are only trying to hide in a valley that is not big enough to contain them. Screen planting is yet to come, but by the time the trees are mature enough to provide as effective a camouflage as that shown in the 'artist's impression' issued by Esso,* 4, *the installations may even be obsolete. Perhaps no more could have been done to conceal a work of this magnitude, which only points to the unwisdom of a decision which allowed such an encroachment in the National Park.*

It has been estimated that BP have probably spent half a million pounds on safeguarding the amenities of the National Park. All the office and ancillary accommodation has been arranged inside the Fort and 85,000 *cubic yards of rock have been excavated inside the garrison so that fuel and water tanks will be hidden behind the perimeter walls. Pumps will be accommodated in the old gun battery.*

The Daucleddau sector of the Pembrokeshire National Park which embraces the confluence of the Cleddau, Cresswell and Carew Rivers is so far unspoilt—and so it should remain. Its agricultural landscape is well wooded and undulating, served by a few winding narrow roads like 5, *and divided by great stretches of calm water as in* 6. *These spread into quiet creeks, like* 7 *and* 8, *where low tide exposes acres of mud flats,* 9. *But the mud will disappear under a more or less constant water line upstream of the projected barrage.*





industry into landscape

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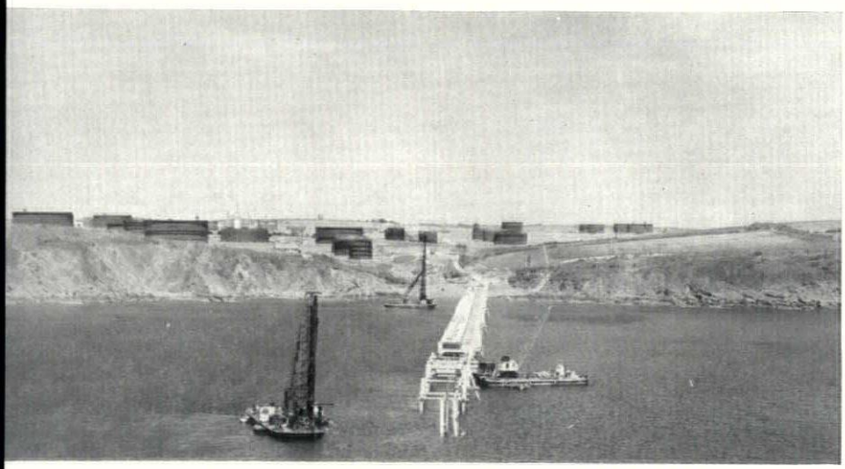

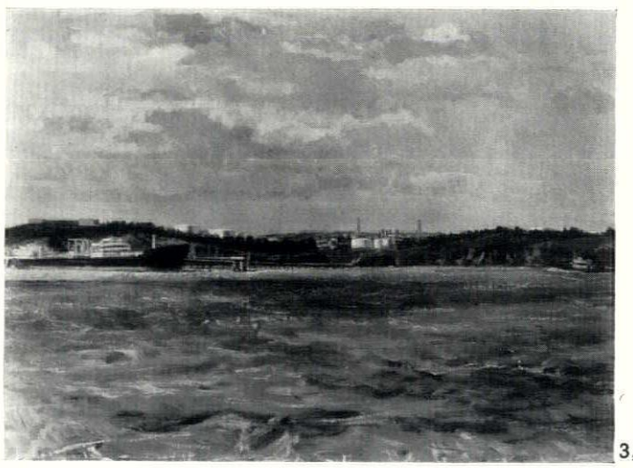

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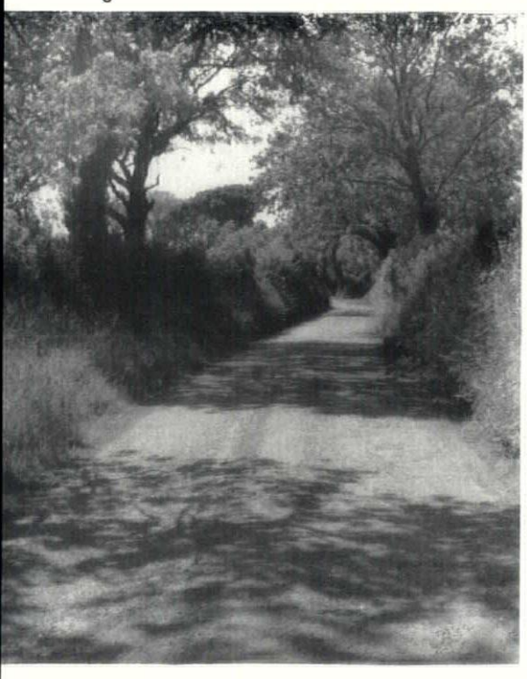
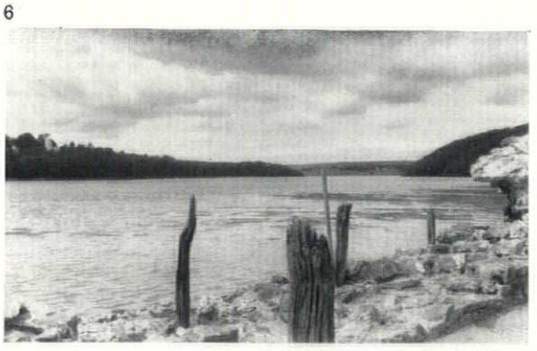
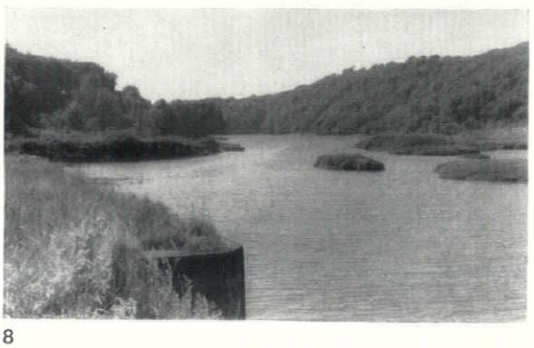
landscape above the barrage









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local warnings



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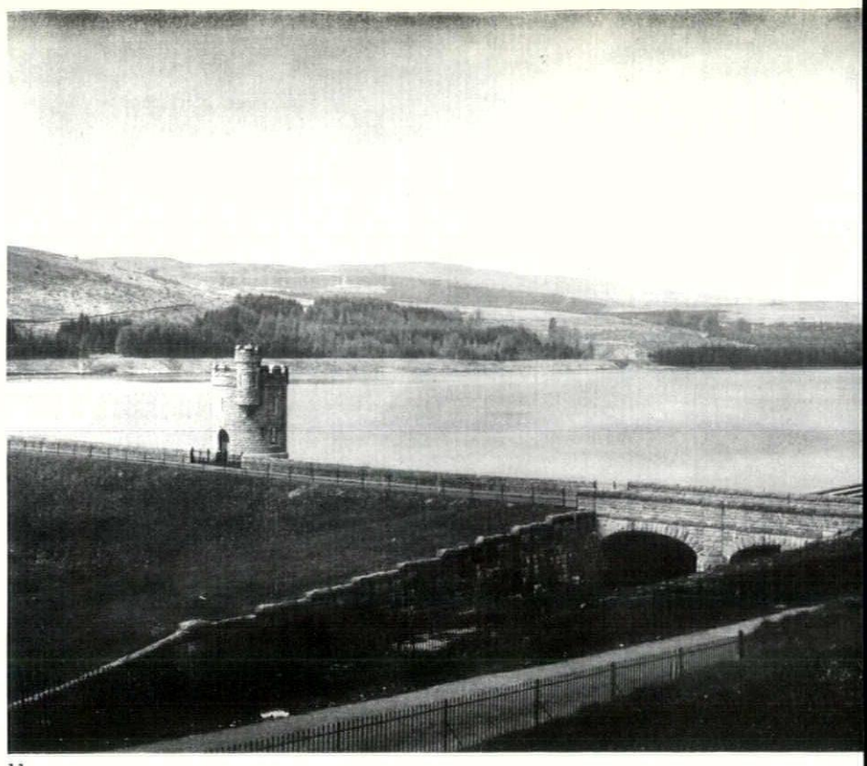

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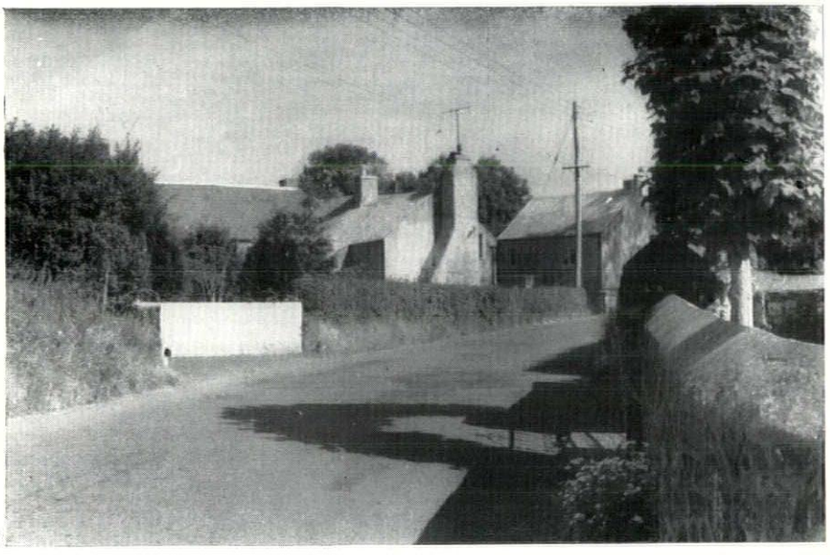
Pembrokeshire vernacular



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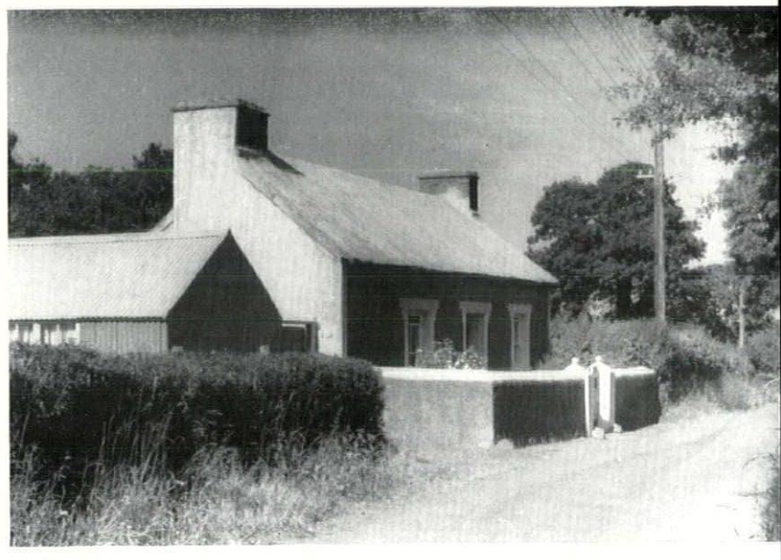
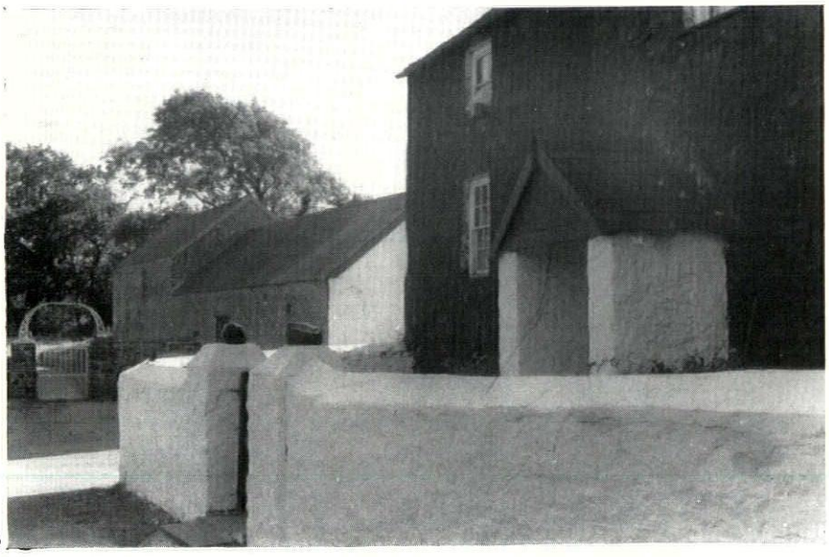


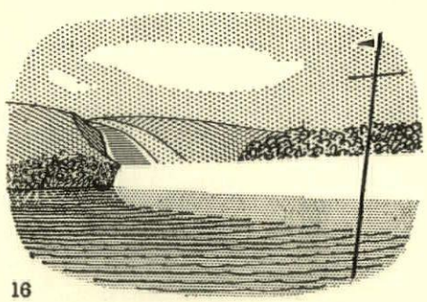


14, 15



The proposed barrage, and the yachting station that could be developed as a result, have enormous waterscape possibilities. At present Lawrenny Quay, 10, *where the yachting station would be, is untidy and depressing with none of the firm and intrinsically orderly quality proper to such places. The barrage itself would be a visual disaster if built in the usual Water Board style,* 11 *(Cardiff reservoir, Merthyr Vale).*

There are, however, enough examples of good building and detail in the vicinity of Milford Haven to inspire improvement on the above, adding interest to the natural landscape and enhancing the view. 12, 13 *and* 14 *are examples of the Pembrokeshire vernacular using simple shapes and materials and a bold patterning of black and white that looks appropriate in a rural or a marine setting. In addition it will be important to ensure that the link roads at maximum* 1 *in* 20 *gradients do not sever the landscape with a suburban ribbon of tarmac and the usually associated kerbs, poles and wire fences. The traditional Pembrokeshire half-sunken road with hedges,* 15, *will suffice here even for industrial traffic, although the maximum* 63 *feet cut into the bald edge of the Williamston Mountain envisaged by the Parliamentary Plans,* 16 *below, is a bit drastic. One method of reducing this would be to sweep the road across the barrage in a vertical curve as in* 17, *so that the structure would assume a more sculptural shape and echo the predominant land-forms.*



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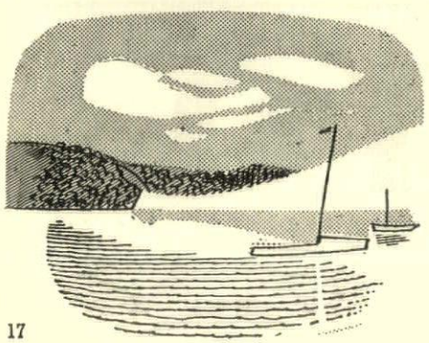
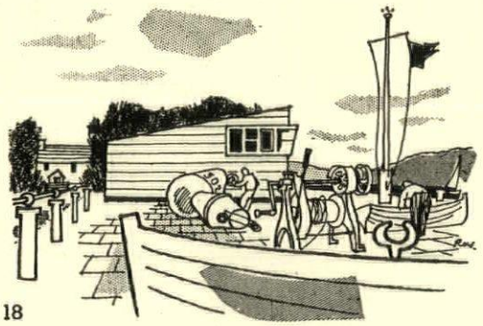


17

continued from page 262]

By separating the two distinct functions of the waterway—the salt water zones from the fresh, the shipping channel from the pleasure streams—it could distinguish the essential characteristics of each. The area above the barrage, used as a yachting centre, would add both a functional and a visual asset to the region, and the cost of the necessary improvement to Lawrenny Quay itself need not be great—in fact anything too ambitious would be overdoing it. Yet some improvement is undoubtedly called for. The functional treatment of waterfront places is usually so trim, so intrinsically decorative, that it is difficult to see how Lawrenny Quay could be so untidy, so depressing and unattractive as it now is.

All that is needed, however, is a grasp of first principles: how to reduce a scene to its essentials—in this case flat surfaces

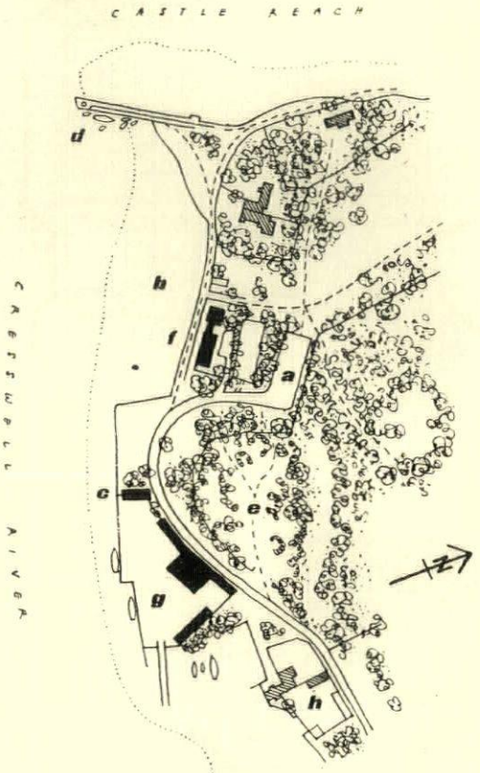


18

and clean edges with clear definitions of function. With a good eye for the natural decorativeness of objects, particularly nautical objects, the job almost does itself. Post and rail instead of wire netting, one or two simple buildings instead of the jumble of shacks, sheds, caravans, and nissen huts, 10 (opposite), and it could be turned into an attractive incident at the water's edge, 18.

In fact the present shortcomings have not gone unnoticed by the owner, who commissioned Neville Conder in 1955 to draw up a master plan for the Lawrenny Quay area and suggest some guiding principles to assist development that, if carried out over a period of years and at the hands of different interested parties, would result in a well integrated and smoothly working 'place.'

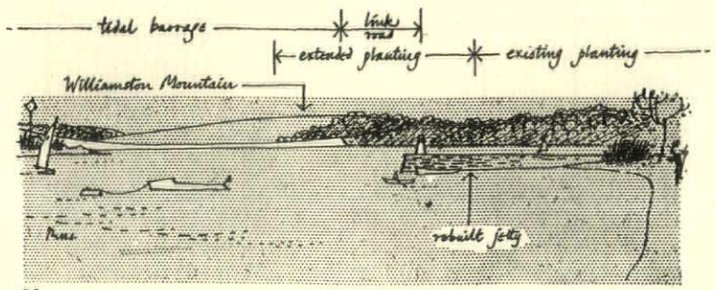
This scheme, treating the place as one of punctuative importance in the National Park—'a colon rather than a full stop'—envisages no more than a stronger and more articulated version of what already exists. The strongest recommendation is for the reconstruction of the outer jetty (its ruins appear in the foreground of 6, page 263). And although outside his terms of reference, Conder—in passing—suggested



19, *the plan by Neville Conder for redeveloping Lawrenny Quay. (a) car-parks, (b) public open space, (c) public conveniences, (d) public landing-stage, (e) caravan and camping site, (f) hotel, (g) yacht station, (h) existing private houses.*

that an extension of the present wooded area over part of the Williamston Mountain on the opposite shore would do much to improve the main outlook from Lawrenny Quay.

The coming of the tidal barrage could help bring this about; 20 below shows the view westward from Lawrenny Quay with a rebuilt jetty in the foreground and the present planting extended so as to grip the end of the barrage and camouflage the link road.



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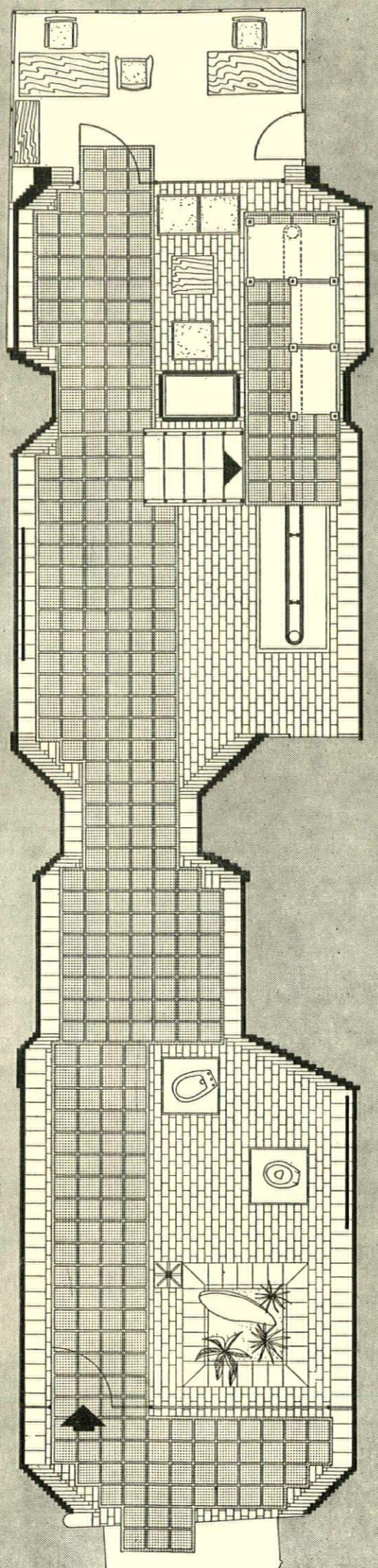
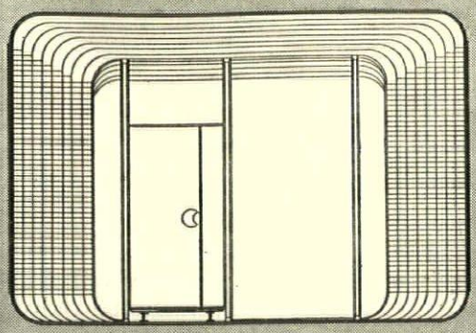
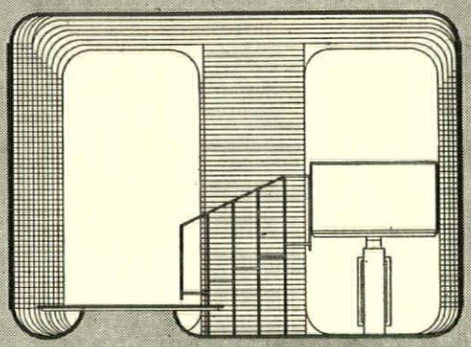
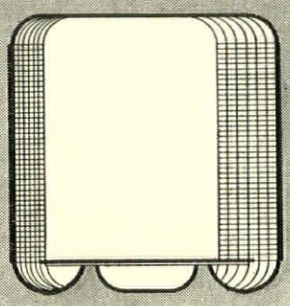
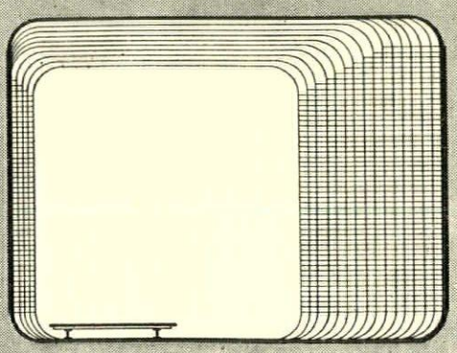










showroom in Rome

designer : Hilda Selem
(of V. F. & L. Passarelli)

Both the interiors illustrated this month are fitted into deep spaces in existing buildings, both gain much of their effect from the use of well-detailed industrial materials—but there the resemblance stops.

Hilda Selem's showroom in the via Condotti, Rome, is a complete break with the superficial fashion-mongering of even some of the best of recent Italian shop-interiors. As the photographs on the next two pages show, and as the plan and sections on this page explain, the design is a continuous space-tunnel of complete structural integrity—it widens and narrows to avoid the existing structure of the building, but it remains everywhere aloof from it and nowhere allows its presence to be seen. Indeed, there are no visual outlets at all (the ends excepted) from the completely homogeneous and continuous membrane that surrounds the visitor on all sides—but remains aloof from him, too, since he stands on a raised iron walkway.

The effect probably suggests to the visitor the interior of a kiln, such as those in which the proprietor's products are fired, but, is, in fact, a pure creation in its own right.

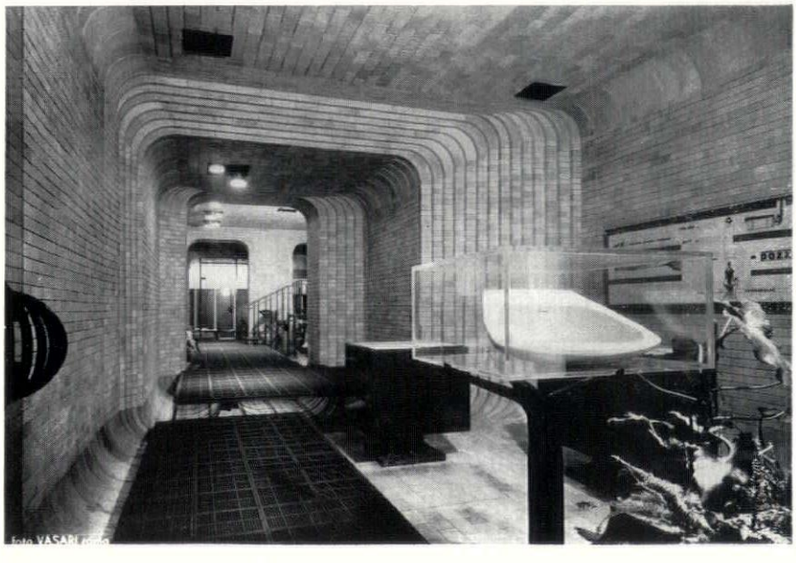
ID

a monthly review of interior design

1, the entrance from the via Condotti ; the interior proper begins, with some ambiguity, at the glass screen, where the door is marked not by the upright member, but by the metal handle. However, it is clear that the showroom begins at the first step up on to the iron checker-plates of the walkway. The abstract sculpture by Emilio Greco is intended as a kind of epitome of the plastic and tactile qualities of the products displayed.
2, 3, two views of the interior, looking from the front and back of the showroom respectively. The visible surfaces of walls, floor and ceiling are all of standard refractory bricks, with specials to accommodate the curved coves, and the height and width of the section is varied always by an exact number of bricks, as can be seen in the sections, opposite.



1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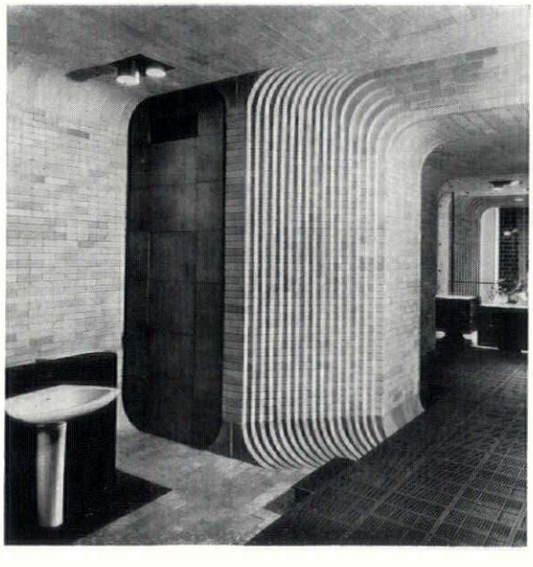
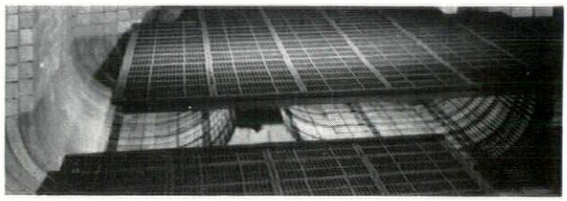

3



4, the full length of the showroom, seen from outside the small office at the back. The lighting, for obvious psychological reasons, grows in intensity toward the back, and is entirely derived from the black-painted fittings which can be seen recessed in the ceiling. The stairs, left, ascend to a platform where kitchen fittings are displayed; underneath—and just visible behind the stairs, but see also 3 on previous page—is a conveyer-belt device which constantly circulates the proprietors' range of bathroom fittings into view.
5, detail of the step in the walkway at the entrance to the narrowest section (see also 3, on previous page) showing how the coving bricks are used to form a raised support.

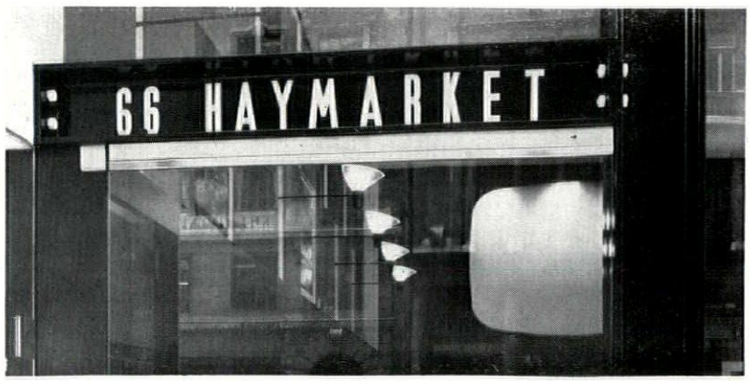
showroom in Rome

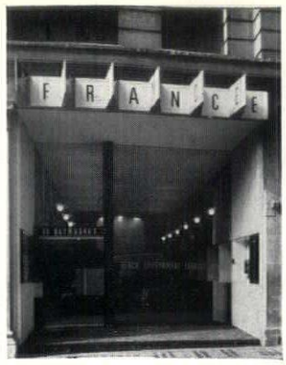


architects: Charlotte Perriand and Ernö Goldfinger

travel agency at

Although the greater part of this tourist information office for the French Government, in the Haymarket, London, is executed in wood, the façade consists simply of large areas of glass carried in especially carefully detailed rolled steel joists.
6, the lintel over the street door.





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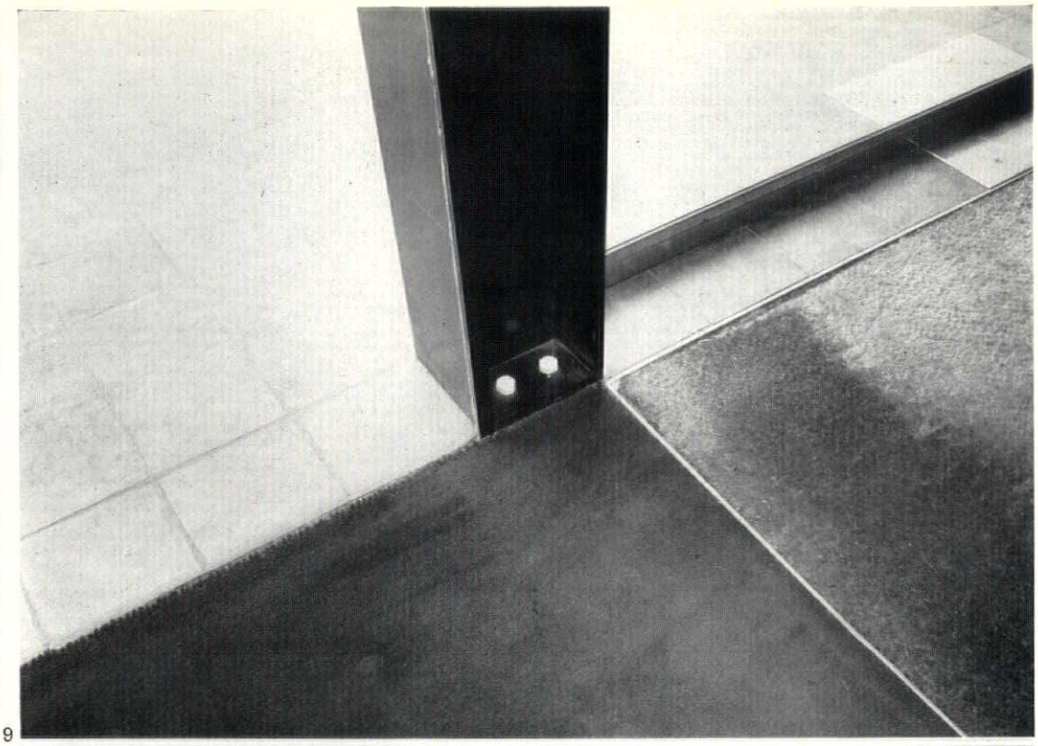
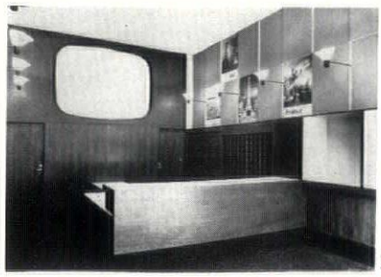


9

7, the exterior, seen from the Haymarket ; the façade consists solely of the main window and the fascia above, with the word *France* lettered out on the sides of the projecting fins as well as the 'metopes' between them. 8, the interior from the entrance, showing the main desk, the upper side walls panelled out for the display of standard posters, and the screen for the back-projection of travel films. 9, much of the interest of this scheme lies in the 'secret detailing' of the glass façade, and a very French scrupulousness towards the dimensions of the components. Here, as will be seen, carpet, door-mat, glass, floor-tiles, RSJ and door, meet with the minimum of intermediate details—the glass is secured by a capping-strip on the flange of the RSJ, and without a single tile being cut.

10, the continuance of the voids of the internal display boxes into the flank walls outside the glass front, and the secret detailing of the junction of glass with structure creates an ideal visual fusion of inner and outer space, the point of transition being more clearly marked by the lettering on the glass than by any constructional element.



8



10



1



2

DR

design review

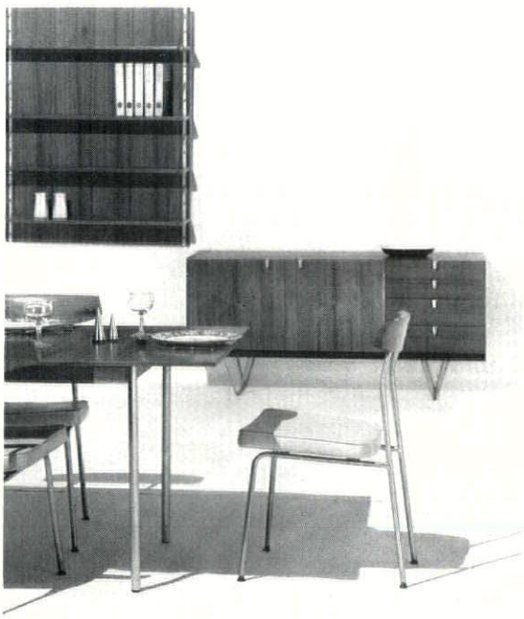
now in production

Two long-awaited developments in the field of serially produced furniture were revealed at this year's Furniture Exhibition, one in the luxury class, one at the less expensive end of the price scale.

1, 2, Charles Eames's Leisure *series of aluminium-framed chairs, are now to be manufactured in England by Hille of London (as are all other Eames's designs available over here). Prices for these extremely elegant pieces are high—the dining chair, 1, costs £37 5s. 0d., and other prices range up to £60 for the recliner above, 2—but not exorbitant for work of this class.*

3, 4, a new range of dining-room equipment by the Stag Cabinet Company, to designs by John and Sylvia Reid, including sideboards and storage units, shelving, three different tables, and chairs. The materials are oiled teak, with leather upholstery and satin finish steel legs, prices range from £8 15s. 0d. for the chair to £26 for the sideboard shown in 4, and a related series of bedroom furniture has also been announced.

3



4



PETER FERRIDAY

PROFESSOR MOORE 1840-1930

Our opinions and feelings in matters of taste have obscure origins. Some at least can be traced back to influential teachers, but the teachers derived some of their own opinions from sources not familiar to us. Perhaps the most read and persuasive of modern English architectural teachers took some of his doctrines from an American academic whose interests were mainly antiquarian. It is hoped that in the course of this brief study of Professor Moore the name of the English teacher will be easily surmised.

Charles Herbert Moore was born in New York in 1830. He trained as an artist, was patronized by Charles Eliot Norton and taken by him to be an instructor at Harvard. His career there was successful, he became the first Curator of the Fogg Museum. Professor Moore visited Europe, made the acquaintance of Ruskin, inspected the cathedrals, and read his Viollet-le-Duc. In 1890 he set down his findings in *Development and Character of Gothic Architecture*.

In the preface Professor Moore warned his readers: 'The main conclusions of the book may, I fear, be unwelcome to many English readers who have regarded Gothic architecture as a no less English than continental product.' All the English critics were in error—none of them had laid hold of the 'ruling principle' of Gothic. But Viollet-le-Duc had done so. 'He has shown that Gothic architecture came into being as a result of the development of a new constructive system of building. A system which was a gradual evolution out of the Romanesque; and one whose distinctive characteristic is that the whole character of the building is determined by, and its whole strength is made to reside in a finely organized, and frankly confessed, framework, rather than in walls. This framework, made up by piers, arches and buttresses, is freed from every unnecessary encumbrance of wall, and is rendered as light in all its parts as is compatible with strength in a system whose stability depends not upon any inert massiveness, except in the outermost abutments, but upon a logical adjustment of active parts whose opposing forces produce a perfect equilibrium. It is thus a system of balanced thrusts, as opposed to the former system of inert stability.

With that admirable statement of Viollet-le-Duc's position Professor Moore traced the development of Romanesque into the Gothic of the Paris region. The shafts rise from the floor, have capitals functionally related to the vaulting ribs, the vaulting conoids are narrowed at the wall by the stilting of the longitudinal arch over the windows, the flying buttresses are developed, and so on. The walls withered away and all is left logical adjustment of active parts. There is 'constructive propriety' in it all. The logical mind of Professor Moore saw the logic of Viollet-le-Duc's explanation, which revealed the logic of the French mediaeval builders. This was all very acceptable but what followed was not.

If that was what Gothic was, if Amiens was its embodiment, what of English 'Gothic'? The Professor went rapidly through the English cathedrals to see how they conformed with his lucid definition. Lincoln choir 'contains all the essential parts of a Gothic edifice, but they are so treated that a strictly Gothic result is hardly reached. That the builders did not possess a clear apprehension of the structural principles of the new style is manifest in many points.' Salisbury was no better though the longitudinal rib was stilted (but illogically allowed to die in the vault); its windows were apertures pierced in a wall and not openings between structural members, its buttresses, indeed the whole structure, were essentially Norman, and its vaulting shafts started from corbels half way up the wall. All Early English was like this; odd approximations here and there to Gothic but nowhere a wholehearted application. The pride and joy of the English antiquarians was damped down. Salisbury, Wells, and Lincoln west fronts were dismissed as 'falsities.' 'Hardly better is the west facade of Peterborough,' the Professor cruelly added. The inverted proportions of the arches were morally, because structurally, wrong, and 'make a very unhappy architectural group.' But surely the polygonal chapter houses would be spared? Not at all—they show 'the same want of constructive logic.' Salisbury's central pier has an octagonal abacus converged on by sixteen vaulting ribs and that won't do. Against the perfectly clear standard of French Gothic English Gothic disintegrated; it became Anglo-Norman with ill-understood Gothic trappings.

It goes without saying that Italian, German and Spanish 'Gothic' were inadequate. 'In France, and in France alone, is the system complete and the development apparent. There alone are the successive steps of change spontaneous and connected, and there only does the inventive spirit of the builders manifest the character of a general movement.' English Gothic is accurately placed. 'For two hundred years after the Conquest the dominant elements in architecture were decidedly Norman. The Cathedral of Salisbury, the nave and transept of Wells, and the Presbytery of Lincoln, among others, are substantially Norman buildings, differing, as we have seen, from buildings of the earlier Norman style in little more than the substitution of pointed arches for round arches, and in the modification of ornamental details. The architecture cannot, therefore, be properly called English. It is strictly Anglo-Norman architecture.'

Professor Moore wrote with admirable clarity and a becoming stiffness. There was a little of the Gradgrind about him but on the other hand he did not go in for sentimental outpourings in the manner of most writers about Gothic. It would be easy to ridicule his views, but before anybody did so they might read his book and then go to look at Salisbury Cathedral. They would, almost certainly, be disconcerted. The Moore argument sinks in and infects. For his contemporaries there was an additional difficulty. They too set great store by Viollet-le-Duc's analysis but had not appreciated until it was so baldly demonstrated by Moore that English Gothic did not live up to its exacting standard. The reviewers were therefore at a disadvantage in trying to frame a cogent answer, more especially as Moore had not explicitly condemned English Gothic but merely classified it (admittedly by inference, among the lower orders. None of the English reviewers was prepared to admit that the Professor's strictures on the English designers had any substance. If the reviewers were intractable they had the excuse that the Professor had been more so. By pressing his assumptions to a logical conclusion he had arrived at something which verged on the absurd. The next step should have been to re-examine his assumptions and this he did not do.

The American reviewers gave the study a good reception. Perhaps Anglo-American antipathy was running high—at all events *The North American Review* was currently (1890) featuring a series 'Do Americans hate England?' The *Atlantic Monthly* was proud of the book and referred to its case as 'the American argument.' The *Unitarian Review* was convinced that Moore had 'fully established that ideal Gothic exists only in France' but conceded that his appeal was more to the mind than to the eye—quite, with reference to the matter in hand, a concession. Russell Sturgis in *The Nation* was more doubtful. He delightfully referred to the English as 'the island builders' which must have warmed the Professor's heart. Of English Gothic not being Gothic he observed: 'Between scholars, it may pass; one purist may say to another that he does not call such work as that Gothic at all, and his remark will be understood, and will not seem unduly exaggerated or inappropriate; but it is hardly safe to say to the public that such a building is not Gothic—hardly safe because not (in the sense that the public understands it) true.' Sturgis also pointed out that some of Moore's misdating of buildings affected his argument.

Very grandly *The Builder* rose to meet the challenge, the disrespect towards the flag. Its first seven columns of the issue of March 15, 1890, were given to the rebuttal. The reviewer (Heathcote Statham ?) was not sure for whom the book was written; if for Americans it was dangerous, if for the English commonplace. In any case it was not suitable for the general public and would subvert public morals—'for if a book like this became popular at Mudie's we know very well that the paradoxical and heretical element in it is exactly what the general reader would lay hold of at once, and parrot about everywhere.' The book put 'undue stress on a single element in architecture.' 'Mr. Moore, self-satisfied and dogmatic as he is in his style of writing, can hardly expect that the world will allow him to sweep away these buildings, and Lichfield, and Lincoln, and Canterbury, and Salisbury, etc., etc., out of the category of architecture (Westminster we observe he gives a grudging kind of allowance to, because it resembles French work to some extent).' The imputation of self-satisfaction was not fair; *The Builder* was more used to uncritical antiquaries and could not accustom itself to the rigour of the Moore procedure. The reviewer then, very cleverly, parodied the method; he defined Greek architecture from famous

examples and was able to prove that the monument of Lysicrates and the Erechtheion were not Greek architecture at all. The final attack was high-standard *Builder* of its great days: 'But in its general scope the book seems to be a curious illustration of the admiration for things French, which has of late years taken possession of the American mind, coupled with a desire to "take the shine out of the Britisher." No persons in the same line of business are as jealous of each other as relations; and the feeling seems to be that if Americans have no old cathedrals of their own to boast, it is at least desirable to let "the Britisher" know what poor concerns his really are, after all.'

Building News said that the constructive principle behind Gothic had long been understood by the Britisher; Scott had always recommended the study of French Gothic. If the Professor's views were wrong nevertheless he had written an 'able and clever book.' Charmingly a eulogizing French reviewer in the *Gazette des Beaux-Arts* referred to the author as the 'savant anglais.'

The Professor was not forgotten or forgiven. In a review in *The Builder* in 1896 of a book by Russell Sturgis he made an anonymous appearance. 'We are glad to see, however, that Mr. Sturgis, unlike most American writers on architecture, can recognize the merits of English Gothic, and does not occupy himself in endeavouring to prove that there is no Gothic architecture in England worth taking into account.' Anglo-American relations had not, apparently improved: 'Americans, as everyone knows, do show a great facility in crossing the seas, and some of them are only too prone to teach us everything about our own architecture, and point out all its shortcomings and all our mistakes about it.'

The book went into a second edition in 1899. It drew no more irate reviews. With the publication of Prior's big history of English Gothic, the bad American's name was again invoked. A.E.S[treet] wrote in *The Architectural Review* —the new glossy—'One can picture to oneself Professor Moore rubbing his eyes over the title of this book, and exclaiming, "Bless my soul! Why, I thought I had exploded that myth once for all!" But Mr. Prior is not American, and does not share the American's blind partiality for all things French.' In a review of the same book for the *North American Review* Baldwin Brown also made the same point and added his own little picture of the beauties of English church Gothic: 'In the midst of the greensward rise the gray minster walls, gathering as they pierce the leafage of embowering trees into towers and spires that catch the sunshine.' It was about this time that English antiquaries began the fine game of pushing back the date of English Gothic buildings. Parts of Wells were made to ante-date the French work of Canterbury and so the English appeared to be in the van. Bond was a regular offender of the early-ing Early English school.

Unexpectedly Professor Moore turned his attention to Renaissance architecture and the collision of Viollet-le-Duc's standards and the Orders produced some odd results. *The Character of Renaissance Architecture*, 1905, had moments of comedy. 'Although this great dome has been almost universally lauded, it is entirely indefensible from the point of view of sound principles of construction'—that is St. Peter's. 'Yet with all its mechanical and artistic merit, the scheme is fundamentally false in principle, since it involves a departure from sound methods of dome construction'—that is Florence. 'Nor is it worth while to analyse the spires of these [Wren] churches. Spires made up of superimposed stories with classic entablatures in telescopic adjustment, like St. Bride's, or temples of Vesta crowned with flying buttresses holding up neo-classic tabernacles surmounted by obelisks, like St. Mary-le-Bow, are hybrid compositions of utterly barbaric character, notwithstanding the excellent portions for which they have been justly admired.' The standards of judgment were clearly laid down—one of the admirable things about Professor Moore is this candid explicitness. 'Beauty in architecture may, I think, be almost defined as the artistic coordination of structural parts. As in any natural organic form, a well-designed building has a consistent internal anatomy, and its external character is a consequence and expression of this.' 'I think it may be taken as a true principle that architectural ornament cannot be good unless it be an expression of the kind of beauty that we find in organic nature.' 'Noble architecture has always been, and must, I think, always be, mainly a social, communal, and national, not a personal product.' Holding these opinions Classic got a very cool reception.

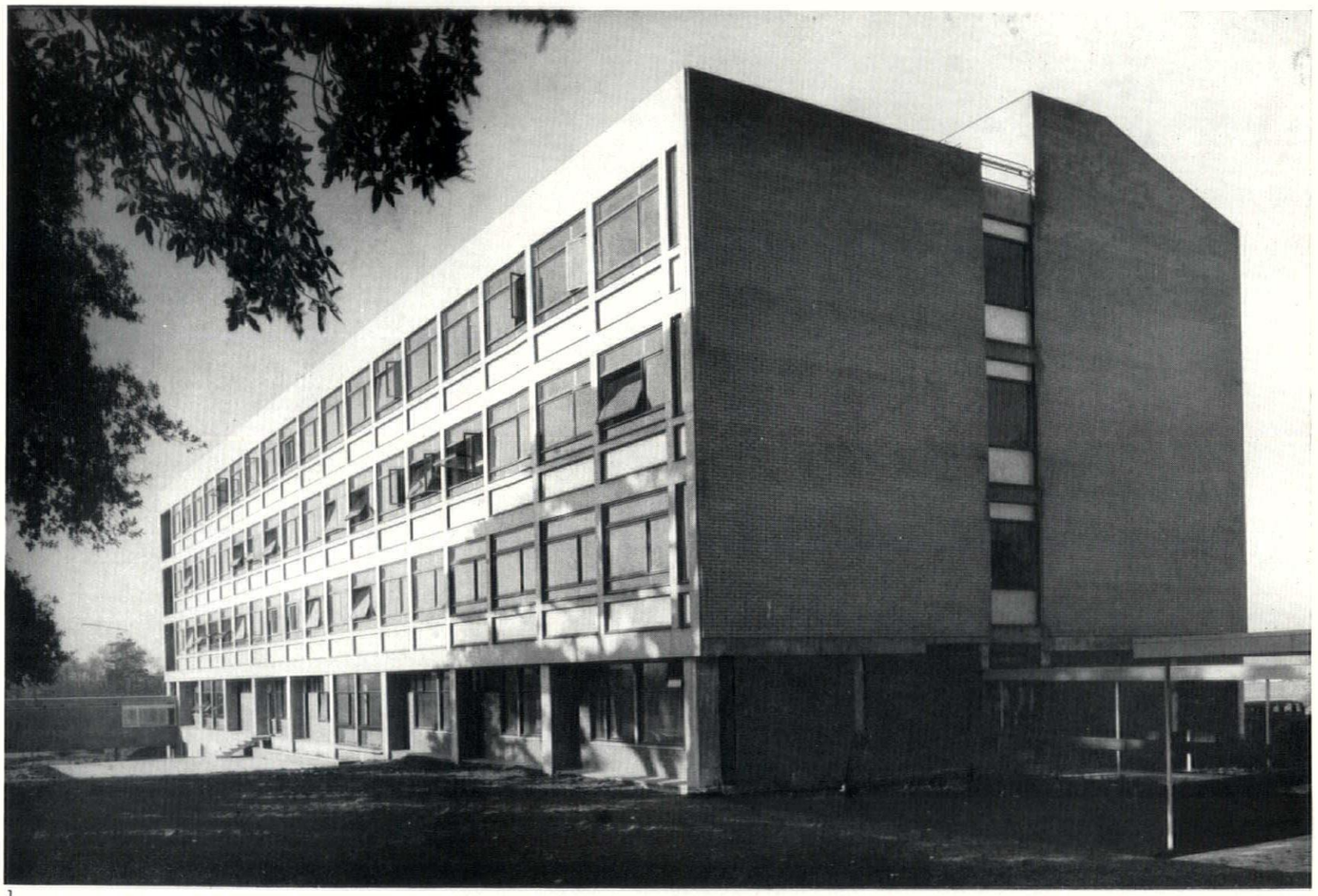
Not long after this there was a moment of farce in the Professor's career. He retired, much honoured, from his Fogg Museum post and emigrated—to England, degenerate Anglo-Norman England. He built a house for himself at Hartley Wintney and set about his researches preparatory to taking another shine out of the Britisher. *The Mediaeval Church Architecture of England* was published in 1912, and with it the case was completed. Canterbury choir was a French work and the distinction between the English and French workmanship there was dismissed as sentimental nonsense. Lincoln was derived from Canterbury by English architects who only very imperfectly understood what they were doing. The surprise came with the analysis of Westminster Abbey. The Abbey has always troubled the English antiquaries; they have wanted to claim it as English true and through but they have never been able to disguise the fact that it is an exotic. A compromise was hit upon and the perfect formula invented by G. G. Scott, Jr.—'French thought in English idiom.' (Doubly blessed it insinuates.) So the English laid claim to it in spite of the appearance of things. The persistence is extraordinary. When Master Henry, the first master mason, was discovered to be Henry de Reynes an ingenious patriot informed his mourning countrymen that there was a Rayne in Essex so the mason probably did not come from Rheims at all. This antiquaries' zest for saluting the flag did not affect Moore. He cut right through the arguments. The French would not have the thing if you gave it to them. 'A little scrutiny, however, shows that it is not the work of Frenchmen, but of English craftsmen, too strongly imbued with the Anglo-Norman traditions to grasp the French Gothic principles of design and construction.' He supported his case with detailed analysis, and gave no comfort to either party. Moore said that Early English was the best Anglo-Norman style; it was succeeded by a 'florid and ostentatious' manner and then by 'dry and mechanical formalities.' The famed timber roofs were often designed against all true principles of timber construction.

Strangely enough the English did not take this too badly. The worst review was in the American *Nation*; perhaps because the author had emigrated. It mentioned his 'narrowness,' and stated that he is 'constantly misled and misleads his readers.' His mechanical theories were disputed and he was informed that he ignored all the 'charm and loveliness.' *The Athenaeum* dismissed it by reference to Prior. *The Architectural Review* was firm; 'To say that this or that building is or is not Gothic because a certain ratio of voids and solids is or is not maintained in its walls is to treat the most human of the arts as though it were divisible into genera and species like the lower animals are distinguished by the form and number of their molars.' *The Builder* accused him of saying that English 'Gothic' was both an offshoot of French and largely an independent Anglo-Norman growth; 'But Mr. Moore seems to us to be both running with the hare and hunting with the hounds. He sees French influences everywhere present, while at the same time insists that some new and strange style was evolved from the Norman Romanesque, for which he can find no name.'

Professor Moore lived at Hartley Wintney until his death in 1930.

The reviewers missed a considerable opportunity when they decided that patriotism was the best answer to the Professor. His Gothic books were well worth more serious notice and are still worth attention. He had three admirable characteristics, rigour, candour and relevance. He gave earnest consideration to the architectural design and ignored the venerableness, the associational, the lichens. One result of this was an obvious thinness, another just as obvious result, as the acerbity of the reviews shows, was an invigorating sharpness. His candour was a rare quality. He was the first critic to record the inconsistencies and illogicalities of English Gothic—his points may be answerable though probably only by somebody who had radically different ideas of what architecture is and is not. Professor Moore's weakness lay in, having got such strange results from his (Viollet-le-Duc) assumptions, not beginning to re-examine the assumptions. He was a little stiff and humourless. These assumptions were disputed many years ago by M. Pol Abraham and Sir John Summerson (and indirectly many years before that by Henry Adams) but even for someone not accepting them, Salisbury Cathedral is a strange building and the Professor's objections are difficult to get round.

The quotations from Professor Moore must inevitably have called to mind another and more distinguished critic, W. R. Lethaby. Lethaby, besides being one of Moore's admirers, as a man and as a critic, was evidently, in his general views, much influenced by the American savant. The persistence and popularity of these general views is a mysterious feature of architectural journalism. Lethaby's naturally refined taste was totally at variance with his theoretical asseverations. Perhaps no critic of his eminence has had such a total disability for ordinary, logical thought. His little book *Architecture*, whose going out of print caused such regret in the technical press, is almost entirely an account of the development of constructional methods—the round arch, the pointed arch, the dome, the steel frame. Architecture as anything more than constructional innovation was nowhere. The popularity of early nineteenth-century industrial buildings is one of the remnants of the Lethaby cult and confusion. Another architectural critic wrote that architecture was the creation of forms; 'Forms that signify not physical desiderata such as convenience, cleanliness and cheapness, but spiritual desiderata—harmony, wonder, gaiety, awe.' No-one, of course, knew this better when face to face with a building than Lethaby, but no-one did more to bring the full significance of architecture into disrepute than he did in his theorizing. He was giving civil engineering another name. Professor Moore was much more single minded than Lethaby. The attention he gave to the cathedrals was solely that of the civil engineer. The lucidity with which he did this makes his studies valuable, but the harmony, wonder, gaiety, awe of architecture were absent.



1

1, *the main teaching block from the east.*

TECHNICAL COLLEGE AT BROMLEY

ARCHITECTS: GEORGE, TREW AND DUNN

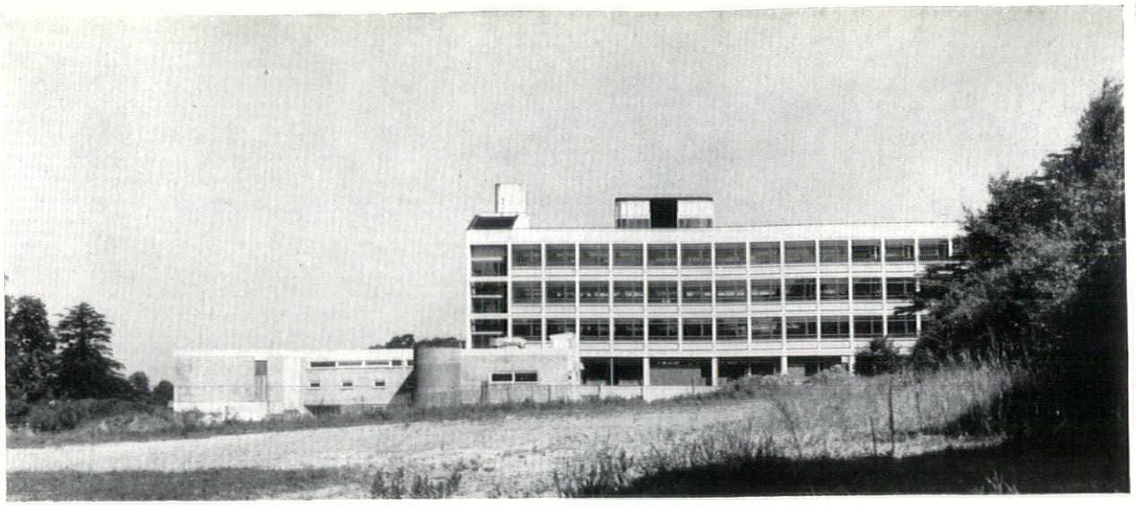
in collaboration with E. T. Ashley Smith, County Architect

The college stands a mile south of Bromley, adjoining the Bromley-Sevenoaks road. The buildings illustrated form the first stage and include the departments of engineering, commerce, science and domestic science, as well as the dining hall and assembly hall. The main four-storey teaching block is linked by a covered way to a single storey workshop and by bridges to the assembly hall and dining hall. The administration and common rooms are on the ground floor.

The main block has a precast and in situ concrete frame with prestressed floor beams. The ground floor is faced with blue engineering bricks, behind fair-faced reinforced concrete columns; the upper floors are clad in precast concrete slabs with a white Norwegian spar finish, with glass infill panels below the windows. The end walls are of white sand lime bricks and the roof is of asbestos tiles. The workshop block has a welded steel roof frame and monitor lights on load bearing brickwork. The block is faced with grey sand lime bricks with painted asbestos fascias, and there is a continuous band of patent glazing.

The assembly hall has grey brick infilling and timber windows, and a felt roof finished with spar chippings.

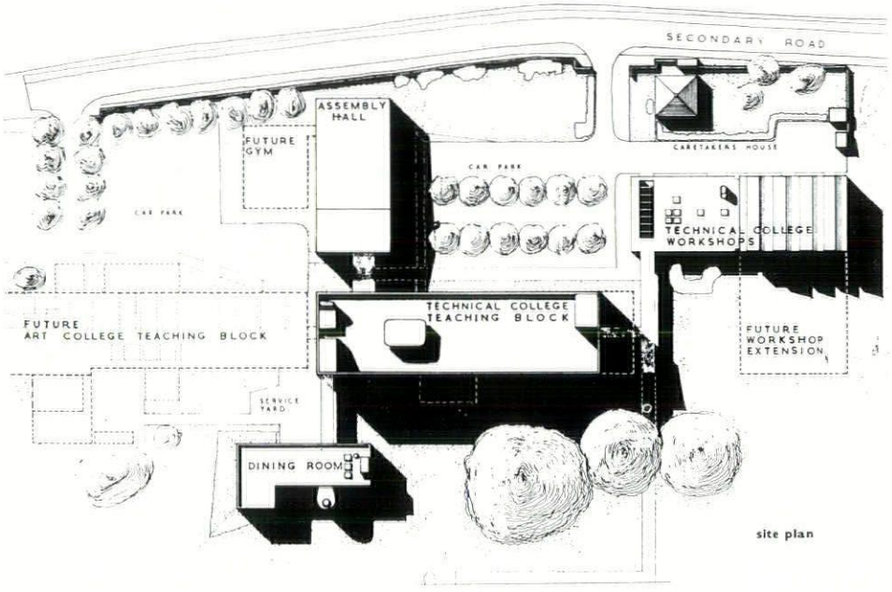
Floors are of composition blocks generally, with pvc tiling in the science laboratories and sprung



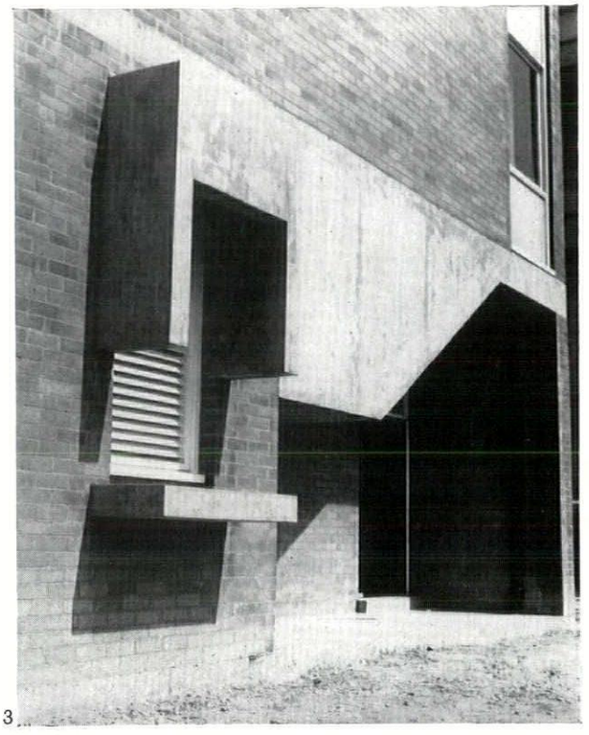
2

2, the main teaching block with the dining hall in the foreground, seen from the playing fields.
3, detail of the ventilation intake to the assembly hall.

Technical College at Bromley



site plan



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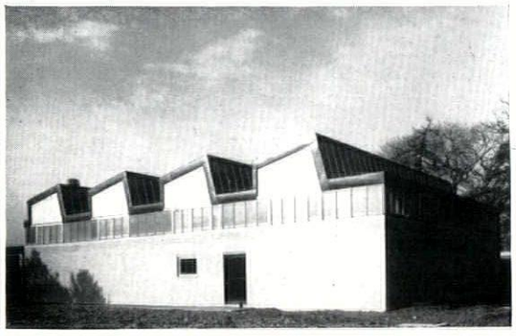
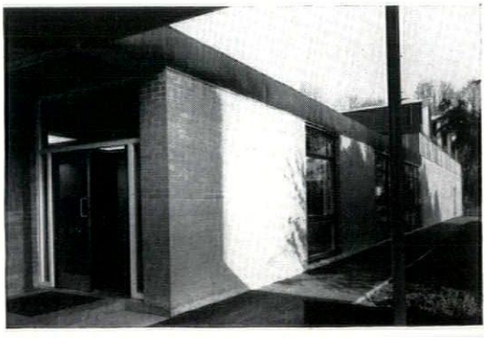
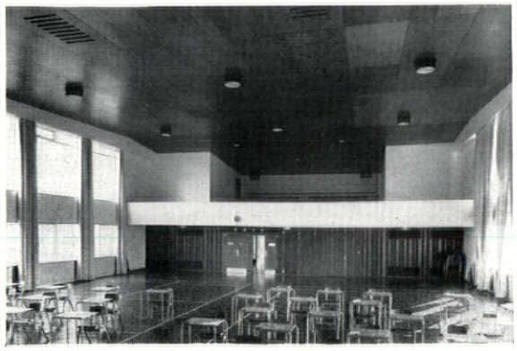
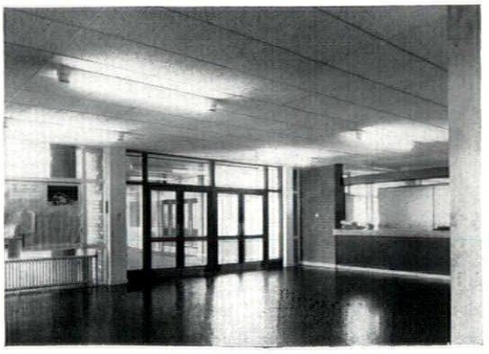








mahogany strips in the assembly hall. Plastering is kept to a minimum and internal corridors are of fair-faced brickwork, while plasterboard partitions are finished with emulsion paint. The stairs in the teaching block have grey and white terrazzo strings and black marbled linoleum treads and risers. The balustrading is of black steel with black marbled linoleum panels and a Honduras mahogany rail.

4 | 5
6 | 7

4, workshop block from the east, showing roof construction and high level windows.
5, the entrance to the workshops from the link with the main block.
6, the assembly hall, with fair-faced brick walls and a ceiling of unmatched mahogany ply sheets.
7, main entrance hall and enquiry desk. The ceiling is of fibrous plaster acoustic tiles.

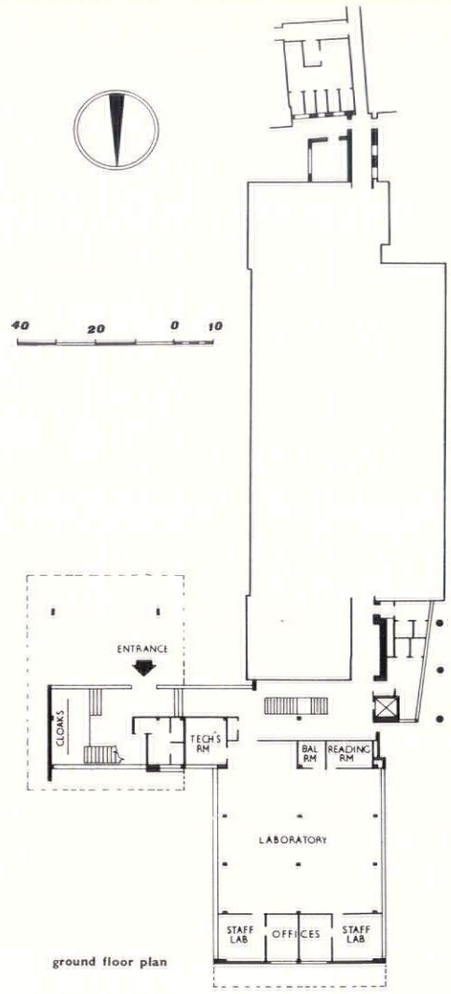
TWO SCIENCE BUILDINGS AT OXFORD

ARCHITECTS: RAMSEY, MURRAY, WHITE AND WARD

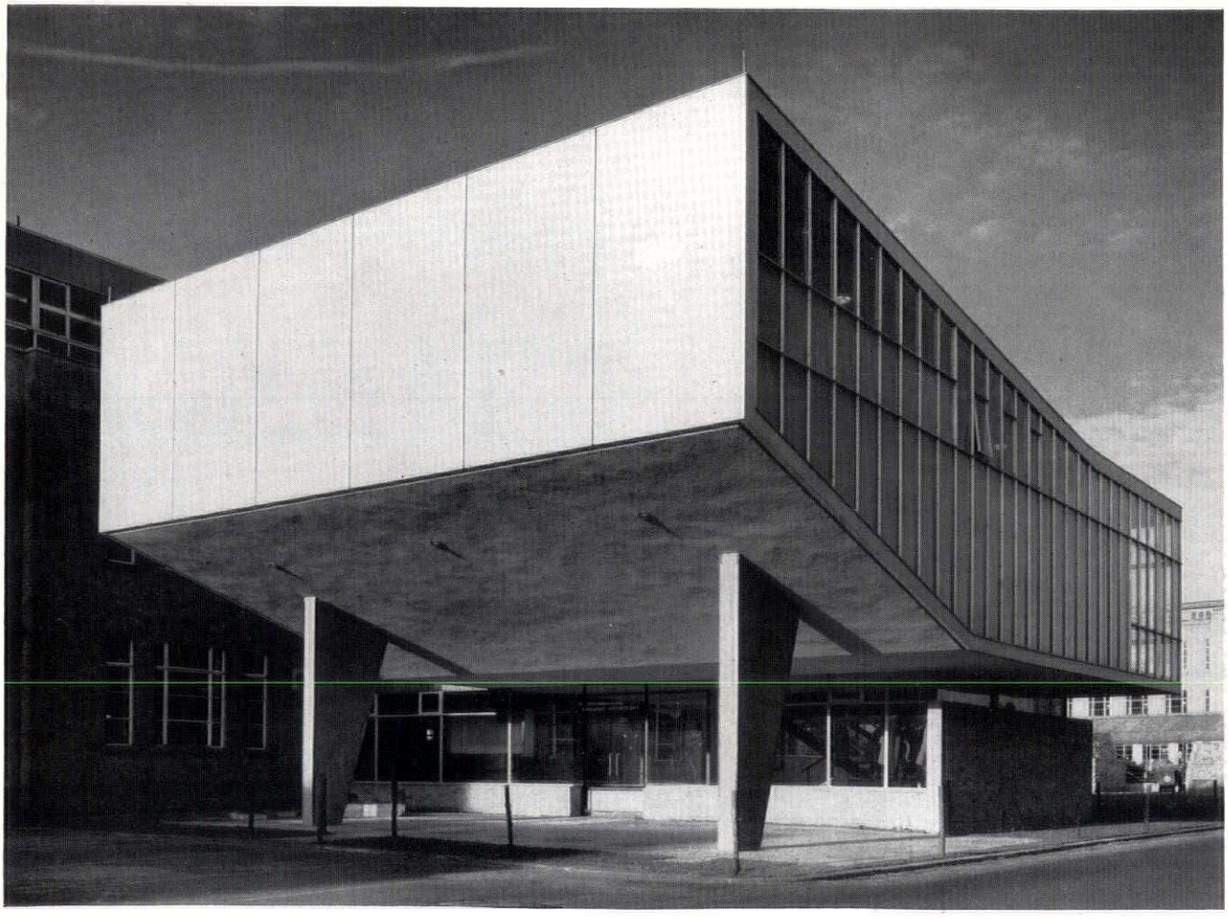
1, Organic Chemistry Laboratories

The new buildings were needed to provide additional space for research, teaching and offices, and also to form a link between the original Dyson Perrins Laboratory and its later extension. These requirements were met by filling a three-level gap between the old buildings, adding a new floor to one of them and providing a new wing with a lecture theatre at the north end. Alterations inside the old buildings involved centralisation of the main laboratory stores and improvements to internal circulation. The new second floor houses a library and administrative offices, and there is a large storage area in the basement. The lecture theatre and the north wing have reinforced concrete columns, beams and solid slabs. The new floor over the existing building and the link block are steel framed and have wood-wool roofs. In most parts of the building suspended plaster ceilings are used. External walls are built in 6 in. rigid insulation faced with waterproof materials.

Most external walls and fascias are clad with laminated glass fibre panels held by extruded aluminium sections. The external skin of the lecture theatre walls is formed by vertical aluminium patent glazing, using cast glass. Above window cill level the same system is used but with clear glass. Other external materials



ground floor plan



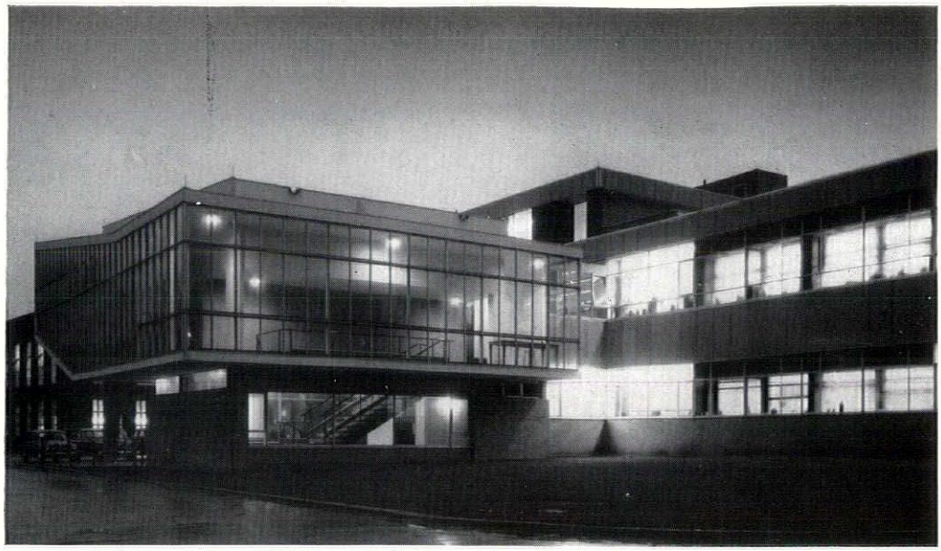
8, *the raked floor of the lecture theatre, cantilevered over the main entrance to provide more circulation space at ground level.*

include small quantities of facing bricks matching the old buildings, black glazed bricks and white mineralite. Aluminium windows are used throughout. Internal walls are plastered. Floors and skirtings in the laboratories, certain special rooms, libraries and offices are of cork. Other rooms have linoleum floors. Marble tiles were used in the lower foyer to the lecture theatre.

Cold and hot water, vacuum pumps, gas and electrical services are provided. The heating is by means of coils embedded in the plaster of the suspended ceilings. The ductwork of the fume cupboard extract system is in pve clad in asbestos cement. All runs of services are concealed within vertical ducts and above suspended ceilings. Laboratory services terminate in a specially designed group of outlets distributed along laboratory benches.

The theatre is ventilated by means of a forced air inlet and outlet. In addition two powerful extract fans are provided for rapid changing of air between lectures. The plant located over the upper foyer is operated from the control panel in the lecturer's bench. The same control panel includes various signalling devices for communication with stores, laboratory stewards and with the projector operator. Also included in it are controls of the power operated curtains and lights. A similar portable panel duplicating all controls can be plugged in at two other points in the lecture theatre to be used by the projector operator. A blackboard in two halves each about 16 ft. by 4 ft. has been faced with specially treated black formica and is electrically operated from a number of points along its length.

Organic Chemistry Laboratories



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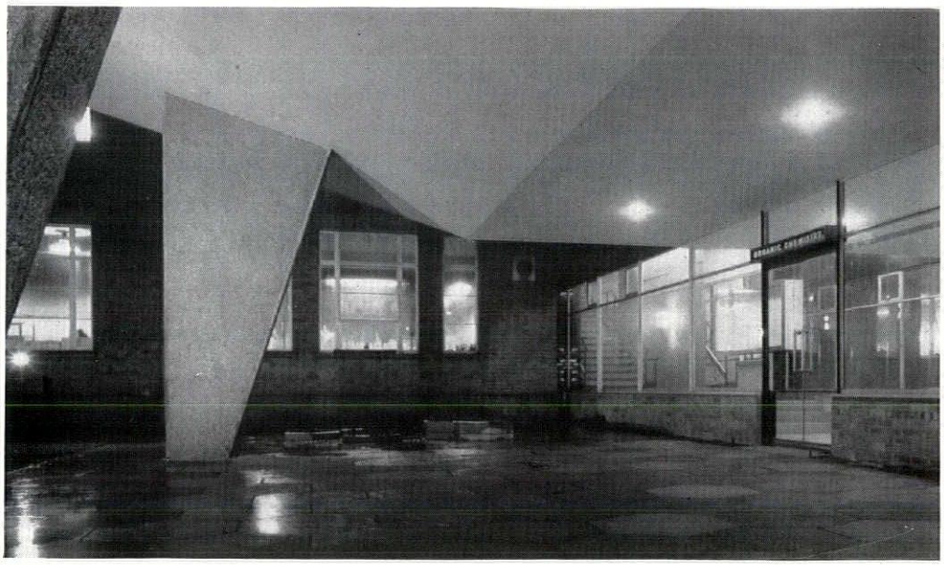

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11



12

9, night view, with the new north wing on the right and the lecture theatre in the foreground.
10, *the paved entrance court, sheltered by the sloping floor of the lecture theatre, which is carried on splayed columns.*
11, *the glass-walled entrance hall. The stairs, seen in detail in* **12**, *are carried on a core beam which is plastered and painted dark green. The treads are of grey precast terrazzo with black aluminium inserts. The risers are dark green. The handrail is of black ebonised hardwood carried on square steel sections, and the kneerail is polished mahogany in aluminium channels.*

13, *the west facade, with the lecture theatre in the foreground at ground floor level.* 14, *the main entrance beyond the lecture theatre, with the bridge across the ramp which leads down to the workshop.*

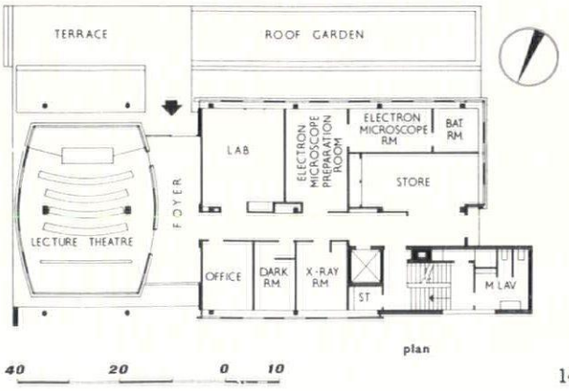


13

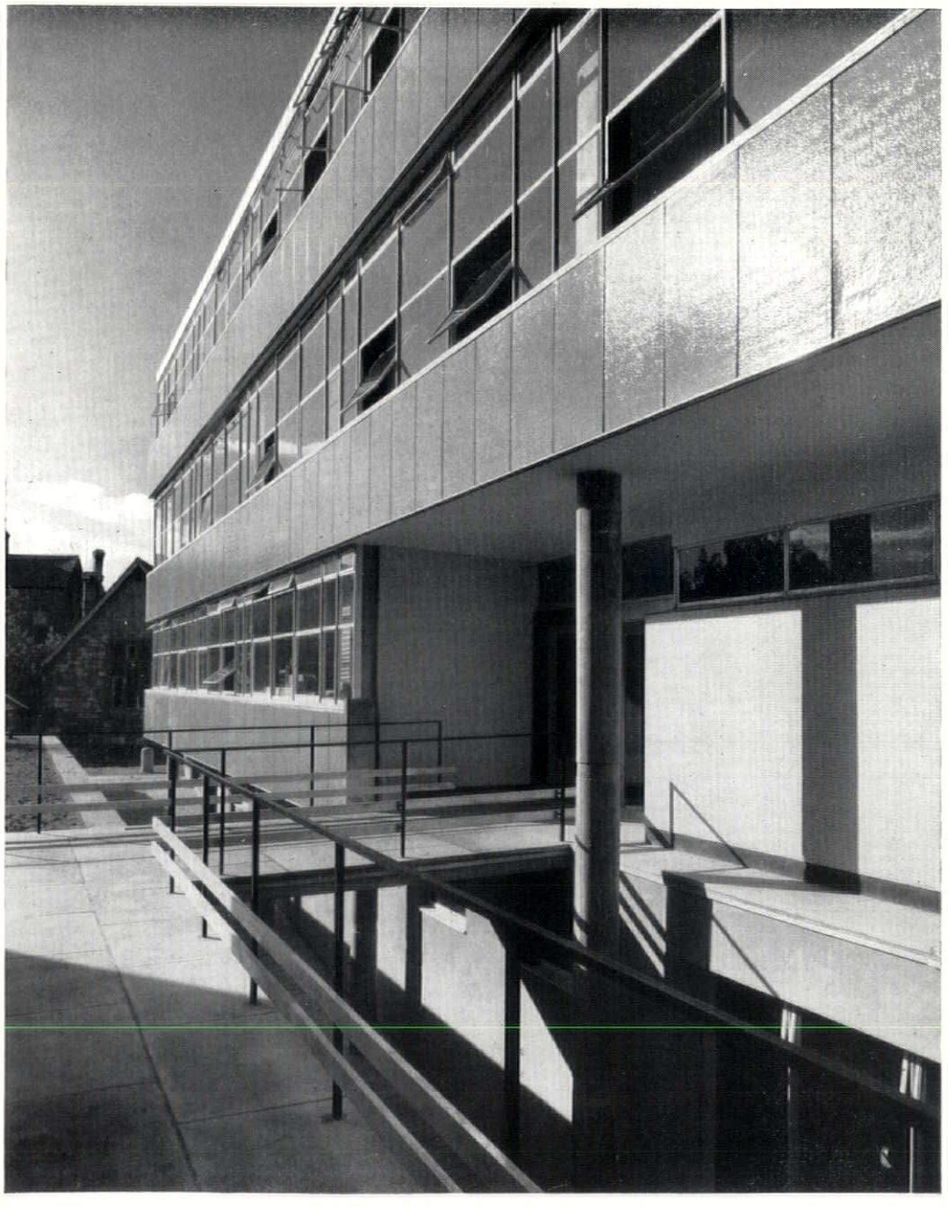
2, Metallurgy Laboratories

This is the first building on the new Science site between Banbury Road and Keble Road, and the plan had to provide a first floor which would connect with the future pedestrian concourse and also allow for future extension to the north. The workshop is in the basement with independent ramped access.

The foundations are a reinforced concrete raft and three rows of columns carrying the concrete floor slabs. External walls of the main block are of 6 in. insulating blocks supporting windows and lightweight external cladding. Basement walls and those of the staircase block are in 6 in. concrete. External walls generally are clad with slightly textured grey laminated glass-fibre panels stiffened at the back with a corrugated sheet of the same material. Free-standing columns cast in cardboard tubes and some concrete walls are left untreated. Internal floors are in muhuhu blocks, walls and ceilings are plastered. Plain concrete walls in the basement are painted. Special plaster was used in the X-ray rooms to reduce radiation. The building is heated by a system of coils embedded in ceilings. Temporary oil fired boilers at the bottom of the staircase block supply the heat.



plan



14

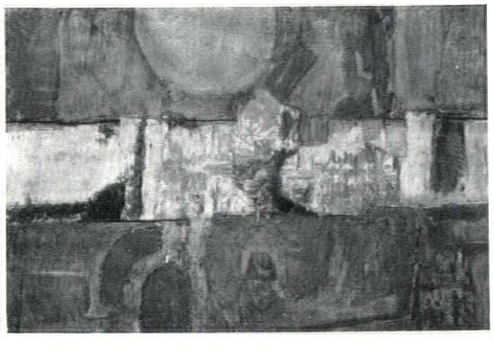
EXHIBITIONS

PAINTING AND SCULPTURE

The ten painters selected by Arthur Tooth & Sons to represent 'La Nueva Pintura de España' have all been influenced by School of Paris informalism, but they belong to two distinct groups, and the four painters from Barcelona have little in common with the six from Madrid. The Catalans might be described as 'makers'; they take Dubuffet's *hautes pâtes* as their point of departure, use home-made cements, and construct their pictures rather than paint them. The Castilians, on the other hand, tend to be 'self-expressers'; they use paint freely and make dramatic gestures (Millares is very, very dramatic: he wrenches big holes in his canvas, screws up what remains of it, drips blood-coloured paint from the edges of the holes and produces abstract illustrations of criminal assault.)

The work of Tapies and Cuixart (Barcelona) and Lucio Munoz (Madrid) cuts across the group interests and rivalries. These three are obsessed by walls. They make walls to hang on walls; old, dirty, broken walls to hang on clean, new, smooth ones; walls which bring to mind alleyways, prisons and crypts, ideal for contemporary drawing rooms. Yet although there is no gainsaying that they are using a fashionable idiom, and that their work is in demand as delectable decoration, they are somehow different from the run of artists who go in for this kind of sophisticated crudity; they are more austere and circumspect, more sombrely elegant and purposeful.

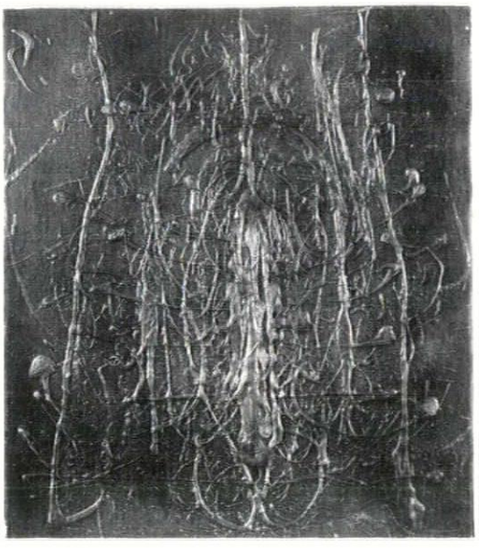
The walls made by Munoz bear shapes like ancient damp stains, 1: they cluster



1

together in shadowy, whispering tones of grey, as if they were half-made signs wondering what they ought to signify.

The raised designs on Cuixart's clerical

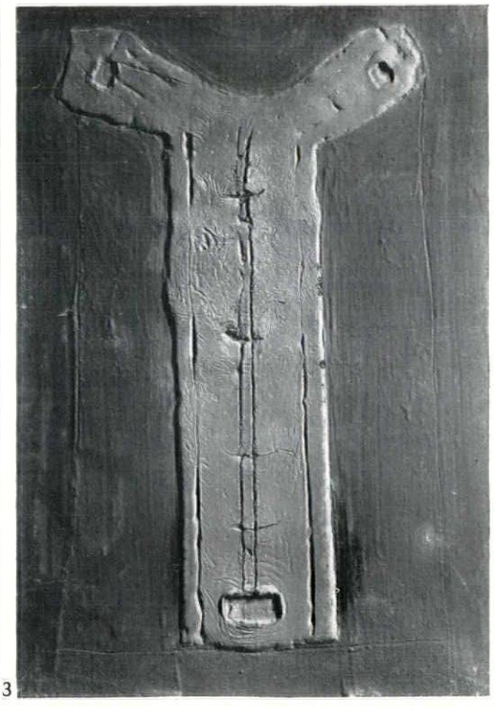


2

grey slabs look a bit like clumsy-clever attempts to achieve a delicate intricacy with unsuitable tools. They are to some extent brought about by controlled accidents, yet it's clear that they are the work of someone profoundly intimate with the intricacies of church ornament and Christian symbolism, 2. They are filled with a queer, muffled exaltation, and seem—even more poignantly than Munoz's stain-shapes—to be frustrated signs.

Cuixart makes these raised designs by squeezing long worms of paint straight from the tube and letting them lie undisturbed on the surface. This use of paint seems often to have a rather squalidly onanistic significance; but there is nothing of the exhibitionist about Cuixart and I feel sure that he is not pretending to be an inexhaustible fountain of vitality. He dusts the paint with metal powders, which gives his surfaces the gleam of gold in dark places, and he seems to be attempting to allude to sacred ornament in terms of a mysterious 'appearance' or 'manifestation.'

I think the art of Tapies throws some light on what Cuixart and Munoz have in mind, and why it is that they have to avoid being explicit about it. I recall a painting by Tapies which was included in a mixed exhibition of Spanish painting brought to London a few years ago by the Arts Council: it was one of the first of those scarred walls which have made him famous; it had a thin surface of grey plaster which was peeling away to reveal a hard, smooth material beneath, and was already a refined and assured example of his decorative informalism, but he added to the bottom of the picture, almost as if it were an afterthought, the black shadow of a priest with outstretched arms, holding up a cross. Up to this point, he was being a good informalist and letting the material speak for itself, but when he put the shadow in, the picture suddenly had a preconceived look, and it would be difficult to say anything more insulting than that about an artist who is not supposed to know where his next mark is coming from. In any case, it was a banal and melodramatic intrusion, and brought the picture down to the level of bad reporting. It compelled one to look upon the break in the plaster not as a collaboration between the artist and his material but as a record of marks made by machine-gun fire, and it left one wondering which side of the Civil War had the artist's sympathies. This work remains an interesting document because it suggests that the artist's obsession with scarred walls arose from the impression made upon him by the evidence of street-fighting and summary executions left on the walls of Spanish towns. But he was careful to keep overt symbolism out of his subsequent work, and although the scratches and breaks in his surfaces disclose a kind of broken-off engagement to sign-making, nothing approaching an explicit symbol appeared in his work again until last year, when he made a picture which he calls a 'metasign', 3. It was one of the most interesting



3

pictures in the exhibition at Tooths' and leaves one with the impression that the shadow of the priest in the early picture was more than an unfortunate afterthought.

Tapies' interest in the symbol brings to

mind the art of Malevich. Malevich, after years of geometrical abstraction which now appear to have been a period of spiritual preparation, painted a cruciform shape on a white ground. He was a religious man, and I feel that he intended it to be the mystical fruit of all his endeavours, a bringing into the light of the full meaning and significance of the word 'suprematism' which he had attached to his abstractions. But it didn't work; it was too explicit; it lacked mystery. He had to retreat a little, and make more tentative shapes. The shapes he made were even simpler than the cross, but by giving them the appearance of being involved in the process of emerging he finally attained that sense of the numinous that so triumphantly floods his last white on whites.

Tapies, in his 'metasign' is perhaps



4

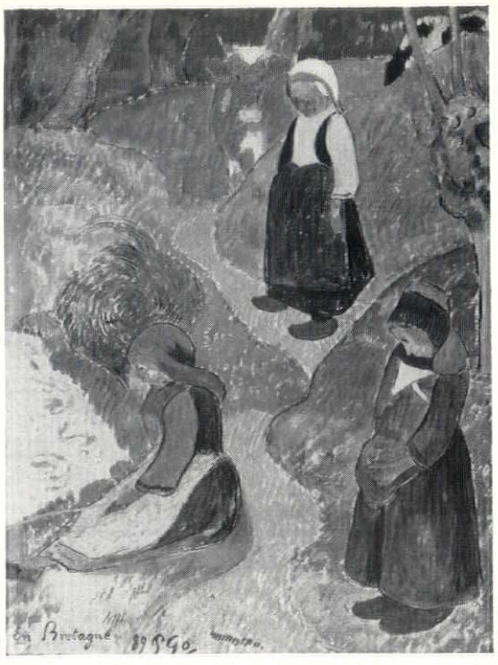
groping in the same direction. This 'metasign' is a brick-red form raised out of a grey wall. It is roughly made, and there are all the usual signs of collaboration with the material, although there is necessarily some modification of the idea of letting the material speak for itself. The form appears to be a long narrow gown hanging on a wall by its sleeves; a gown that might be used in rites and observances. It makes remote references to crucifixion and prayer, and its hard, baked, crumbly look makes these references seem even more remote than they are. It is on its way to becoming a cross—but it is because it has not become one that it is moving and powerful.

Hubert Dalwood's recent bronzes at Gimpel fils have something in common with the work of Tapies and Cuixart. They are decorative objects and have, at first sight, the look of being frustrated symbols. But they lack tension, and remain too close to the objects from which they derive—compotiers, caskets and so forth—to acquire mystery. He seems to me to be placing too much faith in the transforming power of a rather old-fashioned kind of distortion, and to be trying to make occult objects without being interested in the occult. Sir Herbert Read suggests in an appreciative catalogue note that Dalwood is trying to 'create a magic capable of appealing to our sceptical age,' and I think that he has put his finger on Dalwood's programme, but I think, too, that it will take more than a lopsided version of an orb in its stand, 4, to undermine our scepticism. These objects have immense charm, and considered as decorative units



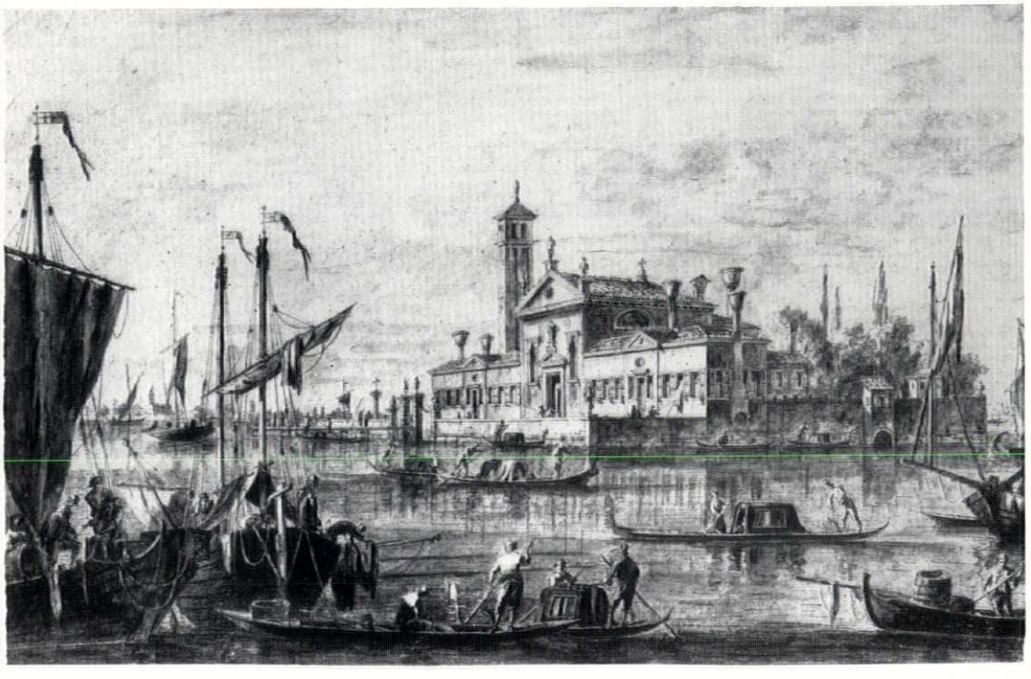
5

for the modern drawing room are as up-to-date as scarred walls. They have the look, proper it would seem to their period, of being rough copies by a barbarian of the artifacts of a higher civilization, but he plays the part of barbarian a little too smugly for my liking.



6

The early Picasso drawing, in blue wash, called 'Poverty,' 5, which was in the exhibition of drawings and watercolours from the Whitworth Collection recently shown at the Arts Council Gallery, is, I suppose, a nineteenth-century conception. Certainly the Gauguin drawing of peasant girls in a landscape, 6, from the same collection, is more modern in feeling, although it was done several years earlier. In the Gauguin, space is being flattened and the figures primitivized, and the human image is about to start on its roughest passage through the world of art. Since Gauguin's time it's been angled, blown-up, distorted, rolled out, fragmented and most of the bits shoved into the dustbin, and Picasso's displaced family, already overflowing with associations, now seems to be fleeing from the wrath of the artist.



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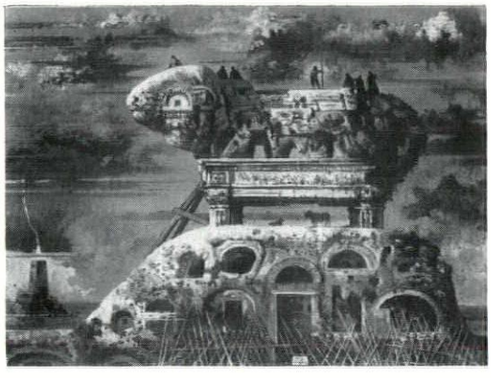
Francesco Tironi's sumptuous topographical drawing, in red ink and grey and sepia wash, of 'The Island of the Blessed Virgin del Rosario, Venice,' 7—another lovely item from the Whitworth Collection—brings me, somewhat undiplomatically, to the architectural caprices of Eugene Berman at Lefevre's. I like the game he plays, and as long as it is played for its own sake, it's a game that never grows stale with repetition. Unfortunately, Berman inserts a full-blown artistic personality between the idea and the spectator, subjectivizing it with tricky textures and stale neo-romantic melancholy. 'Ram's Head Mound and Approaching Thunderstorm,' 8, would be covetable if it were drawn precisely and painted smoothly in



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cool tones, and the photograph gives some idea of how nice it might have looked. (I must remember to ask Felix Kelly to consider including the Euston Arch in one of his London caprices.)

The two reproductions from the Arcade Gallery's latest mixed show—an African wood carving of the Malinke tribe, 9, and a School of Fontainebleau painting called 'Faun and Nymph,' 10, will, I hope, give a slight indication of the heady atmosphere of this crowded little gallery, with large paintings of saints and nudes climbing to

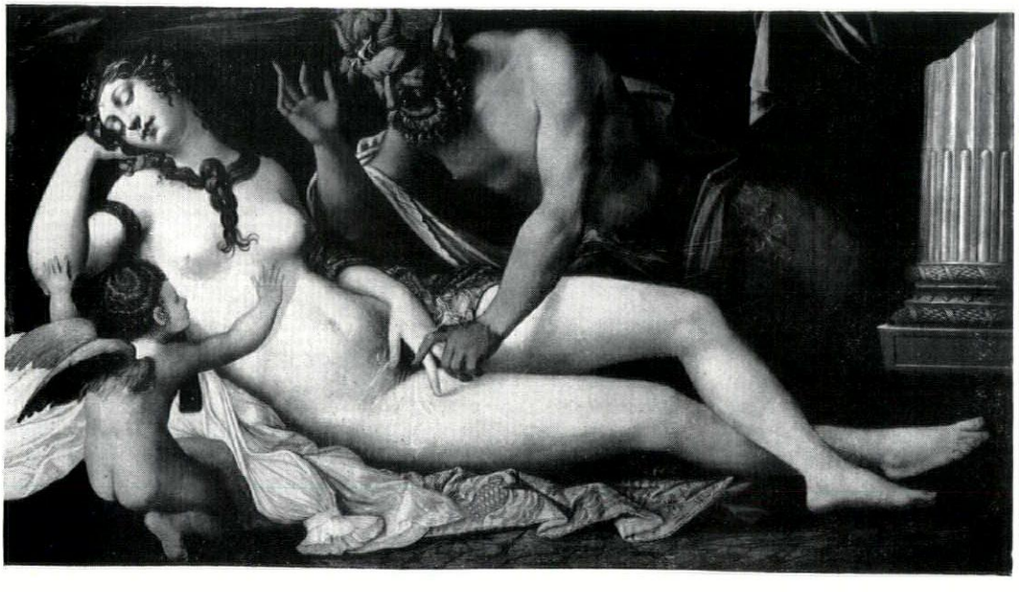


9

the ceiling and a troop of tribal effigies advancing across the floor.

I wish someone would produce a long English essay on the School of Fontainebleau. There wouldn't be much to say from the artistic point of view, but I find the content of these pictures endlessly intriguing. This 'Faun and Nymph,' for instance, is more complicated than the title suggests. The sleeping nude could be Venus and the winged boy Cupid. And Cupid could be warning off the faun because he is expecting a visit from the God of War. Furthermore, I suspect that the face of the faun is a portrait and that the painting alludes to a court scandal involving perhaps a courtier and a soldier.

Robert Melville



10

HISTORY

MARSHALL'S MILL, HOLBECK, LEEDS

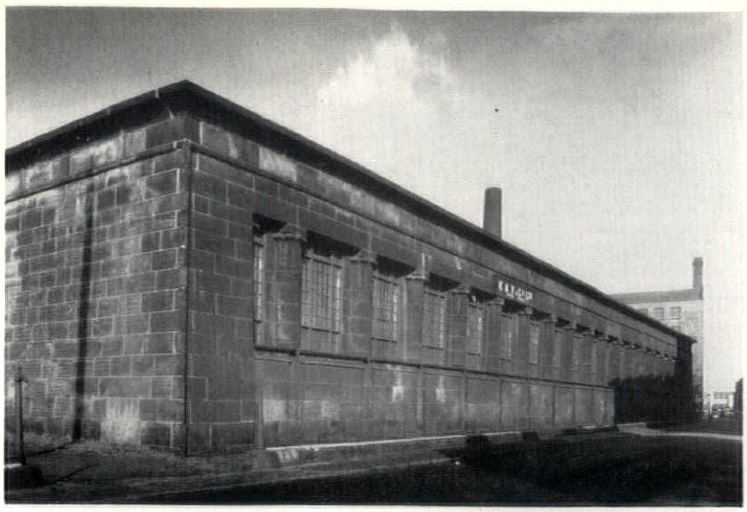
Not all the textile mills which went up in such numbers in Yorkshire and Lancashire at the beginning of the nineteenth century followed the principles of the Functional Tradition. Occasionally one would appear with a stranger architectural character. Unique in this respect is the flax mill of John Marshall & Company, erected in Leeds between 1838 and 1841.

At this period the flax industry was at its peak. In 1821 there were nineteen flax mills in Leeds, four owned by Marshall. By 1838 there were forty, employing 6,000 persons, and the number increased in succeeding years. John Marshall commenced flax spinning at Scotland Mill, near Adel, Leeds, in 1787. Here he was soon joined by Matthew Murray, a mechanic from Stockton-on-Tees who later became a noted mechanical engineer in Leeds. He introduced far-reaching improvements to the machinery. Marshall was one of the earliest successful spinners of flax by machinery driven by water or steam power. His 'wet spinning' methods revolutionized the industry in Leeds.

When the firm moved to Holbeck, south of the River Aire, they engaged James Combe, a Leeds engineer, to prepare plans for the erection of a new one-storey mill. It appears that they also consulted Ignatius Bonomi, a Durham architect, and David Roberts, the Royal Academician who travelled in Egypt and Syria and produced a famous series of water-colours and lithographs.

The result of this interesting collaboration was the curious and striking 'Egyptian Temple' design, still to be seen in Marshall Street. Two buildings, mill, 1, and office block, 2, stand out strangely in this district of factories and small dwellings. The nineteenth-century engraving, 4, shows them both. Huge attached Egyptian-type columns with lotus-leaf capitals, 3, are spaced along the six-foot thick battered walls of the façades which, in the office block, bear conventional Egyptian decorative motifs. The original works-chimney was in the form of an Egyptian obelisk.

The interior of the mill building, 5 and 6, is of great interest. This huge room is 396 ft. long, 216 ft. wide and covers an area of nearly two acres. Its flat roof is carried by brick groined arches 21 ft. high at the crown, with a span of 36 ft. These rise from fifty 14-in. diameter cast iron columns, 14 ft. high. The column capitals again display the Egyptian lotus-leaf motif. Wrought iron tie-rods, in pairs,



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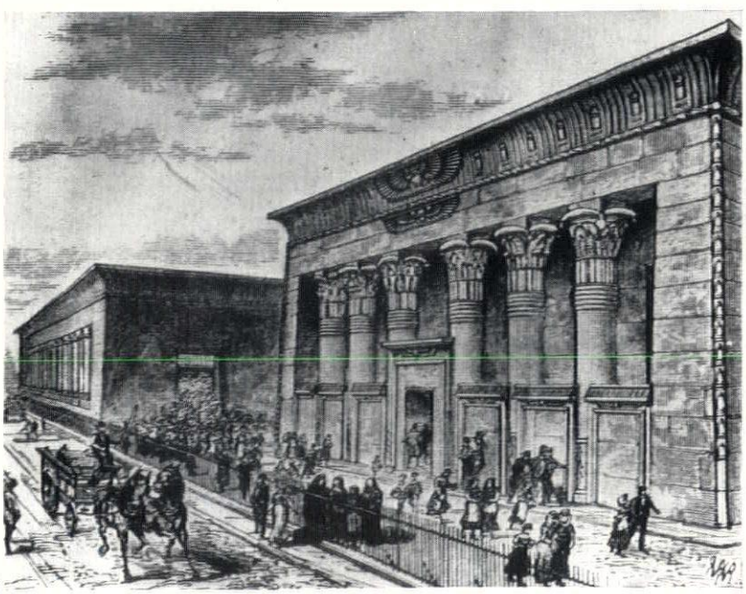
Marshall's Mill, Holbeck, Leeds, 1838-41: 1, *the mill itself;* 2, *the office block;* 3, *detail of Egyptian capitals in the latter;* 4, *nineteenth-century engraving of the two buildings;* 5, *engraving of the mill interior.*

connect each column. These were tightened or slackened daily as the change of temperature demanded. Lighting is from windows in the façade and from sixty-six circular glazed skylights or domes, 13 ft. 6 in. in diameter, one at the centre of each arch. This form of illumination is surprisingly efficient, even on a dull day.

An impermeable covering of coal-tar and lime was laid on a coating of rough plaster over the arches and upon that was a layer of earth 8 inches thick, sown with grass. Alternations of frost, rain and heat were thus prevented from affecting the temperature of the great 'shed' below, an essential condition in flax spinning. Drainage was through tubes in the hollow cast-iron columns supporting the roof. It is said that at one time sheep were put to graze upon the grass-covered roof, but after a skylight accident to one of the animals this unusual 'field' was no longer used for the purpose. In later years the roof was asphalted and rendered watertight, drainage by gutters and fall pipes being introduced.

The floor is stone paved, and is carried on a series of brick piers and vaulting,



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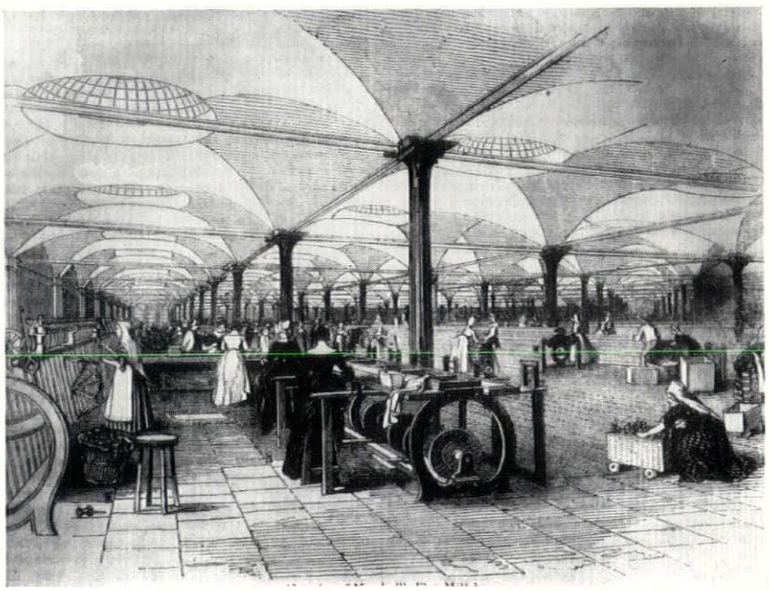

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6



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6, *the interior of Marshall's Flax Mill, with the original machinery.* 7, *the interior today, used as a warehouse.*

extending beneath the entire mill. Here in early days were 'the shafts for communicating the motion from a pair of engines of 100 horses' power to the mill machinery, flues and steam cases for warming and ventilating, a revolving fan for urging the air into the room, also the gas and water pipes. . . . Valves and doors in the flues allow any desired temperature or the mixture of moisture which is essential for some part of the flax working process.' Thus the successive operations of drawing, roving, spinning and twisting were carried out in one great room under conditions excellent alike for the health of the workpeople, most of whom were women, and the manufacture of the material.

The total cost of the mill was stated at the time to be £27,443, including 'the ornamental stone front.' Marshall was indebted to a Mr. Smith, of Deanston, Paisley, for the idea. Mr. Smith had already erected a weaving shed, half an acre in extent, with a brick arched roof of similar construction. Marshall's Mill became one of the show places of Leeds.

Over a thousand people were employed in the mill, including many children, who were all half-timers. A 'neat red brick building' still standing nearby was their school; this was also open to children of the neighbourhood. The firm also provided an Infants' School, a Library and a Church.

The mill finally closed down in October, 1886, largely owing to foreign competition. Known thereafter as Temple Works it was first used as a weaving shed, then as a clothing factory, and is now occupied by a mail-order firm who use it for warehouse purposes, 7.

K. J. Bonser

COUNTER-ATTACK

NO-ONE TO PLAN FOR

'*Even in Berwickshire many of the farms have electricity now.*' *This remark was made to me in* 1959. *Other recent improvements in the county include two schemes to provide running water for farms and cottages.* But even this degree of modernization hasn't halted the depopulation of Berwickshire. Including the four burghs (Duns, Eyemouth, Coldstream and Lauder), the population is now about 23,500: at the 1951 census it was 26,000. No industry wants to come to the county, the increasingly mechanized farms employ fewer and fewer people; and there seems little chance of any serious planning to stop the draining away. Eyemouth, the largest town, is seriously decayed in the centre, although the harbour is to be improved; the county town, Duns, just keeps its head above water and has a large new school, the only major building to be put up in the county since the war, but it is of very little architectural merit.

In such circumstances, it seems certain that if ever a Boundary Commission sits in Scotland Berwickshire will be swallowed up (probably by Roxburghshire) as Kinross-shire has already been swallowed by Perthshire—unless, for planning purposes at least, it can do some swallowing of its own. As things are it is neither an economic nor a plannable unit. Berwick, the natural focus of a large area of the north-east coast, is not only in another county but another country, with to some extent different planning mechanisms and different laws. Still, there seems no insuperable reason why, for planning purposes, Berwick shouldn't be included in the county which bears its name. Berwick can't do everything: it's quite a small town (population 12,000—half that of Berwickshire), but it would give some balance to the planning of the county. Administrative difficulties would be bound to crop up in quantity, but there seems a strong enough case to make it worth trying. Some people go further and claim that all the northern end of Northumberland, north of a line running north-east from the Cheviot to the sea somewhere near Bamburgh (and thus including Wooler and Belford as well as another large rural area and one or two disused coal-mines) should go to Berwickshire. The point is almost too academic to argue about, bearing in mind the chances of its being seriously considered. But the inclusion of Berwick is a different matter: it would make Berwickshire a more varied and more enticing unit, and give Mr. Tom Anderson, the eager but frustrated Planning Officer, someone to plan for.

Andor Gomme



An 'Escaler' installation on the Lever Building, New York (architects: Skidmore, Owings and Merrill).

THE CLEANING OF LARGE BUILDINGS *by Lance Wright*

As buildings become larger and as we change from materials which 'weather' to materials which need cleaning, the operation of cleaning becomes something which must be reckoned with in design. We present in this article a summary of views on this problem gathered from discussions with architects, equipment manufacturers and cleaning contractors.

Any enquiry into the cleaning of large buildings must begin with those who are to do it. There is, of course, an intrepid and undemanding industry occupied with cleaning. So long as regular cleaning was confined to the window and so long as the window was regarded as a hole in the wall, this cleaning was—and is—mostly done from the sill, with the occasional balancing feat along a string or cornice. Surprisingly, the window cleaner has enjoyed almost no legal protection ; for such legislation as there is, is concerned with the fear not that he may fall and hurt himself, but that he may fall and hurt the public beneath. Thus the LCC byelaws are only concerned with facades which face on to a street. It is an offence to stand or kneel on the sill of any window facing on to any street and above six feet from the ground 'without support sufficient to prevent' you from falling. This 'sufficient support' is interpreted by the London police as having a safety belt round your waist and this safety belt is supposed to be attached to hooks at the side of the window, but sceptical window cleaners say that, provided a man is wearing a belt and the straps pass out of sight inside the window, the police are satisfied.

Window cleaners seem likely to receive vicarious protection from the fact that much new hoisting equipment is being used also for maintenance work. For, though it is legal to submit a window cleaner to almost any hazard, you cannot do the same to a building operative.

Another entry for safety regulations occurs when mechanical hoists are run on guide rails or steel ropes permanently fixed to the structure. For, when this happens, hoists can be subjected to the full rigour of the safety regulations applying to passenger lifts. If this were literally interpreted, it would make this mode of cleaning uneconomic; and, at the time of writing, manufacturers are negotiating with the authorities to reach a fair interpretation. What concerns us here, however, is the absence of protection for the window cleaner as such. This, in a regulation-bound country like ours, is evidence of the small amount of thought which has been given to this subject as a whole.

Inside or outside cleaning

The most important single issue affecting window cleaning is whether it is to be done from the inside or outside. Since the second world war, architects and window manufacturers have been making a considerable effort to make all cleaning possible from the inside. Clearly, where windows are set in walls which need no cleaning or where the cleaning will be done unprofessionally, as in flats, there is a case for this; but in tall buildings, particularly in tall office buildings, the weight of evidence is tending to turn against this solution. Windows these days extend normally at least from sill to ceiling and are proportionately wide. This means that, if they are to be cleaned easily from inside the room, part at least of the surface to be cleaned must swing into the room. This, in turn, means that a considerable area next the window must be periodically cleared of furniture. Apart from this, window cleaning must generally be done during office hours and the total amount of dislocation to office work which cleaning from inside can cause is very great. The curtain wall intensifies the difficulty of cleaning from inside. Architects claim so to place their opening lights that all parts of the facade can be reached from the window openings; but, if this is just possible physically, it will always be exceedingly awkward and parts of the facade are certain to be skimped. In fact, the curtain wall has brought a new twist to cleaning in that, in most cases, the sub-frame will need attention as well as the glazed panels and all will need maintenance at fairly frequent intervals.

Air conditioning and double glazing, when they apply, are further motives for not cleaning from the inside. There is a type of window on the market designed for air conditioned buildings which spins round through an angle of 180 degrees, but this does not attempt to solve the curtain wall problem and there is evidence to show that this easy movement on a large window is a source of danger.

Though doubtless there are some cases on tall buildings when inside cleaning is best, in most of them it is not.

External cleaning : the alternatives

Generally speaking, the kind of buildings which form the subject of this article cannot be cleaned from ladders or from scaffolding erected on the ground; for, above three storeys, ladders become too heavy and scaffolding takes too long to erect and move. There is, however, one piece of ground-based apparatus which is feasible for buildings up to 40 ft. high. This is 'Zip-up Staging' manufactured by Access Equipment Limited, 1. This is a hinged and welded aluminium scaffolding which can be mounted and demounted quite rapidly (2 to 3 minutes for each 10 ft. rise) by two men and can be wheeled along the building frontage. Though some irregularities in the ground can be taken into account, the staging must have a level and firm base on which the wheels can run. This base must be 10 ft. wide from the frontage of the building, though there is no objection to a line of flowerbeds running down the centre of the base. Zip-up staging makes no further demands on the building structure and the first cost is comparatively low. A staging for a 40 ft. high building costs about £400.

Above 40 ft. some form of suspension will almost certainly have to be used; but, before describing suspension systems, it is perhaps worth remarking that in one tall building now under construction (New Zealand House) suspension has been avoided by providing a continuous ledge at each floor level, together with a continuous runway at each ceiling level. Cleaners have a strap round their waist. This is attached to a cord which, in turn, is attached to runners on the track.

Suspension systems fall into four broad categories of elaboration.

The first is to install fixings at 16 ft. intervals along the roof top. To these will be attached portable davits which, in turn, support short lengths of rail parallel to, and projecting over, the head of the wall, 3. Davits and rail can then be moved from fixing to fixing as the work proceeds and will be removed when it is finished.

The second method is to fix a permanent rail some 18 in. in front



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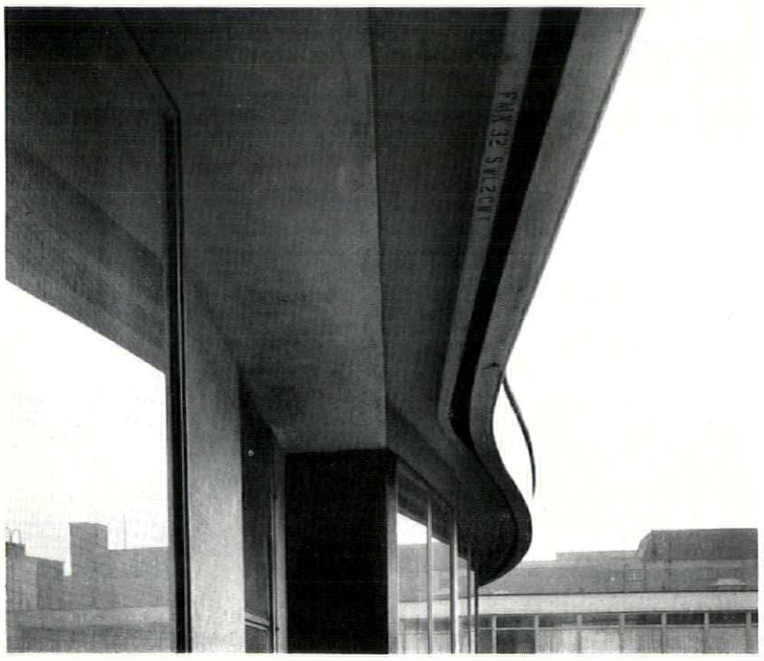

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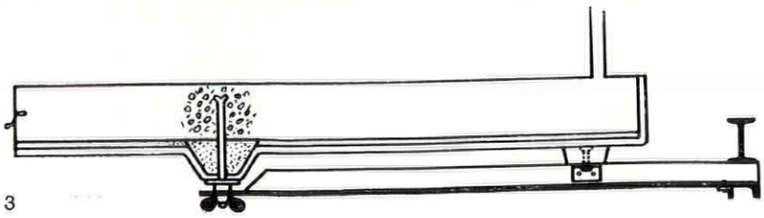

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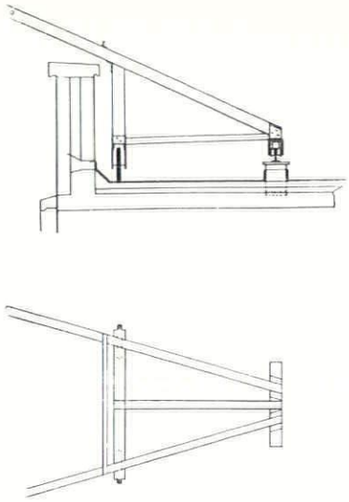
of the wall face and at the top. This may be in front of the parapet, where it will be visible, or under the eaves, where it will be difficult to see, 2.

The next method (which is normally only applicable to a flat roof) is to use a pair of running davits usually called a 'trolley,' 4. These are coupled together on a triangular frame. They bear on a pair of wheels which run near the roof edge (either on a track, when they will be of steel, 5, or on the roof surface, when they will have rubber tyres) and are held down by a third wheel which runs in a guide rail further back.

All of these three versions assume that the cradle will be hand operated. The fourth uses rails similar to those just described, but the working platform is manipulated not by hand, but by electricity. The motor may be on the working platform itself, or it may be on the roof, but the control panel will always be on the working platform.

There is no hard and fast rule when to use which system. The choice between a portable system and a permanent rail is made, as often as not, on grounds of appearance. A permanent rail saves much time and money, but it must always be visible from the ground and not all architects are prepared to accept it. A manually operated

1, *'zip-up' scaffolding.*
2, *permanent rail, erected by Palmer's, behind the eaves of the TUC building, London (architects: David Aberdeen and Partners).*
3, *section showing fixing of typical portable runway.*
4, *Cradle Runway's travelling trolley on Shell Offices at Stanton (architects: Grenfell Baines and Hargreaves). Note the use of a tubular track in place of the more usual r.s.j. and the siting of both tracks clear of the roof surface.*



5, elevation and plan of Palmer's travelling trolley.

trolley system (the third in our list) will cost something in the order of seven to eight hundred pounds and a large firm of cleaning contractors has estimated that this outlay is justified on any building which is of three storeys or more and has a total perimeter of over 100 ft. The use of a trolley reduces the labour cost of cleaning by about one-third.

The use of power operated equipment is probably economic on buildings over 100 ft. high or which have a perimeter of 400 ft. or more. It is in this class that most development is now taking place.

Equipment available

At the traditional end of window cleaning, practice is much influenced

[continued on page 285



4

continued from page 284]

by the habits of cleaning contractors. The window cleaning industry is characterized by a high standard of personal performance (window cleaners are industrious and uncomplaining) and by a conservative approach. This is illustrated by the fact that estimates are always made 'per pane' on the assumption that a large pane is about as troublesome to clean as a small one. This method, which doubtless served very well for traditional windows, is evidently unsuitable for modern glazing where a rate per square foot would seem more to the point.

In this country it is universal practice to clean with a leather. This gives an excellent result, but it is not expeditious and it must be doubted if it is the best method for the very large areas of glass which are becoming the rule. In America cleaners have gone over to the use of the squeegee—a rubber blade 18 in. long not unlike a car windscreen wiper. This is held in one hand, set vertically against the glass face and moved across the surface horizontally. At the same time the dirty water coming off the pane is gathered in a ball of scrim held by the other hand against the bottom end of the squeegee. American window cleaners using this method can clean 5,000 sq. ft. of glass in an 8-hour day.

The standard travelling cradle in use in this country was originally invented by Palmer's in 1896. It is 6 ft. long (a dimension determined, presumably, by ease of handling) and consists of a platform with an open balustrade. A recent innovation designed specially for Castrol House is to make the cradle of polyester fibreglass and to enclose the sides. This gives an added feeling of security which is much appreciated by cleaners. Once an installation is mechanically operated, cradles can be made longer; and, in fact, cradle length can become a significant fact in the design of walling.

Many firms make both portable equipment and standard rails, two of the best known being Palmer's themselves (Palmer's Travelling Cradle and Scaffolding Co. Ltd.) and Cradle Runways. There is little to be said either about these or about the hand operated trolley systems. It is only in power operated equipment that there are important divergences in design. As we have mentioned, there are two main types of power operated equipment. The first are those which are suspended from a track and carry the electric motor on the working platform itself. The second are suspended from some form of crane which runs on tracks near the roof edge. Makers of the first are Access Equipment Ltd., who market the 'Spider,' 7, and they will shortly be joined by W. C. Youngman Ltd., who are planning to market a hoist called 'The Climber.' This type is suitable for heights of between 40 and 150 ft. and the cost of a Spider installation is between £1,000 and £1,500. The Spider was originally designed for industry—the cleaning of the insides of giant boilers and the like. Access Equipment maintain that any form of staging suspended from a height greater than 70 ft. requires some form of lateral restraint and the Spider requires both a top track at the eaves and a bottom track at the foot so that steel guys can span between the two and thus restrain the platform.

Mechanical systems which use roof top cranes are more elaborate and usually more expensive. There are at present four available of which one only (Palmer's 'Palmatic,' 6) originates here. Mills Scaffolding have brought over the German Mannesmann Leichtbau equipment, 8; the Titan Lift Company are marketing a Danish hoist (called 'The Face Lift,' 9) and Access Equipment are manufacturing the 'Escaler,' an American hoist used originally on Lever House. Only the Palmatic and the Mills Scaffold cradle have been actually in use on a tall building in this country.

The absence of working experience under British conditions makes it impossible to make a useful comparison between the four types of equipment offered. Three of them, the Palmatic, the Mills and the Face Lift, fall in broadly the same class as regards both cost and roof loading, the cost range for an installation being between two and four thousand pounds and the roof loading between two and four tons. The Escaler on the other hand has been designed for the large building in the American sense of the word and an installation can cost anything up to £25,000 and weigh up to 20 tons.

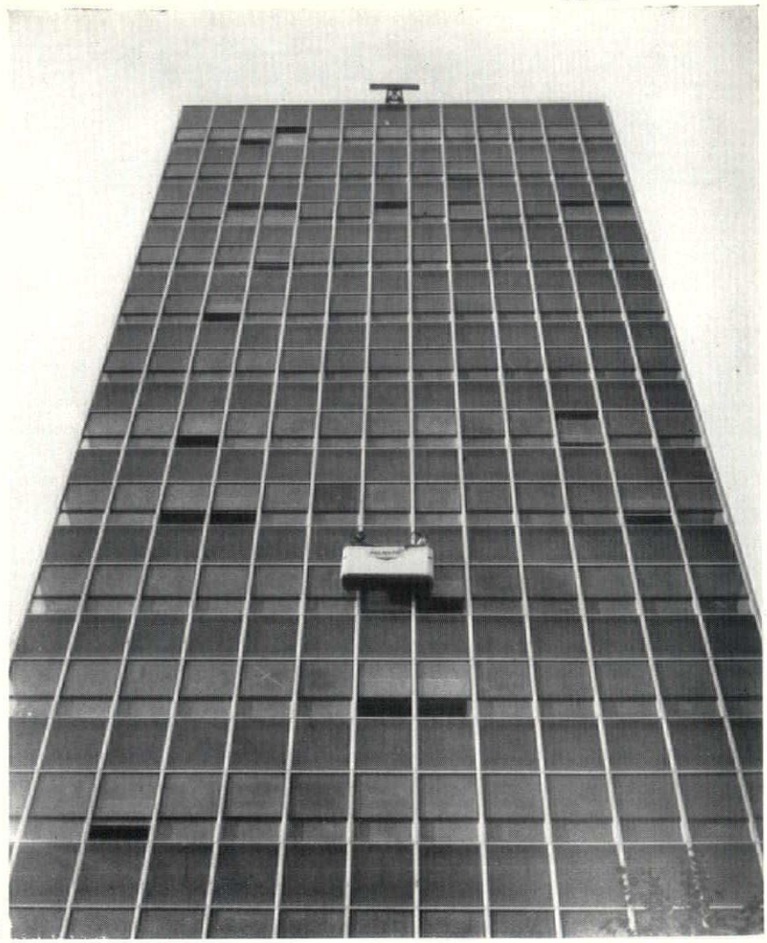
Designing for cleaning

It is certain that in the long run cleaning will make a considerable difference to the profile of buildings. In general, any irregularity of outline, any projection or any recess creates a problem. In the past the window cleaning industry has rejoiced in solving problems, but as buildings become larger, solutions become more troublesome and thence more costly. Once a building has come into the class which requires mechanical equipment there is a strong motive for having the roof at a single level, for otherwise you must either duplicate the equipment or devise some other means for cleaning the smaller area. This would not matter greatly in a point block with a podium, since the podium can be cleaned by orthodox methods from the ground. But it would matter if there were two roof levels both at a considerable height.

Projecting eaves tend to cause trouble. On buildings up to, say, 150 ft. they may be a blessing, since you can put a rail immediately underneath them which will be almost invisible and use this as the top rail for some form of powered hoist, like the Spider. But, if the height is such as to require a roof top crane, troubles begin. The eaves projection must normally be less than 18 in. for otherwise it will not be possible to hold the cradle at the right distance from the building face. For low buildings some firms introduce a sheave which holds the cradle inwards and permits a wider eaves, but this method ceases to be effective above 70 ft. or so. When the cradle reaches the top of the run and is to be lifted on to the roof it will have to be swung outwards to clear the eaves. This is usually done by altering the angle of the jib.

Opening lights are another source of trouble, since the unexpected opening of a window could easily foul the platform. The sliding sash, however, gets over this particular difficulty.

There is much discussion among equipment manufacturers about the need for guides to hold the cradle against the building. The standard hand operated platform relies on a length of rope trailing down on to



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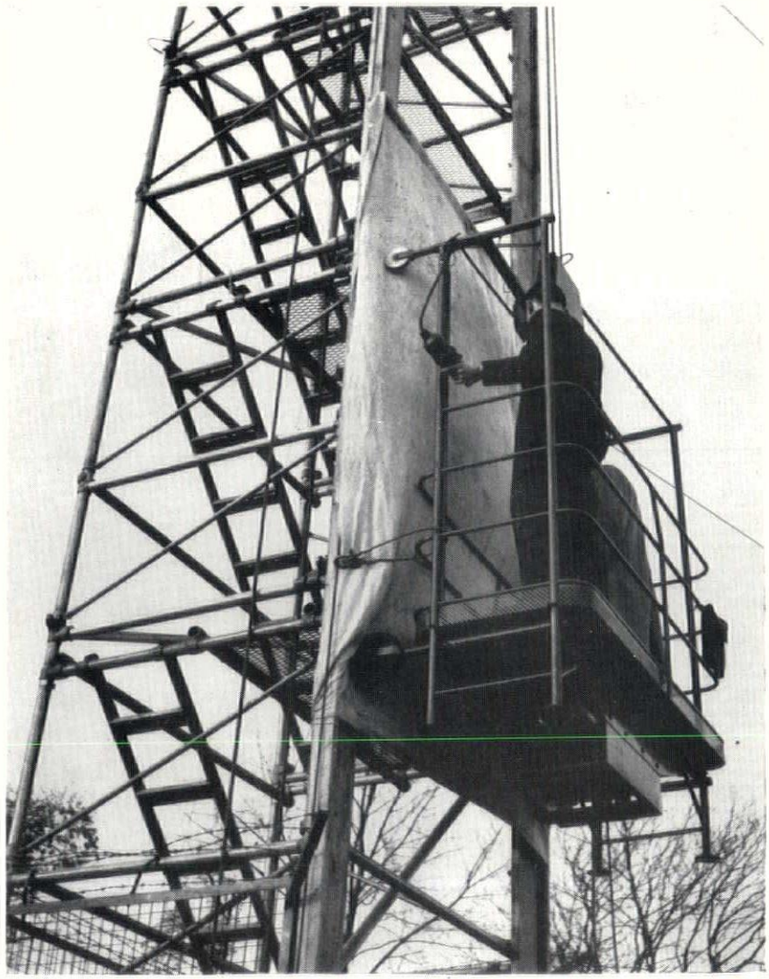

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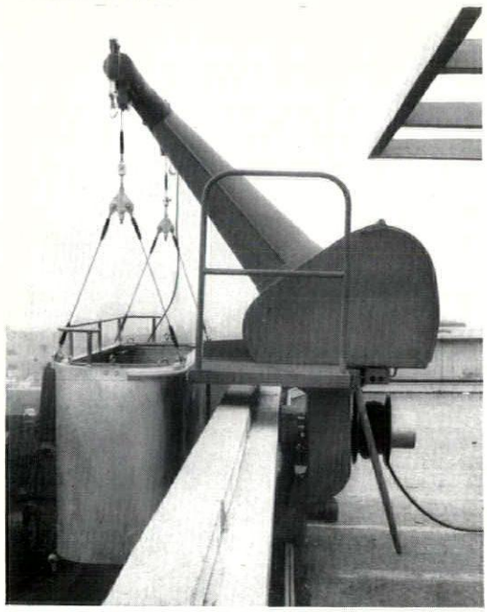
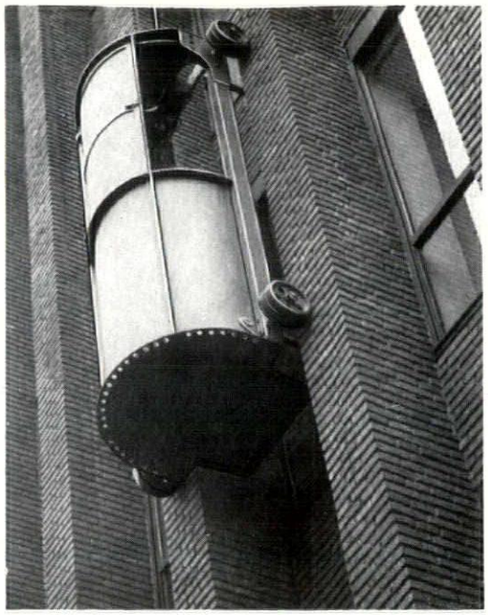
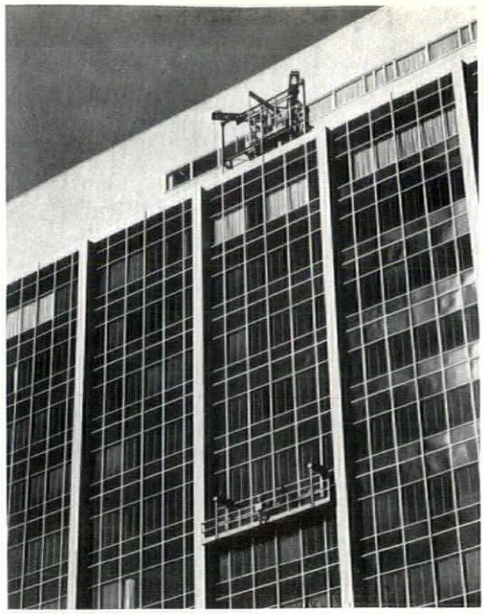
6, the 'Palmatic' installation on Castrol House (architects: Gollins, Melvin, Ward and Partners).
7, the 'Spider' hoist.



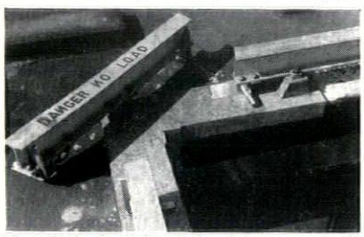




8,9,10

the ground to hold it steady and in position; but the electrically operated platform has no such anchor. Opinions vary among manufacturers concerning the heights at which guides on the building face are necessary. Palmer's take the view that they are not necessary and add that guides, unless of stainless steel, must add to the problem of maintenance. When they designed an installation for Castrol House, they omitted them and are not apparently regretting this. In normal weather movement is slight. One unexpected result, however, is that there is a considerable draught up the face of the building. At Castrol House this does not affect the cradle when *above* 30 ft., but at heights below 30 ft. is sufficient to hold the cradle about 4 ft. away from the building face. Plans are being made to hold the cradle in at these levels by means of hooks on the building face.

As has been mentioned earlier, the fixing of any form of guide for a mechanically operated hoist has the legal effect of making the hoist classifiable as a lift and subject,



11, *a device by Palmer's for giving access to the external corners of Fountain House (architect: W. H. Rogers; consulting architect: Sir Howard Robertson) using a trolley. This enables the cradle to be transferred from one building face to the other without being unshipped. Another method of obtaining the same result is to use a miniature railway turntable.*

therefore, to more stringent regulations. The Titan Lift Company (the importers of Face Lift) consider that a rail is necessary above 12 storeys; Mills Scaffolding and Office Cleaning Services Ltd. set the figure at 150 ft., while Access Equipment are of the opinion that some form of restraint is called for (either in the form of wire guy ropes as is used on the Spider or an r.s.j.) above about 70 ft.

Manufacturers report that architects strongly dislike guides, on aesthetic grounds. Most guide rails that have been provided in Europe have been designed to restrain both sides of the working platform. If the platform is narrow (as is usual) this means a pattern of strong verticals at comparatively close centres. In fact, the working platform probably does not need this dual restraint: one guide per drop would be enough. On the Ford Building at Dearborn, Michigan (an Escaler installation), the cradle is 14 ft. wide and is restrained only by a central guide. As can be seen in the photograph, the rail itself is not a decisive element in the composition, 10.

Most planning authorities are insisting that on tall buildings no cleaning equipment is to be permanently visible above the skyline. With the hand operated trolley this is a simple matter, as the trolley itself is demountable. Electrically operated cranes are more troublesome: the usual solution is to provide a parapet and to design the crane jib so that it can duck down beneath it when not in use. In the large installation which is being designed by Access Equipment for Vickers House, a garage is being built at roof level.

Conclusions

The message of the industry to the architect in this matter, as in so many others, is that the architect should discuss his cleaning problem as early as possible. A guide rail or a runway thought of at the beginning of a design problem has a good chance of becoming a visual asset: but one found to be inescapable at the last moment almost certainly will not. The real impact of cleaning on design, however, is to be found not in the added trim which must be accommodated, but in the influence it will exert on the building envelope. The manufacturing and cleaning industries insist that difficulties can be overcome. So they can; but at a price. Castrol House has 2¼ acres of glass: the glass is cleaned once a fortnight, the framing once every three months. It is easy to see that, on a cleaning contract of this size, the cumulative cost of any awkward surface eccentricity could be great. Fortunately it has been shown time and again that disciplines of this sort, if properly understood, are incentives and not bugbears to design.

Access Equipment Limited, Maylands Avenue, Hemel Hempstead, Herts. Boxmoor 5781.

Messrs. Cradle Runways, 76 Upper Brockley Road, London, S.E.4. Tideway 6079.

Mills Scaffold Co. Ltd., Trussley Works, Hammersmith Grove, London, W.6. Riverside 3011.

New Century Cleaning Co. Ltd. 31 Eagle Street, London, W.C.1. Chancery 8800.

Palmer's Travelling Cradle and Scaffold Co. Ltd., Woodside Green, London, S.E.25. Addiscombe 7721.

The Titan Lift Co. Ltd., 23–27 Pancras Road, London, N.W.1. Terminus 5138.

W. C. Youngman Ltd., Wandsworth Works, Wandsworth Road, London, S.W.8. Macaulay 2233.

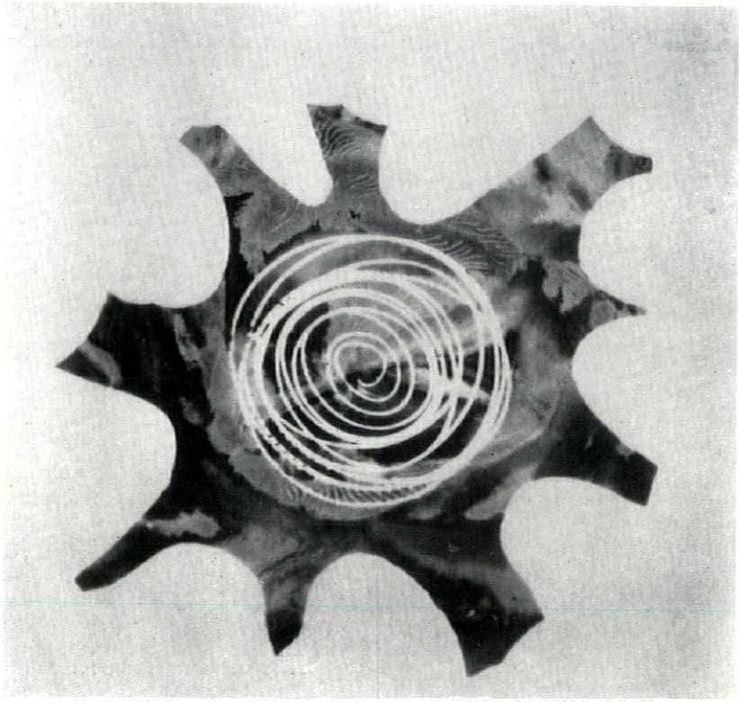
8, *the Mannesmann Leichtbau equipment on Sankey's Offices, Bilston (architects: Howard Crane and Partners).*
9, *the 'Face Lift.'*
10, *the 'Escaler' on the Ford Building, Dearborn (architects: Skidmore, Owings and Merrill).*

THE INDUSTRY

Wall tiles

A patent process for applying pigment to ceramic tiles (or any ceramic cladding, such as faience, for example) has been devised by Michael Caddy, a freelance designer. The method used is a double drying process using ceramic enamels which are sunk into the glaze, thereby making them very hard wearing. The process is suitable for internal or external use and gives a lithographic

[continued on page 288



1, *a ceramic tile with pigment applied according to a process developed by Michael Caddy.*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continued from page 286]

feeling. Price is comparable with silk screen, repeat pattern, say 105s. per square yard.
Michael Caddy, DesRCA, 33 Albert Bridge Road, London, S.W.11.

Polythene film

When plastics first entered the building industry they did so mostly in the sphere of finishes, in furniture and fittings for example. They were not for long limited to uses of such sophistication, however, as subsequent development in piping and rainwater goods proved. At the same time plastic sheets came to be used for such purposes as damp-proof membranes over concrete slabs.

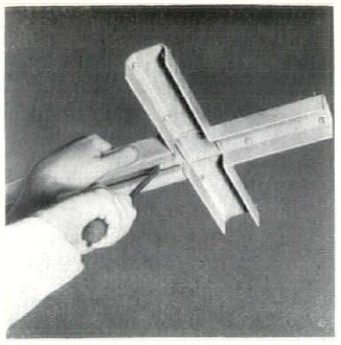
Marley's have now produced a polythene film, known as Marleythene, which is 72 in. wide and is supplied folded down the middle, so that rolls are 36 in. wide. Rolls are 100 yards long so that each roll contains 200 sq. yds. of material. The film is produced in three thicknesses, 150 gauge (0.0015 in.) weighing 14 lb. per roll and costing 77s., 250 gauge (0.0025 in.) 21 lb. and 129s. and 500 gauge (0.005 in.) 47 lb. and 258s.

As a waterproof membrane over ground-floor slabs the heaviest gauge is recommended and is claimed to have a very low moisture vapour transmission rate. The 250 gauge is recommended for such uses as a separation barrier to enable movement between slabs. The manufacturers suggest the lightest gauge for concrete curing. They say that the film retains 95 per cent of the moisture in the concrete thus eliminating the need for constant watering. It is also claimed that concrete cured with polythene has a compressive strength of 10 per cent higher than air-cured concrete.

There is no doubt that with a little imagination this material could be put to many useful purposes on the building site—lining to concrete shuttering, scaffold sheltering, temporary glazing and so on. Its specific gravity is quoted at 0.92, melting point 115 degrees centigrade and it is unaffected by moisture or temperature changes.
The Marley Group, Sevenoaks, Kent. Telephone Sevenoaks 55255.

Lighting trunking

Less improvisation and more standardization on the site is what the building industry needs, so the appearance of Siemens Edison Swan's system of lighting trunking is welcome. The system made its debut at the Building Exhibition last year and is based on a trough section supplied in standard lengths of 15 ft. The trough is 2⅜ in. wide and 1⅜ in. deep and is 16 s.w.g. cold rolled mild steel, stove enamelled a light battleship grey. It is possible to support the trunking from rods fixed to the underside of the ceiling slab by means of a stirrup fitting although the rods are not part of the system, and there is another fitting which clamps to the flanges of a rolled steel joist which enables suspension of the trunking from that. A more widespread use of this system will result, no doubt, in some form of telescopic rod to go with the other attachments. Wiring cables of up to 7/064 conductors (53 amps.) may be accommodated in two troughs in the trunking. Fittings are suspended from the trunking on a specially designed assembly having T-bolts which are inserted into the trunking and given a 90 degree twist for fixing. The designers have devised a full range of accessories, such as junction pieces which are screwed to

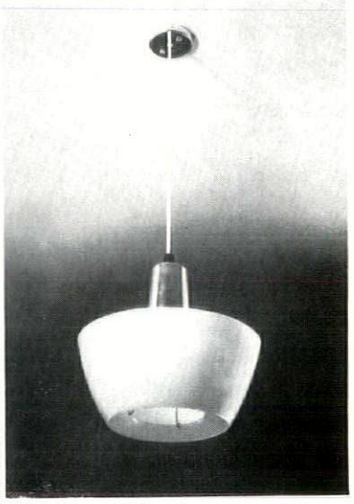


2, a section of Siemens' trunking to which a junction piece is being screwed.

the trunking, conduit slings which fit over the trunking and can carry auxiliary services and an ingenious terminal connector which enables tappings to be made at any point along the trunking without stripping the insulation off the conductor or using terminal blocks. There is also a cover plate section which clips into the underside of the trough and can easily be removed by hand when inspection or cabling is carried out.
Siemens Edison Swan Ltd., 155 Charing Cross Road, London, W.C.2. Telephone Gerrard 8660.

Light fitting

A recent addition to the Troughton and Young range is a general purpose ceiling fitting, which was designed to conform with MOE requirements but is not, of course, confined to use in schools. It is produced in three forms, having tube suspension, 3, or fixed direct to the ceiling. The diffuser is 12 in. maximum diameter and constructed in an anti-static and light stabilized plastic. The lamp holder cover and the ceiling plate are silver anodized aluminium. The lamp holder has a heat resisting phenolic body over an Edison screw porcelain interior. The fitting is designed to take lamps of 150/200 watts and has a cut off angle of 45 degrees ensuring that the lamp is not visible from normal viewing angles. Prices are 33s. 3d. for the tube suspension fitting, 31s. 6d. for the flex suspension and 26s. 2d. for the ceiling fitting, purchase tax included. Lamp holder is 3s. 6d. extra in each case.
Troughton and Young (Lighting) Ltd., 143 Knightsbridge, London, S.W.1. Telephone Kensington 3444.



3, Troughton and Young's new general purpose fitting.

[continued on page 290

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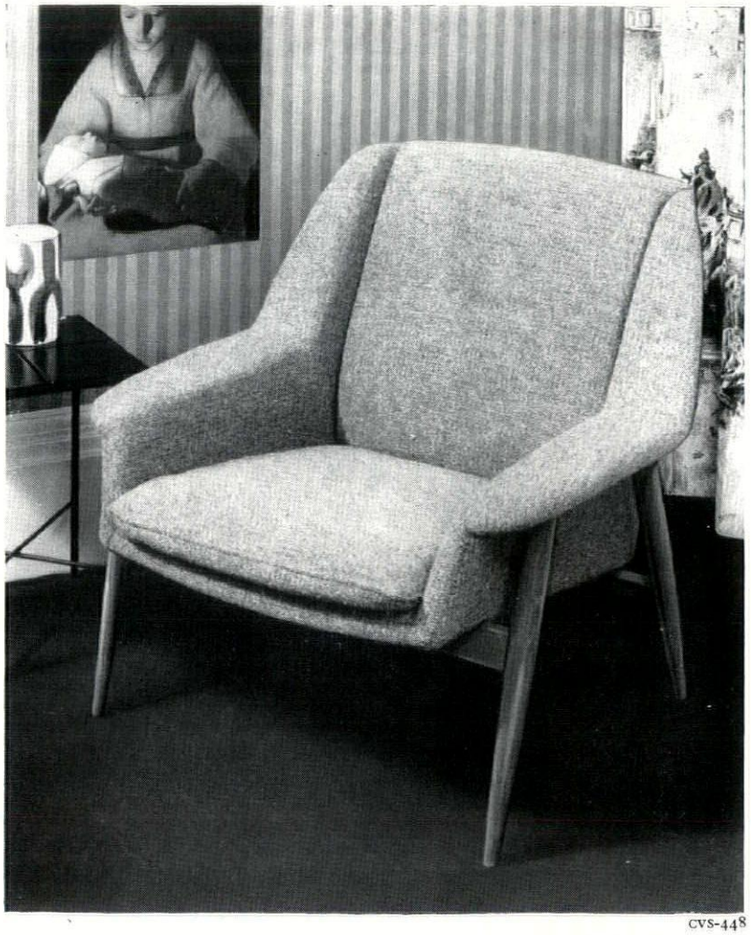

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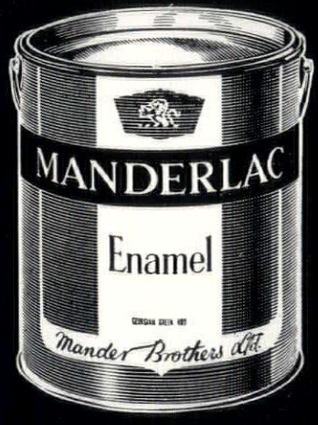

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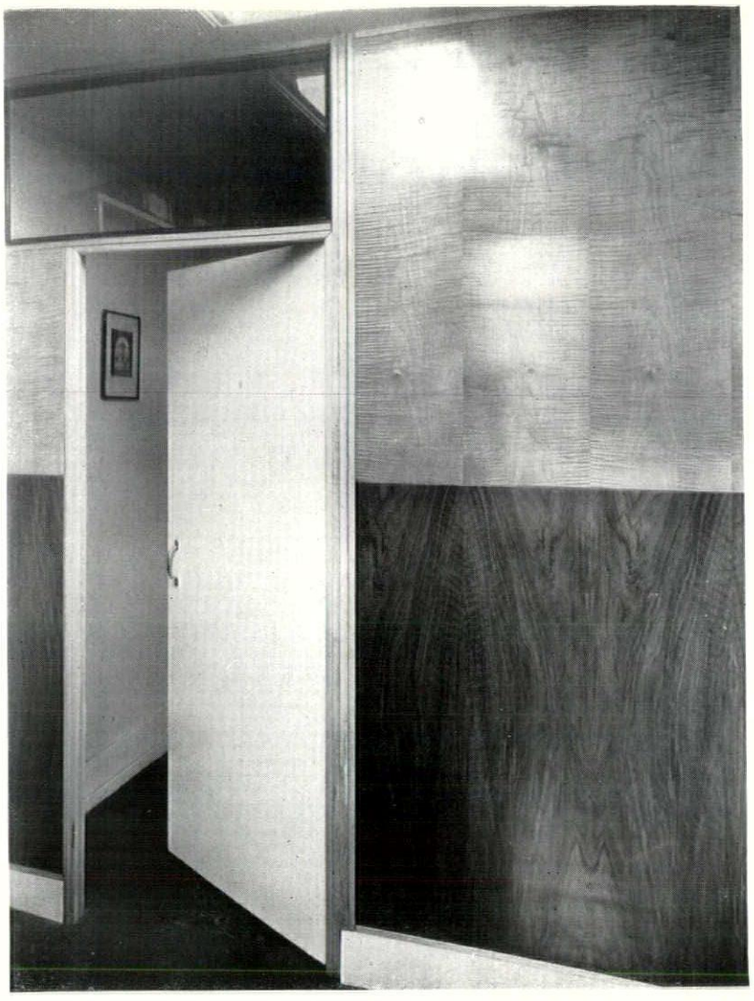
continued from page 288]

A demountable partition

Immediately after the war a great many demountable partitions came on to the market, but since then there has been a lull. Clients have found that they do not need to move them so often as they expected and architects have found that, using them, it was difficult to provide enough sound insulation, that the inelegance of most systems was in any case unacceptable, and that many did so much damage to finishes that it was doubtful if 'demountability' had any real meaning. Lately, however, there has been more activity in this field and one newcomer is the Walway partition. This operates on the usual jacking principle, but uses friction pads to prevent damage to ceilings. Its claim to originality, however, lies chiefly in the use of separate panels for each side of the wall and in the use of a spring clip which clamps the inner and outer skin panels together by clamping both against the sub-frame. To un-clamp a panel you apply a special suction tool and pull. This use of spring clips for panels seems an advance in demountable technique: the detailing it permits (see photograph) is certainly neater than that of most partitions and the damage to the panel surface caused by demounting ought to be less.
Walways Limited, Campden House, 48a Elizabeth Street, London, S.W.1.

Prize Lighting Catalogue

After some thirty years of campaigning, architects are at last within sight of getting the kind of catalogues they want. Those firms which conform to the architect's desire have, therefore, a special claim to his attention. One firm which has been very attentive to the catalogue discussion is Troughton and Young whose literature has received an award of some kind every year at the Building Centre/RIBA trade literature competition and who have carried off this year an award of exceptional merit. Their entry was a general catalogue of lighting fittings covering, so far as we are aware, all the standard products which they make. It is to the A4 size, gives photographs, dimensioned drawings (of fixings too, where necessary), illumination data (but not always) and lists prices. This is excellent. The purist critic may well feel that there is some confusion in the mind of the compilers between impact advertising and the providing of straight information; but it is unlikely that the architect can get his glass of water without some whisky in it and he must be sincerely grateful for so well conceived an attempt to give him what he wants.
Troughton and Young (Lighting) Limited, The Lighting Centre, 143, Knightsbridge, London, S.W.1. Knightsbridge 3444.



4, *a section of Walway partitioning.*

CONTRACTORS etc

School at Richmond, Yorks. *Architects:* Clarke Hall & Scorer. *Quantity surveyors:* Davis, Belfield & Everest. *Contractors:* F. Shepherd & Son. *Sub-contractors: Heating:* G. N. Haden & Sons. *Metal windows:* Doodson & Bain Ltd. *Electrical:* F. Shepherd & Son. *Metal balustrades:* W. Dowson. *Insitu terrazzo:* Toffolo Jackson & Co. *Precast terrazzo:* The Mosaic & Terrazzo Precast Co. (Staines). *Joinery fittings:* R. Cattle Ltd. *Timber flooring:* J. F. Ebner Ltd. *Stage equipment:* Watts & Corry

[continued on page 292

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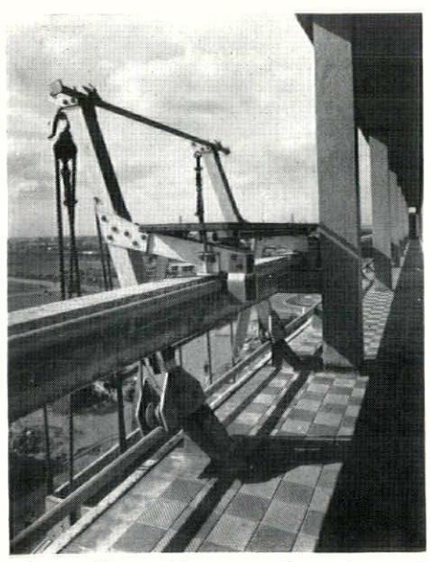

This manually operated travelling trolley was tailor-made to suit the new office block for the SHELL REFINING CO. LTD., at Stanlow, Cheshire. *Architects:* Grenfell, Baines and Hargreaves.



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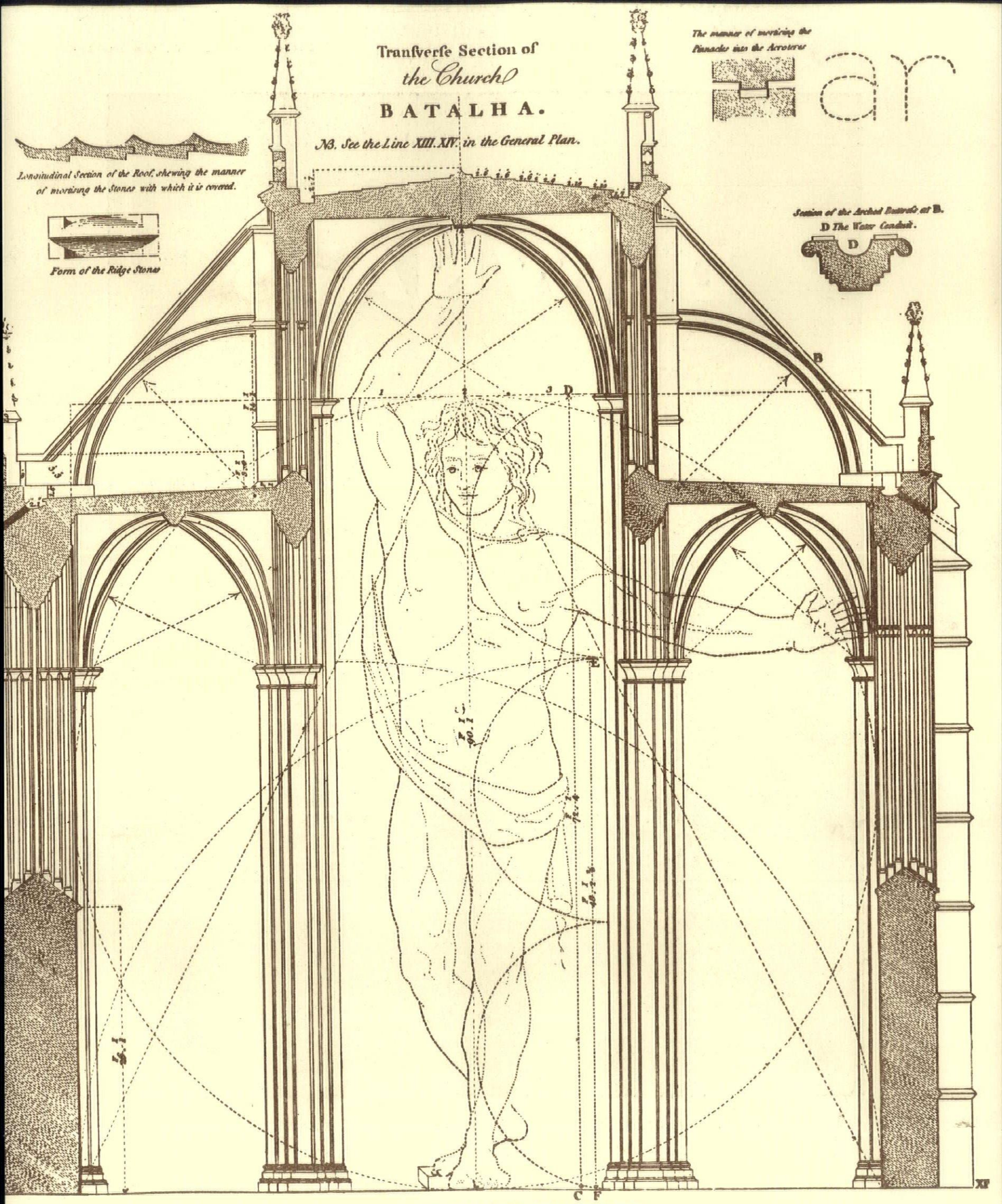
Transverse Section of
the Church
BATALHA.
NB. See the Line XIII. XIV. in the General Plan.
The manner of working the Pinnacles into the Arcatures
Longitudinal Section of the Roof, shewing the manner of working the Stones with which it is covered.
Form of the Ridge Stones
Section of the Arched Buttress at B.
D The Water Conduit.
D
B
D
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ACKNOWLEDGMENTS

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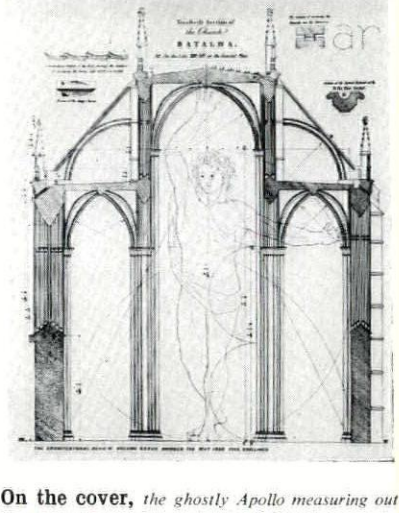
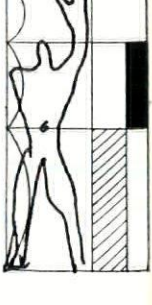


On the cover, *the ghostly Apollo measuring out the proportions of the church of Batalha must be among the earliest known direct ancestors of Le Corbusier's Modulor Man, right, since he appeared in plate 5 of James Murphy's* Plans, &c. of the Church of Batalha, *which was completed, if not published, by* 1792. *Corbusian scholars will point out that the* Modulor *is a system of measures, not proportions, and that Modulor Man's height to the top of the head is not equally subdivided into three parts, but the use of a final component from the top of the head to the finger tips of the raised hand, is the same in both cases.*





1

WORLD'S LARGEST SECULAR STAINED GLASS WINDOW

The distinction—for what it is worth—of being the largest piece of secular stained glass in the world seems to be as ephemeral as that of being the tallest building in Asia, but all claims from European windows will be stilled for some time by the main concourse window, 1, of the American Airlines Terminal at Idlewild, 317 feet long and 23 feet high. The inspiration to commission such a window came to Robert Jacobs of the architects, Kahn and Jacobs, from a sight of the large scale works of art in the new University City in Mexico. The designer of the glass, Robert Sowers, trained in London, at the Central School of Arts and Crafts, so that Europe can claim some credit for this enormous project, whose iconography is (of course) suggestive of 'power and movement, symbolic of the jet age,' but of more interest than the content is the technical side, which employs a mixture of traditional techniques (lead framing to the individual pieces) with modern materials (neoprene steady-pads on the main frames, thiokol caulking) while back-lighting is employed to ensure that the glass can be read from both sides, day and night.

OSLO COMPLETED

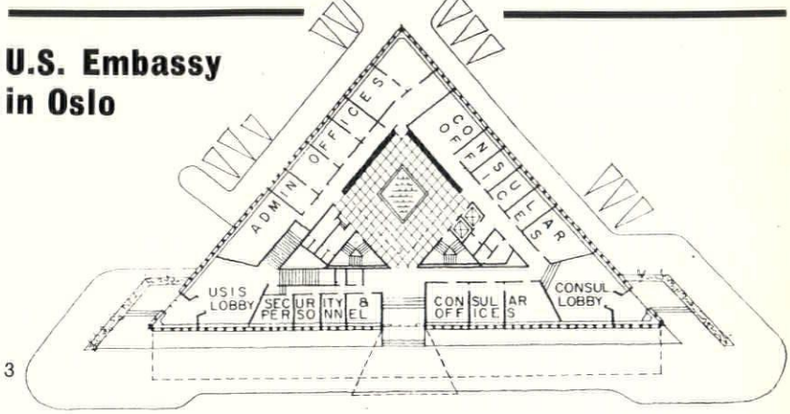
Saarinen's other Embassy

With handing-over date now scheduled for the beginning of July, the hour when British, and world, critics will have to start making up their minds about Eero Saarinen's new US embassy building in London, is approaching fast. Whatever conclusions they finally reach about that particular work of diplomatic formalism, they can begin to sharpen their apparatus criticus on its immediate predecessor, the US embassy in Oslo, 2, also the work of Saarinen, and closely related to the London design in its use of a hit-and-miss formula for the framing of the (entirely regular) fenestration. Although the photograph does not show it, the building stands on a triangular site with a polygonal courtyard in the centre, 3 and 4, but the most noteworthy contrast with the rectangular London version lies in the surfacing material. Using an inherently rich aggregate, emerald pearl granite, for the precast façade units, which are then polished and ground to a very high finish, Saarinen here produces an effect that looks as if it will always be more opulent than the Portland stone and matt gold trim of the London version—unless the weathering of the Portland stone to its traditional black and white is more dramatic than anyone yet anticipates.

2



U.S. Embassy in Oslo



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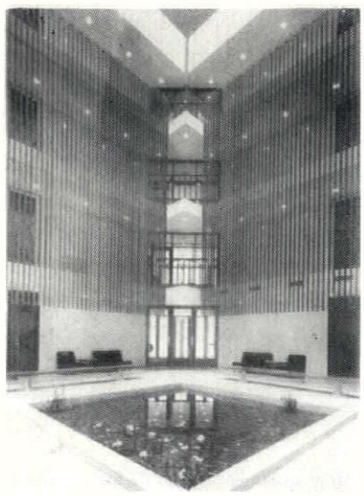


4

UNITÉ TYPE BERLIN

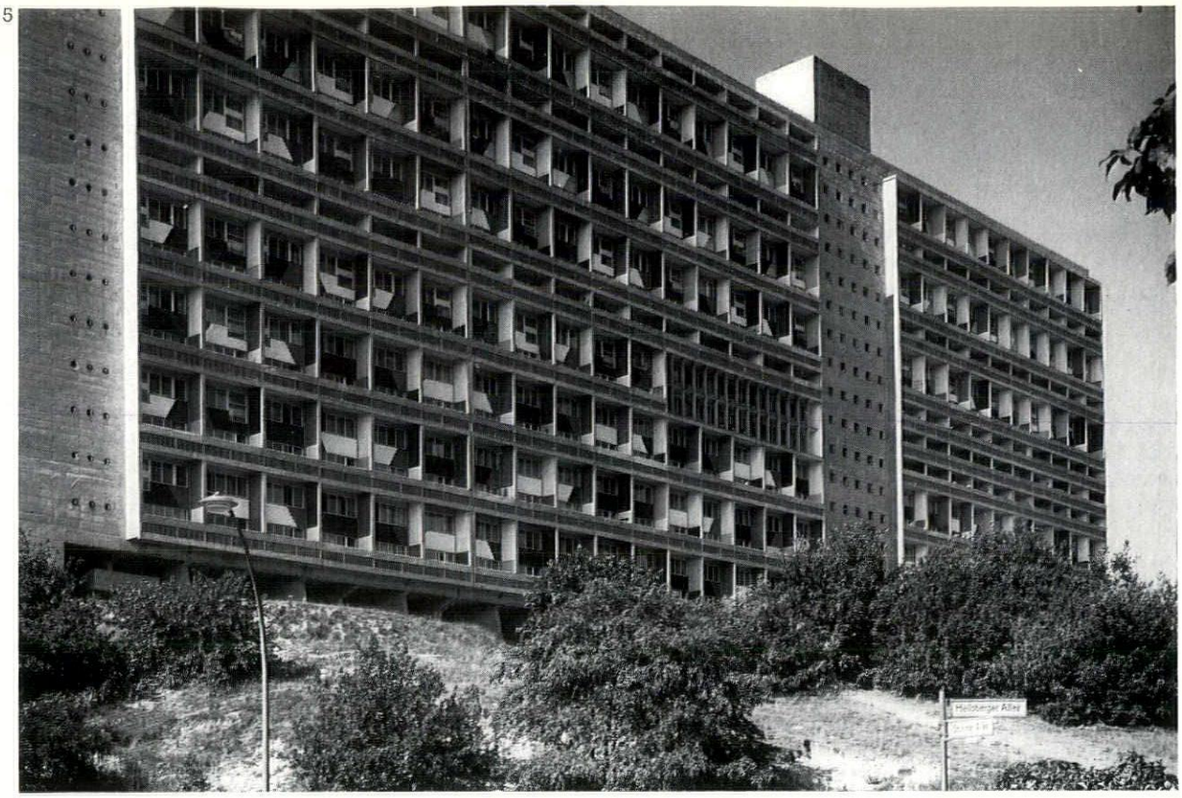
Berlin Interbau, the great international architectural exhibition of 1957, has already faded into history; already we are forgetting that it has altered the face of a sizeable district of the city—and altered it *permanently*.

Berlin Unité

The buildings still stand, with a very few exceptions, and are in use and habitation; they are part of Berlin.

Among the works in progress at the time of the exhibition, but off the main site, was Le Corbusier's *Unité-type-Berlin*, which failed to attract a great deal of attention at the time, partly because it *was* off the site, and partly because an *Unité* by Le Corbusier was no longer a great novelty; this one, after all, was his third. But now that one comes to look at it again, completed, 5, one sees that it is unique. Not only unique in the sense that the arrangement of the middle floors is different again from Marseilles and Nantes-Rézé, but also in the sense that the painting-out of the balcony interiors is in a different and more obviously 'artistic' manner than anything previously employed by him, and pretty closely related, it would seem, to German concepts of the kind of art that should be integrated with architecture. Although it cannot render the actual colour, G. E. Kidder Smith's magnificent photograph does show the way in which this style of painting enlivens the raking view of the façade without—quite—destroying its magisterial two-storey rhythm.

5



NEW GERMAN BRIDGES

The elegant pedestrian ramps serving the new Nordbrücke at Dusseldorf, seen in this month's frontispiece on p. 300, are only a foretaste of an extremely elegant bridge, 6, and the whole scheme has such a crisp precision in the realization of all its generously conceived parts that its designer, Ing. F. Schreier, has made a real contribution to the riverscape of the *Rheinfront*. The relationships of the main structural parts are remarkably satisfying to look at—but notice also such minor niceties as the exact repetition of the visual intersection between the diagonals of the carrying cables and the uprights of the lamp-posts.

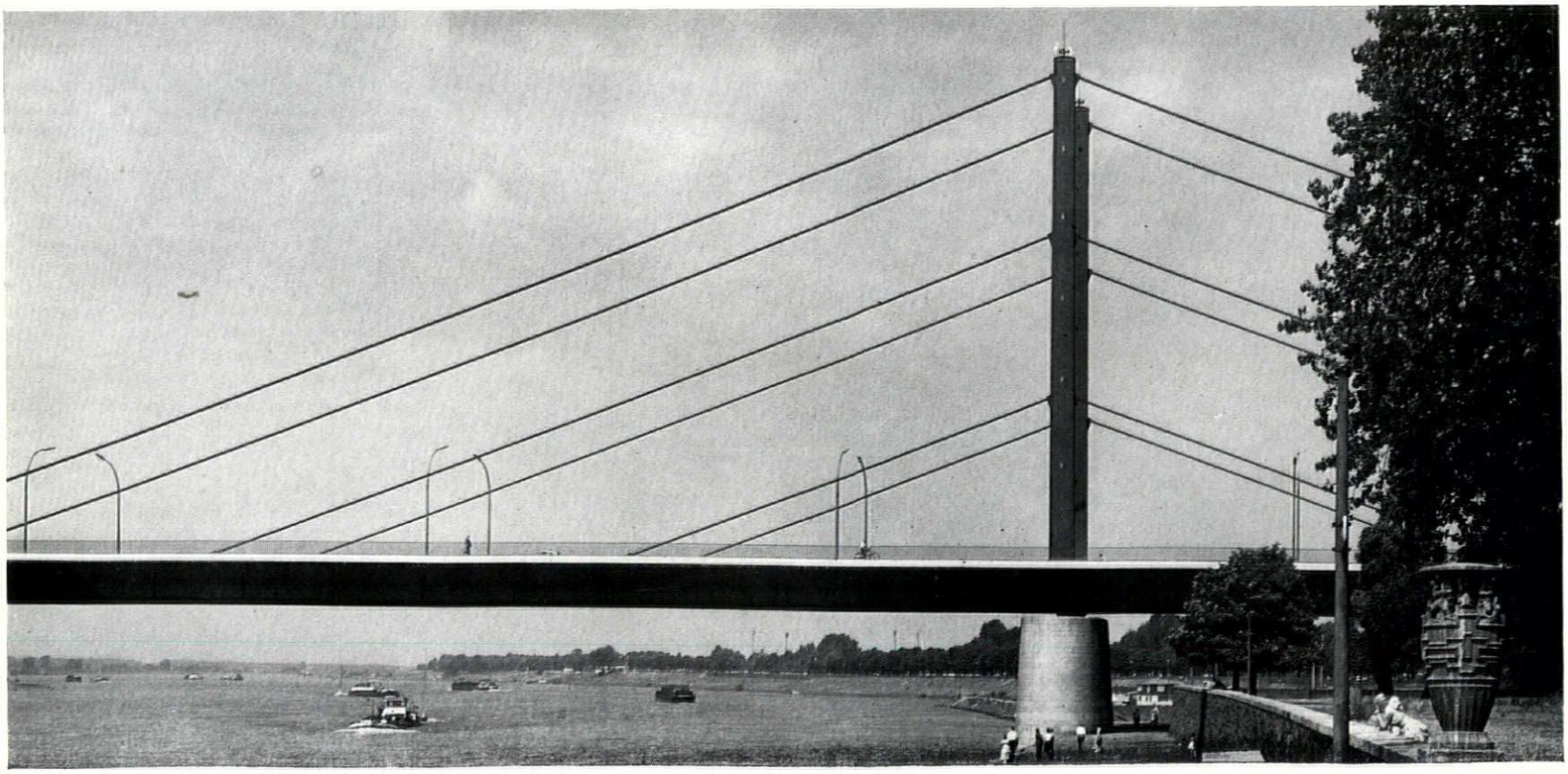
With a bridge like this, Germany seems in a position to regain that austere splendour that characterized her big engineering/architectural works of the early years of the century, with the added interest of a new boldness on the engineering side—the new bridge at Cologne, for instance, will be asymmetrical, and have the cables hung from a bipod on one bank only, thus doing away with half the normal superstructure of a suspension bridge.

But Schreier, in fact, has already done away with *three-quarters* of the top structure of a suspension bridge in a design that thousands saw as long ago as 1958. This was the overpass-bridge to the West German Pavilion at Brussels *Expo 58*, which has now been permanently re-erected, 7, to

7

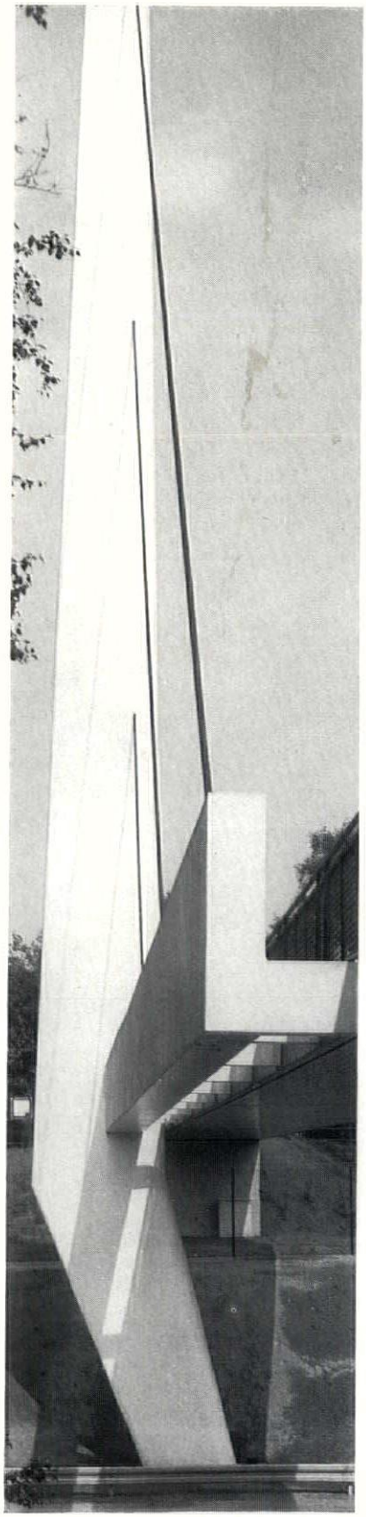


6



German Bridges

span the autobahn between Duisburg and Dusseldorf, near the Zoo. Here he has achieved a completely asymmetrical bridge, with the single supporting pylon standing well away from the footway that it carries, 8. Although this is manifestly a work of technical bravura, it suggests the promise of a new freedom of siting in bridges, particularly in terrain where secure footings are hard to attain—which are nearly always terrains of greatest natural beauty as well—provided that this kind of asymmetrical layout can be maintained in works of larger scale, since the off-centre loads will present formidable problems.



8



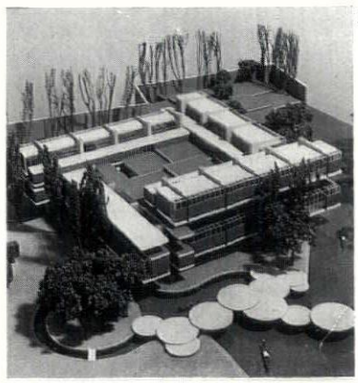
9

PADIGLIONE AL PARCO

Prize winning Scheme for Venice Biennale

Hilda Selem, designer of the Pozzi showroom in Rome, illustrated in AR April 1960, was also one of the prize-winning team* in the competition for a new Italian pavilion in the *Parco del Biennale* in Venice. Although it seems unlikely that the design will be built in the nearer future, it is worth recording on its own merits, and as a pendant to Michael Brawne's two articles on Museums and Art Galleries which appeared in AR May and December 1959.

The winning scheme, 9, calls for two layers of galleries with a varying gap between the upper and lower layers, deep enough to accommodate a third layer of gallery space in some areas, but a promenade deck only in others. There are three of these two-layer units of almost identical plan, grouped around three sides of a square court, 10, with a single storey unit, of similar plan on the fourth side. The plan of the complete pavilion, 11, thus acquires something like pinwheel symmetry, but the plan also reveals (*a*) that each gallery floor is split into a wider and a narrower unit, separated by circulation space or an air-gap, and (*b*) the concentration of four auditoria of different sizes in the central court. Not only is the resultant plan very compact for the amount of accommodation offered, but the section is of the greatest interest, 12, the two-way splitting of each gallery block providing display spaces of very varied size, section and orientation toward the light. The project also involves the landscaping of the area immediately around the pavilion, and part of the water garden can also be seen in 10, where a model gondola gives scale to the whole.



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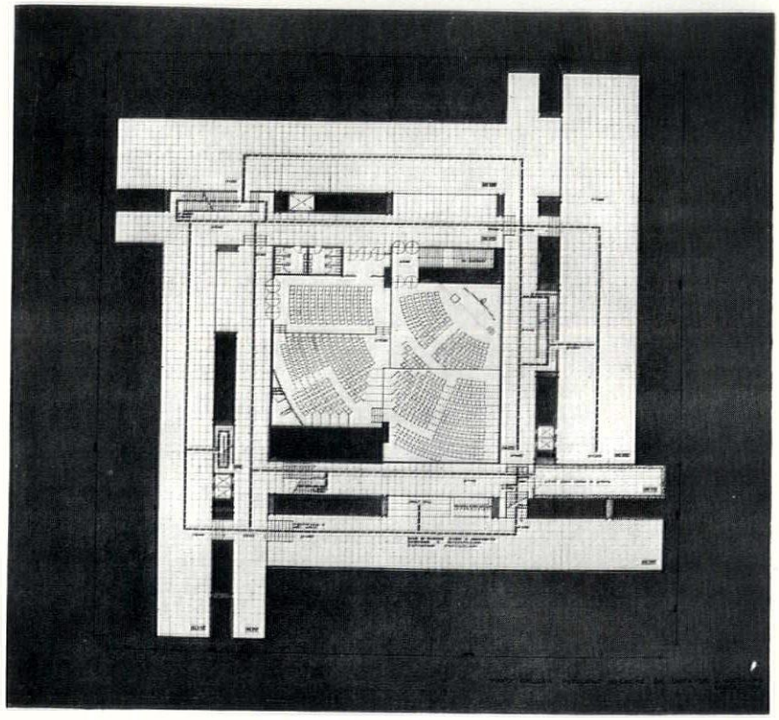

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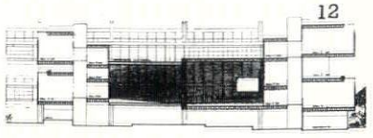
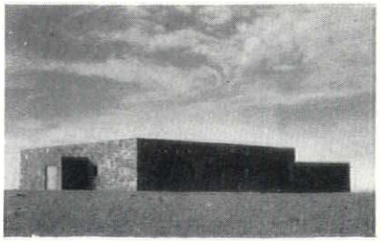


12

* Lucio Passarelli and Stansilao Alessandri, engineers; Hilda, Selem, Paolo Cercato and Giorgio Volpato, architects.

NORWEGIAN SHELTERS

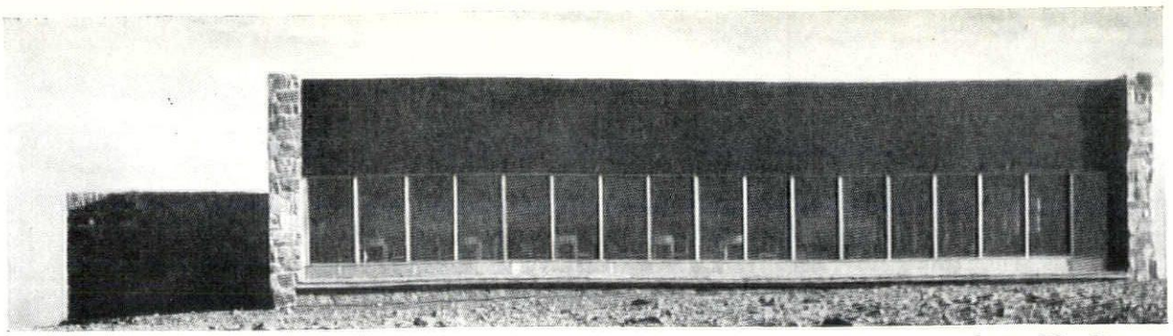
One of the mystique-words of 'advanced architectural thinking' is *Shelter*, which means something different to every architect, and something different again to the general public. Practically the whole range of meaning can be seen in two recently-completed shelters in Norway. The architects' extreme is represented by the *Nordkaphallen*, 13, designed by Torbjorn Rodahl and Paul Cappelen,



13

to deal with what *Byggekunst* (6, 1959) calls the 'non-stop besokstid' that sets in when the midnight sun is on view. Though this round-the-clock visiting season occurs at a time when the climate is probably most favourable, the low block-like architecture, 14, of what is, after all, only a restaurant, 15, emphasizes that the North Cape is, at other times, the most northerly and theoretically inhospitable part of mainland Europe.

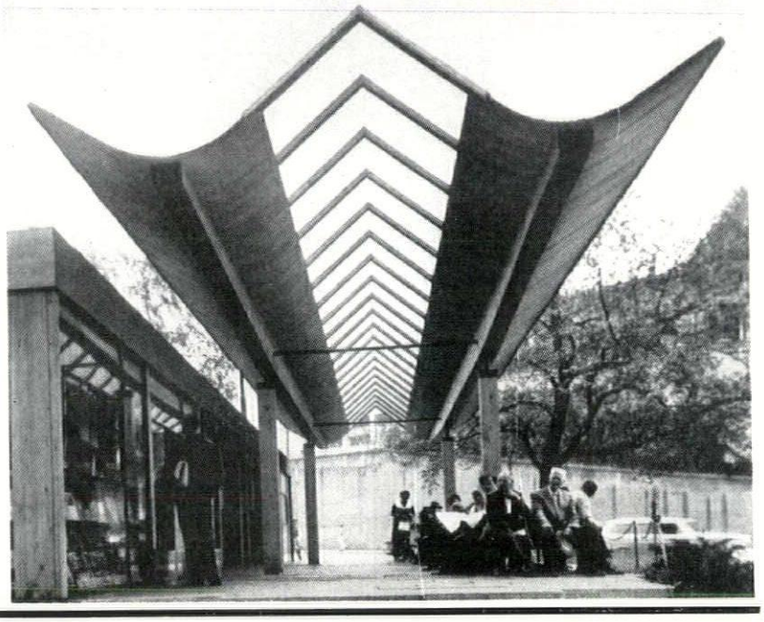
The public's extreme view of shelter is exemplified by what might be called a glorified bus-shelter with tourist information office in the centre of Oslo. It might almost be called a pavilion of taste, since it was designed by Odd Brochmann, author of the well-known book on *Good and Bad Taste*, with Dag Rognlien, and the frisky form, 16, of its canopy, in glass and laminated wood, could hardly be in stronger contrast to the fortified character of the *Nordkaphallen*.

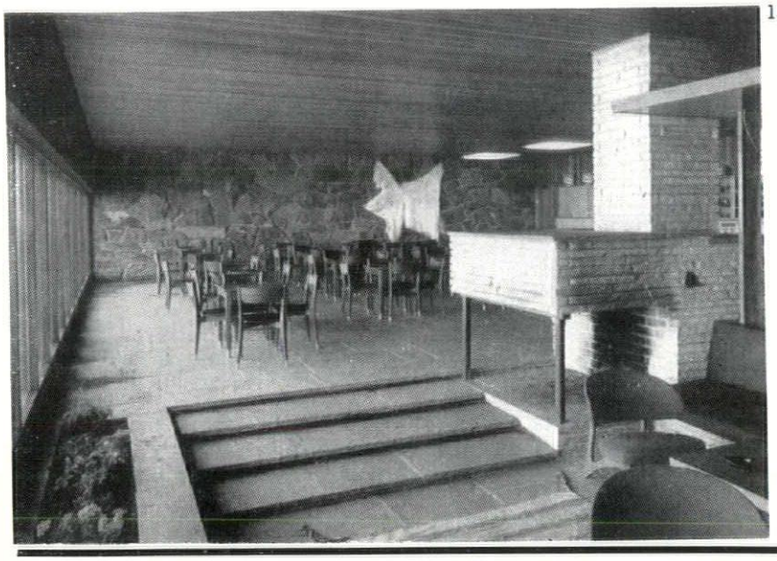


14

Norwegian Shelters

16





15

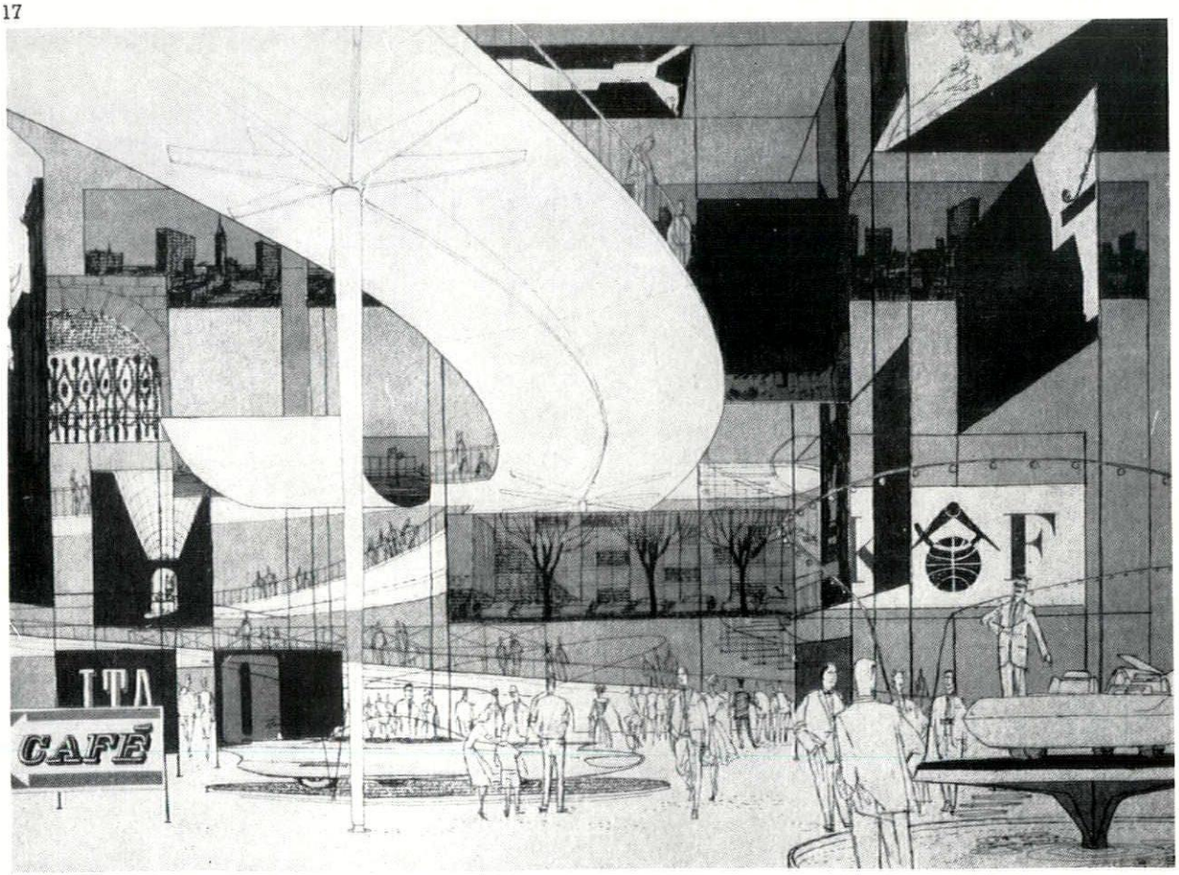
FUTURE REPETITIVE: 1962 Exhibition in Seattle

Century 21

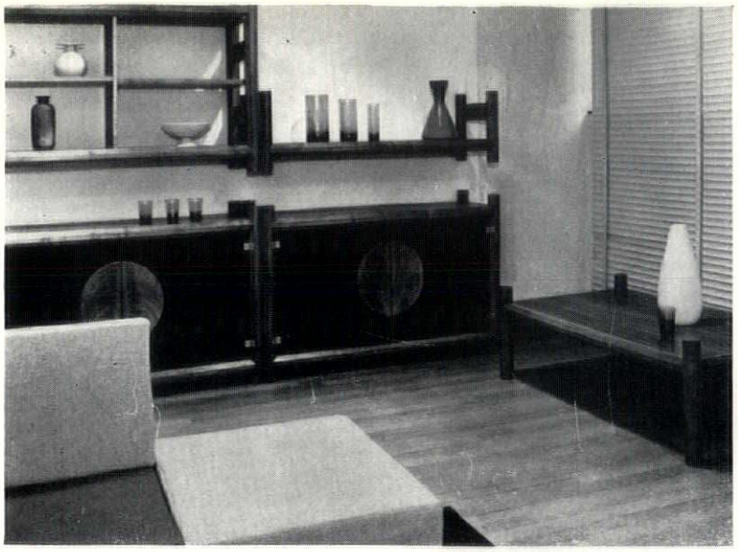
Futurism, like Rock'n'roll, is buried by the critics at regular intervals and—still like Rock—always pops up again somewhere else. Every major exhibition provides an excuse for more of it, and foretastes of the future always prove to be Futurism all over again—the main interest is in seeing how the regular package of multi-level circulation, dream vehicles, oracular structures and so forth, will be styled.

One of the most promising prospects in this grand old modern tradition is offered by the previews that have been published for *Century 21*, the exhibition scheduled for 1962 in Seattle, Wash. The keynote display has been projected by Paul Thiry, and as realized in Carlos Diniz's sketches, 17, which appeared in *Arts & Architecture*, promises an extremely gay and elegant West Coast version of the Futurist Theme. The circular high-level walkway runs concentrically around a geodesic dome (almost as obligatory nowadays as an elevated walkway) in the centre of the *Coliseum* building which is to house the exhibit and the *Coliseum* itself will consist chiefly of a square roof of 360 feet clear span supported from a central ridge beam carried on tripods at the end.

17



MARGINALIA



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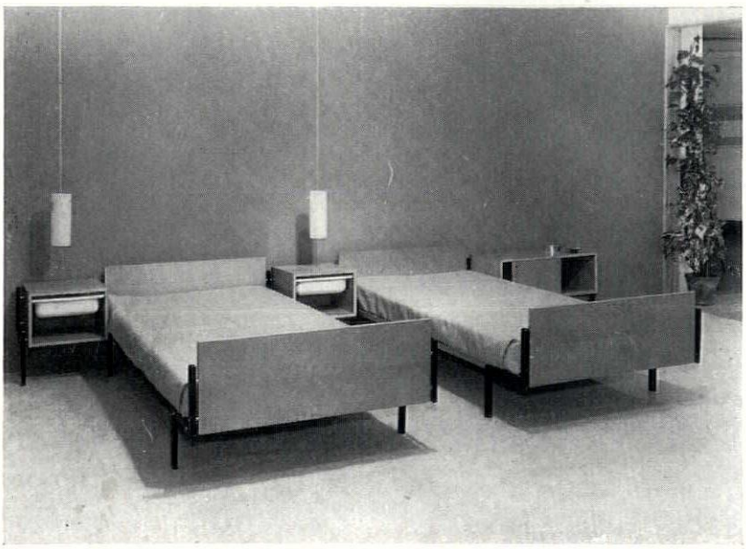


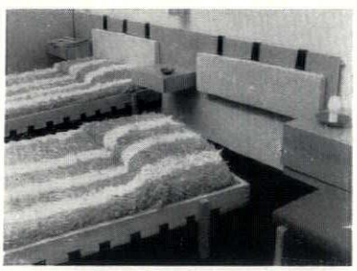
2

1, *the Italian room at the Heal's 150th anniversary exhibition, designed by students under the direction of Gio Ponti.*

2, *the German bedroom.*

3, *the beds in the British room, designed by students at the Central School of Arts and Crafts.*

4, *the Norwegian room, designed under the direction of Arne Korsmo.*



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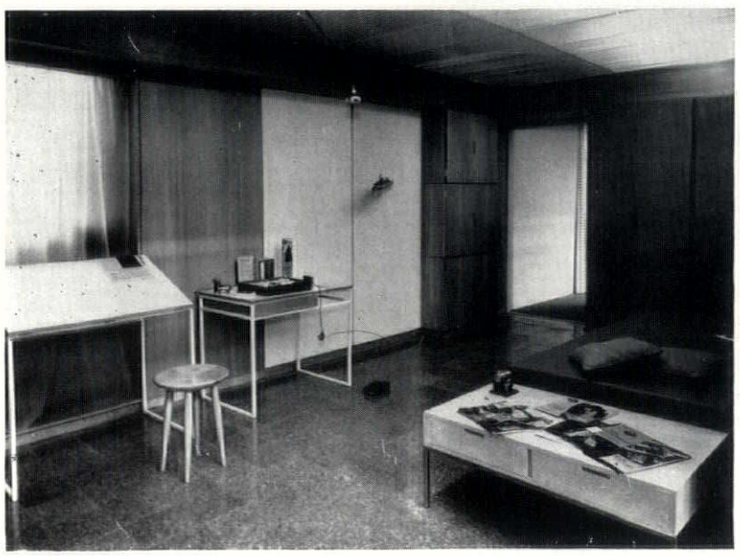


4

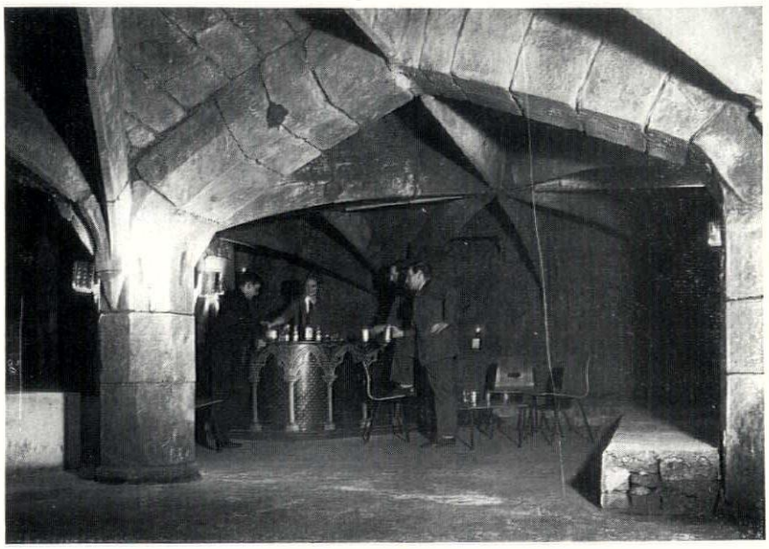
FUTURE FURNITURE TODAY

No so many months after the death of the man who raised the firm to its present position of world eminence—Sir Ambrose Heal (AR *Marginalia*, January, 1960)—comes the 150th anniversary of the firm of Heal's itself, founded in Rathbone Place, within a quarter of a mile of the present premises, by John Harris Heal. The occasion was marked in the store by an exhibition of furniture, which is hardly surprising, but this was not set up as a retrospective of the firm's output over the last century and a half. Instead, groups of students from seven countries were invited to design and furnish complete rooms.

The results, together with a room designed inside the Heal's organization, were of varying quality, but all were interesting. The Italian room, 1, designed by a group under the general direction of Gio Ponti, was rich and visibly conscious of the recent history of style. The German bedroom, 2, was crisp and light, without that clinical deadness that German design still produces when trying to be elegant (on this occasion it was the Swiss who achieved this particular effect). The British bedroom, 3, designed by students at the Central School of Arts and Crafts, clearly sets out to make a similar sort of impression, but tended to lose it in fussy or untidy details, such as the straps carrying the cushions on the bedheads.

Although the Swedes and the Finns made their usual elegant contributions, the main interest from Scandinavia was the Norwegian room, 4, intended for a teenage boy, and designed by a group headed by Arne Korsmo (architect of some remarkable houses illustrated in AR Sept., 1957). Here, alone in the show was a room conceived as a whole, with built-in furniture on a large scale, rather than an exhibition gallery of cabinet-maker's showpieces, the few items of movable furniture being very spare and simple.

The exhibition remains open until May 24, and by providing a small cross-section of future European furniture design, gives a useful warming-up run for those whose initial apparatus will later be exercised to the full by the Milan Triennale, and some substitute for those who will not be able to visit the Triennale this year. For these latter, however, the AR proposes to make a full report on the Triennale later in the summer.



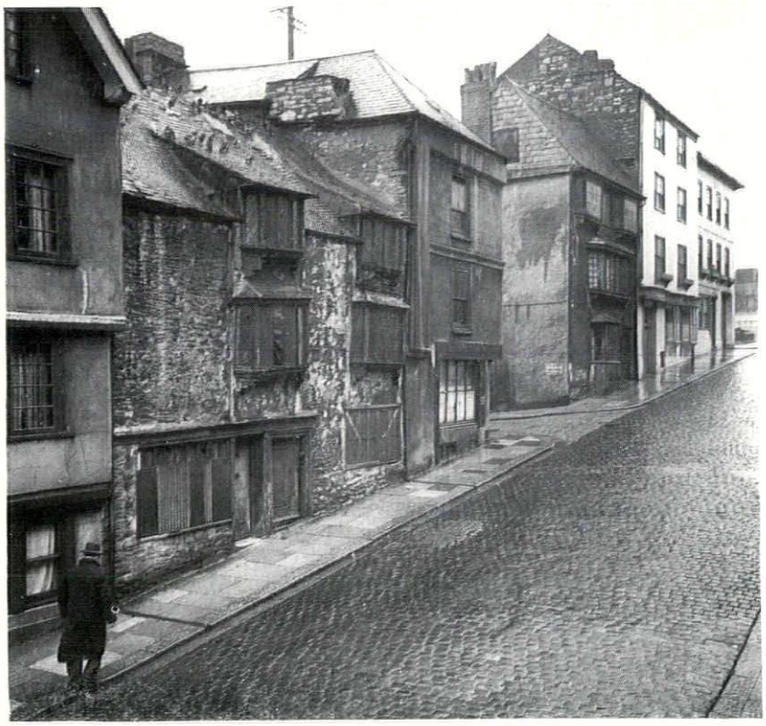
5

5, *the Old Star bar in the vaults of the crypt under the City Architect's offices in Coventry.*

ANCIENT FOUNDATIONS

Alongside the underground parts of the City Architect's offices in Coventry, illustrated on pp. 345-346 of this issue, lies a substantially-built crypt with unusually deep rib-work on its vaults, 5, thought to be the surviving subterranean parts of a fourteenth-century merchant house. The work came to light during building operations on an adjoining site some five years ago, and its present function in the operation of the City Architect's and Planners' Department can be appreciated from the illustration. This function is not, in spirit, a break with its past history, since it provided cellarage for the Old Star Inn which was destroyed by bombing during the war, and in any case it is an excellent example of the right way to deal with unexpected ancient monuments. Below ground these tend to be even more embarrassing than above, because they get in the way of developers' piling and services, and they tend to be ruthlessly rooted out—as with the Mithras Temple in the city of London. If their preservation is secured, they are either kept, resentfully and in quarantine, so to speak, empty and unvisited, or they are used as dumps for unwanted files that finally pile up to the ceiling, obscure the architecture and encourage dry-rot.

Here, as an occasional extension of the socially usable floor-space, the Old



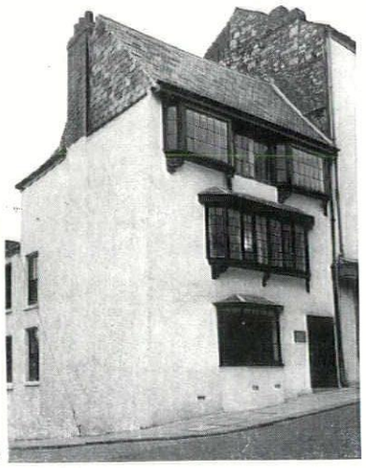
6

6, Jacobean houses in Looe Street, Plymouth. The house on the far corner of the side street has now been reconstructed, 7.

Star cellar will be visited by more than just archaeologists and building inspectors, and saved from the ultimate fate of becoming a museum-piece without a museum.

PLYMOUTH BARBICAN

In AR, April 1957, Gordon Cullen drew attention to the threatened 'municipalization' of the Barbican, Plymouth's close-knit and unique area of townscape overlooking Sutton Harbour, and made proposals for the 'making-good' of the area by sensitive reconstruction on some sites, sensitive rehabilitation of buildings on others. While there is little sign yet of the former, the Plymouth Barbican Association has made some headway with the latter, owns long leases on some fifteen properties in the old part of the city, and has begun to overhaul the buildings involved. Near the top of Looe Street, 6, it has recently completed the re-roofing and general making-good of the Jacobean house seen in 7, with its unusual fenestration which should be appreciated by the new occupiers, a firm of architects. The house in its original condition can be seen just above the side-turning off Looe Street in 1. The association also owns the building at the extreme left in 1, and is negotiating with the Historic Buildings Council for a grant to carry out a rescue operation on the next two houses. This work costs money, and the association has now spent most of the original £5,000 (raised by its appeal fund) in purchasing the properties it now owns, in spite of grants from the Historic Buildings Council. However, it has a rent-roll of some £1,000 and is raising mortgages on property as soon as it is restored, but even so it has a long, slow job ahead of it, and deserves all the help it can be given.



7

INTELLIGENCE

The tenth International Design Congress at Aspen, Colorado, will be held between the 19th and 25th of June this year—that is, a month after the 'Asian Aspen' in Tokyo. However, the theme at Aspen will be considerably less grandiose, and therefore probably more workmanlike—The Corporation and the Designer: an inquiry into the opportunities and limits of action for innovators in the Twentieth Century Technological Society.

MIT have announced a unique summer course to be held this July—*Theory and Criticism in Architecture and Town Planning*, for teachers, architects, planners *and* historians and critics. Speakers should include Pietro Belluschi, Gyorgy Kepes, John Burchard (critic), Robert Wood (Political theorist), Kevin Lynch (planner) and Lawrence B. Anderson (educator). Further information from the executive officer, Architecture, Room 7-346, MIT, Cambridge, Mass.

OBITUARY

ADRIANO OLIVETTI

The cause of modern architecture, and of good design generally, lost one of its most remarkable supporters in the recent death of Adriano Olivetti, at the age of 58. Olivetti's products, mostly typewriters and office-machines, were the most solid achievements of the post-war revival in Italian Design, and the most substantial justification of the wave of enthusiasm for all things Italian that swept the West in the 'Espresso Era.' Their creation established Marcello Nizzoli as one of the great form-givers of the Nineteen-Fifties, along with Charles Eames, Mies van der Rohe, Le Corbusier and a handful of others.

But this was not just a styling job—Olivetti's approach to industrial production and product design was total. He was the father of modern publicity and public relations in Italy (he was the first to employ the talents of Leonardo Sinisgalli in this field, even before the War); his factory-town at Ivrea is a model for the world, first in its humanitarian attitude to the workers employed there, secondly in the impressive roster of architects who designed its buildings, particularly Figini and Pollini, Eduardo Vittoria and Ignazio Gardella. All over the world, Olivetti offices and showrooms have employed distinguished modern architects as interior decorators, or even to design complete buildings—in Milan, Bernasconi, Fiocchi and Nizzoli; in New York, BBPR, and so forth.

In addition, he was concerned with the world of ideas—architectural ideas, in the support of publications such as the magazines *l'Architettura* and *Zodiac* more general aesthetic ideas in *Sele/Arte*, and political ideas through the magazine *Communità*. In the long run, history may judge his politics to have been as remarkable as his products—he was Europe's progressive capitalist *par excellence*, animated by a high sense of moral purpose and social responsibility, who strove toward the realization of his ideals not only by founding his own political party, *Communità*, which was a limited success, but also by doing in fact what everyone else was merely discussing in theory—taking industry to the south, to Naples, as a pilot step towards the recovery of the *Mezzogiorno*. Readers who wish to remind themselves of the full extent of his contributions to post-war culture should re-read Georgina Masson's article in AR, June 1957.

CORRESPONDENCE

1960 SERIES

To the Editors,

SIRS,—At last someone has stated the facts of life about architecture in the 1960's. Dr. Banham's collection of papers in the March REVIEW is a salutary dose of clear thinking, leading to an obvious and, to many people, unpalatable conclusion.

The fragmentation of what used to be called Architecture into a number of specialized compartments has parallels in Science. In all fields the break-up has been for the same reason—the body of knowledge has grown too quickly and too enormously in bulk for the individual mind to encompass. Architecture has been the last discipline to fragment in this way because of the slowness in developing and absorbing new ideas in the building industry—Buckminster Fuller puts the time-lag at around 40 years.

Because we as architects have only just now started to face up to this process of break-up, we can be aware of the mistakes made by our less fortunate colleagues in the fields of science and technology. In these fields the fragmentation process has reached such a pitch that the various specialist groups generally have the greatest difficulty in communicating with each other. This raises real obstacles to the advancement of knowledge, since the work of different specialist groups often overlaps, and not only is similar work duplicated, but the mutual stimulus of one group on another cannot take place.

This situation is and has been acknowledged by science for some time, and efforts have been made to do something about it notably in the newer fields such as cybernetics. As described by Norbert Weiner, cybernetics arose from a series of dinner-table discussions at Harvard which were designed specifically to get people of different specialties talking together, so that the borderline or unmapped areas of science could be communally explored. The task was very difficult because those involved had to establish a new and communal language before they could even start to exchange ideas. We need not, if we learn the lessons of science properly, get ourselves into this situation. We must, however, before we are overwhelmed by the avalanche, decide what we think the course of our activity should be in these changed circumstances.

A first requirement must be that we should be able to communicate, not only with other groups, but also among ourselves. Semantically we are, as a group, grossly naive. We do not even agree on the meaning of our root term, architecture, let alone the more sophisticated ideas in language and meaning, which have become part of the philosophical content of other disciplines. This, then, becomes the basic problem and need for us. In the next decade we must be able to communicate as a group, so that we can accept the increasing impetus of specialization and all its advantages, while retaining an overall group identity and grasp of the total functional situation.

Already there are signs, on a very small scale that we as a group are becoming aware of the need to think of communication as a subject in its own right. The BASA issue in the AJ for March 4, 1960, calling for training in writing and speaking, the fact that we had a lecture by Arch-communicator Charles Eames, are both indications of a new attitude towards the subject. Perhaps we can hope for more interest in the work of Charles Morris and Von Neumann in the future.

Communication of ideas is a vital part of our group function, and as such must be pushed ahead by those with enthusiasm and ability for the good

of us all, and for the survival of architecture (in the semantically undefined sense). The RIBA exists, the schools exist, various research groups exist, the Architectural Press exists; surely some synthesis of ideas among these organizations can lead to a redefinition of our terms and our place in society.

Yours, etc.,
PETER COWAN.

St. John's Wood,
London, N.W.8.

SANTORIN

To the Editors.

SIRS,—The article on Santorin, by Michael Santiago, in your March issue which was illustrated by photographs supplied by myself, contains some inaccuracies and some unjustifiable conclusions to which I would like to draw your attention.

The form of the houses was determined by the necessity to create in fairly large quantities cheap dwellings which could be simply and speedily erected by the comparatively unskilled labour available, on an island which has no natural building materials—neither clay, stone, nor timber—and no port facilities. Thus this is no consciously chosen variant of the local vernacular, as suggested by Mr. Santiago, but a highly rational solution to an urgent problem, and the fact that the result so closely approximates to that vernacular merely reaffirms the validity of the functional tradition.

Mr. Santiago is further mistaken in suggesting that the layout is 'borough engineer style'; in fact, the variety of groupings of these simple house types, together with the schools, community centres and other basic public buildings produce most imaginative layouts and interesting spaces, which, unfortunately, cannot be seen from the photographs, as these were taken at an early stage of the reconstruction.

Regrettably, but perhaps inevitably, the population of Santorin is not growing but still rapidly declining.

In conclusion, I should like to join with Mr. Santiago in welcoming this development, although it is a pity that his welcome was not more positive for what is, after all, Greece's first contribution to modern architecture.

Yours, etc.,
S. M. NEUFELD.

London, W.1.

BOOK REVIEWS

SPECTACULAR GOTHIC

GOTHIC CATHEDRALS. *By Marcel Aubert in collaboration with Simone Goubet. Published by Ward & Kaye.* £5.

This is undoubtedly up to date the best book on its subject in English. It is not a commercial picture-book catering for the nouveau-illiterates. It has a text consisting of a long historical introduction and longer or shorter descriptive notes on the individual cathedrals. The text is written with all M. Aubert's elegance and warmth of feeling, the notes are not arranged alphabetically or topographically but historically so that they also contribute to the picture of the development of Gothic architecture in France. It is a spectacular development, and the illustrations are spectacular and at the same time documentarily reliable enough to confirm it. There are 460 of them and in addition seventeen plans, seventeen sections and seventeen bay elevations of cathedrals and a map.

The short notes on the illustrations were provided by Simone Goubet, and they contain some very rum dating (the Ste. Modeste of Chartres 'before 1260,' the figures inside the west front of Reims '1245-1257,' the Death of the Virgin at Strasburg '1250-55,' the west front of Chartres 'mid-thirteenth century'). In M. Aubert's arrangement the only puzzling thing is that Sens is not placed at the very beginning of the Early Gothic group, but at that of the High Gothic.

The illustrations have captions in French which will come as a surprise to those who are not aware of the new custom of manufacturing books in one country for sale in several. What is more trying is that the illustrations are spread in wads through the text, an irritating arrangement which the picture-books have abandoned. The result is that the text does not refer to the illustrations and that they have no dates in the captions. One has to go at all stages from the text to a group of pictures not easily found and then to the notes on them at the back of the book. Only after doing so does the layman become aware of the fine historical sequences in the plates of window tracery, of foliage, of angels in voussoirs, etc.

The translation is excellent as far as literary qualities go but breaks down time and again on technical matters. What reader will understand that the 'main arches' mean the arcade, that the 'labyrinthic design' in the paving of Reims means an actual labyrinth laid out in the paving, that the ribs of a vault 'act as a permanent double soffit of stone on which the vaults are erected,' or that Laon has 'two square towers with a high octagonal stage with bell-towers.' This sort of thing is a great pity; for the French is precise, and the lay reader (and for that matter the architect reader) needs precision to keep up with M. Aubert's exposition.

Nikolaus Pevsner

SPACES FOR PLAY

PLAYGROUNDS AND RECREATION SPACES. *Introduction by Alfred Ledermann and Alfred Trachsel. Translated by E. Priefert. Architectural Press.* 63s.

Much has been said and written about the problems of juvenile delinquency and teen-age behaviour and it is widely recognized that inadequate provision for leisure activities is a major contributory factor. But the child is father of the adolescent as well as the man, and it is astonishing that this excellent book is the first in this country to deal seriously with children's play, not just in terms of swings and slides but as an outlet for fantasy and adventure and as an introduction to community life.

Every aspect of the subject is dealt with, from town-planning to sandpits and from toddlers' to parents' committees, although the authors have deliberately refrained from giving technical details on sizes and construction methods, believing this field to have been already covered. One of the authors is an educationist, the other an architect, so that the book is well balanced. They write from long experience and have chosen attractive photographs and plans from many countries to illustrate their arguments. These combine to make the book a richly worth-while investment for every local authority.

Some of the playgrounds illustrated, particularly the American ones, may seem lavish by our standards, but the basic ideas are simple enough and could be carried out less elaborately, with simpler materials.

The question of supervision is more difficult. In Scandinavia and Switzerland, most playgrounds have a park-aunt or play-leader or some adult person present for at least a part of the day, thereby increasing the range of play enormously. In the Tivoli Gardens in Copenhagen, for example, social science students take it in turns to spend two hours or so in the children's play area. In this country, apart from the relatively small number of adventure playgrounds, such supervisors as there are appear, for the most part, to have been recruited from the ranks of cloakroom attendants and are quite incapable of helping children to develop their personalities through imaginative play. It is considerations such as these, rather than those of expense, which put a few of the ideas in this book outside our reach, but only, it is to be hoped, for the moment.

Susan Jellicoe

BUILDING LOGIC

PHILOSOPHY OF STRUCTURES. *By Eduardo Torroja, translated by J. J. Polivka and Milos Polivka. Publishers, Cambridge University Press.* 94s.

'There is' says Torroja 'the case of the engineer who based his reasoning on the following argument: "I shall take advantage of the happy coincidence that I must design a bridge and that prestressed concrete is fashionable, and I will make a prestressed concrete bridge." ' The bulk of this book is devoted to establishing sounder reasons than this on which to base design. It does so by presenting in the most general way, on the one hand, the potentials of a number of materials and, on the other, the structural demands of typical building forms. Despite a dubious translation, this is a lucid and often helpful analysis.

It is difficult to know whether or not Torroja intended his work to be read by architects. They will certainly look at the illustrations; they may even read the text. Its serious shortcomings in terms of architecture are that, unlike the late Felix Samuelly's masterly lectures on the same theme, the choice of the rational structure is posed too often as a problem capable of being isolated and solved in terms of structural logic alone. This may to some extent be due to the fact that Torroja's greatest interest has been in large, functionally simple forms like bridges, grandstands or market halls. In this field his contribution has been most significant and it is, in fact, suprising that in comparison with Nervi or Candela his name is so little known in this country.

But in other buildings the answer is often bedevilled by considerations of daylighting, of space for services, of sound control, of the necessary relation to cladding, partitioning and the economics of rentable space. The structural form which is rational in 'pure' terms may become completely irrational when these secondary aspects are taken into account. As Torroja puts it in his discussion of engineering calculations, it is not the accuracy of the arithmetic which is vital but the correctness of the hypothesis. In architectural terms at least, his book does not always take for granted that the hypothesis on which the initial choice has to be based may be complex—in some cases even perverse—and that these may seriously reduce the validity of the structural assumptions.

Unlike many engineers, Torroja is keenly aware of the visual impact of his work. This may indeed be partly the secret of his success. The book is thus rightly and bravely full of judgments on appearance. It would be idle to pretend that one can always agree with these. Torroja, for example, finds steel a visually unsympathetic material. This is obviously a personal feeling and not necessarily a view shared by other Spanish designers. The architect of the brilliant Spanish Pavilion at Brussels last year would evidently disagree. Concrete is Torroja's great and natural medium. He knows and, probably, loves it. He is, in any case, also the director of Madrid's Technical Institute of Construction and Concrete. His shrewdest remark on reinforced concrete, however, is that there is no such thing as visual honesty in the material. The real strength is in the steel bars; inevitably this skeleton can never be exposed. It is good to hear such shocking ruthlessness.

Michael Brawne

GUIDE TO GAUDÍ

GAUDÍ. *Published by Editorial R.M., Barcelona.*

That the moment which produced Chandigarh has also produced a reassessment of Gaudí is understandable. What is less easily understood is that Le Corbusier himself, in a foreword to the most recent book on Gaudí, does not defend him as one daring poet in three dimensions to another, but presents himself as the architect of the 'soap boxes' (his word) of Garches and Poissy. Why should he pretend to be what he was thirty years ago? One can only assume that once again his ambition of proving to have been the first in everything must be the cause of his strange foreword. He says that he discovered Gaudí for himself as early as 1928. What he praises in Gaudí is interesting enough: 'his force, his faith and his technical capacity.'

The book consists of 57 plates, some in colour, most in black and white. They are exciting all right, though not especially new. With Professor Hitchcock's Gaudí catalogue of the Museum of Modern Art, the Italian Gaudí book in the Astra Arengaria series, the Gaudí number of the Cuadernos de Arquitectura, and the earlier books, there does not seem to be a pressing need for the new volume. Still, the more people are introduced to Gaudí's fantastical and fertile genius, the better.

N.P.



The need to segregate different kinds of traffic and the value of the upper level pedestrian deck are at last being recognized in this country; witness recent pronouncements by the Minister of Transport and the fact that a number of experiments with pedestrian decks are now being made in important planning schemes. One of these, being made by the City of London, is illustrated on pages 338-343—an experiment especially to be welcomed because the City has not hitherto shown itself a pioneer of new planning ideas. The acceptance of the principle, however, is only a first step; this kind of multi-level planning depends a great deal on being executed with architectural sensibility, and particularly on the design of all the incidental detail, and of the street furniture. It is in such details that British design most often fails. The photograph above of the new North Bridge at Düsseldorf, designed by Dr. F. Schreier, is a reminder of the high standard achieved in such work abroad, and especially in Germany—a standard below which the new British work should not be allowed to fall. The photograph, taken by Mr. G. E. Kidder Smith on a recent tour of Europe, shows the cycle slip-ways descending in two sweeping curves at one end of the bridge. The bridge is further illustrated in World, page 294.

Michael Rix

INDUSTRIAL ARCHAEOLOGY

Since Britain is the country that pioneered the Industrial Revolution, it goes without saying that we can claim to have produced the first steam engine, cotton-mill, iron bridge, railway line, locomotive, metal-framed building (all, incidentally, of the eighteenth century) and railway station in the world. If these were simply of local significance they would be of sufficient importance, but here is an earth-shaking human step forward on a scale only once achieved before—and that, ten millenia ago, with the discovery of agriculture in the Middle East. So here in the Industrial Revolution is one of the few major landmarks in the million-year-old story of man's existence on the face of the earth, but since it belongs to the last three or four centuries it is easily overlooked. Many of the key monuments of that revolution still survive in these islands unregarded and neglected, the future of none of them is secure (with one honourable exception). We have allowed the destruction in the last few weeks of the oldest passenger railway in the world. We owe to foreigners our knowledge that Shrewsbury contains not only the oldest but also the first multi-storey, metal framed building ever to be erected, yet for all the interest we take in this unique survival, it might as well not be there.

The time is more than ripe, therefore, for someone to come forward and say 'These are the monuments that generations yet unborn will look back on as the symbols of their emancipation from pre-industrial poverty. It is our duty to do what we can to recognize them, to record them and, where practicable, to save them from destruction.' The first step towards making a list of such monuments and formulating a policy for their preservation was taken at a conference held in London last December. This conference was called by the Council for British Archaeology, which concerns itself with co-ordinating the efforts of all organizations in this country that are interested to investigate and preserve the material evidence of man's past activities in these islands. At last the professional archaeologist has shown practical recognition of the fact that his province in time is not confined to prehistory and those early periods of written history where his spade, camera, distribution map, pen and imaginative interpretation of his finds can illuminate

and fill gaps in the written record, but embraces the whole span of man's existence on this planet, not least the present day.

To take one example of how little is still generally known about recent industrial history:

Britain's contribution to the rise of the Industrial Revolution is well recorded in every school text-book that deals with the emergence of mass-production in the Lancashire cotton trade and the Yorkshire woollen mills, with James Watt's transformation of the steam engine and the work of Brindley and Macadam in improving communications, and yet the contribution of Shropshire barely gets a mention. In a comparatively short stretch of the Severn Valley between Shrewsbury and Bridgnorth—barely twenty miles apart—lies the Ironbridge gorge area, which can claim to be the birthplace of the Industrial Revolution. This region is associated with such names as Abraham Darby, who built the Iron Bridge, John Wilkinson, the great ironmaster, and Thomas Telford, the father of civil engineering. It can claim the following impressive list of 'firsts': successful smelting of iron with coke, cast-iron steam engine cylinders, iron railway lines, iron bridge, canal incline, iron boat, cast-iron aqueduct, multi-storey metal-framed building, locomotive on rails. All these are eighteenth-century achievements except the last which dates to 1803.

The industrial monuments of this area are unique, and steps to guarantee their survival are urgently needed; only a policy that takes them into public guardianship will ensure their preservation. I quote only two examples: the Iron Bridge and Jones's Maltings. The bridge was erected in 1779 and is deservedly famous as an outstanding technical and engineering achievement. It has the additional claim to fame of being the first application of metal in architecture and prime ancestor of such structures as Sydney Harbour Bridge. (Incidentally it also merits high appreciation as a thing of beauty and a fine landscape feature in a striking piece of scenery.) Yet it is only since the war that any detailed study of it has appeared in print, and while the evidence for the complex method of its erection is available, no one has taken the trouble to study and publish it.

At least the Iron Bridge has been scheduled as an ancient monument for what that is worth (nothing financially for its upkeep!). Jones's Maltings, of equal importance, has not even been listed in its top category by the Ministry of Town and Country Planning. Yet there is no question that it is the oldest metal-framed building in the world: not only that, but one of the first of its kind ever to be erected. It was put up in 1797 as a flax-spinning mill and is now used as a brewer's maltings. The first hint of its existence was published by Dr. Nikolaus Pevsner nearly a quarter of a century ago, quoting a Telford pamphlet of 1801. This was taken up by the American scholar, Professor Turpin Bannister, who printed an account of the building in 1951. His researches have since been supplemented by those of Professor A. W. Skempton. This first building to be constructed, apart from its masonry walls, entirely with iron columns and beams (in order to reduce fire risk) still stands the prime ancestor of the all metal-frame building, itself the ancestor of the modern sky-scraper. Yet for all the public interest that it has aroused, it might as well not have been discovered.

As a result of opinion's neglect the grave loss of industrial monuments since the war has gone largely unremarked. The famous Cornish pumping engines could boast six machines in steam fourteen years ago in their native county; now there is none. Throughout England the number of beam-engines in steam is falling fast. For the last twelve months the most complete traditional blast furnace in the country, the Lilleshall Company, Priors Lee, Shropshire, has been on offer to anyone who would accept and preserve it as an industrial monument. In view of the present lack of public interest, it is not surprising that no one has come forward to accept this generous offer and it is being dismantled. Modernization is wreaking havoc in traditional industrial plant. In the Potteries, for instance, the old bottle-shaped kiln will soon be a thing of the past. The day is not far distant when it will be easier to see and make sense of a Roman villa that it will be to visit and understand an old-fashioned pottery kiln.

Yet the picture is not one of unrelieved gloom. Four rays of hope have shone out in the last twelve months, all in the West Midlands. They are connected with an industrial firm, the National Trust, the British Museum and a county council. The firm in question is Allied Ironfounders who control the Coalbrookdale Company, the pioneers of modern iron production. In order to celebrate the two hundred and fiftieth anniversary of the first successful smelting of iron with coke they have excavated the site of the old furnace and laid it out as a permanent memorial to this unique step forward in the history of metallurgy. They have also established a works museum there to illustrate the remarkable varied achievement of the firm over the last two and a half centuries. At Coalbrookdale, in Queen Anne's reign, a quaker ironmaster, Abraham Darby I, purchased and reconstructed a small ruinous blast furnace and first charged it with coke (in place of the traditional charcoal) in January, 1709. To his delight the molten metal ran thinner than charcoal iron and was thus eminently suitable for the casting of bellied pots which he had recently patented. Thus at one stroke the blast furnace was released to improve the quantity, frequency and quality of production that had been seriously hampered by the use of charcoal.

His grandson, Abraham Darby III, conceived the idea in the 1770's of building an iron bridge across the Severn in this area—a single span of 100 feet involving individual casting of five tons and more for the main ribs. To this end he enlarged the old furnace and the success of his pioneer venture is proved by the fact that it is now one of the oldest surviving bridges across the Severn. The furnace in which its component parts were cast still stands, the focus of the memorial site. It icnorporates iron beams on which are cast the words ABRAHAM DARBY 1777 and smaller beams with the date 1638 on them indicating the presence here of a furnace in the reign of Charles I.

In deciding to save the furnace from decay the Coalbrookdale Company was involved in shifting

thousands of tons of debris that had accumulated on the site and has also preserved a second 'vintage' furnace, the setting of a water-wheel that provided power for adjacent work-shops and the remains of a drying kiln. While clearing the site a number of finds came to light including the foundations of the pre-1709 furnace and an early heat-exchange radiator. There is space also for the display of eighteenth-century railway lines and rolling stock for it was here that the first iron rails were produced and laid in 1767. Other outdoor exhibits comprise a cast-iron fountain designed for the Great Exhibition of 1851, which was rescued from dereliction in Staffordshire, and a 'vintage' Coalbrookdale locomotive salvaged from retirement in a Leicestershire quarry. The scene is set among hanging woods and is dominated by the great retaining wall and dam of the furnace pool, a railway viaduct and a Regency warehouse block surmounted by a cast-iron clock tower.

The other three rays of hope are first that the National Trust has ventured into the field and plans to take over guardianship of two disused canals, one at Stratford-upon-Avon, the other, engineered by Brindley, the Staffordshire-Worcestershire which created the beautiful town of Stourport-on-Severn. Secondly, Staffordshire County Planning Department has appointed an archaeology officer (the first post of its kind in the country) whose task will be as much the study of industrial archaeology in the county as its more conventional prehistoric remains. Thirdly, the British Museum sponsored an excavation on the site of Longton Hall in the Potteries, in order to throw light on the intriguing history of the porcelain figures that were manufactured there for a brief period during the eighteenth century.

But the most encouraging sign of all is last December's conference, which I have already referred to. How wide an interest it aroused is shown by the variety of persons present which included geographers, economic and technical historians, archaeologists, industrialists, museum curators, local planning officials and representatives of the Ministry of Works, the Ordnance Survey and the Royal Commission on Historical Monuments. The following resolution was passed:

> This conference is deeply impressed by the need for formulating a policy for recording, and for preserving where desirable, early monuments representing the industrial history of the United Kingdom. Such a policy must be based on an informed valuation of their historic, technical, architectural and educational interest. The conference therefore instructs the Research Committee of the Council for British Archaeology as a matter of urgency to find opportunities of discussing with central and local authorities, and with industrial and unofficial bodies the formulation of a policy for recording and preserving such monuments.

Clearly this is not enough. During the time that we may expect the mills of Whitehall to grind slowly and those of the Treasury to grind exceeding small, there is the prospect that irreplaceable monuments are going to disappear. Historic industrial undertakings that need to preserve illustrations of their development should be encouraged to take action immediately. The list of industries that have no museum is woefully long: it includes coal-mining, brewing, ship-building, inland waterways, civil engineering and the building trade. Each of these has an archaeology of its own that urgently needs preserving before traditional methods and tools, characteristic monuments and type sites are lost for ever.

First and foremost comes the need to preserve the really outstanding items. Only one, as already mentioned, has any guarantee of survival. That is the Ocker Hill beam engine, which for decades has been mouldering in its derelict, windowless engine-house at Tipton, Staffs. It is the oldest surviving Boulton and Watt engine, being among the first half-dozen they made, and can claim to be the earliest steam engine in the world. Within the last twelve months the Birmingham Museum of Science and Technology has acquired it and is re-erecting it with the intention of putting it in steam again.

But what of the other key monuments of the period? It seems obvious that a Government department like the Ministry of Works or the Royal Commission on Historical Monuments should have its powers extended specifically to deal with industrial monuments. It is good news that a handbook of industrial archaeology is being prepared, and that Staffordshire has been chosen as the area for an immediate pilot survey. But in view of the magnitude of the task throughout the country of listing, recording and preserving, it would be stupid to depend on any single agency. Public opinion, learned societies, universities, government departments, amateur enthusiasts, all should play their part. Above all, industry itself should be encouraged to finance its own museum show-case and archaeological dig. For example, while any individual firm in the Five Towns would naturally object to paying for the preservation of its obsolete kilns, it is not beyond the range of possibility that in this jubilee year of Stoke-on-Trent's incorporation we might see the pottery industry financing the preservation of such a type-site as Etruria as an enduring monument to the man who showed the world the way. *Mutatis mutandis*, other British industries might discover the publicity value of preserving their distinctive monuments before it is too late.

Those who campaigned during the Fifties for a less diagrammatic approach to architecture and town planning were frequently met with the rebuff—justifiable in some ways but infuriating to the reforming theorist—that they had nothing built to justify their opinions. In some fields this was fairly easily remedied—the negative and Subtopian consequences of diagrammatic thinking at County Planning Office level, for instance, could be countered by cleaning up on the ground, the provision of better equipment.

But on the larger scale of town-planning theory, particularly where it collided or intermingled with the design of individual buildings, there was little to show beyond paper projects and models. For this reason, Denys Lasdun's cluster-blocks in Bethnal Green, in the East End of London, are works of architectural and historical importance, insofar as they embody one of the prime concepts of the anti-diagrammatic programme and give it successful visual form.

The 'cluster' concept will be familiar to readers of the AR from an article by Alison and Peter Smithson, 'Cluster City' which appeared in the issue for November, 1957, but the idea has a history that reaches much further back than that. In general, the change-over from the universalist, diagrammatic and neatly-codified charters of CIAM, to the pre-occupation with the solution of particular building problems within particular urban settings, was a characteristic intellectual development of the decade in which CIAM finally foundered.

More specifically, however, the idea of *clusters* and the associated concept of urban *grain* did not come from the deliberations of CIAM and Team-X, but from an independent source—from an article by Kevin Lynch on *The Form of Cities* which appeared in *The Scientific American* as long ago as April, 1954. These concepts were of immediate use in the evolution of a non-diagrammatic approach to the problem of building in cities for the following, linked, reasons:

> *Grain* is an assessment of the actual structure of any city, the distribution of living and working facilities, communications, cultural and recreational areas. In a city with a fine grain, these different ingredients will be well stirred together in small parcels; with a broader grain they will tend to segregate in larger units, with the possible end-condition that the inhabitants may not take full advantage of their city because of the long hauls from one thing to another (e.g., a public library may stand empty in an isolated 'civic centre').
>
> *Cluster*, on the other hand, is an expression of a unit of natural aggregation—Lynch spoke of finding the necessary minimum cluster that will guarantee efficient usage of the city's facilities. The later use of the term has given it the additional content of meaning a natural social unit expressed in built form (e.g., a working class street and its interrelated families in a nineteenth-century industrial town).

Both concepts are susceptible of expression in visible form: the grain of a city may be read from an air photograph or by walking its streets; it is inherent in the bricks and mortar, not in a population statistic or zoning diagram. Cluster can be expressed by new buildings that make a visual focus for a district: create an image of an integrated community.

In Lasdun's work, the search for an imagery of cluster can be traced back as far as the infants' wing of Hallfield School (AR, September, 1955) where an attempt was made to create an enviroment that was, in some sense, a natural extension of the home enviroment, with a similar architectural grain. However, the decisive phase is in his housing work in the east end of London where the first true cluster-blocks were erected in the Usk Street (Bethnal Green) development, which was designed in 1955.

Though these present nothing like so decisive or authoritative an image as the later scheme at Claredale Street, illustrated on the following pages, they already deploy the essential methods of a true cluster block. Instead of the anonymous and diagrammatic slab or point-block, with its monolithic form existing in isolation from whatever urban grain existed on the site beforehand, the two eight-storey blocks at Usk Street are of a split-butterfly plan that creates ground-level spaces of the same urban grain as the surroundings, and allows the eye to pass through to the townscape beyond, thus visually integrating the space within the cluster assembly with that outside. Furthermore, both the circulation plan and the organization of the facades have the same grain as the surroundings—the block is conceived in terms of maisonettes assembled into units about the size of a semi-detached house—a unit which is expressed on the exterior—and these units are assembled into tall narrow towers, so that there are no long access balconies, but only short ones of garden-path scale.

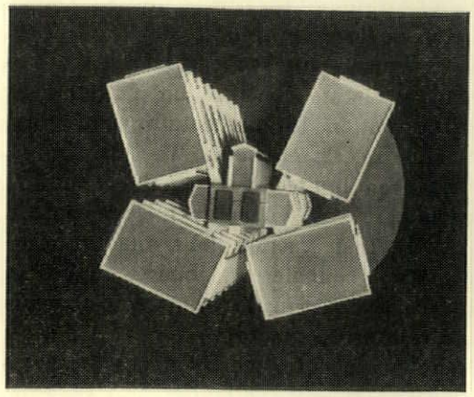
It will be noticed that this approach is the exact antithesis of the streetdeck or public corridor concept enshrined in such buildings as Le Corbusier's various *Unités*, the classic expression of the island slab. This antithesis is given stronger expression in the Claredale Street cluster-block, which is intended to be read as a type of vertical street of stairs, lifts, services and public spaces (which could be shops under a more liberal legal dispensation) flanked by two-storey, two-maisonette units of semi-det scale, whose residential grain is even more forcibly expressed on the exterior than at Usk Street.

In addition, Claredale Street carries the creation of an a-formal cluster image much further. Although the plan is in fact symmetrical—a quality that gives a sense of order and apprehensible logic to the circulation at each access level—there are very few external viewpoints from which it can be read in this sense, since normally only three of the four clustering towers can be seen, and these all present different aspects to the beholder. Thus there is no sense of axiality at war with the highly characteristic urban grain of the terraced housing to the south, nor is there any formal emphasis that might prejudice the freedom of further developments within the same general grain.

In the present climate of opinion on urban renewal, this last point is clearly of some consequence. Now that opinion justifiably runs strongly against the grand and usually diagrammatic concepts that make no sense unless completed in their entirety, but are too expensive to complete any way but piecemeal, alternative methods need to be studied with care. The cluster concept offers a viable alternative on the visual side by creating tower accents without visually destroying the existing grain; on the human side it shows promise in possessing domestic scale in the component parts of these towers and maintaining something like the pre-existing sociological groupings of the streets that gave the original urban grain to the district.

HOUSING, BETHNAL GREEN, LONDON

ARCHITECTS | **DENYS LASDUN AND PARTNERS (architect in charge, John Shaw)**

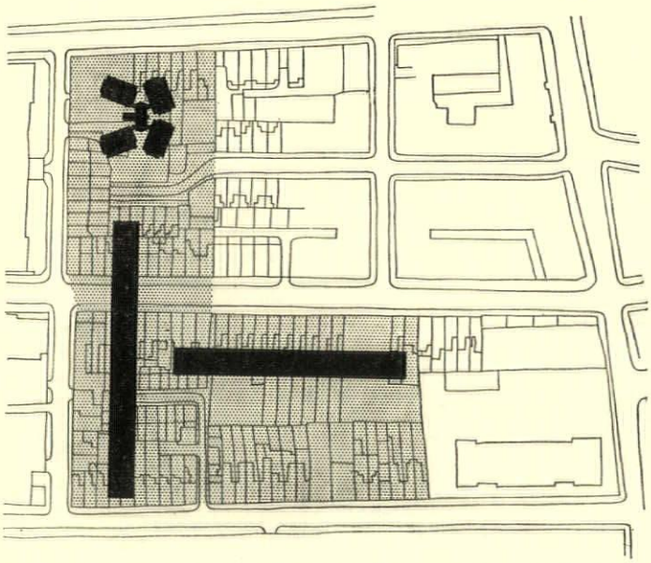


Looking down on the model of the Claredale Street cluster-block, showing the four wings planned asymmetrically round the central staircase, lift and service core.

The only area available for immediate building was in the north-east corner of the site where approximately six small bomb-damaged premises were available for demolition. In order to decant people from the existing houses on the remainder of the site, it was essential to get maximum numbers accommodated in the new cluster block. The scheme was in no way exempt from the normal financial control of local-authority housing. The experimental nature of the cluster block had to be, in a sense, subsidized by the more economical low blocks.

The Claredale Street scheme consists of the 14-storey cluster block and two six-storey blocks at right-angles to one another. Density and accommodation is as follows:—

Total area of site	4.01 acres
Number of dwellings	160
Number of rooms	560

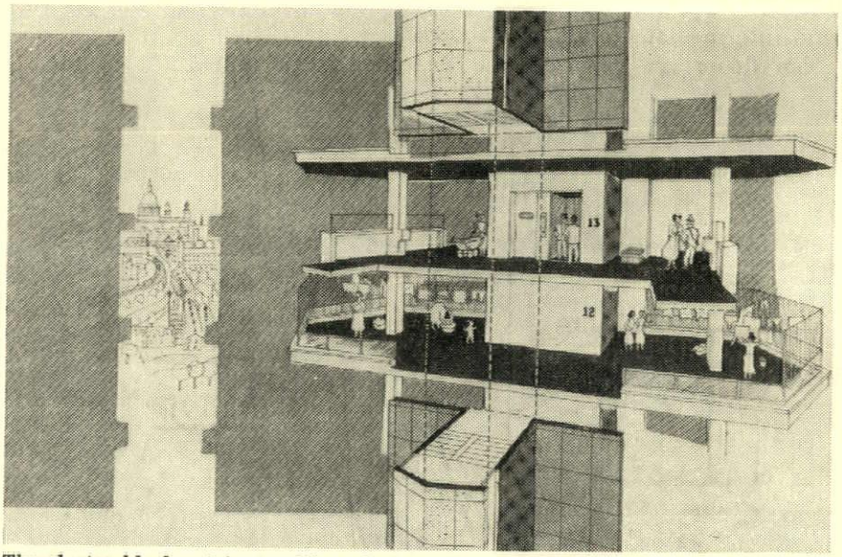


Claredale Street development: layout plan. The cluster-block and the two six-storey blocks are shown superimposed on the traditional East End housing layout that existed before.

Total number of persons (at 3.6 per dwelling) ...		576
Number of dwellings per acre		39.9
Number of persons per acre		154
Cluster 3-room maisonettes	56	(i.e. 14 per tower)
Block Bed-sitting-room flats	8	(i.e. 2 per tower)
Block B1 4-room maisonettes	54	
Block B2 4-bedroom maisonettes	42	
Total	160 dwellings	

Four towers, each containing 14 maisonettes and two bed-sitting-room flats, are clustered round the independent central core and connected to it by bridges in such a way that the sun will reach all habitable rooms, including kitchens, during some part of the day, and that approach can be made to maisonettes from all directions. The ground floor of the four towers accommodates the heating plant, electric transformers and tenants' stores for bicycles, etc. The living-room level of the lower maisonettes being raised above the ground level means that these have privacy and are not overlooked by people entering and leaving the building.

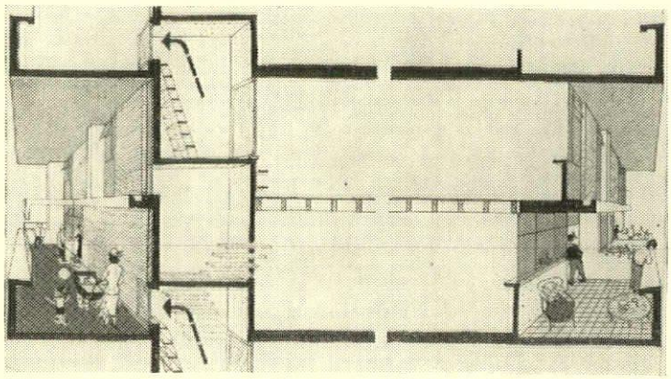
The core, containing the services of the building and the communal amenities—clothes-drying platforms, lifts, stairs and refuse-chutes, which are all noisy elements—



The cluster-block: staircase, lift and service core, showing two floors (comprising together one maisonette unit).

is an independent structure, connected to the towers by bridges. Thus, dwellings themselves remain private and quiet. In fact, 75 per cent of the tenants have direct access to their front door without passing any other dwelling. The access balconies are of minimum length and are in open and protected courts sheltered by the towers. Only entrance halls, WCs and internal stairs and bathrooms face on to access balconies. Such an arrangement allows a variety of dwellings to be planned in the towers; for example, on the fifth floor, eight bed-sitting-room flats have been accommodated. The drying-platforms in the central tower or core are at the level of the bedroom floors of the maisonettes. In this position, disturbance by ear or eye is minimized. The platforms provide the same multiplicity of function as the traditional backyard, and the idea could be further exploited in terms of small 'hanging gardens,' handicrafts space, space for keeping pets, etc., or even for small shops.

Each dwelling has central heating in the living-rooms, with one additional radiator in the hall, which provides a degree of background heating upstairs. Hot water is provided by individual electric water-heaters. A radio and television distribution system is installed in each dwelling. Refuse chutes are only a short distance from front doors and are approached under cover.

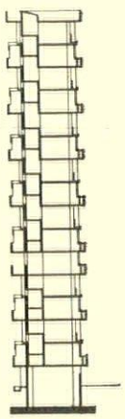


Diagrammatic section through typical maisonette in the cluster-block, showing levels and means of escape; also the two balconies—access on the left, private on the right.

The structure is reinforced concrete, the elements of the towers being one cross-wall, two end gable-walls and intermediate columns to reduce floor spans. Living-room floors are concrete and bedroom floors timber, which reduces weight and economises on foundations. Stability in the towers at right-angles to the concrete walls is achieved by arranging for all towers to act together to resist horizontal forces. The bridge slabs transmit these forces to the stair tower. A pin-joint between towers and bridges permits a limited amount of movement between towers.

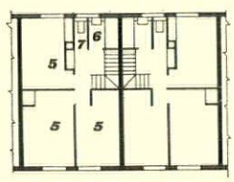
In the main structure, large precast elements have been exploited to accelerate construction, and this has required careful attention to the detailing of joints between in-situ and precast elements. The size of precast elements has been limited by weights capable of being crane-handled. Precast elements include balcony fronts, together with their facing slabs, the cruciform edge beams, front door canopies and beams supporting concrete and timber floors. The lift and stair tower is entirely of in-situ reinforced concrete.

The tower crane was located north of the stair and lift tower. The south-east and south-west and stair and lift towers were first constructed simultaneously. Subsequently, while these were being partitioned and finished, the north-east and north-west towers were constructed. Scaffolding was used only on gable-walls, so that cladding units could be erected before concrete was placed. Brickwork, windows and glazing on external faces of towers, was carried out from movable cradles suspended from the concrete structure itself.

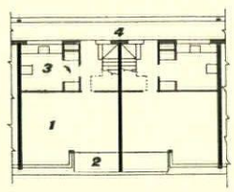


section: residential tower of cluster block

key a,
1. living room
2. balcony
3. kitchen
4. access balcony
5. bedroom
6. bathroom
7. wc

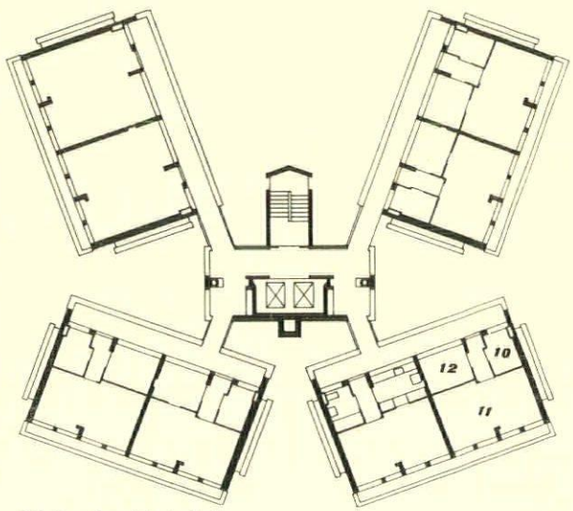


upper maisonette plan: six-storey block

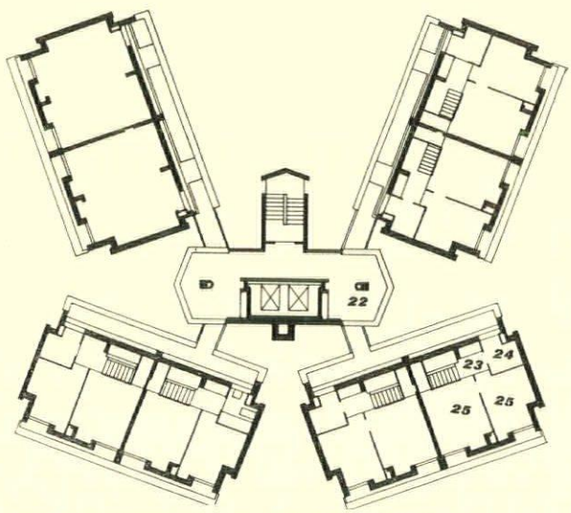


20 0 10

lower maisonette plan: six-storey block

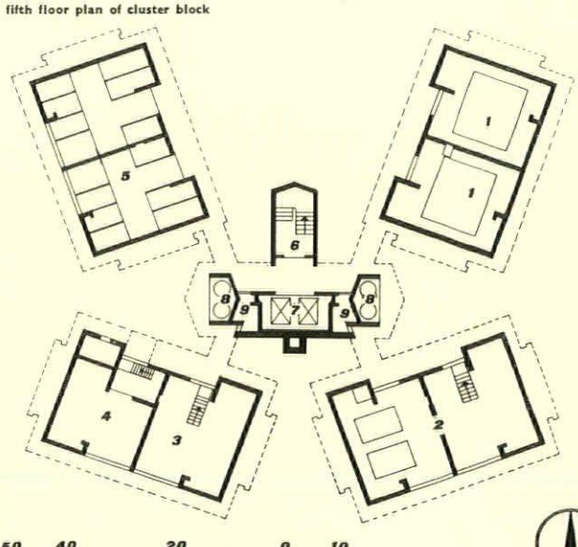


fifth floor plan of cluster block



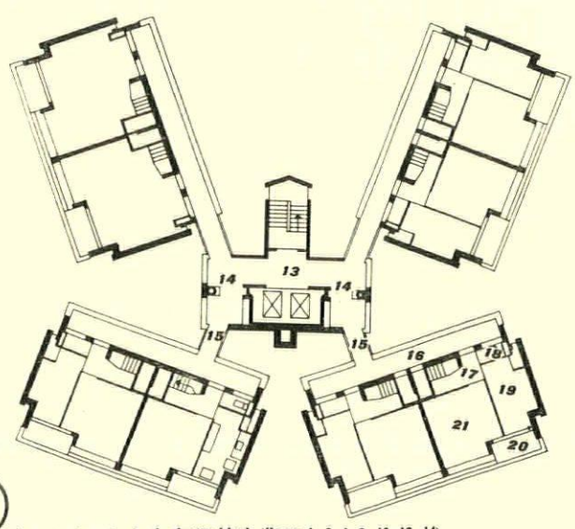
upper maisonette level, cluster block (floors 2, 4, 7, 9, 11, 13, 15)

key b,
1. fuel oil chamber
2. boiler room
3. calorifier and water boost pumps
4. electricity sub-station
5. tenants' storage rooms
6. main stair
7. lifts
8. refuse chamber
9. storage and service risers
10. bath and wc
11. bed-sitting room
12. dining-kitchen
13. waiting space for lifts
14. refuse chutes
15. bridge
16. access balcony
17. hall
18. wc
19. dining-kitchen
20. private balcony
21. living room
22. drying platform
23. landing
24. bathroom
25. bedroom



50 40 20 0 10

ground floor plan of cluster block



lower maisonette level, cluster block (floors 1, 3, 6, 8, 10, 12, 14)

HOUSING, BETHNAL GREEN, LONDON



Left, air view of the Claredale Street area, taken just before the completion of the housing illustrated on these pages. It shows the 14-storey cluster-block and the two 6-storey maisonette blocks (see layout plan on page 305) standing among the traditional small-scale Bethnal Green terrace housing, and illustrates the principles of 'grain' and 'cluster' discussed in the introductory article on page 304.

Below, the Usk Street cluster block, also in Bethnal Green, by the same architect: a prototype of the block illustrated here. It is one of two, both eight storeys high.



In the following sequence of pictures, the Claredale Street housing, Bethnal Green, is illustrated cinema-film fashion from a viewpoint that first shows how the cluster-block establishes the identity of the locality and of the individual dwelling, then moves closer to circle round the base of the block, then looks through, up and around it as well as downwards from its upper stages, and outwards so as again to identify the relationship to its locality.

Identity of locality

The cluster-block is sited so as to hover over the city. By its form it changes the structure of the locality and the mutual relationship between the two will influence future development.
1, a middle-distance view from the south. Note the similarity of grain between the new housing and the old in spite of the change in the over-all size.



1



2

Identity of locality

2, a closer view from the south-east. Note the separate identity of the three towers that are visible.

Identity of dwelling

The environment is made to penetrate visually into the core of the building, establishing an architectural relationship between the new and the old. Limited and recognizable groupings of dwellings assist the tenant to identify his particular home.

3, from the south, looking along Canrobert Street. The buildings in the foreground are of red brick, with painted stone lintols and slate roofs. They are likely to remain for many years. The cluster block is of natural in-situ concrete, with Portland stone facing slabs used as permanent shuttering. Bricks are black, bedded in black mortar. The tenant contributes incidental colour with his curtains. Note the cruciform subdivision of the spaces between balcony fronts, expressing 'semi-detached' maisonettes with their living-room and kitchen balcony on the lower level and two bedrooms on the upper. This is the module of the façade.



3

4 (facing page), from the west, looking between the two 6-storey blocks, whose cornices correspond with the fifth floor of the clus-



4



5

ter-block containing small flats instead of maisonettes, two to each tower.

5, from the north-west. Note the informal relationship of the towers. Within the west aperture can be seen the bridge connections, with glazed windscreens starting at the sixth floor. At this level and above there is alternative means of escape within each dwelling, and the separate heating circuit necessary in high buildings.



6

The base

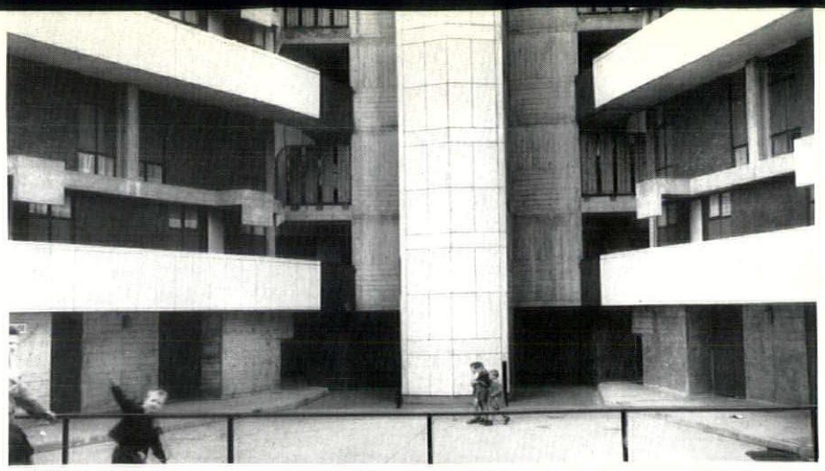
6, looking west at the 6-storey blocks, showing the base of two of the cluster-towers. In the latter, the heating-chamber, fuel storage, bicycle-stores and sub-station are placed below the first balcony. Note the pointed base to the gable wall, indicating an entry through the south aperture to the stair and lift tower. This is the antithesis of the *pilotis* concept, in which people move through a horizontal instead of a vertical aperture. The wide joints in the Portland stone cladding of the gable wall over-ride misalignment of units on large panels; a narrow joint is used on small horizontal cladding units.

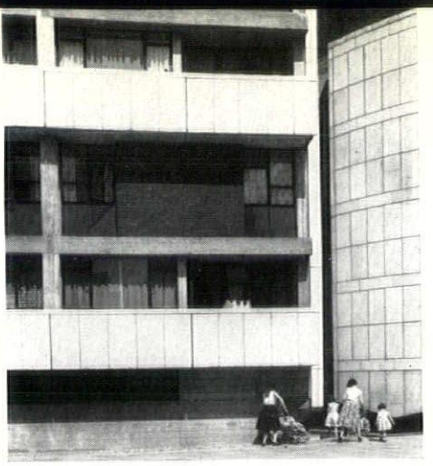


7

7, the south aperture between the south-east and south-west towers.

8, 9





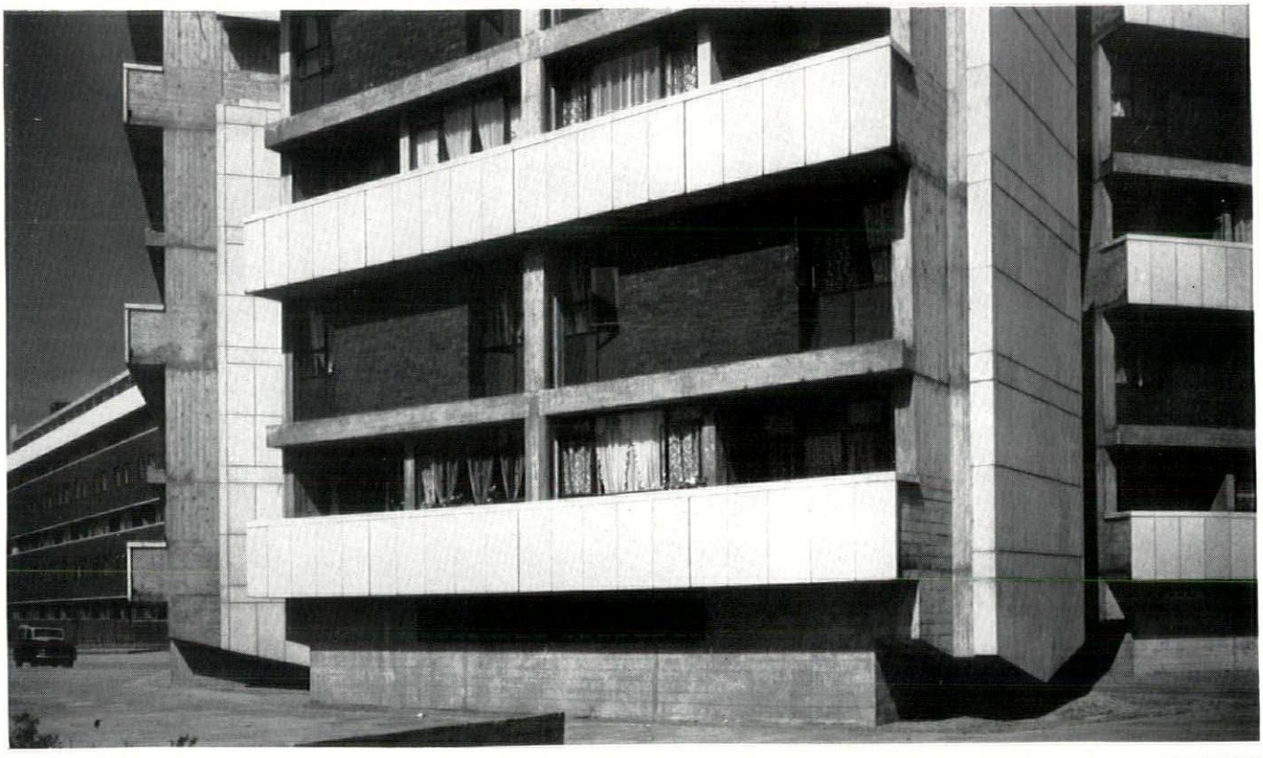
The base

8, the approach from the north, looking towards the lift tower. The canopies over the front doors emphasize the 'semi-detached' character and are precast in one piece with the edge-beam.

9, close-up, looking towards the aperture between two towers. Note the movement of people through the vertical gap; also the privacy of the first balcony, 7ft. off the ground.

10, foot of the south-east tower. This and 9 show the maisonette module, consisting of half the cruciform sub-division. Balcony-front units consist of five precast Portland stone panels with wide joint between. The heavy overhangs prevent vertical views and vertigo from all windows, and give protection from rain and wind at higher levels. Similarly with the deep recession of the private balconies.

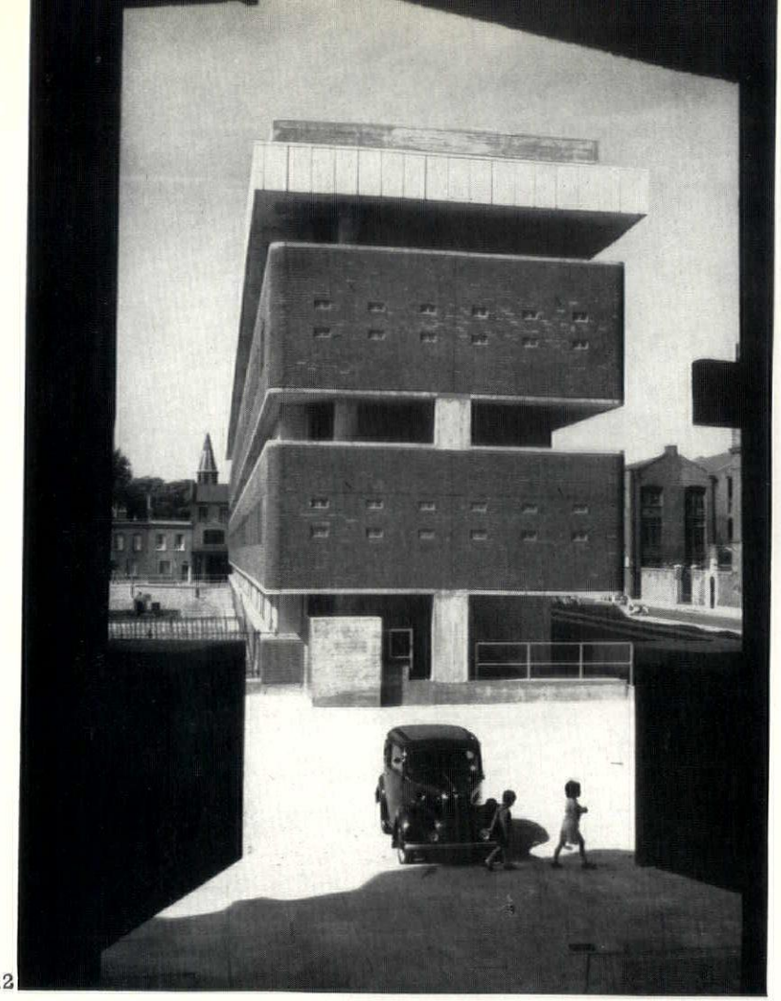
11, foot of one of the towers. The texture of the in-situ walls is obtained by using panels of 6in. sawn boarding as shuttering. Granite



10



11



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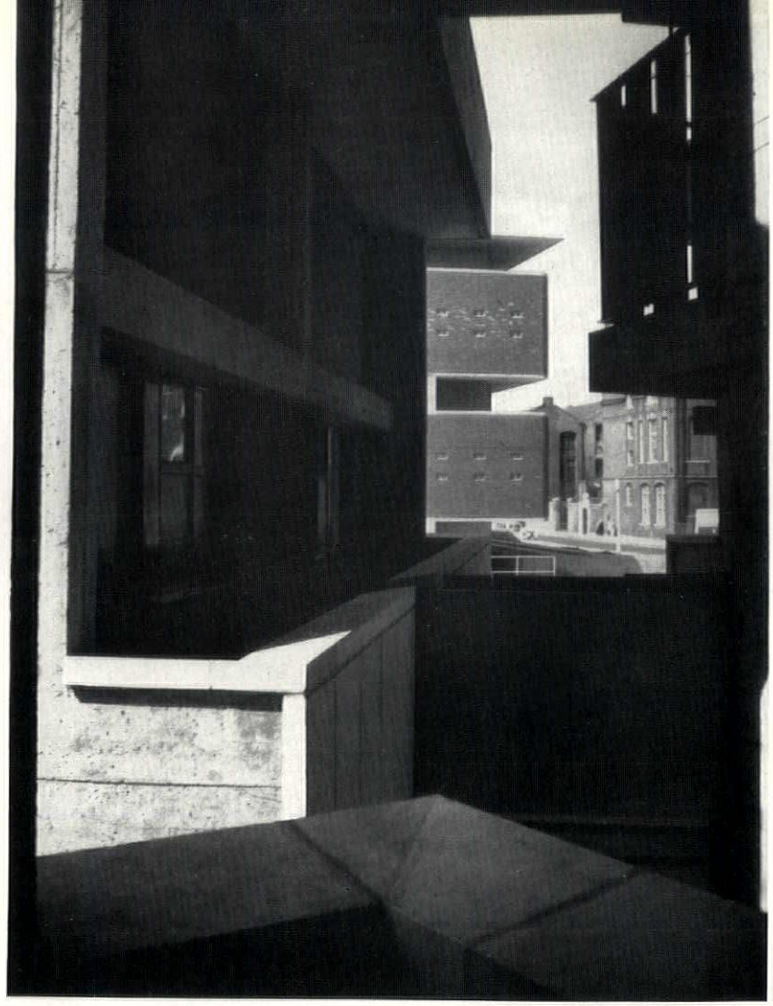


13

setts form a catchment area at the base of the gable walls so that storm water is collected at these points on all towers.

Looking through . . .

12, looking from the west aperture to the end of the 6-storey block, containing staircase and refuse chute. Note the closely framed views which allow the immediate locality to be apprehended from within the cluster-block.

13, the south-west tower, showing the bridge connection to the central tower and the drying platform at an upper level.

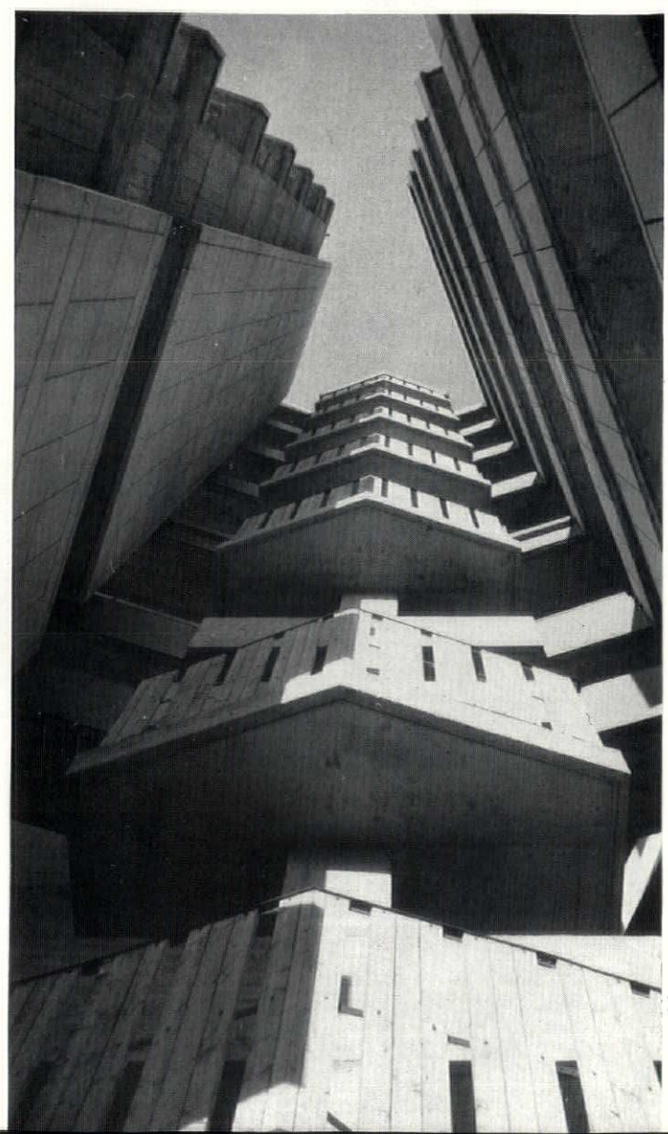
. . . and up

14, looking upwards past the access balconies. Larder vents form a slot between the gable cladding and the end wall.

15, drying platforms are fronted with timber screens to break up views of washing without impeding air circulation.



14

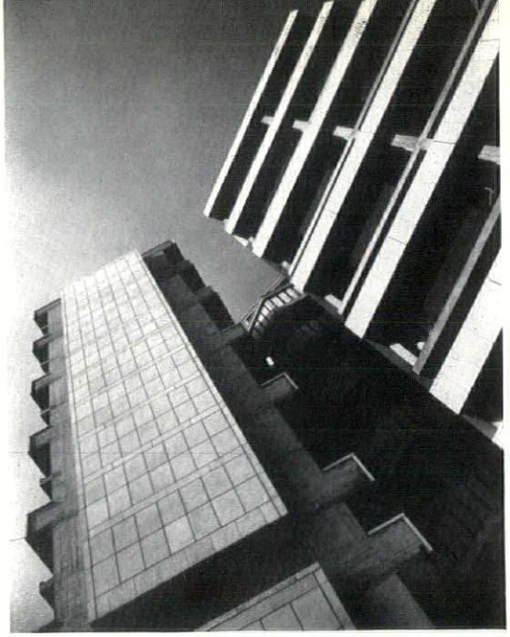


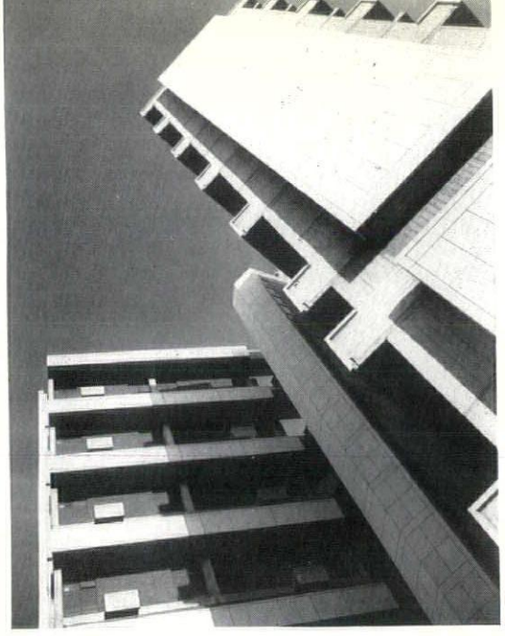
15

Looking up . . .

16, the south-east and north-east towers, enclosing the drying platforms.

17, the north-east stair enclosed between two towers, which restrict views from the main stair windows. These two photographs illustrate the crusty profiling, soffits, etc., which invite weathering. The block exemplifies the antithesis of the glossy, smooth-fronted type of building.



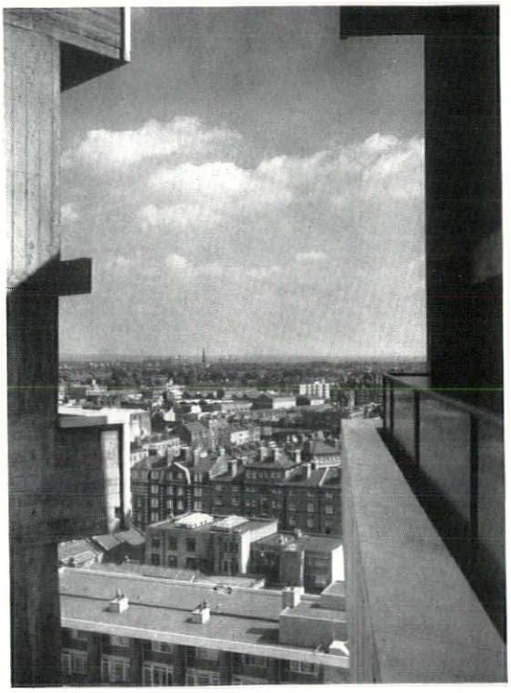


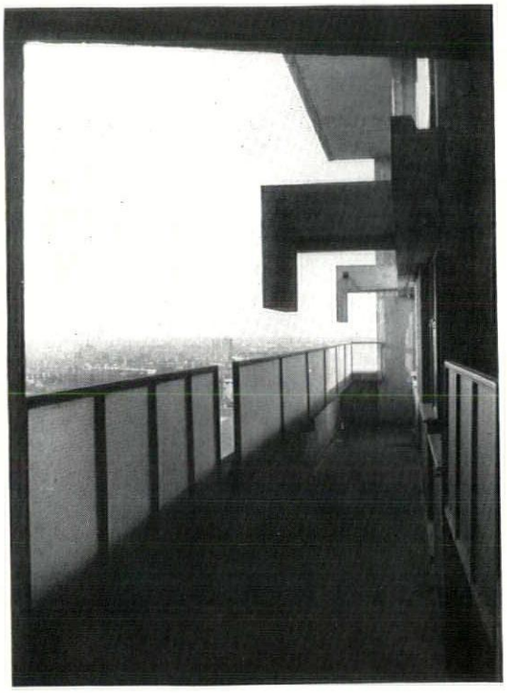
16, 17

. . . and out . . .

18, from a lift landing, looking out through the west aperture. Environment is experienced within the cluster-block since the view can be seen by everyone moving up and around the building. The wide coping to all access balconies gives a sense of security. This is reinforced at the sixth floor and above by glazed wind screens, as shown on the right.

19, looking along an upper access balcony, showing the sense of enclosure provided by the door canopies and the wind screen. The scale and character of these ' semi-detached ' maisonettes are similar to those of the traditional terraced houses of Bethnal Green, and are correspondingly familiar to the occupants in spite of the height. Openings in the wind screen admit limited views.



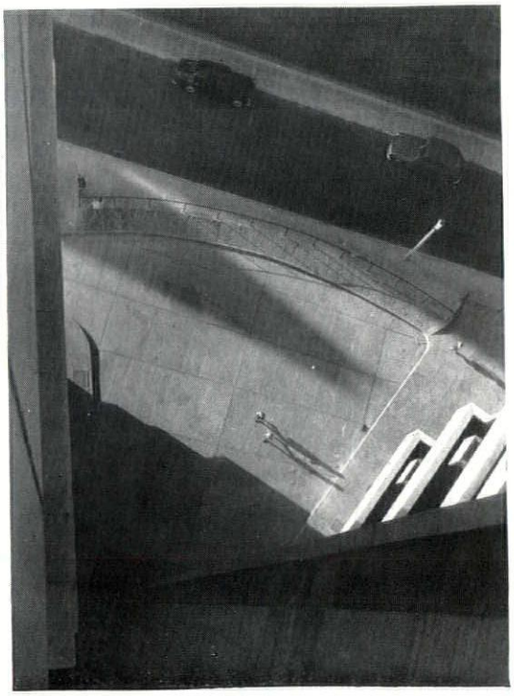


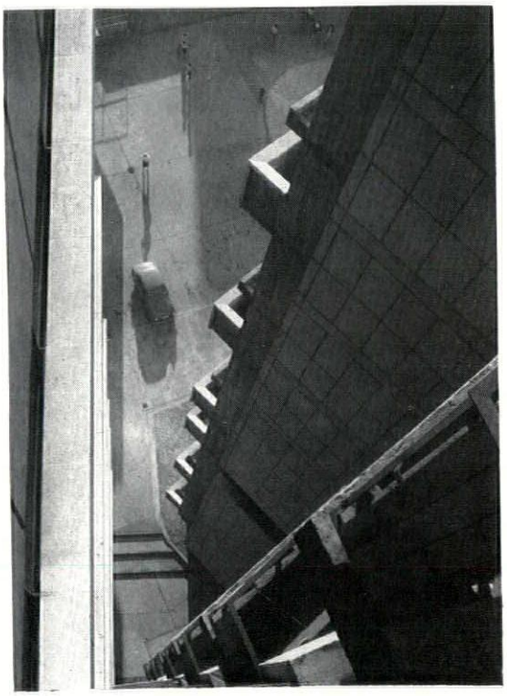
18, 19

. . and down

20, the floorscape looking down. The service area, with banked granite setts to street level, allows access for removal vans, refuse trucks, oil tankers and fire engines.

21, again looking down; this time from the bridge, with drying balconies in the right foreground. The three steps leading down to the central stair and lift tower discourage cyclists. Note the projection and profile of the cruciform beams (between the balconies on the north-east tower) with a gutter for storm water and snow.





20, 21

Jurgen Joedicke

HAERING AT GARKAU

Though his farm buildings at Gut Garkau have become too much of a legend for their designer to be described as a 'forgotten man' of the modern movement, Hugo Haering is certainly one of those figures from the Zone of Silence *(to quote Reyner Banham's term from this month's* 1960 *article) about whom fresh information is particularly welcome. Dr. Joedicke, whose* History of Modern Architecture *has recently been published in Britain, offers here the first study of Garkau and its creator to appear in English (translated by Gerhard Rosenberg), accompanied by photographs that bring out the startling similarities between Haering's use of materials, and that of the Brutalist connection today.*

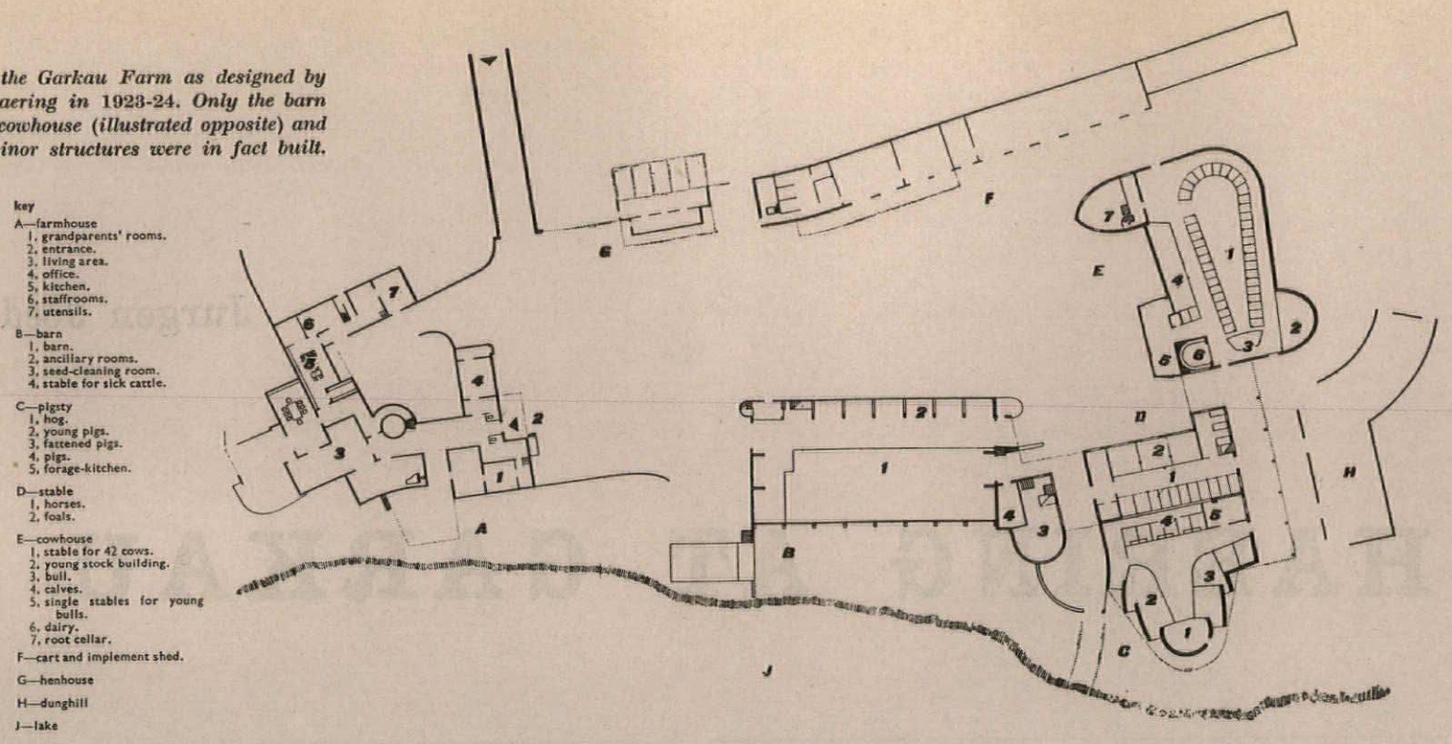
In northern Germany, among the hills of Schleswig-Holstein, the road from Luebeck to Neustadt leads past Garkau farm whose buildings Hugo Haering designed in 1923–24. The memorable curved plan of these buildings is for many the only thing by which they remember—and vaguely at that—the activity of a man who was among the most significant contributors to modern architectural theory. As an architect one may well compare him in importance to Frank Lloyd Wright and Alvar Aalto. Hugo Haering's theory of 'organic architecture' contains a body of thoughts which are vital for our time. Haering, in the 'twenties, although he was diametrically opposed to Le Corbusier, anticipated in his thoughts and designs certain trends which are valid to this day. He interpreted the notion of 'function' in a new manner, and refuted any kind of predetermination of architectural form.

Hugo Haering was born in 1882 in Biberach, a worthy little town in Upper Swabia. He was of an age with Walter Gropius and Theo van Doesburg. He studied under Theodor Fischer in Stuttgart, among whose students was Erich Mendelsohn. Later Haering worked in Dresden, in Hamburg and in Allenstein, where service during the first World War interrupted his work. He started in practice in Berlin in 1921–22. He shared an office with Mies van der Rohe, so that these two very different men worked in close proximity. In the exhibitions of the 'November Group,' a revolutionary circle of young architects, both Haering and Mies showed designs.

In 1924 a 'Circle of Ten' was formed to oppose the reactionary tendencies of the then City Architect of Berlin, Ludwig Hoffmann. Later this circle was widened into an association of architects called 'The Ring.' It included some of the best architects, such as Mies, Gropius, Hilberseimer, Ernst May, Bruno and Max Taut, Wassili and Hans Luckhardt, Peter Behrens, Heinrich Tessenow, Hans Poeltzig, Richard Doecker, Otto Haesler, Otto Bartning, Hans Scharoun and Heinrich Lauterbach. Haering was the secretary and leading brain of the association. The names of the members are sufficient indication of the strongly divergent opinions, and while there was mutal tolerance and forbearing, there could be no unified policy. The only common ground between these men was the search for a new way and the fight against retrogressive movements.

Because opinions differed so widely as to what this new way in architecture should be, it is not possible to speak of a 'Berlin School' as one can speak of a 'Chicago School.' The Ring was dissolved in 1933 and

Plan of the Garkau Farm as designed by Hugo Haering in 1923-24. Only the barn and the cowhouse (illustrated opposite) and a few minor structures were in fact built.



Gropius, Mendelsohn and Mies van der Rohe emigrated, but Haering stayed in Germany. He was at the head of a private art school and led a withdrawn sort of life because he was in political disfavour. In 1943 he returned to his native town of Biberach, where he died on May 17, 1958, after a long illness.

These few dates describe the outline of the life of a man who retired more and more into the seclusion of his own thoughts. He made this withdrawal into himself after the turbulent years between 1922 and 1933, first by force of political circumstances, but later from his own choice. In the last years of his life Haering found time to methodically interpret his earlier intuitive thoughts and to integrate his architectural theory into his wider world concept.

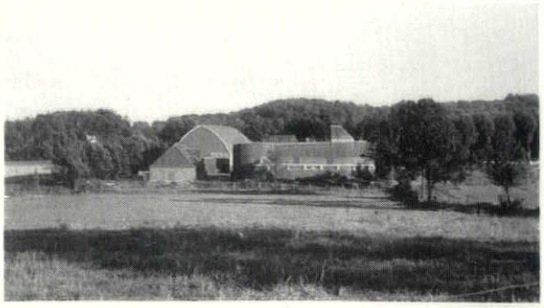
A discussion of Haering may appropriately start with a description of the Garkau farm, 1, whose buildings are still generally known. What is the significance of these agricultural buildings and how do they differ from others? In what way do they proclaim a new architectural approach? One comes closer to an answer to these questions if one investigates how the architectural form has been related to the structure of the buildings. Is the striking architectural form an artistic play with shapes without relation to the plan, or does it grow from inside, from space requirements, plan and construction?

The plan above shows the whole scheme as Haering designed it, but only the cowhouse, barn and cart and implement sheds were built. The cowhouse, 3-8, is the most interesting. Haering was bent on finding an optimal solution for this, both for the stalling of the animals and for the relationship between stalls and fodder containers. He found that the best way of arranging the cow stalls was to group them around a raised oval feed passage (see his own sketch, reproduced on page 317). Above the cowhouse there is a hay loft, so that fodder can be thrown through an opening in the ceiling straight into the feed passage. The ceiling of the cowhouse slopes outwards and upwards, which makes it easier to push the hay towards the trap-doors in the hay-loft; it also helps the ventilation of the cowhouse by guiding warm foul air from the cow stalls to the outer walls, where shuttered horizontal ventilating openings remove it from the building. These can be clearly seen as continuous bands between windows and their flat supporting arches. Ventilators, long low windows and white flat arches above them are intended to produce a broad horizontality of character to the building. The form of the building follows in the main its internal structure.

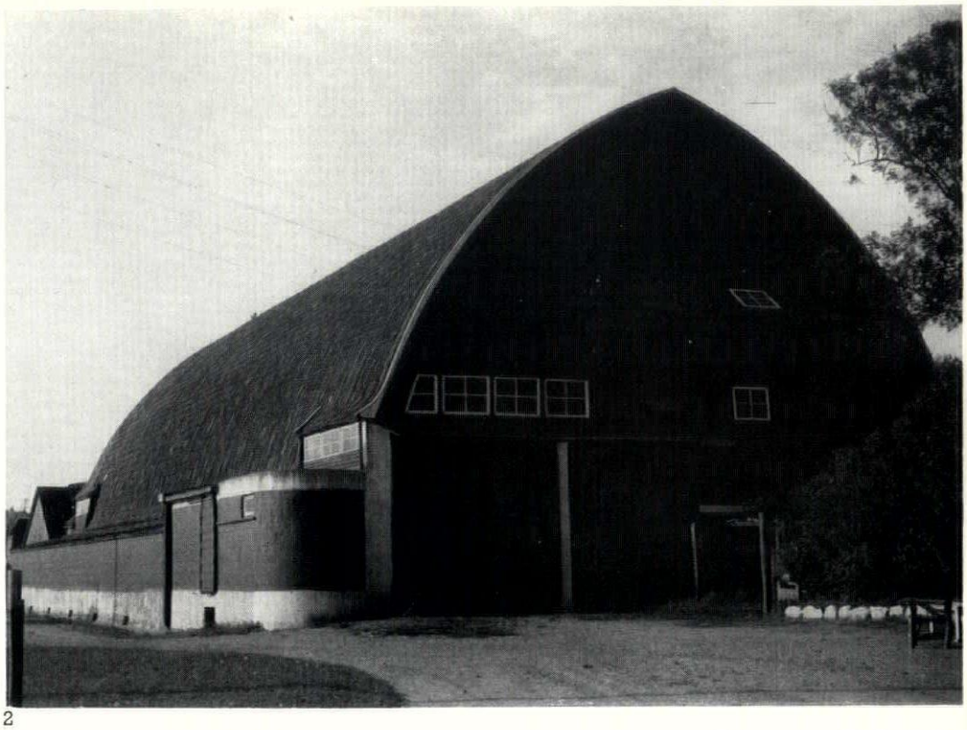
Related to the side of the cowhouse there is a semi-circular young-stock building. No doubt the semi-circular plan-form is necessary as an architectural response to the larger building, but one can also say that it results logically from its function. It is a matter of experience that rectangular stalls are not good for young cattle, because of their tendency to get into a fight and get 'cast' in the corners. A circular form makes it possible for them to extricate themselves in the wider parts of the stalls. Besides 42 head of cattle, the buildings can house 23 calves and young stock; all looked after by one man, because working conditions are so easy. Diagonally across from the young-stock building there is a root cellar, curved in plan with an acute angle, and above it a tower silo for chaff. The two are shown together in 4. The acute angle of the root store has no explainable functional reason and may be Haering's concession to current trends at the time.

In giving credit for Haering's efficiency and completely new approach to his problem, we must remember the part played by the client. Otto Birtner had bought the farm in 1920 when it was in a fairly dilapidated condition, and he pushed the reconstruction forward with great energy. He meant to incorporate all the latest improvements, particularly from the USA, and he found in Haering an architect after his own heart. Their success was so great that

[*continued on page* 317



1 (*above*), *the Garkau farm in its verdant setting. The low building seen in front of the cow-house on the right is a later addition.* 2, *the barn from the direction of the proposed dwelling-house* (*see plan on facing page*). 3 *and* 4, *the cow-house, the most characteristic of Haering's 'organic' style. In* 3 *the semi-circular young-stock building is on the left.* 4 *shows the root-cellar with silo-tower above. The low building abutting on to the former, at the right-hand edge of the picture, is again the later addition.*



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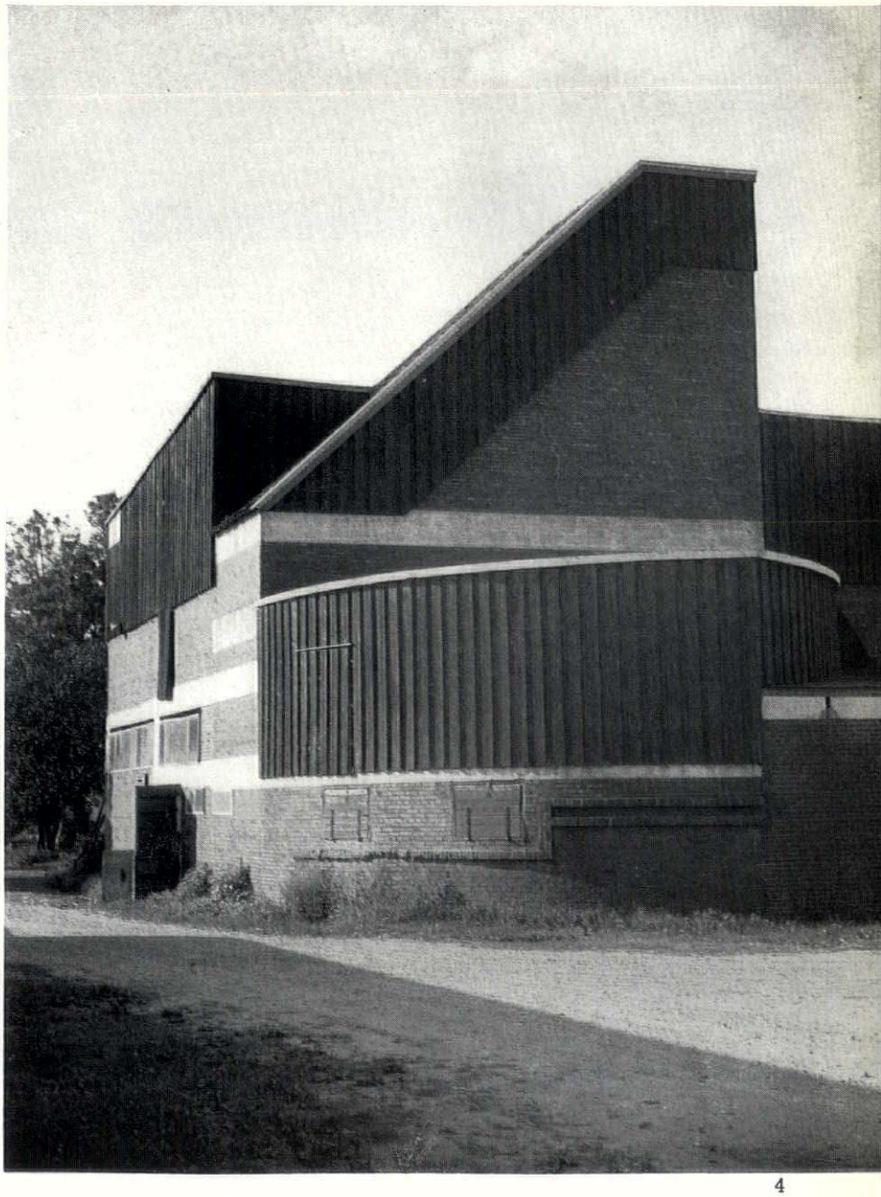

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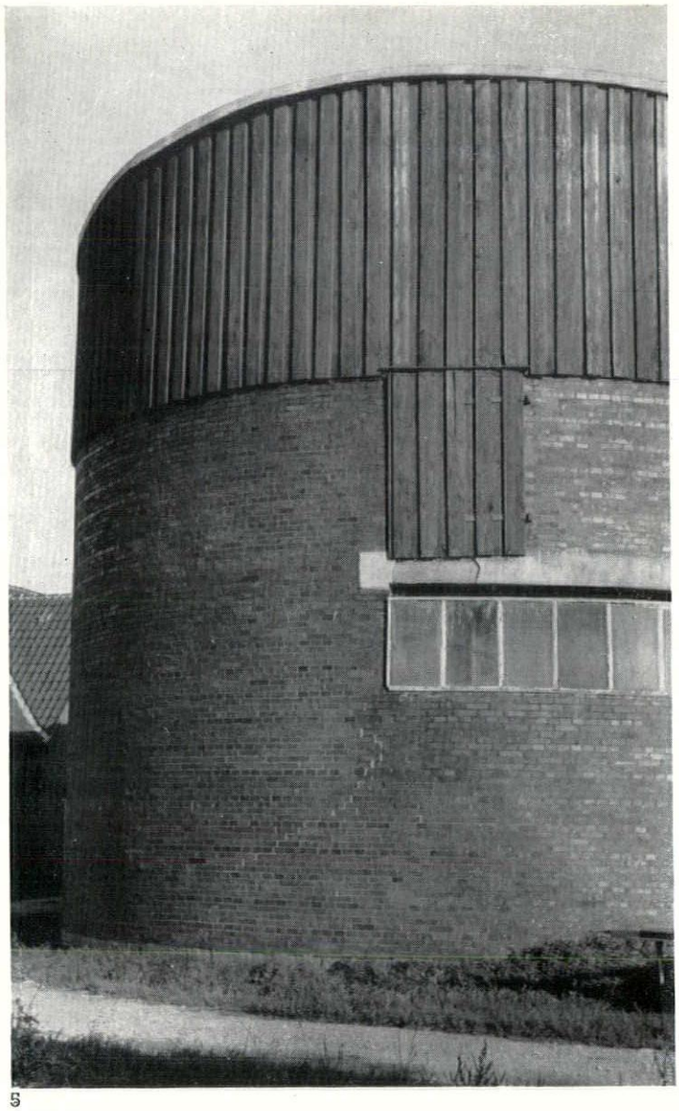

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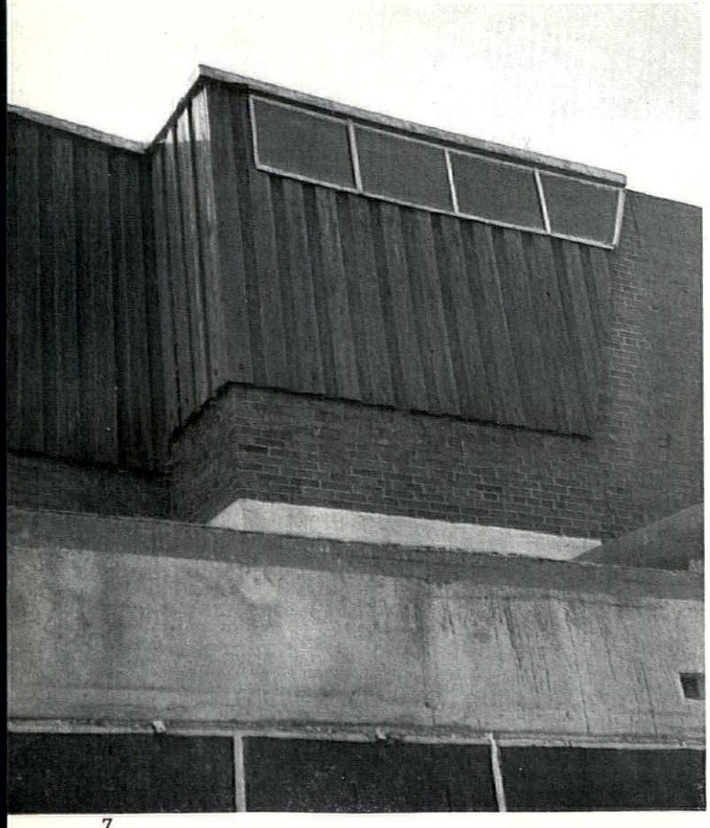

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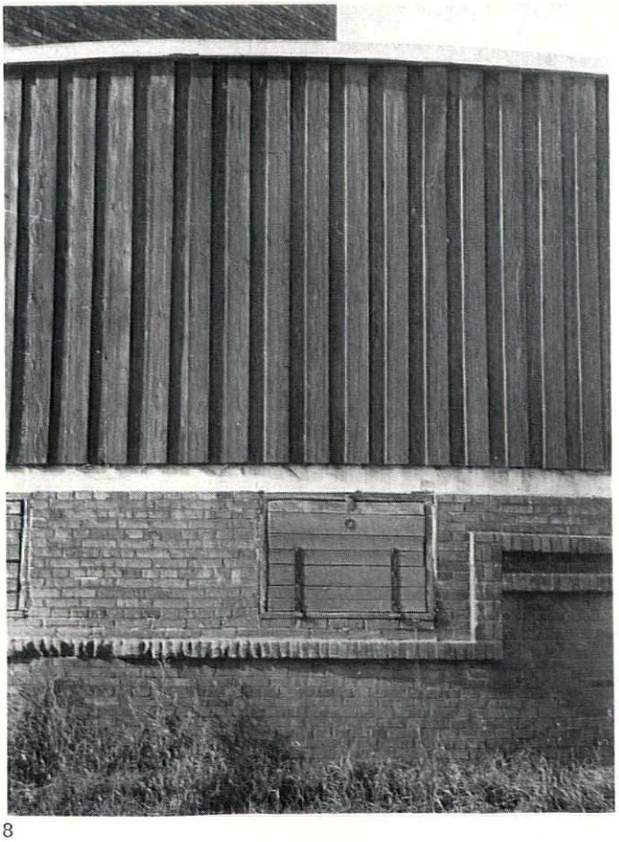
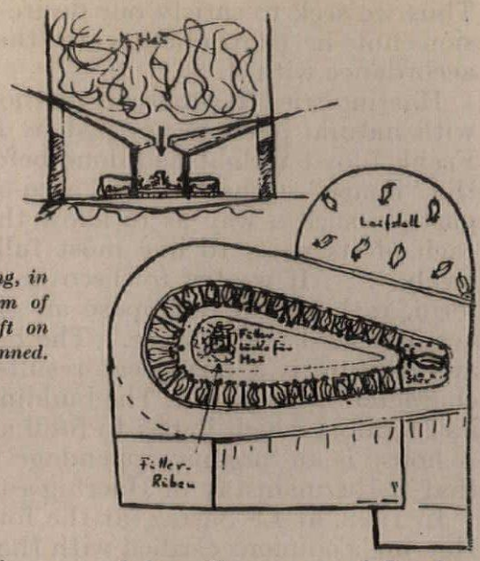


8

Four close-ups of the cow-house at the Garkau farm, showing typical Haering detailing: 5, the semi-circular young-stock building; 6, the entrance at the end facing the implement-shed (see plan on page 314); 7, the upper part at the far side—with later addition at foot of picture (this was built as a stable since the separate stable building designed by Haering was not built); 8, wall of root-cellar—see also 4 on preceding page.



Haering's own sketch showing, in section and plan, the system of distributing hay from a loft on which the cowhouse is planned.

continued from page 314]

even now, thirty-six years later, German and foreign farmers send delegations to study these buildings. But while there is no doubt about the functional origin of the architectural forms used, materials and architectural character are also in sympathy with the landscape. Local tradition decided the choice of materials; a dark red vitrified brick as in the old farmsteads of Schleswig Holstein, and some painted wood for parts of the external walls. In addition to these traditional materials there is white painted fair faced concrete. The buildings are still in very good order. Haering's command of architectural detail prevented the deterioration which so often mars buildings of the ' twenties when looked at today.

The big barn, 2, is built at right-angles to the cowhouse. Its form is completely related to its function. It consists of a high hangar with a low addition along one side, which contains all the ancillary rooms. The construction is particularly interesting. Haering wanted to eliminate all structural members that might obstruct the use of the storage space—such as tie-beams, struts and king posts. As only timber could be used, Haering chose a timber construction which used planks in a form known as the 'Zollinger' roof.[1] This is erected on a reinforced concrete base and consists of planks of about 10 feet length which intersect at an acute angle and are nailed at intersections. The cross-section of the whole roof has the shape of a pointed arch and follows the line of pressure, thus reducing internal stresses to a minimum area. There is no doubt that this particular roof form also showed certain 'expressionistic' tendencies which were popular at the time, but it is typical of Haering's method of working that every architectural form was fundamentally related to the function of the building.

Other architects may have used similar methods, but there are essential differences even where their work seems to have similar aims. Michel de Klerk, the leading architect of Wendingen, designed interesting sculptural forms but they do not arise from within; they are rather an external application. No doubt Haering knew de Klerk's buildings, but there is no evidence of his having been influenced by de Klerk. Haering's aim is not confined to the interpretation of function, but at giving formal expression to the essential character of any building that he is required to design. First it is a matter of the intellectual analysis of the programme. Therefrom results the functional choice of plan and of the type of construction; from the latter the architectural form results. We shall discuss later how such an 'analysis' is carried out.

There are certain similarities between Haering and A. Eibink, who tried to establish the peculiar architectural forms of reinforced concrete. But Haering delved more deeply than Eibink. It is not a matter of form expressing structure, but of finding a form that expresses the efficient fulfilment of its function—'Materials serve in this task—they are not in command nor are they even autonomous.'[2] Between Haering and Erich Mendelsohn there is a closer relationship, if only because they worked at the same time and in the same city. Both were members of the 'Ring,' both worked in the stimulating atmosphere of the Berlin of the 'twenties, and Mendelsohn's architectural forms are more strongly related to function than those of de Klerk. The horizontal emphasis which is produced by continuous bands of windows in his department stores is sensible because it allows for shelves along external walls. Haering differs from Mendelsohn mainly in matters of temperament. He is a careful worker, quite averse to any superficial artistic glamour. Mendelsohn's explosive manner, by contrast, often finds an excess of sculptural form irresistible.

At the time when the farm was built at Garkau, Le Corbusier designed the villa La Roche-Jeanneret. It seems that there could not be two more dissimilar designs. Yet Haering himself has pointed out that there are common features between his and Le Corbusier's work. He explains that the renewal of architecture would have to take place in two stages. The first stage would have to deal with an exploration of the changed requirements of the time and would aim at functional efficiency. Haering uses the word *Organwerk*, 'the task of developing the architectural organism.' The second stage deals with the *Gestaltwerk*, the task of finding an adequate architectural expression or image. Le Corbusier determines the architectural form of functional efficiency by geometrical means. If we talk hereafter of geometrical means we refer only to those geometrical elements which Le Corbusier calls 'pure'; i.e. the cube, the tetrahedron, the cone, the cylinder and the pyramid. Haering, however, looks for architectural forms which arise from the function itself. Only at the threshold of the second stage, the *Gestaltwerk*, the formulation of the architectural image, do the ways of Haering and Le Corbusier diverge.

'Because for me the advance began with the reorganization of the broad basis of architecture according to the new requirements of a highly technical age and a new desire for more light and air, the "new way of building," (that is Haering's term for his approach to architecture), ran alongside that of Le Corbusier. However, our ways diverged more and more. It became evident how important was the second stage of architectural designing, the imaginative stage. When Le Corbusier says that architectural form should be based on geometry he introduces an

[1] Now known as the Lamella roof.—Editors.

[2] From a letter from Haering to Heinrich Lauterbach, dated January 13, 1950.

external point of view. He does not evolve his designs from within. . . .'[3]

Haering also writes: 'Le Corbusier uses reinforced concrete. But he does not give expression to the organic forces at work in reinforced concrete. He only makes use of it in order to produce the pure forms of geometry. . . . Since Le Corbusier is interested in pure forms only, he is not concerned in establishing a primary relationship with his material, which remains merely a means to the end of geometric form.'[4] And elsewhere: 'Geometrical forms are not basic. Geometrical theorems are derived and abstract laws. A unity which is spread over a multitude of elements by means of geometric forms is merely formal and not organic. We, however, want organic unity, a unity with life. A polished metal sphere is certainly a thrilling concept for the intellect, but a flower is a living experience. . . . It may so happen that the image of a thing coincides with a geometrical form—as in a crystal—but the geometrical pattern is never, in nature, the origin of the image.'[5] A basic maxim of Haering's thought and work is that the architectural image can only be discovered through a study of function. 'We want to examine things and allow them to discover their own images. It goes against the grain with us to bestow a form on them from the outside, or to impose some abstract modulor upon them. . . .'[5]

Haering distinguishes two principles in past and present architecture: one principle creates forms or images in order to produce an artistic effect, the other looks for the efficient solution of a task. The two may be opposed to each other, because expressive and efficient architectural forms do not always agree. But Haering does not find the two principles contradictory so much as consecutive in historical sequence. In a wider sense, Haering considers—with Goethe—that the development of mankind is an educational process in which certain epochs and certain nations play each their allotted tasks. Thus, Haering speaks of a 'pre-geometrical era,' when houses, tools, utensils and weapons were designed so precisely for their function that they have had little need to change up to this day. 'The design of these things resulted from meeting functional requirements, they had to be useful for a specific purpose. Thus they had the character of organic creations.'[6] Haering contrasts these anonymous creations with those works of architecture which from the very beginning used geometrical forms. They governed the architecture of Egypt, Greece and Rome; they were also found in the Middle Ages and remain at the present time. However he discovers in Gothic and Baroque architecture certain trends which may be considered the precursors of a new era. There has been a discrepancy between the demands of function and expression in architecture. It became possible to resolve this discrepancy when 'we discovered in our own time, that many objects which had been modelled only for specific functions, were the more acceptable to us in their form the more purposeful they appeared to be, and that their functional design seemed to us to reflect a new spirituality. . . . Thus we seek to satisfy our desire for artistic expression not in contradiction to the function but in accordance with it.'[5]

Haering tries to prove his method by a comparison with natural phenomena, just as Louis Sullivan and Frank Lloyd Wright had done before him. 'In nature the "image" is the result of a co-ordination of many parts in such a way as to allow the whole as well as each of its parts to live most fully and most effectively. . . . If we try to discover the "true organic" form, rather than to impose an extraneous form we act in accord with nature.'[5] The hall mark of organic architecture is a form that results from the specific character of the object. The building owes its shape to its function, which it has to fulfil as a 'human organ.' A house is an 'organic appendage' of its inhabitants; that is the mainstay of Haering's thoughts.

In 1928, at La Sarraz, at the foundation of CIAM, Haering's opinions clashed with those of Le Corbusier. Le Corbusier demanded a 'modern architecture,' Haering a 'new way of building.' Le Corbusier demanded a return to pure geometry, Haering tried to win the congress over to 'organic architecture.' Le Corbusier won through, and his ideas dominated the architectural development of the following years. In retrospect this development seems necessary and justified. To accept Haering's ideas at that time would have led to confusion rather than to clarity. It was necessary to accept the discipline of simple geometric forms in order to overcome the knick-knack ornamentation of the immediate past. The meaningful, easily understood theories of Le Corbusier were helpful to many architects. With the advent of Alvar Aalto the second stage of modern architecture began; then some of Haering's ideas took on a new lease of life—although he was unknown to most of the men who used them. These ideas were: the refusal to determine architectural form merely from geometrical principles, and the use of natural materials such as timber and masonry, as well as of artificial materials such as reinforced concrete, according to the demands of each scheme and with regard to regional influences.

Haering denied that the geometric principle was an alternative to the organic principle. 'The essential nature of a project leads to a decision of what kind of image should express the individual building.'[6] He brings the discussion of architectural form back to the point where a promising solution can be undertaken: the clarification of the conditions which are the basis of architectural form. Therein lies Haering's great significance for our time; because it is happening again in this day and age that problems of architectural expression are being treated in an abstract manner, remote from any consideration of internal space, function or construction. From such an attitude the step towards formalism and even eclecticism is short. Already we find indications of such trends in Edward D. Stone's work, and even in Minoru Yamasaki's.[7]

Haering's ideas are a constant reminder that any formal differentiation or enrichment is genuine only if it is related to the essential nature of the architectural problem.

[3] From a paper 'The New Manner of Building' given at the Technical University at Berlin, February 27, 1952.

[4] 'Geometry and Organic Design,' *Baukunst und Werkform*, 1951/59.

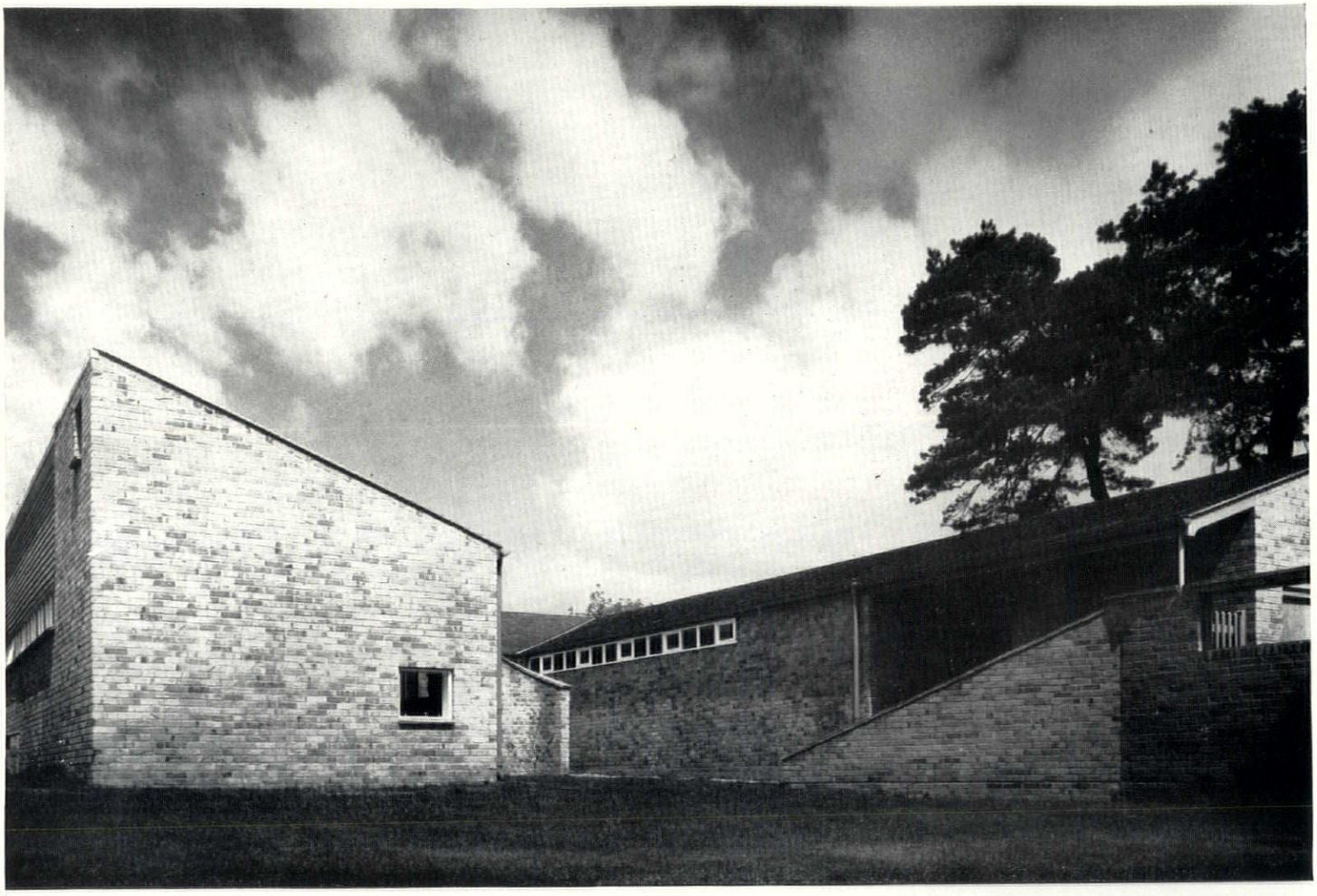
[5] 'Approaches to Architectural Form,' *Die Form*, 1925/1.

[6] 'Geometry and Organic Design,' op. cit.

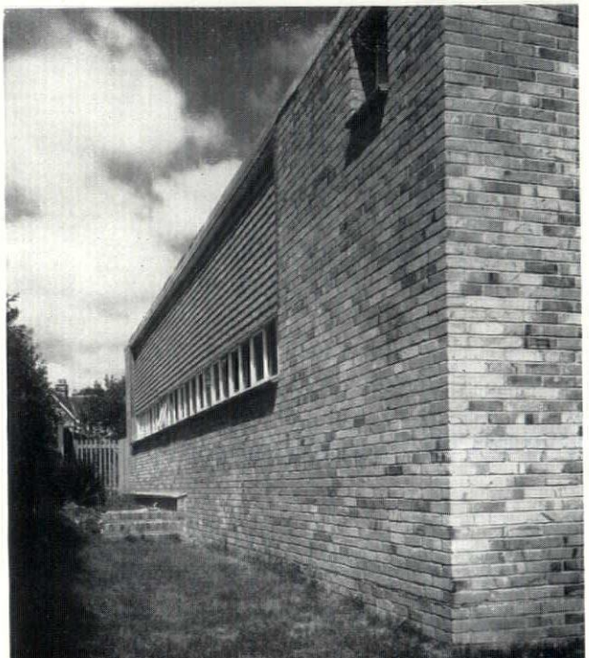
[7] See Prof. Jordy's article: 'The Formal Image, USA,' AR, March, 1960.

HOUSE AT ARKLEY, HERTFORDSHIRE

ARCHITECT | **JOHN VOELCKER**

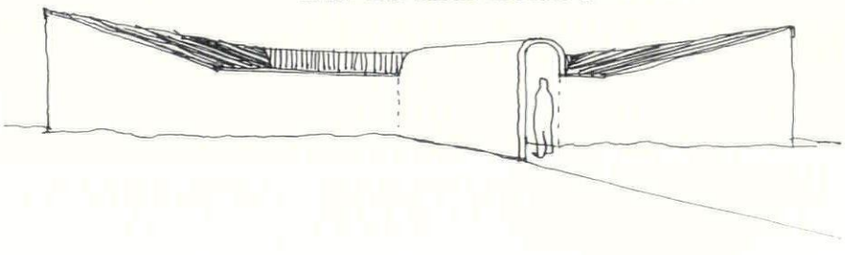


1



2

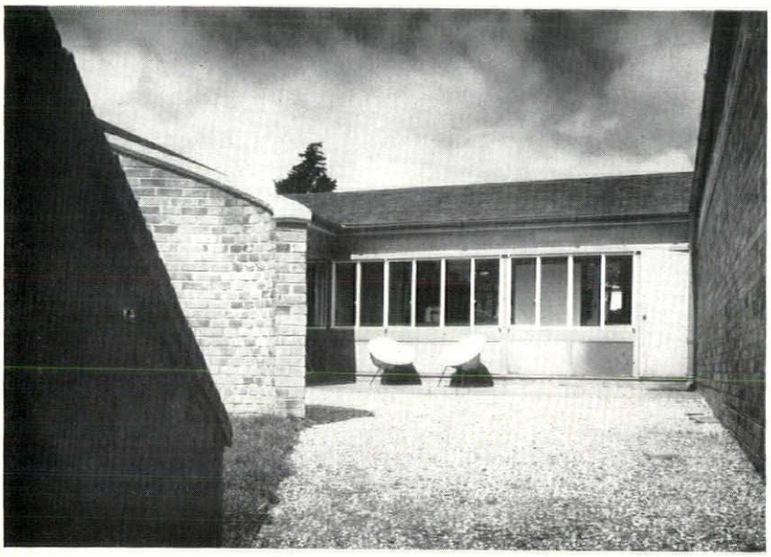
1, the house as seen from the lawn on the south side. The approach is between the screen-wall on the right and the garage beyond it, and both the front and service entrances are within the courtyard enclosed by the two wings of the building. The small window in the gable wall lights the music-studio of the owner, Mr. Humphrey Lyttleton. The studio also has larger windows facing east.
2, looking along the west side, with the high-level sitting-room windows.
Below, the architect's first sketch for a one-storey house with this inward-facing character.



HOUSE AT ARKLEY, HERTFORDSHIRE



3

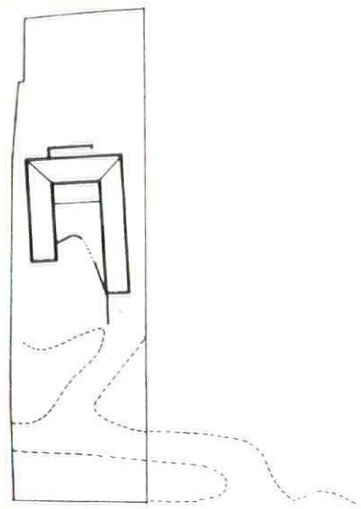


4



5

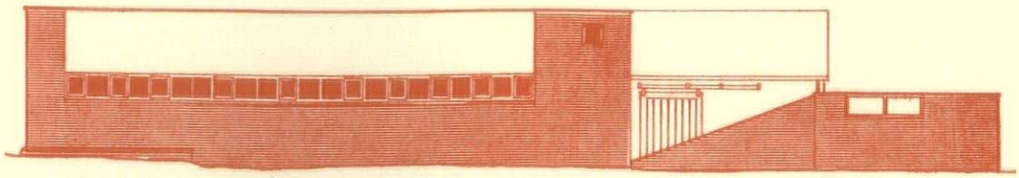
The house is planned round a semi-enclosed courtyard, designed to give privacy in spite of the narrow plot (see site-plan on this page).
3, the open side of the courtyard from the lawn in front. It is approached from the far side of the sloping brick wall.
4, looking into the courtyard from the end of the screen-wall. Also on the left is the curving wall that partly closes the open side of the courtyard.
5, the courtyard, with the same curving wall on the left. The front door is recessed in the corner. The windows to the right of it light the connecting passage between the living and bedroom wings, which passes through the playroom and is partly open to the kitchen.



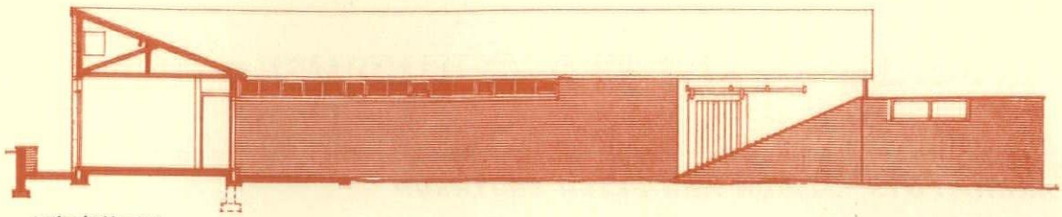
site plan

6, photomural in the entrance-hall by John McHale. The door with *trompe-l'oeil* pilasters and entablature is that of the lavatory.





west elevation

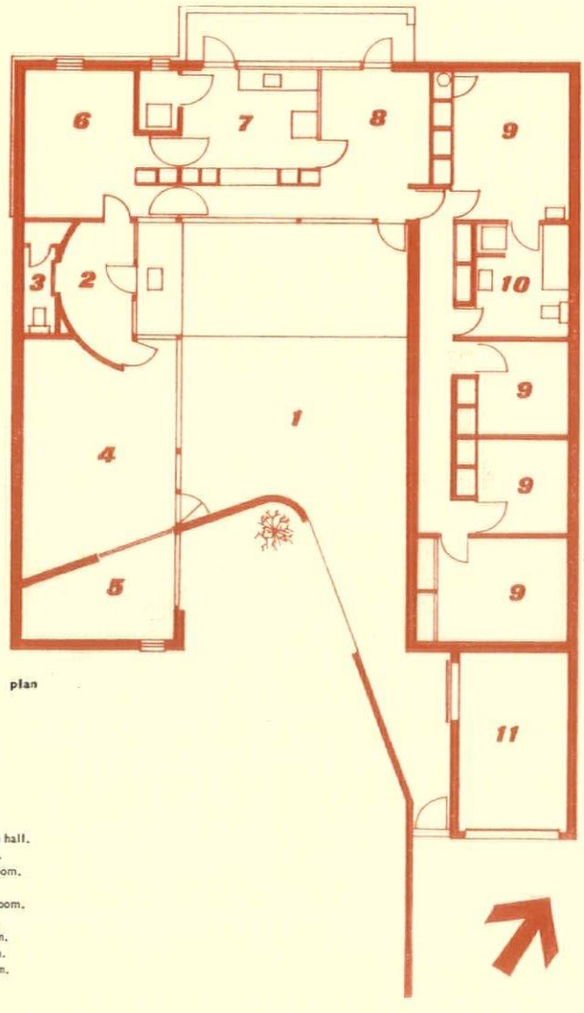


section looking east

The site is one of four plots, formerly part of the garden of a Victorian house, all approached by an access road off Barnet Lane. Well grown evergreen trees shade the site from the road. To make the best use of the plot and ensure privacy for the owner, Mr. Humphrey Lyttleton, the house was designed to enclose a courtyard opening on to a lawn on the south side.

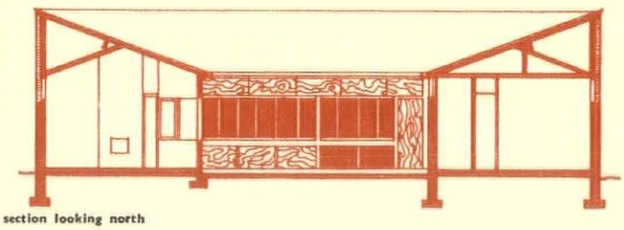
Externally the walls are faced with Wessex Dark Multi bricks, the roof is cedar shingles, windows are painted softwood with standard metal casements. Doors and external panels are faced with varnished Douglas Fir plywood. Internally the walls are constructed of wood/concrete composition blocks, either fair faced, plastered or battened and lined with Douglas Fir plywood. The curved wall enclosing the hall is lined with a photograph assembled by John McHale. The living-room ceiling is lined with Western Red Cedar match-boarding. Over the studio is a ceiling of acoustic fibre, supported on gold-anodised expanded metal. The living-room and studio floors are surfaced with Banga Wanga wood-blocks, the hall, dining-room, kitchen, play-room and part of the courtyard are clay tiled, and those of the bedroom wing are cork tiled.

Heating is electrical, mineral insulated cables being embedded in the sub-floors of the studio, living-room, hall, dining-room, kitchen and play-room. The system is controlled by an indoor/outdoor thermostat and provides background heat. Heat for the bedrooms and focal heat for the living-rooms is provided by electric radiant or convector fires. To make the most of this form of heating the thermal capacity of the walls has been reduced by using plywood panels on battens where possible and by the extensive use of aluminium foil fixed in the cavities of the external walls. The ceilings and the external edges of the sub-floors are insulated with fibre-glass quilt.

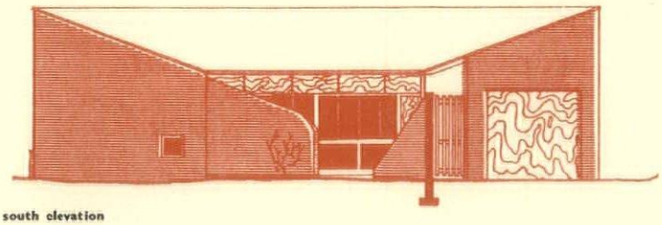


plan

key
1. court.
2. entrance hall.
3. lavatory.
4. living room.
5. studio.
6. dining room.
7. kitchen.
8. playroom.
9. bedroom.
10. bathroom.
11. garage.



section looking north



south elevation

ADDITIONS TO A HOUSE IN BAYSWATER

ARCHITECTS | **ALISON AND PETER SMITHSON**

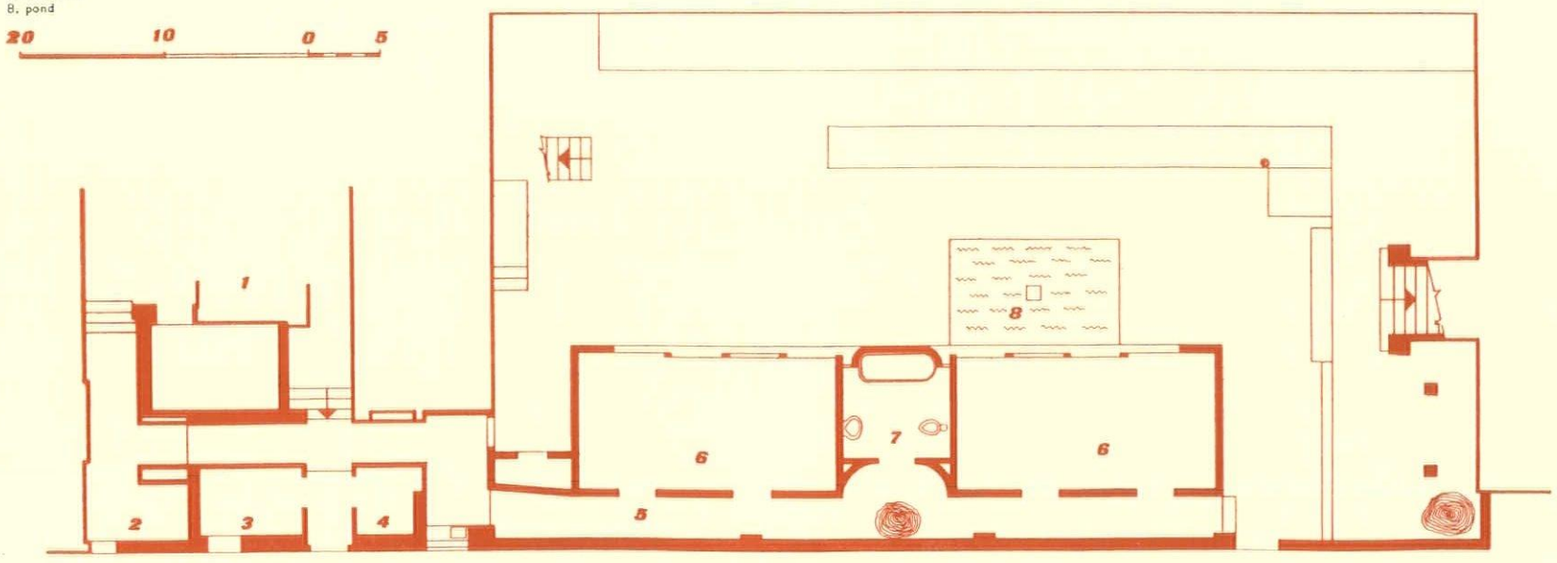
The site is the paved garden court of a house in the Bayswater Road belonging to Mr. Wayland Young. The function of the new wing is to provide two study-bedrooms and an extra bathroom. It was intended to preserve the character of the garden as far as possible and the new work was, therefore, conceived as a long pavilion fitted between the old garden wall and the existing pool in the centre of the paved area. The other 'fix' was an existing plane tree growing by the garden wall, on which there is a tree preservation order.

The main structure may be regarded as consisting of a central supporting element with secondary supporting elements one at each end of the pavilion. Each of these elements contains part of the fixed equipment of the pavilion; that is to say, the end elements contain in one case a wardrobe and cupboards and, in the other, filing cabinets, book stores and space for a desk-top to be hinged up out of the way. The central unit contains the bathroom and lavatory. The roof slab, which is covered with a layer of pebbles, is supported by the wall on the corridor side, and by a deep concrete face-beam on the side toward the garden. The corridor is thus the space left between the new work and the existing garden wall and is not covered by the roof slab. Instead it is roofed in wired glass laid to throw off rain-water. Halfway along the corridor is widened to accommodate the existing plane tree, which passes through the glass roof. This has been made water-tight by a lead flashing round the trunk of the tree.

All structural walls are of load-bearing insulating blocks which are rendered and painted on external walls, plastered on the inner walls of the rooms, and left untreated in the corridor. The bathroom, whose door is exactly opposite the tree, has tiled internal walls and presents a solid wall to the garden, daylighting coming through two vertical strips of frosted glass at either end of the bath, and a double-glazed dome-light over the bath which affords the bather a view of the underside of the plane tree and the stars. In contrast to the blank bathroom wall the two flanking rooms have practically no solid wall towards the garden at all, but have sliding windows running from floor to ceiling and the full width of the room. The woodwork of these windows is stained black so that visually each room presents a completely unwalled appearance on the garden side. Inside, a folding and hingeing wooden screen makes it possible to separate the sleeping area from the rest of the room.

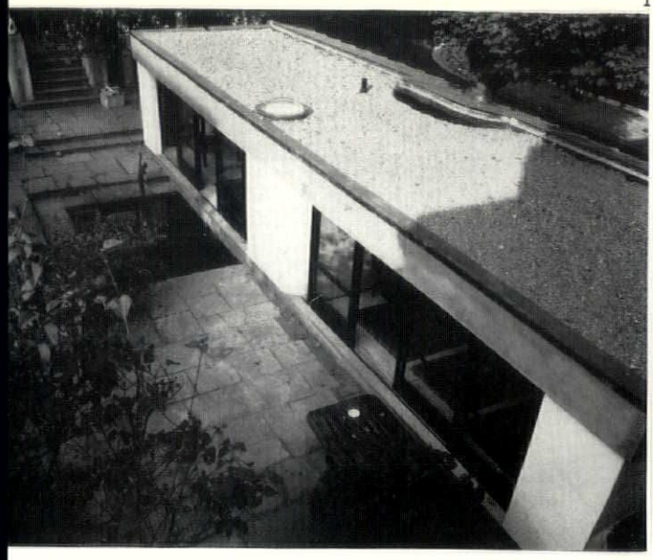
The pebble layer on the roof is of some depth, partly to provide standing room for plants in pots or tubs and partly to prevent any sudden run-off of rain-water. It is expected that the run-off will be sufficiently slow for it to be handled by trickle gulleys, instead of conventional down pipes.

key
1. existing house
2. wc
3. store
4. fuel
5. corridor
6. bedroom
7. bathroom
8. pond



ground floor plan

1



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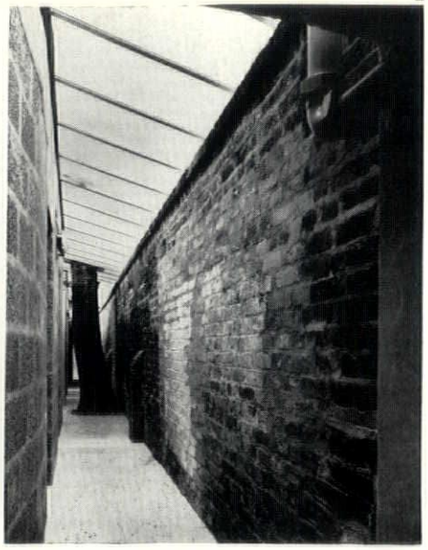

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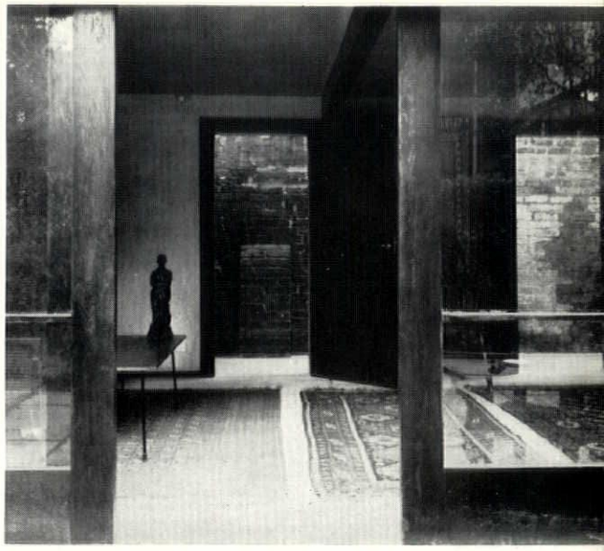
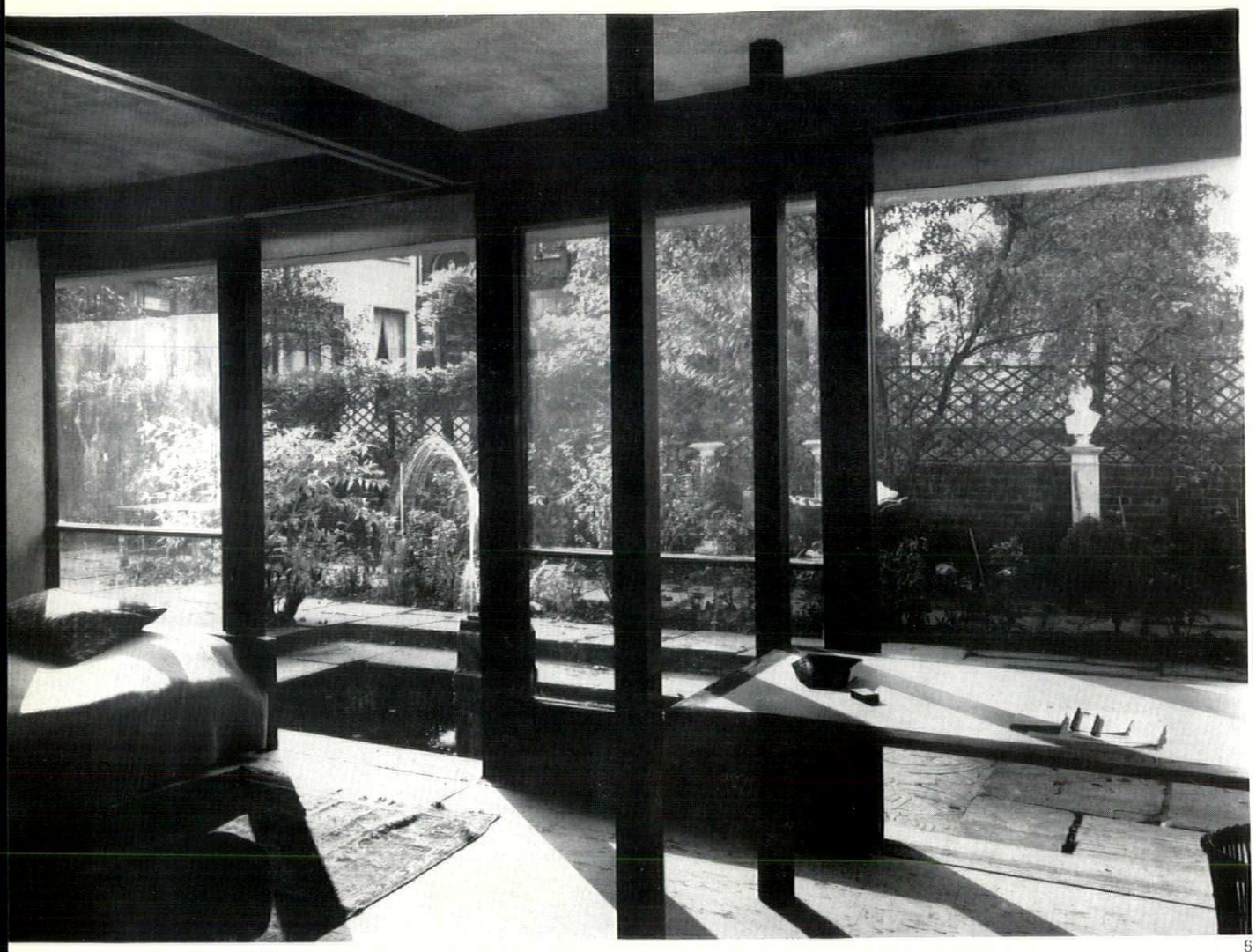


1, the new wing in its garden, seen from an upper window of the house to which it has been added. Beyond the roof is the street, separated from the new building by an existing garden wall and the narrow corridor by which the rooms in the new wing are approached.
2, looking along this corridor, with the old garden wall on the right, the untreated insulating-block wall of the new wing on the left and, within the corridor, the plane tree that grows through the glass roof.
3, looking into one of the study-bedrooms from the garden, with the corridor beyond. One of the original buttresses of the garden wall is seen through the door straight ahead, and also in 2.
4 (below), the new wing from the paved garden; original house in background.

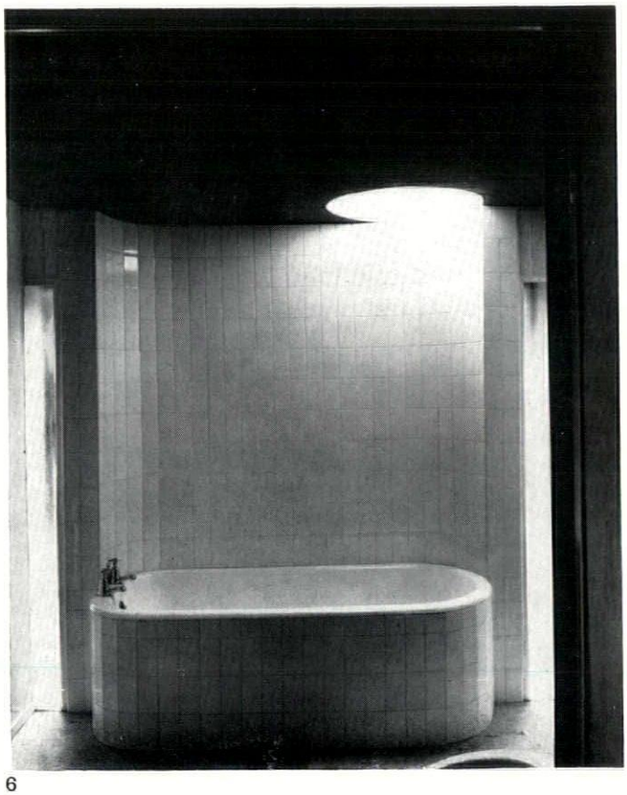
4





5

5, inside one of the study bedrooms, showing the all-glass wall consisting of floor-to-ceiling sliding windows, facing the paved garden and the pool.



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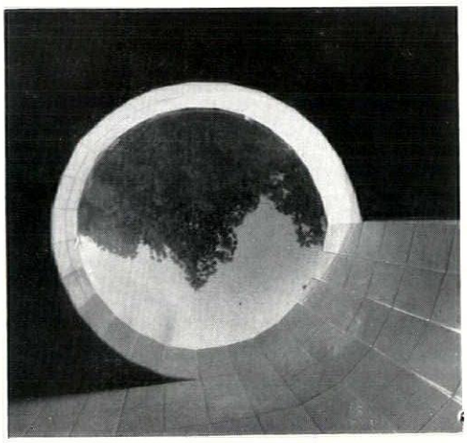

7

6, the bathroom, lined with tiles, showing the circular roof-light with double-glazed dome (see the view of the new wing from above: 1, page 323). 7, the plane tree which has been left standing in the corridor, as seen from the bath.

ADDITIONS TO A HOUSE IN BAYSWATER, LONDON



HISTORY UNDER REVISION



Evidence of ***changing attitudes to history*** *is not difficult to find, not always very convincing when found. Evidence of* ***changed ideas about historical monuments*** *and historical figures is more plentiful, and more substantial. On another page of this issue, for instance, will be found Jurgen Joedicke's analysis of a building and an architect whose 're-discovery by the young' has been publicly dreaded by members of the middle-generation of modernists. Also this month there will appear a book by Reyner Banham, editor of the* ***1960*** *series, whose aim is to some extent a revision of the accepted masters and masterpieces of the modern movement, under the symptomatic title of* Theory and Design in the First Machine Age, *thereby implying that the first thirty years of the present century are dead enough now to be classified as an 'Age'. Underlying the changed status of men, buildings, movements and periods is the plain fact that modern architecture has moved on in time, has moved out of the phase when all its works had to be considered as didactic, as exemplars of the way to*

build; when 'bad examples' (from the didactic point of view) tended to be buried in 'zones of silence.' It is now possible to look back and evaluate the white sheep and the black alike on their merits as buildings, and not on their meanings as teachers. In this month's* 1960 *article are printed the results of* a questionnaire on the present status of certain masterpieces *of modern architecture, and a paper in which Reyner Banham sets out his personal opinions on the* changed status of Modern-Movement history *itself, both as an intellectual discipline and as a didactic guide for the practitioners of modern architecture today.

Reyner Banham

HISTORY AND PSYCHIATRY

The written history of the Modern Movement in architecture is a product of that movement's second, or Academic phase, much as Vasari's *Lives* of the great Renaissance artists was a product of the second, or Mannerist phase of humanistic art. So closely is historical writing associated with that second phase of Modern Architecture, that its limits in time may be set, conveniently, by two works of the Movement's most favoured historian: Sigfried Giedion's *Bauen in Frankreich* ushered in the period in 1928–9; his *Space, Time and Architecture* began to undermine its intellectual basis in 1940–41.

The period, dominated by CIAM and the fight to establish Modern Architecture outside the countries (Holland, Germany, France) that had brought it to birth, was one of consolidation, not of innovation, and contributed surprisingly little that was new to the Movement's stock of ideas. In many senses this is true of the historical writing of the period as well. Not that an historian is often able to make any startling new contributions at the best of times—sensational new documents rarely make more than marginal rectifications to the main body of evidence available, and radically new interpretations of the evidence are nearly always forced by the weight of the evidence itself.

But when an historian's primary sources are all embedded in the live traditions of an existing body of live men who are all of his own generation or the generation immediately preceding, two further effects also seem to come into play. Firstly, the 'evidence' seems to consist only of the most current of current opinion, and the facts that support it; secondly, the facts about the previous fifteen to twenty years are such common knowledge that no one really considers them worth recording. These factors, rather than any deliberate *Suppressio Veritatis*, seem primarily responsible for that peculiarity of all modern-movement historiography of the academic phase, summed up in a statement by Bruno Taut:

With the outbreak of the War (1914) *the history of modern architecture may be considered closed.*

In Pevsner's *Pioneers of the Modern Movement*, which concludes, effectively, with the Deutscher Werkbund exhibition of 1914, a similar historical concept appears to be at work—but only *appears*, since the explicit programme of the book is to cover the Pioneers, the confusion deriving from the fact that some of the Pioneers lived to become masters of the next phase. In *Bauen in Frankreich*, the history appears to stop even further back, in the nineteenth century; works of the late Twenties are made to appear directly derivative from buildings completed before 1900, and in his introduction Giedion speaks of going back to ultimate beginnings and ignoring all the 'débris' that had accumulated on top of them.

The upshot was the creation of a zone of silence, extending from about 1910 to 1926, the period when most of the Masters of Modern Architecture were perfecting their personal styles, as individuals, and the International style, as a group. The débris that accumulated in this period was—near enough—the historical evidence for how these styles were developed. Much of this was probably beyond discussion at the period, either because it was too obvious to all those present, or because the historians were naturally reluctant to air, in public, the dirty linen of their friends (this is still a problem for a person writing about the period today).

In the process of creating this Zone of Silence, two alternative misconceptions were propagated —one, always in favour with some group or another, that there were scandals to be hidden; the other, the official line until fairly recently, that the Modern Movement is a direct continuation of the Rationalism and Functionalism of the nineteenth century. As a polemical device this latter proposition was immensely useful, since it meant that modern architecture could be defended against the Philistines and sold to the undecided on grounds that they could accept and respect—honesty about function, materials, structure, respect for hygiene, economy and rationalization of construction.

Questionnaire

MASTERPIECES OF THE MODERN MOVEMENT

How far is history under revision? What is the status of the pioneering monuments of Modern architecture? To assess the present state of opinion on ***Masterpieces of the Modern Movement,*** a sample of architects was polled for views on seven selected buildings. The sample consisted of British and foreign architects in practice, who were either known to have views on architectural history (eg, Paul Rudolph, André Wogensky) or were present when some part of that history was being made, though not actually involved in it (eg, Ernö Goldfinger, Walter Segal) or might be taken as reasonably representative of younger British architectural opinion of today (eg John Voelcker, Michael Laird, James Stirling). The return on questionnaires sent out was expected to be low, as on all direct-mail polls without hidden persuaders, especially as architects are not normally writing men, but in this case it was only 25 per cent. There is a known reason for this poor return, which will be discussed later, but even so the results appear to confirm the suspected tendencies of current opinion.

The seven buildings were ***selected on a professional historian's basis,*** though not by any of the techniques that might be expected. With one omission, they are the ***most-borrowed slides*** of modern-movement buildings before 1926 from the library of the Courtauld Institute of Art. This library is the normal source of illustrative slides for historians of art working for the internal and extension courses of the University of London, and particularly heavy borrowing of any individual slide is a fair index of the acceptance of its subject matter as important by run-of-the-mill historical opinion. There should be eight buildings indicated by this checking method, not seven. The one that has been omitted from the questionnaire is the Red House, because it has been so loaded up with political significance in the recent past that it is extremely difficult to take up reasonable opinions about it from some architects.

For the selected seven a wider range of opinion was found than had been expected. What was asked was a statement of Yes/No opinion on the ***historical status*** of each building,

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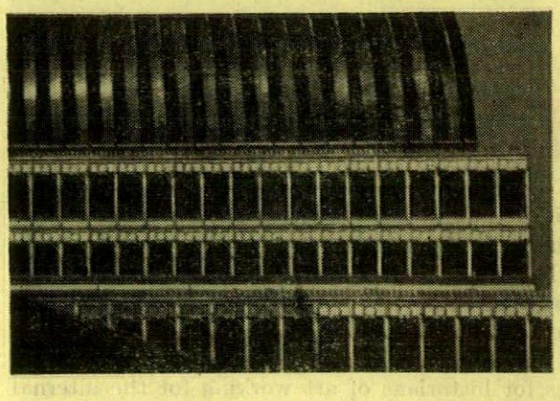
So rare was direct discussion of the aesthetic or symbolic content of Modern architecture in this period, that the exceptions strike the eye, and have acquired a status out of all proportion to their intrinsic content. In this group one might name the first English-language edition of Moholy-Nagy's *New Vision* (*von Material zu Architektur*) and the sheaf of constructivist-slanted essays published in England in hard covers as *Circle*. However, the third work that is often found shelved alongside these two in libraries is of far greater consequence. The Museum of Modern Art's great catalogue of the exhibition *Cubism and Abstract Art*, edited by Alfred Barr, is the monument of the one grouping that really kept stylistic, aesthetic (and thus culturally interesting) discussion of modern architecture alive. We owe to the Barr-Johnson-Hitchcock circle the phrase 'The International Style' and we owe to them also, as the organizers and inspirers of the exhibition, the other great catalogue, still a standard work, *Bauhaus 1919–1928*. These last two volumes together, like the two halves of the charge in an atom bomb, contained enough critical mass to detonate and demolish the whole myth of the Modern Movement as a persistence of the nineteenth century into our own times. Yet for a long time nothing happened, in spite of the trickle of revisionary information initiated by *Space, Time and Architecture*.

What was needed, probably, was some telling incident to form a positive trigger—in my own case this was a statement in an early talk on the BBC Third programme, to the effect that the Dutch *de Stijl* movement had considerable influence on the Bauhaus. Reference to the pages of *Bauhaus 1919–1928* produced ample visual justification for this proposition, but it also produced a positive statement that *de Stijl* was of little consequence in Bauhaus history. Such patent contradictions between fact and propaganda certainly stimulated my own earliest researches into the history of the Modern Movement; they may well have been the stimulus for others, notably Bruno Zevi's book on *de Stijl* under the title *Poetica dell'Architettura Neoplastica*. By the beginning of the Fifties, the existence of the Zone of Silence was widely noticed, its contents the subject of interest and speculation.

However, serious research and reappraisal had not gone far before they were overwhelmed by that anomalous and largely irrelevant wave of neo-Palladianism to which reference was made in 1960/1/ii. Yet when that wave receded it left the intellectual climate of the younger modern architects permanently changed. Firstly, it seems to have broken their unthinking and purely conventional acceptance of the traditional posture of modern movement architects, ever poised for a bold step forward into some diagrammatic utopia. The loss of this compulsive progressivist reflex seems to have hurt politics more than it has hurt architecture. It may well be that this mass

continued on 4/vi

a Yes/No opinion on its ***rating as a masterpiece,*** and general comments on the present significance of the work. The buildings are ***illustrated below with sample comments,*** for, against and expository, and the conclusions to be drawn from the results appear on 4/vi-vii.



Paxton: the Crystal Palace

I have never been able to withhold admiration from this building. I have never been troubled by its period-conditioned plan which, under other circumstances, I would find highly disturbing . . .

Scientifically it is important because the whole building is made up from the combination of a single repeated element, and not—as with the prevailing style—from dissimilar elements. The evaluation of spaces is controlled by the ways in which this repeated surface is put together and not by the literary implications of dissimilar elements (voids, solids, centre-lines, columns, etc.).

Not much to learn from it, but in its time a far thought, and a thoroughly thought-out concept.

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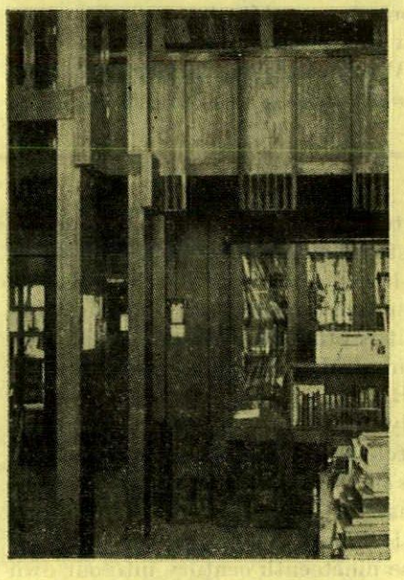
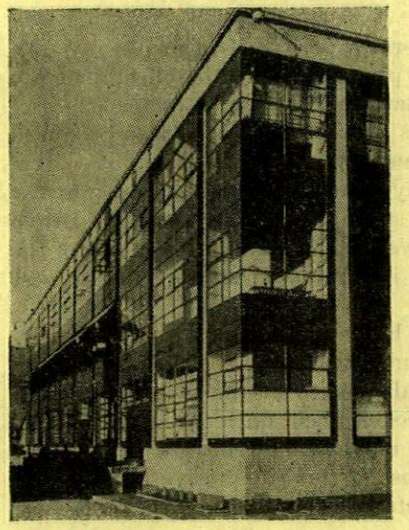


Mackintosh: Glasgow Art School

This building has always been extremely alien to me and I have never had courage to see it in its historical perspective.

Significant for its controlled plastic qualities—most successfully controlled here through understanding of materials' intrinsic limitations, as evident in formation and flow of wrought iron-work particularly —perfectly conforming to basic character.

A masterpiece it is most certainly. But it is also historically important because it shows the passage between neo-Mediaeval and Modern architecture. Even more, the virtues inherent in the neo-Mediaeval style.

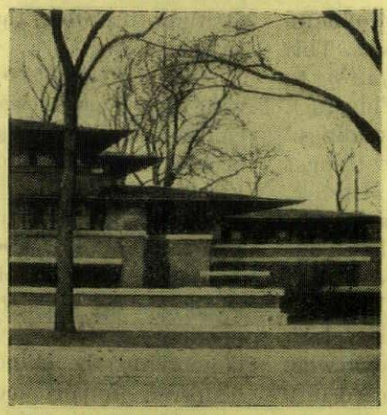


Gropius & Meyer: Fagus Factory

Annonce la révolution architecturale et plastique de notre époque.

It was a new building that demonstrated a conception and principles which, without much intellectualism, shallow philosophy, slogan-mongery and bastard emotionalism, appeared at the right time and has become a basis for building that has endured.

In spite of its 'purity,' it cannot be rated a masterpiece.

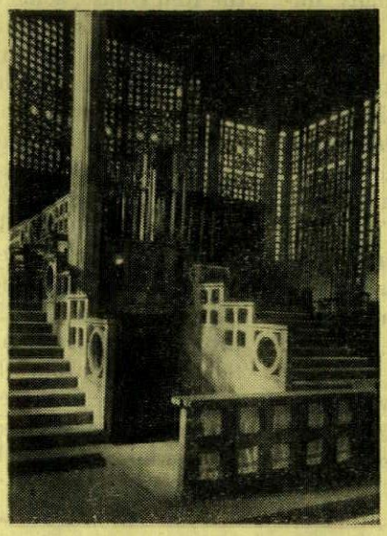


Wright: the Robie House

The first statement of freedom in space successfully enough done to be called a masterpiece.

Oeuvre importante historiquement, mais rapidement démodée.

As a prototype this is not important, but within the context of Wright's work it seems to crown his suburban boulevard thoughts. Till now I have found no particular use for those thoughts, yet the image lays lodged in my mind.



Perret: Notre Dame, Raincy

This building shows Perret's dilemma: though a superb engineer in reinforced concrete, he could never quite free himself from post-and-beam conceptions of traditional building, and the material in his building seems to be a substitute for stone. The tracery in Notre Dame du Raincy is characteristic of a *mason's* use of a material that can take tension.

Almost a masterpiece, certainly consistent, but drenched in historicism. Certainly not modern.

Clarity of structure and prefabricated infill so controlled in expression as to postulate a perfectly positive means of integration surpassing any precedent.

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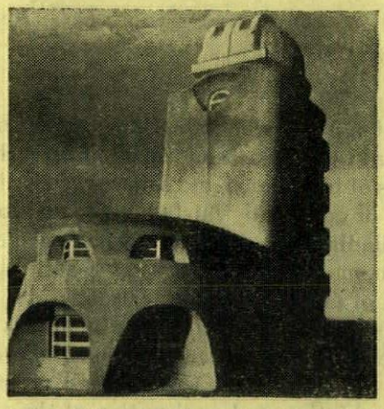
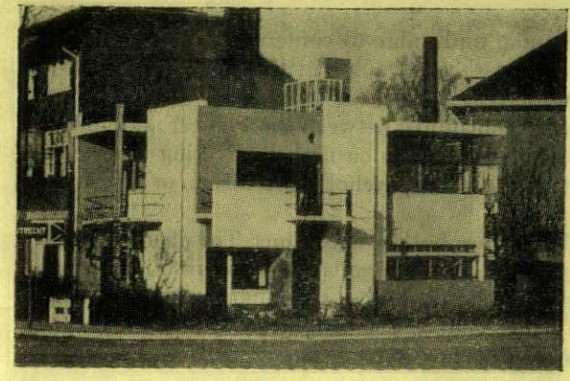


Mendelsohn: Einsteinturm

Poor old Einstein, it looks like a sort of pre-decease mausoleum commissioned by the municipality.

The Einsteinturm . . . is another warning. It shows that plasticity is not a thing that can be applied from the outside, it can only spring from the inside, from the organization of space and the construction. Therefore we should also need to observe the beginning of shell construction in Germany in the Twenties.

It is the masterpiece of Expressionist architecture. And it shows that the figurative idea is independent of the structure used. A good lesson for positivists.



Rietveld: Schröder House

The only house outside of Le Corbusier and Mies that qualifies for the word Masterpiece.

I was eighteen years old when van Ravesteyn showed me this house and said our job was to build 'nervous organisms.' I do not understand to this day what he meant. I always thought of this house as a cardboard Mondriaan.

Some later works by Rietveld are more significant, even for de Stijl.

One of the most important results of the questionnaire lies outside any attempt to analyse the answers given. This is the response of declining to give opinions. Not of *failing* to give opinions, but of ***positively declining.*** This took various forms, such as 'Obviously they're all great buildings.' or 'How can one give Yes and No answers to such things? There are so many things to be considered: for instance, what do you mean by masterpiece?' Behind this and such other evasions as 'It's too easy to say something clever but superficial . . .' there very clearly lurked a desire not to commit oneself, not to say something that might be taken up by someone more expert, or something that might look silly in two or three years time (both explanations were offered as excuses when failures to reply were followed up). The fear is no longer of history, but of ***historical opinion,*** its new-found expertise and its seemingly unpredictable changes of emphasis.

Now to the factual evidence of the replies given. Firstly the points which are established beyond doubt, and there are only three. No one positively disbelieves the historical importance of the ***Crystal Palace, The Glasgow School of Art,*** or the ***Fagus factory,*** and in the case of the Crystal Palace there are not even any waverers or spoiled papers. Nothing else is so certain as this. The next most certain thing is that hardly anybody loves the ***Einsteinturm,*** which polled only one vote as a masterpiece, though nearly everybody thought it historically important. The next most doubted building as a masterpiece was the ***Glasgow School of Art,*** and both these last two results emphasize the general distinction, now almost universally accepted, that a building can be important without being great—a clear demonstration of a relativistic attitude to history that has hardly existed in architectural circles before.

However, these two last buildings are the extreme cases of wide divergence between historical and aesthetic opinion. By contrast, the two most severely doubted buildings in terms of historical importance, ***Notre Dame du Raincy*** and the ***Robie House,*** both produced fairly even voting on their masterpiece rating. The votes also fell evenly—exactly evenly—for the ***Crystal Palace*** and the ***Fagus factory*** as masterpieces.

To sum up, then, on the overall statistics: architectural opinion coincides fairly closely with professional historical opinion on the standing of these buildings in terms of historical importance. The biggest divergence here is probably on the subject of the Crystal Palace, which, like the Red House, some historians now seem inclined to regard as the end of something, rather than a beginning, and the Robie House, to which historians clearly attach greater importance than architects do. It is worth noting on this last point that among those who voted the Robie House historically unimportant was someone who was in Holland at the time when historians believe it to have been most influential there.

However, the results that most architects will want to know are how the aesthetic opinions break down between different groups of the profession. The solitary vote for the Einsteinturm came from an architect who is equally a professional historian, and the few votes for the Glasgow School came from the same side, but there seems little further that can be deduced on this point. One might note in passing, however, that buildings are more often disliked by those who have actually seem them, than by those who know

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HISTORY AND PSYCHIATRY: *continued*

defection from Left solidarity was only a part of a more general disintegration of progressive opinion, but it had special consequences for younger architects—they emerged from their Palladian deviations with the habit of listening to the opinions of historians, and some expertise in deciphering their utterances. For this they had been prepared, of course, by fairly long acquaintance with the works of Pevsner and Giedion, but in the post-Palladian phase historians have come to the front as men with a specific and unique contribution to make, and history, as a subject of academic discourse, has acquired a new standing in the world of architectural education.

But the history of modern architecture has also been presented with a new task—that of the revision of the great myths on which the Movement's *esprit de corps* is nourished. Although this extends far enough back to include a re-appraisal of the work of the *Grands Constructeurs* of the nineteenth century, the main task is seen as the elucidation and explanation of the events covered by the Zone of Silence. A generation has grown up that believes—rightly and wrongly—that modern architecture underwent a major crisis somewhere in that period, and that the details have been kept from them. Though they are almost completely wrong in supposing that there has been any deliberate suppression of fact, they are clearly right about the crisis when the missing facts are examined.

Furthermore, the filling-in of the blanks gives meaning and value to contemporary reactions to the crisis. To take an outstandingly difficult case; the work of Gropius in the early Twenties—a degree of embarrassment clearly surrounds his Sommerfeld House, an expressionist log cabin of 1921 that makes patent nonsense of any suppositions of continuity between the Pioneer and Master phases of his work. The general response of the younger generation on first discovering this house has been to suppose it to be the product of (*a*) a moment of almost psychotic aberration, or (*b*) craven submission to the importunities of his client.

The filling-in of the surrounding facts, however, demolishes both propositions. The client, though strong-willed, was no fool and retains to this day a lively and sympathetic interest in modern architecture. Nor can an aberration be convincingly propounded—the surrounding facts include, for instance, the exactly contemporary Otte house which makes a smooth transition between the log-cabin aesthetic and modern architecture as commonly understood, since, in it, Gropius uses

them only from the books (and only three of those who replied to the questionnaire actually declined to comment on buildings because they were not known to them at first hand, and two of these nevertheless passed judgment on the Crystal Palace).

The most interesting cases for the analysis of the source of the replies are clearly those where voting was very even, in order to see if this merely represented a random distribution of opinion because no one was very interested, or a division of opinion between two distinct schools of thought. The division that is looked for nowadays is always that between generations—the over-forties and under-forties near enough. This particular discrimination works only for certain buildings, and what emerges is as follows. For the Robie House and Notre Dame du Raincy, the division of opinion seems random, with ***as many young and old on either side.*** For the Fagus factory there may be a slight margin in its favour among the ***older generation,*** and more definitely so in the case of the Glasgow School of Art. The two most definite cases are those of the Crystal Palace and the Schröder House. Here, the young are much more likely to dislike the former than are the old, the Palace has definitely lost ground amongst the younger generation. The ***Schröder House,*** on the other hand, is ***liked by the young*** more than anybody, and, indeed, those who rate it a masterpiece belong almost exclusively to the Brutalist/Team-X connection.

This last point is one of the most interesting to emerge, because opinion in the profession at large would have expected the Angry Young Men, the assassins of CIAM, to vote heavily for the Einsteinturm, as being the most obviously anti-Establishment building on the list. It now appears, however, that the recent revival of interest in Mendelsohn is in his post-Expressionist architecture, and the revival of interest in the Einsteinturm may exist only in the minds of modern-movement historians betting on trends. The high standing of the Schröder House among the young—which is an observable fact and was known to the writer even before the questionnaire was sent out—suggests that the Boys' Revolt is a rather more subtle affair than some suppose, and that it does not represent so great a break with modern movement traditions as might be expected. After all, the ***Schroder House,*** for all its aestheticism and its structural pretences, is a work of the ***mainstream.***

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the same over-all form, even to the dormers, in combination with very pure, white-rendered surfaces.

But the surrounding facts also include Expressionist/Dadaist Berlin in political turmoil. Against this George Grosz background, one also perceives Bruno Taut making town-planning projects *à la* Finsterlin, and Hans Scharoun designing blancmange-shaped office blocks with gothic portals, and Mendelsohn's Einstein tower just completed. And against this background Gropius emerges as what he has always been, a master of rationalism and restraint. One sees why the younger generation demands to be told '*all* the facts on modern architecture.'

Now, if Expressionist Berlin does so much to give sense and context to the Sommerfeld house, it does quite a lot, still, in the same way for the Bauhaus buildings in Dessau, designed only four years later by a man who was still Walter Gropius, and—with suitable dilutions—this applies also to buildings he designed later still, such as the Siemensstadt flats, and to experiences he had undergone earlier, such as working with Peter Behrens. Our view of Gropius is impoverished out of all proportion to the number of facts involved if any part of his career is omitted from the account.

The same is true of the career of any other master, and since those careers add up—or rather, multiply together—to form the Modern Movement, our view of the movement is disproportionately impoverished by those parts of their careers that have been swallowed by the Zone of Silence. In fact, the situation is worse than that, the silence covers *whole* careers—Mart Stam's for instance—writings, such as Paul Scheerbart's—and movements, such as Elementarism. But since this period, these movements and ideas were those in which Modern Architecture as we know it was created, those members of that movement who could not be present at the time, because they were not yet born or were in Finland or Brazil, are in ignorance of their own origins. The urgency of the demands to know 'What really happened in Modern Architecture,' to be apprised of every discoverable fact, to have every accepted valuation checked and every movement, however obscure, shaken out for any original ideas it contains—the urgency of all this, which is the consumer-pressure on the producers of historical writing, is the urgency to know 'How did I get this way?' History, considered under this light is not, in Alan Colquhoun's telling phrase about Giedion, 'The quest for respectable grandfathers,' but a psychiatric enquiry into the springs of action, the grounds of inhibition.

If the older historical dispensation approaches the evidence much as a herald might approach a family tree, to see what glorious bearings may be quartered into the blazons of Modern architecture, the new historiography puts the movement on the couch and asks embarrassing questions. A father-figure like Auguste Perret who appears as a scion of a noble line of classicists on one count, may appear as a structural pervert on the other; an influence like Mondriaan, whom the 'official'

view may see as an exemplar of simplicity and purity, may be seen from the other side as a man in the grip of an almost catatonic fixation, unable to do anything but repeat the same image over and over again. However, the psychiatric simile cannot be pursued too far in detail—though it remains overwhelmingly true in general. The confirmation comes most aptly in a phrase used to describe the passionate interest in the content of the Zone of Silence, viz. 'Using facts to pervert the history of the Modern Movement.'

Against accusations like the last—which are perfectly true if one inserts such a word as 'accepted' in front of 'history'—the new-style historian needs a double armour. Firstly, because his main sources will be the public or private utterances of men still alive, he needs a diplomatic talent that will enable him to break confidences without giving offence. The historian who persistently accedes to demands for decent silence will sooner or later lose the respect of his readers. But, even more important than the ability to spill secrets inoffensively, is the ground on which he decides to spill them. His integrity as an historian must be beyond question, and this, under present circumstances, means that the amateur historian, the historian with architectural connections, is out. It is very noticeable that the prestige of Sir John Summerson's utterances about modern English architecture has gone up since he ceased to be an apologist for the English Modern Movement and that the big question-mark about Sigfried Giedion is still his involvement with his subject matter as secretary of CIAM.

The one secure ground on which an architectural historian can stand is outside architecture. Since he cannot be an architect, his professional qualification must be as an historian, since he cannot get by without some professional qualification that an architect can trust. He is now regarded more and more as a sort of specialist consultant, like an acousticist or a traffic engineer, and is expected to tell the truth even if it hurts. But he cannot get away with this unless he stands firmly on a professional qualification that proves his grounding in an orderly method, that proves an objective attitude towards the evidence.

Obviously, this does not rule out the amateur contribution, particularly in field-work—the enthusiast who is prepared to work through *Bottin* in search of early houses by Lurçat, or swings his camera on to a factory in Krefeld on the off-chance that it may be Mies van der Rohe; the self-appointed commandos who storm doors in Hollywood in the hope of seeing interiors from Frank Lloyd Wright's concrete block period, or stir the dust in Italian museums in pursuit of ground-plans by Sant'Elia. These men—who are also a phenomenon of the new history—are the prospectors and surveyors who fill in the blanks on the map, but the final drawing of the map, and the indication of the areas that still need further field-work, these need the authority of a trained professional mind that the field workers can trust; therefore, preferably, a professional with some field-work behind him, like Theodore M. Brown, the author of the recent book on that highly symptomatic figure from the Zone of Silence, G. T. Rietveld.





The position remains, in any case, that the appointment of historians to a cure of souls, to the guardianship of the conscience, even the sanity, of the profession, places upon their shoulders a responsibility that they have not been asked to carry before. Nor is this likely to be a passing phase—the detachment of architecture from its grand traditions, extending from the Pyramids to the Crystal Palace, has clearly been broken for good, it cannot hope to regain its Vitruvian innocence. Without the ballast of an equivalent millenial tradition, architecture will have to be consciously trimmed and steered as it proceeds, and someone will have to plot its course continually. That someone is the historian: it is not for him to give orders or indicate destinations, but his plot of the track to date must be accurate. The most difficult and embarrassing part of this new task will be to pass judgment on the tendency that so much disturbs the older historians of modern architecture —the tendency to modern-movement revivalism (discussed in 1960/1/iv–vi). Although this tendency affects mostly the younger historians' own contemporaries it also touches some of the Masters, and requires him to say how far the curved forms of, say, Ronchamp are to be regarded as conscious revivals of Gaudi or early Mendelsohn (hardly at all in the present writer's opinion) just as much as he is required to pass judgment on the revivals of the Dutch 1920's to be seen in some aspects of Neoliberty, and in different aspects of Team X projects (in both cases fairly conscious and deliberate).

But to revert to the psychiatric simile, his diagnosis must be as nearly infallible as is humanly possible, and to achieve this he must be as nearly objective as is humanly possible, and as reliably skilled in interpretation as is humanly possible. The responsibility that awaits him is not a light one.



1

Staff Club and Students' Canteen, University of Edinburgh

architects : Basil Spence and Partners

The conversion involved the gutting, bar the floor-structures, of the whole of three old properties and part of an adjoining one, on a site fronting to Chambers Street, Edinburgh. Some of the property was already occupied by university departments, and one of these is to remain (thus accounting for the greater part of the blank areas on the plans, over page). The accommodation to be provided for the staff club and the students' refectory was extensive and varied, including—besides the rooms illustrated on this and subsequent pages—squash courts, and other sports facilities, a steward's flat and kitchens to supply both the staff dining rooms and the refectory. 1, exposed masonry walls in the students' refectory area. The main visible survival of the original structures lies in the masonry of the party-walls and main structural cross-walls, which, in several rooms, has been simply made good and left exposed, or made good and painted, as in the case of the nearer wall in this view from the upper level of the students' refectory, across the entrance lobby, into the students' lounge beyond. Immediately beyond the painted wall are steps down from the lobby into the lower refectory, right. The piercing of these massive masonry walls in this manner, for access, circulation, or simply for internal vistas, creates an air of spaciousness in spite of the inevitably close and boxy structure of old Edinburgh terrace-houses of this kind.

ID
a monthly review of interior design

Staff club and canteen, Edinburgh



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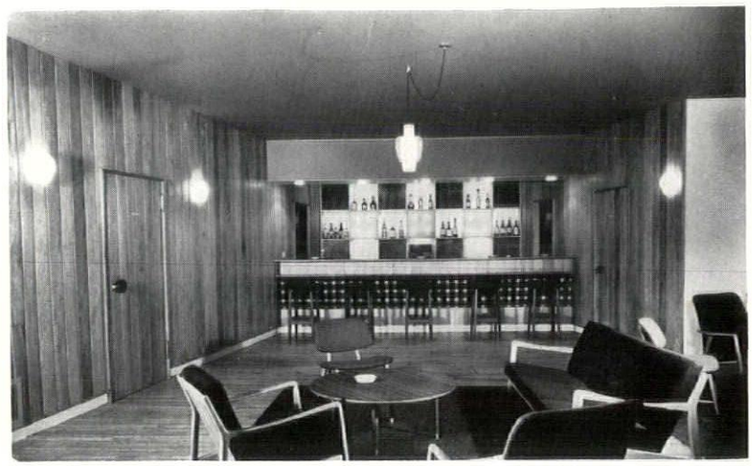

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2, and 5 (below) the main staircase, staff side, rising from the entrance-lounge to the first-floor dining rooms ; stair carpet designed by the architects.
3, view from the entrance to the bar, towards the main ground-floor entrance ; telephone booths flank the lobby, and a small lounge can be seen beyond.
4, the bar on the ground floor ; the side walls planked in African hard-wood, the bar front quilted in tartan cloth. The apparent depth of the bar area is increased by the perspective effect of the converging walls (see plan, opposite).
6, the smoking-lounge on the second floor, with the exposed masonry of the structural party wall. The floor here, as in many parts of the staff side, has been relaid with hard-wood strips.
7, the main staff dining room, waitress-service side. The wall at the far end of the room is destined for a large mural by Leonard Rosoman.
8, the sideboard, in an alcove between the service doors of the staff dining room (just visible on the right in 7). The alcove, panelled in hard-wood veneers in contrast to the papered and plastered finishes in the rest of the dining room area, also serves to accommodate heating and ventilating grilles.



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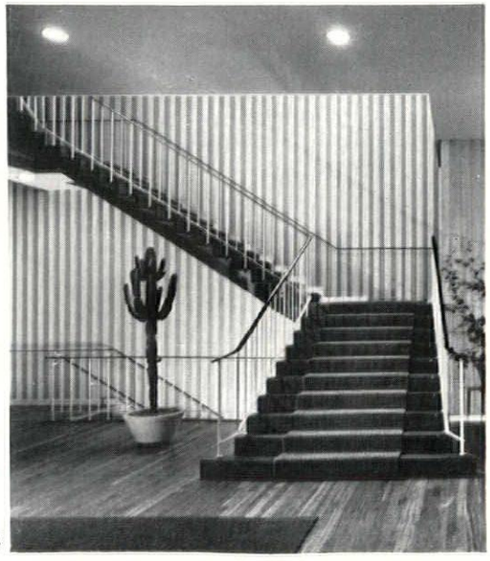


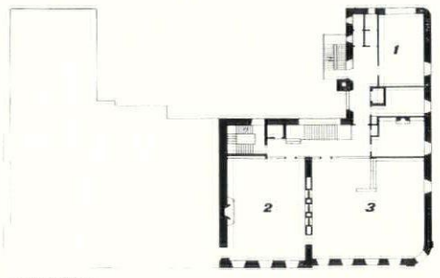
5



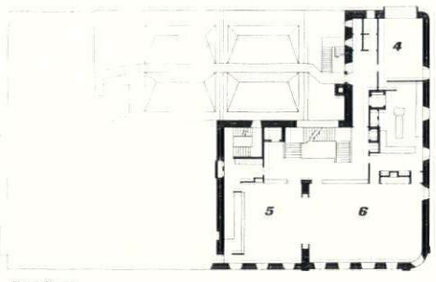


6, 7

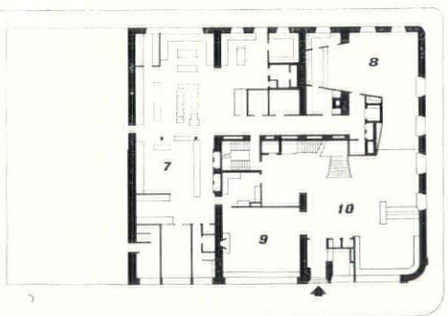
key
1. committee room
2. smoking lounge
3. library/writing room
4. private dining room
5. self-service dining (staff)
6. main dining room (staff)
7. kitchens
8. bar
9. square lounge
10. main lounge
11. student lounge area
12. entrance lobby from stairs
13. upper dining area (students)
14. lower dining area (students)
15. service counter



second floor



first floor



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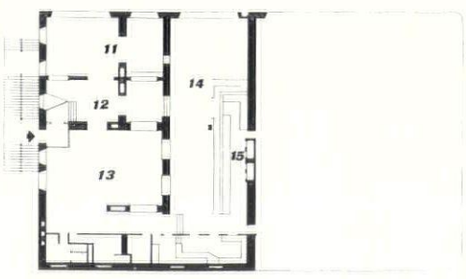
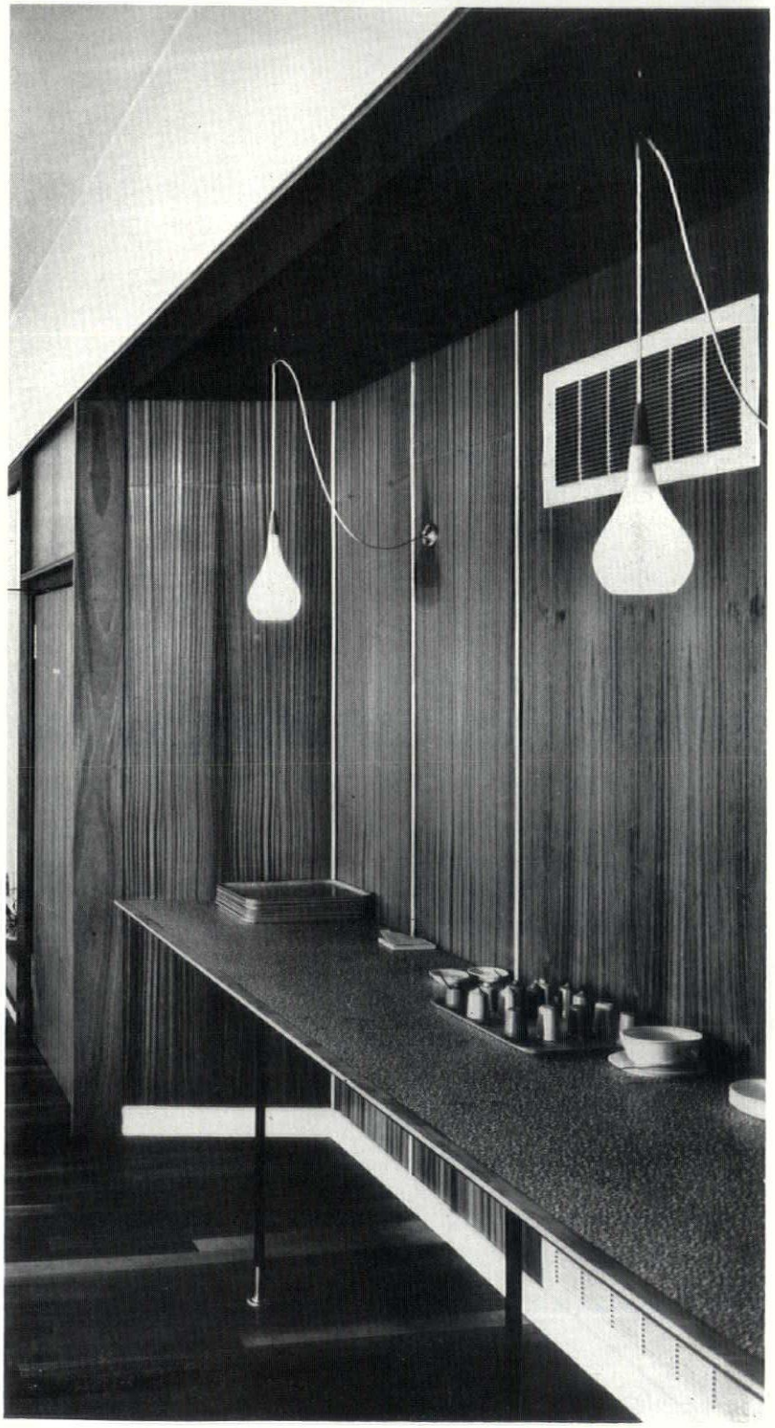
ground floor



basement



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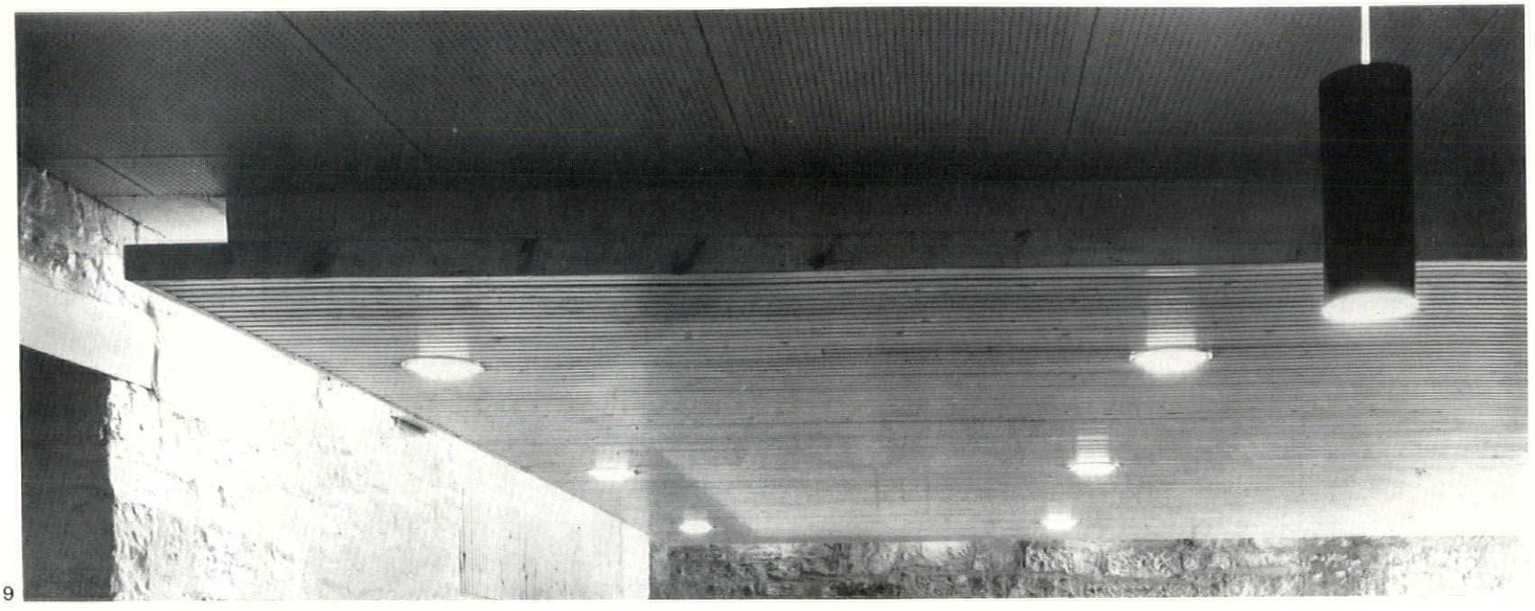

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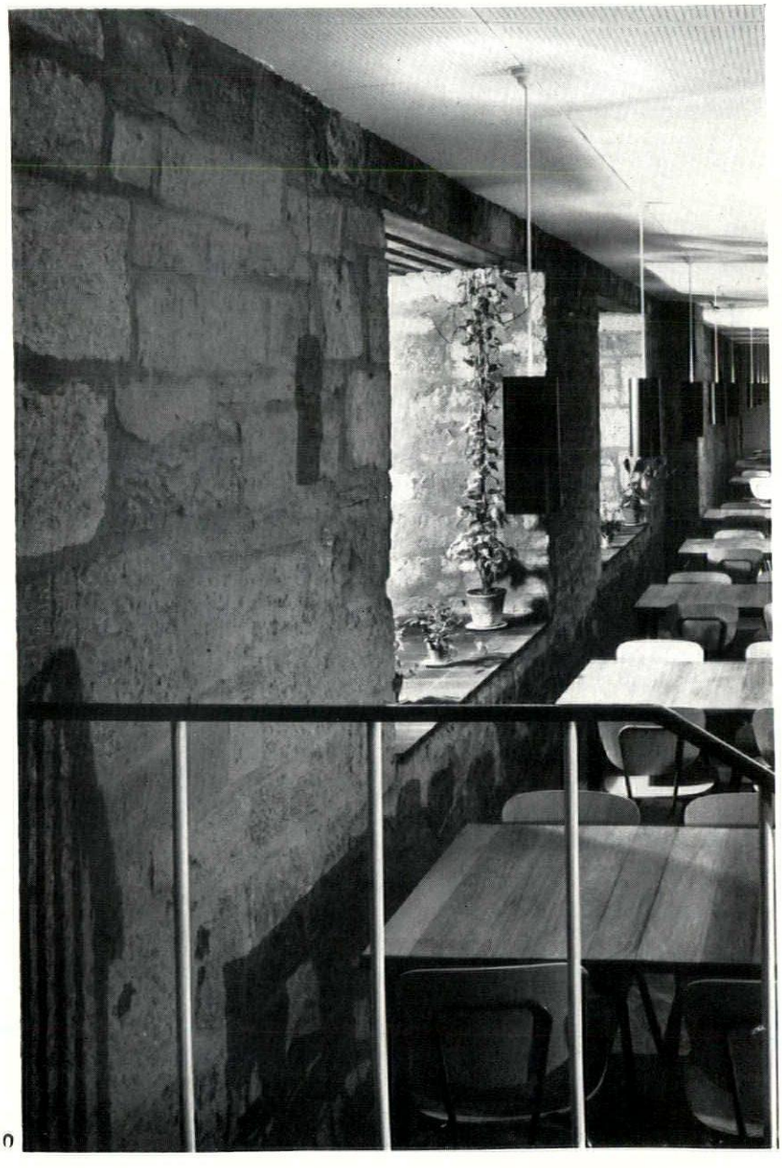

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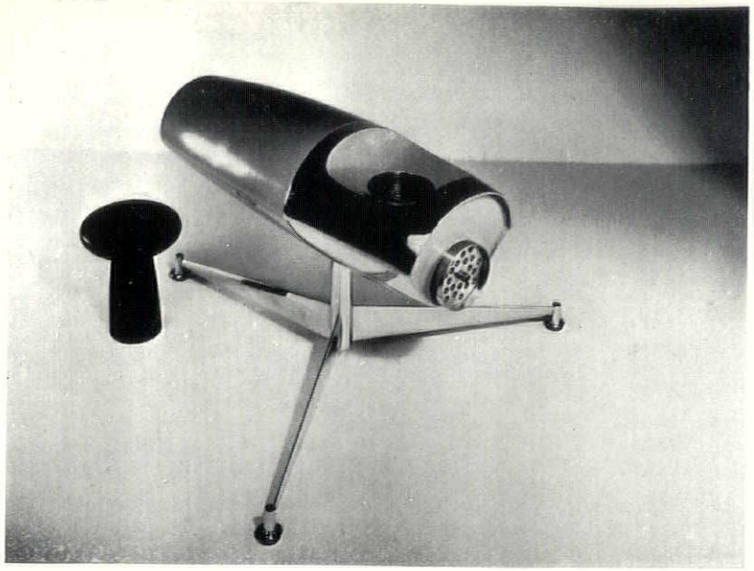
9, part of the ceiling in the upper students' refectory (also visible in 1, page 333). Throughout most of the student side, where budget limitations were extremely stringent, finishes are very simple ; floors are of black and white linoleum squares, and the ceilings are normally of painted acoustic tiles. In this corner of the upper refectory, however, the ceiling has been lowered and pine planked, with peripheral lighting concealed above the edge of the planking, and inset fixtures for direct lighting, instead of the cylindrical black pendent units used throughout the rest of this area.

10, main party wall flanking the lower students' refectory. The difference in levels between the two refectories (corresponding to the slope of the street outside) may be appreciated by comparing the cill-heights here and in illustration 1 ; these first two holes in the wall being purely for view and increased sense of space, the third containing the steps down from the entrance lobby seen in 1. A further hole-in-the-wall lies beyond the steps and can be seen on the plan (previous page), though not in this photograph. This gives a view into the students' lounge, and the four openings provide a series of views out of the lower dining room in order to counter any sense of excessive narrowness and length in the room.



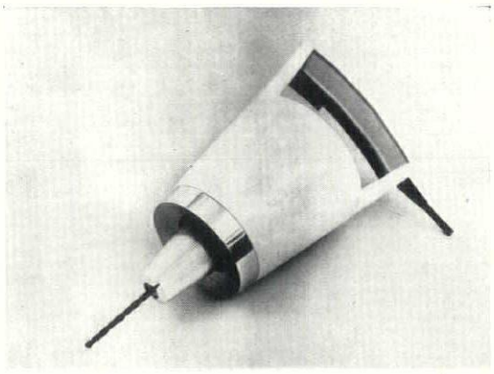
1

Ergonomics versus styling

The exhibition of US design students' work which was shown recently at the USIS gallery in London was not new, it had done yeoman service in many countries before it reached Britain. But its age (just over two years, which is a long time in design nowadays) and the anonymity of its presentation, with none of the exhibits credited to individual students, made it a useful object lesson on the progress of the supposed war between ergonomics (or function) and styling (or æsthetics).

The stylist quality of some of the pieces was clear enough:

1, the project for a powered mincer, though doubtless entirely functional, clearly belongs somewhere between science fiction and Charles Eames in its inspiration—fitted with its hopper, which is not shown in this illustration, it looked more Eames and less fictional.

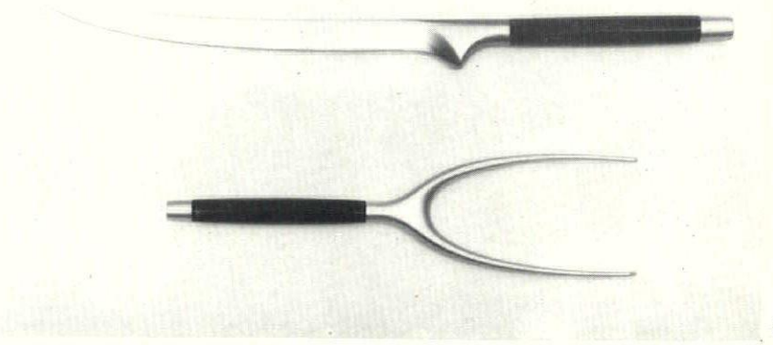


2

DR

design review

2, a powered hand-drill, owing much more to the international 'Gute Form' æsthetic, though its chrome nose-ring gives it an American accent. Here the æsthetic preoccupation is clearer, and—whatever may have been gained formally—there seems no good reason in a tool as small as this to depart from the normal, and handy, practice of putting the hand-hold below the axis of the drill, in the form of a pistol-grip.

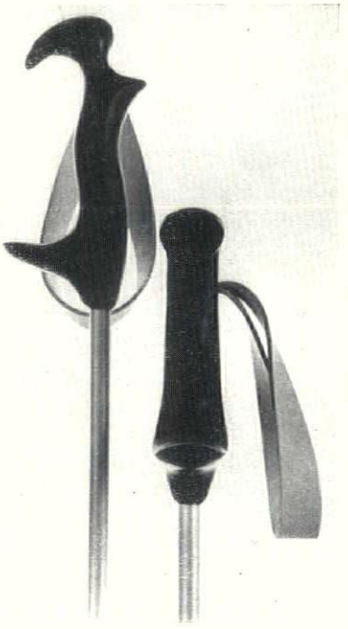


3

3, when ergonomics collides with free-form sculptural æsthetics, however, it becomes very difficult to make the theorists' normally clear-cut distinction between honest attention to function, and eye-catching indulgence in styling. These carvers have the air of having been shaped to the hand by the same sort of anonymous process that has created the traditional forms of craft tools—until one tries to imagine the consequences of actually using the lower object as a carving fork.

4, these ski-stick handles, however, pure sculpture at first sight, become equally purely ergonomic as soon as one imagines one's left hand sliding comfortably into the curves and notches of the handle shown sideways on.

5, prototypes for screwdrivers, which sum up the argument by showing the variety of forms that the solution of a simple ergonomic problem can take. Without actually handling such an implement, one cannot be sure of its functional qualities, but it would be a poor school that let its students design unworkable products. Assuming all to be equally functional, then, one can still distinguish between them stylistically—traditionally classic on the left, ergonomic-sculptural (vintage very clearly mid-1950's) on the right, with what appears to be routine-commercial, and Bauhaus-revival next to it, bottom centre. Moral, you can no longer assess the performance of an object from its style.



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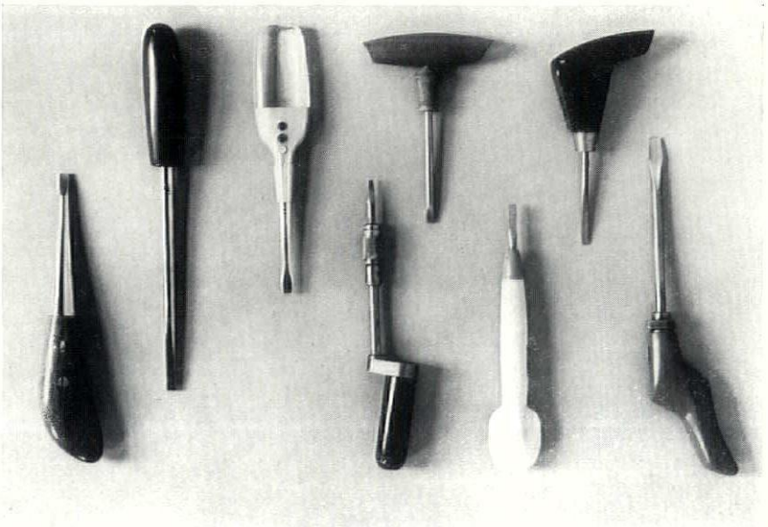

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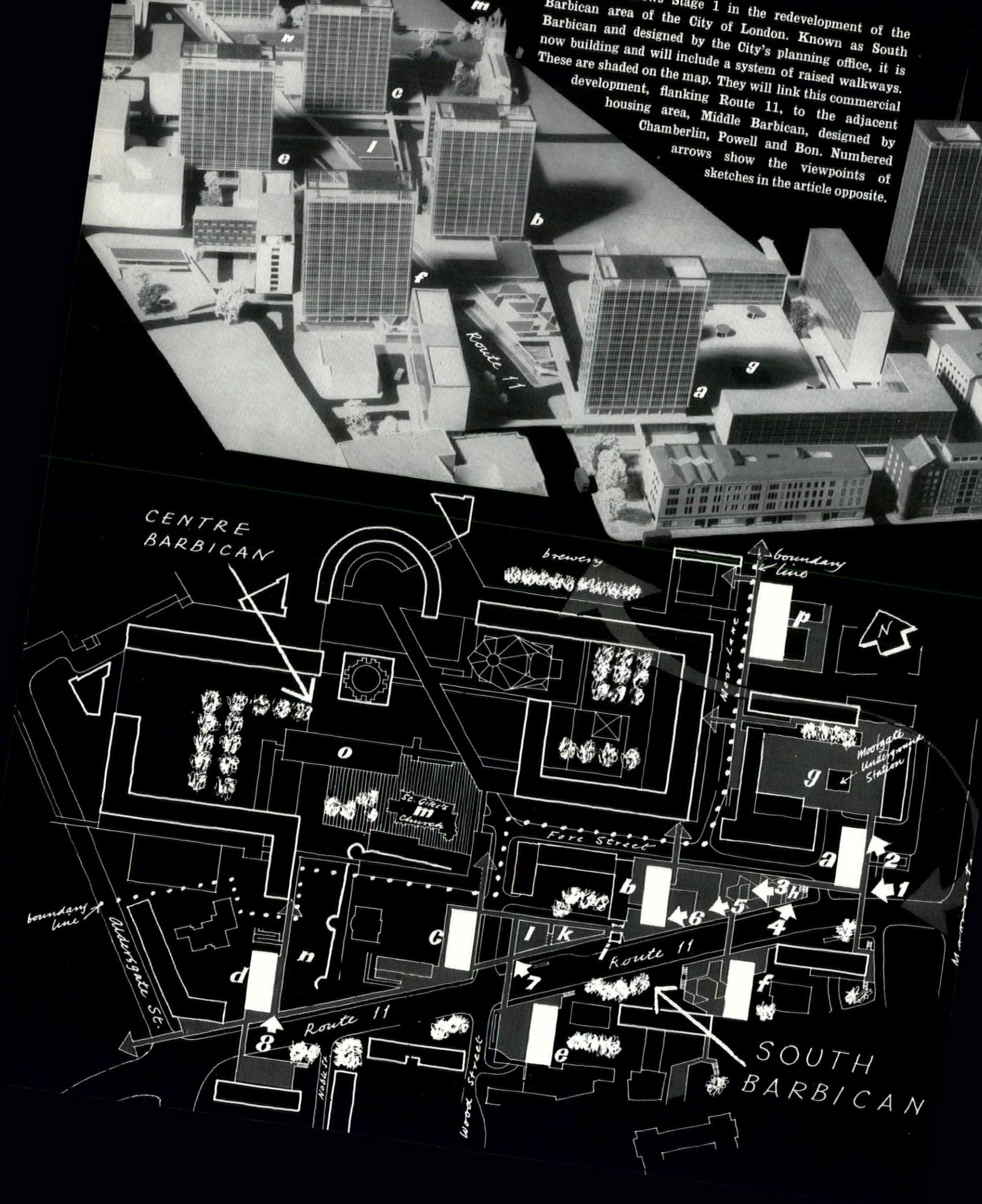


Stage 1 in the redevelopment of the Barbican area of the City of London. Known as South Barbican and designed by the City's planning office, it is now building and will include a system of raised walkways. These are shaded on the map. They will link this commercial development, flanking Route 11, to the adjacent housing area, Middle Barbican, designed by Chamberlin, Powell and Bon. Numbered arrows show the viewpoints of sketches in the article opposite.

Kenneth Browne

SOUTH BARBICAN

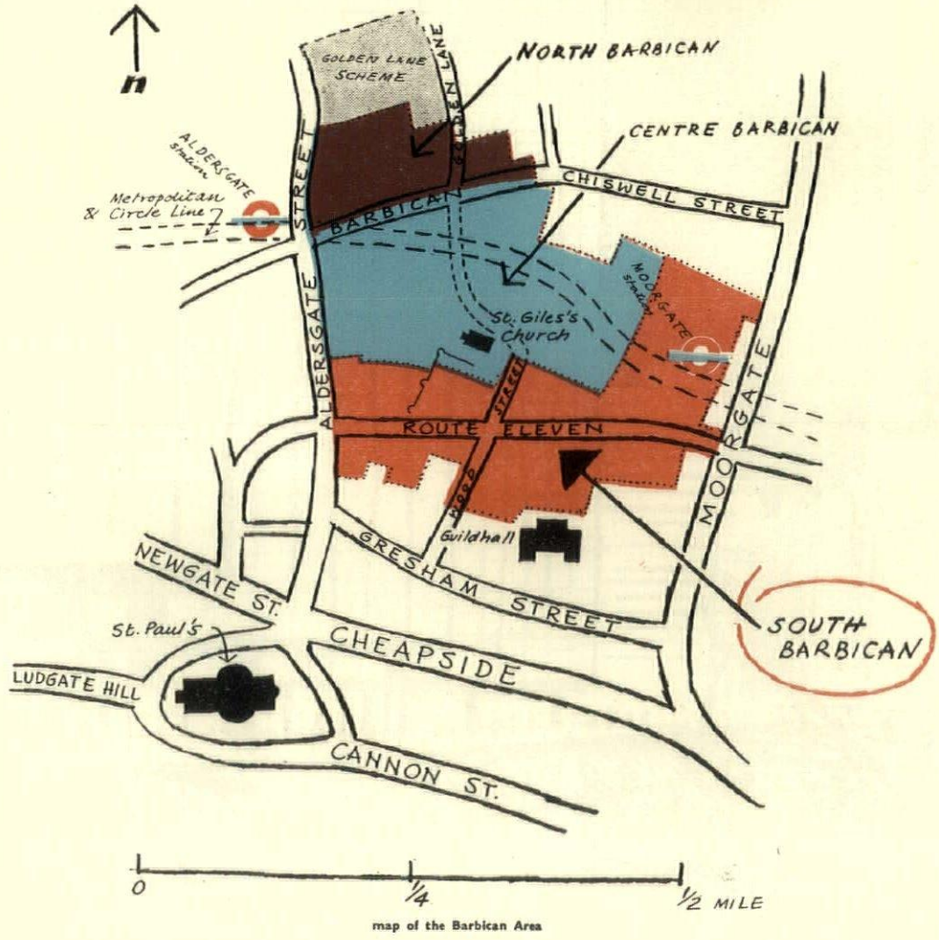
The City of London's first essay in pedestrian segregation

The publicity received by Chamberlin, Powell & Bon's scheme for the residential area of the Barbican has tended to obscure the fact that it is part of a larger scheme for the Barbican Area covering 63 acres (see map below). This is divided into three sectors, North, Centre and South. The North Sector, 10 acres of mixed development, is also being designed by Chamberlin, Powell & Bon in conjunction with the City of London's Planning Department and the design is still tentative. The Centre Sector, 25 acres of residential development, is the well-known scheme by the same architects on which it is hoped to start preliminary work next year. However, it is the little-known South Sector, consisting of 28 acres of commercial development, with which we are concerned here. The overall scheme, shown in the model opposite, has been designed by the civic design section of the City's own planning department, in conjunction with the LCC, and the buildings will be worked out in detail by the architects for the prospective building owners.

The first thing which strikes one is that despite the City's bad reputation for post-war building, this looks a surprisingly promising scheme. The second is that it is actually building now, and one tall block, ***a***, on facing page is, in fact, already up. This is not just the usual permitted density/light angle/desirable use diagram which it is vaguely hoped will produce architecture, but a true three-dimensional civic plan. What is more, the developers' architects are being made to toe the line and keep to this plan to an unheard of degree. This is made possible by the fact that the city is not only the planning authority but also the landowner.

In essence South Barbican consists of six 220 ft. high office blocks of identical size and shape, regularly spaced on either side of the new Route 11, and an even higher block of 380 ft. to the north which dominates the scheme. Both South and Centre Barbican have Wood Street as the axis and the 220 ft. blocks are parallel to this and angled to Route 11. They rise from a 1 or 2 storey podium of shops and lower offices with car parks and servicing below. However, by far the most interesting feature of the scheme is that here at last a real attempt is being made to solve the vehicle/pedestrian problem. At the podium height, 18 ft. above road level, the whole area is traversed by pedestrian walkways which not only link all the office blocks but link the entire scheme to the adjacent residential area. Shops, pubs, cafes and offices will all have their entrances at this level, with service access below. Escalators from Moorgate underground station will deliver office workers to a piazza at the 18 ft. level and they will cross all roads by bridges to their offices without at any time being in the same plane as the traffic. Four bridges will span Route 11 itself, and there will be no pedestrian access to buildings along it at ground level.

During the lunch-hour, office workers will be able to relax on terraces and in cafes and restaurants provided at this upper level. There will be open spaces, traffic-free, particularly by the old Roman wall. Wherever possible an intermediate (10 ft.)



map of the Barbican Area


1
Looking west along
Route 11 from a pedestrian
walkway 18'0" above
road level
a
b
c
d
BEA

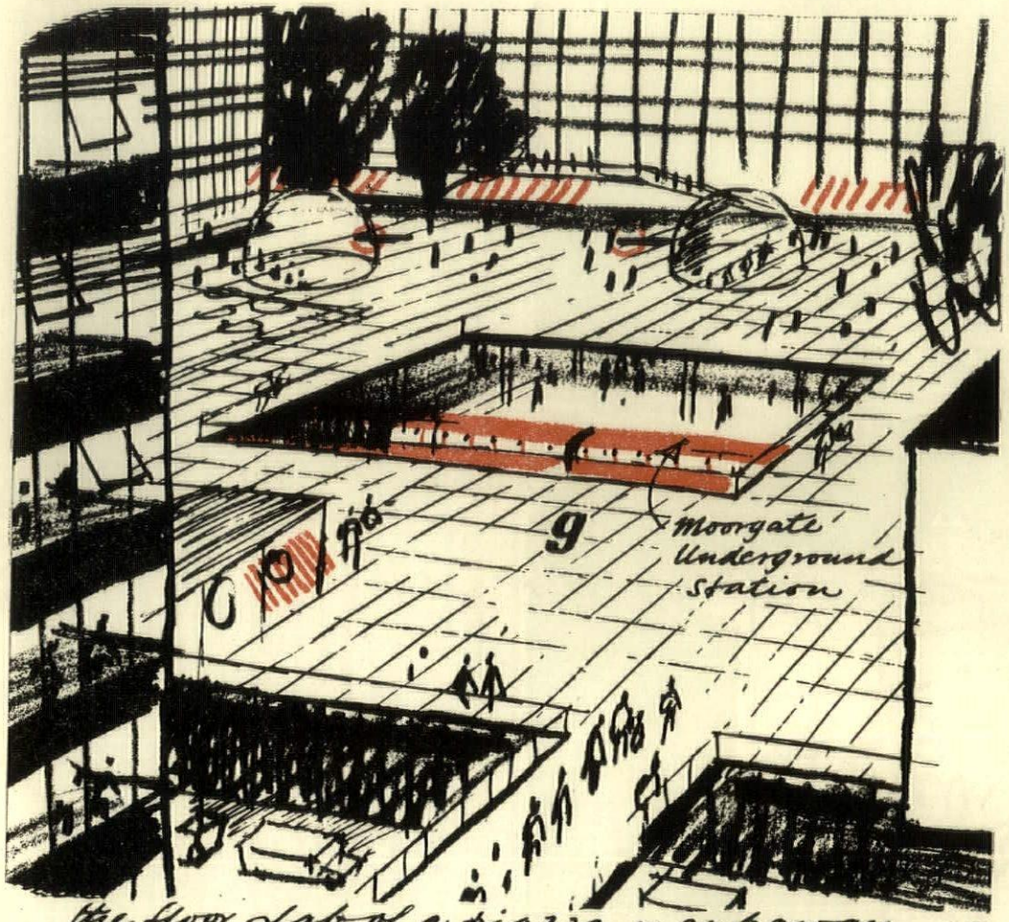
level is introduced which not only forms a rest landing for people climbing from the lower level but will accommodate kiosks, shops, etc. When this scheme is built it will be unique, for though many such exercises in pedestrian segregation have been put forward, nothing on this scale has actually been realized in Britain.

The sketches accompanying this article are an attempt to visualize what it will be like to stroll round South Barbican on the walkways shown in the model on page 338.

If we start by crossing Route 11 by one of the four bridges and look west, *1*, we shall see the 220 ft. office blocks standing in line and the walkway passing beneath them. Block *a* is already complete except for its bridges and ramps, for which structural provision has been made.

Diverting northwards for a moment, *2*, we come to a piazza which willl be formed over the rebuilt Moorgate underground station. The centre of the piazza is cut away to show the movement of trains below. Plastic domes protect the escalator entrances, and cafes and shops surround the square.

Retracing our steps and going farther west,



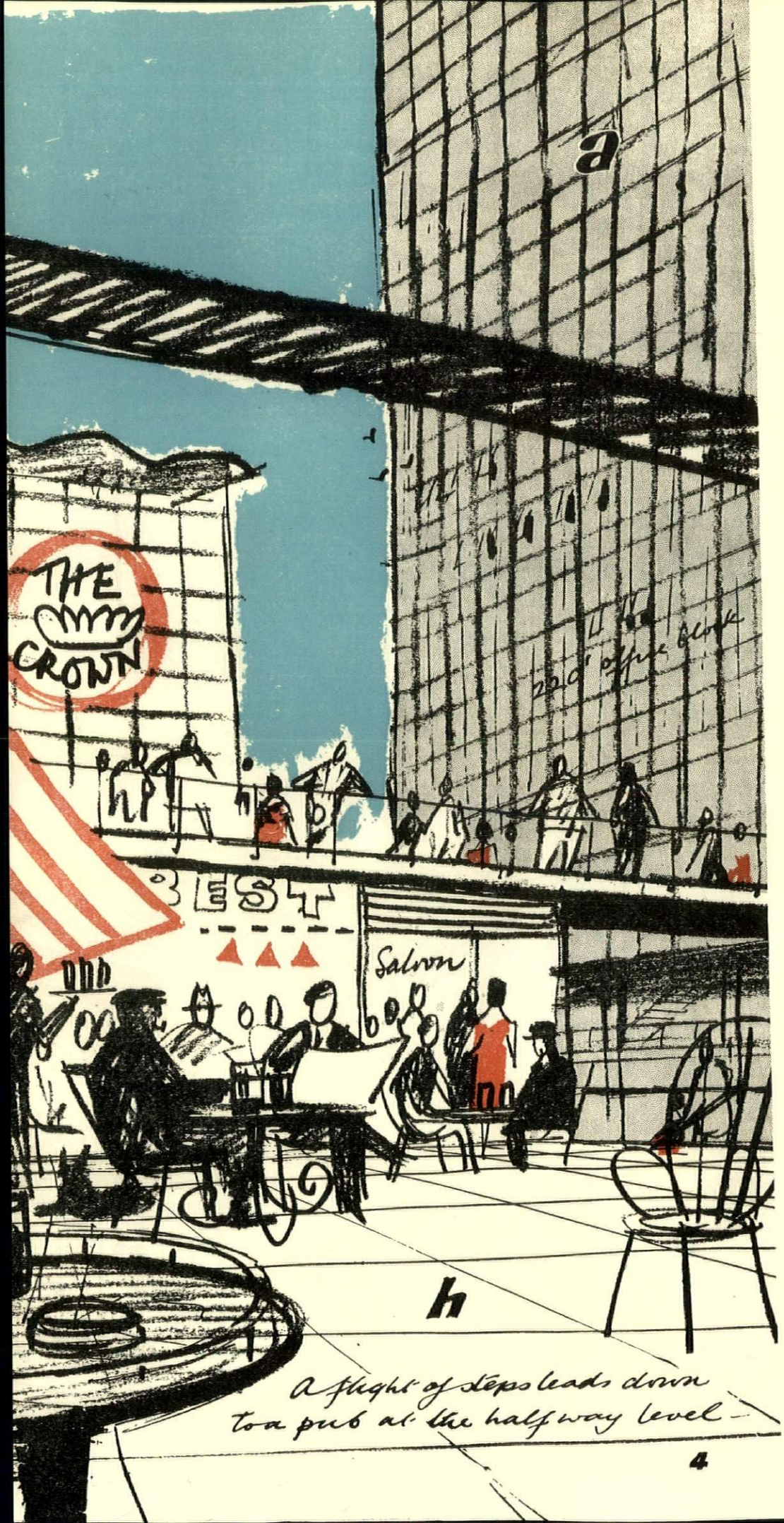
the floor slab of a piazza is cut away to show Moorgate Underground Station beneath

2



the walkway winds through between small shops & kiosks

3



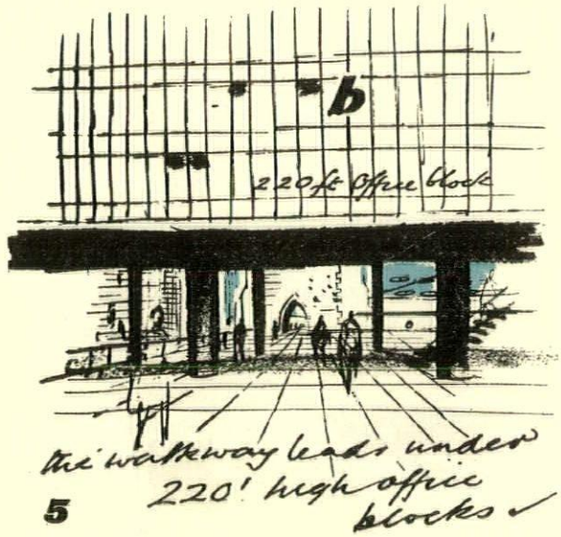
4

3, the walkway winds through an informal and partially roofed market of small shops and kiosks at the entrance to which steps lead down to a pub, ***4,*** at the halfway level.

After leaving the shops, the pedestrian platform, as it is now, stretches under office block ***b,*** and beyond it, 5, can be seen the ruin of St. Alphage's church, which is to be retained and makes an interesting contrast to the severity of the modern buildings.

The way leads through the ruin, ***6,*** and beyond it is an arcade of shops ***k,*** with the third high block, ***c,*** rising up sheer beyond.

Still at the same 18 ft. level we come to another pub and restaurant ***7,*** and can see St. Giles's, Cripplegate, framed between it and

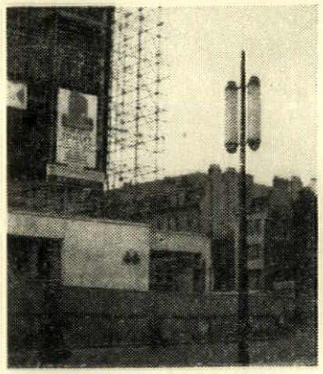


5

the next office block, ***c.*** At this point a ramp leads down to open space at ground level but carrying on along the side of Route 11 as far as the last tall block, ***d.*** Turning north we see St. Giles's again, this time with the roman city wall in the foreground, ***8.*** Here again ramps lead down, this time to a grassed park ***n,*** at the foot of the walls with a canal beyond. To the left one of the pedestrian ways leads on to the residential area of Centre Barbican. The new City of London school for girls is seen in the background, ***o.***

These are only some of the visual possibilities of the scheme and if it fulfils the promise of the model, it will, together with that of Chamberlin, Powell & Bon, at last produce something of which the City of London can be proud.

However, one grave doubt rests in one's mind: bad design of the walkways, bridges, steps, ramps and attendant street furniture—not strictly architecture but quite as important—could so easily ruin what looks very promising in the small scale of a model. The City's taste in such things in the past has been lamentable in the extreme as witness the new street lamps along Route 11, below. It will take very sensitive designers to produce solutions to rank with the German example shown as the frontispiece to this issue, page 300. But that is the standard we must have. This first British contribution could still be wrecked by clumsy hands.



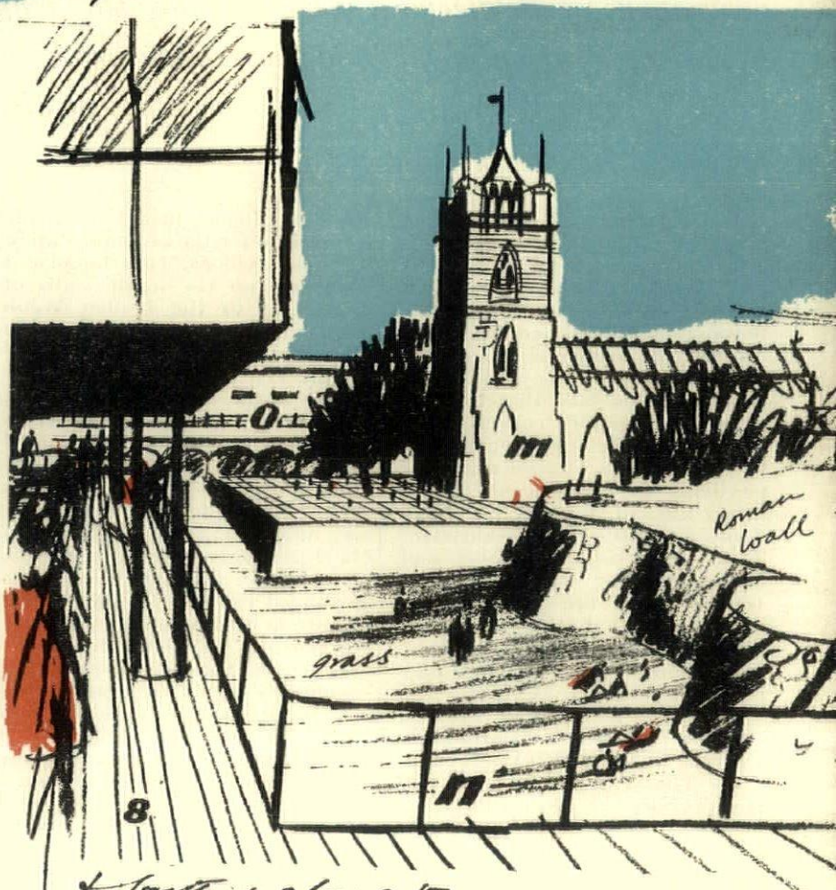
new street lamp on Route 11



& then through the ruined church of St Alphage to an arcade of shops



then past a restaurant with St. Giles's church beyond



& further along there is a grassed open space below the Roman wall



OCTAVIUS WRIGHT

THE GREENWICH LAYOUT

The layout of the Royal Naval Hospital at Greenwich is one of the grandest Baroque plans in Britain—yet generations of architectural historians have felt compelled to note that the Queen's House, by Inigo Jones, is something of an anomaly in the scheme. In the article below, Octavius Wright adduces the evidence for supposing that Wren and his contemporaries, to whom the final plan is usually credited, were following out the lines of a project by Jones, based on a larger version of the Queen's House that was never completed.

It is customary to attribute the grand layout of the Royal Buildings at Greenwich to Sir Christopher Wren, but the examination of their site and the buildings as now existing, and the consideration of available plans and documents, suggest that it may be more correct to conclude that the layout was originally conceived by Inigo Jones. It is also customary to regard the additions of corner pavilions to the Queen's House as an idea of John Webb, Inigo Jones's assistant and kinsman. They were begun in 1668 and abandoned and covered over in 1669.* There are good reasons to assume that these pavilions also were originally planned by Inigo Jones. Three reasons may here be introduced at once:

(i) There is a Jones drawing showing pavilions, 1. (Burlington-Devonshire Collection.)

(ii) The east and west roof parapets are not at present balustraded. Jones made economic provisions for the accommodation of the pavilions. Had he placed balusters on the inside walls of the waist of the H-plan Webb would have made use of them in the finishing of his bridges.

(iii) The terrace engages the whole of the north façade but 2½ feet at either end—an obvious provision for pavilions to be added by the extension of the east and west walls. The present proportion of the terrace to the whole façade is unquestionably displeasing. Had pavilions not been suggested the terrace should have been extended to a brief return southwards, or contracted to customary proportion. (The width of the terrace and the span of the medial bridge are each 1½ perches.)

The conclusions to which this article is going to proceed are based on the assumption that the pavilions were planned by Jones. If they were not, then the grand design of Greenwich need not be his either. Once the pavilions are accepted the following facts assume significance:

(a) The Queen's House with the pavilions lies in a three-chain square.

(b) The length of the Painted Hall is also three chains.

(c) The sets of the points PMC and PWR are each co-linear.

(d) The pavilioned house, together with the four other blocks, compose a geometrical plan-design worthy of Jones.

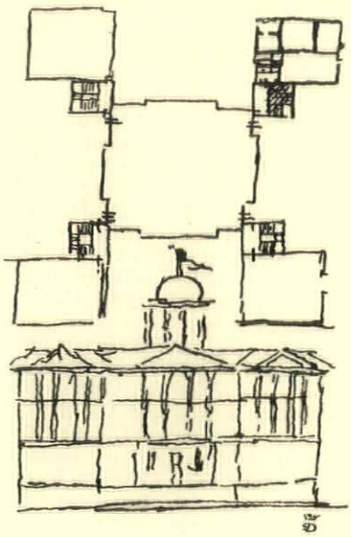
(a) above, has in common with the Queen's House cube room the squareness which typifies Jones's plans. (b) can hardly be accidental. It was indeed usual for Jones to plan on paper scribed or scored in squares of applicable units, and Jones believed in 'three-ness' altogether, as a symbol of the Trinity. Alberti was Jones's predecessor in faith in ratios of small numbers. Jones had read himself deeply into Alberti. The whole of the grand Greenwich layout is in 'three-ness,' as, 3, shows.

As for, 3, it is professional stagecraft showing the usual scenic lines. On this more anon. (d) has the dignity and the simplicity which we note for instance in the elevation of the west front of St. Paul's, Covent Garden.

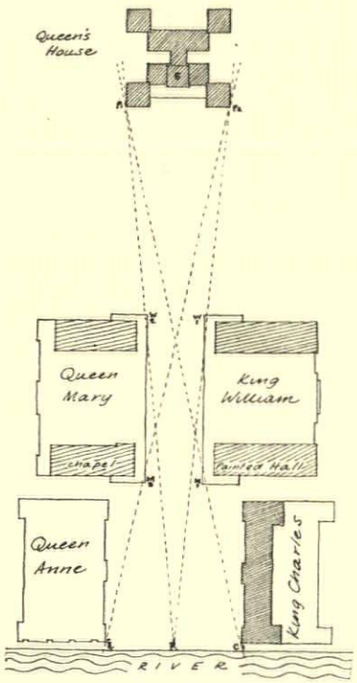
It is not likely that Webb would have launched out on so bold and so logical a layout without the urge and inspiration he had acquired from his master in the privacy of the Whitehall office. The only material we can hope to find to confirm or confute the hypothesis here set out would be in the nature of notes rather than explicit explanations and statements. These would reveal the master's conception of the buildings that were to arise.

There is however yet another argument, again admittedly hypothetical, but again with probability on its side. Consider Jones's theatrical experience. The Thames was the royal highway to the Palace. This fact automatically provided the circumstances that produced the essential

* See G. H. Chettle: *The Queen's House*, 1937, Plate 13.



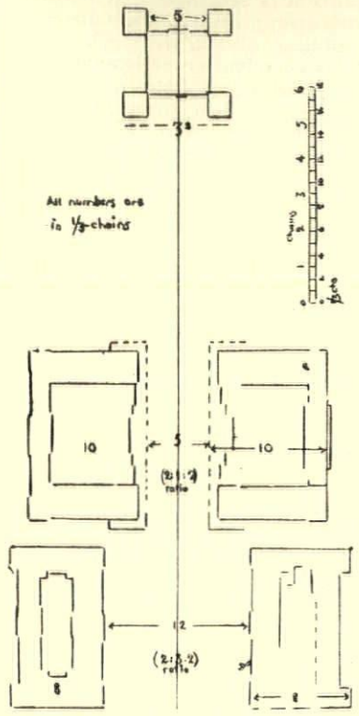
1, *Inigo Jones's sketch, with pavilions.*



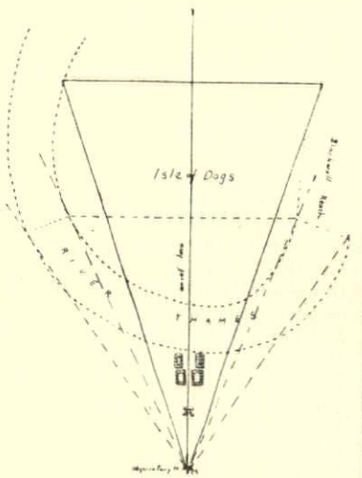
2, *scenic relationship of the Queen's House and the other four blocks.*

elements of the drama, namely the spectator and the stage. So it was that Jones was quick to seize upon the obvious fact which doubtless, when arriving at the river-stairs, and the scene before him, defined in his mind another stage for a royal masque (v. *Salmacida Spolia*), 5. From 1605 to 1613 he staged eight of them. During this period there are no authenticated architectural works to his credit. There are extant over 450 of his designs of costumes and scenery. More than sixteen of his masques are recorded from 1622–40. After the Jonson quarrel the name of Jones appeared above all others in title-pages of the masques owing to his unique inventiveness and his aesthetic sense of the spectacle which gave lustre to every act and scene. No man of this order could ignore such an opportunity of producing in the grand manner a theatrical setting on this royal Thames-side plot. Nature provided a unique backcloth and the pavilioned house of the Queen was ordained to be the focal point. The scenic lines fulfilled their part and the grand plan-design was evolved.

The axial line of symmetry of the House shows, on being continued northwards, a remarkable equipoise of the Isle of Dogs, 4. Jones, if the grand design is his, disregarded the general disposition of the old Palace buildings and river-line, and created a re-orientation by which the two silvery reaches of the Thames assumed a fresh aspect of symmetry from Humphrey's hill and from the piano nobile windows of



3, *the ratios of the design incorporating the pavilions.*



4, *the relationship of Greenwich with the Isle of Dogs.*

the house. This change was wisely purposeful for the future.

Sir Henry Wotton, in the discussion on 'The Seat and the Work' in his *Elements of Architecture*, said 'the precepts thereunto belonging do either concern



5, *a design by Inigo Jones for the Royal Masque,* Salmacida Spolia.

the "Total Posture" or the placing of the parts—some may be optical as concern the properties of a well-chosen "Prospect"—yet in the seating builders should be as circumspect as wooers.' Wotton was in Venice in 1604–10. Jones may have visited Italy a second time in 1605, and on that occasion could have gained much wisdom in cultural matters from this great scholar. He later on referred frequently to him in the margins of his copy of Palladio's *I quattro Libri dell'Architettura.*

On the strength of the arguments so far adduced, it should now be possible to be a little more general. Three further points may help the case:

(i) Sir Roger Pratt said that the only remarkable buildings in England were the Banqueting House and the portico of St. Paul's. Webb, in his inscription on the master's monument, notes only the Banqueting House and again the portico of St. Paul's. They both must have realized that the Queen's House was incomplete without the pavilions and therefore preferred to be silent about it.

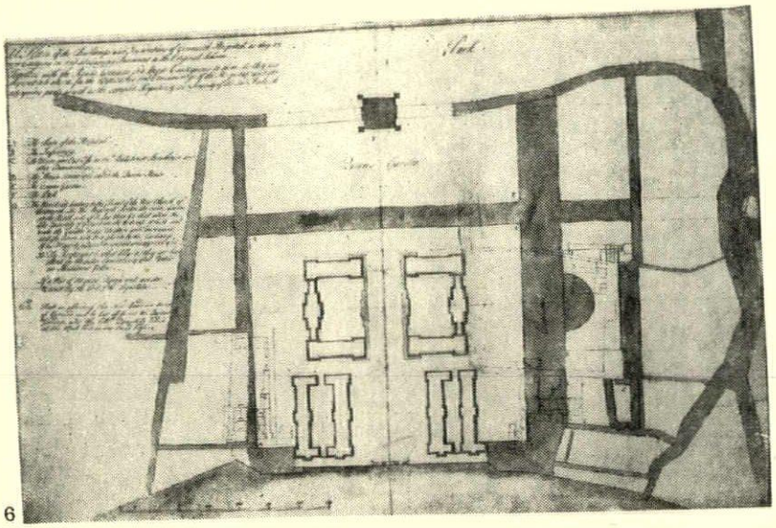
(ii) Mr. A. T. Bolton writes: 'It has always been evident that Wren's work contains elements alien to his style.' In *Parentalia* we read: 'Father kept his ambitious projects subservient to the existing buildings of Jones and Webb.' Sir John Summerson in *Architecture in Britain* writes regarding the Queen's House: 'This old building of Jones was something of an embarrassment to the Greenwich planners.' In these three extracts one notes a common factor of disturbance. Had the pavilions been built, the composition could at once have fallen into place.

(iii) The sets of points PMC and PWR are co-linear only on an Ordnance map and on one plan at the RIBA (Drawer 5, No. 8). The reader can refer to the volume of the Wren Society and test Hawksmoor in his 'Pamphlet' plan of 1728 for the co-linearity of PWR. He can also test PWR in the plans on plate XIII of the Wren Society, 6. Those who doubt Jones's intention to introduce pavilions must find it difficult to explain why architects of distinction drew them in their plans so late as these years. Would their omission have meant a violation of respect for the great master? The awaiting for bonding purposes of the terrace balustrade to the extended pavilions walls might explain their persistent appearance. The plan on plate XIV in the Wren Society, 7, on the other hand, shows the points not co-linear and thereby indicates that Jones's purpose was unknown to the architect who drew it.

Many sources have been suggested from which Jones's mind evolved the form which the Queen's House was destined to assume. They are mainly Italian—most are unpavilioned. If the pavilions are accepted, the plan nearest to Jones's with pavilions is shown in du Cerceau's engravings of the château at Chalvau, 8, published in 1576–9. A plan from which two elevations are given is of the H-form. It is divided by a passage in the greater part of it, but not entirely as is the Queen's House by the Woolwich passage. The centre roof turret is very similar. It is not unreasonable to suggest that du Cerceau's volumes were acquired for the King's library, and that the Queen and Jones perused them together in consultation for the future planning; and that it was the Queen's desire for originality which determined the passage of a road through the house. The text which accompanies the engravings describes the views from the castle windows as showing a canal, a hill and deer in the woodland—reminiscent of Greenwich.

The book of du Cerceau's engravings was dedicated to Catherine de Médicis, who took considerable interest in the work of her architects to the extent of interfering with the designs of the great de l'Orme.

In 1848 Peter Cunningham



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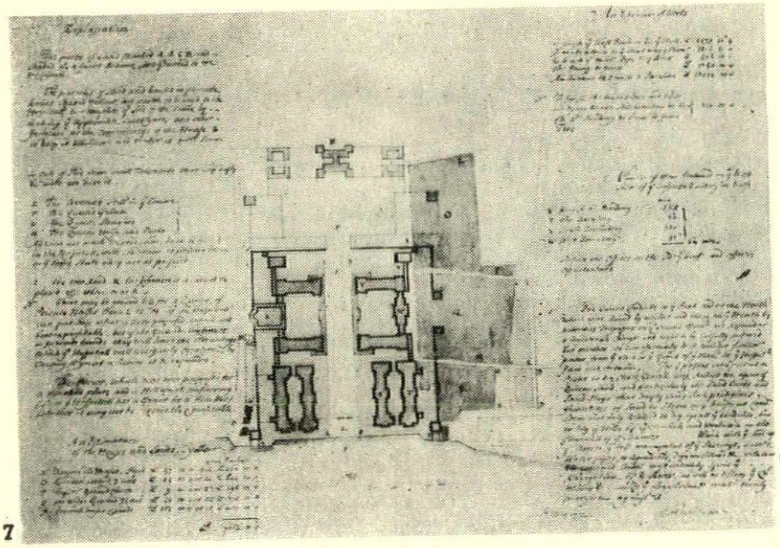

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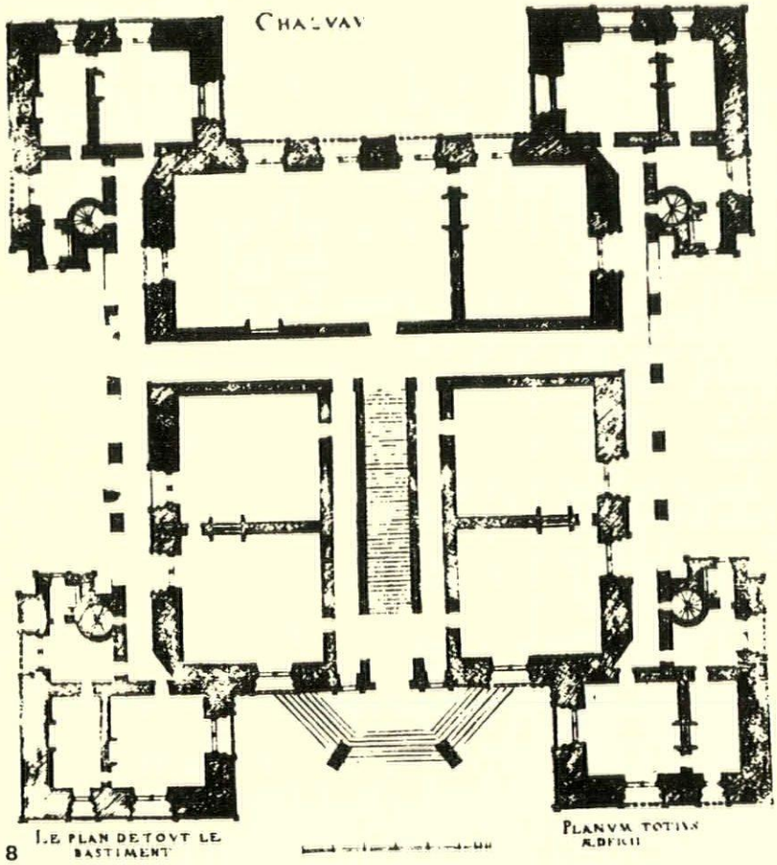

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published a Life of Jones. He states that at his death 'Whitehall was left unfinished; Greenwich was a mere fragment of a larger design.' In his recent book on the Banqueting House Dr. Per Palme says: 'In planning the coercive power of the axis is at work.' This power was at work at Greenwich. It was strong enough to compel Webb and Wren to accept the line of equipoise over the Isle of Dogs. Quoting (page 199) in reference to the Venetian window Dr. Palme says: 'To Jones the motif of a round-headed window flanked by square openings had fundamental implications. On the north side of the Queen's House the slightly advanced centre portion is articulated by a trio—this arrangement giving a directive emphasis also to the single cube.' This coercive power is evident in the working of Jones's mind. He displayed it here throughout with energy—from the cube room across the terrace—descending the horse-shoe stairway to the river. This horse-shoe form was probably inspired by that of the reaches around the Isle of Dogs 4. There is good evidence to show that the whole perron was not completed till after 1728. This does not preclude the design from the emanations of Jones's mind. The axial drive is in two directions—one northwards from the hill and the other southwards from the river-stairs. Either way we travel we would be met by aspects of architectural dignity and would be convinced that Jones's mind was not devoted to the erection exclusively of a single royal abode.

One more question remains. Was James in need of a new palace at Greenwich? Did he need a new Banqueting House at Whitehall in 1619 at a time of financial crisis? Dr. Per Palme has answered this in a manner which applies also to the Greenwich need. The Catholic problem troubled James greatly. His policy of believing that he could be a champion of Protestantism and at the same time a friend of Spain became impossible after the Raleigh crisis in 1618. At this period work on the Queen's House ceased. It is not likely that James's love of his Queen had anything to do with this cessation. Having two princes for disposal, large dowries loomed in his mind continuously. He chose as their respective brides Catholics, but he wished to be at peace with the Anglican bishops. The Infanta had insisted that her children should be baptized according to the Roman use, and that her chapel should be large and open to the public. The Queen had refused to partake of the Anglican communion at her coronation.

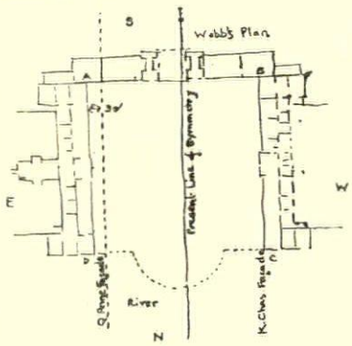
6, Greenwich plan from the Wren Society records, with points PWR co-linear (see 2)

7, another plan from the Wren Society records without co-linear setting-out.

8, du Cerceau's engraving of the chateau at Chalvau.

She urged a Catholic marriage for the young Henry, and corresponded with the Infanta and a cardinal in the hope of the conversion of the King.

James spent most of his time hunting in the Theobalds area and in the company of worthless favourites. The Queen was mainly in residence at Greenwich and Denmark House, where she was allowed to find comfort in Catholic indulgence in the privacy of her chapels. James may have thought it wise to separate the activities of the two factions, looking upon the walled-in palace at Greenwich as an out-post of Catholicism. Inigo Jones was just the man to build a new palace. James had no financial sense in building matters. He was incorrigible and could not resist the temptation of extravagance—of making a sumptuous display of wealth and stateliness before foreign princes and ambassadors. The welcome of the brides was to be prepared with exceptional costliness. The auditing of accounts was delayed. The Queen's funeral was held up for two months. These irregularities were the outcome of an irresponsible mind. Here then is a reason why the new palace had to be built. In this light Webb's familiar plan of 1665,



9, Webb's plan for Greenwich.

9, was no more than an afterthought — a makeshift — made under financial restraint. Wren had good reasons for rejecting it. Webb's plan shows ABCD as a perfect square, BC being the already completed façade of the Charles block. XY is the façade to be of the Anne block to complete the symmetry about the axial line of the Queen's House. A deficiency of thirty feet is a significant one and needs consideration. However, the plan is not a pleasing one. It seems to emphasize by its negation of beauty Jones's original conception. It was quite unnecessary to place this quasi-square close to the river-edge. There was ample room southwards. The arcuated forecourt projects into the tidal stream. Why begin with the west block—the centre one might have priority? The Placentia chapel was the first of the larger buildings to be demolished in the early 1650s. This clearance would give cause to begin on the east block.

Nothing but a grand layout would warrant so great a change in the river-line.



1

OFFICES AT COVENTRY

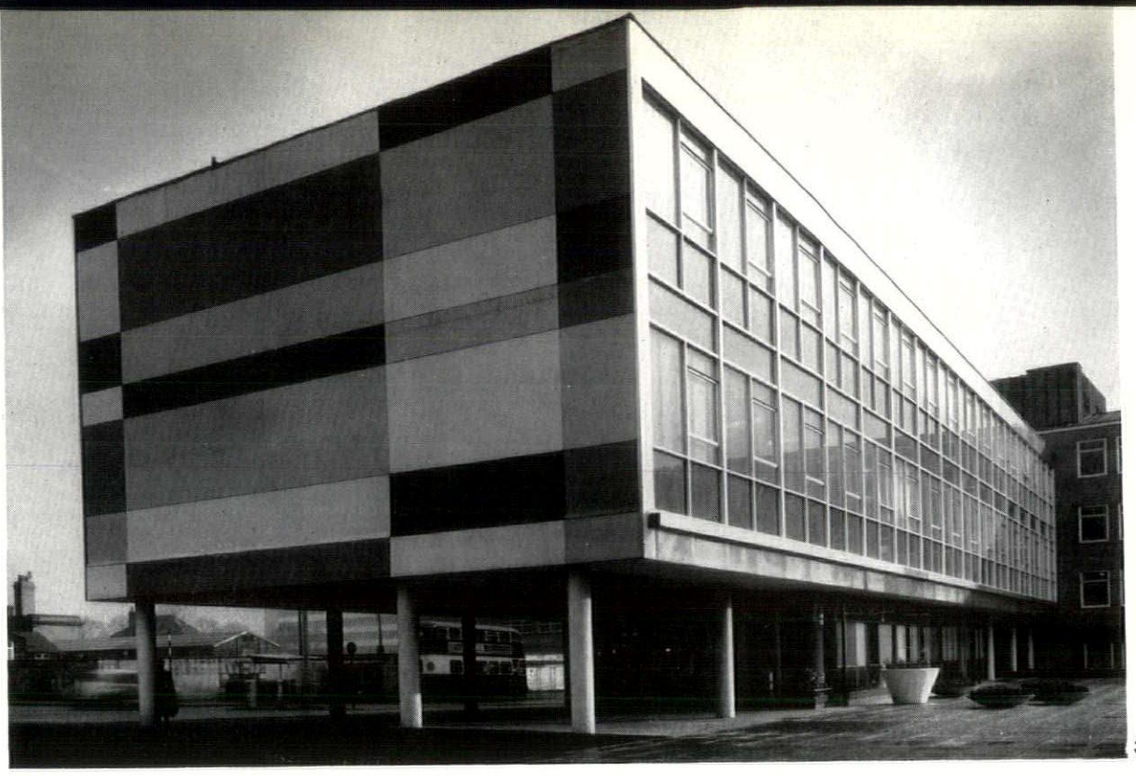
ARCHITECT ARTHUR LING

These offices for the Department of Architecture and Planning, on the south side of Earl Street, form two sides of a rectangle enclosing a courtyard, with the new Council offices on the other sides. A pedestrian way runs under the building to give the public access to the courtyard. The east wing is of brick construction, with a pitched roof faced with copper to blend with the earlier offices; the north wing is finished in stainless steel and glass with a flat roof. This wing is carried on columns faced with opaque white glass mosaic and the ground floor exhibition hall has window and door frames in stainless steel. Windows in the north block overlooking the street are non-opening double glazed units and those overlooking the courtyard are



2

1, the northern studio wing seen across the courtyard. The paving panels have been supplied by manufacturers and can be used to test performance of the materials.
2, a corridor in the studio block.



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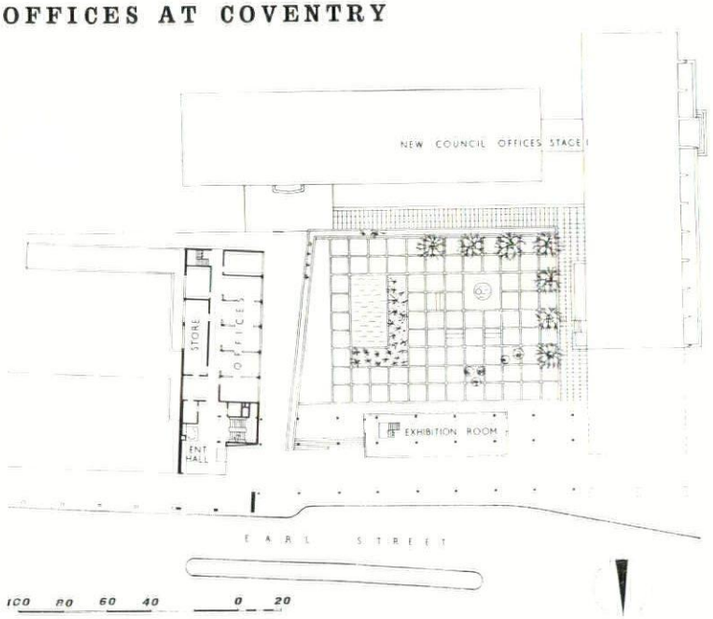
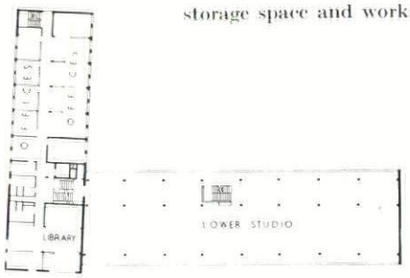
3, the studio block looking from the courtyard north-west towards Earl Street. The patterned end wall is temporary as this corner will eventually be closed by the third stage of the offices.

OFFICES AT COVENTRY



4

gear operated lights with venetian blinds. Artificial ventilation is provided by means of inlet ducts located in the ceilings on the north side of the studios, blowing air which is extracted after circulation by similar ducts on the south side. Heating is by oil-fired boilers in the basement which feed low pressure hot water to the ceiling heating system. The basement also contains a garage, storage space and workshops.



4, the entrance hall. The abstract mural is by Michael McLellan. The floor is of white Sicilian marble, the reception desk is teak and sycamore and the panelling behind the desk is of Swedish redwood.
5, the City Architect's office has walls of natural Swedish redwood. The conference table has a top of Travertine marble and the chairs are covered in linen.





5



6, *the garage from the south-east, showing the circular showroom and the board room above it.*

GARAGE AT LINCOLN

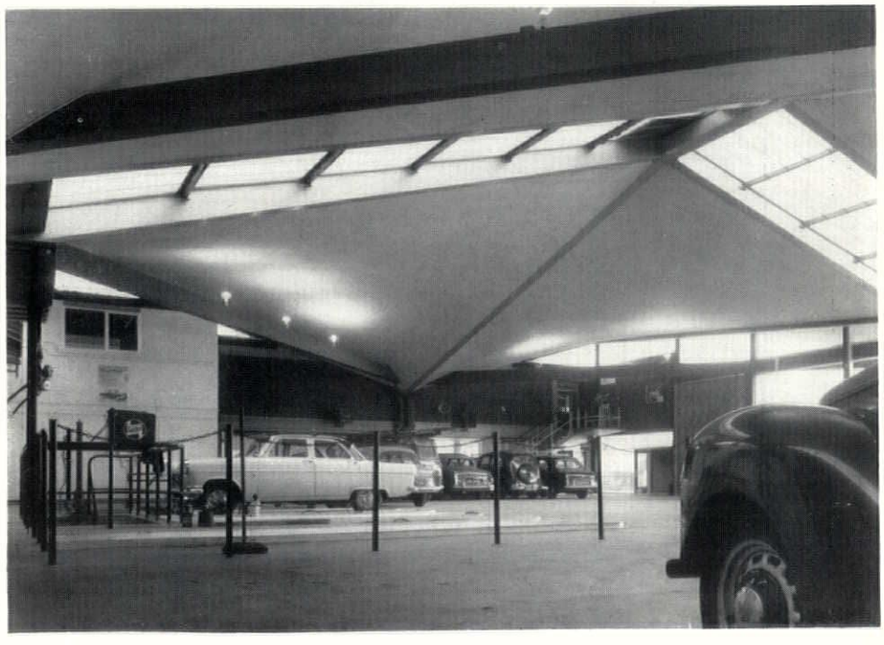
ARCHITECTS DENIS CLARKE HALL, SAM SCORER AND ROY BRIGHT

The building stands near the centre of Lincoln, overlooking the Brayford and provides a showroom, offices and covered filling station, as well as an extension to the present garage in Lucy Tower Street. At the southern corner of the site there is a circular showroom containing a turntable, with the board room and Managing Director's office on the first floor.

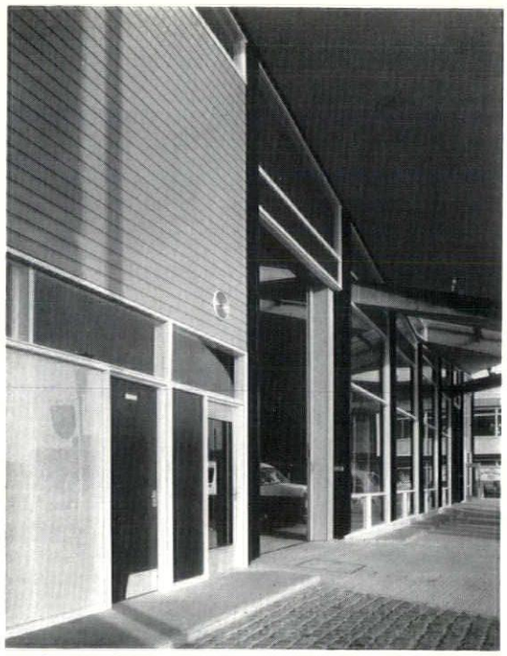
The construction is of reinforced concrete, chosen for its economy, durability and fireproof qualities. Because of the very bad ground the whole building is carried on piles approximately 40 ft. deep. The garage roof is a reinforced concrete shell, supported on columns to provide a clear unobstructed area. It consists of four units, each 50 ft. square and 2¼ in. thick, with the edges thickened to form the supporting framework. The lower points of each shell are supported on reinforced concrete columns, the high point at each corner being stayed against wind by means of a steel column. Between the two supports, at the low point of each shell, is a prestressed precast reinforced concrete tie 67 ft. long, which carries the outward thrust of the roof.

The building is heated by a central heating system operating from an oil-fired boiler; the showroom has forced air blowers, the offices have radiators and floor panel heating, and the garage has heaters blowing warm air. Mercury vapour lamps use the underside of the garage roof as a reflector, to give uniform lighting over the whole floor area.



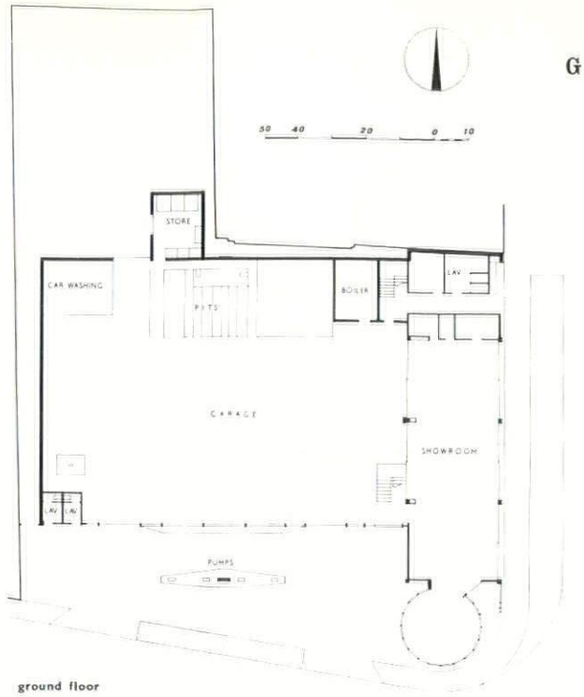


7, *the garage and filling station, showing the sweep of the paraboloid roof.*
8, *the garage interior. The roof structure gives an uninterrupted floor area.*



9, *detail of the garage front seen in* 7.

Garage at Lincoln



ground floor

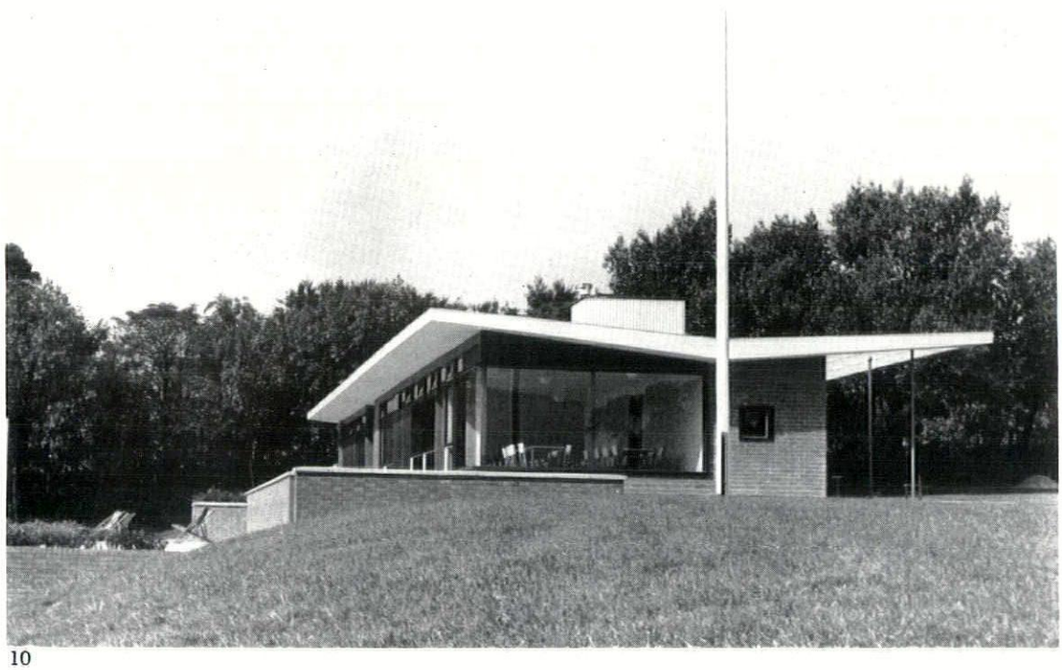
first floor

SPORTS PAVILION AT CATFORD

ARCHITECT PHILIP H. LAURENCE

This pavilion for St. Dunstan's College was designed to serve the cricket field to the south, but is also used for rugby matches and has a covered terrace for spectators on the north side. The fall of the ground to the south provides two stepped terraces for spectators and players. Piled foundations in the clay subsoil support a concrete raft and the south terraces act as structural retaining walls to counter the moving clay.

The walls are timber framed with plaster or insulation board internally, and cedar boarding externally, with brick for showers and lavatories. The butterfly roof is of 10 ft. wide prefabricated timber egg-crate units bolted together and anchored to the spine wall, covered with wood slabs and multi-ply mineralized felt. The ceilings are lined with insulation board.



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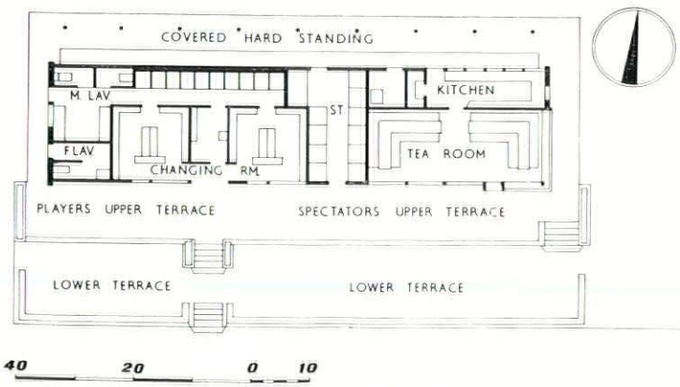
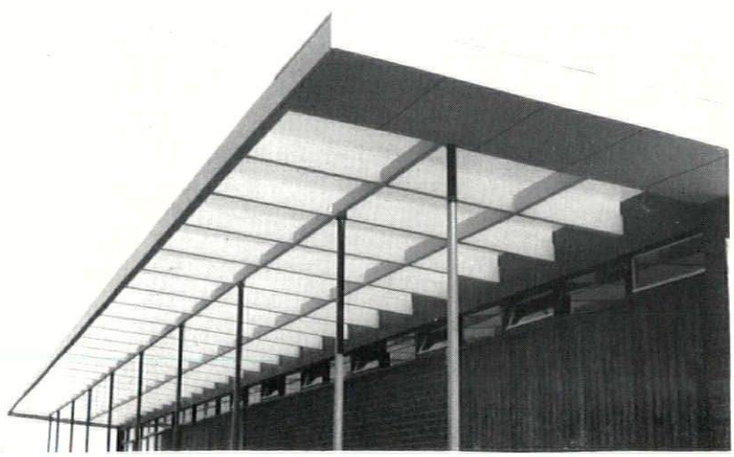
10, *the pavilion from the east.*
11, *the egg-crate roof over the north terrace.*





11

EXHIBITIONS

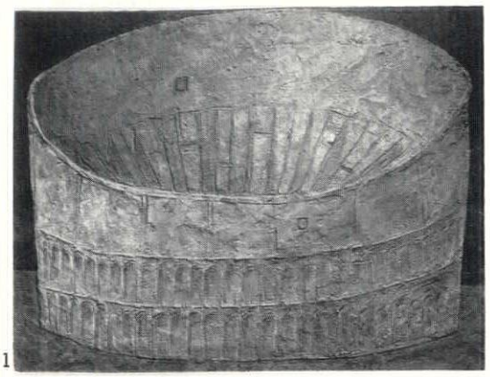
PAINTINGS

The young Italian painter Dominic Gnoli has been exhibiting his latest drawings and paintings at the Arthur Jeffress Gallery, which has the discreetly lived-in look of a drawing room. The young English painter Evelyn Williams has been showing a group of her paintings and one or two drawings in the grimly institutional atmosphere of the South London Art Gallery. Gnoli is sophisticated, versatile and serious in a relaxed sort of way. Evelyn Williams is obsessively repetitive and in deadly earnest. Gnoli has a feeling for the warmer earth colours—sandy yellows and the range of reds in clay. Evelyn Williams's paint is ashen, and all the faces in her pictures tend to take on the Lazarus look.

Both of them are concerned with the state of alienation into which modern man finds it so easy to fall, but neither of them makes experimental use of it in the hope of being surprised by the marks their hands make. It engages them not as a possible solution for design problems, but as a human problem. It leads Gnoli to make what the writer Niccolo Tucci calls 'inventories of silence and absence,' and Evelyn Williams to a preoccupation with the inward gaze.

They are well aware of the arguments against preconception, and of the warnings that have been issued about the dangers of knowing beforehand what one wants to do, and they are eager to discover the potentialities of their medium in the act of working it, but without attempting to re-establish the old discredited frontiers between subject and object they are rediscovering some of the mystery and magic of representation in their unlegitimized approach to the *hautes pâtes* of the informalists.

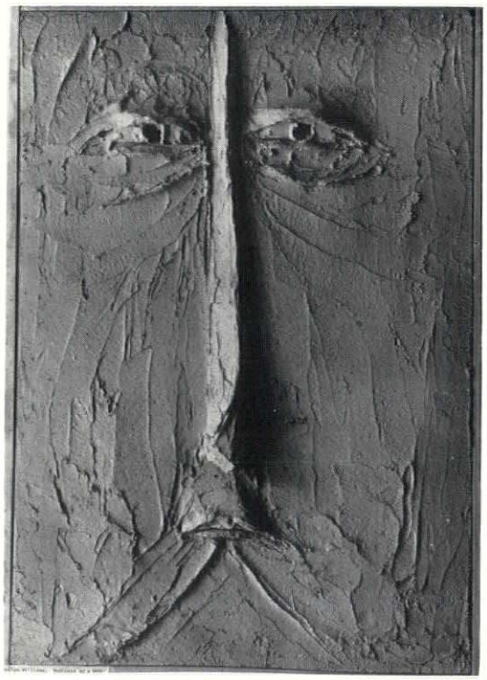
Gnoli's feeling for dry, scratched uneven surfaces brings to mind the work of Antonio Tapies, but instead of inventing a piece of scarred wall he represents a complete building, and uses his raised paste to impart to the illusory aspect of his three-dimensionalism the sense of a hand-made model that has been pressed on to the canvas. If Tapies works like a plasterer bent on forestalling time and the weather, Gnoli has more the attitude of the potter: his material looks as if it has been thumbed into shape then baked in an oven. His feeling for the material he shapes



1

brings one into extraordinary intimacy with his temples and towers and his red 'Coliseo,' 1, for it transmits the sense of their having been handled as well as seen, so that without any loss of monumentality, their hugeness somehow becomes as embraceable as a Renoir nude.

Evelyn Williams exhibited with a group of painters that included Jack Smith and her husband, Michael Fussell, and it is clear that her feeling for thick, groovy paint has developed in association with them, but it is equally clear that their work didn't give her a mandate to build up the noses in her studies of the human face to such an extent that they hang right out of the picture. At first glance this looks like an eccentricity and can, and is, mistaken for a confused fall into the literal, and it must have taken a great deal of courage to outface the laughter. Her work will, I think, always bring laughter into one's response, even after one has become aware of its subtlety, its elegance and its melancholy, rather in the same way that one laughs in the presence



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of some of the best primitive and archaic work. Her use of raised pastes serves a poetic vision of estrangement that brings to mind some of the haunted visages of Paul Klee, and turns her canvases into marvellous meeting places for the concrete and the ineffable, 2.

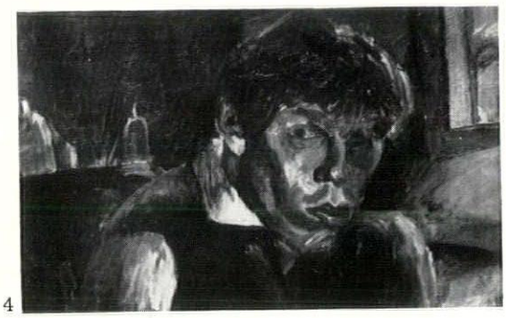
Arthur Tooth & Sons were modest about the loan exhibition which they arranged in homage to Matthew Smith. They described it simply as an assembly of some of the best canvases in private collections that were not shown in his Retrospective at the Tate in 1955. The exhibition was, in fact, extremely well chosen, and offered an exquisite distillation of his lush dream world of odalisques, fruit and flowers, glorified by a nostalgic burnish. It remained a splendid spectacle as long as one didn't look too hard at individual pictures, but it was essentially a spectacle of deep rich colour. One is grateful for it: it lies like manna on a wilderness of unresolved form problems. A picture like the 'Nude,' painted in 1932, 3, made a satisfactory



3

contribution to the spectacle, and there is something splendidly natural about the position of the hand between the legs, as if the model really were asleep; but the left shoulder is ugly and the right leg flat, and something about the head made me uneasy enough to crick my neck to get a straight view of it, and it now seems to me to have come straight out of Picasso. This doesn't matter in itself; after all, Picasso finally resolved his portrait of Gertrude Stein by giving her a face like an African mask; but the Picasso head doesn't resolve Smith's problem; the body simply pours inconsequently away from its hard modelling, and as a painting of the nude, I should think that this picture would be totally unacceptable in the country to which he was always paying desperate and unavailing homage.

Timothy Behrens, holding his first one-man show at the Beaux Arts Gallery, gave a comically thorough-going demonstration of uncouthness. He obviously went to some trouble to obtain dirty and broken frames and was so careful to avoid any sign of good taste in the hanging that it wouldn't have surprised me if he had arranged for everything to hang askew. For the pictures themselves he adopted a stale rhetoric of frowsiness, and succeeded in projecting an overall image of ugly young people living like pigs. The self-portraits, 4, which stared



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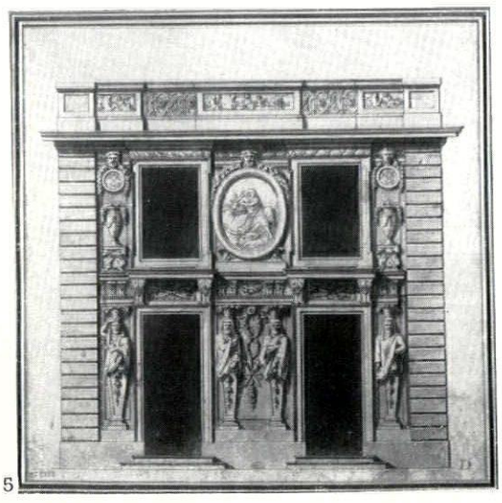
aggressively at the spectator from every side of the gallery were studies in stepped-up self-revelation, which is probably the same thing as self-deception. He paints the nude as if it's the next best thing to butcher's meat, and he is no doubt in love with the Soutine legend, but at the moment he is too busy cutting a figure and trying to persuade us that he's the outest outsider in the world to have much time for Soutine the painter.

At the Arts Council Gallery, there has been a charming show of seventeenth and eighteenth century drawings from the Musée des Arts Décoratifs, mainly of designs for furniture and other items of interior decoration, including this design

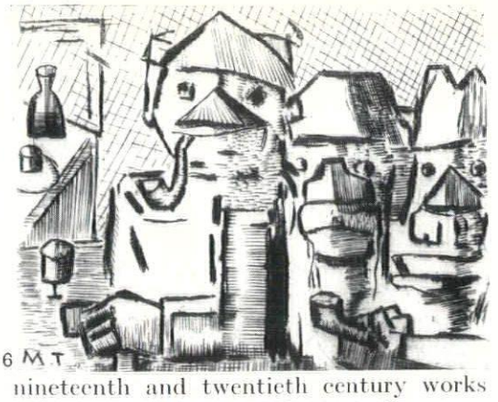


5

by Charles le Brun for the decoration of one of the pavilions at Marly-le-Roy, 5. Many of the designs for furniture are fantastically elaborate, but are so elegant and lightly drawn that it's difficult to associate them with the heavy and over-bearing objects which they so frequently instigated.

Although the technical standards were high, there were not many outstanding images in the exhibition of Polish graphic art held at the same Gallery. But the work of three of the artists seemed to me to be very spirited and original. Jerzy Panek was represented by some very large woodcuts in which delightfully jumpy animals were delineated in elaborate, wheeling formations of small irregular black squares, and Jozef Gielniak showed some strange and disquieting lino-cuts of the façade of a sanatorium composed of a kind of buzzing compost of tiny motifs which left one with the impression of an ant heap influenced by European architecture. There were also some interesting dry-points by Tadeusz Makowski who died in 1932. Makowski was a most accomplished painter, and although he was influenced by Gromaire, his humour and fantasy were extremely personal. His dry-point of three men in a bar, 6, provides a glimpse of his characteristically wooden and gnome-like personages, but one would have to see some of his paintings of children and animals in the same idiom to obtain a full sense of his warm and generous vision.

The Lefevre Gallery has recently held another of its distinguished anthologies of



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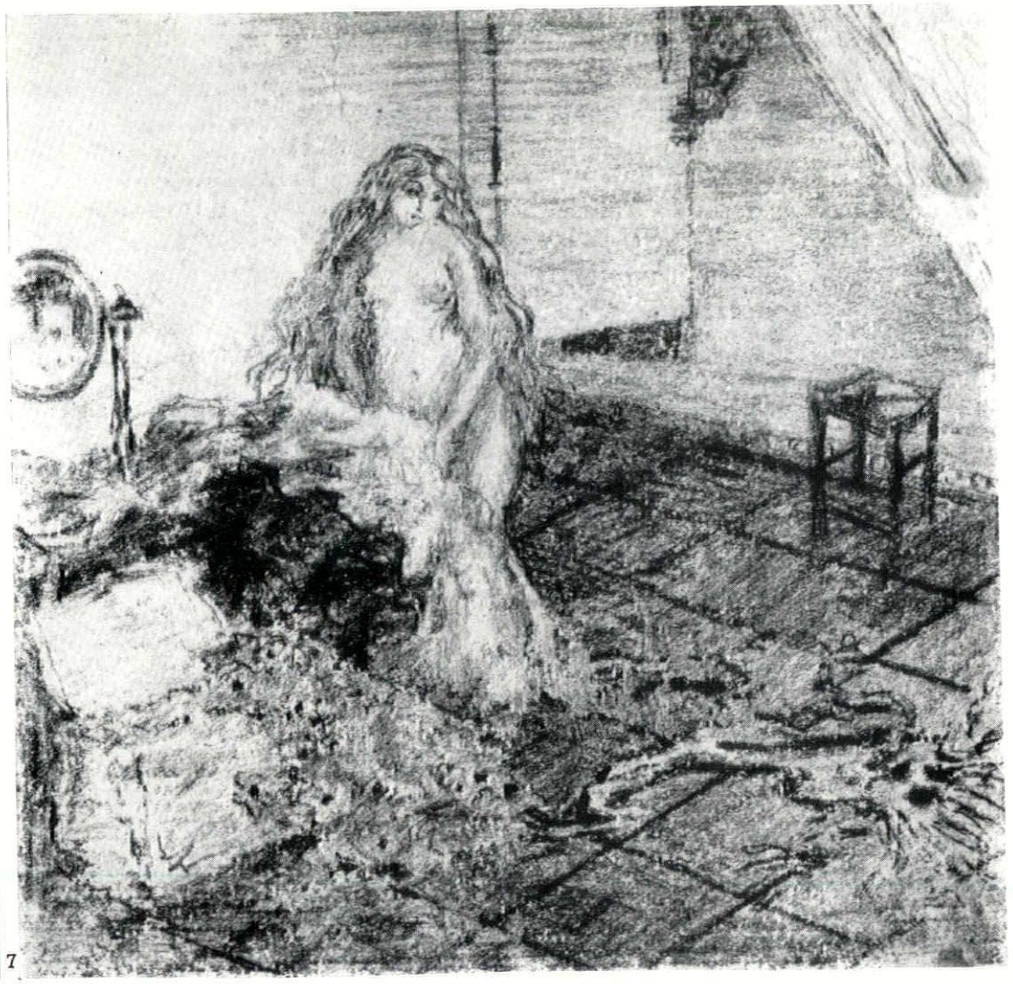
nineteenth and twentieth century works from France. It included a very fine snow scene by Pissarro, an astounding little burst of brush-strokes by Matisse which very nearly avoids becoming a landscape and makes the abstract impressionism of painters like Philip Guston look a bit static and contrived, and a lovely sanguine drawing by Renoir of a young girl's head, with the sharp, boot-button eyes and sensual smudge of a mouth which he so generously presented to any little girl who posed for him. A group of six little chalk drawings about 5½ in. square, executed by Bonnard in 1902 as illustrations for a book of Italian fairy stories which was not published, are marvellously full of light and space. The one reproduced here is called 'Interior,' 7, so presumably the



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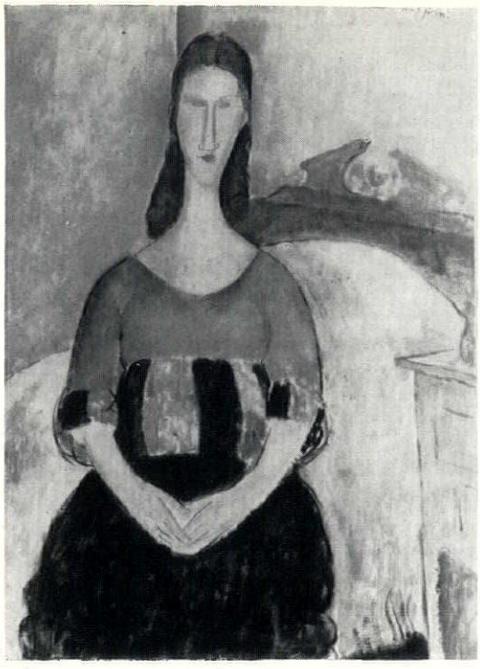

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relevant passage in the stories is not known. The Modigliani from the same exhibition is a portrait of Jeanne Hebuterne, 8, painted in 1918 in an hotel bedroom in Nice. It is less sharply defined than some of his portraits of her, possibly because of her pregnancy, but instead has a delightful air of informality.

Robert Melville

COUNTER-ATTACK

NEW AMONG THE OLD

The idea of reviving the centres of old Scottish towns is still something of a novelty. Two or three years ago, Basil Spence's flats at Dunbar were more or less the only thing of their kind worth commenting on. Now, however, after a shaky start, one burgh after another appears to be turning from making its shapeless and dreary edges even more shapeless and dreary to sorting out its more or less derelict middle (and plenty have one).* Particularly in Fife, where old buildings have survived in greater numbers than anywhere else in the country, schemes for giving fresh life to the old town centres have become popular; and work on a large scale is either finished or on hand at Burntisland, Kinghorn, Dysart, Buckhaven, Leslie and Lochgelly (for all of which the architects are Wheeler and Sproson), while the National Trust for Scotland are going on with their intensive facelift at Culross. The most remarkable of these schemes is the total rebuilding of the old town of Buckhaven, a one-time resort and fishing town now become a huge and most unlovely sprawl of miners' cottages and council estates on the cliffs above beaches permanently black with coal dust. The fishing-port is mostly roofless and deserted: the Burgh Council and their architects have decided, rightly, to scrap the lot, and settle for a completely fresh plan and design making exciting use of the dramatic possibilities of a landfall often as steep as 1 in 3, with high-density housing in a mixture of formal and informal arrangements.

Here is a case where the new looks as if it will, through its boldness and vigour, be a complete justification of getting rid of the old. It isn't often that that can be said, though it must be admitted that in its present state Buckhaven has precious little worth saving. Other towns have been luckier, and here a more wary (but no less radical) treatment is needed. This may involve restoration as well as building afresh and at least will mean that new buildings will be seen against old ones of considerable character.†

As regards restoration the National Trust of course set the example with their patient work in the old streets of Culross, Dunkeld and Falkland. Culross, a tiny town on the Forth coast of Fife, surrounded by mines, is none the less, thanks to the National Trust, the best preserved medieval burgh in Scotland. The view of the market place, 1, shows old houses after the Trust had restored them. The work may be expensive, but these delightful little buildings have once again become thoroughly pleasant places to live in. Renewal, however, obviously mustn't always mean restoration and it's where new work comes face to face with old that architects are set one of their most fascinating challenges. The Dunbar flats have now settled down reasonably well amongst the older buildings, 2, and were certainly a very real advance on anything that had been done before. But the designs absorb little of the strength inherent in the materials used; and are too timid to make a positive contribution to a town like Dunbar.

At Burntisland a much more ambitious approach has in fact been more successful. Here, as at Dunbar, it was a question of a derelict area between the main street and the harbour. But at Burntisland the decayed area was more closely related to the High Street, is farther from the shore and has less of a nautical feel than at Dunbar. In fact the scheme had to take account of High Street as well, for two of the new buildings actually stand in it. The job therefore was to make a design which would sit both in a busy street of very varied character, with a good deal of fairly heavy Victorian about it, and also where the houses were and would remain residential and quiet.

The scheme lies mainly along the line of what was Somerville Street, a gloomy trough of decrepit 17th-century houses, some of which had much

*In some cases a Government refusal to let the burgh expand its boundaries any further has forced it to look inwards. The ability to find more and more land to incorporate has been a major cause of central area decay.

†In addition to the Fife towns, schemes are going on in Dunbar, Haddington & North Berwick (East Lothian), Bo'ness, Queensferry & Uphall (West Lothian), Beith, Cumnock, Kilwinning & Irvine (Ayrshire), Lerwick (Shetland), and doubtless elsewhere.



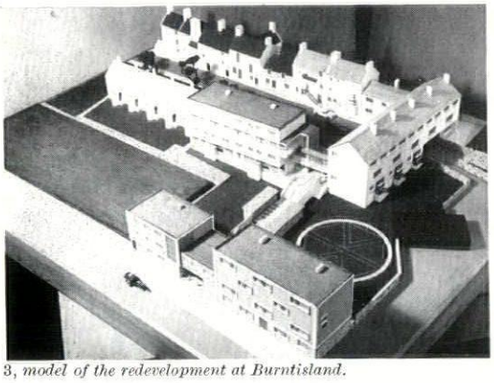
1



2

1, *the market place at Culross.* 2, *new flats at Dunbar.*

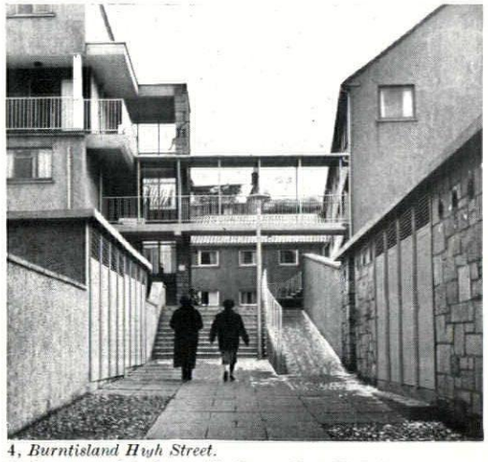
architectural character, though the whole street was so dingy that this was difficult to realize. The original idea had been to demolish these completely, but with the support of the National Trust, the Ministry of Works, the County Planning Officer and others, the architects (Wheeler & Sproson again) persuaded the Town Council not to pull down the houses on the south side of the street. By getting rid of the others, Wheeler and Sproson were able to make a long square, open at the east end, with the 17th-century houses on the south (restored with the help of a grant from the Historic Buildings Council) and new blocks on the north and west. The square is linked to High Street by a pedestrian lane under the [new]buildings. The bird's-eye view of the model, looking south-east across High Street into Somerville Square, shows the relation of the various parts, 3.



3, *model of the redevelopment at Burntisland.*

High Street is quite wide, so that a fairly large, heavyish building was suitable for that part of the site. Here the architects have taken advantage of a fall in the land to make a four-storey block carry on the roofline of the substantial early 19th-century group to the east, allowing the town hall spire to remain a dominant, while giving the street a unity despite the variety of heights and shapes,



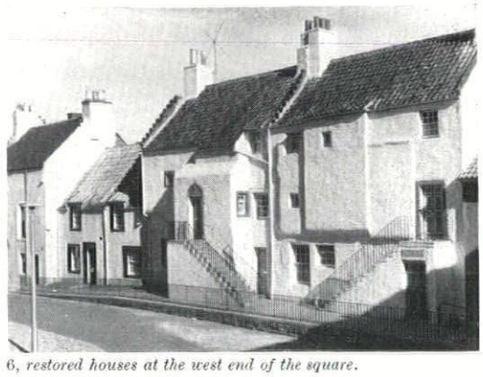


4, *Burntisland High Street.*
5, *the approach to Somerville Square from High Street.*

4. (But the police houses on the right of the photograph do as much as possible to wreck the street: there was nothing for it but to ignore them.)

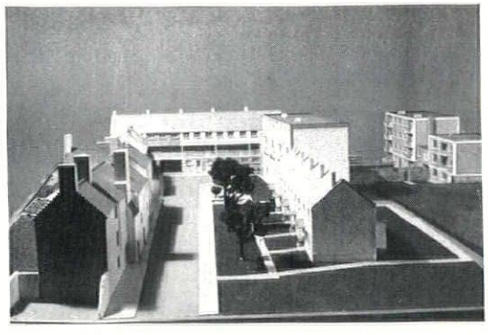
The approach to Somerville Square is either from the east along Kirkgate (also to be rebuilt soon) or through a pend under the bridge-block in High Street. Here one goes along a short paved walk up a flight of steps into the square or by more steps into the flats and maisonettes on either side, 5. A bridge runs across at first-floor level linking the maisonette blocks.

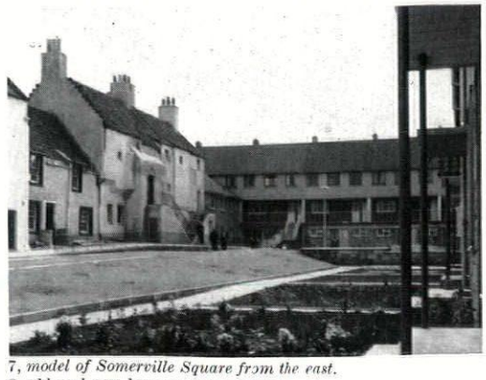
Within the square the main accent remains with the old houses on the higher ground on the south side, and in particular with one glorious house near the west end, a three-storeyed building with an exceptionally richly modelled front, whose real qualities have only come out in the restoration, 6.



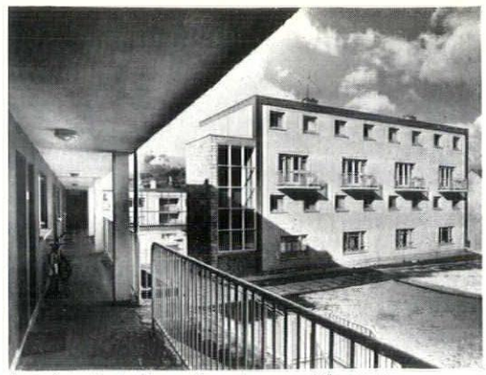
6, *restored houses at the west end of the square.*

There is in fact so much rich incident on this side of the square (and it is well brought out by the colour) that I feel an even plainer and more severe treatment should have been preferred. This is especially true of a row of two-storey cottages (a certain percentage was stipulated by the Town Council, though the overall number of dwellings was not), in which a rather restless rhythm of motifs and materials sets up some fidgety cross-currents. The general massing, however, is certainly successful, allowing for the almost spontaneous effect these Scottish towns often have: the largest building in the square, the four-storeyed maisonette block at the north-west corner, stands back and on lower ground, and so doesn't get undue prominence, 7. Above all, with all the variety of architectural styling, the square really is a unity. The junction of the old and new is most skilfully managed, 8,





7, *model of Somerville Square from the east.*
8, *old and new houses in the square.*

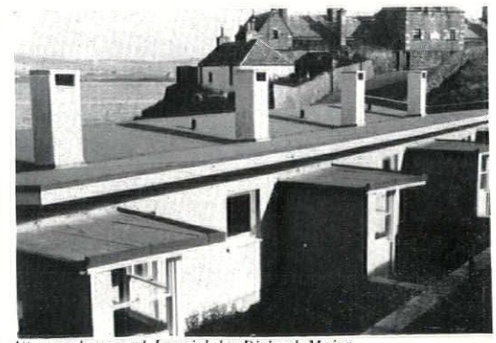


9, *maisonettes in the north-west corner of the square.*

the deliberate lowering to two storeys of the house at the south-west corner ensuring that the little house in the middle of the south side (at the left-hand side of the photograph) shouldn't be overweighted by its large neighbours. And the smooth rhythm of windows on the top floor of the end block offsets a slight tendency to fussiness below.

The main criticism of the architecture of the larger blocks is that an inclination to playfulness doesn't really come off, 9. The fenestration marks off the divisions nicely, and the detail is fairly crisp; but the ground-floor windows are much too weak, and the alternating rhythm isn't satisfactory as a design in itself (especially on the near block in 4, where it seems, without inside information, meaningless). Again it is a pity that front gardens were allowed—indeed that the square wasn't paved throughout.

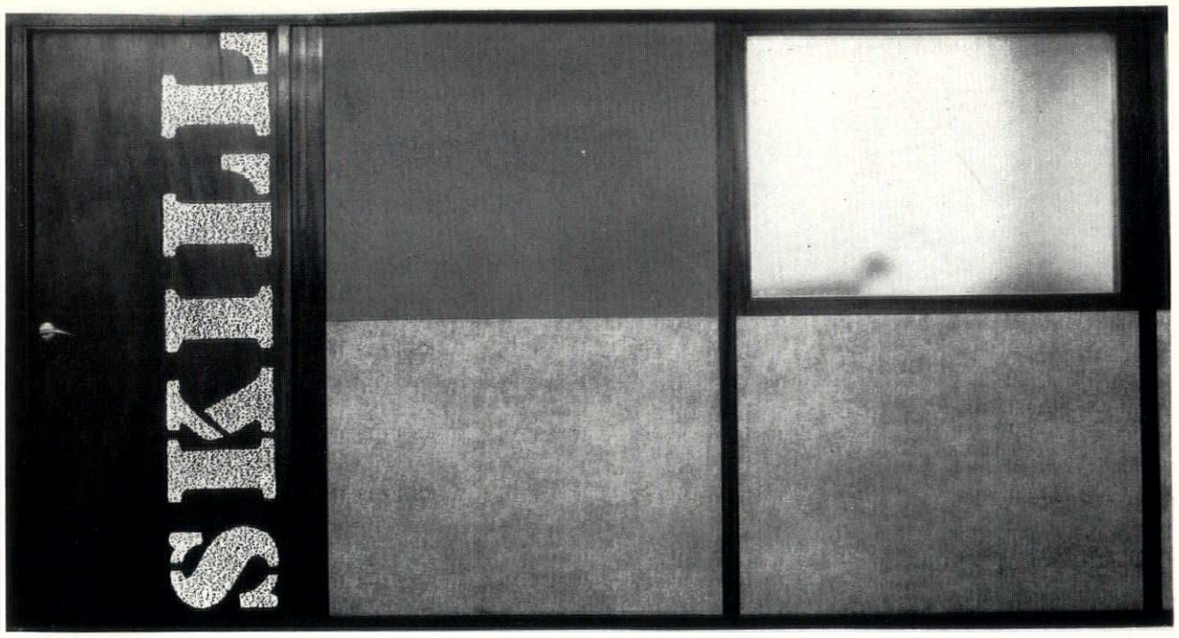
Nevertheless this is a courageous scheme. It is a real piece of urban renewal, of design in urban forms (incidentally housing many more people than the area did before), one on which the Town Council are to be congratulated for choosing young and comparatively untried architects rather than a bastion of reaction. And it is one which shows yet again how, when there is architecture like that of the Scottish 17th century to measure up against, it just doesn't do to be timid: one must go all out to create something emphatically of the 20th century. This case is worth looking at in detail because, as it is (for all its qualities) rather unequal in itself, it points the morals all the more clearly. Wheeler & Sproson have now moved on to, among other places, Dysart: the work here isn't yet finished, but already one can see that, with architecture created more and more *as architecture*, the solution of the problems of a reviving urbanity is being found more convincingly.



10, *new houses at Lerwick by Richard Moira.*

The point is of course that the *convincingly* new is also what is convincingly of the tradition. When a photograph of Richard Moira's Leog housing scheme at Lerwick, 10, was published recently, *The Scotsman* pointed out the contrast with the traditional Shetland way of building. The contrast is there all right. So, in buildings designed with this kind of integrity, is the continuity.

Andor Gomme

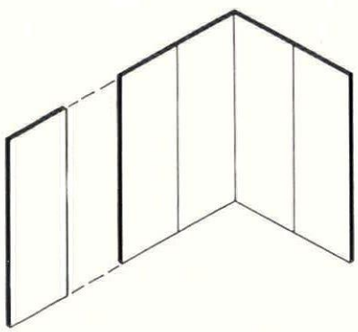


Thorn House partitions, designed by the architects, Basil Spence and Partners.

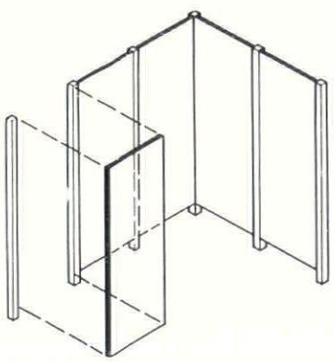
OFFICE PARTITIONS

by G. C. A. Tanner

A constant requirement of modern office buildings is that planning be flexible, which means that internal walls can seldom be regarded as permanent. The movable office partition, therefore, comes into its own. How the demands for flexibility can be reconciled with such factors as sound insulation and, above all, good appearance within a reasonable cost limit is considered in this article by G. C. A. Tanner, who examines and compares the design solutions of various architects on the one hand and of manufacturers on the other.



1, *panel: the partition is made up of a series of factory prefabricated panels which may be solid, semi- or fully-glazed or containing door and frame.*



2, *post and infill: a post (or mullion) is the significant element and infill panels are supported between and by them.*

The simple office partition has to satisfy a number of requirements which, in the first place, influence its design, its method of erection and its materials. Fortunately for the designer no one partition usually has to satisfy all possible requirements. Particular circumstances may place the emphasis on, say, the need to cut down noise from one office to the next, or a high fire resistance rating, as in tall buildings. The demand which is almost always present is for flexibility, and a study of systems, whether architect's or manufacturer's shows how preoccupied are designers with this problem.

It is reflected, first and foremost, in methods of construction or assembly on the site. The structural principle is usually one of two types. I have called one the *panel* principle, 1, and the other *post and infill*, 2. Architect-designed partitions are, as often as not, of the *post and infill* type, whereas manufacturers, with one or two notable exceptions, seem to favour the *panel* principle. The reason is not easy to establish, but may be more obvious after a consideration of individual systems.

Two things emerge from a survey of partition design. One is that there is a large number of manufacturers' more-or-less standard systems on the market today. The other is that few architects appear to design their own partitions. This article confines itself to some half dozen manufacturers' systems as representing the best in terms of flexibility, good appearance and value for money.

Why do architects not design their own partitions? Manufacturers probably would like to think that their products solve the problem so completely that there is no occasion for the architect to design his own. This is probably true up to a point and it may well be that when dimensional co-ordination is fully accepted in the building industry 'off-the-peg' partitions will be the order of the day. But until such a situation is realized—and at times it seems a long way off—the inability to reconcile the module of a standard partition system with that of an existing or even new building will leave the architect no alternative but to design something special to fit his job.

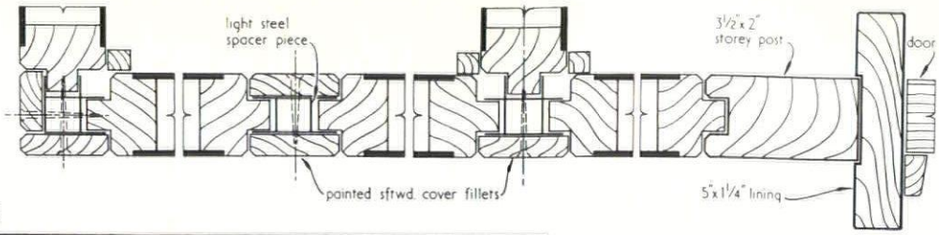
On the other hand, however, good architecture results from a careful consideration of all problems, very often from first principles and should an architect not find a standard system suitable for a particular project it is entirely praiseworthy that he should set to and design one for himself. Needless to say manufacturers of standard systems are quite happy to do this for him and many well known firms deliberately do not produce a standard system but aim to design something special each time. They claim that their specialization in this field enables them to appreciate all the design problems. It certainly seems that manufacturers, through their designers, are capable of achieving a standard of visual design equal to that of architects.

ARCHITECTS' WORK

Of the two most recent large office buildings in London, Thorn House and Castrol House, it is interesting to observe that the partitions were wholly architect-designed in one case and the result of collaboration of architect with manufacturer in the other. The architect-designed partitions described in this article, however, have this in common. They are of good appearance, they represent value for money in terms of what was considered the critical factor in the particular circumstances and they are obviously the result of a careful analysis of the problem.

One of the cheapest examples is that designed by Farmer and Dark for the Loewy offices at Poole, 3. Translated to today's prices the cost per square foot was about 6s. 1d., not including doors, door furniture and painting. The partition consists of a number of standard width panels (the principal module is 3 ft. 3 in.). Each panel is $1\frac{3}{8}$ in. thick and comprises a hardboard eggcrate core and hardboard facings both sides with a solid rebated timber frame member along the side edges. The vertical joints are covered with timber cover strips, 4, which are screwed together back to back with a light steel H section spacer piece between. The spacer pieces are each 1 in. long and are fixed at approximately 30 in. centres in height. Storey posts are used where doors occur. The architects emphasize that low cost was critical and limitations in the detailing resulted. For instance, sound insulation has been found not entirely adequate for board rooms and director's offices though it is quite satisfactory for general offices.

In the offices for Frenchay Products Ltd. at Kingswood, Bristol, Leonard Manasseh and Partners de-



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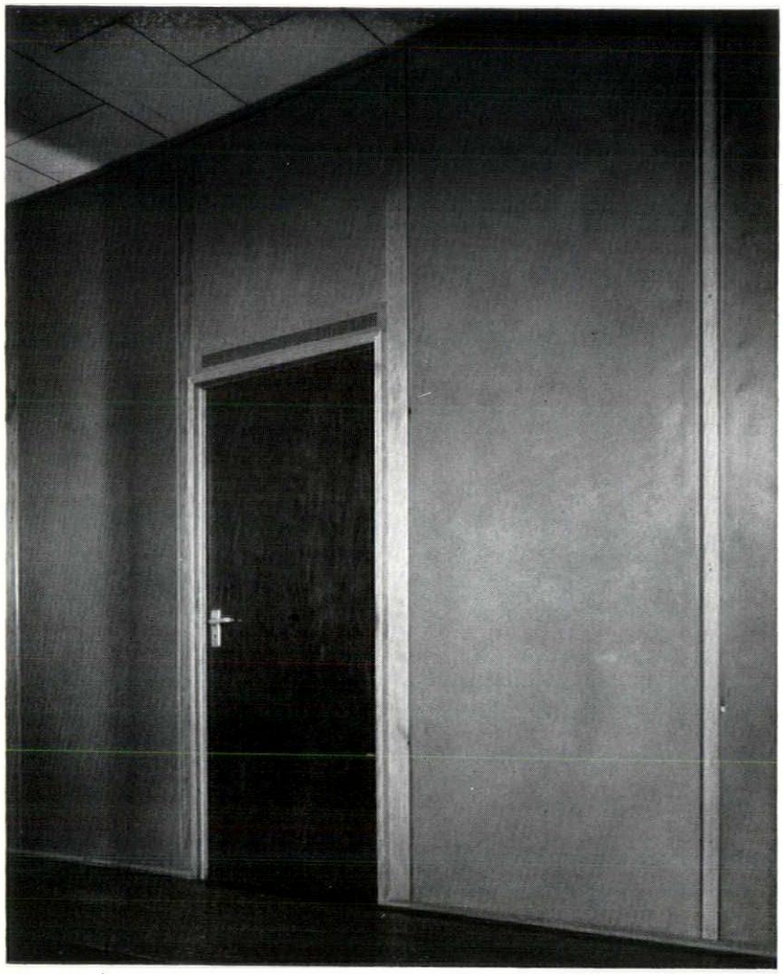
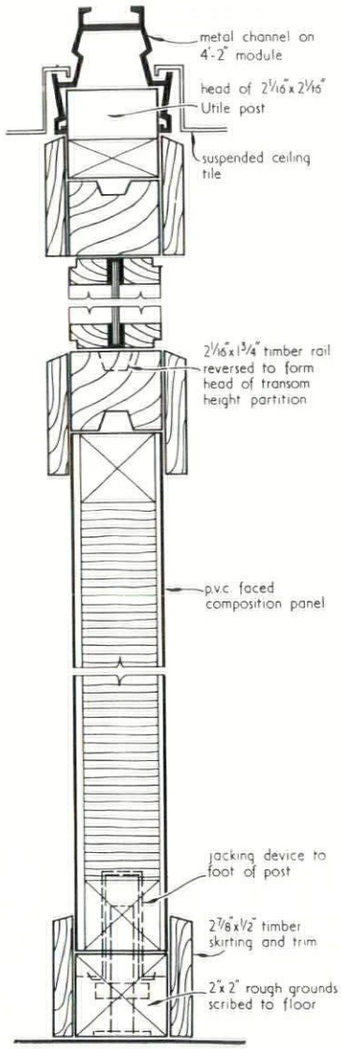
3, *partitions at the Loewy offices, Poole, designed by Farmer and Dark.*
4, *details of the partition at the Loewy offices, Poole, showing methods of connecting wall panels.*





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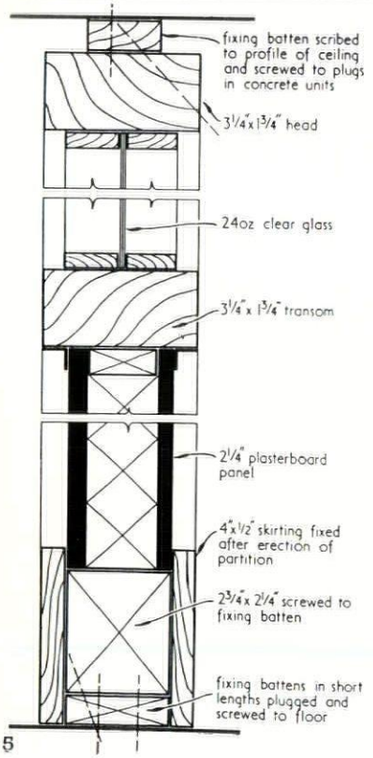

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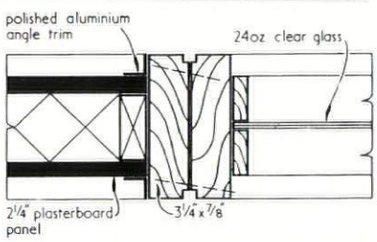

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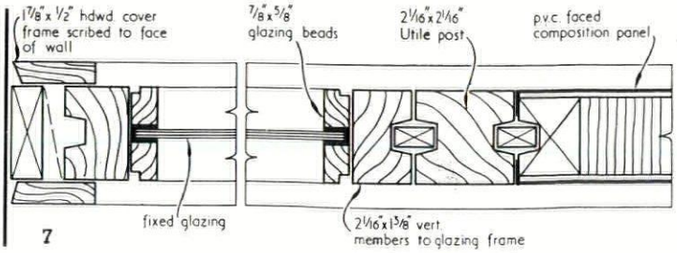
5, *office partition for Frenchay Products Ltd., Bristol, by Leonard Manasseh and Partners. Vertical section through the partition showing ceiling and floor fixings.*
6, *Frenchay Products partitions: plan detail at the junction of a glazed and a solid panel.*



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7, *Thorn House partitions by Basil Spence and Partners. Plan detail showing the connection between 2 1/16 in. square Utile post and glazed and solid panels.*
8, *Thorn House partitions: vertical section showing the fixing of the post at ceiling level and the jack device at floor level.*

signed standard 4 ft. wide timber framed panels for the office partitions which were simply butted together and screw-fixed, 5. Low cost and simple fixing (the work was carried out by the client's staff) were primary considerations in detailing. The frames are softwood and the infilling either 24 oz. clear sheet glass fixed with wood beads or 2¼ in. thick sandwich-construction plaster board with a neat little aluminium angle trim at the junctions with the frame.

One of the most recently completed office buildings in London, Thorn House, is an exception to the rule that, generally, architects do not design their own partitions. Basil Spence and Partners have devised a neat timber framed system on the *post and infill* principle. They have used a 2 1/16 in. square hardwood (Utile) post, grooved on the two edges which are within the thickness of the partition. The solid infilling is in panels 4 ft. wide and consists of composition board faced both sides with pvc and is grooved on either edge and a timber tongue inserted between panel and post, 7. Each post is pushed into an aluminium trunking member at the head and jacked up off the floor by means of a ½ in. square adjustable bolt, 8. Generally a transom rail is used at door head, and where the partition does not continue to ceiling level the groove in the top of this rail is a convenient service duct for conduits. A conduit panel is provided alongside each door to carry vertical drops. This panel plus the door make up the standard panel width.

An aluminium *post and infill* system was designed by Clive Pascall and Peter Watson and manufactured by Compactom Ltd., for the new offices of Honeywell Controls at Greenford Middlesex. Full height, 9, and door head partitions, are both used here. In each case an extruded aluminium post is placed at 3 ft. centres approximately. Solid panels, which are up to dado rail, of 1 in. thick composition board faced with pvc and 32 oz. clear sheet glass in timber frames above are set between posts. The dado rail consists of two aluminium plates fixed to mild steel brackets within the thickness of the partition, 10, thus forming a horizontal duct for electrical wiring. Vertical drops are housed within the aluminium posts, 11. For fixing, a timber batten is screwed to the floor and the web section of the aluminium post cut away at the foot so that the post slips over the batten.

SOME MANUFACTURERS' SYSTEMS

Most of the producers of wallboards and plasterboards have devised a system of partitioning based on their product.

They include Stramit (Movaflush), The British Plaster Board (Manufacturing) Ltd. (Paramount), Gyproc Products Ltd. (Gypunit) and British Werno Ltd.; and a couple of these are described. Other producers, such as Roneo Ltd., are office furniture specialists. A much smaller group are those, such as Compactom Ltd. (who made the partitions in the Honeywell Controls Building) who are specialists in the making of partitions which may be described as tailor-made for a particular job. They have their own design office, but are quite willing to carry out the architect's design using the material most suitable for the purpose.

Of the many standard systems on the market most are of the *panel* principle of construction and of these

[continued on page 357

continued from page 356]

there is a broad division between metal on the one hand and what must simply be called non-metal on the other. This group includes timber and the steadily increasing field of composition boards.

PANEL PRINCIPLE

1. Non-metal systems

British Werno Ltd.

This is one of the better looking non-metal systems. It consists of panels made in three standard widths, 3 ft., 3 ft. 4 in. and 4 ft. There are three types of panel, solid, half glazed and transom glazed, and two other components, the door lintel (glazed or solid) and the conduit dropper, 12. The panels consist of a timber frame with a filling of parallel dry straws at right angles to the faces of the panel. To this the facing sheets are glued and these may be of hardboard, plasterboard, asbestos, a variety of wood veneers, pvc sheeting and melamine finishes. Thicknesses vary from 2 in. to 3 in. according to the facing. Assembly is as follows: softwood plates are fixed to the floor and ceiling and the panel is firmly wedged between them. The next panel is butted up to it, being locked in position by a wood tongue which fits between the grooved frames.

Stramit Boards Limited

Stramit market a partition system called *Movaflush* which consists of panels of their building slab faced on both sides with hardboard and framed on all edges with timber. Standard sizes are 6, 8, 9, 10 or 12 ft. high by 4 ft. wide by 2¼ in. thick overall. Where solid panels are used they are wedged between floor and ceiling plates and their vertical edges rebated, 14, for screw fixing of one panel to the next. Where glazing occurs or at doorways or angles a storey post is used, and in this case the vertical edge of the panel is grooved to house a timber tongue fixed to the post.

2. Metal systems

Roneo Limited

Roneo have just produced a new system called *Flushline* which is essentially a panel system, that is the partition is made up of prefabricated panels which are coupled together on site and the junction between panels covered with a neat clip-in metal strip finishing flush with the panel face. Lateral movement is prevented by means of channels fixed to floor and ceiling (into which stiffener plates on the panel edges are fitted), and by distance keys fixed between panels on either side. A black laminated plastic skirting is clipped to the floor channel.

There are seven standard panel types—solid flush, semi-glazed, glazed frame (fully glazed), solid above glazed, glazed above solid, head height and low barrier. Each of these is produced in a variety of standard widths and heights. The solid panels are a steel case packed with a sound absorbing filling. Normally panels are stove enamelled in the factory to one of a number of standard colours within the B.S. 2660 range. However, special finishes are available such as timber veneers, melamine, pvc or hardboard ready for painting on site.

Sankey Sheldon

The construction of this system, 17, is substantially similar to Roneo though in detail there are certain differences.



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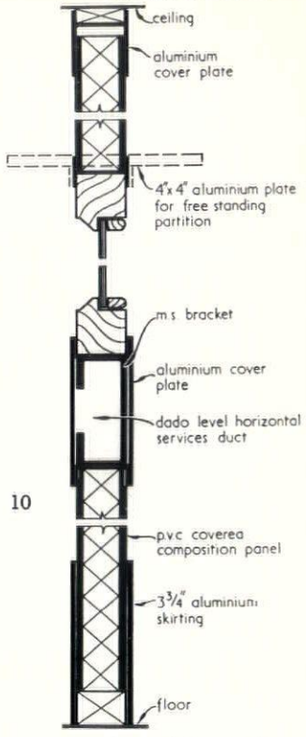

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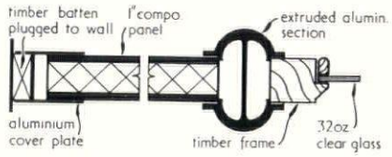
9, partition designed by Clive Pascall and Peter Watson for Honeywell Controls.
10, vertical section which shows the hollow transom for services below glass level.
11, plan detail showing the slim extruded aluminium post.



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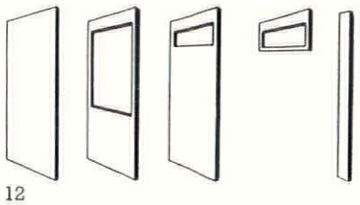

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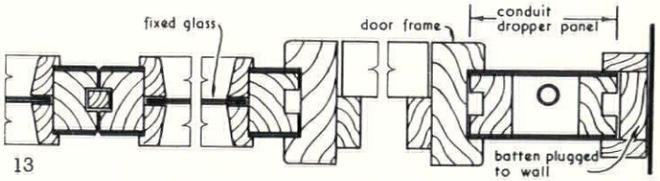

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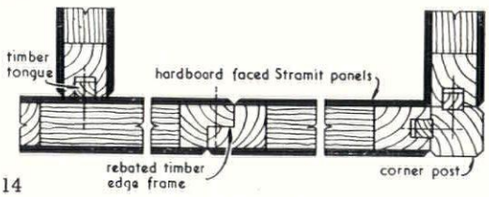

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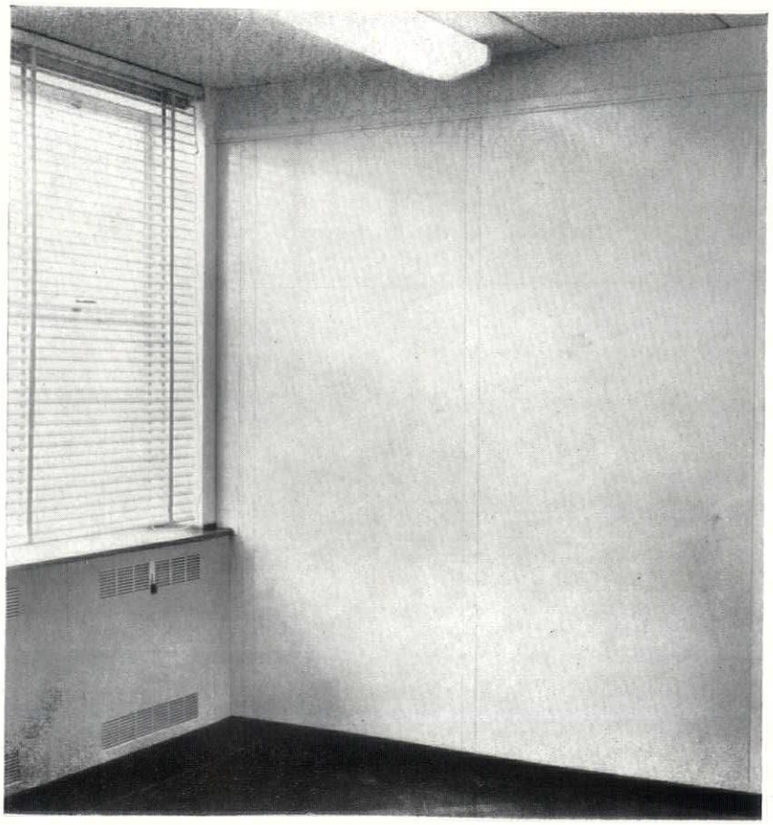
12, British Werno's standard partition panels. Left to right, solid, half glazed, transom glazed, glazed or solid lintol, conduit dropper.
13, plan detail of the British Werno partition.
14, plan detail of Stramit's Movaflush partition.
15, Roneo's 'Flushline' metal partitioning.
16, vertical section through Roneo's 'Flushline' partition showing method of ceiling and floor fixing.



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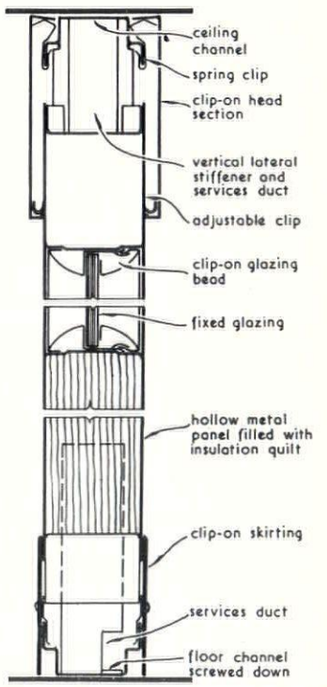

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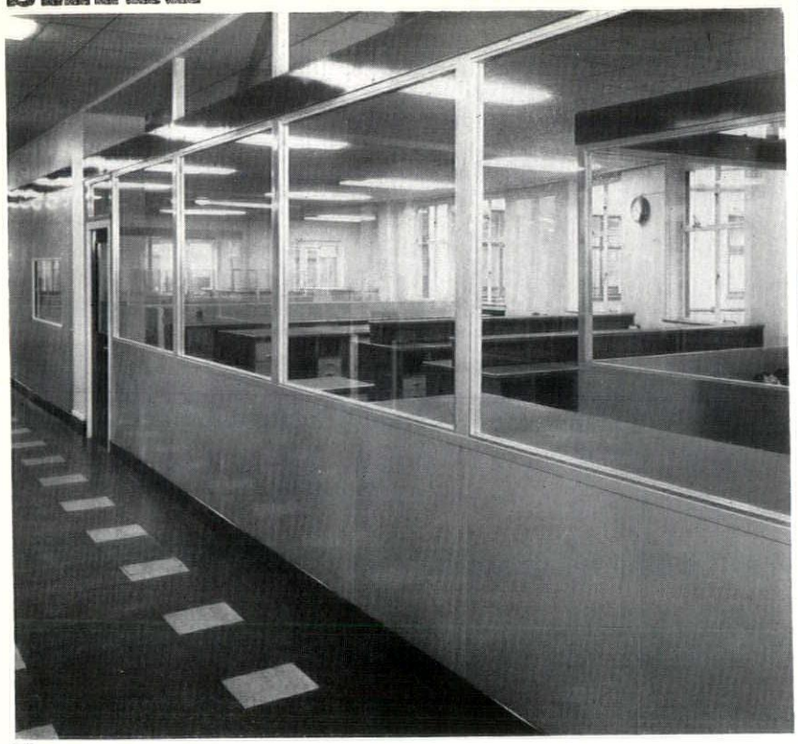

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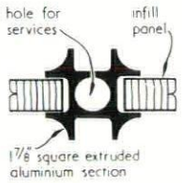
17, *standard system of Sankey Sheldon described as the 'picture window.'*
18, *Castrol House partitions designed by the architects in collaboration with Holoplast Ltd.*
19, *the Cunic partition.*
20, *the Cunic partition 1½ in. square extruded aluminium post section.*



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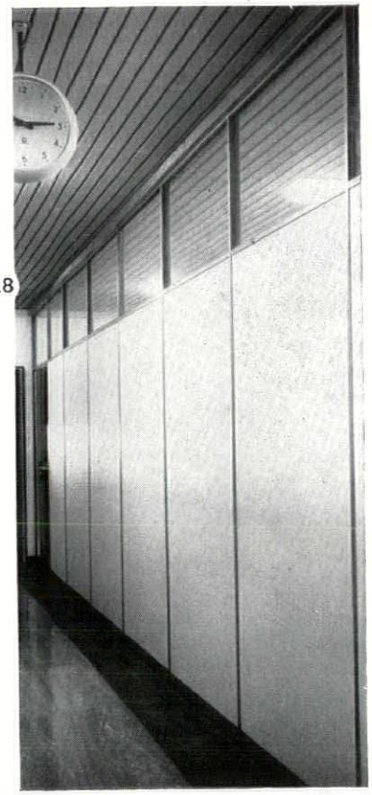
19



POST AND INFILL PRINCIPLE

Holoplast Limited

Holoplast partitioning as used at Castrol House, 18, is an example of the '*post and infill*' system. Normally the post is a slim extruded aluminium section, into which the infilling panel is inserted. At Castrol House the Fire Authorities required steel for the posts and a one hour fire rating on the panels for all partitions on the top six floors (that is above 80 ft. from ground level). In collaboration with the architects to the building (Gollins, Melvin, Ward and Partners) Holoplast designed a rolled steel section, and produced an infill panel comprising exfoliated vermiculite faced with asbestos board and pvc.



18

Their standard partitioning is of several types which they describe as 'Standard,' 'Assembly,' 'Tongue and Groove,' 'Interchangeable' and 'Universal Joint.' The basic difference between 'Standard' and 'Assembly' is that the latter is more easily and quickly demounted than the former. 'Interchangeable' and 'Universal Joint' are designed to permit any arrangement involving intersecting partitions. There are various infill panels, ranging from the 'Holoplast' panel (resin bonded wood fibres in a cellular construction) to the fire resisting panel used at Castrol House.

Cunic

This is one of the latest systems on the market, 19, and was described in *The Industry* notes of the February 1960 issue. It is designed by Robert Nicholson on the '*post and infill*' principle the basis of which is an extruded aluminium post, 20. The head of the post is inserted into a grooved timber batten at ceiling level and is wedged tight by means of an adjustable pin at the floor. A suspended ceiling system has also been designed for use with the partitioning. It is based on a 3 ft. 4 in. module both ways. Any material can be used for the infilling, the only consideration being that if its thickness exceeds the groove on the post the edges of the infilling panels must be rebated or a lipping applied.

CONCLUSIONS

A consideration of factors which influence design will show that most of them are themselves influenced by the requirement for flexibility. It is very much more difficult, for example, to detail for a high degree of sound insulation (where this is necessary) when quick and easy dismantling is demanded.

It would be an interesting exercise to make a survey of the extent to which the occupiers of offices require to alter the positions of partitions. Without doubt there are many instances when a high degree of flexibility is essential. Whether it is always necessary is debatable. A stud frame partition built and lined on the site by a couple of carpenters is demountable and re-usable up to a point and may be quite satisfactory if it is done only once or twice in the life of a building.

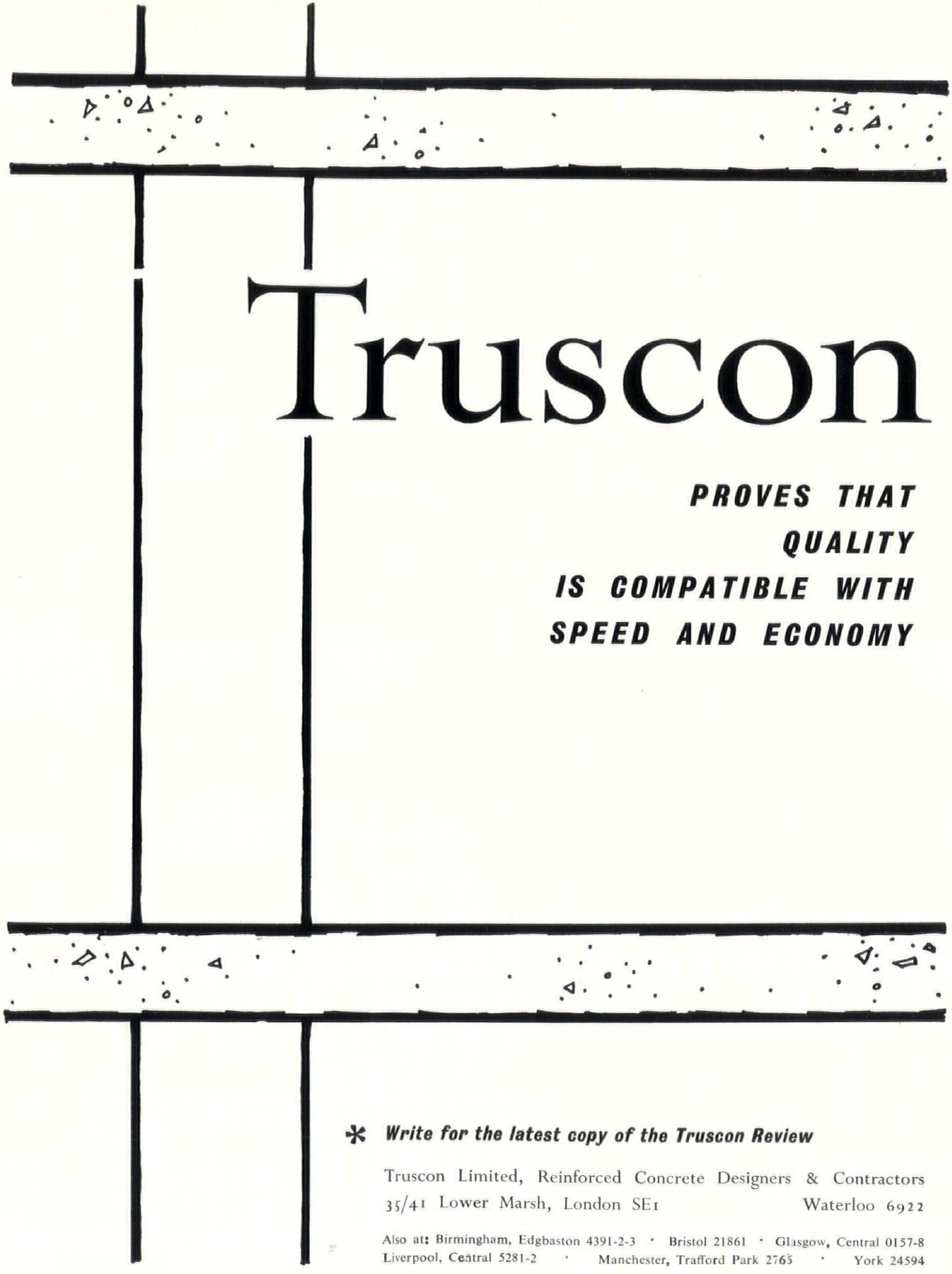
The manufacturers of composition board systems make intelligent use of the sandwich form (core and facings) of their boards in assembly details. But the necessity for fixing battens at floor, ceiling or wall and—in some cases—the use of a 'wet' joint renders them less flexible in the sense that making good and re-decoration is required after moving.

If complete flexibility is essential the Cunic partition is hard to beat. Not only can it be quickly and easily put up, taken down or moved around, but also its method of head and base support is such that virtually no trace is left. It is worth noting that at Thorn House by relating the module of the suspended ceiling with that of partitions a similarly neat detail to Cunic has been achieved.

As to interchangeability (i.e. being able to take out a solid panel, for example and insert a glazed one in its place) it is difficult to see how this can be done with Cunic without dismantling the whole section of wall. The various all-metal *panel* systems, on the other hand, seem to have this aspect well solved. A typical detail, such as that of Roneo, is the clip-in cover plate over the vertical joint between panels. This can be snapped out and the connection between panels exposed thus enabling an individual panel to be removed and replaced. The metal systems show a good deal of ingenuity in this sort of detailing, probably because they are amongst the more expensive and adaptability is, therefore, regarded as very important. The Roneo adjustable head detail, 16, which allows almost any ceiling height to be coped with using one of a number of standard height panels, is a case in point.

Manufacturers will often quote sound insulation figures for their partitions based on actual tests. The question of a reasonable degree of reduction to transmission of sound cannot simply be resolved in this way, however, as the partition is by no means the only likely barrier to (or conductor of) sound. The structure of the building itself is important and finishes to floors and ceilings are critical factors. A high degree of sound reduction in a well insulated partition is of little value if sound can carry over it above a suspended ceiling or even through the structure of the building. Also it is important

[continued on page 360



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SKILL continued from page 358]

to check that the figures quoted by manufacturers are average figures over the usual frequency range. Only when these factors are taken into account will the sound insulation values of different partitions have any significance. For example the manufacturers of non-metal systems (usually better sound reduction than metal) claim between 28 and 37 decibels within the frequency range of 100 to 3,200 c/s (without resorting to double skin construction). This is a level at which normal speech is intelligible but is quite satisfactory for most offices.

It is important to differentiate between sound insulation and sound absorption in a partition. The former refers to the reduction in transmission through the partition to other rooms and depends on the construction, whereas the latter refers to the reduction in the reflection of sound within the room and depends on finishes. The figures mentioned above are for sound insulation (room to room). It can be assumed that non-metal partitions will give better sound absorption also.

Another factor which should be considered is provision for service runs, principally electrical wiring and telephone cables. This has been well solved by Clive Pascall and Peter Watson in their Honeywell Controls Building in which vertical drops for services are housed within the aluminium post and horizontal runs within a hollow dado-level rail on which switches can be mounted. Provision for horizontal runs is also well solved by Roneo and for vertical drops by Cunic. A slightly less flexible arrangement is possible with most of the non-metal systems, but within its limitations the 'conduit dropper' panel of British Werno is a satisfactory solution.

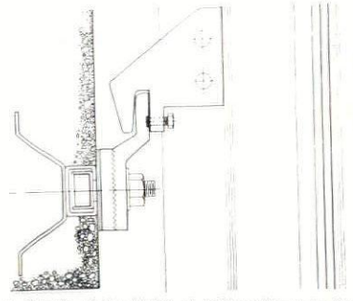
Fire resistance is a less critical factor in design and detail. Most systems obtain a ½ hour rating, but in special circumstances, such as Castrol House, this had to be increased to one hour and was achieved by using rolled steel posts and infill panels comprising an exfoliated vermiculite core, and asbestos facing.

The question of costs is not easy to answer in an article such as this. Many of the manufacturers of standard systems will quote costs per ft. super or yard super, almost always with the proviso that their figures do not include for doors or glazing, etc. As nearly all partitions require doors and very many require at least some glazing the figures are not always helpful. It is very much easier to say that in 'such and such' a job the partition cost xs. per square foot. But even this cannot give a completely accurate picture. The factors which seem to influence costs most are finishes, the assembly method, the degree of flexibility and the amount of sound insulation—possibly in that order. The introduction of melamine plastic and pvc plastic finishes add to the initial cost but are a sound investment as they are easy to clean and eliminate the need for painting. The systems discussed in this article would probably cost between 6s. and 15s. per square foot starting with the non-metal composition boards, such as Stramit Movaflush, and going up to the metal and *post and infill* systems. If flexibility is not a consideration it is likely that none of the patent systems could compete with the good old-fashioned stud frame or breeze block partitions.

THE INDUSTRY

Curtain walling

The tremendous activity in this field of a few years ago has, naturally enough, tended to quieten down as was evident at last year's Building Exhibition. A recent development by Williams and Williams is of interest, however. In collaboration with the architects, Gollins, Melvin, Ward and Partners, Williams and Williams devised a system for the tower block of Castrol House, which involved



1, *details of the fixing at half-mullions to the concrete structure of Castrol House.*

prefabricating the curtain walling in panels one bay wide (approximately 3 ft. 10 in.) by one storey high. Each panel was installed as a complete unit—mullions, transoms and sash—being 'hung' from the structure by means of a patent hook section attached to the mullion and slipped over and secured to a fixing bolted to the face of the concrete, 1. The mullions framing each panel are in fact half-mullions, forming a full mullion with the adjacent member of the next panel. The purpose of this 'splitting' of the mullions is to allow for expansion which can be quite a problem on a building of this size. Each panel is a fixed entity and expansion takes place between panels. The gap between half-mullions is covered by a clip cover strip which attaches to one half-mullion. The aluminium extrusions used for the mullions and transoms are deep anodized to approximately 1/1,000 in. and finished in natural colour except for the upper sash frames of the windows which are anodized black. Cold cathode tubes are fitted behind the blue-green glass infill panels and the effect at night is of 'trays' of green light. The whole of the curtain walling was made in two months and erection was at the rate of two floors per week.
Williams and Williams Ltd., 37 *High Holborn, London, W.C.*1. *Telephone Holborn* 9861.

Fuel Stores

The Coal Utilization Council, whose publishing record is exceedingly good, have just issued a handbook on 'Fuel Stores for Houses and Flats' (price 2s. 6d.). This discusses the problem posed by every main type of dwelling and gives a set of drawings of fuel stores suitable for each. There is, however, one odd discrepancy. When, shortly after the war, the Fuel and Power Advisory Council made their

[continued on page 362

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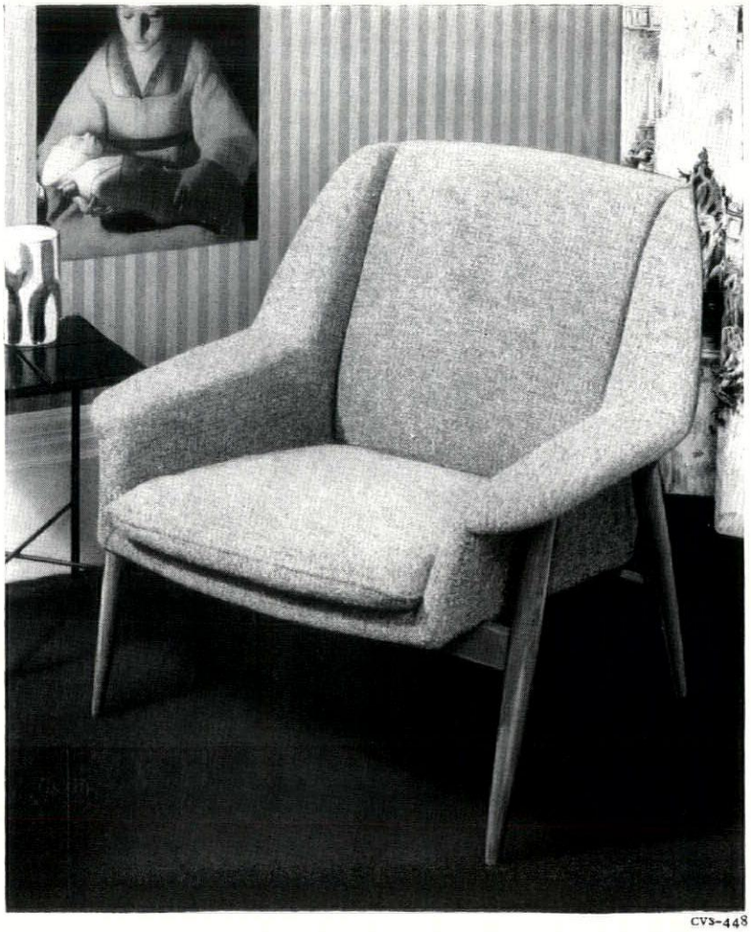

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COLOUR

the logical use of colour in building no. 3

the age effect

Young children have a relatively pigment-free lens of the eye, but as the years go by the lens develops a pigment like that in the skin. It is yellowish or brownish and as the years pass, although the whole of the lens is pigmented, the increased degree of pigmentation tends to concentrate at the periphery of the lens. This degree of pigmentation prevents some of the colour energy, particularly in the blue end of the spectrum, from reaching the retina of the eye.

This change in colour reception (and it is similar in both sexes) is progressive with age and very few people are aware of the change of attitude towards colour reception on account of the slow change, but the effect upon the tolerance of colour is a factor of major significance. For the great majority of people the age of 25 years marks the maximum appreciation and differentiation over the whole spectral range from violet to deep red. Even by 30 years the capacity to differentiate between the deep blues is beginning to become apparent, and by 55 years the effort to differentiate in the blue and green end of the spectrum is considerable.

The increased pigmentation of the periphery of the eye with age still further distorts the colour vision away from the line of sight.

Both of these effects combined, mean that given free choice older people tend to select colour schemes for the interior or exterior of buildings which are predominantly taken from the yellow, orange and red end of the spectrum and often light colours containing these hues. Blues and greens are eschewed except for contrast and small areas.

It is therefore advisable to know not only the function of a building, but also the age group of the occupants, before deciding on a series of colour schemes.

The next announcement in this series will be on " The Quality of Daylight ".

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COLOUR

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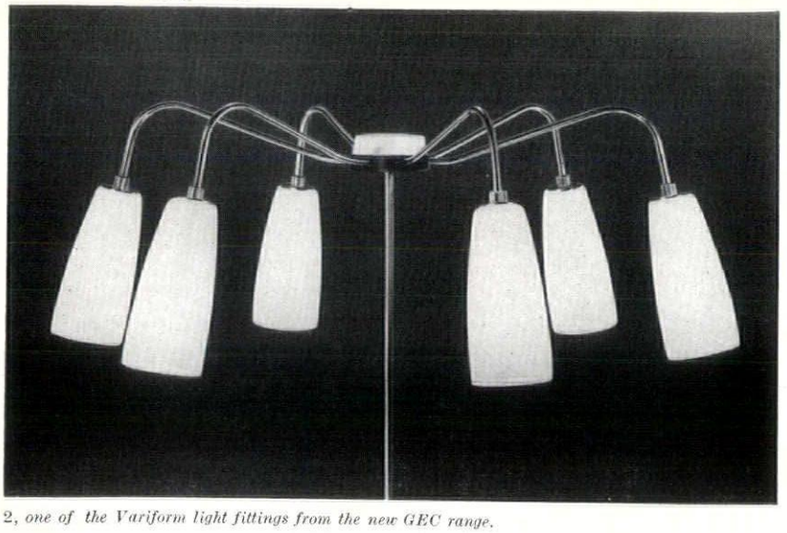


2, *one of the Variform light fittings from the new GEC range.*

report on this subject (printed in Post War Building Study No. 10), they gave definite recommendations about size. These were that a store should be 30 sq. ft. in all in town and 40 sq. ft. in the country. CUC have always held that this recommendation was right. Unfortunately MOHLG then came along with their Housing Manual and permitted storage space as low as 12 sq. ft. per house in town and 20 sq. ft. in the country. The discrepancy in this booklet consists in the fact that, though in the text CUC advocate the higher standard, they feel obliged in the illustrations to cite examples of the lower standard. Nevertheless, this is a sensible and helpful office reference.

Coal Utilization Council, 3, Upper Belgrave Street, London, S.W.1. Sloane 9116.

Components for Electroliers

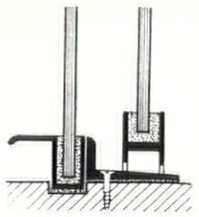
If the years after the war were years of great invention in light fittings, more recently we have moved from invention to consolidation. There have been few significantly new shapes for light fittings during the last few years. Instead, manufacturers have been chiefly busy on the equally praiseworthy business of making accepted forms cheaper.

A very well conceived move of this kind has been made by GEC who in their Variform light fittings have taken the 18 most used bracket components and the ten most used shade components and have brought them all into a single system. This system is accurately described in a well produced catalogue which lists, describes and prices each part and thus enables an architect to build up an electrolier in his own way to his own price and in the confidence that it will not be charged as a special.

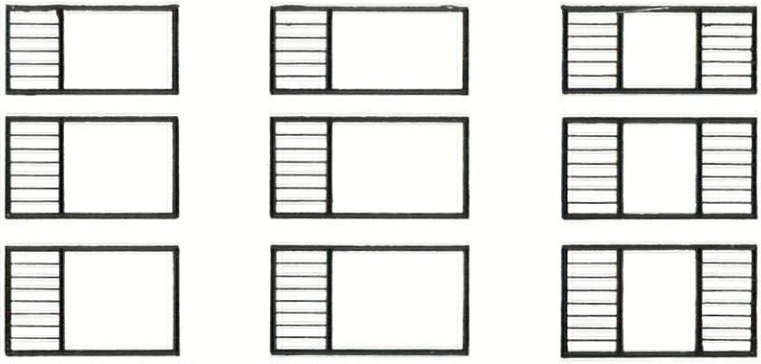
The General Electric Company Limited Magnet House, Kingsway, London, W.C.2. Temple Bar 8000.

More Domestic Windows off the Peg

Viking 'Scandinavian' windows differ from the usual run of domestic windows offered in this country in that the fixed lights are double glazed and that louvres are used in place of opening lights. Sub-frames are of aluminium alloy and these are fixed in redwood surrounds. Horizontal dimensions are 3 ft. 10 in., 4 ft. 8 in., 5 ft. 5 in., 6 ft. 3 in. and thence, by 9 in. increments to 9 ft. 3 in.; and there are three heights: 3 ft. 2 in., 3 ft. 7½ in. and 4 ft. 1 in. The horizontal dimensions are generally near to or on brick sizes, but the vertical dimensions are not. The proportions (as can be judged from the illustration) are good. There are two main types:



4, *part section through a 'Scandinavian' window.*



3, *part of the range of Viking 'Scandinavian' windows. Left and centre, 6 ft. 3 in. and 7 ft. windows with 6, 7 and 8 louvres. Right, the 7 ft. twin range.*

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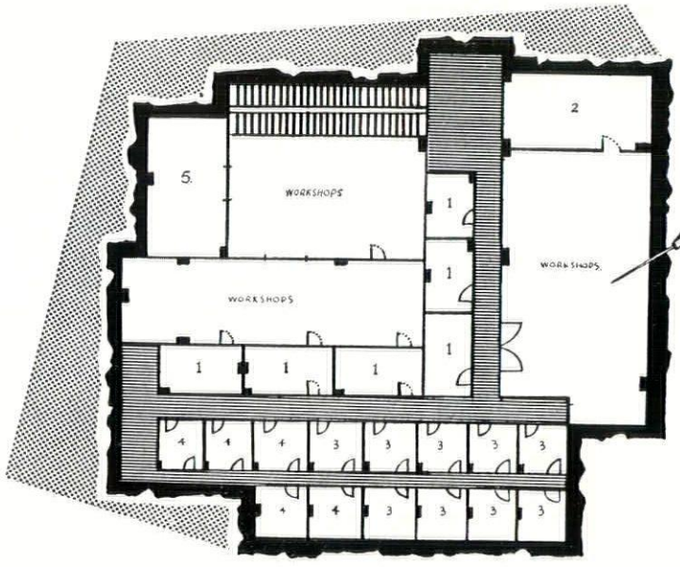

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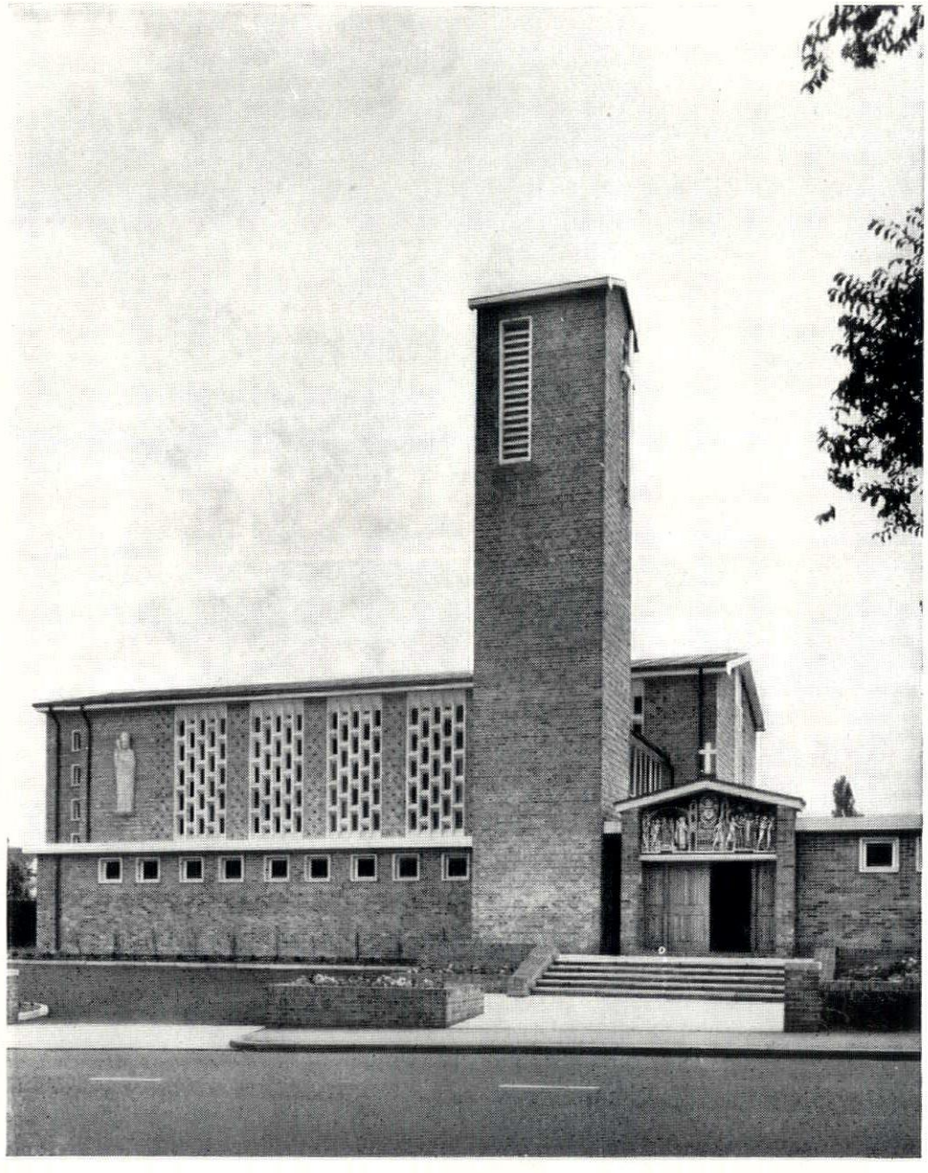

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continued from page 362]

one with the louvre to the left of the light only and the other with the light flanked by louvres on both sides. The windows are obtainable from *Thos. Bennett and Sons (Leeds) Limited, South Leeds Glassworks, Leeds* 11. *Leeds* 30623.

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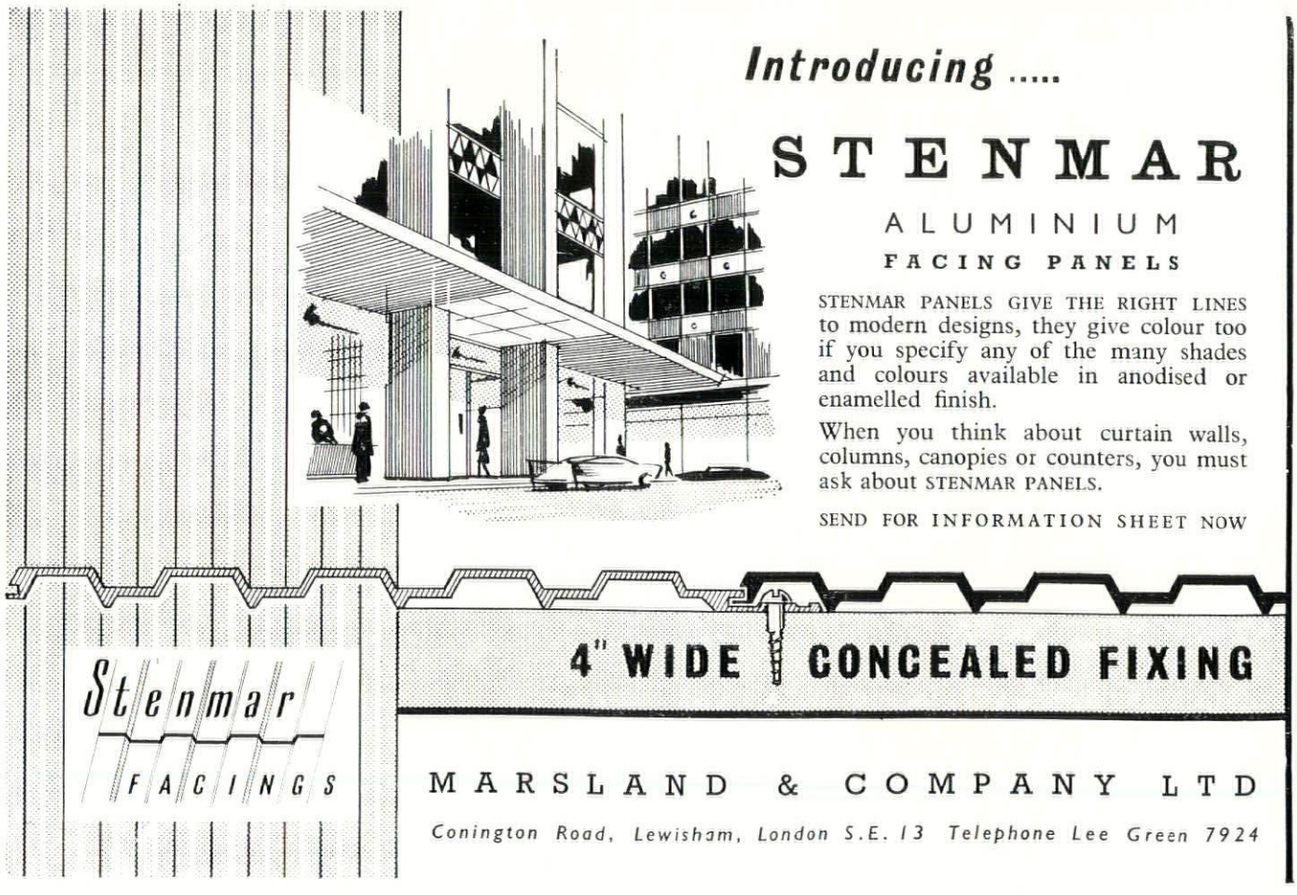

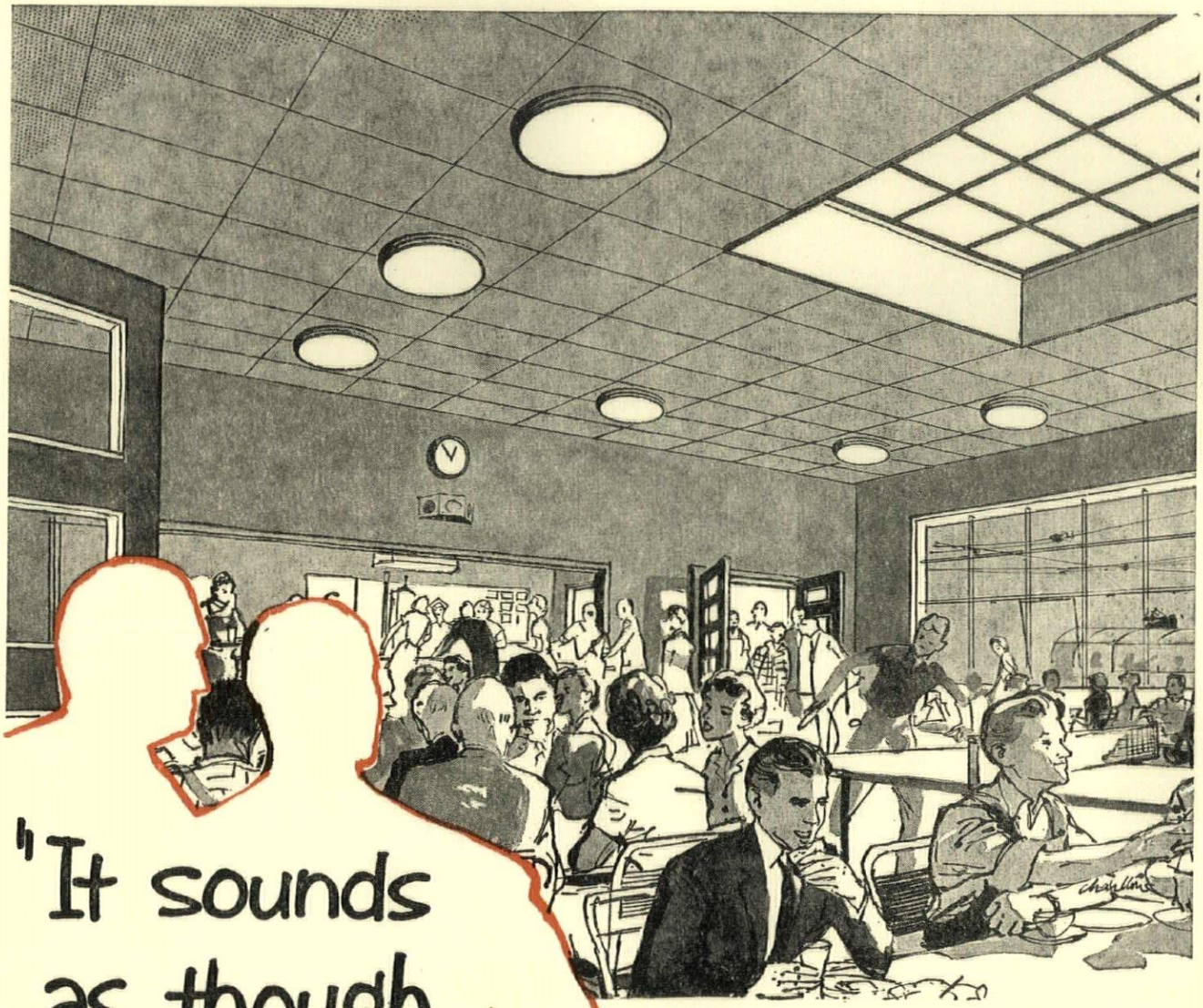

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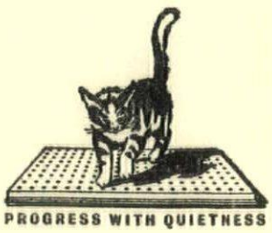

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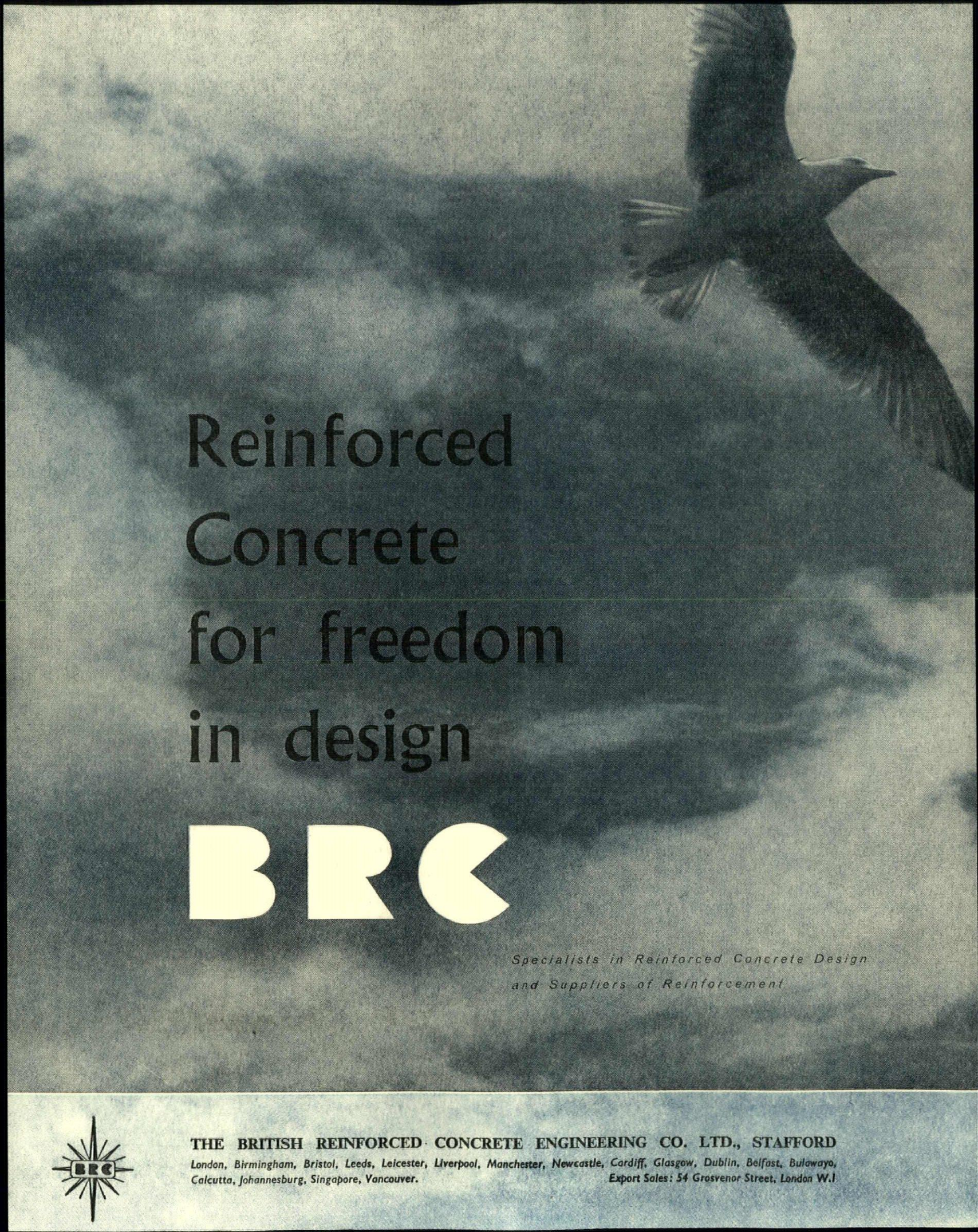

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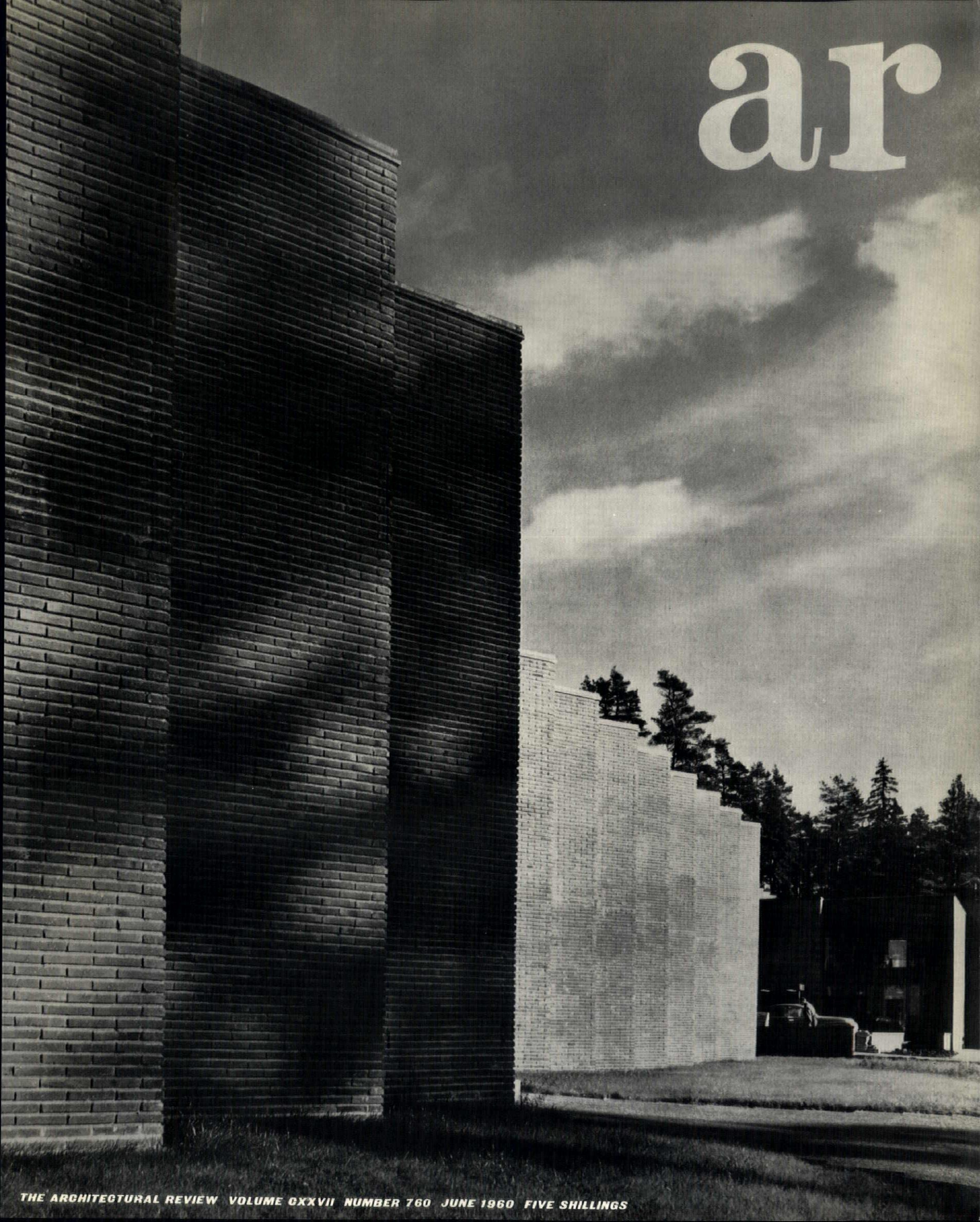

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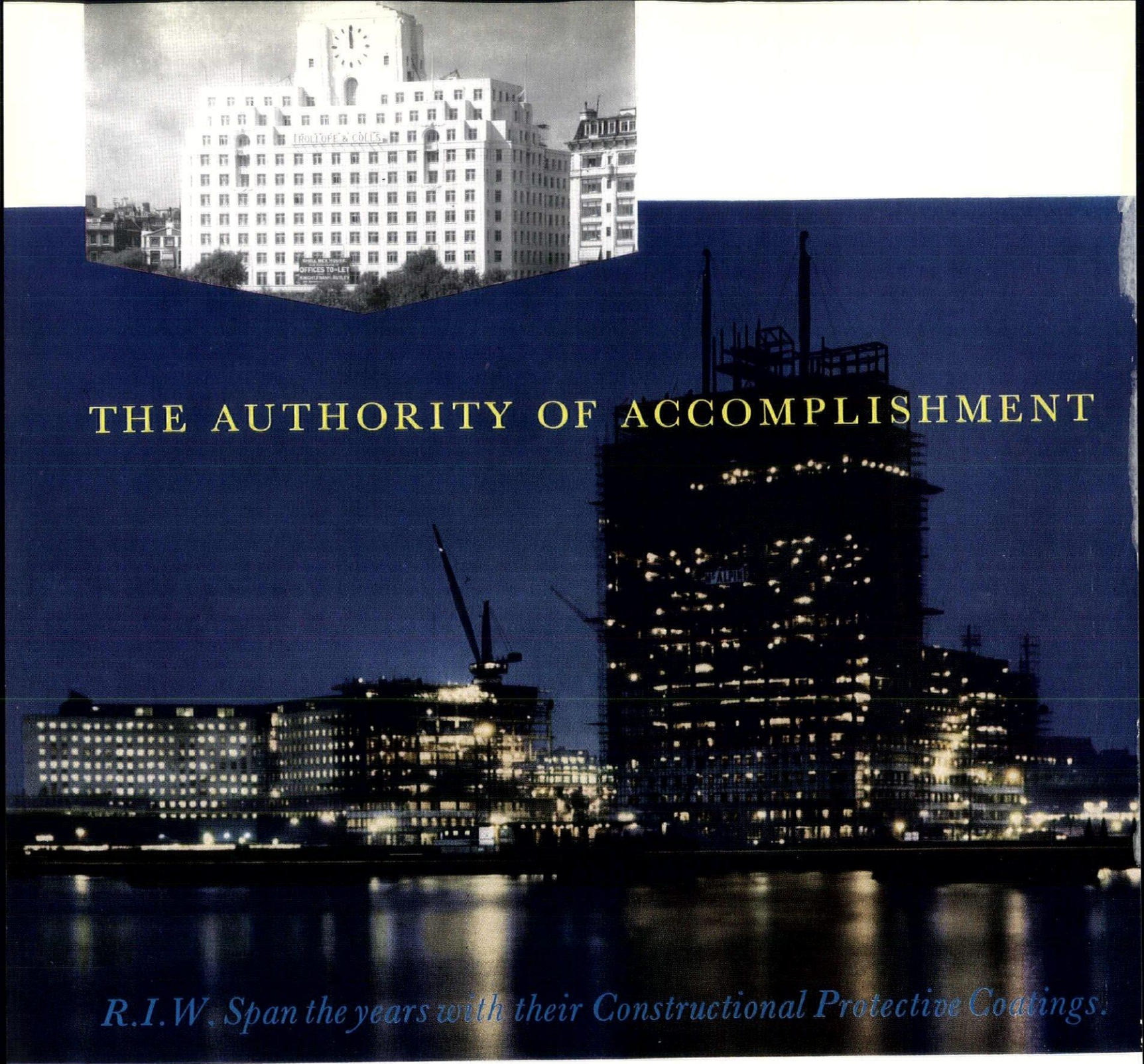

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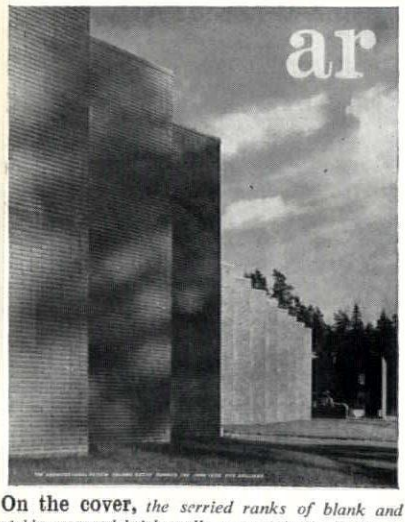

On the cover, *the serried ranks of blank and richly textured brick walls, unmistakably Baltic in their architectural quality and coniferous landscape, are the return faces of the projecting windows, sawtooth in plan, of the residential blocks of a new industrial education centre at Lidingö, near Stockholm, designed by Anders Tengbom. This impressive piece of collegiate planning by the bearer of a distinguished name in Swedish architecture, marks a divergence from the customary image of Swedish Modern current outside Scandinavia, and is described and illustrated on pp.* 376-380.

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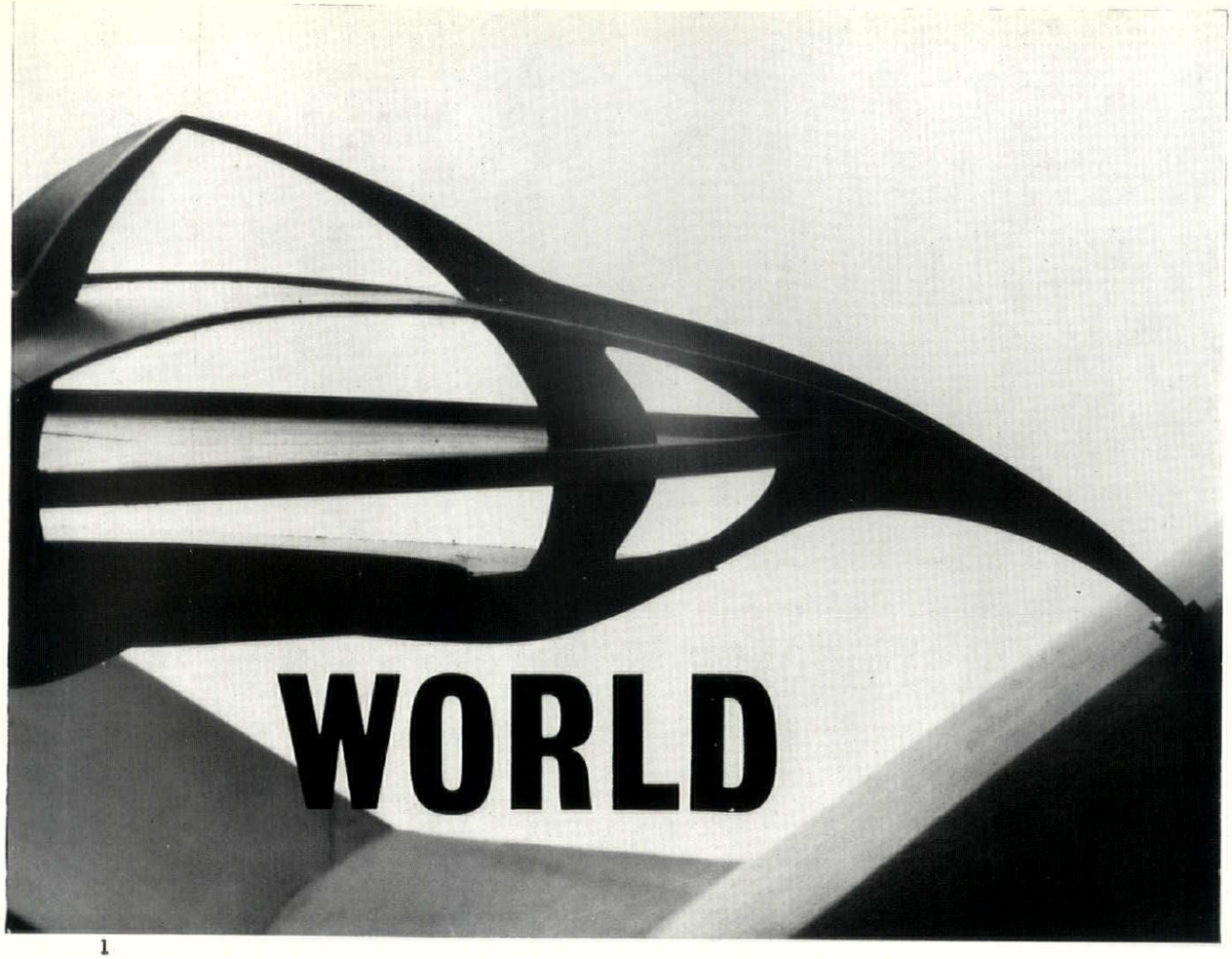
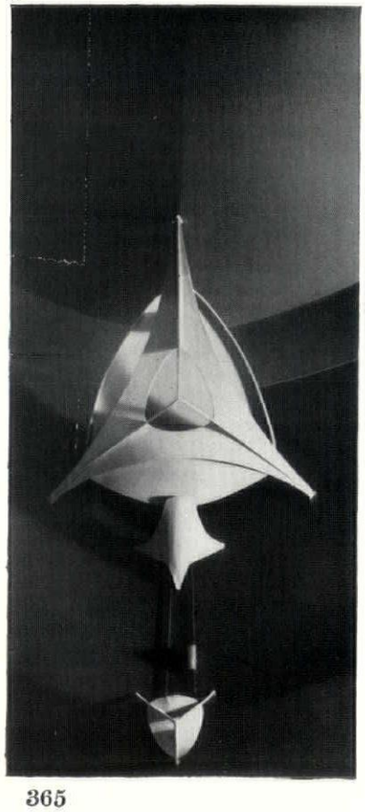


1

CANYON-SPAN RESTAURANT

in Californian National Park

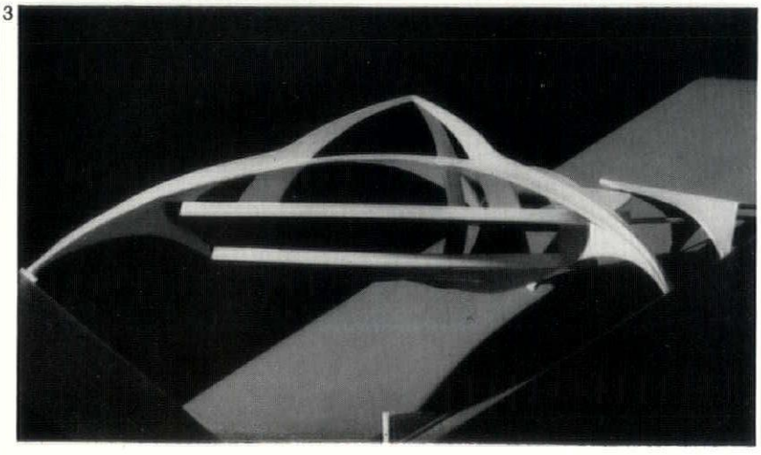
2



Looking at first sight more like one of the alien war machines in the Hollywood version of the *War of the Worlds*, than a building, the structure above, 1, is the skeleton of a proposed canyon-spanning restaurant in the Oakland National Park, California. Designed by Luckman and Cadwallader, it has in fact a symmetrical plan, 2, taking advantage of a curve in the canyon to secure three footings evenly spaced at the apices of an isosceles triangle. The apparent 'pendant' in this view represents the lines and engine house of a funicular which gives access to the restaurant and the canyon floor from the Park Boulevard at the top of the slope. In spite of the fact that the crest of the structure rises almost level with the tope of the canyon wall, 3, and the restaurant hangs high enough to afford views of the sea which is some distance away, the usable deck-space in the structure is still sunk deep enough into the canyon to take advantage of the shelter from the wind afforded by the configuration of the ground.

In section, the project calls for a main cocktail lounge and restaurant with outdoor dining-terraces on the upper deck, while the lower deck is to have a banqueting hall and complete club-house facilities for the golf-course in the valley below. The structure—inevitably—is reinforced and pre-stressed concrete, its tripod footings being considered capable of absorbing vertical movements of the ground due to 'normal' earthquake activity, though roller mountings are to be introduced to take up horizontal movements (it is not clear on what scale such movements are anticipated to be).

3



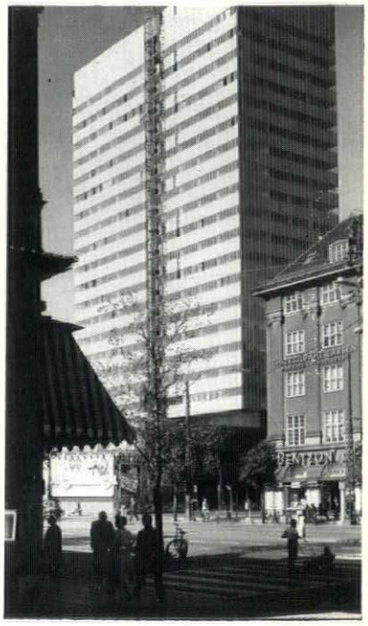
One final point will probably strike the thoughtful reader—even five years ago a project such as this would have been dismissed by most architects as mere fantasy or Expressionist Revivalism, but nowadays . . .? The changed response to designs such as this is a measure of the profundity of the revolution in architectural thinking wrought by the Candela-Torroja-Catalano connection.

EUROPEAN CURTAIN-WALLS

Arne Jacobsen's *SAS* building in Copenhagen is now completed bar some details, and looks, as is so often the case with curtain-walled buildings, exactly like the model (cf. AR February 1959, p. 141). Nevertheless, Kidder Smith's photograph of the block nearing completion, 4, taken from exactly the same viewpoint as the standard photograph of the model, brings out some interesting points about this design when seen in the setting of the existing buildings around the site. Most notably, the easily read scale of the existing buildings greatly diminishes the apparent size of the tall block, which appears very lofty indeed in the model photographs, but turns out in fact to be more or less the standard bulk for European 'sky-scrapers' which increasingly tend to come in at around twenty storeys.

But one also observes, when one has the scale right, that the windows are uncommonly shallow for a curtain-

4



Curtain-Walls

walled office block in a northern city, and it would be interesting to know why this should be—has Jacobsen, for instance, given up the deep daylighting struggle in face of the problem of very short winter afternoons? In any case, the contrast with a southern, curtain-walled office block designed at about the same time, is very striking—Luigi Caccia-Dominioni's extremely impressive block in the Corso Europa, Milan, 5. Contrary to the general trend of 'advanced' North Italian architecture (even including the adjoining building with its up and down fenestration) the architect here makes virtues of all the more negative aspects of curtain walling, to produce an elevation whose studied lack of obvious character and marked projections, adds up to architecture as charged with character as the Seagram building. Also, as will be observed, the ratio of window to spandrel here reverses, almost exactly, that of the *SAS* building, to produce a design that one feels can never have deceived anyone about its scale. Finally, one must speculate about the ultimate contribution to the design of the cornice—a feature unknown in glass-skinned buildings since Willis Polk's Hallidie Building (AR May 1957). Though it is an affront to the orthodoxy of the glass-box aesthetic, the line of shadow that it draws across the top of the building makes a thought-provoking contrast to the way in which most curtain walls tail off vaguely into reflections of the sky.

5



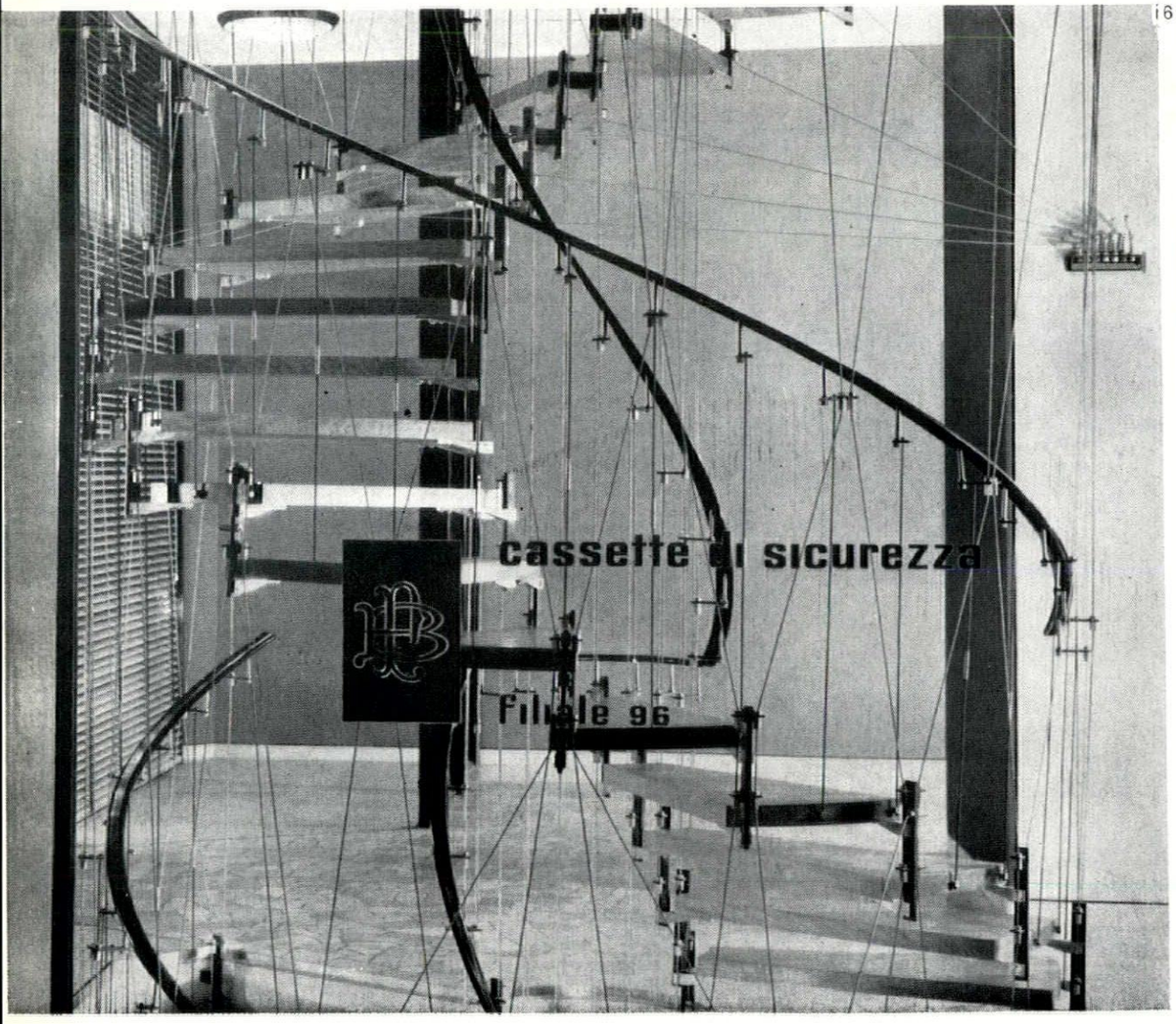
INVISIBLE STAIRCASE

Many years ago, the futurist Azari, barely interrupting the flow of his routine mechanistic rhetoric, coined the idea of *invisible staircases in the upper air*. This subconscious recall of racial memories about Leonardo da Vinci's drawings of the flight of birds, was meant to apostrophize the movements of aircraft, but somehow the idea has got embedded in the professional psyche of modern architecture as something that could be actually built. The suspended staircase at General Motors Technical Centre was a step towards it, but now another Italian has got about as close to it as seems humanly possible, 1, without actually ceasing to have a staircase at all.

Designed by Renzo Zavanella, that past master of the *tensistruttura*, this brilliant piece of dematerialization is not intended as a solitary showpiece, but as the prototype of a number of staircases for new branches of the *Banco Popolare di Milano*, such as that at Varese, where the prototype is installed, 2. The usefulness of such a structure, involving the minimum of contact with the surrounding building, to an organization like the Banco Popolare which has to operate to some extent from converted premises where the leases may fall in within a few years, is clear enough (as Bauen-Wohnen pointed out when it illustrated this branch, in its February, 1960, issue).

But, in addition, the reader who compares this staircase with the uncompleted sculptures designed by Naum Gabo for the Esso Building in New York (AR, March, 1955) which this staircase startlingly resembles in elevation, though in nothing else, may well feel that here is the proper destination of those modern monuments, fully integrated with architecture, that the Constructivist movement (Gabo, Pevsner, etc.) have always wanted to create. Zavanella, who never appears to have been any sort of constructivist, has here achieved what Gabo just failed to do in his *de Bijenkorf* sculpture in Rotterdam.

6



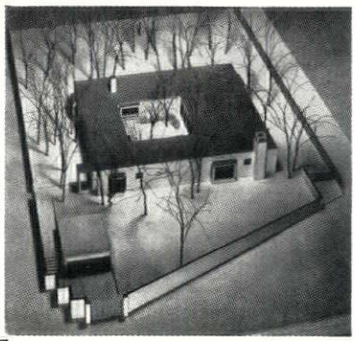
CARRÉ *equals* SQUARE *but not* CARRÉ

Future pursuers of the Twentieth Century *zeitgeist* will have plenty of trouble with the word *square*. For reasons in which coincidence exceeds belief, the word now means *unprogressive* both in mental equipment and (quite independently) in the plastic arts as well. Thus, the Finnish periodical *Le Carré Bleu*, with its French title and its devotion to a particular body of aesthetic doctrine (pure form, integration of the arts) is as square in every sense of the word as its name would suggest, except that the current issue (4, 1959) carries a report by John Voelcker on the recent congress at Otterloo (cf. *World*, February 1960) at which the square and non-square factions collided, and shows other evidences of a more liberated attitude, as befits a magazine that enjoys support (apparently out of loyalty to 'the cause') from men like Ralph Erskine.

The squareness of squares in the plastic arts comes, of course, from their devotion to a Mondriaanesque rectangular aesthetic—now Out with the bright boys, but conspicuously In with the older group of Finnish modernists, who include not only Aulis Blomstedt, a figure very much connected with *Le Carré Bleu*, but also J. S. Siren, now in his seventy-first year, to whom *Arkkitehti-Arkitekten* recently devoted a congratulatory issue (8, 1959) illustrating works newly completed and projects on or off the drawing board. All exhibited a resolute squareness of plan—in some cases

Square

literal squareness around a square internal courtyard, as with the project, 7, for the architect's own house, never built because (as *A-A* mysteriously says) 'the architect settled his housing problem in another way.' The design is a curious one, because the drawing-board symmetry of the facade, 8, does not correspond to any comparable symmetry of plan, 9, although one recognizes a very high degree of professional expertise about the composition—a kind of expertise that is to be found only rarely nowadays in non-Baltic Europe.



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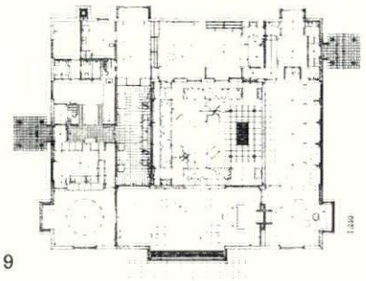
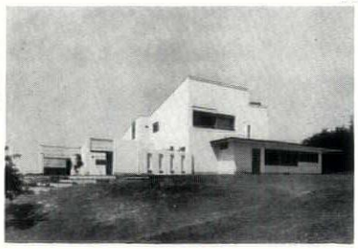
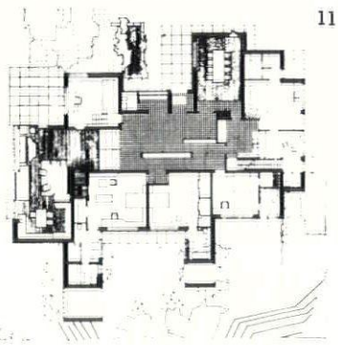


9

However, in the cultural heart of non-Baltic Europe, a Finn who is certainly no square in any sense of the word, Alvar Aalto, has just built a conspicuously non-square house with the misleading name *La Maison Carré*,

10





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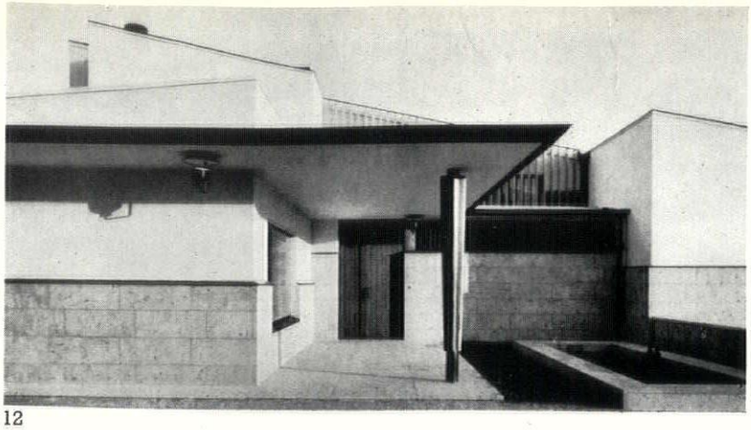
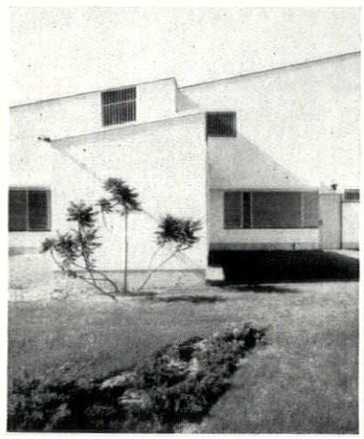


12

10. The name derives, in fact, from that of the owner, Louis Carré (who certainly cannot be described as a square in spite of his name), and the house has clearly taxed the mental agility of some of Aalto's southern anti-rationalist admirers. No curving walls here, as the plan shows, 11, no craggy brick surfaces—the walls have their lower courses faced in plain ashlaring, the upper parts in white painted brick, 12. The effect is remarkable and almost impossible to accommodate to the standard labels used for classifying the various ramifications of modern architecture. Leonardo Mosso, in *Casabella* (236, 1960) feels compelled to formulate his praises of the house in terms of quotations from Paul Valéry's *Eupalinos* (cf AR April 1958) and Baudelaire, and with the proposition that this is his first assay in 'Architecture latine.'

Although this proposition may be true in the sense that the house is

13



planned round a central atrium, 13, the pure-form / Mediterranean-sensibility equation that appears to lurk beneath this proposition cannot be allowed to pass unchallenged. Preoccupation with pure form is a northern characteristic (Mies, Mondriaan . . . Arne Jacobsen . . . le Carré Bleu) in twentieth century art, while the Mediterranean has contributed impure formal languages (Futurism) rag-bag textures (Burri, Paolozzi) and architectural forms of cultivated sentimentality (Le Corbusier since Marseilles, Neoliberty, etc.). If the style of Aalto in the lush countryside of the Ile de France (the maison Carré is near Dreux) is comparable to anything other than the style of Aalto elsewhere, it is to certain aspects of the young Frank Lloyd Wright in Wisconsin, 14, and this proposition might, while not supporting flourishes of literary erudition like Mosso's, finally lead to an illumination concerning what this house (and other good modern villa architecture) is really all about.

14

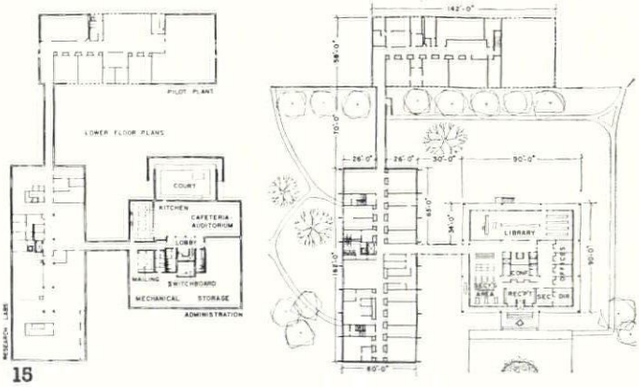


BRAND-IMAGE ARCHITECTURE

Pure architecture—Miesian pure—and academic research belong to one end of our cultural spectrum, and the hucksters' pitch of salesmanship, even with its new attributes of motivational research and brand-images and what not, belongs to the other end. Or does it? Two recent buildings for the proprietors of heavily-advertised American branded goods undermine this proposition even more explicitly than did the Mies/Johnson Seagram building.

For the Philip Morris tobacco company, Ulrich Franzen has just designed a miniaturized academic campus, 16, in a modernized Ivy League manner, with a plan that is modified collegiate, 15. Though this is intended chiefly for pure research into tobacco industry problems (it is situated in the tobacco-belt, a little way south of Richmond, Virginia) it is not thought of as being separated from the company's commercial programme, and *Architectural Record* (November 1959) noted that 'The buildings shown here are the beginnings of a projected long-range programme of this (viz., corporate image) type . . . Ulrich Franzen . . . as part of the philosophy of the programme, has prepared and executed a number of designs for the series of corporate graphics and symbols.'

Meanwhile, back on sophisticated



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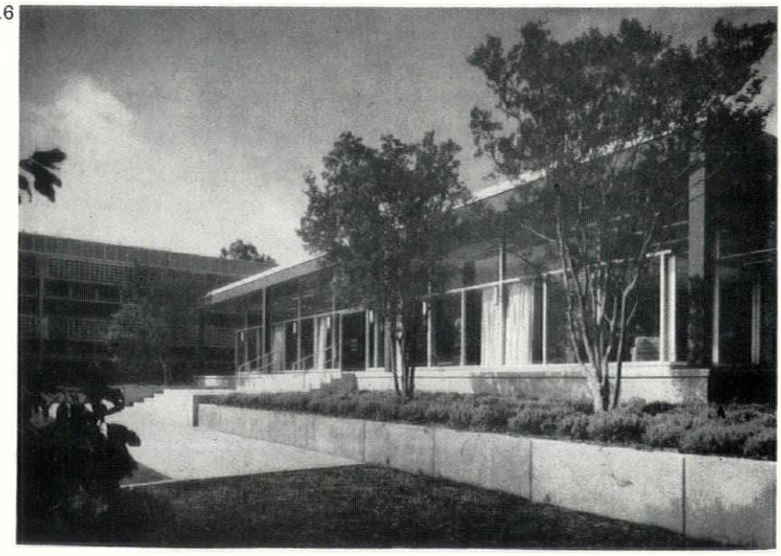
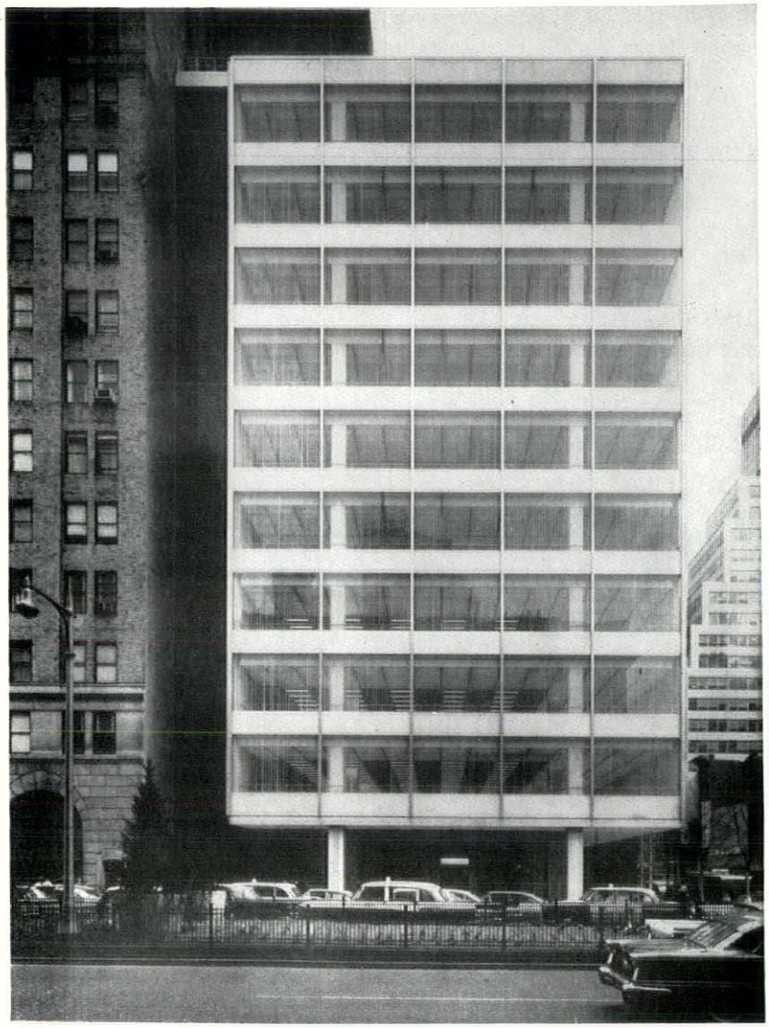


Brand-Image

Park Avenue, Pepsi-Cola (of all people) have produced (of all things) a soft-drink-Seagram, 17, executed in the most severe and sophisticated version of their 'high corporate aesthetic' by Skidmore, Owings and Merrill. *Architectural Forum*, unable (March 1960) to resist obvious quotations about 'Be sociable, look smart,' etc., also observed with justice that 'simplicity and scale lend Pepsi's building remarkable presence for its size' and this is undoubtedly true. The extremely spare design and very large units (each window is a pane nine feet by thirteen) make for a building that looks bigger than it is, contrary to the general run of curtain walled blocks (see 4 above).

17

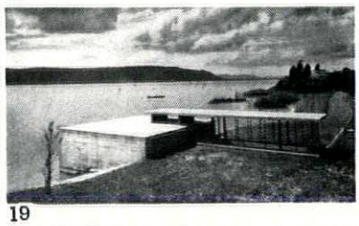


SIPPLINGEN PUMP-HOUSE

The design of lakeside installations for water supply in Britain has become so repetitive a cause of complaint, that it is a pleasure to be able to break the monotony by illustrating the new plant at Sipplingen, 18, at the Überlinger end of Lake Constance. Besides the pump-house, this scheme by Hermann Blomeier also includes a decently unobtrusive intake building, 19, and another, resembling the pump-house in scale and general style, whose function is largely to screen from lakeside view the miscellaneous open-air switchgear and transformers that add so much to the squalor of most electrically operated plant.

The key to the high quality of the whole installation probably lies in the fact that Blomeier seems to have some sense of the magnitude of the alteration that he is effecting in the human environment of south-west Germany—

18



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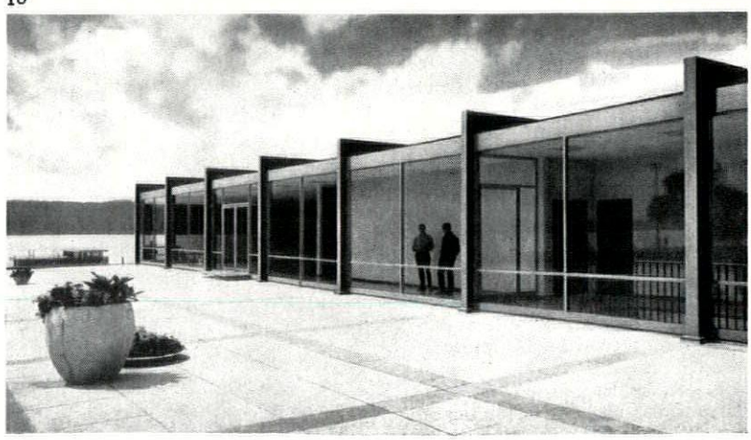
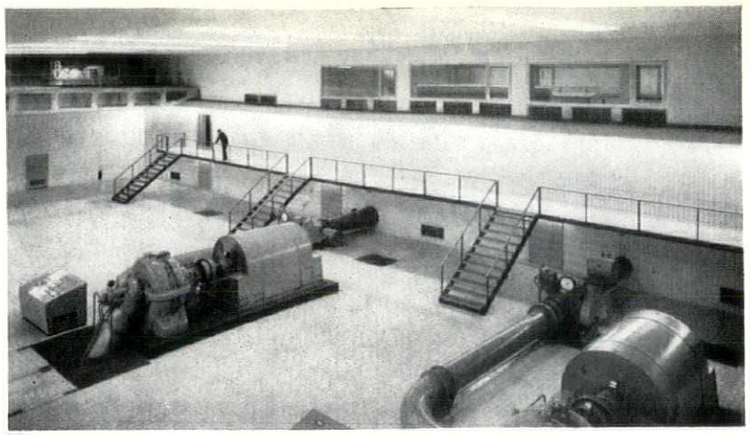




20

the plant supplies water to Stuttgart, Ludwigsburg, Esslingen, Tübingen and other towns. At all events, the main machine room of the pump-house, 20, is rare among recent architect-designed works of this kind in re-capturing that splendid rhetoric of clinical order and suppressed horse-power that made this kind of installation one of the great inspiring themes of the heroic phase of Modern Architecture, and gave emotional force to the second part of Henry Adams's old tag about 'the Virgin or the Dynamo.'

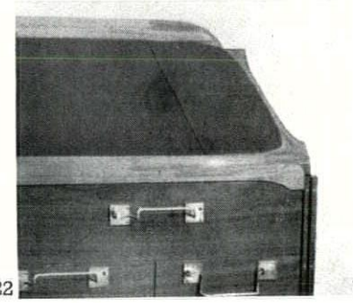
NEOLIBERTY FURNITURE

The Liberty craze (Neo- or otherwise) continues to provide marginal diversions on the lunatic fringe of Italian design—in the world of fashion pure and simple, the art nouveau fabric patterns that came from Liberty's in the first place, and thus provided the movement with its Italian name, have been revived in Italy, and now appear in the British press as the latest thing in Italian importations—with a rather baffling English name that seems to have been most commonly rationalized with the explanation that Liberty's must be the importers of the stuffs.

Meanwhile, back in the homeland of *Neo* liberty (cf. AR, April, 1959) and in accordance with the best art nouveau traditions of *Gesamtkunstwerk* (the whole environment by one designer) the founder-Neolibertarians have recently had an exhibition of the furniture their buildings deserve. Every important name in the movement is represented—Gabetti, Gregotti, Meneghetti, Aulenti, Rossi, Asti, Stoppino, and the rest—and so are most of the component influences of the style. Van de Velde's 'yacht' furniture finds a clear echo in a table by Asti and

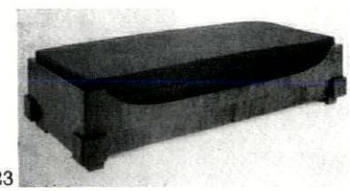


21



22

Favre, 21; something closer to the true Bugatti appears in the chest by Roberti Gabetti and Almaro Isola, 22. But, in addition, plain common or garden *gusto milanese*, at its creepiest and worst, comes through in the revival of *le style Paris 1925* by Calvazaro and Tintori, 23.



23

Before throwing up his hands, laughing it off, or deciding that it can't happen here, the British reader might do worse than look up the 'how not to' example that appeared in James Gowan's article on education in AR December 1959 (i.e. illus. 17, p. 319, or even illus. 35, p. 322) and ask themselves why a minority, but an intelligent, thinking, articulate, minority of younger architects is so determined to revive most of the things that modern architecture and industrial design are supposed to have buried for good.

views and reviews

BOOK REVIEWS

CAMBRIDGE TO 1850

ROYAL COMMISSION ON HISTORICAL MONUMENTS—City of Cambridge. 2 *volumes, with maps; HMSO, 5gns.*

After a mere fifty years the Royal Commission is getting into its stride. They have succeeded in removing the absurd rule of inventorizing only buildings older than 1714, and the equally absurd rule of having to list every building of before that date. The one rule excluded about half of what is important in English art and architecture, the other forced the Commission into listing hundreds of cottages and farmhouses not worth the full treatment (over a hundred, e.g. in the parish of Felsted in Essex). The boundary in time had already been relaxed a little in the volume on Oxford and completely given up in the one on West Dorset, but even so the Commission, as its secretary recently disclosed, is busy on a second Oxford volume containing monuments of after 1714 only.

The Cambridge volumes, two and a box of large plans and maps, go resolutely as far as 1850. This is a tremendous step forward, and to express regret that William Morris at All Saints and Jesus College remains outside would be ungrateful. One interesting consequence of the new time limit already alluded to is that individual listing of every house has become impossible, and so Mr. Webb, the secretary, chose the convincing expedient of designating group monuments, i.e. of describing areas and only sample houses. As far as I could test in the field, it works very well.

There are other equally important and equally welcome innovations in these volumes, and they ought for once to be listed. To the lay reader the most striking is the illustrations. The Commission is at last waking up to the progress made in photographs for art books, and now many of the pictures are outstandingly fine—fine enough in fact to justify an exhibition of samples held at the Victoria and Albert Museum some time ago. What is more, the photographer has, as is so often the case nowadays, helped to discover completely new aspects of his subjects. The most spectacular case is the little figures on the stall ends of King's College Chapel, exquisite purely Mannerist figures which ought to make it possible to find the same hand at work in other places—hardly in England and most probably in France. For the stained glass of King's College Chapel colour plates were introduced—a doubtful blessing on the whole, but considering the fact that these windows are the most important of their date in England, justifiable.

Equally fundamental are the innovations in the text. The introduction has become a long and readable topographical history of Cambridge illustrated by well-drawn development plans. This is followed by a history of the university and its various building types and finally the customary survey of all kinds of fittings. Footnotes, often much needed, have appeared where they are needed, and original documents have been read and are quoted.

One *desideratum* in the introduction. It would have been helpful to try and trace the transition from colleges for fellows only to colleges for fellows and undergraduates. The terms scholars and students on p. lxxiv can only confuse. After all the fellows of Christ Church are to this day called students. Now a few queries, also relating to the introduction. For inner gatehouses, i.e. gatehouses between courts, Hampton Court might have been quoted as an earlier example, and the remark about gatehouses distinguishing the Cambridge from the Oxford tradition might have been qualified by referring to the gatehouse of New College, Oxford (and its counterpart at Winchester College).

Against such minor omissions there are the many little pleasures which no previous volume of the Commission would have harboured. The milestones set up beside the Trumpington Road from 1735 onwards were the first true milestones to be erected in Britain since Roman times. The signal-boxes near Chesterton Junction continue the tradition of the cottage orné, etc. There are larger issues too. The stagnation of Cambridge as a university as well as a town in the eighteenth century is brought out by statistics, a graph and plans. Matriculations averaged 450 in 1620, 450 again about 1825, etc., but between 1730 and 1805 never reached 200. Happy days. In fact here again the limitation to 1850 is a pity; for the growth immediately after 1850, when the Natural Science Tripos was inaugurated, is of great interest, too. By 1870 matriculations had in fact reached 610, and by 1880, 810. In 1950 alas, they were over 2,500.

The introduction appears anonymously, or semi-anonymously—as a compliment to teamwork no doubt, but depriving someone of credit who deserved it for an excellent piece of writing and perhaps various people of credit for pieces of specialized learning such as the account of the likely date of the Trumpington brass or of early cast iron or of early grey brick. The procedure of signing is in any case not consistent. The introduction to prehistory and up to 1066 is signed C.F.F. which one can guess means Sir Cyril Fox. The history of the city itself is signed G.F.W. which must be Mr. Webb. After that the signing stops. The editor of the volumes, Mr. Dufty, appears only once in a list of many people, and Mr. Webb, the *spiritus rector*, purely as the secretary to the Commission. There are incidentally other small inconsistencies which may deserve attention. For instance, I could discover no principle in mentioning or not mentioning artists' names in captions.

And while I am on suggestions for improvements beyond the enormous improvements of these volumes, I would plead for these. The plates should at last be together and at the end. I am not even sure that one could not have made out of the 310 of them and the introduction one volume for reading and a second of the 450 pages of text for handling while visiting. Those who try to do the latter will still be foxed by difficulties of arrangement which could be solved by a bolder, less discreet, typography. It is still hard to find where a new part of a college starts or where, in the long, far too little broken-up, lists of furnishings, say communion rails or panelling will be found.

And with this and with having paid my tribute to a supremely good job I come to my, to everybody's, real grudge. It refers to circumstances, as they say, outside the control of the Commission. The first volume appeared in 1910. After twenty years there were twelve. Now there are twenty-two. Ten volumes in thirty years, even granting that about ten of them were lean years, is ridiculous. Between West Dorset and Cambridge eight years went by. I am told gaps will not be so long in future. Even so, let us do some elementary calculations and see what comes out. Of the twenty-two volumes so far produced about twenty are, because of the limitation of 1714, short of half their necessary contents. That means another twenty at least. There are forty counties, or with Yorkshire counted as three ridings, forty-two. Of these eight are done and three more started. It is fair to assume that a county in future will need an average of four volumes. Thirty-four counties at four volumes, minus three published, makes 133. Am I a defeatist in reckoning that in future one volume will come out every four years? If I am right, the work of the Commission will be accomplished in 532 years. It is a funny prospect. What atom bombs have left will by then have much changed its appearance. Also the LCC's Roehampton housing will be as old as Queens' College is now.

Seriously—what is to be done? There is only one answer. At present, if I understand it rightly, the Commission works with a trained staff totalling about twenty. It is divided into teams working in different places, Cambridgeshire, York, Dorset, Wiltshire, Oxford. Before publication all must go through the hands of the one secretary who does the final summarizing. The teams ought to be increased to a hundred from twenty, and each team ought to be able to finish its own volumes independently. That would get us, on a basis of arithmetic only, to a hundred instead of five hundred years. In fact it might get us much further, and with the prospect of Commission volumes coming out every year the purpose of the presentation and the appreciation of monuments in this country would be served infinitely better, quite apart from the fact that the life of a second-hand compiler of inventories like myself would be bliss.

Nikolaus Pevsner

THE LAND AROUND TOWNS

AGRICULTURE & URBAN GROWTH. *By G. P. Wibberley. Michael Joseph. 21s.*

There are two ways of seeing urban growth; as a conflict between town and country, or as a finely calculated equilibrium of population densities which changes continually and differs, especially in a landscape as diverse as Britain's, from place to place. By tradition and habit the former view predominates (remember how the landowners fought to keep out development when the statutory development charge was 100 per cent). The latter view, yet with due regard for the power of the former, provides the basis for this book, which has been written with the aid of a team of research workers at Wye College.

Much information immediately useful and stimulating to architects, because it concerns size and scale, is contained in the text and tables: for example the uses of urban space are analysed, indicating that 42 per cent of the area of London County is occupied by housing, 15 per cent is open space, and 2 per cent is occupied by schools together with their playing fields. Later the dwelling plot itself is analysed to show that the house occupies 17-20 per cent of the site, and a chapter is devoted to the land-use and food production of private gardens.

The most important theme of the book is the survey of methods used to determine how and where urban centres should expand, and how this expansion might be compensated to ensure a desirable level of food production. The author makes it clear that the kind of information needed to reach such planning decisions is either not available or it is not available in useful form. Records of land-use are made by many different bodies with different and often marked interests. There is no doubt that land-use records should be compiled by a central body, and that the methods of measuring, classifying and tabulating should be overhauled thoroughly.

The author outlines a method through which alternative sites for urban growth can be evaluated in terms of gains and losses to society as a whole, pointing out that taking agricultural land for urban use is no more than a transfer account within the nation's economy. This method of evaluation is applied to the case of Lymm, Cheshire (a proposed settlement to take overspill from the Manchester conurbation), and the results are summarized in a 'Concept of Land Replacement' developed by Cheveley and Price. Briefly this Concept indicates that each acre of agricultural land taken for urban use should be balanced by an investment in reclaiming or intensifying agriculture. To amplify this concept the costs of different kinds of land improvement are tabulated in terms of the capital investment required to replace food lost and the anticipated return on the invested capital. It is worth noting that the cost of reclaiming land used for open cast coal or ironstone workings is almost prohibitive and the return on this cost is extremely low.

This book is encouraging because it confirms one's belief that urban growth is not beyond intelligent control; it is cautionary because it reveals that the present planning mechanism is inadequate and blind to its tasks. When many millions of pounds are being spent on agricultural improvement and urban expansion the author makes a plea for a few thousand pounds to be spent on research into how the money should be used.

John Voelcker

WATERWHEELS INTERNATIONAL

REPORT ON WATERMILLS. Volume III, Scale Drawings. *Edited by Anders Jespersen, Virum, Denmark. Published by Anders Jespersen*, 1957.

The slaughter of watermills and windmills proceeds at an ever in-

creasing pace and it behoves all who can to record examples while they are still there to record. While the most obvious way to cover the ground is to take photographs and gather and collate information, nothing can really supplant the much more arduous method of making measured drawings. If these are done properly and with care, they are quite invaluable.

Fortunately a few ardent spirits have started to do this and to inspire others to copy their example. In the field of watermills no one has done more, internationally, than Mr. Anders Jespersen. His enthusiasm was first aroused by watermills in the Isle of Man and in Scotland during his training in the latter country and, since his return to Denmark, he has had the practical encouragement of his Government to an extent that makes his fellow workers in this field in England green with envy. The result is to be five volumes of which this one, Volume III, is the first to be published.

It contains measured drawings to a scale 1 to 100 and has a most useful card bookmarker printed with scales on either side. The drawings comprise seven German, twenty Danish, two British and three Norwegian watermills, two German, three Danish and one Greek windmill and two German horse mills. There are in addition measured drawings of the Laxey wheel, once used for pumping a mine in the Isle of Man, and a drawing of a wheel for a cloth mill at St. Marcello near Florence, Italy, made and constructed by Bryan Donkin in 1842. There are thirty-five pages of explanatory text in English with thirty-one photographs, two freehand drawings and a two-page map. The British mills are at Eversley and Sherfield-upon-Loddon, both in Hampshire.

The book is admirably produced by the rotoprint process which, as the editor remarks, alone makes it possible to produce it at all. Nothing like this has been done for watermills before and the drawings, which are the work of twenty-nine hands, are uniformly excellent. Not only are the mills and their machinery well recorded but also their siting and surroundings, a very commendable feature.

Rex Wailes

SPACE-INTERPRETERS

THE STUDY OF CITIES. Notes about the Hermeneutics of Urban Space. *Gregor Paulsson. Inter-disciplinary studies from the Scandinavian Summer University. Ejhar Munksgaard. Copenhagen*, 1959. *pp.* 92. *Price* 12 *Danish Kr.*

Gregor Paulsson was formerly professor of the history of art at Uppsala. In that capacity his studies were much concerned with the social background of works of art. Later, perhaps influenced by the detailed investigations of the Swedish school of urban geographers, he became interested in the complex functions and relationships that exist within a city, and to some extent may be said to be the city.

The Study of Cities is an attempt 'to find a perspective that is common to city investigations as a whole.' It was inspired by inter-disciplinary studies at the Scandinavian Summer University in 1957 when cities were examined as examples of very complicated structural wholes.

The book is short—about 30,000 words—and is easy to read in the sense that on every page it is quite clear what Professor Paulsson means. It is, however, difficult to read in that a number of highly condensed and refined views of a city—social, political, economic and psychological—are placed side by side, and the views are so various that two of them may have nothing in common save that both are concerned with some aspect of city functions and relationships.

Very broadly, the views of the city that are discussed are divisible into three groups: demands on space by certain urban functions; zones and sub-zones that have existed in certain towns; and social and psychological views of space. The author's great knowledge and skill are obvious in his choice of views. All are interesting and a number of them will be new to town planners and others who are professionally concerned with the ordering and improvement of spaces in cities. He pays special attention to social and psychological aspects of space.

The subtitle of the essay is *Notes on the Hermeneutics of Urban Space* and hermeneutics is the skill of interpretation. Professor Paulsson is concerned with all and every interpretation of urban space that seems valid and has unhurriedly gathered together a large range of examples. In his last chapter he does not so much try to sum up all that has gone before as to quote others who have tried to express the essence of cities. One finds, rather with relief, that this essence eludes exact description. It is a ferment, a state of mind, a character, a city has a soul . . . and so on. Professor Paulsson quotes Thorndike who tried to establish a 'goodness' rating for American cities and Augell who tried to find 'a set of common ends and values.'

The chapter tries to come to grips with this question of urban values, and in doing so becomes involved with problems of group psychology of greater and greater complexity.

H. Myles Wright

CORRESPONDENCE

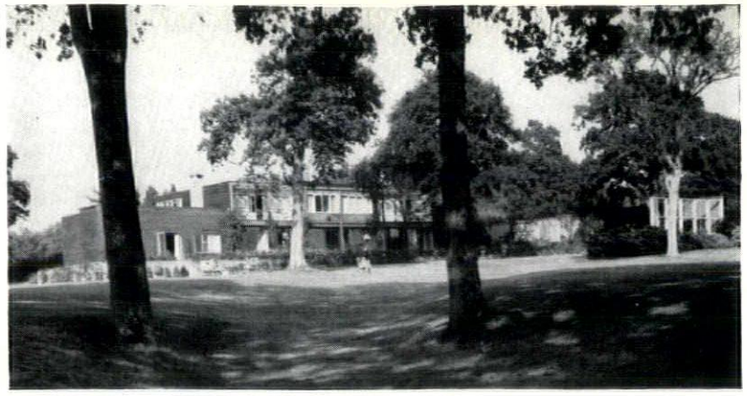
TIME AND CHERMAYEFF

To the Editors.

SIRS,—Dr. Nikolaus Pevsner's article on 'Time and Le Corbusier' (AR, March 1959) prompted me to visit a 'famous English villa of the thirties'—Serge Chermayeff's house at Halland, Sussex, built in 1938. This house was given a special coverage by you in February 1939, J. M. Richards mentioned it as 'pioneer work between the wars' and a recent Architectural Press book on gardens illustrates Christopher Tunnard's landscaping around the house.

The enclosed photographs show the house today. The view of the south elevation was taken in the same position as the photographs in the AR for February 1939. Note the games-room extension and its stack, the extension of the bedrooms on to the balcony in the middle two bays, and the disappearance of the Henry Moore sculpture.

Another photograph illustrates the rear of the games-room extension—compare this with the original illustration in the AR. The last photograph shows the north façade with the extension of the two-storey part of the house; this extension is visible on the south.



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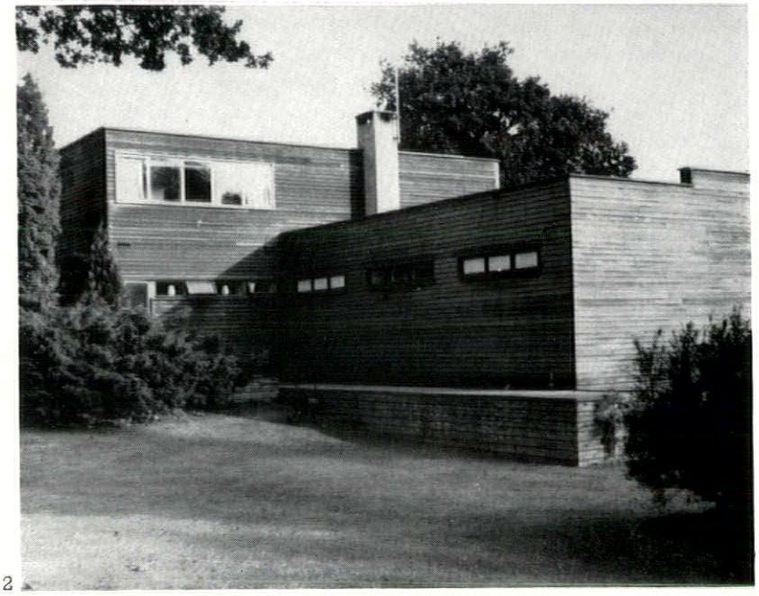

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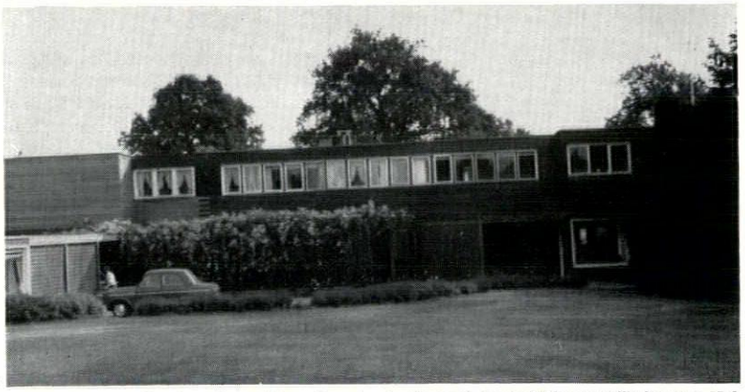

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1, *the south front of Chermayeff's house at Halland in Sussex.*
2, *the games room extension.*
3, *the north front, all taken in* 1959.

I was unable to photograph the 'stock' view of the south façade owing to the erection of an open-air swimming pool (echoing the plinth brickwork and screen) and the presence of the owners in the garden on whose privacy I did not wish to further intrude. The owners would not let me go inside the house because they said it had been entirely altered from the original.

Yours, etc.,
PETER BAREHAM.

Brighton.

UNIVERSAL MAN

To the Editors.

SIRS,—After reading 'Universal Man' (AR, April, 1960) could I say very simply that the first qualification for being a universal man is surely to become a Man. First and only. If one is, then it doesn't matter a damn by what paper title one is known, architect, engineer, town planner or business man. If one isn't, then everything one does will just be whistling in the dark.

On the day that 'every field of activity admits that the day of universal man is gone' then man himself is dead. On the day that nobody in the world feels 'an inherited mystique dating back to pre-technological times' then man is dead also. Man's own mortality is the surest proof that this mystique is not only inherited but permanent and ineradicable. The fact that the fingers that are writing this letter will eventually rot, stink and crumble into dust is—for me—something that is not fully covered in any technological handbook.

Yours, etc.,
IAN NAIRN.

THE CLEANING OF LARGE BUILDINGS

To the Editors.

SIRS,—Referring to Lance Wright's article in the April edition of THE ARCHITECTURAL REVIEW in which he states that 'in most tall buildings external cleaning is the best' he ignores the fact that there is more than one surface to every sheet of glass. This means of course that whatever arrangements and costly facilities are laid on for external cleaning there still remains the internal surfaces to be considered and, to clean these from outside, although not impossible, is certainly impracticable. On the majority of buildings, therefore, arrangements have to be made for the internal surfaces to be cleaned with the minimum amount of inconvenience to office staff either by (*a*) carrying out this work after office hours or (*b*) locating office equipment and/or any other obstruction clear of the window areas.

The outcome of this piece of strategy is that if the external surfaces can be cleaned simultaneously a considerable saving can be made initially by dispensing with roof mounted external elevators, etc., and over a period by a general reduction in labour costs.

Lance Wright's objection to the amount of room required to rotate a 180 degree Carda window depends largely on the size and proportion of unit involved coupled with the layout of internal furniture and fittings. By careful planning and consultation this is easily overcome, however, especially when it is considered that sufficient space would have to be allowed for gaining access to the internal glass surfaces whatever cleaning system is to be adopted.

While it is agreed that the Carda window does not solve every fenestration problem, systems of curtain walling can be supplied where all maintenance can be carried out from within, contrary to Wright's suggestion, and, providing that the specialist is consulted during the early design stages of a contract, there are few problems in fenestration that are unsurmountable whether single or double glazing is being considered.

Yours, etc.,
D. G. GENTLE,
Technical Representative.
Holcon Ltd.,
Slough.

Lance Wright replies—

The article was concerned with the cleaning of *tall* buildings and particularly with those of non-traditional construction (as tall buildings almost always are). The critical point with these is that the frame stands in as much need of attention as the window itself. Although, as Mr. Gentle points out, it is a comparatively easy matter to design a window so that it can be cleaned from the inside, it is not so easy to arrange for the structural frame to be dealt with in the same way. Even though it may be possible to clean frames from the inside, it will always be physically difficult and, as a result, parts are sure to get skimped. Nor is cleaning all. The majority of our tall curtain wall structures rely on sealing compounds, gaskets and tapes which have to be renewed at fairly frequent intervals. There seems a strong case for designing a wall which can be cleaned and maintained by using a single contraption.

THE MINDLESS MASTER

To the Editors.

SIRS,—We in SPUR feel that Ian Nairn has for once entirely missed the point in the article on urban motor traffic in your April issue in which, with the effect of motorways on American cities very much in mind, he advocates 'removing the bottlenecks, giving as even a flow as possible on the existing system and allowing *laissez faire* to take over.'

The main object of new construction, is not, as he seems to assume, to appease the motorist, but to rescue the pedestrian, and give him back the spaces motor traffic has stolen from him. Diagrammatically, this means closing the market place to vehicles and taking them round the back. Mr. Nairn is probably right in thinking that new roads, whatever their size, will always run full bore, and so they should, provided pedestrians are somewhere else. It is a question of segregation.

Secondly, we think that Mr. Nairn overrates the charms of our cities as they are and exaggerates the damage that new roads, *provided they are well designed*, will do. The LCC section of the Cromwell Road extension, the new Notting Hill Gate, the new Elephant and Castle and Marble Arch, whatever one may think of them in terms of planning principle, have quite obviously given, or will give, their respective districts a lift visually. Still more could such projects help Wigan and Luton and West Bromwich. Has Mr. Nairn ever taken a long look at our famous boom-city Coventry on his way along one of its congested radials to its needle-in-the-haystack Centre? Has he been in the High at Oxford lately, or had a look round Seven Dials and Covent Garden?

We are convinced that new roads could be, repeat could be, among the prime movers in the renewal of our nightmare districts and the rescue of our best urban spaces.

Yours, etc.,
LIONEL BRETT,
Chairman, SPUR.

Ian Nairn writes—

I think that we are really arguing over words here. What I was objecting to was 'motor-way thinking' being carried into, through and over the centre of towns, when nothing on earth other than the use of the fourth dimension can provide enough room for the statistical increase in the number of vehicles in the next twenty years. SPUR, I think, would agree with this.

What Mr. Brett calls 'new roads' I would call 'removing bottlenecks': certainly Notting Hill Gate, Elephant and Castle, Marble Arch. The Cromwell Road extension is an exception which I freely admit and would willingly see extended into the impermeability of South Kensington (which is not the kind of central area I was meaning). But could it be extended into Belgravia and St. James's?

Finally, very briefly and very, very sadly, some of the worst of our nightmare districts, in terms of the total quality of life lived there, have been created in the name of modern architecture. Until this process stops I will continue to overrate the charm of any humane part of any of our cities—especially Wigan, a lot of which is good fun.

OBITUARY

P. MORTON SHAND

The death of Philip Morton Shand has deprived the modern movement in Britain of one who, though not an architect, was one of its seminal figures. Though fully *engagé* on the modernist side by 1928 or 1929, the manner in which he became involved is not altogether clear, though his first encounter with modernism was, presumably, while preparing an article for the *AA Journal* on the Paris exhibition of 1925. (Much of his life was spent in France and he was a noted writer on French wines, yet—curiously—he is remembered as an apologist for *German* architecture.)

However, by 1929, he was fairly launched on his most influential series of writings, the articles and special features on modern buildings and the more general problems of modern architecture which he wrote for THE ARCHITECTURAL REVIEW. Among these, the most important and most influential in establishing Shand himself, and the REVIEW, in the vanguard of architectural thought in England, were the texts for the special issue (November, 1932) on *Steel and Concrete*, which rallied and galvanized progressive opinion inside and outside the profession, and the series of articles that appeared in 1934-35, under the title *Scenario for a Human Drama*, which may not be the first essays in the history of the Modern Movement, but are the first comprehensive attempt to see the movement as a whole, anticipating *Pioneers of the Modern Movement* by some eighteen months, and *Space, Time and Architecture* by five years. He also translated works by Gropius and Carola Giedion-Welcker, and was one of the first to comment, in English, on the opinions of Adolf Loos (AR, October, 1934).

His last contribution to THE ARCHITECTURAL REVIEW was in September, 1952, when he introduced his own translation of part of Henry van de Velde's memoirs, and in the January, 1959, issue of the *AA Journal* (appropriately enough) Brian Housden attempted a representative sampling and complete survey of the Shand bibliography—an impressive body of work which, in its range and influence, will not be outranked by much that has been written in England on the Modern Movement since he pioneered the field.

He died, at the age of 72, in Lyons, the town where he received the letter from the *AA Journal* inviting him to write about the Paris exhibition of 1925. A memoir of Morton Shand, by John Betjeman, will appear in a forthcoming issue of the AR.

CHARLES HOLDEN

The work that appeared in the Twenties and Thirties over the collective office signature of Adams, Holden and Pearson may yet prove to have been more important to the rise of modern architecture in England than is generally allowed. The scraped, but by no means barren, classicism that they practised, coupled with an adventurous attitude to massing and thus to planning (though always within a broadly pyramidal silhouette) did much to prepare public and patrons for the simplicities of surface and complex novelties of plan that came in with full modernism after 1930. Their main works in this manner were 55 Broadway, for the London Passenger Transport Board, the first swallow (1929) of a long summer of enlightened patronage of modern design in every field, and the University of London building in Bloomsbury, three years later, whose position in the rise of modernism might now seem questionable.

It is no secret that the designing genius within the office was Dr. Charles Holden, and his recent death at the age of 85 has removed from the London scene one who did much to initiate the process of its modernization. That process, as far as he was concerned with it, goes back to the old BMA building in the Strand of 1907, a much disputed work because of the employment of Sir Jacob Epstein for its sculptures (a partnership resumed on 55 Broadway). Coming forward in time it concludes with the English Electric building on the Gaiety site, another controversial design, though for different and this time purely architectural reasons. However, it might be better to leave his career with an incident in which he enjoyed the approval and even the envy of all present—practically his last important public appearance was as one of the 'sponsors' who accompanied Le Corbusier to the rostrum to receive the Royal Gold Medal in 1953.

BRONEK KATZ

The profession will probably remember Bronek Katz, who died in March while barely middle-aged, for his work on the great war-time propaganda exhibitions and for the 'Homes and Gardens' pavilion on the South Bank in 1951, but in the general history of post-war taste in Britain he will be remembered as the initiator of what is loosely termed 'The Shoe-shop Revolution.' That he was one of the instigators cannot be doubted, but it was on the *Richard* chain of garment shops that he first made his mark, winning the competition for their Regent Street store (in partnership with Reginald Vaughan) as long ago as 1948. Later he did work for various shoe-shop chains, most notably, and with the best architectural results, for the Bata company.

Although work like this made good modern design fashionable, and also subjected it to the pulls and tensions of commercial fashion-mongers, Katz was no fashion-monger himself, and it has been said that he practised modern architecture as the normal style of his time. As a result, one notices that the Regent Street *Richard* shop, while it bears the marks of the period when it was designed, has dated far less than the work of many of the merely fashionable followers of Katz's lead, and already begins to carry something of the authority of, say, the surviving shop-fronts of Welles Coates for Cresta, or Mallet-Stevens for London Shoe Company, pioneer works of the Thirties.



The male figure, left, and the woman holding a Corinthian capital, right, come from an almost unknown treasury of Mannerist carvings in an extremely well-known building. Little studied, rarely discussed, never before adequately photographed, these two, and half a dozen others like them, adorn the choir stalls of King's College Chapel, Cambridge. The carving and installation of these figures (seen here about life size) would appear to date from just before, or just after, 1538, their 'rediscovery', for it is no less than that, in spite of the fact that they have always been in public view, dates from the publication of the exhaustive *Inventory* of Cambridge by the Royal Commission on Historical Monuments, which Nikolaus Pevsner reviews on p. 369.

Reyner Banham

THE PERRET ASCENDANCY

In the small firmament of progressive European architecture around 1910, two fixed stars of the first magnitude shine out—Behrens and Perret. The twin sun of classical rationalism, Guadet-Choisy, has just ceased to give light, though hard radiation can be detected; the Viennese constellation is losing its splendour, though Loos still emits an ultra-violent twinkle; the Mackintosh super-nova is about to burn out in a mad flare; Berlage is becoming a diffuse, low-radiance, red giant; the Wright comet is dwindling on the return leg of its orbit, and the perturbations in the movements of the other bodies caused by its passing have not yet become apparent. But Peter Behrens and Auguste Perret burn bright and constant, and bodies of lesser magnitude already reflect the light from Behrens.

Fifteen years later, they reflected only the light from Perret. It was as if Behrens had never existed, and it is still like that—whatever the reputation of the *Turbinenfabrik*, its creator has become an historical shadow. Yet whatever doubts are cast on Perret's ideas and works, the force of his personality can still be felt in the architecture that is being built today. Ultimately, this situation must change, for Behrens, a man of many parts outside architecture as well as in it (painter, typographer, interior decorator, product designer) was a far more accomplished and well-rounded aesthetic personality, by comparison with whom, Perret was a narrow, blinkered monomaniac professional; history must redress the balance between them sooner or later. In the meantime, the bibliography on Perret continues to pile up—not only the routine Gallic effusions, of which Marcel Zahar's[1] is the most recent but not the worst, but also works of originality and substance, of which the most notable to date is Peter Collins's *Concrete, the Vision of a New Architecture*[2], which does practically everything that a book might set out to

[1] *Auguste Perret*, Editions Vincent, Fréal: Paris.
[2] Faber and Faber. 68s.

do about Perret, except to explain the dominance he achieved in the minds of his younger contemporaries.

This unique position was due, one suspects, to a chain of accidents that might easily have led to something utterly banal and unremarkable. He was very nearly a perfect student of the *Ecole des Beaux Arts*, and left with the Prix de Rome almost in his grip. He left, impregnated to the bone with academic ideas but untainted by Academic success, to become a contractor in an anti-artistic material—reinforced concrete. He thus found himself in an anti-Beaux Art situation in spite of his academic leanings ('dilute classicism' Hitchcock calls it), and he thus also found himself in the position of what might be termed an Establishment Rebel. The position was not unique nor an innovation. At the same time, Tony Garnier was experiencing the same syndrome, only in a more acute form because he *had* gained the Prix de Rome, and the whole pattern had been established long before by Henri Labrouste, the inspiration of Julien Guadet who had been Perret's *Professeur* at the Ecole.

The reason why the upshot was not, as with Garnier, a tale of frustrated brilliance, lies (I suspect) in those two words *reinforced concrete*—and this is not the platitude it might appear to be at first sight. No one has yet attempted to explain the compulsive power of reinforced concrete over the minds of a generation, nor why this one material should have embodied so much more than its share of the mystique of modern architecture. But in Perret's France there is one lead that Peter Collins might profitably have pursued in his book, if he had felt any need to explain Perret's influence—which he clearly does not do. Rather, he appears to feel that Perret himself is sufficient explanation.

Those who still feel that some further explanation is needed, may possibly find one in the inadequately assessed influence of Auguste Choisy. Evidence abounds that his *Histoire de l'Architecture* was widely read and known (many of the most telling plates in Le Corbusier's *Vers une Architecture* are lifted from it) and in that case one may assume that its message was known and possibly understood. That message was that the styles of architecture were the logical outcome of technique, and could not be dreamed up simply by taking thought. If there was to be a new architecture, to put alongside all the other compelling novelties of the young twentieth century, it could only come from a new development in technique. It is particularly worth noting that while reinforced concrete had been in existence for some decades when Perret executed his first radical works in the material —the house in the Rue Franklin and the garage in the Rue Ponthieu—his full impact was not made until the early Twenties, by which time Choisy's ideas had been soaking into the mind of architecture for a generation. Thus, when Rob Mallet-Stevens contributed notes on recent work in Paris to THE ARCHITECTURAL REVIEW in 1908, he described Perret's work in concrete, and his work in masonry, and didn't appear to value one much above the other, but after 1918 he is reputed to have told Le Corbusier that he wished they could patent reinforced concrete, and when he contributed to *Wendingen's* special issue on *Frank Lloyd Wright* in 1925, he could speak of nothing but reinforced concrete, which prevented him talking about Wright.

Here then is a circumstance that could complete a chain of circumstances along which coincidence might chain-react, and precipitate a situation in which *Perret* became an alternative spelling for *Beton Armé*. So powerful was the reaction, so complete the fusion of the reputations of the man and the material, that Perret equally became an alternative spelling for *Gewapend Beton*, *Hormigon*, *Cimento Armato*, *Eisenbeton*, reinforced concrete, and everything else including whatever the Japanese term is, since Antonin Raymond early took the Perret Doctrine to Tokyo. All over the world, Perret's vision of concrete as a trabeated material, to be used in straight posts and flat beams, was accepted without question. An Eibink or a Hilbersheimer might protest that concrete was a plastic material and Perret was wilfully imposing an alien aesthetic on it; their cries were lost in the roar of unquestioning approval. An Owen Williams, a Maillart, a youthful Nervi might demonstrate alternative ways of using the material: the profession doffed its collective hat to a *grand constructeur*— and relapsed at once into its former trabeated apathy.

Almost till 1950 this tyranny held, and having held so long, broke disastrously—post-and-lintel concrete construction is Right Out with the bright boys, the Doctrine of Auguste Perret—to use Collins's telling phrase—is simply a provincial vernacular now, and the rest of the profession is in Gadarene pursuit of those parabolic and hyperbolic extremities that Robin Boyd catalogued in *The Engineering of Excitement**. It is difficult to see how the new situation is better than the old one, except that anarchy is a more manipulative situation than tyranny, and encourages open-mindedness, which an exclusive system like Perret's could not afford to do.

Now that it is all over, one can see what a gigantic achievement it was—if the phrase Form-giver of the Twentieth-Century applies to anybody, it applies to Perret, for even those who did not accept his detail treatments and surfaces still accepted his basic pro-

*AR, November 1958.

positions on structure; those who did not share his academic preferences for symmetry and tall windows still accepted his propositions on frame-and-fill. *Concrete, the Vision of a New Architecture* is exactly the tribute this achievement deserved; it is written so securely from inside the Perret tradition that what might at first appear a disingenuous title (it remains a misleading one) *Concrete, the Vision of a New Architecture* instead of, say, *Perret, the Imposition of an Old Aesthetic*, cannot decently be called disingenuous at all, it is inevitable given the premisses.

Equally inevitable is the sudden disintegration of the fourth chapter of Collins's exemplary preliminary narrative of the prehistory of concrete. The tale, having developed, in Choisy's phrase, according to the logic of technical procedures, goes adrift as soon as it appears that concrete could, by that logic, have gone off in a different direction to Perret's. The point of crisis is Breslau in 1913; the building, Max Berg's *Jahrhunderthalle*, that stupefying apotheosis of reinforced concrete as the material of structural drama on a Wagnerian scale. Berg's achievement is given its full value in phrases that are a tribute to Peter Collins's intellectual honesty when actually confronted with a building—Here . . . 'men perceived for the first time a really new architecture, novel in form, vast in scale, with a delicacy of line and plasticity of surface, evolved . . . from the ineluctable demands of geometric and scientific laws.' Nothing could be more right than this analysis; this was the point, near enough, to which Torroja and Candela had to return in the late Forties to find out how concrete really worked, and this was the triumph of concrete architecture to date. But at that date Perret was involved with the prissily neo-Classicist *Théatre des Champs Elysées*, and Collins is committed in the last resort to Perret not to concrete, and the chapter ends in a shambles of changed viewpoints, hedged bets and *partis pris*.

But, up till that point of final confusion, this is exemplary historical writing, readable, compact, shrewd, and full of new material. We have to thank Peter Collins for having produced a first *complete* prehistory of reinforced concrete that looks as if it will be very difficult to supersede. This is the first to go back to *pisé*, and other primitive conglomerates (not to the Romans) and show that from them the line of descent to concrete as we know it is continuous; the first that is not blinkered by Francophile adulation of Monnier and Hennébique, and therefore able to give these two their due place alongside German, British and American pioneers of the material. Indeed, his register of pioneer buildings and publications is so exhaustive as to make the finding of any others very unlikely—it will require techniques and resources more like those of Interpol than of architectural historiography. Already I have had my attention drawn to an 'unknown' early concrete house in the US—which I went straight off and found in Collins.

Indeed, provided one always makes allowances for the Perret slant, one can speak almost as highly for the rest of the book, such as the two middle chapters on 'The search for a new architecture,' and the same is abundantly true without reservations at all, in the final five chapters on Perret himself. These chapters are not simply an expanded version of Peter Collins's essay on Perret that appeared in the AR for August 1953, they are Perret re-seen in the light of extensive readings in the Classical and Rationalist traditions that shaped his thinking, readings in small things and detailed architectural usages concerned with pilasters and windows, for instance, as well as readings in grand general concepts and high-level architectural philosophy, such as were seen in his Darwin centenary essay in the AR for December 1959.

No one, arguing from the viewpoint of genuinely progressive and evolving architecture (a concept on which Collins could doubtless do an eloquent semantic hatchet-job without, I submit, destroying its validity) could conceivably accept his estimate of Perret, even in the elegiac and modified form in which it appears in the closing paragraphs of the book, paragraphs that all but admit the inner contradictions and ultimate futility of Perret's position. But no one who appreciates good scholarship, good writing and cogent argument could fail to take pleasure in all but a few pages of the book, nor could they fail to enjoy the process of disagreeing with the author. For my part, this is a wrong-headed book that I find I can unreservedly recommend to students, knowing that the points of disorder and angles of slant will immediately become apparent in the general air of intellectual clarity that pervades the whole, and I wish there were a book on Behrens of which I could say the same.

TRAINING COLLEGE, LIDINGÖ, STOCKHOLM

ARCHITECT | **ANDERS TENGBOM**

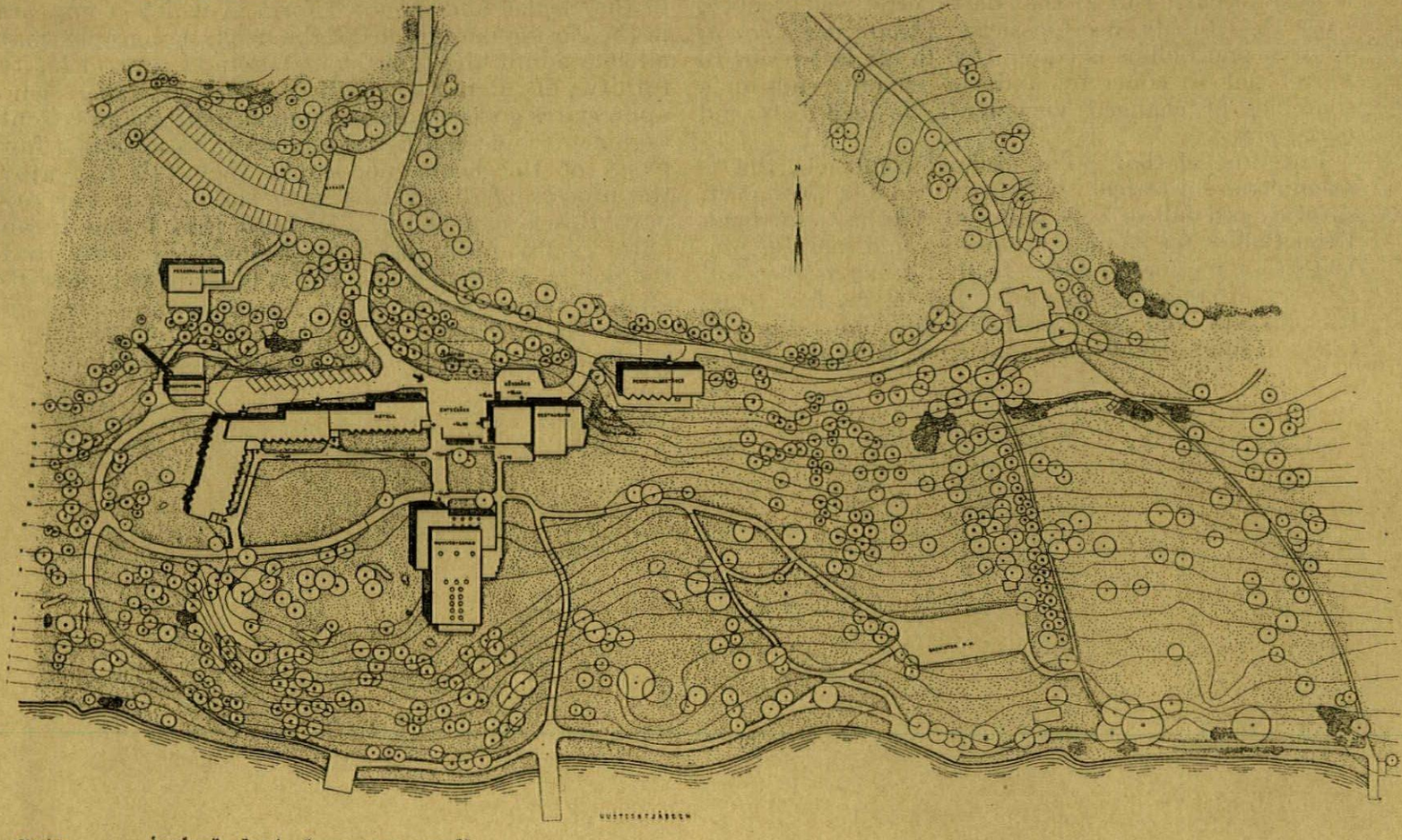
Anders Tengbom is the heir to a great name in Swedish architecture, but also to an impressive tradition of modern design that his father, Ivar Tengbom, helped to create. Yet, if one compares the pictures of his new Lidingö training college with those of the buildings illustrated in *Sweden Builds*, which—exactly ten years ago now—fixed the image of Swedish Modern in the eyes of English-speaking architects, there appears to have been more revolution than evolution in the intervening decade.

Although the theme of the building is still characteristically Swedish—an employees' training centre—and exhibits the same kind of social orientation that underlay the earlier work, the architecture no longer has the quality, so marked before, of schematic prototypes for other socially-progressive nations to copy. The internationalism of Sweden's modern architecture, even at its most cosily domestic, was always a matter of note, and its influence has visibly gone round the world, to become the inspiration or ideal aim of town-planners, school designers and domestic architects working on every scale from that of individual dwellings to large-scale settlements.

With Lidingö, however, there seems to have been a turning inwards towards a more specifically Scandinavian standard—to be more specific still, a *Baltic* standard. But the immediate resemblances to recent Finnish work, while striking enough to the eye, should not be over-played because they are no more than superficial. The tendency towards greater mass in the buildings themselves, and a more severe and direct relationship to the surrounding landscape (instead of using rocks and small trees as picturesque foils to the building forms) seems to be a general trend of Scandinavian architecture at present, and can be found in association with an entirely different set of building-forms in, for instance, Sverre Fehn's and Geir Grung's museum at Maihaugen (AR Marginalia, February 1960) as well as other recent Norwegian work.

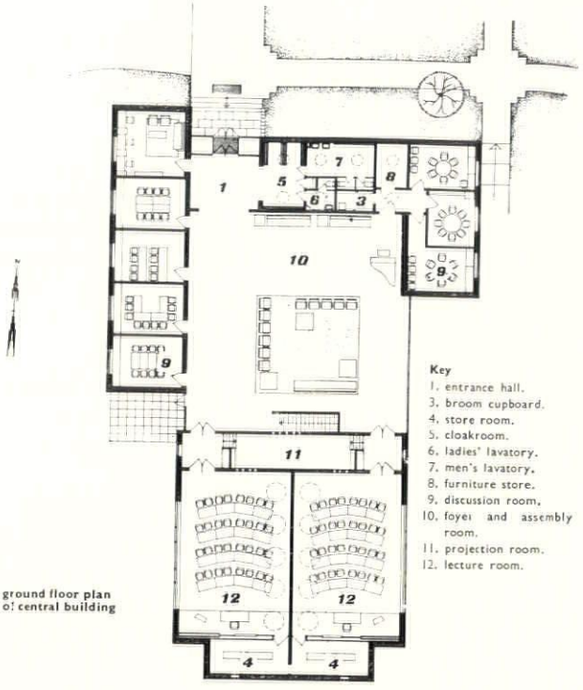
But it is worth noting that Swedish opinion, as represented by the observations of Erik Thelaus (*Architektur*, 7, 1959), feels that it can justly compare the grouping and interrelationship of the buildings at Lidingö to an 'engelskt college.' To some extent this comparison with English collegiate planning depends on an inessential resemblance that probably strikes Continental eyes more forcibly than it would English—the use of grass and lawns. But the comparison is worth taking nearer to the bones of the scheme because the plan, below, bears no resemblance to even the most 'liberated' of recent collegiate schemes—although the actual buildings might be compared to David Robert's Clare Hostel (AR, June 1959).

Nevertheless, the photographs show some things that a plan cannot even suggest—the feeling of enclosed space that exists between the three main blocks, the psychological effect of enclosure produced by the turn of the end of the residential block, the use of incidents like steps and seats to keep ground-space within bounds, even where the view over the water is effectively infinite, but—above all—the use of the fall of ground and the bank of conifers to give a sense of enclosure that is not collegiate to look at, yet refers back, with numerous inversions and permutations to the ultimate source of the collegiate dream—the Grove of Academe.



site plan

Sponsored by the Association of Swedish Employers, this is a new type of residential industrial college designed to provide training courses of various kinds



ground floor plan of central building

for foremen and others. The site is a pine-clad slope bounded on one side by Hustega Bay, with a long view down the waterway leading to Stockholm.

There are three main buildings, each of two storeys, approached by a common entrance courtyard: a hostel for the students containing 70 single rooms, a restaurant

1



1, looking north (away from the waterfront) over the central teaching building, with the main hostel block on the left and the restaurant block on the right. 2 (below), the square where the three buildings meet: corner of teaching block on the left; hostel block top left; restaurant (with striped sunblinds) right.

block with the restaurant itself and the kitchens on the upper floor and the reception, library and common-rooms on the lower, and a central block containing the teaching accommodation, mostly in the form of small lecture-rooms. This building has a large central foyer designed for use also as an assembly-hall. In addition to the three main buildings there is a smaller three-storey hostel block with its own common-room, and a separate boiler-house.

The hostel bedrooms are identical in shape, each with its lavatory opening off the entrance lobby and with

2





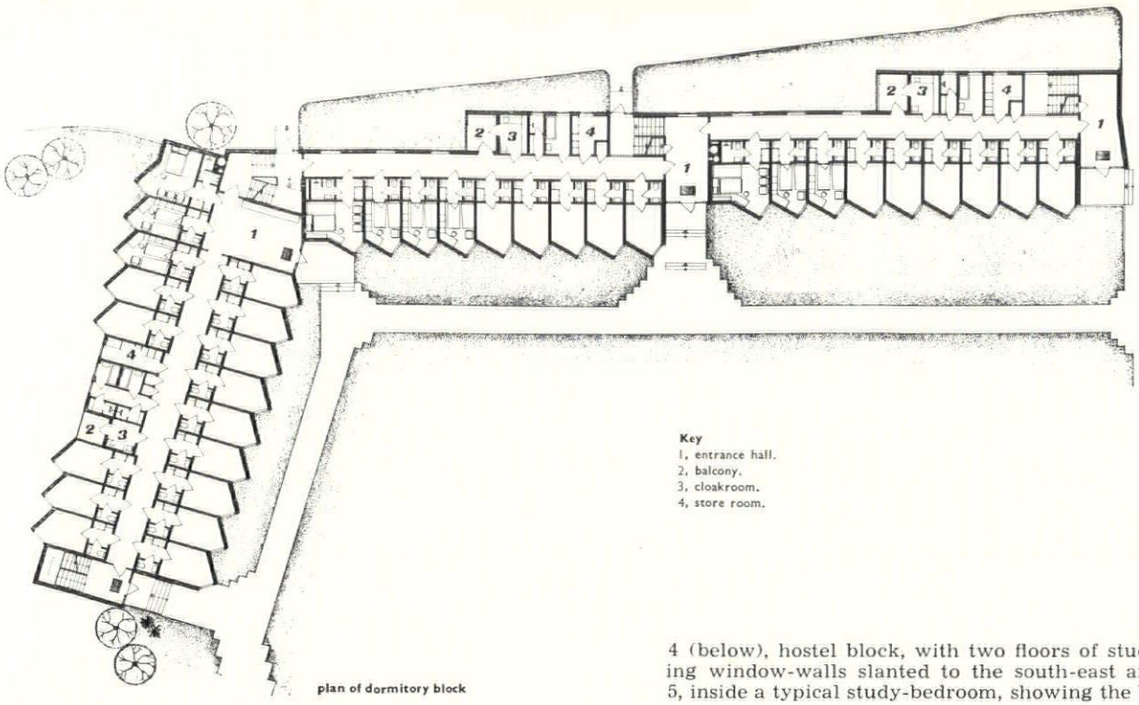
3

3, view from the south-west of the main hostel block, where 70 pupils live in single study-bedrooms.

a diagonally placed window, giving privacy and making the most of the view. This window arrangement gives the building its characteristic saw-tooth outline.

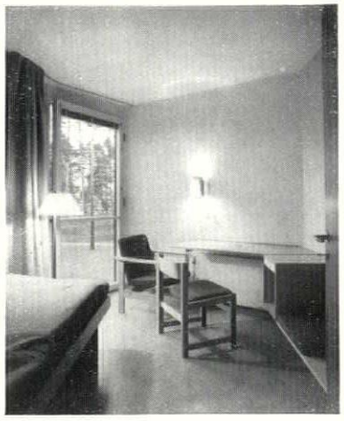
Construction is load-bearing brick, on concrete foundation walls beginning at ground level. The brick is a hard-burnt variety, red in colour. The trim—for purposes such as window-sills—is copper and external woodwork is teak. The contrast, especially in the restaurant block, between window-filled walls and plain areas of brickwork without openings has been achieved to some extent by the use of top-lighting in less important rooms.

The interior designs and furnishing are by Sven Kai-Larsen, working in collaboration with the architect.



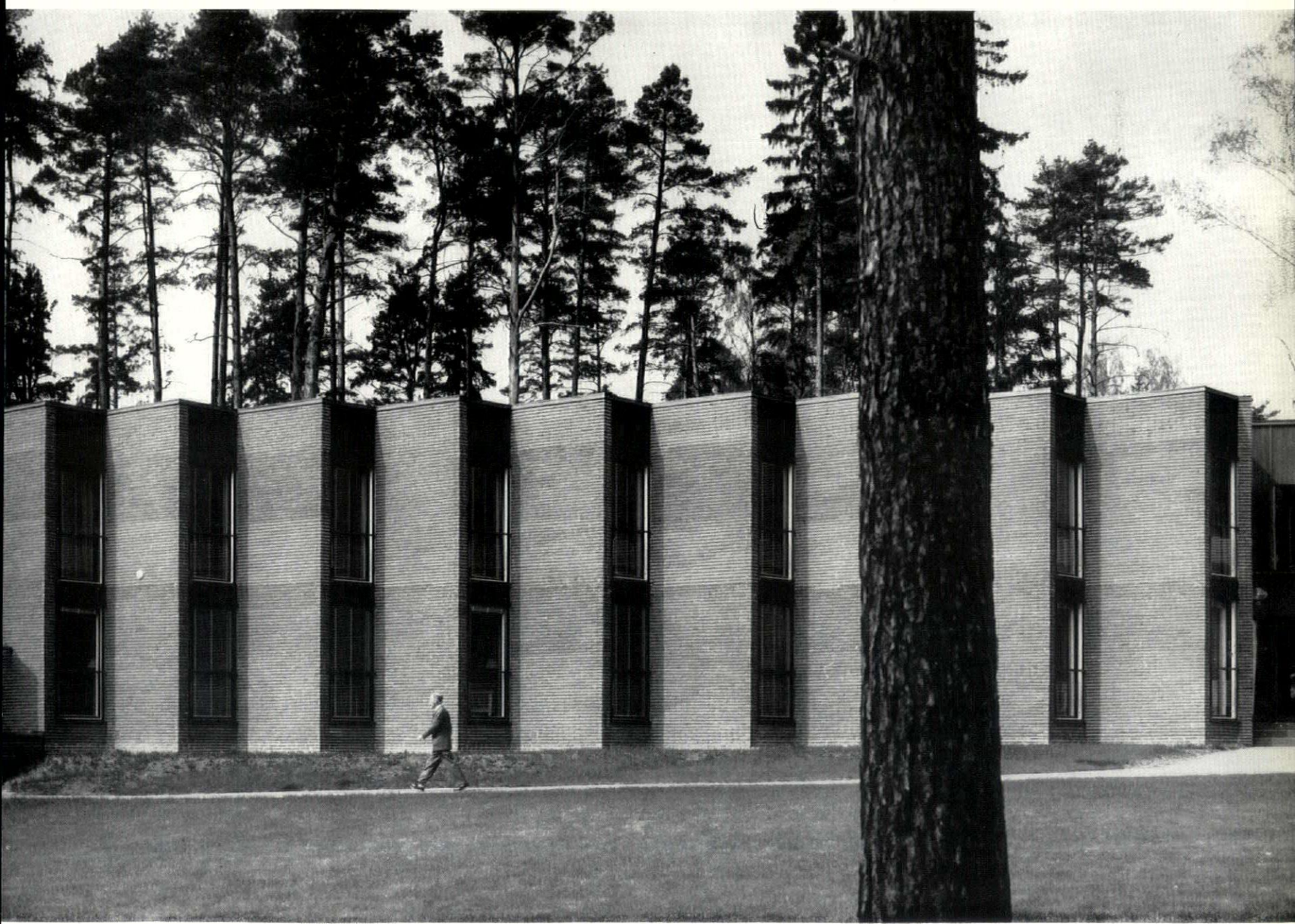
plan of dormitory block

Key
1, entrance hall.
2, balcony.
3, cloakroom.
4, store room.



5

4 (below), hostel block, with two floors of study-bedrooms, from the south, showing window-walls slanted to the south-east and the view.
5, inside a typical study-bedroom, showing the built-in furniture.



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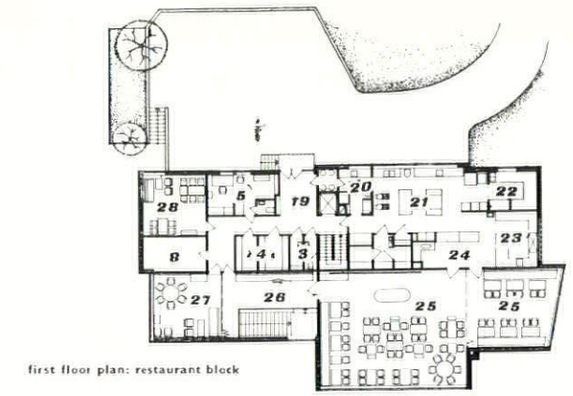
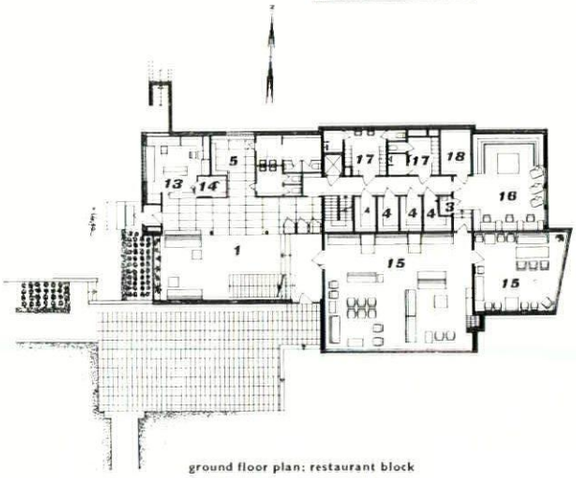
6



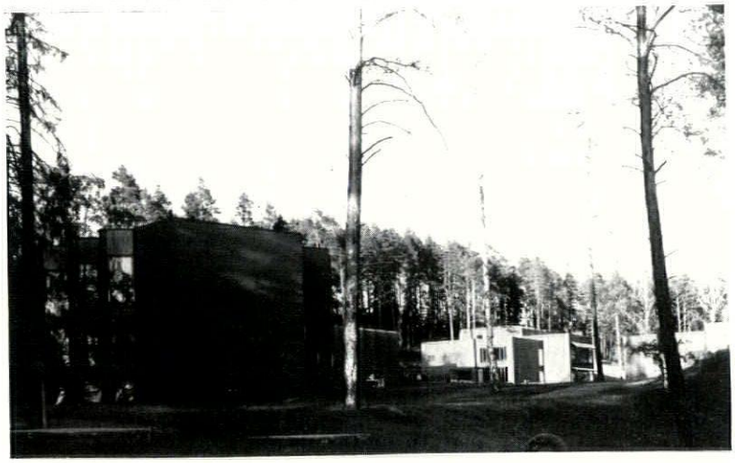
first floor plan: restaurant block



ground floor plan: restaurant block

photographs by Lennart Olson

6, the restaurant block from the south. On the right can be seen one end of the smaller of the two hostel-blocks (see site plan, page 376), designed on the same basis as the larger.
7, the whole group of buildings, in its pine-tree setting, from the south-west. This photograph only by G. E. Kidder Smith.



7

key

1, entrance hall.
2, balcony.
3, broom cupboard.
4, store room.
5, cloakroom.
6, ladies' lavatory.
7, men's lavatory.
8, furniture store.
9, discussion room.
10, foyer and assembly room.
11, projection room.
12, lecture rooms.
13, reception.
14, shop.
15, sitting rooms.
16, library.
17, staff changing rooms.
18, office.
19, lobby.
20, food preparation.
21, kitchen.
22, cold buffet.
23, washing-up.
24, servery.
25, dining room
26, hall.
27, club room.

'As a practising architect I have enjoyed, been infuriated by and—I hope—profited from the ***1960*** *series. It is obviously good for us to be constantly reminded that, as a profession, we are vain, ill-informed and mentally lazy, and over-dependent on superficial or rule of thumb judgments. Since we are so often asked for our opinion upon everything from child-psychology to potted plants, we begin to think our views upon any subject are of value.'*

Hugh Casson

1960

PROPOSITIONS

5

the editors: J. M. RICHARDS, NIKOLAUS PEVSNER HUGH CASSON & H. de C. HASTINGS *review the trend of the series*

The object of the ***1960*** series (which has been appearing monthly under Reyner Banham's editorship in the AR since February) was to open a field of discussion, and to maintain discourse within that field at the particular level that enables a magazine to contribute fruitfully. Not at the most abstract level of general ideas—more suited to the learned book or university lecture—nor at the purely practical level—more suited to conversation across the drawing board or clerk-of-works' table—but at that ***median level of informed but sociable conversation*** which often seems to reveal workable truths in the most profitable manner. Indeed, the symposium that formed the basis of 1960/3 was an attempt to translate such conversation into print, but all the contributions to the series, with their accompanying glosses and commentaries, may be regarded as attempts to maintain this general level of discussion-with-information.

The series, but not the discussion, now closes with the comments of the members of the editorial board of THE ARCHITECTURAL REVIEW, speaking not *ex cathedra* as editors making a public statement of policy, but *propria voce*, as ***private individuals expressing personal opinions.*** Indeed, what follows might be taken as the publication of the sort of discussion-with-information that goes on within the editorial system of the AR, before a policy decision is taken. But the discussion should not be taken as typical, for two reasons.

Firstly, the situation is unique; the ***1960*** series has been a more or less ***independent exercise*** within the framework and page format of the AR, and prime responsibility for the opinions expressed, the manner of expressing them and the manner of presenting those expressions, lies with the series editor, Reyner Banham. The views of the editors are thus—almost—to be regarded as if they had been reading some other magazine, not commenting on contributions they had commissioned and approved themselves.

Secondly, the views they express have been conditioned to a lesser or greater extent by a series of ***propositions and questions*** put to them by the series editor. This document is printed at the right.

Some of the editors answered these propositions and questions 'as found,' some did not. Although each set of replies is a document in its own right, with its own specific value, it has been found simpler—albeit with regret—to break up three of them for purposes of commentary and reply, and to group the comments by ***subject matter,*** rather than by authorship.

To begin with the most general comments on the series as a whole, Casson made a prefatory observation that may reflect either the spirit of the times, or the spirit of the series editor—

'Surprising, and depressing, to me is the general impression of the series that while everybody contributing is *interested* in architecture, nobody seems to enjoy it, or even *like* it. It's treated, like a recalcitrant motor-bike, with a mixture of exasperation and curiosity (the product of despair?). It is crouched over and taken to bits; components are examined, shaken, blown through, and re-fixed—but in the end nobody goes for a spin.'

5

ii

Casson and Pevsner, also commented in some detail on individual articles and contributions. Thus, on the ***Science Side,*** 1960/2, they offered very similar opinions, in general, on all three contributions—

Casson

Surely Mr. Brothers makes exaggerated claims? Every product programme starts with a performance brief, and nobody takes an unsuitable component off the shelf if there is time and money to develop something better in parallel. There is no 'glamour,' reflected or real, in off-the-peg elements except when the performance specification in the budget and timing demands, as it usually does, their use.

The missile-merchants appear to have been given unlimited time and money (estimated cost of 'Sea-Slug' £2 million, actual official cost to date £40 million) and were, therefore, rightly able to start from scratch. (I suspect, for all this, their products are by now bulging with unexpected excrescences not in the original brief.) Is it implied that given similar opportunities architects would be so hypnotized by the 'mystique of standardization' that they would be unable to discard it?

Mr. Drummond is the modest and therefore trustworthy technician. Here, he says, are the facts. It's not for me to say how they should be interpreted or used. Yet even he and his machines depend completely upon an exact definition of the problem. Charles Eames, as I remember, remarked that if you can do this you have already solved four-fifths of the problem, and you might do worse than settle for that.

Llewelyn-Davies's is lucid and thoughtful stuff—acceptable with the proviso that an architectural *intention* comes first. Some of it is distressingly obvious. Why should I have to read Messrs. Ittelson and Kirkpatrick in order to be told that 'all human beings inject an element of stored visual experience into what they see?' How could it be otherwise? Sir Winston Churchill did not have to study group dynamics in order to argue that the new House of Commons should be too small to seat all the members. He acted upon intuition and the evidence of his own eyes.

Pevsner

The three sample contributions differ in value and character. The first describes no more than what happens all the time in product design. The plea to develop equipment and envelope concurrently is the same, e.g. in wireless and wireless cabinets. Number two is purely practical, i.e. on quite a different plane. It says no more than: here is a tool which technicians can use for you, if you can brief them. Number three is essential. Llewelyn-Davies's case that the architect ought to know the results of sociologists' and perception boys' researches is conclusive, provided again that the architect briefs the scientists. This proviso ought to be made. Sociologists' and consumer preferentionists' investigations have none of the scientists' precision. They can easily be biased and sampling as well as interpretation

Banham

1. It is basic to the whole argument of the series that technology will impinge increasingly on architecture in the next ten years, and that technological habits of thought are hostile to architectural habits of thought.

2. From this emerges the related issue of the position of the architect in the design team—where it is repeatedly proposed that the head of the design team cannot be responsible for the visual appearance of the building and vice versa.
Query: Is this prospect pleasing?

3. Llewelyn-Davies proposed in the second article and Page and Cox pursued the matter further in the third, that the aesthetics of building can be put on a fully scientific basis.
Query: (*a*) Is this likely or desirable? (*b*) Could it be a way round the query in 2?

4. It will also be observed that Llewelyn-Davies speaks of 'calling in' architectural historians to advise on certain design problems. This is an example of increasing sophistication in the use of History and is parallel to the increasing sophistication in aesthetics suggested by Llewelyn-Davies above.
Query: Is this sophistication and increasing self-consciousness to be welcomed?

5. Page speaks in a footnote of 'rational aspects of town planning as opposed to Civic Design.'
Query: This appears to be an extreme case of the split between technology and tradition. Do you see any hope of closing this gap in the foregoing propositions, or is it a problem that can only be solved from outside?

Banham

1. Weapons system—no, the claims are not exaggerated. The only way to get a big missile from A to B is to design a complete system, including the men to operate it and the industries to supply it with fuel. As far as the armaments business is concerned it is new, as the armaments business clearly realizes.

2. Human Sciences. A key paper, and I am proud to have had some hand in getting it published. Obvious in some of its propositions? Of course, science is only commonsense with four-wheel drive. But—and this is an important *but*—no theory of aesthetics (except possibly Picturesque) that could be taught in schools, takes any cog-

of samples are open to misuse. So the architect ought to be in on the investigation from the outset and ought not to believe that he can get ready-made material to use.

and again on the ***symposium,*** 1960/3, they are in general accord, and raise a number of points that require comment from the series editor.

Pevsner

The symposium is diffuse and weak, with much too much 'sort of' stuff. But it poses the central problem, and this would have deserved the full Reyner Banham treatment. The great curiosity of the series is that the authentic claims of the architect, i.e. the architectural side of architecture, come in through a back door at a nowhere stressed moment. (Page: I mean it's already been said that architects are interested in beautiful buildings) and is never taken up with vigour.

This more than anything proves the cleavage between left and right columns in 1960/1 and the total loss of self-confidence among architects. The non-architects say: For a building to function, i.e. to be satisfactory, you need specialists under an able leader. Similarly the technological column of 1960/1 states that inoculation may be a function of architecture.

No architect really stood up to say that he is concerned with visual values (i.e. aesthetics) and that, if a building fails visually, we are not interested in it.

You can have 'non-architecture' that way before you know where you are.

The comparison with films was illuminating, because what I'd call the best films were still Dreyer and Flaherty and de Sica. The comparison with motor cars is equally illuminating the reverse way. For what I'd call good cars are rare, but I may be ready to call a good car a well-functioning car, i.e. to sacrifice aesthetics to performance. That is what the Pages and Alloways are doing. The car designer just like the architect is only one in a team whose policy is dictated by consumer-research or its equivalent.

Casson

I am personally unsympathetic to this form and find this example, though mercifully free from the usual 'peacocking,' less valuable than it would have been if directly presented by R.B. I have covered most of my points under other heads, principally that nobody seems to be talking about architecture as I understand and love it, but am puzzled by the implication that the architect acts on 'conditioned reflexes of habit' more often than upon 'conscious action based on knowledge.' (This seems impossible to prove and in any case there are certain things that can *only* be learned through the emotions and to which reason and knowledge will be of little help)—and amused by the deathly silence that greeted the word 'church.' While it is true that creative work in industry is a matter of anonymous teamwork, it is also true to say that the best aircraft—shall we say?—are stamped with the personality of an individual designer—George Edwards, Barnes Wallis, or de Havilland.

Banham

The symposium, as it appears in print, has alarmed a number of people, including some of those who took part in it. I stand by it as a document of our times—as it struck the ear at the time of utterance, it was as good a discussion on serious architectural issues as I have heard for some time, the transcribed version of it is as fair as legible comprehensibility on the printed page allows. If it falls below the levels of economy and cogency that are normally expected in serious *printed* discussion—and I am quite prepared to admit that it does—then consider how doctored and phoney some other printed symposia, allegedly transcribed from the living tape, must be. This is how we really discuss architecture nowadays.

No architect stood up to say that he was concerned with visual values because visual values are only one of six (ten? fifty?) equally important aspects of design that concern him, in practice, as a would-be Universal Man. If he wants to be concerned with visual matters, he will have to do some load-shedding in structures, services, social survey and so forth.

The aircraft comparison is dodgy; true in some cases, for sure (particularly de Havilland); but whose personality is stamped on the *Constellation*, one of the greatest airframe designs of the century, and who would guess that the *Canberra* and the *Gnat* were both Petters, just by looking at them?

Casson also raised another point, about information that he had hoped to glean from the series, but which might possibly be regarded as outside his brief by the series editor—

I am disappointed not to have learned more about the reasons (psychiatric? straight reaction?) for the current passion for 'as found' materials, the restriction to brick, concrete and wood—(as if no other materials existed), the search for mass and weight, the horror of elegance. Why do some shapes, for years unthinkable—i.e. the dropped cill, the coarse deep canopy—suddenly become to all of us desirable? Visual fatigue with what is immediately past? Or some *Zeitgeist* affecting us like mumps?

Banham

Doctor Pevsner, I know, also hoped to hear more about this—at least on its historicist side—in the series, and I have alluded to it in both 1960/1 and 1960/4, but I find that at present it requires a different treatment to that available in the series; more psychiatry than history!

To come now to the answers to the specific propositions and questions on which comment was sought. Casson and Pevsner, replying in short form, made ***valuations of technology*** that are in direct opposition—one seeing it as a stimulant, the other as a restraint—while Richards wrote what amounts to a brief essay on the relationship of architecture and technology.

Casson

Clearly technology will increasingly impinge upon architecture, but technological habits of thought need not be hostile to architectural habits of thought! They are valuable in that they needle him along out of the sidings and creeks in which he can become too cosily embedded. They are dangerous when they step out of their station and try to usurp the supremacy of personal observation. Nothing I fear, or do I hope? will ever destroy the occasional waywardness of the creative artist.

Pevsner

No—they need not to be hostile. They keep the architect to reason. They eliminate Neo-Irrationalism.

Richards

I think there are some wrong definitions in the premises given. The opposition of architectural habits of thought to technological ditto suggests an assault by technology on the traditional conception of architecture. I don't believe this is taking place. The relationship between architecture and technology has not changed except in the sense that the complexities of modern technology have created a smokescreen which makes basic architectural principles more difficult to see. But they are not changing.

What has been happening is not a new habit of thought brought about by a different architectural technology, but a habit of assuming that technological values must supersede all other values, just because they are technological—a habit peculiar only to scientists, and not all scientists at that, but one that has been allowed to create a kind of mystique about science which has been accepted by ordinary people without question.

It is part of this mystique to assume, for example, that a new aeroplane which carries you to America a couple of hours faster must be an advance on the last one even if it is noisier, less comfortable and less safe—that makes speed into a race which everyone must try to win. Anyone who questions the actual gain resulting from those two hours of extra speed and thus tries to evaluate speed (standing here for purely technological improvement) with other non-technological attributes is regarded as turning his back on progress.

It is the old question of man's mastery of the machines that he devises. It is often assumed that the test of his mastery is the wonderful things the machines will do at his command, whereas in fact the test is whether he knows it when the moment comes when what the machine can do ceases to be an asset in terms of real human values.

The only sense in which technological habits of thought are hostile to architectural ditto is that people are perhaps becoming less good at discerning when this moment has come and therefore more easily deceived into believing that there is innate progress in the maximum use of technology, and that a world (or an architecture) dominated by technology is the only one that is 'modern.' This state of mind, however, even in relation to architecture, has not been produced by any architectural experience of the beneficial effects of the technological habit. It has been produced by a number of factors, mostly extraneous to architecture. One is the glamour given to technological developments by the press and other organs of opinion, who automatically paint a rosy picture of the Brave New World. Another is the natural tendency of each new generation to regard the last generation as stick-in-the-muds, wedded to the status quo. And all the resources of a science mystique are now available to label anyone who does not keep up as not only out of date, but set in irrelevant ways.

An architectural factor that has similarly encouraged the acceptance of science and technology as different in kind from what it has been before, as well as different in degree, and therefore justified in assuming a new and dominating position, is the nature of the evolution of modern architecture itself. The visionaries who were its pioneers were, or claimed to be, scientific visionaries, and the arguments they used against whoever was unwilling to accept the revolution they preached were scientific arguments. Modern architecture is now having to pay the price for using science as an instrument for clearing away all sorts of debris that had accumulated round it, the price being that, what everyone recognized as architecture having gone, all that is left which people recognize is science. The next stage is to make it clear that only the disposable parts of the old architecture have gone. Architecture itself has not changed; even if it is invisible because of the dazzling effect of the novelties of science.

To define matters thus is not, it must be made very clear, to reject the contributions to architecture of science and technology. Architecture must be fully aware of them for two reasons: first because vitality in architecture depends on making the most of present opportunities—of exploiting every word of the language that science puts at its disposal. The dead periods in architecture have been those lacking in curiosity about what it may not be possible to do next—and, secondly, because one of the functions of science is to bring architecture closer to the programme it has to perform. Our awareness and analysis of our own needs—and, indeed, our sharper perception of aesthetic values—are a product of scientific research.

But the exploitation of the new language provided by science and the exploration of the new avenues opened up by it, both in the interest of architecture, are not in themselves scientific processes. They need not lead to the assumption that everything scientific is necessarily beneficial, nor that everything scientific is relevant to architecture. Because of science, architecture will never be the same again. But because of science it need not be determined by science—or it is no longer architecture.

Architectural habits of thought therefore embrace, but without being invalidated by, technological habits of ditto. The so-called 'design team' is therefore not a substitute for the architectural mind, only a mechanism for making sure that the architectural mind is fully briefed about science and its obligations. The team is the answer to the complexity—not necessarily to any altered value—in modern technology. The visual appearance of a

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Obviously I disagree, even while admitting the childishness of much of the technological mystique. Firstly, I think the sheer weight of scientific discovery, technological development, new techniques for organizing and handling information, the growing quantity of that information, the emergence of new modes of mobility and congregation, add up to a changed situation in the qualitative as well as the quantitative sense. The relationship of architecture to technique is not what it was when Choisy's *Histoire* went to press, nor what it was even when *Vers une Architecture* went to press. And incidentally—are the increases in airliner speed bought at the cost of comfort, quiet and safety? As between, say, the Viking and the Viscount, they don't appear to be—the latter is, in every way, a better aircraft from the passenger's point of view.

Again; does the press *create* the glamour of technology, or merely *serve* it?

building continues to depend on value-decisions which by definition are not identical with scientific determinants. These are the decisions to be taken by the architect, not because he is the head of any team, but because the fact of his taking such decisions is what makes him the architect.

Talk of the 'design team' thus tends to put the cart before the horse. It tends to assume an architect on the same pattern as the traditional member of the profession, to group a lot of other people of a more or less scientific kind round him and then to look for arguments as to why he should occupy the head. Would it not be more profitable to start with the process of design—in all the complexity that modern technological developments have brought about—isolate from that process those parts of it where the essential value judgments take place, and define the new nature of the architect accordingly?

In the light of the foregoing, my answers to the first question listed must be:

The hostility is unquestionably there, but instead of accepting the consequent divergence between tradition and technology, architecture should regard it as its biggest challenge. It has to create a new tradition, that will allow other than technological values to compete with modern technology; restore a balance instead of science making all the running.

Richards *continued*

Banham

It would indeed be much better, and I think that (for instance) Alloway and Page might be prepared to accept such a definition of 'the architect,' but it might well turn out that these value judgments were so different in kind and background information—ranging from basic grouping and traffic-planning at one extreme to balancing out the different relationships between glazing and heating systems at another, or resolving the ratio of applied to integrated art-work at yet another—that they might still have to be made by different men. Though by no means committed to the idea of teamwork as morally or absolutely good, I am far from convinced that a good design must necessarily bear the stamp of a single personality—on which point see my remarks below.

On the possibility of a ***changed position for the architect*** in a drastically overhauled hierarchy of command in the design team, Casson made two independent but related comments—

The prospect is not pleasing and only defensible if we no longer put higher values upon our more permanent physical surroundings than we do upon our expendables. These surroundings—in the familiar cliché—may accurately reflect the society for which architecture is created, but reflecting is a poor and negative exercise.

It is suggested in the symposium that architecture can be produced by a team of specialists in colour, heating, lighting, acoustics and market research working under a Leader who may or may not be an architect. The product that in industry results from this sort of exercise is the Corn-Flake Packet—efficient, salesworthy, disposable and, to me, without any interest or value whatsoever. (In architecture it is epitomized by the MOE schools at Wokingham and Worthing which to me are not architecture at all.)

It takes a bold, convinced (or complacent?) man to brush off the corn-flake packet or 'other industrial products like motor-cars' (cf. Richards, below). One of the great worries at the margins of the architectural profession is that building design just does not match the design of expendabilia in functional and aesthetic performance. Admittedly those functions and those aesthetics are not those of buildings, but the comparison remains damaging.

Again, it takes a bold, etc., man to assert that these things are without interest or value whatsoever (though I note Casson's defensive 'to me.') To plenty of architects and fanciers of architecture, these things are of considerable value—and if the MOE schools are not, it is because their aesthetics lag behind their functional qualities.

And again, if it is admitted that buildings are only 'more permanent,' then it seems unfair to discriminate between them and 'expendables.' They are simply long-term expendables.

Pevsner was equally crisp on this point, while Richards balanced leadership against vision.

Pevsner

The prospect is not only not pleasing, the whole thing is out of the question.

Richards

The visual appearance of the building is still what makes it architecture, and still emerges as part of the process of analysing and answering its functional needs, however much of this is done by science instead of by intuition. Appearance may be dominated by technology, but value judgments still have to be made, which a team cannot do. With different types of building, perhaps, the element in the team that makes these judgments may make them at a different stage (especially if we widen the team, as we should, to include the builder and the manufacturer of prefabricated components) and therefore the part of the operation that we are accustomed to call architecture may change its nature. But it must still happen, it must still (I think) be carried out by one man and that man is the only member of the team whose vision, right from the beginning, of the total end product is necessary to his job. This vision is more important than 'leadership'. I might except from this certain types of building in which the end product may be an automatic result of a scientific process, but this only means that certain types of building may cease to be classifiable as architecture. It need not mean, however, that they cease to have visual value; they simply join the other industrial products like motor-cars, etc.

The possibility of ***a scientific aesthetic*** received short shrift from everyone with the exception of Hastings, whose views are of such a different order as to need a different treatment, and are held over to the next page while the query on ***sophistication and self-consciousness*** produced widely diverging views; Pevsner bouncing the question out of court, Casson perishing the thought of any more sophistication, with which remarks may be coupled points he had raised earlier on design in general, while Richards contributed another model essay, this time in defence of increased sophistication. And lastly, as far as this part of the argument is concerned, the proposition to separate the rational aspects of town-planning from civic design was firmly squelched without any serious attempt to answer the ensuing query.

Pevsner

Not on a *fully* scientific base, but it is true that the architect refuses to accept help, when it would be useful to his buildings.

Richards

I think the aesthetics of a building can be defined after the event on a fully scientific basis, and as science learns more about human physiological and psychological responses more of the factors that have hitherto been classed as outside science can be regarded as scientific. But in so far as science is concerned with the predictable, there is bound to be a non-scientific element remaining in aesthetics—or creative art ceases to exist.

Casson

Obviously science can be of help to the architect—he would be foolish to ignore it—but I cannot accept it as possible that aesthetics can be put upon a fully scientific basis.

This point is surely overplayed, but I would be against increasing in any way the self-consciousness which is already the architect's principal failing.

Nowhere, I suggest, is it made sufficiently clear that there is, in the last resort, no substitute for personal judgment and personal observation. I would always trust my own eyes rather than the researcher's questionnaire-form. The latter can be useful—though often, particularly in sociology, inevitably un-precise and therefore misleading. By all means let us be encouraged to make use of information handed to us, but not at the expense of going to look for ourselves. Failing to do this can lead to a version of Russell-Lynes Disease where the patient spends so much time training his taste in a subject that in the end he can no longer enjoy what he is having trained taste about.

Richards

Self-consciousness and sophistication have very little in common. The former is the result of everybody knowing (through the printed word and the reproduced picture) what everybody else is doing and has done in the past. It is part of the modern world and our changed attitude to history springs from it—but it was equally the starting-point of the least sophisticated type of nineteenth-century period revivalism. Self-consciousness is the more inseparable from the modern processes of creative design because science itself is continuing to unveil the mysteries of creative activity and thereby increase our consciousness of how the process works. In spite of the endeavours of the action painters and others to discover territories where unselfconsciousness can still operate, unselfconscious art is inevitably on the way out.

Increasing sophistication about history is partly the result of the continually more rapid revolution of the cycle of taste, resulting in a revival of interest in more and more recent aesthetic ideals, even nowadays those whose original authors are still extant, and partly the result of the historian himself having adopted more scientific methods and being less content with the romantic and evocative, so that instead of being 'one of them' (i.e. the people from whom the creative artist is trying to assert his independence) he has become 'one of us.' The consciousness of history that this sophisticated attitude induces in the artist is necessary because, in the new circumstances, it is the means by which new ideas are assimilated into an accepted language or idiom; in the days before self-consciousness the equivalent means were the evolutionary ones residing in craft traditions and the social ones resulting in the leadership of taste by an elite.

Banham

Certainly a *fully* scientific aesthetic is impossible now—but it is a thousand-per-cent more possible than it was thirty years ago. It is, I think, something towards which architects should work with peculiar determination since it will provide the visual designer with the only arguments with which he can persuade the tech-men in their own language. Consistently with the attitude suggested above, I too hold that architects must become more sophisticated, and accept self-consciousness as a working risk. I find myself at one with Richards in this matter.

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There remains the Hastings contribution, which is different from the other three in that, while using the propositions as a point of departure, it proposes only to answer 3 and 1, in that order, in an attempt to get to the ***heart of the ideas underlying the whole series.*** It is thus most suitable to appear at the end of the sequence of replies, both for its aims and content, and as a pretext for the series editor to attempt to sum up his own position toward the series as a whole.

The argument goes round and around, but at its hub is the question whether the architect should remain building's Top Person. The alternative, that he should become instead, one (perhaps a minor one) of a design team composed not only of organizers and engineers, but of specialists in the biological and social sciences, carries with it the tacit assumption that the aesthetic issue is now secondary. Or dependent. But what do those who talk about 'putting aesthetics on a scientific basis' really mean? They mean, it seems to me, that *because* late Gothic is susceptible to analysis in terms of the laws-of, *therefore* the data provided by sociological, psychological and technological studies may well produce architecture of a sort better than architects can achieve by toiling in the steps of a mistress art. A slight misrepresentation, that, but it serves to highlight a fallacy which seems to me to dog the scientific attitude—the fallacy that efficiency is a rational end instead of a rather

unnatural passion (also a rather unnatural fashion). The vital importance of science to-day lies not in the efficiency it can impart to the machine, but in the passion it inspires in a society which owns no other God. Computers are wished on us—I use the term advisedly—by people who love computers (the word 'love' I also use advisedly). These are not ice-cold brains trying to beat sense into fuddy-duddies but mystics pursuing a grail, great lovers generously eager to share their mistress with anyone who shows a moment's weakness. More power to them. And to their mistress. Even when accepting the offer to skip into bed with the little lady, however, one should remain aware of the nature of the confidence trick.

The point I am trying to make is that, for the right kind of man, science is a tremendous lark. If he is the right kind of man for science he will disguise this lark as a bit of basic thinking, but in fact anything productive that comes out of that thinking was put into it by him when he found himself in love with the scientific attitude. The consequences for architecture of an amorous tangle with this passionate person are great, but this is not because rational routines ought to supersede traditional, or scientific, artistic; it is because one kind of mad enthusiast is wresting the creative initiative from another kind of less mad enthusiast. Both are equally mystics (or lovers), they just happen to have a yen for a different kind of mystery. And since the mystery of science has gathered to itself a fabulous goodwill in this century, it is sensible to use the goodwill for creative architectural purposes.

The argument that aesthetics could have a scientific basis can thus mean one of two things. It could mean (*a*) that you can furnish a good *reason*—afterwards—for making the aesthetic decisions you do make. Or it can mean (*b*) that the scientific attitude to life provides a wonderful field for aesthetic exploration. So long as one is quite firm in denying technology any monopoly of reason there is every reason during the 'sixties for aestheticians to have fun and games with science (in fact it is their obvious field of operations) and exciting new designs for living might well transpire. Only so long, however, as they accept science as a stimulus for emotional fun and games and do not commit the basic howler of believing they are substituting the rational approach for the creative impulse.

I have put question 3 first because it affects the way one answers the first question. Implicit in the phrase 'technological habits of thought are hostile to architectural habits of thought' is (I take it) the concept that technological habits are scientific and architectural habits aesthetic, hence science and art are in for a tussle. But if there is any sense in the answer to 3 it follows that 'habits of thought' (an unfortunate phrase really) meaning in this context processes of feeling, are creative and thus basically aesthetic, i.e. emotional, which means that the distinction is not between art and science (emotion and reason) but between one kind of artist and another, or one kind of emotion and another.

Now, if you are going to say, as you have every right to, that the scientific art represents the spirit of the age better than any other, hence scientists should be the artists in charge of architecture, then it is obvious that the architect's position in the design hierarchy will be affected. In those circumstances he might well have to step down. This, however, is an entirely different thing to saying that 'the head of the design team cannot be responsible for the visual appearance of the building.' By visual appearance we mean the way the article materializes in the physical, i.e. the apparent world. The ergonamist or group psychologist might insist that the way the building '*works*' is more important than the way it *looks*, but all he is then saying is that there are other senses than those of sight by which we would judge its 'appearance.' As it happens there are, but in man the sense of sight is so far in advance of the other antennae of contact that it's a safe bet that our ultimate judgments on the buildings we '*feel*' will be dictated by this, the most highly developed of the tactile senses (so long, that is, as other considerations don't disturb protocol. Aircraft and radios, mentioned by R.B., happen to subordinate the visual to other senses—immediately visual aesthetics cease to command first place).

We now come to the distinction that matters. If the argument that science should dominate aesthetics means that we must learn to subordinate visual to scientific criteria then it seems to me to be merely warming up an old heresy which amounts to no more than maintaining that in building sight is not the most important of the five senses.

If, on the other hand, it means that science should be permitted in this emergency to stimulate new ways of seeing to which tradition (i.e. habit) tends to blind us, then the argument seems to me to be not merely sound but stimulating. In that case, however, the *seer* never loses his position as director of operations. You are welcome to call him by any name you like, but you will simply be inviting him to exchange functions with the architect. Somebody has got to organize the assault on the five senses in the order in which they operate and the party who does so is bound to remain the Top Person in building.

To sum up: what matters to architecture is not the rational content, but the emotional head of steam. Scientists have succeeded in working up an impressive head of steam for their chosen ark of the covenant and so have acquired the emotional initiative in this century. Therefore, architecture not merely should, but must woo science for the right and proper purpose of stealing its steam. If, as a side-kick, we get greater efficiency, well that's just swell, isn't it?

Hastings *continued*

Banham

In fact, I didn't mean either of these things. By a scientific aesthetic, I meant one that uses, as the basis and guide of design, observations (made according to the normal laws of scientific evidence) of the actual effect of certain colours, forms, symbols, spaces, lighting levels, acoustic qualities, textures, perspective effects (in isolation or in total 'gestalts') on human viewers. These are precisely the sort of matters that are covered by the bibliography to Llewelyn-Davies's paper in 1960/2, and I maintain that armed with enough information of this kind it should be possible for whoever is responsible for the visual side of a building to produce, say, a church that is more likely to produce a sense of spiritual elation than physical depression—an ability that is manifestly not shared by some church designers at work at present. I would not dare to propose that this was a way to produce guaranteed masterpieces, but it might well be a way to prevent guaranteed failures being produced with the best will in the world by men who insisted on judging everything by their own subjective responses, supposing them to be universal. Nor do I think that this cuts out *ultimate* personal judgment, but it should get that judgment out of the fog of ignorance, thickened by facts carefully chosen out of context, that commonly passes for architectural theory to-day.

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conclusion

SCIENCE FOR KICKS?

As I read the Hastings contribution, it *could* be read as a proposal to play science for kicks. Such a proposal will shock and repel a large number of persons inside the sciences, and quite a number of persons outside the sciences whose theoretical position is based on the idea of science as a tough and noble discipline that they themselves do not follow, but would if their callings permitted them—that is, they are playing science for one sort of kick already. The scientist cannot play science for kicks, any more than an architect can play architecture for kicks—in either case it is a man's calling, and the sort of calling that is going to absorb most of his capacity for solid thinking. What one does for kicks is strictly outside office hours, for compensation, stimulation, relaxation or whatever. To treat science in this way may be one very proper attitude, in the present condition of architure in a technological society—though it is not the only one: the science-hobbyist who perfects himself in one small sector of applied science or field-work (hi-fi enthusiasts, aqualung geologists) has also made a creative liaison with science, though at the manipulative rather than the intellectual level.

Science for kicks, as here conceived, is a way of using the mind for pleasure, or just the hell of it, in such a way that it flourishes, not vegetates. Doing anything for kicks involves, in the first place, a degree of expertise in the relevant experiences—Raphael's frescoes in the Vatican gave the young Joshua Reynolds no lift, but he worked on them till they did. The process is cumulative once the initial threshold has been crossed: whether you take to it like a duck to water, or have to work at it like a Reynolds, the best and most rewarding period is the next, in which every increase in expertise brings a disproportionate reward in kicks—the more trout you fish, the more rock'n'roll you consume, the better it gets. In addition, the company of fellow-addicts also brings its reward—'Share a dream with me,' says the junkie, the jazz-fans compare notes deep into the small hours, sharpening one another's appreciation of the art.

This phase may well be short—as, say, in the case of a purely chemical addiction—or it may be long where the skills involved are greater than the mere location of a vein and the sinking of a hypodermic needle into it, but in either case, the destination of the kick-seeker, whether he likes it or not, is saturation and tolerance, the condition where he gets no further lift: there had to come a time when Berenson had rounded up all the available *fondo d'oro* altar-paintings in Tuscany, and the *Trecento* kick ceased to be life-enhancing.

The same is true of all finite, simple kick-seeking, but science, speaking comprehensively, is neither finite, nor simple. Its primary fascination will always be that no man can embrace the whole of it, and even in one particular field, the limit of research is apt to be advancing faster than even the talented amateur can pursue. In Science-fiction, which is science-for-kicks in almost its purest form, not only do new fields of subject-matter constantly open up for exploitation, but old ones are equally constantly being revived because they have been extended by new research or theoretical revision. The man who has given himself to the wonders of science—and let us be honest, science is *wonder*-ful in the derivational sense of the word—is never likely to achieve tolerance to its stimulations.

Now modern architecture, in its most dizzily productive phase, from about 1910 to 1927, was doing just this, playing science for kicks, surf-boarding the crest of a wave of invention, discovery and application that finally broke about 1930, to be replaced by the second wave of twentieth century technical creativity (jets, atomics, radar, rocketry, antibiotics, synthetics, new cosmogenies, etc.) towards the end of the decade. But architects had abandoned the surf-ride before the wave broke, stood still and had started to take science seriously (compare the Gropius of 1930 with the Gropius of 1923) and their science-oriented architecture began to lose its vitality, as they were overwhelmed and submerged from behind by the second wave.

The reasons are not difficult to see—as was said above, science is a whole way of life, and so is architecture as it is supposed to be practised to-day. The practitioners of neither can play the other for anything but kicks, and for an architect to pretend to take science 'seriously' is an act of monstrous arrogance. Critics who complain that architects who demand fanciful vaults and other 'science-fiction' structure are being frivolous about science and don't understand what it is all about, are wide of the mark on both counts. The man who doesn't get any kick out of science will, by definition, get no kick either from the Twentieth Century which, as Hastings observes, knows no other God, and if he doesn't feel the pulse of his time he is clearly unfitted to put up monuments symbolizing or otherwise expressing its values. The man who plays science for kicks is, in our present situation, a life-enhancer, and if he functions in the visual field he will be the better able to produce the kind of symbols by which we identify ourselves as members of the scientific adventure to which we are all committed in our smallest acts—such as reading this print, or turning on the light to make its reading easier.

Nor, for reasons outlined above, can it be decently said that those who play science for kicks don't really know what it is all about. Admittedly, the kind of expertise needed to enjoy the productions and achievements of technology and science, and to go on enjoying them, is not necessarily the same kind of expertise as that required to create or control them, but—in practice—the overlaps are considerable, and the connoisseur of space-fiction, for instance, must get to know a lot about ballistics, rocket dynamics, gravity, radiation, planetary atmospheres, galactic structures and cosmic dust if he is to get anything like the full value from his addiction. Similarly, to get anything like the full flavour out of the current vaulting kick, he must eventually master at least the outlines of some very complex mathematics.

The insistence that science must be taken seriously too often means that science must be taken owlishly, solemnly, reverently—which manifestly is not the way that scientists take it, as anyone will know who has heard a Hoyle or an Eysenck holding forth on their respective specialities—or Buckminster Fuller on his. The man who plays science for kicks is committed to a growing enjoyment of a growing body of ideas and experience. He is in for life—unless his nerve fails.

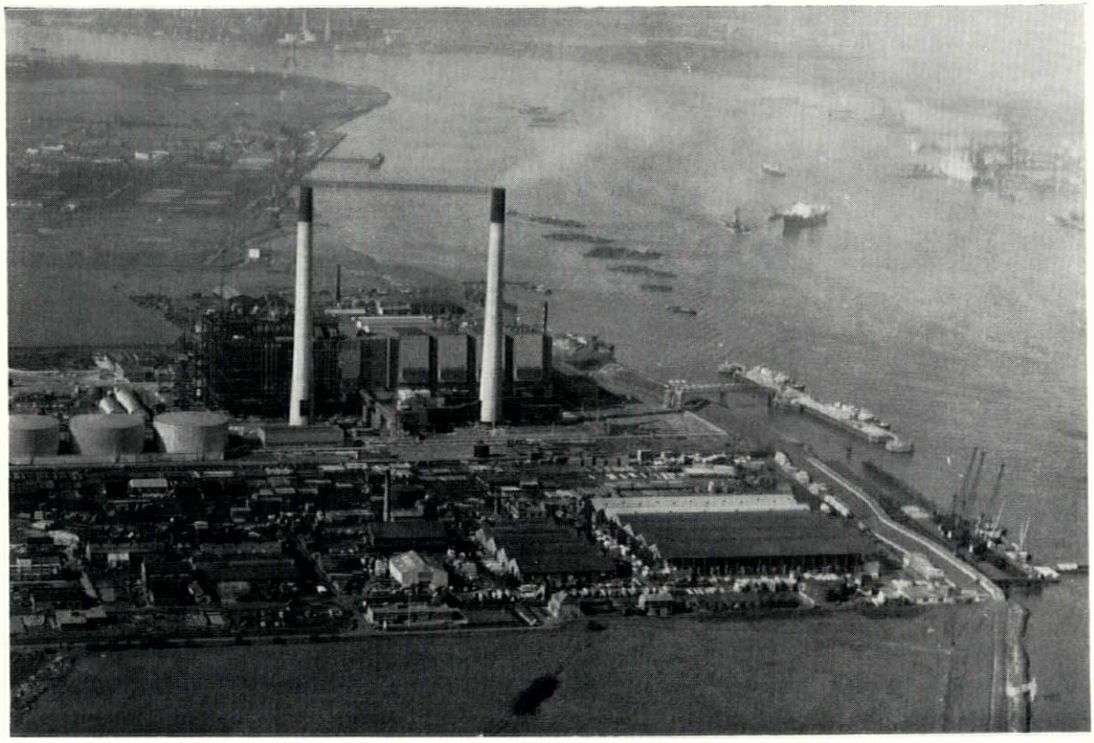
It may well be that such a failure of nerve *also* occurred after 1927, and accounts for the tendency, which originated about that time, to explain modern architecture in terms of its past, not its present. The lesson, in either case, seems to be clear—to go on with our scientific surf-ride on which we are newly launched, to play it for all the kicks it can produce, and stay with it till it is exhausted, instead of trying to jump off while we think the going is good and finding ourselves at the mercy of the next breaker behind.

Reyner Banham
1960 series editor

THREE POWER STATIONS

The architecture of power stations—industrial civilization's largest common artefacts—has been a source of apprehension ever since Sir Gilbert Scott's monumental treatment of Battersea. Nevertheless, the AR was able to announce the forthcoming demise of the 'Brick Cathedrals' and the first sight of a more open, integrated and honest approach, as long ago as R. Furneaux Jordan's article of April, 1953.

The propositions made at that time, for a type of power station whose architecture arose from a compact, functional disposition of its main machinery in the open air, with the minimum of built shelter needed to protect the staff from the elements, may now appear too polemical and diagrammatic a reaction against the Brick Cathedral approach, and only one such extreme power station—extreme in its nudity as well as the formality of its plan—has been built. Nevertheless, the extreme position adopted in designing Willington A has helped to clear the air and open the way for a more liberated



Aerial view of Belvedere power station, Kent, with the Thames on the right. The turbine house is still under construction.

conception of power-station architecture, even when most of the machinery is enclosed, and this point can be examined in detail on the following pages where Willington, with its Palladian plan and exposed machinery, is seen in company with Marchwood, which is slightly earlier in date, and Belvedere, which is later.

Even where the boilers, turbines, etc., are enclosed—these are all conventional, non-atomic power stations—there is now a strong sense that the visible architecture, far from being a monumental composition in its own right, is simply a suitable skin drawn over these mechanical parts, and also acknowledges the difference in functions between them, so that the boiler installation and the turbine houses can be distinguished even by an outside viewer.

On the strength of these three designs by Farmer and Dark one can assert, with some confidence, that the architecture of power stations has now taken a decisive turn in the right direction, but one very important problem remains still to be dealt with. This problem is not initially under the architect's control, and there is little that he can do about it from his side—it is the problem of siting. Because atomic power-stations are news, and because they have usually gone to spectacular areas in unspoiled country, their siting has been vigorously discussed, to the exclusion of all other aspects of power-station siting.

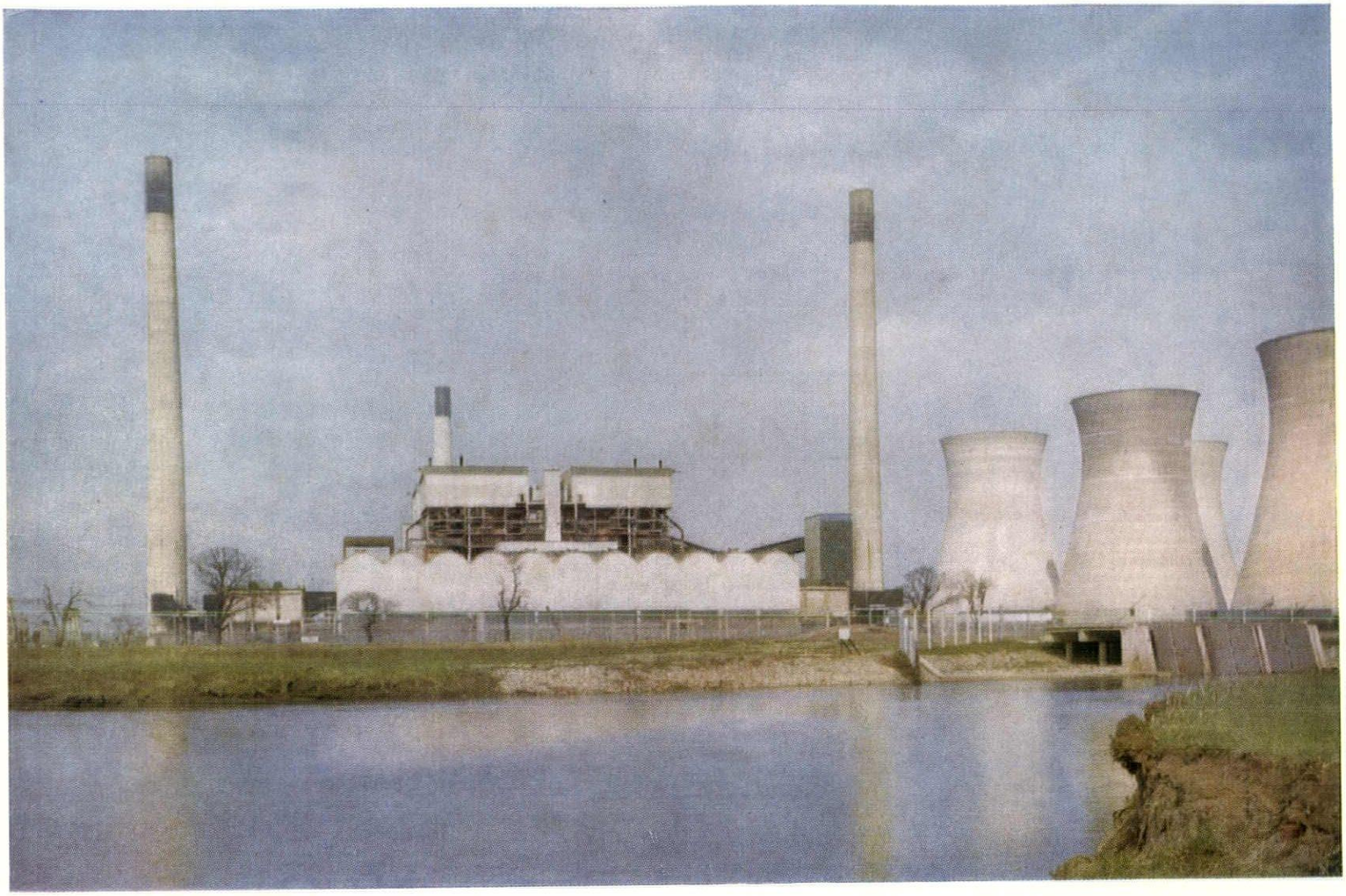
But the Central Electricity Generating Board is still committed to a massive programme of investment in conventional, non-atomic plant, and because of the need for quantities of water for cooling and the ease of fuel-delivery by water in the case of coal-burning stations, conventional power-stations are still being sited on rivers and estuaries, as in the case of Marchwood and Belvedere—one on Southampton Water, the other on the Kentish side of the Thames. Both have, in fact, found admirers for the visual effect they have on their flat tidal surroundings (witness the air view on this page)—an effect that they are not likely to have had if they had been of the Brick Cathedral type—but not all power-stations are of this architectural quality, and there still remain a number of estuaries, and even inland waterways, where proposals to build anything at all, let alone power-stations, need to be examined with the utmost care. It is no use protecting our scenery against atomic blight, only to have it blighted by conventionally powered plant.

THREE POWER-STATIONS

for the Central Electricity Generating Board

ARCHITECTS | **FARMER AND DARK**

partners in charge: Frankland Dark (design); Thomas A. Eaton (executive)



1

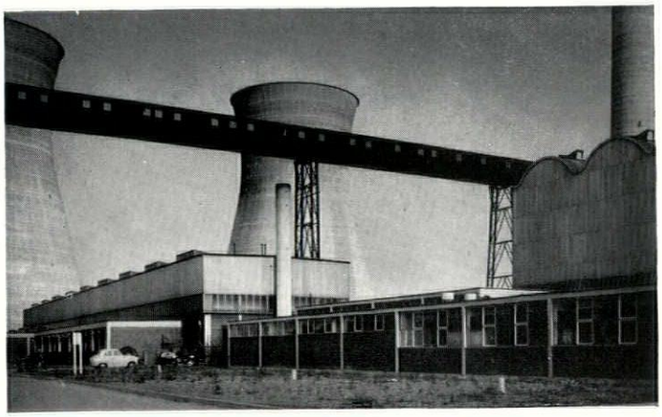
1, WILLINGTON, DERBS.

Two stations, both coal-burning and each with a capacity of 400 megawatts, adjoin each other on the same site. Willington A is illustrated here. Willington B (see AR Preview issue, January 1960) is under construction and will be commissioned in November 1961.

The A station consists of four turbo-alternator sets. The boilers are arranged four-square with two pairs of turbo-alternators in their turbine houses flanking two sides of a square, and air-heaters, dust-collecting plant and ducting on the other two sides, the latter connecting the boilers with two free-standing reinforced concrete chimneys, 425ft. high, one on either side of the station.

Precipitators, dust-collectors, fans, etc., are fully exposed, as also are the transformers associated with turbines and plant control. This is an early example in Britain of a power station with machinery in the open instead of being enclosed within buildings.

The facing brickwork at low level is a dark purple grey with black pointing. Cladding to the main buildings and boiler drum covers is anodized aluminium sheeting capped with black eaves flashings. Glazed areas have aluminimum bar patent glazing. Colour is used

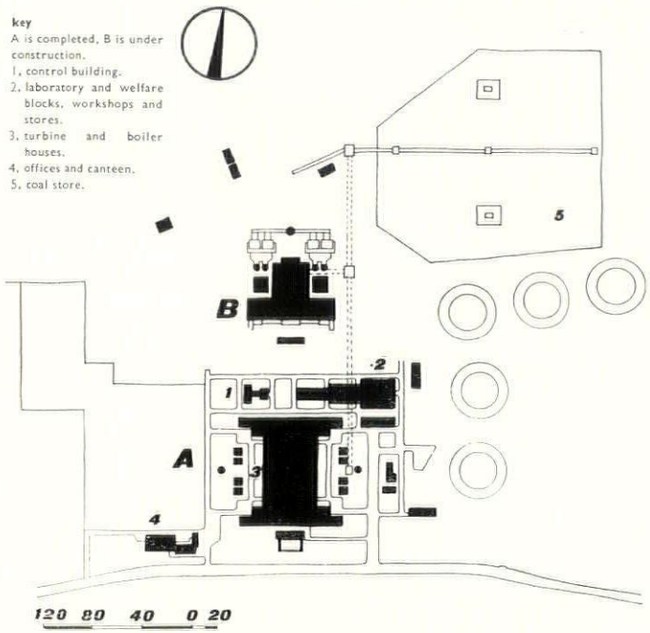


2

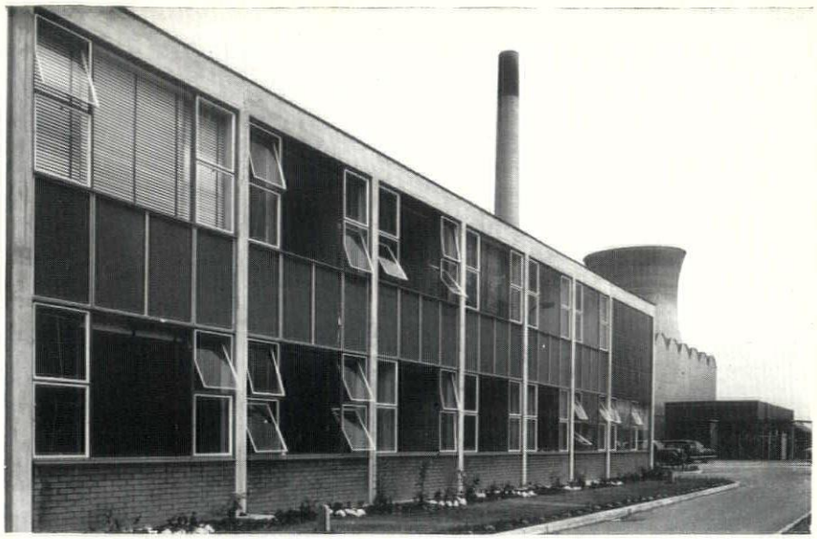
1 (top of page), general view of Willington A power station from across the water.
2 (above), the workshop, stores and welfare buildings, and the overhead conveyor linking the station with the coal-screening plant.

to identify the different elements of the exposed plant. Workshops, stores, offices, canteen and welfare buildings, pump houses, control and switch rooms, etc., have exposed concrete frames with brick, aluminium and glass claddings.

Architect in charge of Willington A: R. J. Foxton; assistant architect in charge, D. MacEwan; assistants, P. Rule, A. J. Reid, R. C. Richards, C. Blake, K. A. King. Main engineering consultants, Ewbank and Partners.



site plan



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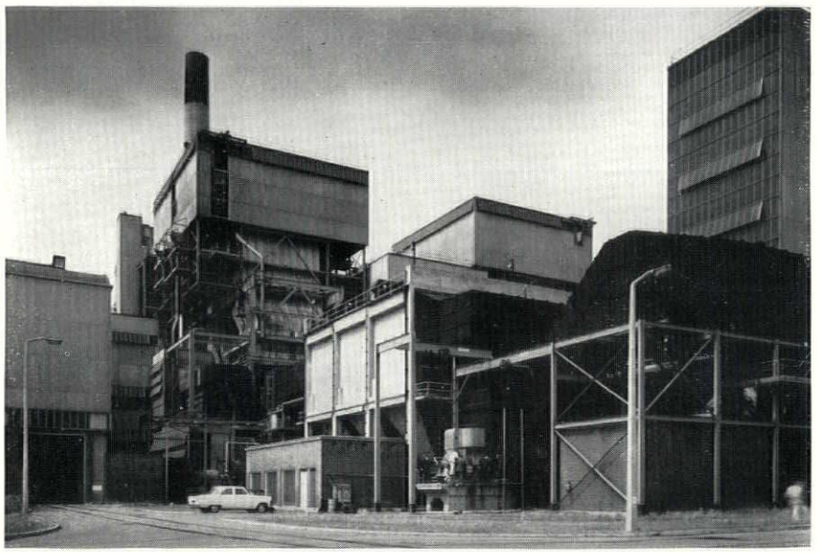
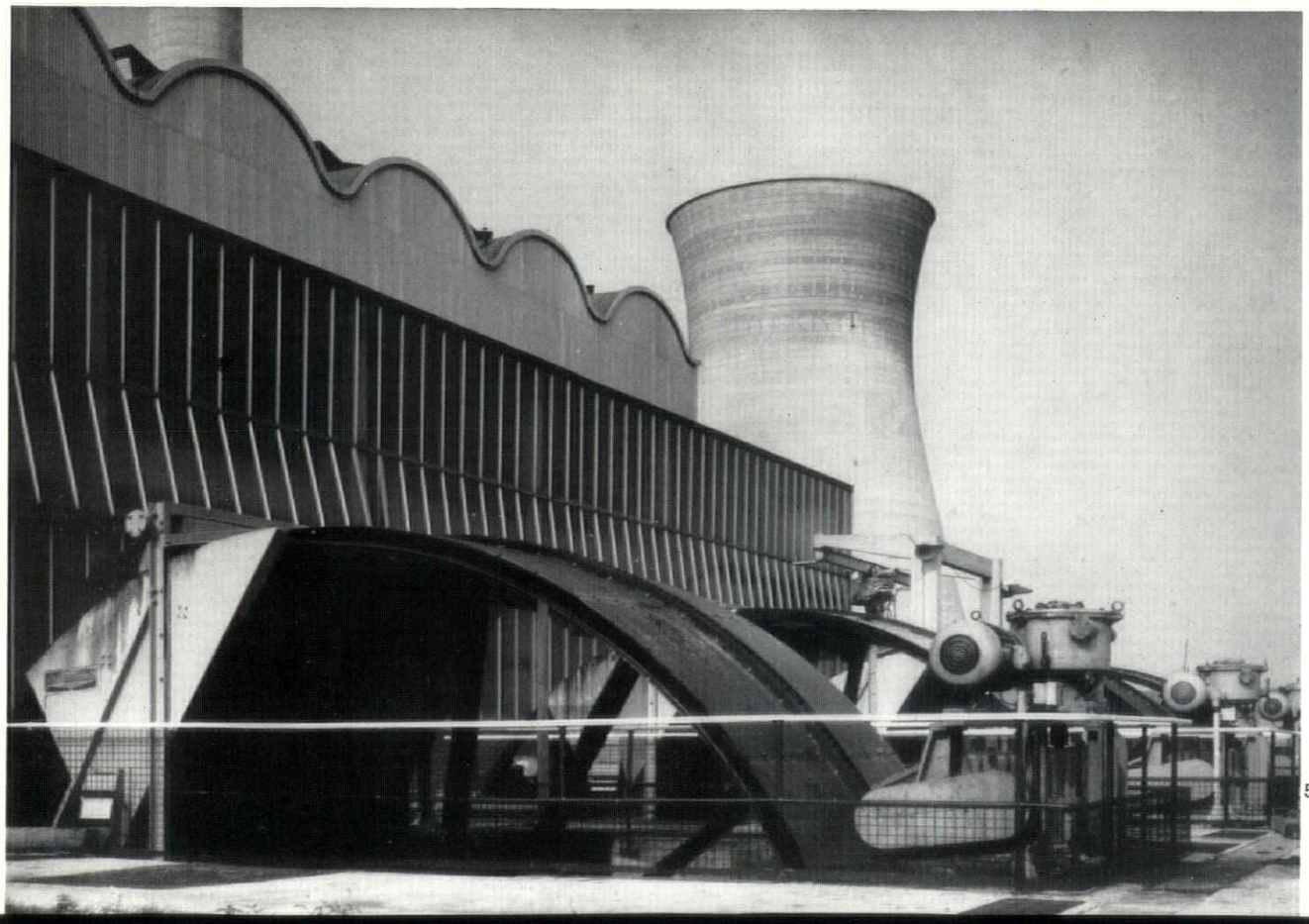


4

3, the administration building, with part of one turbine-house in the distance.
4, main station from south-east: two boilers in centre; precipitator and associated ducting on right; junction tower on extreme right.
5, screens and pumphouse, with barrel-vaulted roof of turbine-house behind. This and the photograph above show the extent to which plant in this station is exposed.



5

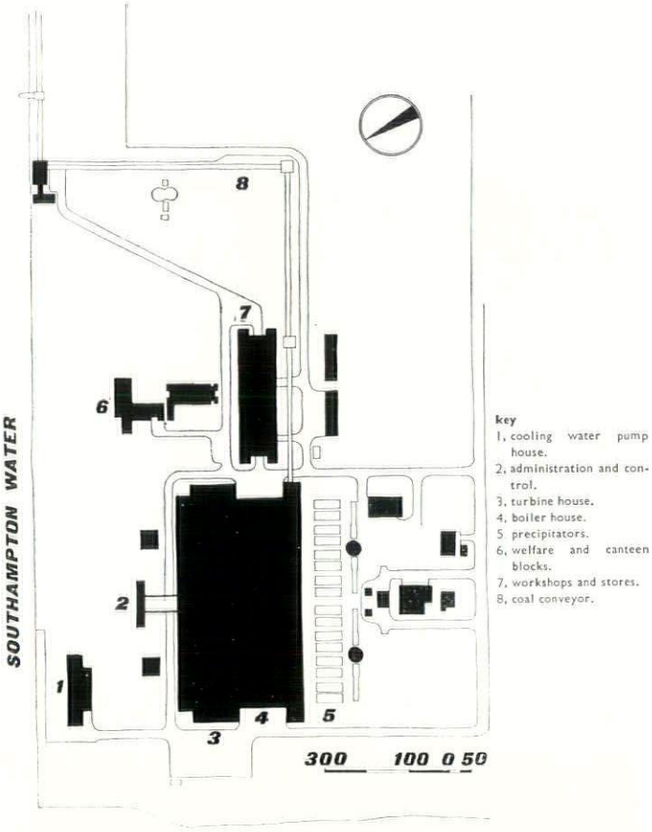
2, MARCHWOOD, HANTS.

The station, which has an output of 480 megawatts, is on the edge of Southampton Water. It is oil-burning but is designed for adaptation to coal if necessary. A single building 600ft. long and 300ft. wide houses the turbo-alternators and the boilers, the boiler-house portion being 33ft. higher than the rest. This building is of welded steel frame construction, with hidden bolted joints in the main stanchions, which are of box section. They are set out in alternate 26ft. and 39ft. bays. Two chimneys are symmetrically placed on the far side of the main buildings from Southampton Water.

Up to operating floor level there is a 10in. thick reinforced concrete block wall, and above this cladding of aluminium panels backed with insulating board. The cladding has a saw-tooth section, designed to use the minimum amount of glass but to admit the maxim amount of natural light. Roofs are aluminium decking.

Ancillary buildings are steel framed with aluminium sheeting and roof decking.

Architects in charge: the late Noel Hunter and A. C. Murray; assistants, R. Bailey, R. Beckett, A. G. Derbyshire, G. Jones, M. New, A. A. Sharpe, J. H. Voelcker. Plant and electrical engineering, CEGB (Southern Projects Group). Civil engineering consultants, Sir William Halcrow and Partners.



site plan



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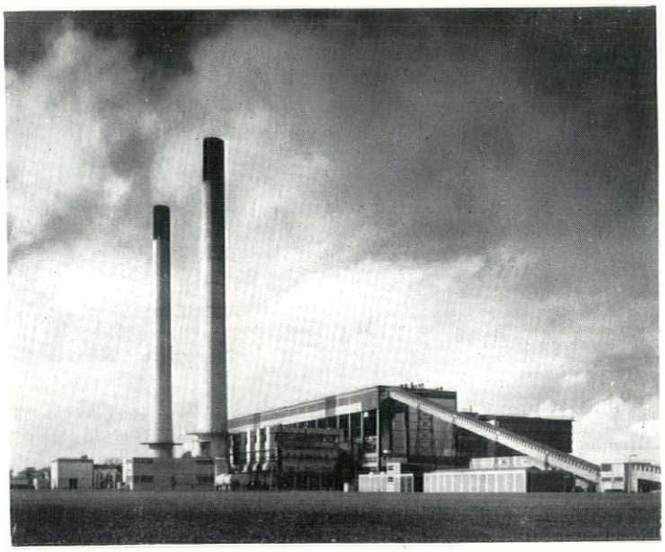


7

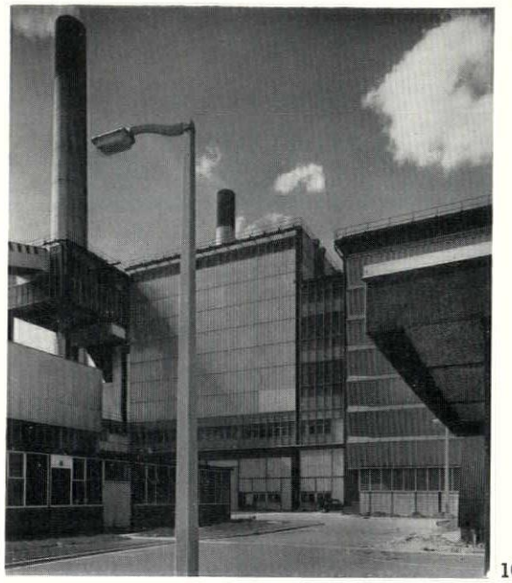
6, the end of the main building, which combines turbine-house and boiler-house, showing the proximity of Marchwood power station to Southampton Water (the Queen Mary in the background).

7, general view of the station from the south, with coal-conveyor on right and the row of precipitators between the main building and the two chimneys.



8

8, close-up of the end of the main building from the south, showing the use of strong colour in the cladding, etc.
9, main building (turbine-house side) from the east, with transformers in foreground and control block in the distance on the right.
10, end of main building from the south, looking towards the link between the boiler-house and the turbine-house. On the left, below the head of the coal-conveyor, is the workshop and stores block.
11, interior of the turbine-house.



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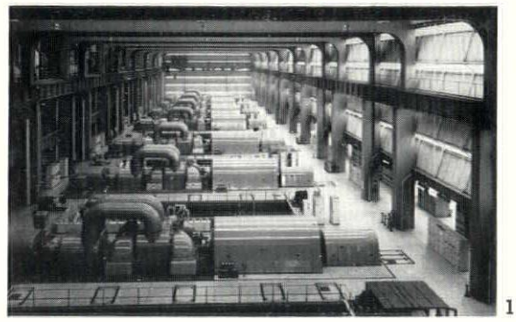

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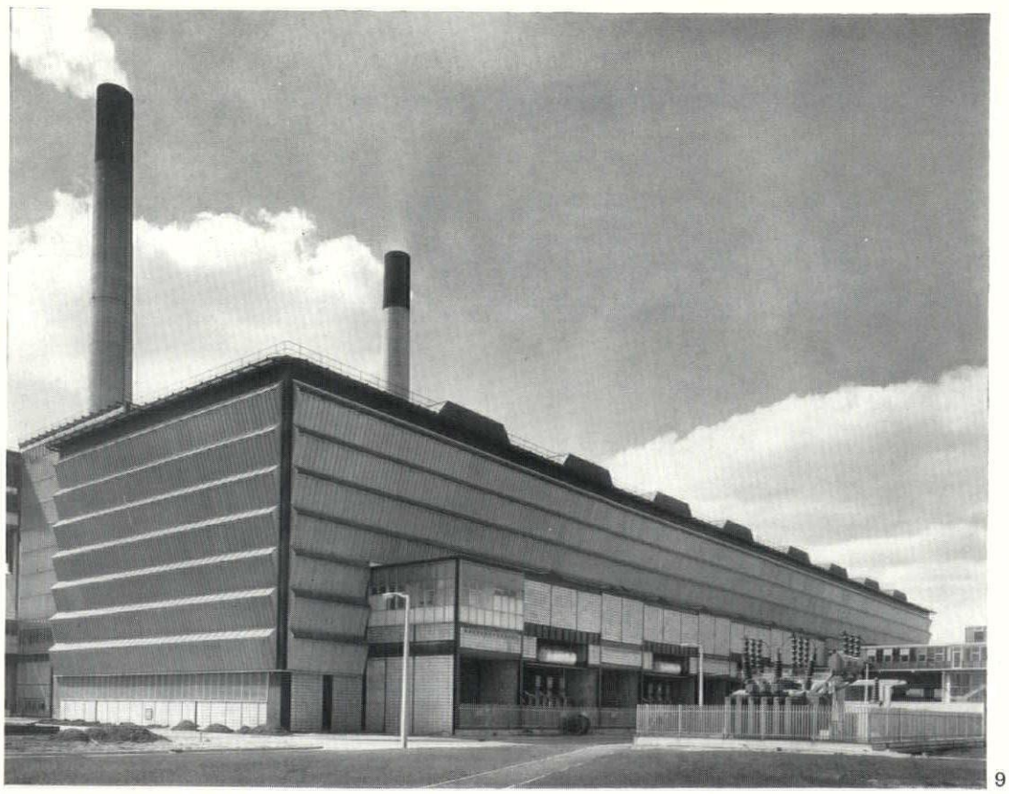


9

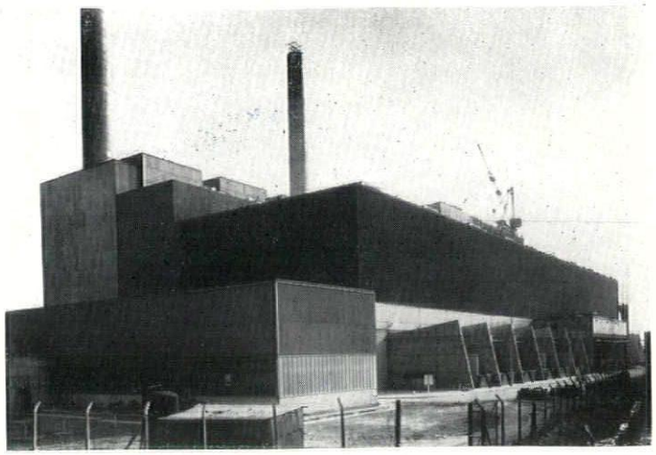
3, BELVEDERE, KENT

On the south side of the Thames, across the river from the Ford works at Dagenham. The station has an output of 480 megawatts, with six generating units: four in the northern section of the main building, which is placed at right-angles to the river, and two in the southern section.

The building is steel framed, clad in aluminium in three colours: anodized natural silver, pyluminized and anodized black. It has large areas of patent glazing and a base faced with yellow brickwork.

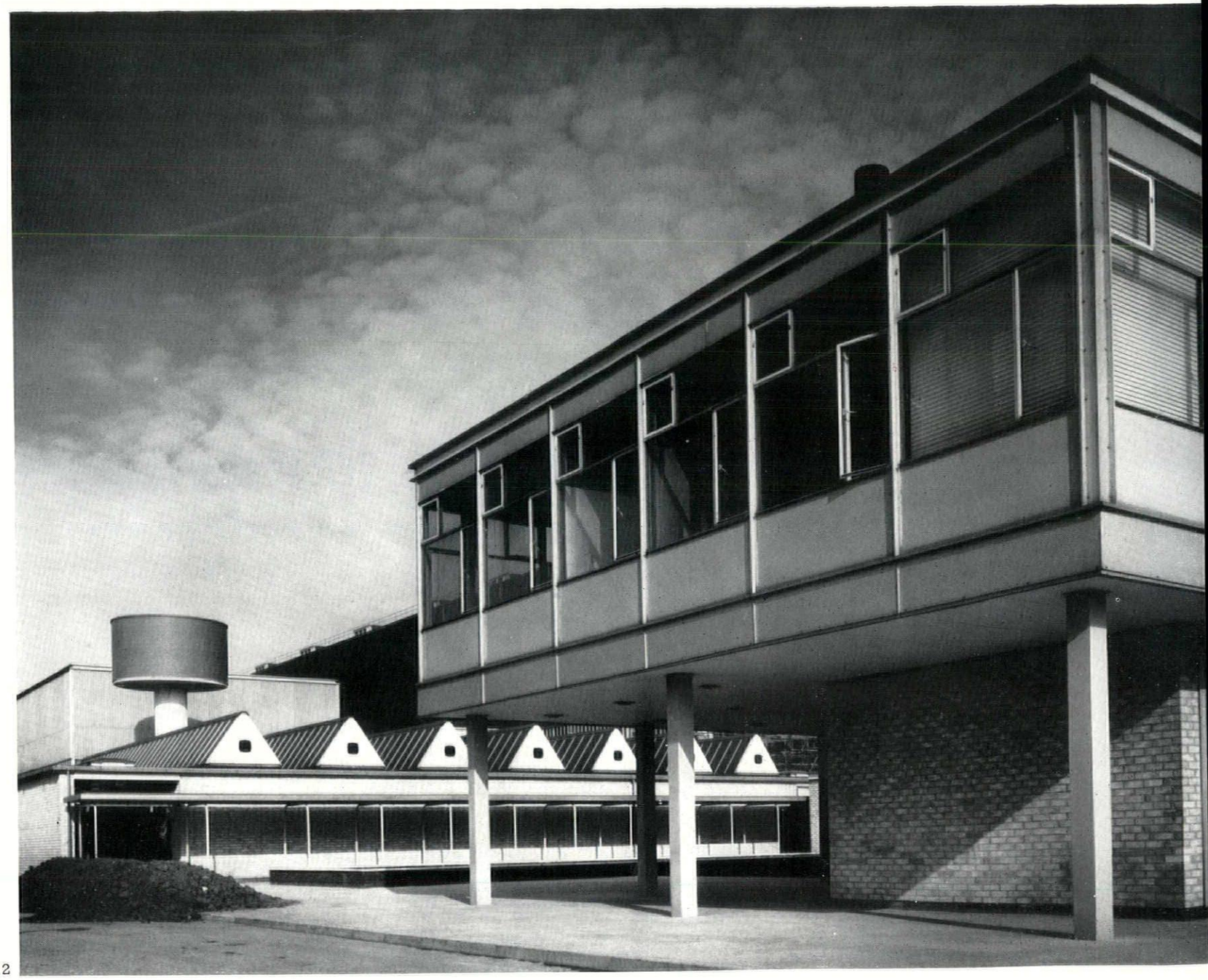
The control room is in the centre of the main building instead of being in a separate structure as at Willington and Marchwood. Although the Belvedere station is oil-burning, it is designed for adaptation to coal if necessary. The oil is delivered in tankers by river.

Architect in charge: A. C. Murray; assistants, A. Debricki, C. C. Garment, W. Garretts, B. E. Kenchington, A. T. Mallock, P. G. Shackleton, A. A. Sharpe, R. C. Stride. Plant, electrical and civil engineering, CEGB (Southern Projects Group).



13

12, welfare block seen from the west side of the administration block, with water-tower and workshops in the distance.
13, the main building from the north (turbine-house side), with the pump-house on the left.



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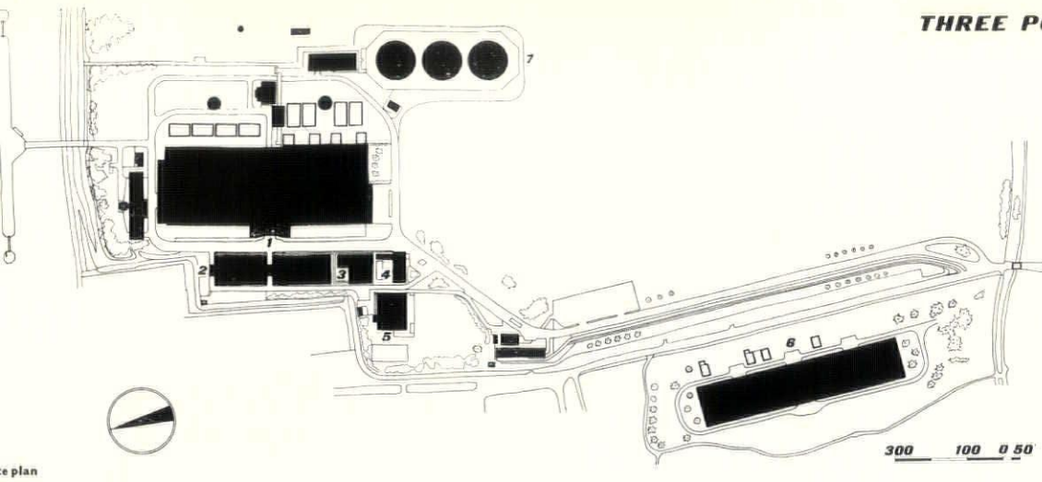
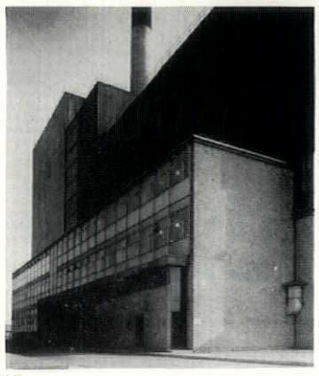


key
1. turbine house and boiler house.
2. stores and workshop.
3. welfare block.
4. administration block.
5. canteen.
6. switch house.
7. oil storage tanks.

e plan





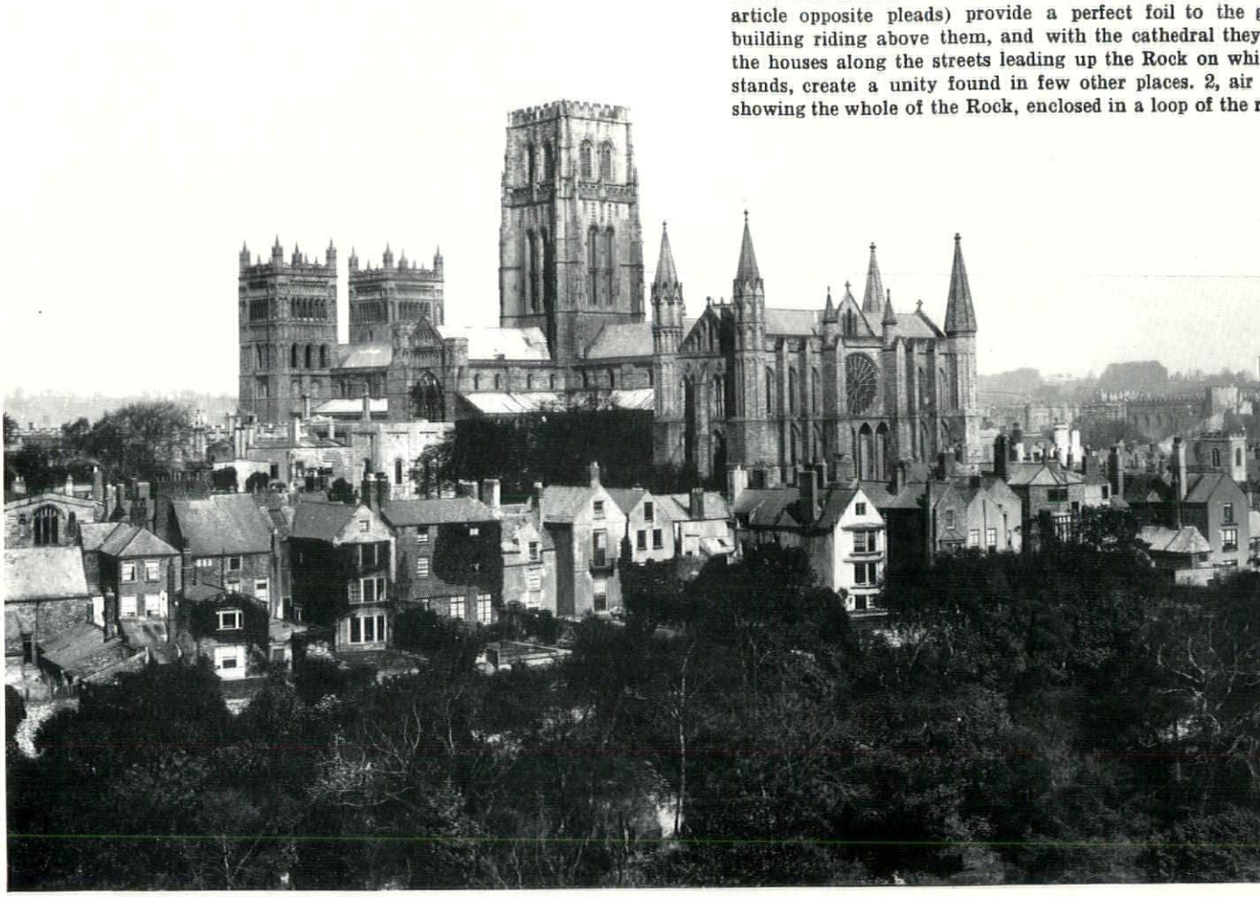
15



16

, corner of the welfare block.
, end of the main building, with three-orey north accommodation block in ont of it.
, foot of circular staircase in entrance-ll of administration block.

1, Durham cathedral seen from the south-east, across
river. The houses in front of it (for whose retention
article opposite pleads) provide a perfect foil to the
building riding above them, and with the cathedral they
the houses along the streets leading up the Rock on whi
stands, create a unity found in few other places. 2, air
showing the whole of the Rock, enclosed in a loop of the



1



2

Andor Gomme

DURHAM ENDANGERED

It is not often that THE ARCHITECTURAL REVIEW devotes an article to a plea for preservation. It is rare that a case for complete preservation can be made out. But the centre of Durham, which is threatened by developments now under consideration by the university, is unique, the most perfect—indeed the only—thing of its kind we have. Lincoln might once have been another, lesser, such. But Lincoln's setting has been utterly spoiled. Durham is the only one we have left, and we cannot allow it to go Lincoln's way.

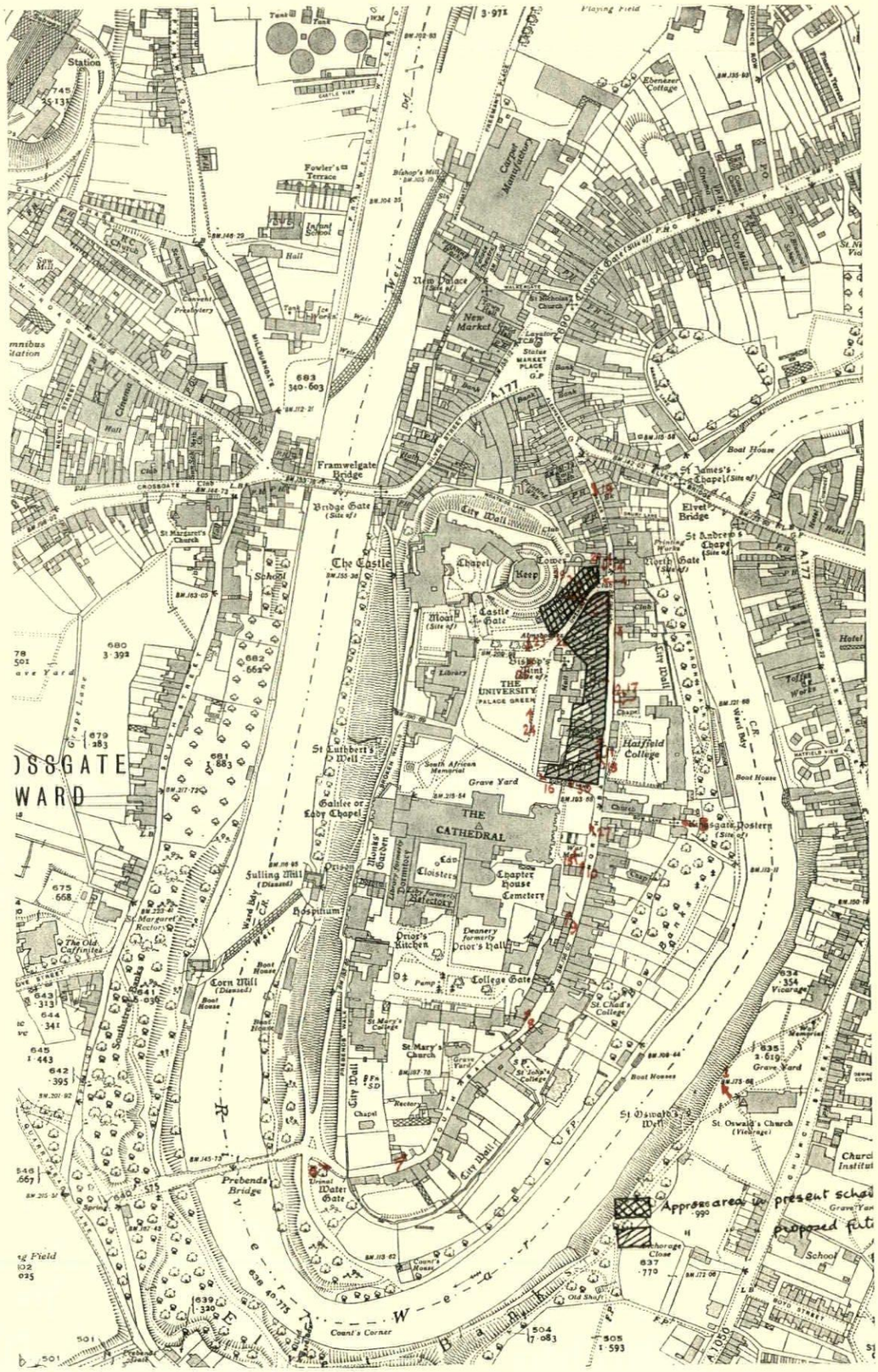
Durham is a most astonishing survival, not only for its assembly of castle, cathedral and monastery remaining virtually untouched together on the Rock, but also as the single unit of architecturally visible civilization left in a region otherwise wholly corrupted by industry. Durham is, as one miner put it, 'the miner's haven of peace, his Mecca'. It is of immense local importance that it should remain so; and the university, of all bodies, ought to be the defender of the region's cultural heritage, not its destroyer. And yet Durham is much more than this. For 'Every cathedral city was designed to be a perpetual memorial to the history, continuity, struggle, and, in part anyway, the triumph of the Christian Faith, on which European civilization is so largely founded. So heightened is this function at Durham by nature of the tremendous setting that the question of its mutilation becomes a matter of moment not merely to Durham or Britain but to Christendom.'*

If the university destroys the group of houses threatened by its building scheme, not

* *Cathedral City:* a plan for Durham: by Thomas Sharp (Architectural Press, 1945). This report, commissioned by the City Council, contained (besides a denunciation of the Power Station project and—as an alternative to a destructive road proposal—a scheme which is now being adopted after no fewer than 25 years of struggle) an evaluation of the city's architectural-planning character: the first essay in that appreciation of *townscape* which has now become more generally recognized.

only will the county lose the most important of its very few remaining signs of urban civilization, part of what is in fact the *only* extensive collection of Georgian architecture surviving for miles around; but much of the spiritual and physical presence of one of the world's greatest buildings will be taken away.

On the plan below of the central peninsula of Durham—the Rock—the numbers in red correspond to the photographs on the pages following. The hatched area is that threatened by the university.

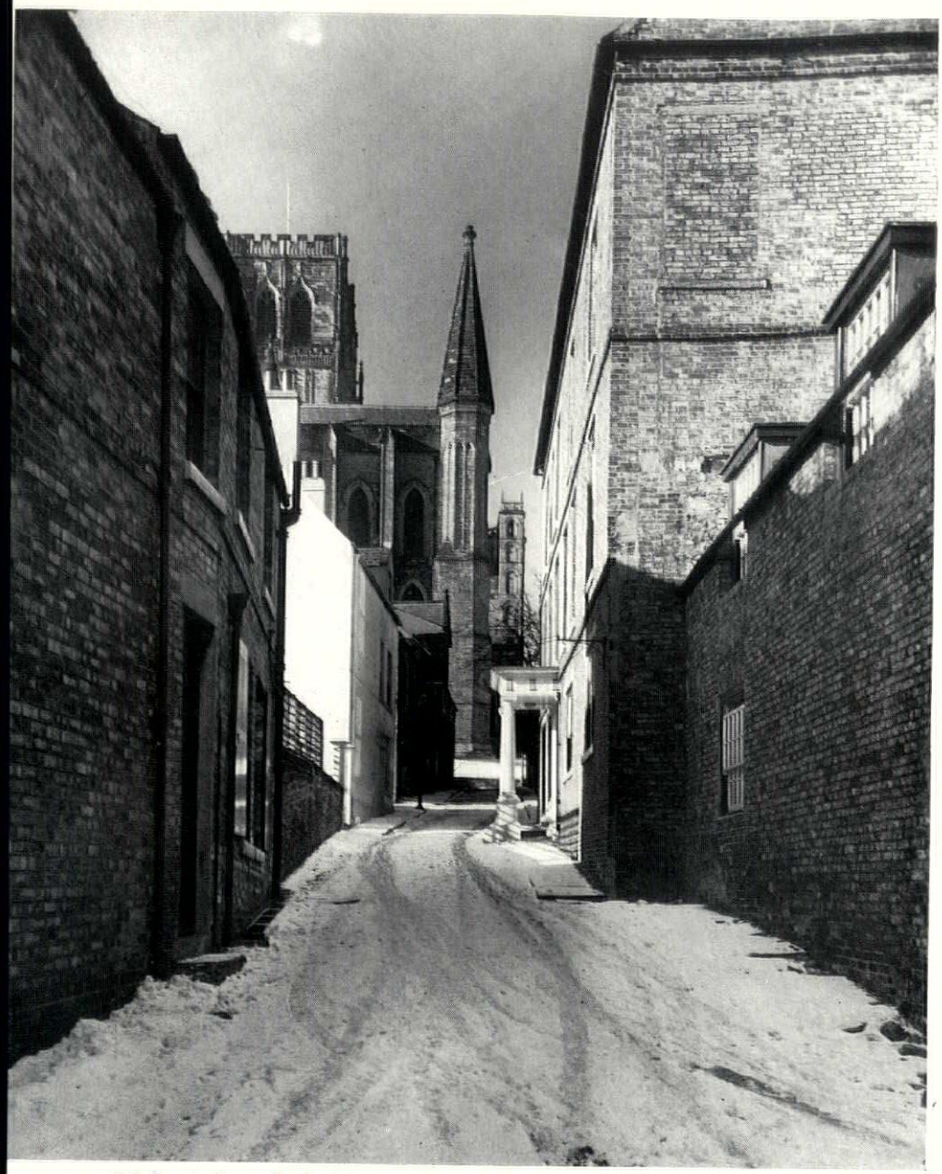


Although Durham is in danger the danger is not spectacular—no one wants to pull down the cathedral: but, perhaps, for that reason, it is all the greater. When an immense power station was proposed at Kepier, only a mile from the centre of the city, the effect it would have on the life and appearance of Durham was obvious—at least to the handful of people who eventually defeated it: an astonishing modern variation on the David and Goliath theme. The present threat has few of these dramatic possibilities: it is less obvious, less known and less talked about; and yet for all that, it is essentially even more penetrating and aims even more directly at the heart of the great creation that Durham is.

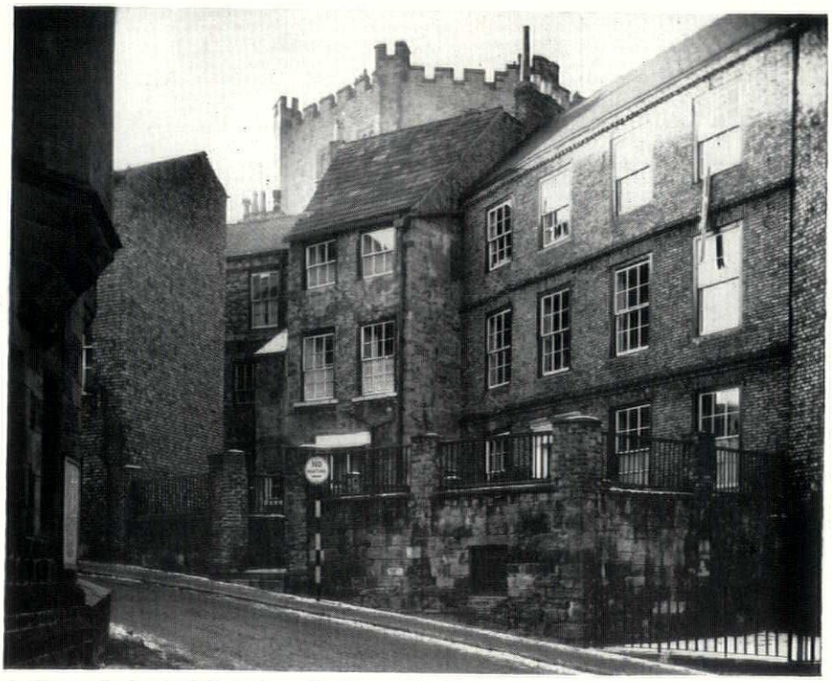
The threat comes from the university, which already owns and occupies most of the buildings on the Rock on which the cathedral stands. The intention now is to demolish a whole group of these, eighteenth- and nineteenth-century domestic buildings, none more than 200 yards from the cathedral and some that are almost its nearest neighbours, and to replace them with largish blocks of college buildings. The result will be to alter permanently and disastrously the setting of the cathedral, and its physical and spiritual relationship with its dependent city and county.

Durham is one of the great experiences of Europe: an experience that begins with the tremendous display of cathedral and castle that one sees from almost any direction as one approaches the city, continues through the sense of majesty given by the great buildings crowning the closely built streets of the medieval town, and culminates in the near perfection of their setting on the Rock itself.

[*continued on page* 403

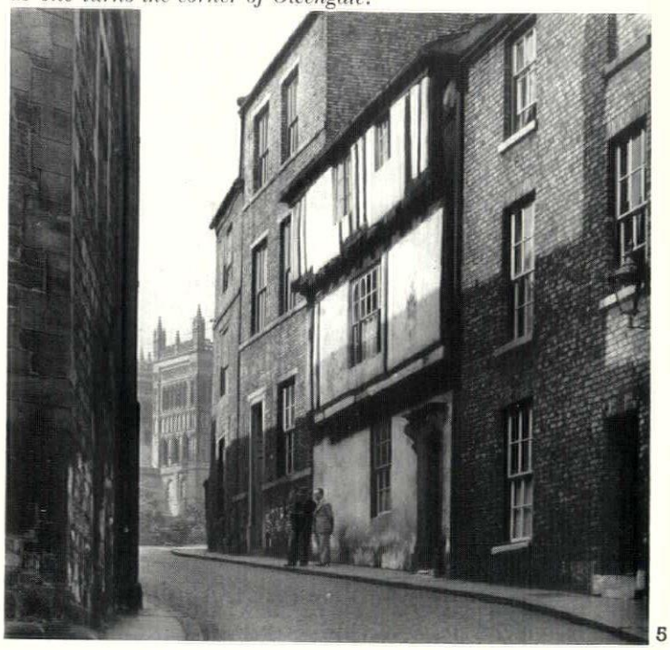


3 (*above*), *the cathedral from within the city: looking up Bow Lane to the east end.*



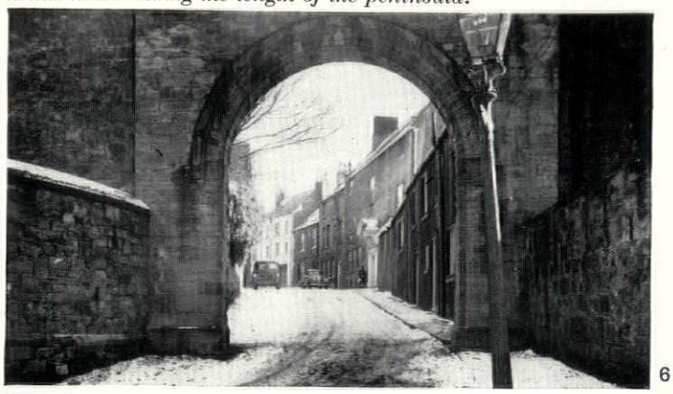
4, *the castle keep rising above the houses in Owengate.*

5 (*below*), *the western towers of the cathedral suddenly revealed as one turns the corner of Owengate.*



5

Below and overleaf (6-14), *the sequence of views disclosed as one moves along South and North Bailey, Durham's best street, which curves along the length of the peninsula.*



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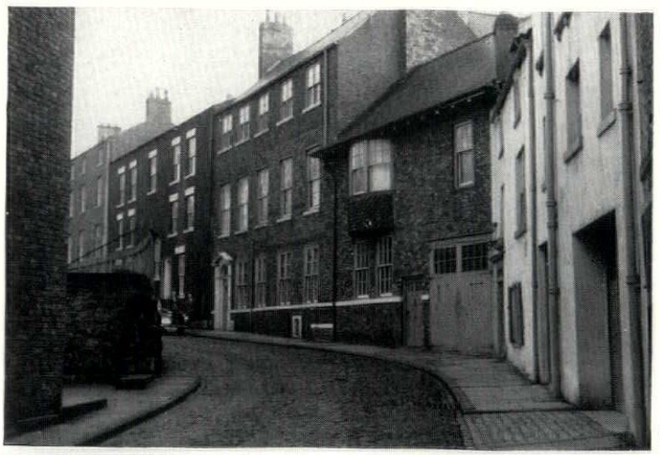

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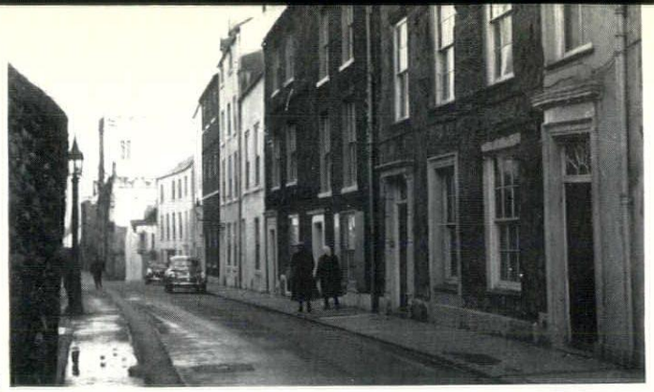

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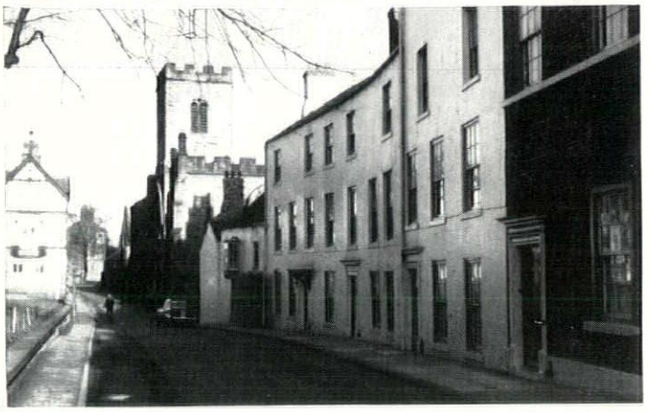

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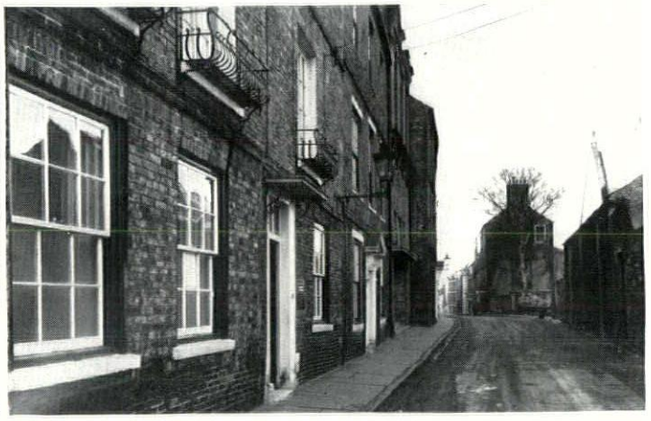

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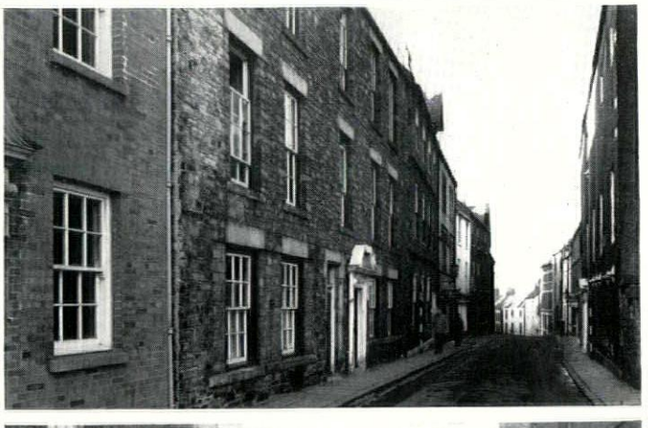

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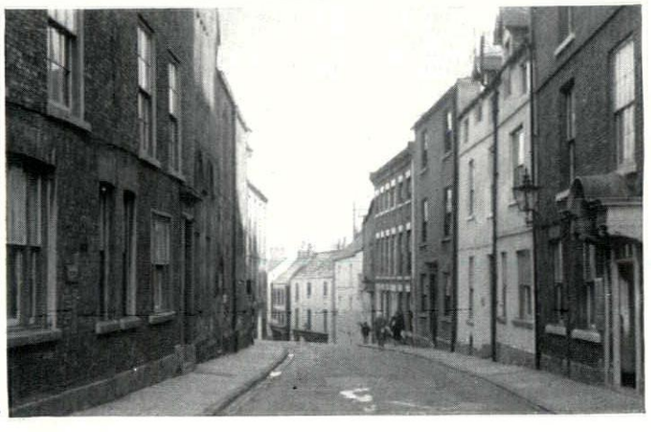
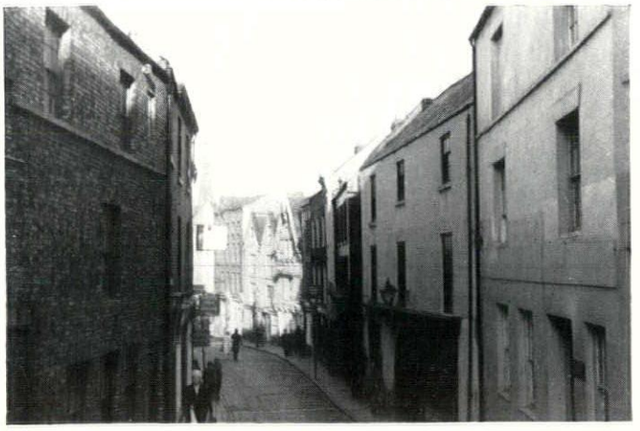


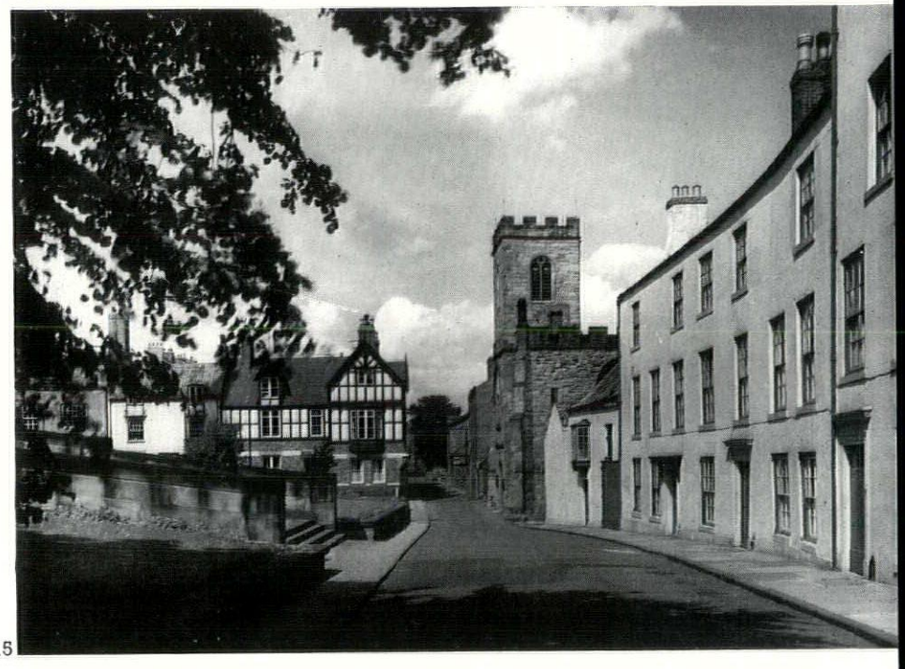
13

9-13 (*left*) *and* 14 (*below*)*: continuing the sequence of views obtained while moving along the Bailey. Whatever the variation in size of the houses, the scale, both in mass and detail, is always right. This is vernacular street architecture at its best.*



14

15, *at the top of the Bailey: the little open space, of great value in the townscape, at the east end of the cathedral.*



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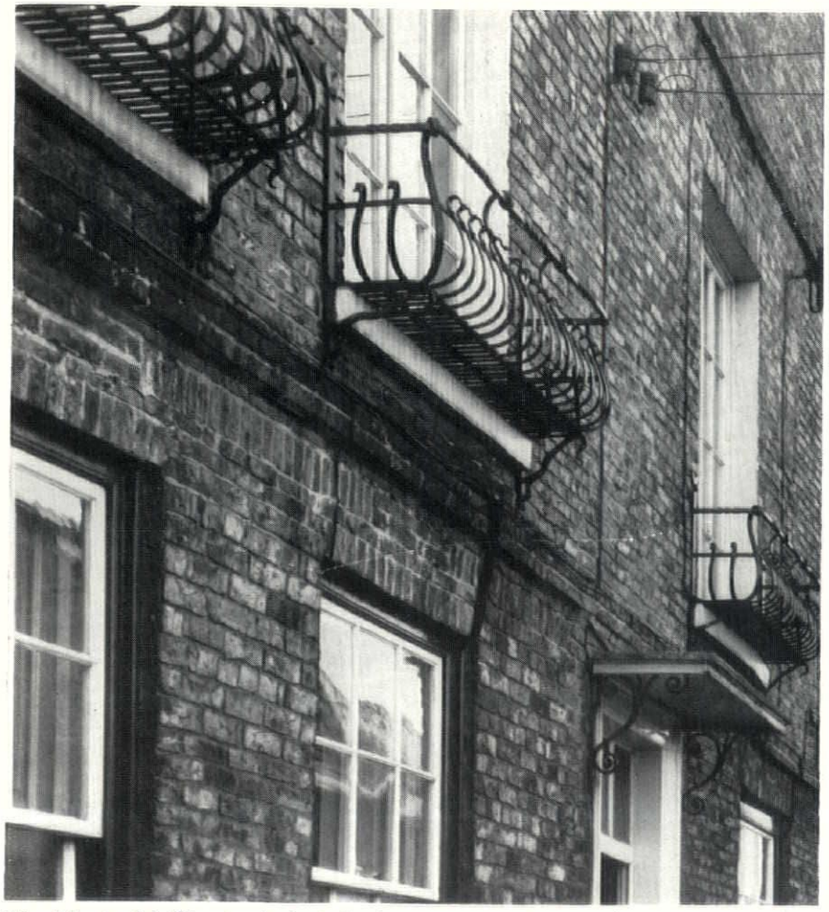
16, *St. Mary-le-Bow and North Bailey seen from Dun Cow Lane.*



16



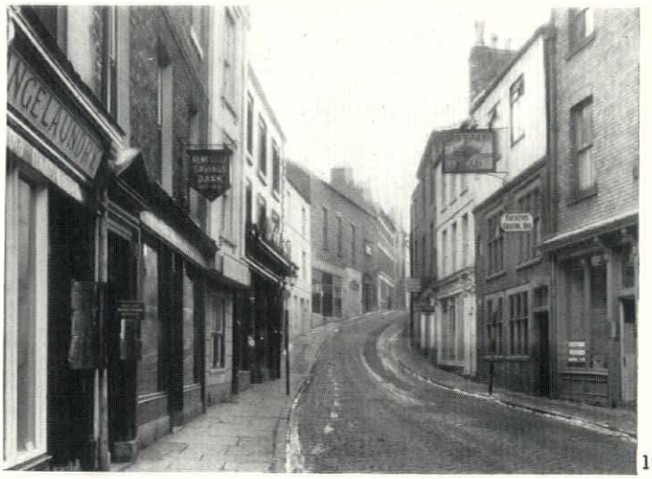
17, *close-up showing the high quality domestic architecture of North Bailey.*



18, *delicate detailing typical of Durham's eighteenth-century houses.*

DURHAM: A PROGRESS UP THE ROCK

below and overleaf (19-23)*: another sequence showing the views disclosed as one moves from Saddler Street to Palace Green.* 19, *Saddler Street looking south.* 20, *North Bailey from the corner of Owengate.* 21, *Owengate looking south-west.* 22, *the sudden appearance of the cathedral from Owengate.*



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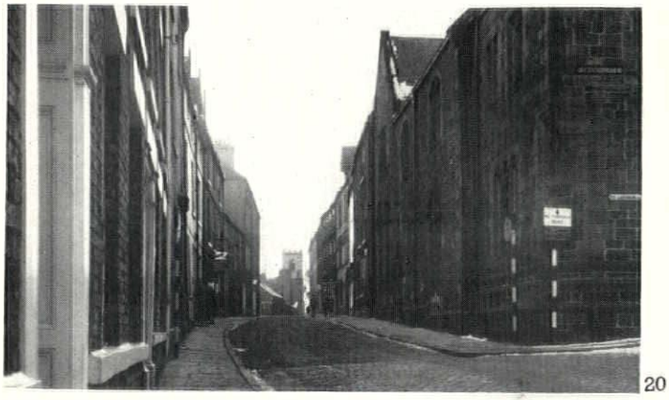

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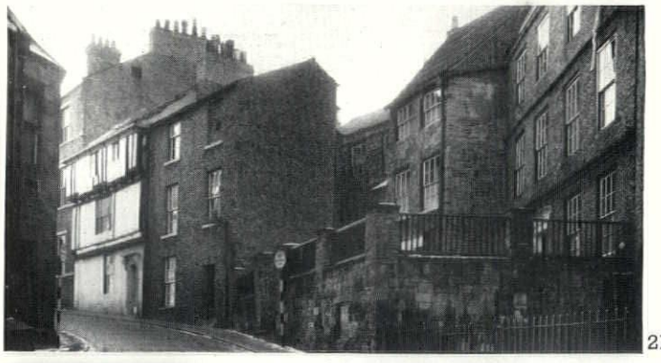

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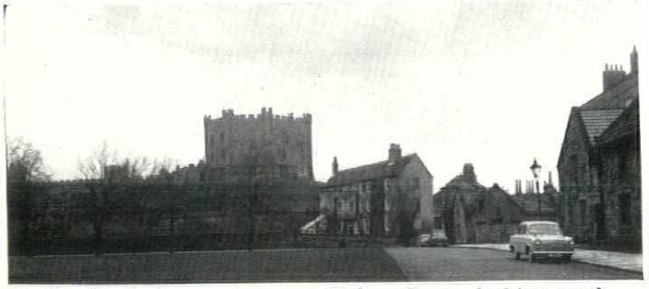
22



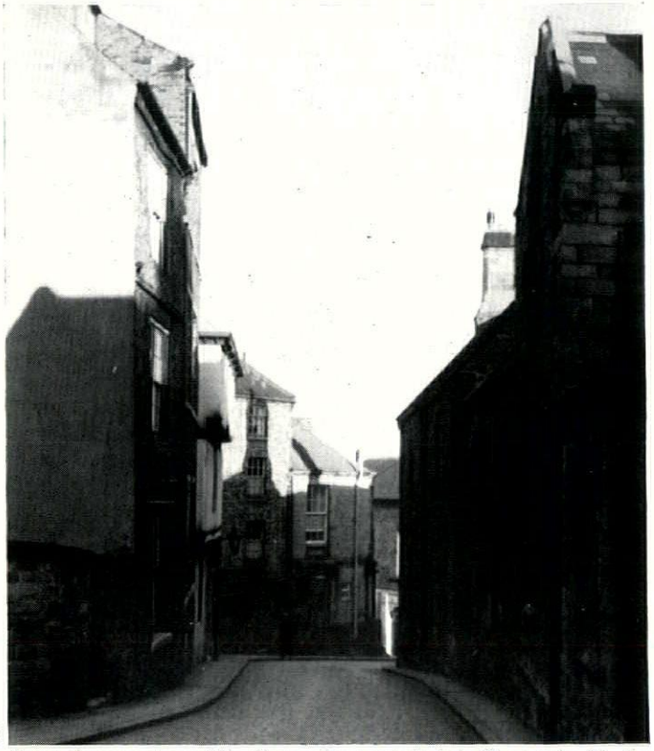
23, *the final episode in the sequence of views (see previous page) obtained while climbing up to Palace Green: the explosion of space at the top, with the cathedral seen across the Green.*



24, *the Castle keep seen across Palace Green, looking north.*



25

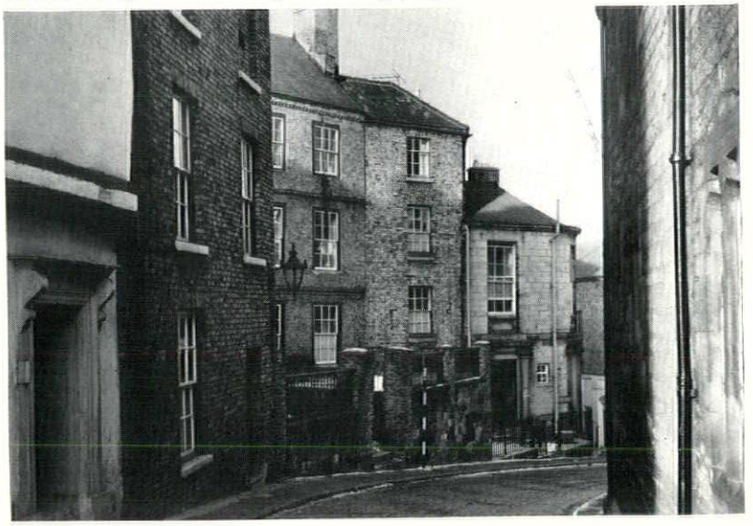


26

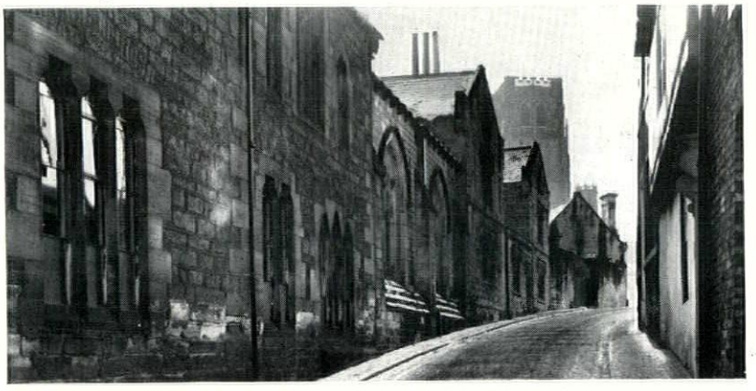
from the openness of the Green down again into Oxengate: 25, *the corner of the Green;* 26, *Oxengate looking north-east.*



27, *Dun Cow Lane from North Bailey. These are among the houses threatened by the University's building project.*



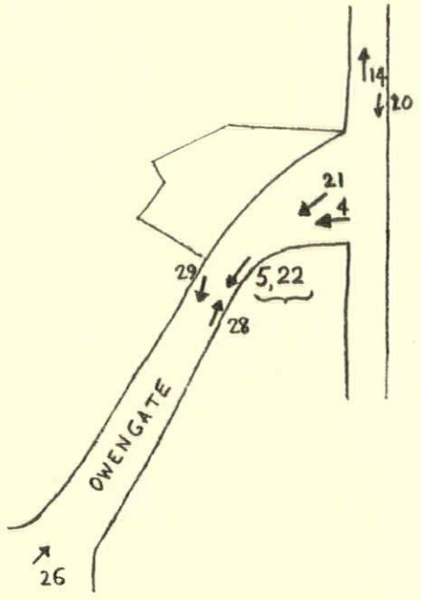
28, *Oxengate, in its informality the perfect foil to a monumental building.*



29, *the remarkable restraint of the Victorian buildings in Oxengate.*



30, *houses in North Bailey that now form part of St. Chad's College.*



Sketch plan of Owengate. The numbers correspond to photographs on the preceding pages.

continued from page 398]

The Rock is a narrow pear-shaped peninsula, almost surrounded by a horseshoe bend of the River Wear, 2. Its banks are precipitous and deeply wooded, but on the top is an almost flat plateau, and here stand the castle, the cathedral and monastery, the cathedral's domestic buildings, and all along the east side, the long curving street of houses, colleges and churches, marking the limit of the outer castle bailey and now called the North and South Bailey.

Even from a great distance the scale of the cathedral and castle makes a direct and unforgettable impact. Closer views reveal all the dramatic possibilities of the site: from the west the cathedral seems to rise sheer out of the forest; from the south-east, 1, it rides magnificently above a line of gabled backs, whose irregular seemliness makes a wonderful foil, informal and modest, to the great architectural force of the cathedral. Any larger or more formal building in the foreground, and the scene would be entirely ruined. Among the streets of the old city the sudden appearance of castle or cathedral above or among the small-scale vernacular is even more dramatic and exciting, revealing thrilling contrasts of scale which in no way disrupt the intimate harmony of the union, 3. And to look at a street like Owengate under the great mass of the castle keep, 4, or suddenly revealing the towers of the cathedral, 5, is to realize that these streets succeed so perfectly in their function as a foil precisely because they do not make pretensions to architecture themselves, leaving all the display and grandeur to the greater buildings and thus making the experience of them in their setting all the more impressive and telling. These streets seem to have just happened; but in the event no conscious design could improve on their unaffected simplicity.

The Bailey, the long narrow curving street running the length of the peninsula, is the best street in Durham and one of the best of its kind in England. Approaching from the south-west across Prebends' Bridge, where one is apparently in the depths of the country, one meets the street announcing itself directly with the plain eighteenth-century Water Gate, 6, immediately curving away to the north in a thoroughly urban way, 7. Then for the whole length of the peninsula there is virtually nothing to jar: always the scale, both in mass and in detail, is exactly right: the larger buildings do not overpower, nor the smaller ones seem trivial. It is the English vernacular street par excellence, where the designs of individual houses, varied though they are, are kept subservient to the needs of the street as a whole and the more important things that it serves.

Half-way along the character suddenly changes, 9: the narrowness of the street gives way to a sense of space, while with wonderful, if possibly unconscious, tact the three- and four-storey level drops to two, the drop in height beautifully showing off the little church of St. Mary-le-Bow, 10, and coinciding with the east end of the cathedral itself. This little open space, 15, is immensely important, and so is the design of the houses around it. Their quiet restraint not only allows the church to have a certain dignity of its own, 16, but is the perfect foil to the great Gothic display of the Nine Altars, giving an effect of grace which would be totally ruined by the intrusion of any large building. Only the incongruous Tudorism at the corner of Dun Cow Lane sets something of a jarring note: here a simpler building would certainly be an improvement, but even so, the scale is right and a great deal could be done simply by painting out the applied woodwork.

The northern part of the street has been to some extent spoiled by the gap in front of Hatfield College on the east side, though the retention of the high wall on the frontage still gives a valuable containment to the street. It remains a remarkable collection of eighteenth-century domestic architecture, 17, finished with the characteristically delicate detailing of Durham, 18—a group whose loss would be most serious. Finally, the street drops down into Saddler Street, 13, 14, and with a more bustling pattern of styles ushers in the business of the commercial city, a transition at once straightforward, simple and natural.

To walk along the Bailey is to experience directly the harmony which comes in a street of individually built houses, provided only that each has the benefit of a sense of tact in its designer, a sense of its place in relation to the whole. But much more astonishing is the approach to the cathedral from the north. Saddler Street, the only public road on to the peninsula, climbs steeply, 19, and then divides, 20. The narrow little street to the right is Owengate, still steep but now curving mysteriously. At first the view is completely closed, 21, but then the curve turns the other way, giving a sudden glimpse of the western towers of the cathedral, 22. Still the view is confined until, at the top of the rise, there is an explosion of space into the great flat expanse of Palace Green, with the whole length of the cathedral now displayed, 23. For all the variation in style and height of the buildings, the effect is anything but casual. Note, for example, how the tall house beyond the half-timbered one needs its height to act as a firm 'hold' to the view of the towers. The narrow curve of the gateway street is the perfect lead-in to the glorious architecture on Palace Green. The effect is both subtle and profound, a sense that all

the buildings belong together in a most intimate union, an effect of civilization and order achieved not imposed. It depends entirely on the relation of buildings to spaces and of different kinds of space to one another. (These relations remain important as one moves in the opposite direction from the openness of the Green, 24, down into Owengate, 25, 26.)

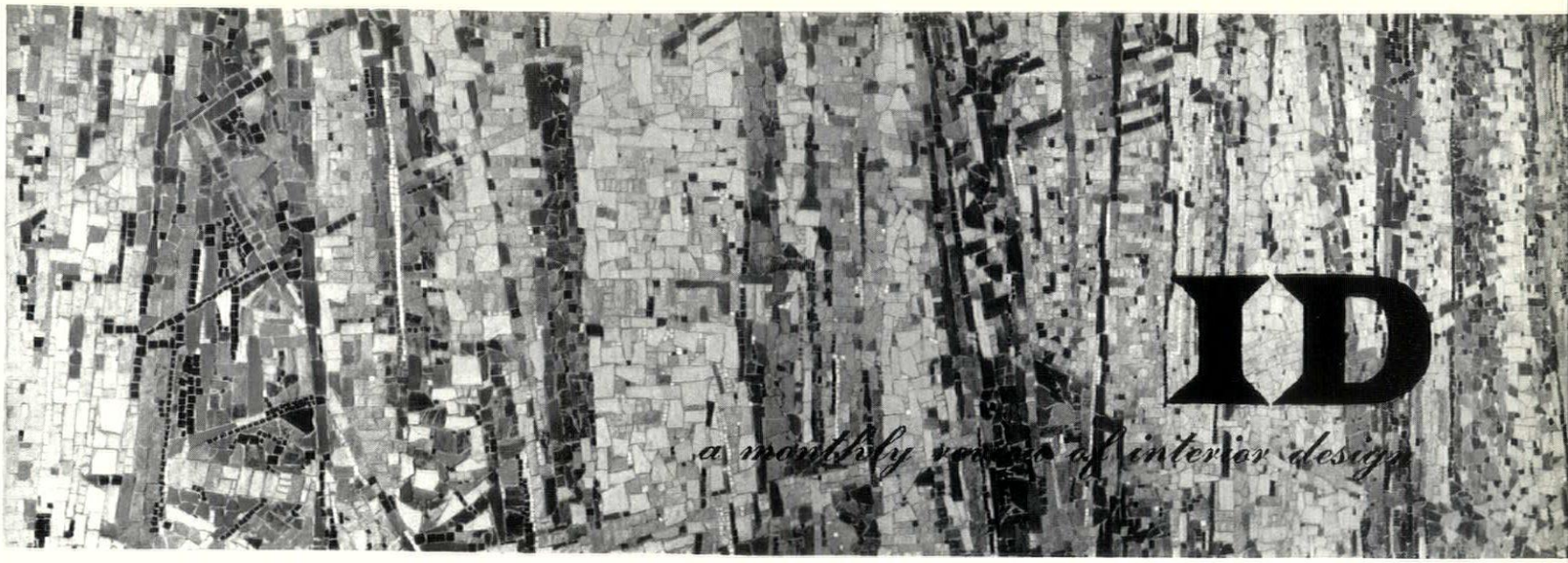
This is the heart of Durham as it is now, and there is no more exciting or moving piece of town design anywhere in the country. It is against this that the university's intentions must be judged. The proposal is to demolish the north-west side of Owengate (perhaps leaving the somewhat uncharacteristic half-timbered house), and to replace it with new buildings containing sets of students' rooms. Later the whole of the west side of North Bailey, as far south as the Cathedral, and including the vitally important Dun Cow Lane, 27, is also to go and the site to be redeveloped in a similar way.

The result will be to wreck for good the subtle relation between the great formal buildings and the informal houses in the streets that lead to them and act as their foil and grounding. For any new buildings on this scale will be bound to create a new *formal* element in the scene; and so the dramatic impact of cathedral and castle will be tragically lessened. It is a real, and an essential, merit of these small buildings that their architectural qualities are humble and restrained ones. In no way do they compete; they prepare. Owengate as it is in its almost jumbly state, 28, is the kind of perfect foil which no large building could possibly be. In fact the arrival of more *architecture* on the Rock would be as fatal as the arrival of more fake architecture (of which there are one or two examples already). No architect could honestly, genuinely, produce the harmony of contrast which exists already: the motley that Durham has is the most astonishing stroke of good fortune and of the tact of earlier builders: it cannot be planned for.*

Moreover, though the Rock has been the centre of the university for over a hundred years and must naturally remain so, there is very little room there for any further expansion: the bulk of new buildings *must* go outside it, simply because the peninsula is so small and so largely taken up with the cathedral, the castle and other colleges there already. Obviously the university wants as little dispersal as possible; but some is inevitable, a fact which has been recognized in the building of the St. Mary's College, Grey College and the new science departments south of the river. Since the amount of space that can be made by the present proposals is so limited, and the amount of harm which will result so great, surely it is best to let well alone. Distances in Durham are in any case very small; and there are sites along the new inner city road and elsewhere which urgently need to be redeveloped and could suitably become college quarters where there is plenty of space to house new buildings without cramping.

Nevertheless, there seems no reason why the existing houses on the Rock shouldn't themselves be *adapted* as rooms for a limited number of students. A very few might well be replaced, such as the architecturally weird concert hall in North Bailey and the gloomy, if remarkably restrained, Victorian-board-school-Gothic offices at the bottom of Owengate, 29, though even this has a humility which it would be difficult to recapture in a new building. For the rest they surely can and ought to be restored (if they are in bad condition the fault lies with the university, which has owned them for years); conversion should not be an impossible task, and it is certainly one which should be put in hand rather than the university's present proposals. The example is only a few yards away, for in the North Bailey itself, some similarly threatened houses have been and are now being turned into college rooms. They are the excellent row opposite the east end of the cathedral, 30, which have, without too much difficulty, become an integral part of St. Chad's College, which, while a part of the university, is in some respects autonomous. Perhaps even more to the point are the restorations recently completed in Magdalene Street, Cambridge, by David Roberts (see AR, June 1959). Here internal courts were cleared of clutter and made into common gardens (as could suitably be done behind the houses in North Bailey), and another fine row of vernacular buildings converted into very attractive students' rooms. This is the proper answer for the Durham houses as well.

*Except conceivably by commissioning a different architect to design each separate small unit, a procedure which would no doubt hardly commend itself to the university, and would, as the contriving of something 'uncontrived', be only too liable to result in a bogus romanticism.



1

Wallpaper and Fabric Showrooms, London, W.1

architects: *Slater and Uren* (*assistant, and interior co-ordinator*: *Geoffrey Holroyd*).
interior designers: *Beverley Pick Associates.*

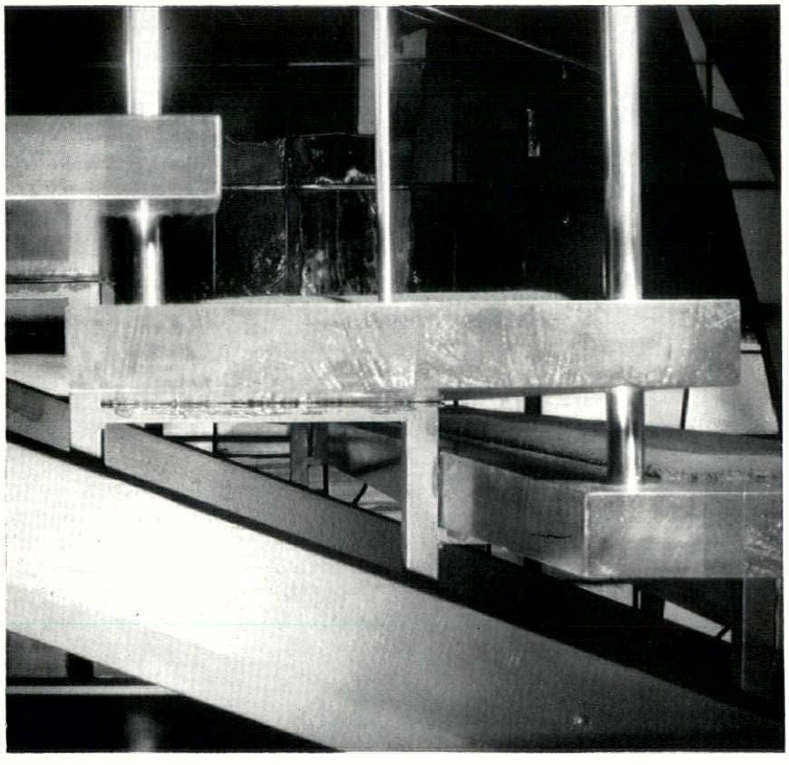


2

The Sanderson Building in Berners Street, W.1, which is further described and illustrated on pp. 420-421, is primarily devoted to the sale and display of wallpapers and furnishing fabrics. Architects and interior designers alike had, therefore, to envisage a building in which numerous strongly patterned surfaces (the samples of the products on display) would compete with one another, and with the architecture of the structure itself. One solution might have been to create a design whose architectural elements were strong enough to master this competition (a very tough assignment), another might have been the creation of an architectural background of complete neutrality. The final solution tends toward the latter decision, with the important proviso that the visitor coming into the building is prepared for the visual richness within by some powerfully decorated surfaces in the entrance area, and is saved from being overwhelmed when he is inside the display areas by vertical and other spatial penetrations on a scale unique in recent British commercial architecture.
1, a close-up section of the glass and marble mosaic by Jupp Dernbach Mayen on the wall which wraps round from the central court into the outer lobby of the main entrance (see page 421) and flanks the entering visitor with a zone of visual sparkle.
2, view from the stairs of the second-floor display area, down towards the entrance stair-well with the garden court beyond the far windows (the



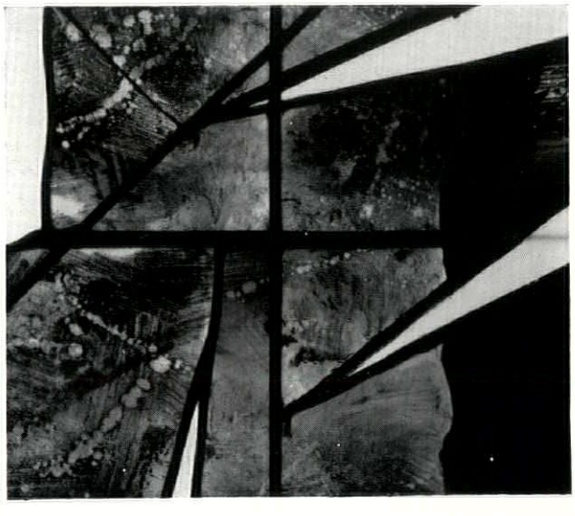
3



4

sculptures in the pool may just be distinguished to the right). This view gives some idea of the scale of the staggered, two-stage vertical penetration from entrance-space to display-space, and the size of John Piper's stained glass 'window'.

3, a general view of the stained glass window behind the entrance stair, executed to John Piper's design by



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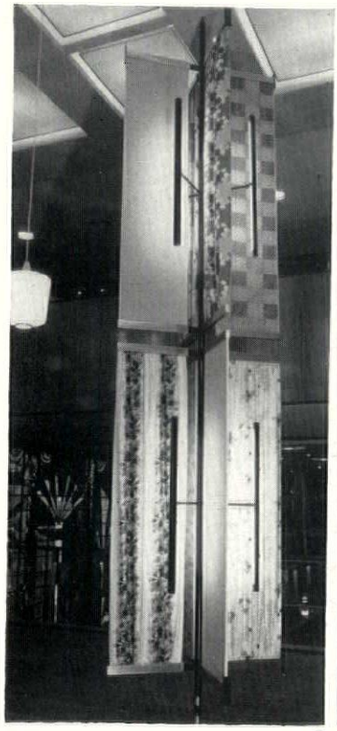


6

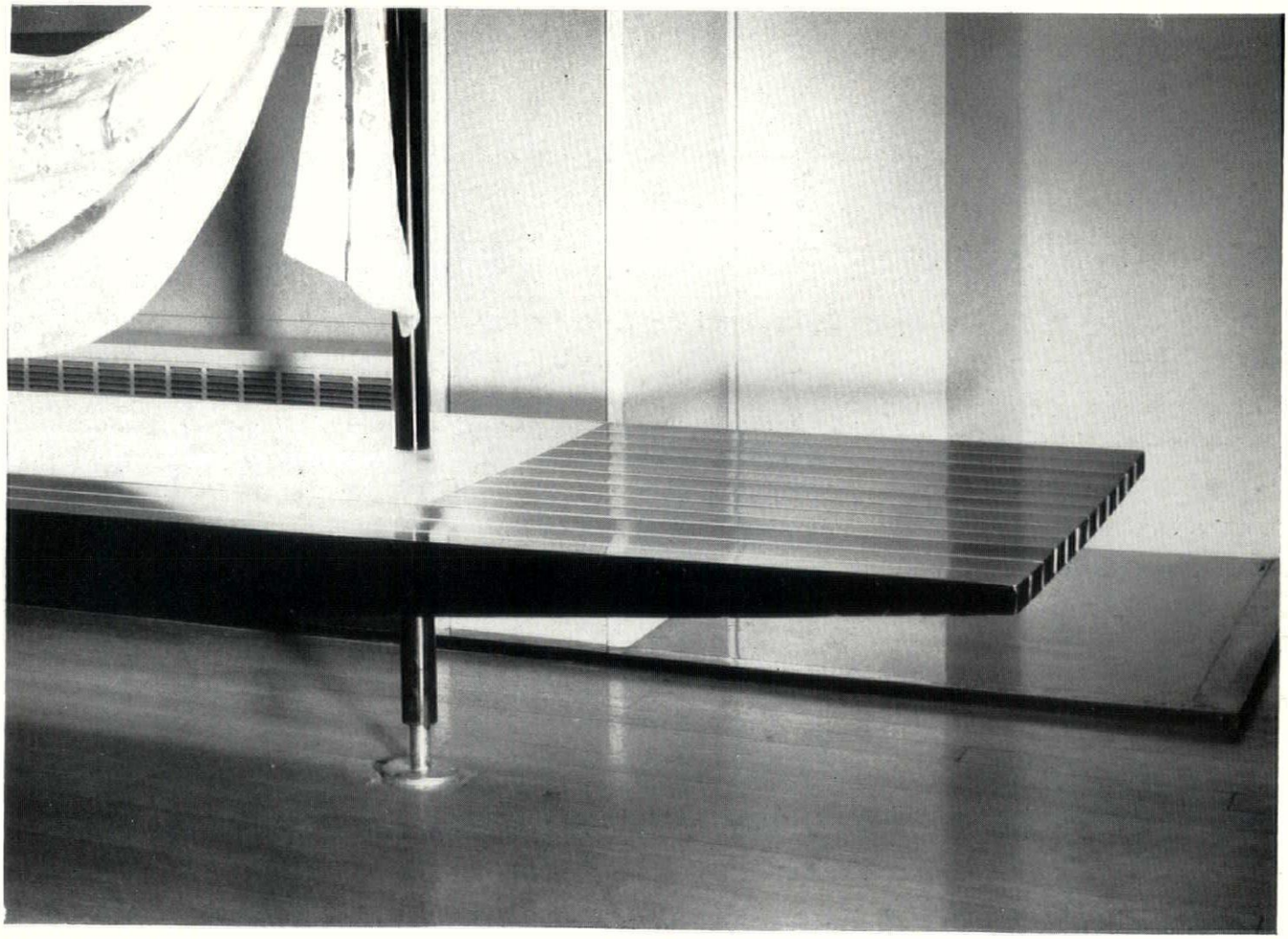


7



8

Patrick Reyntiens—a detail giving a sample of the different qualities of transparency is seen in 5.
4, the intricate fabricated sub-structure of the main staircase—as will be seen, the hardwood treads are sufficiently highly polished on all sides for their lower faces to reflect the Cardinal Red of the stair carpet.
6, screens for displaying wallpaper and fabrics in the first-floor, two-storey display area.
7, alternative method of display used in areas with normal ceiling-heights.
8, display frame for showing draped fabrics against panels of wallpaper.
9, a detail of this frame, showing its 'floor' of hardwood slats, part-covered with grey plastic, black satin-



9



10

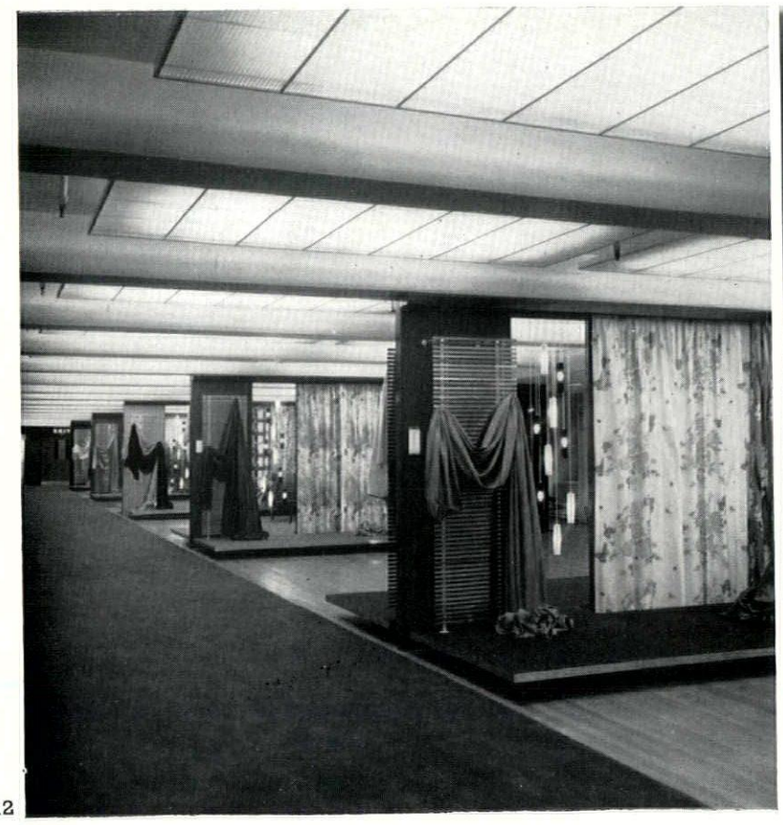
finish tubular uprights and brass feet. Three of these stands are used in the second-floor display area, carry their own spot-lighting and can be moved if necessary.

10, sliding screens on overhead runners, for displaying wallpapers with large-scale patterns that cannot be appreciated in the normal sized sample—the two abstract designs seen here are by Le Corbusier.

11, 12, general views of display and reception areas on upper floors, showing overall illumination of general display areas, and more varied lighting in special areas.

13, double-height display area, with high-level bridge, in that part of the building which spans across behind the garden court (visible in the background of illustration 9, p. 421).

14, view into the entrance hall from the outer lobby. Although the glass

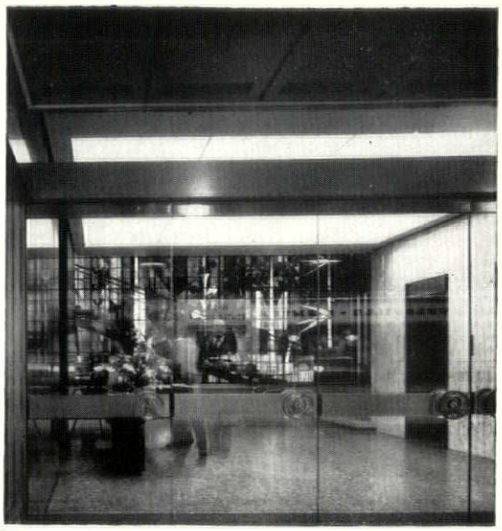




11,12



13

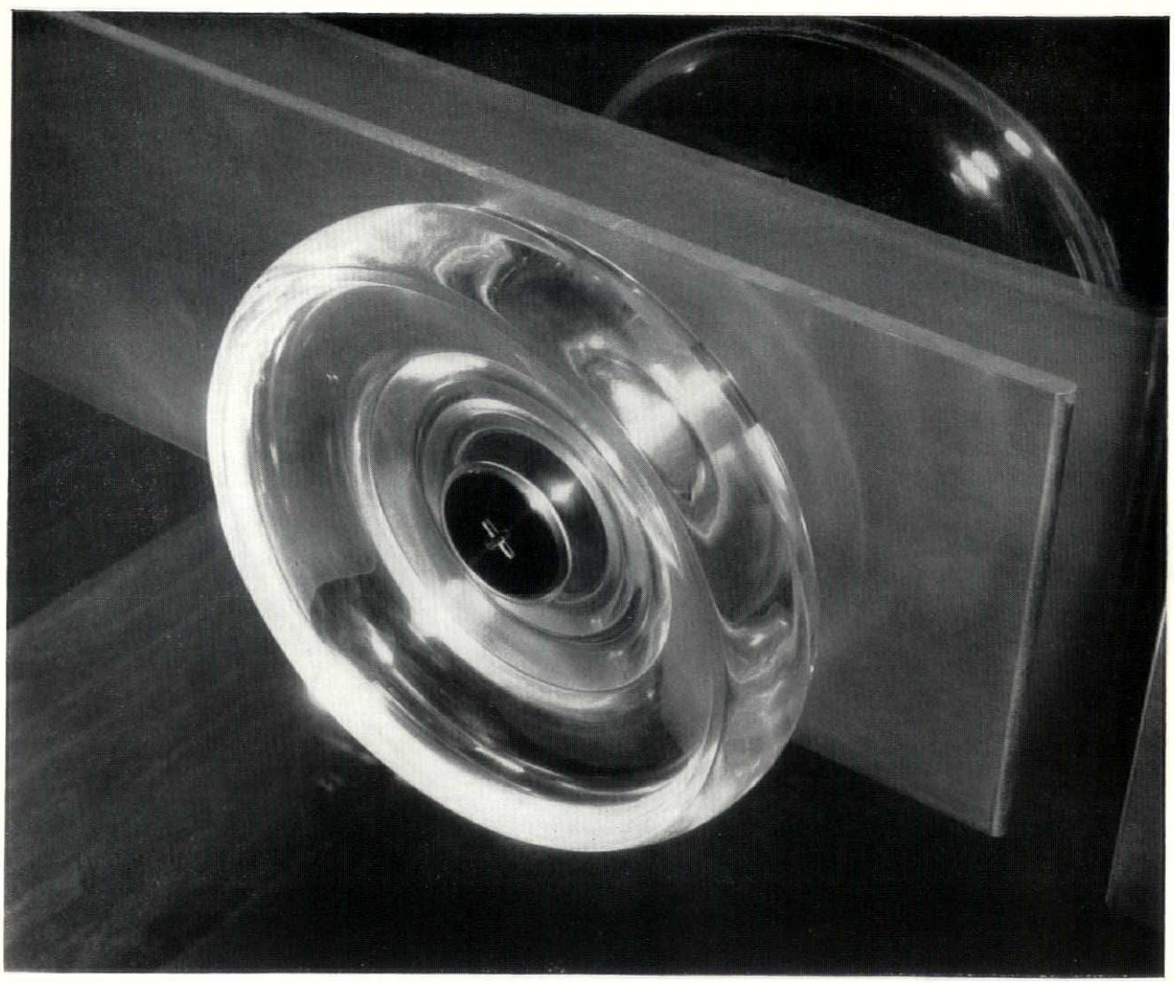


14

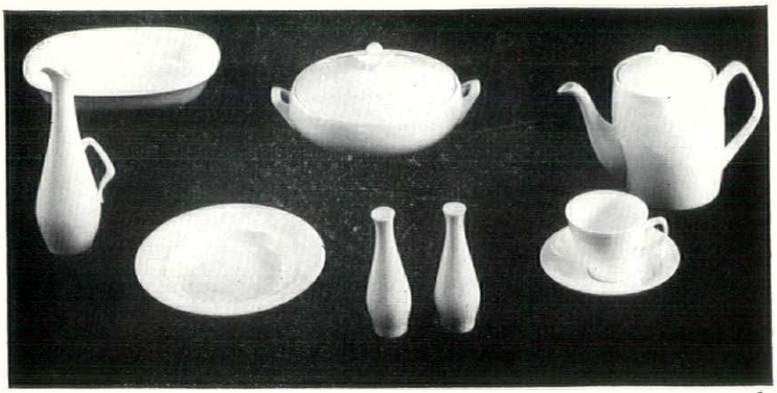
panel above the doors makes the two spaces visually continuous, the outer lobby is physically separate from the interior and acts as an airlock to prevent the dissipation of too much interior heat.

15, turned clear plastic doorknob on the main entrance doors—a wooden version of the same shape is used on staff entrances, etc., elsewhere in the building.

Showrooms in London, W.1



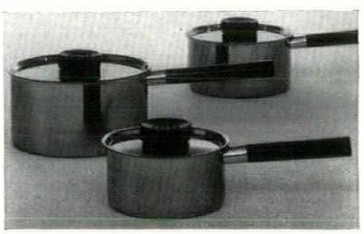
15



1

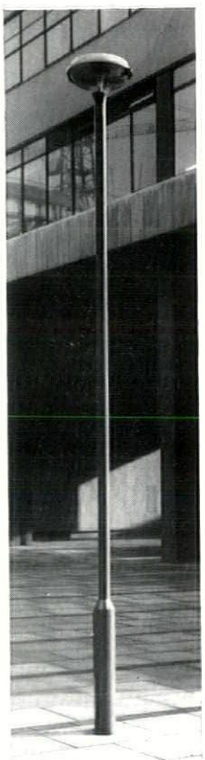
design centre awards 1960

Now that it is apparently possible to waive the letter of the ruling that only objects exhibited at the Design Centre are eligible, this year's Design Centre Awards give a clearer picture than ever of the preoccupations of the guardians of British taste. As ever, the emphasis is on domesticity—the Duke of Edinburgh's Elegance award went to a



2

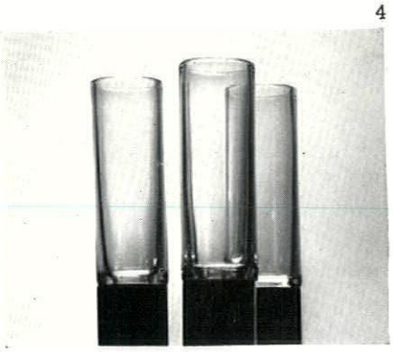
set of Spode tableware, 1 (only part of the range is shown here), designed by Neal French and David White; in addition there were the usual plates, dishes and mugs in ceramic and plastic, and a set of saucepans by Judge, 2, designed by DRU, which were praised for their freedom from 'inappropriate styling,' but need the knobs on the lids have been quite so pseudo-industrially massive? (The American magazine Industrial Design has also queried these knobs.)



3

3, even more indicative of preoccupations of the day was the selection of an Atlas lamp-standard, designer, Richard Stevens, for an award and a warm commendation—the same standard will be found in the article that begins opposite, and no more need be said here on the subject.

4 and **5,** trend spotters may like to reflect on the juxtaposition made here by inverting a triplet light-fitting (Atlas again, and also designed by Richard Stevens) with a set of glass vases designed by R. Stennet-Wilson for General Electric, all in thickish tinted glass (though the lamp-shades are also available in clear). Both appear to reflect an extremely slow penetration of English design by Scandinavian influence, at a time when most trend-spotters would have said the Scandinavian design was losing ground.



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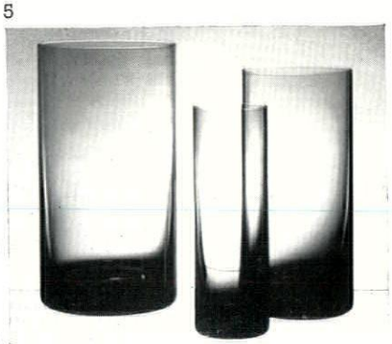

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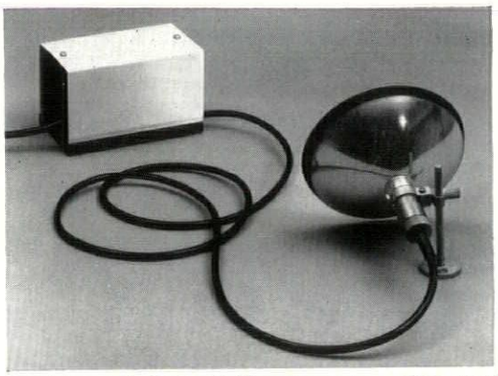


6

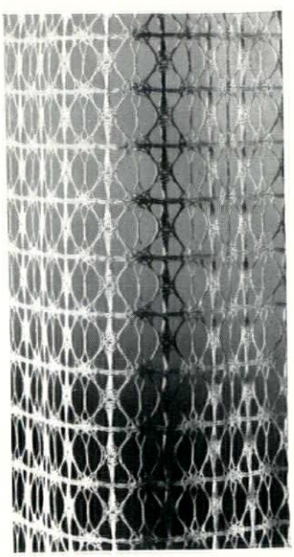
6, Atlas and Richard Stevens completed their hat-trick with a low-voltage display lamp that seems completely out of step (the transformer case possibly excepted) with the rest of the commended designs, but if this means that something like German Integrations-form (the Ulm style) is on its way in, the trend can be welcomed.



7

7, Brian Henderson's Formation Furniture (Bath Cabinet Makers) which appeared in Design Review for November, 1959, tempted the Awards Panel to do some trend-spotting of their own, and they announced that it will be 'as acceptable in an office in ten years' time as it is now.' It may well be so.

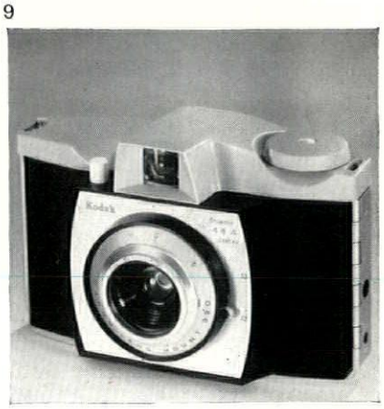
8, fabrics, floor and wall coverings, as usual, took a large number of the awards (seven in all) but only this 'Vision Net' (Clyde Manufacturing Co.—a second award to the same manufacturer for a similar material) designed by F. G. Hobden, has a sufficiently marked character to stand out from the others and deserve special mention.



8

9, finally, this Brownie 44A camera (Kodak; Kenneth Grange, consultant) raises some of the embarrassments about æsthetics-versus-function that were stirred up by last year's awards. The Awards Panel praise this instrument, justifiably, for its looks, and ease of handling, but say nothing about the prime functional consideration in a camera—its photographic performance. Although this particular version of the Brownie was not included in the Consumers' Association survey of cheap cameras (Which, *May*, 1959) the earlier members of the Brownie range tested then were unimpressive performers. If the 44A were remarkably better in optical performance, the point would have been worth mentioning, because this would have been an unusually good camera for its price range; if it is not appreciably better, then it seems difficult to justify its award.

9



Derek Barton

NEW LAMPS IN OLD STREETS

CHELSEA'S 15-FT. 'SPECTRES' AND THE PROBLEMS THEY ILLUSTRATE

The lamp-post in the residential street is perhaps the object that brings the problems of industrial design most closely home to the ordinary man. Many boroughs, for one reason or another—most of them good—are at present engaged in replacing old lamp-posts with new, and far too often the result is an affront to the eye; it is also an affront in another sense to those who have to live with the new lamp-posts because they are seldom informed or consulted about them.

The author of the article below, in discussing this problem, draws attention to the bad relations that can ensue between residents on the one hand and officials and councillors on the other when new lamp-posts of poor design are simply imposed on a locality. He takes as an example the borough of Chelsea, where the process of replacing the lamp-posts in the residential side-streets is now going forward, with unfortunate results visually owing to the poor design chosen, to the widespread discontent of residents—and indeed of many others, witness recent questions about Chelsea's lamp-posts in Parliament, where the new ones were described as 'spectres.'

What is being done to Chelsea is of more than parochial interest, not only because it aptly illustrates a general threat to good design, but because the residential side-streets of Chelsea have a unity and charm that is a national loss if they suffer damage. The damage to these Chelsea streets is the more bewildering and to be regretted because the borough council have already relighted the main streets with new lamp-posts which—if not ideal—are of a far better standard of design than those now being installed in the side-streets.

Street lighting is a subject which has often of recent years, especially in cities and most of all in London, produced almost as much heat as light. Its provision is a local government function paid for out of the rates, vested in the Highways Committee on the technical advice of the borough engineer, who may have as much as half his salary paid by the Ministry of Transport in respect of his road duties. But the loan sanction for a lighting scheme is granted by the Ministry of Housing and Local Government, and as the Town and Country Planning Development Order, 1950, exempted lamp-posts from planning control along with other street furniture, there is obviously plenty of room for trouble, especially in boroughs where the engineer and surveyor likes things his own way.

Most of the controversies in London have so far been centred on the lighting of the 'A' (that is, the main) traffic routes. Here the most vocal party is the driver of car, bus or lorry, who reasonably dislikes the abrupt changes from orange to blue, yellow or white lighting which he may have to adjust himself to in the course of a short drive. He is more concerned with the quality and angle of the lights than the appearance of the lamps and standards. But now many London boroughs have re-equipped their 'A' roads and are turning their attention to the 'B' roads or residential side-streets. Here the unhappy choices of some councils have focused residents' attention for the first time on what street furniture looks like, and there is already plenty of evidence that borough councils in general have barely woken up to the nature of the problem that faces them.

Let us first sympathize with a con-

scientious metropolitan borough council about to fulfil its statutory duty of relighting its 'B' streets according to modern standards: any large lighting scheme is a long, arduous and expensive business. The council will almost certainly have to select (or commission) designs in keeping with every variant and mixture of architecture from the most florid six-storey Victorian to the plainest two-storey eighteenth and twentieth century terraces. The police want the side-streets brightly lit for the easier detection of burglary and brothels. Commercial interests plump for 'an air of brightness and commercial well-being' in central London, to quote from the draft practice notes of the Metropolitan Boroughs Joint Standing Committee (standardization of street lighting). The British Standards Institution recommend, in para. 302 of their code of practice for lighting 'B' roads, a mounting height of 15 feet; this makes it less likely for lamps to be damaged by high removal vans and fire engines, but it also ensures that without proper screening they will glare intolerably into the first-floor bedrooms of houses in narrow streets. However, the recommendation also allows tolerances of plus one and minus two—the latter only to be used when special circumstances render a 15-foot mounting height impracticable. Ratepayers on the other hand, when not in their cars, often prefer their side-streets discreetly, romantically lit by old-fashioned gas-lamps which enhance the charm and thus the value of their property.

Finally, the council will be confronted by the alternatives of gas and electricity, of tungsten, sodium, fluorescent or mercury vapour, and by a large choice of commercial street lamp designs in concrete, steel and aluminium, some of them on the approved COID list and some not, and with a price range of under £30 a piece to over £100. And they will (or should) know that most designs and equipment are liable to be improved or superseded while the scheme is being carried through.

There are, therefore, three main considerations of cost, efficiency and aesthetics which, of course, interact on each other. Unless the rates go up spectacularly or the lamps don't give light, the council will probably get by on the first two without much difficulty. It is on the 'amenity issue' that the trouble arises, as many of us are already aware from reading our daily papers. Residents not only pay the rates and elect the councillors, they have to live with their street lamps, and in many London streets at very close quarters, too; so it is only to be expected that they will have some interest in what the lamps look like. On the other hand, a council has a duty to light the streets, and if lamps are not being bought off the peg (they almost always are, unless the council is courageous enough to convert some of the old ones) the borough engineer, if (as is usually the case) there is no borough architect, will have to produce a design, or a designer from outside will have to be commissioned, and what happens if people in the borough take a strong dislike to the design?[1] It is one of those delicately balanced situations between governors and governed which abound in British democracy.

Fairly obviously, there are two politically possible ways of approach here for a borough council. They can say: 'We are the council; we have a statutory duty to perform; these are the lamps which, for excellent reasons, we are putting up . . .' and let their ratepayers lump it. If they sit tight, resolutely sticking together and weathering any storms (hoping no doubt their electors have short memories) they will probably get away with a *fait accompli*. The other, more democratic, way is to give the citizens some say in the type and design of lighting most appropriate to their borough. The Marylebone Borough Council, for instance, went to the length of putting up three different types of lamp outside the Town Hall and inviting citizens to ballot for their choice (as it turned out, the preference was for the most expensive); they have also gone to great trouble in converting old lamps in back streets. The Westminster City Council put up no fewer than seven different 'B' road lamps which could be seen lighting Abbey Orchard Street off Victoria Street, although these were put up primarily for councillors to look at and by the time the public was aware of their presence the choice (not a very happy one) had been made. After protests in Blackheath, Greenwich Borough Council announced publicly that concrete lamp-posts in certain streets would be taken down again and replaced by a design approved by the residents, who must, however, bear the extra cost (*Daily Telegraph* of December 8, 1959). There are, therefore, some borough councils which no one can accuse of not taking into account the ratepayers' views.

On the other hand there are many whose policy seems to be quite the opposite, and in order to show what tends to occur in such boroughs and the frustrations which the citizens are made to suffer, the following detailed account is given of recent happenings in Chelsea, a borough at present engaged in relighting the whole of its 'B' streets. Chelsea Borough Council has chosen its new lamp-posts with an absolute minimum of publicity and has then gone half-heartedly and disingenuously through some of the motions of giving the citizens a chance to criticize without, it would seem, the least intention of allowing criticisms to bear any fruit. The trouble this sort of thing has given Chelsea Borough Council should be an object lesson to other councils, though, of course, of all the Metropolitan Boroughs, Chelsea is the one they should be able to look to for a lead on matters of aesthetics and amenity.

Chelsea, it must be noted in passing, is a borough in which one party has almost immemorially had complete control of the council. When, after the war, the spirit of the times being what they were, the vestiges of an opposition made themselves felt (a notoriously bad housing record needed looking at), the council's Standing Orders were revised, as has been done by other councils, with the not surprising result that the minority found it almost impossible to be effective. This is very noticeable at council meetings, which are virtually proceedings for rubber-stamping decisions reached in secret by committees. Standing Orders have been used to rule out of order any discussion in full council of the residents' dissatisfaction over the new lighting scheme. Chelsea also has a borough engineer who, judging by the tone and style of his correspondence, is of the authoritarian variety. In such a council as this (the LCC is the classic example, of course) it is virtually impossible for the ordinary citizen to get any matter of public interest raised in full council. Councillors who are appealed to pass complaints to the appropriate committee; as far as the residents are concerned the rest is silence.

Around August Bank Holiday last year citizens of Chelsea, who have a good many late Georgian and early Victorian side-streets to be proud of, were surprised and in general pained to see going up in the streets near the Embankment new street lamps like those shown in 1. These, made by GEC, are hexagonal post-top lanterns glazed with white morocco (translucent) glass—four figured panels and two ribbed panels—containing two 40-watt 'warm white' fluorescent tubes, mounted on GEC tapered octagonal steel columns. These are painted with a gloss aluminium finish, and they cost, as the council has publicly admitted, £75 to £80 per lamp,though from another council statement they may cost as much as £90. The estimated cost of relighting with these lamps the 'B' roads in a borough with just over 50,000 residents is £153,000.[2]

A lot of people took an immediate and

[*Continued on page 415*

[1] We hear for instance that in Clerkenwell public opinion was so strongly against the council's choice that the new lamps were taken down again, and the old ones put back and converted to electricity.

[2] The Chelsea Council's original estimate in November 1956 for the whole scheme of relighting 'A' and 'B' roads was £216,000, and the scheme has been described by a spokesman for the contractors as 'one of the largest street lighting contracts ever placed in this country.'





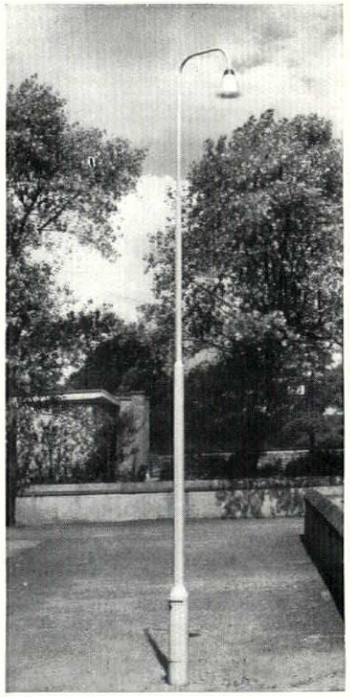


3

1, *the much-criticized new pattern of lamp-post now being erected by the borough council in the residential side-streets of Chelsea. Rigid insistence on a height of* 15 *ft.—a considerable increase over the old gas-lamps—means that the light shines direct into bedroom windows. The council will not commit itself to screening the back panels.* 2, *the lamp-post used for the 'pilot scheme' in Chelsea Manor Street—not a street that allowed clear judgment of the effect of the new lighting in Chelsea's smaller-scale Georgian streets.* 3, *the old and the new: the Victorian gas-lamps that are being replaced by the taller lamps in the background.*

When new lamp-posts are criticized it is often suggested that no better designs are available on the market. In the case of Chelsea's lamps this is certainly not so. Although improvement is still needed there are now some reasonably good designs available and some of these are shown below and on the next page as a reminder. These are all of the standard 15 ft. height, but if councils would lower the height where the architectural scale requires it, as suggested in the accompanying article, manufacturers would no doubt meet the demand.

A, in steel (made by Abacus Engineering designed by D. R. Mellor). B, in prestressed concrete (made by Anglian Building Products: designed by them in collaboration with Kenneth Boyd).

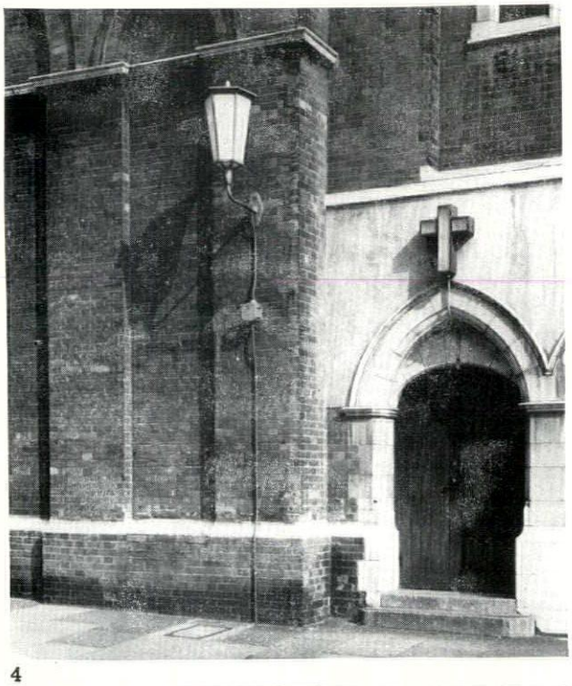


A



B

4, the bracket lamp in the Chelsea borough council's 'pilot scheme.' The untidy wiring and switch-box would be even more offensive on the small house front than on this building on which the design was tried out. 5, wall bracket as erected in Shawfield Street: the standard lantern mounted on a crude telescopic bracket. 6, another Chelsea bracket lamp, again with a crude attachment to the wall supplemented by wire stays.



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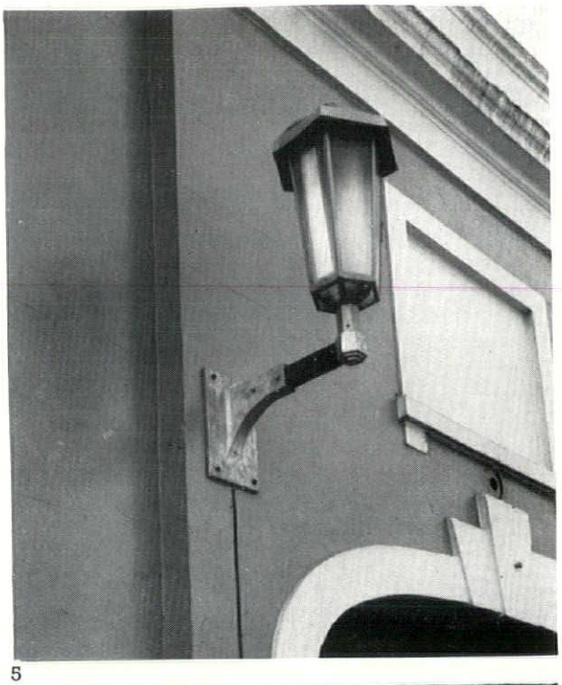

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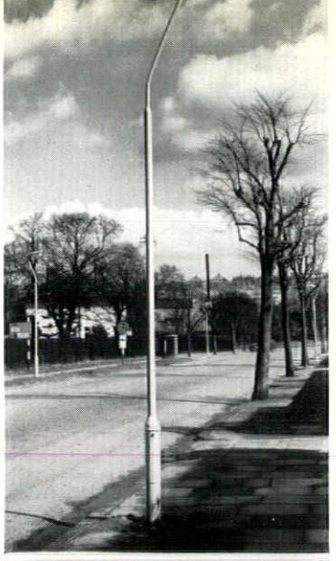
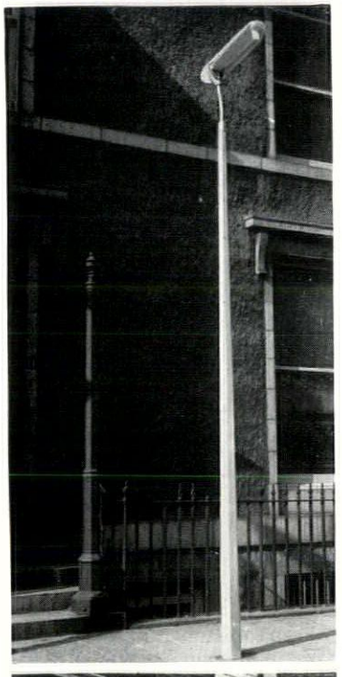
6



C



D



E

Three more well-designed 15 ft. lamp-posts. C, in steel—a fluorescent version of A (made by Abacus Engineering: designed by D. R. Mellor). D, in aluminium (made by Metal Developments: designed by Edward Langston). E, in steel (made by Abacus Engineering: designed by Richard Stevens).

Continued from page 412]
strong dislike to the new street lamps and wrote to the council and to the papers saying so. In fact the protests have gone on continuously ever since. To their surprise, they were blandly informed by councillors and officials that their protests were late in the day. They had had ample time to criticize the design of the new street lamps: two years according to some councillors, one year according to letters over the Town Clerk's signature. They were told that a 'pilot scheme' of twenty-one new lamps, including some on wall-brackets, had been put up in Chelsea Manor Street 'to test the opinion of residents,' and the 'pilot scheme' had been fully publicized; 'after thoroughly investigating the various types of equipment available the type now selected was considered the most suitable both from an aesthetic and a practical point of view.' And anyone who thought the lamps were awful for Chelsea's streets had had all the time in the world to say so.

This might seem on the face of it to be a tolerable example of democracy in action, even if the council's notion of 'full publicity' turns out to be recording their decisions in the Minutes (available to ratepayers at the public library or for a subscription of 30s. a year) which information was reproduced in the West London Press, an excellent local paper with a circulation of about 5,000. But anyone who did take the trouble to go to Chelsea Manor Street (a wide street running oddly enough beside the Town Hall—one of the reasons the council chose it—and consisting of a hotchpotch of modern buildings, flats, bank, cinema, public baths, vehicle repair-shops, London Electricity Board) to look for himself could not help being struck by one obvious fact: the 'pilot scheme' lamps, 2, are quite different from the lamps now going up in the borough's side-streets. True they are of the hexagonal post-top variety, but the design is in every way lighter and less coarse in detail, and they aren't topped by what the Minister of Works has called in public 'replicas of dustbins.' The 'pilot scheme' lamps consist of Revo lanterns, on Lucerna tapered tube aluminium columns, with white opal glass giving a diffused, less glaring light from the fluorescent tubes. Although this glazing is more expensive, the overall cost per lamp is understood to be not more than £50 complete.

Petitions were handed in from several streets, a vast number of letters and telephone calls poured into the Town Hall, and eventually in October an attempt was made to justify the scheme in a Works and Highways Report to the full council.[3] Among other odd assertions, this replacement of one manufacturer's lamp by another's at roughly double the price is airily described in the report as 'slight modifications.' The council show no sign of realizing that to invite ratepayers to give an opinion of a lamp that is not in fact being used, and then to put up another type on which they don't invite any opinion, is somewhat disingenuous. It may be connected with the fact that the Council Minutes show that the design of the 'pilot scheme' lamps was submitted to the Royal Fine Art Commission (at the Commission's suggestion) and the Chelsea Society for comment, and both of them were very uncomplimentary about it. It is interesting, too, that the earlier Minutes describe the purpose of the 'pilot scheme' as 'to ascertain the effect of the equipment' without anything about 'testing the opinion of residents.' To anyone checking back, this can hardly fail to give the impression of an afterthought resulting from the large number of protests.[4]

Compared with the actual design of the standard lamps now being put up in Chelsea, for which so far no designer has been named and which do not appear in the current GEC catalogue, this bit of council double-talk may seem insignificant. But to the ratepayers who have looked into the business a bit more closely a certain pattern begins to emerge. In these small residential streets the mounting height of the new lamps is a sore point, because as well as being higher than the old gas lamps the glare from vertical fluorescent tubes is thrown sideways full into first-floor bedroom windows and not down on to the pavement.

Vigilant residents looked up the BSI Code of Practice and, on enquiring at the Town Hall about this, had letters over the signature of the Town Clerk (and even of the Mayor) stating that the 15-foot mounting height 'is a Ministry of Transport *regulation*,' and a council spokesman repeated this in a statement to the local paper. The borough engineer in a letter to a resident's solicitor flatly contradicted his committee chairman by saying he does not propose to screen any lights, only to be contradicted again by a letter over the Town Clerk's signature which takes refuge behind 'after the lamp has been put into lighting and an opportunity afforded to judge its effect' (what was the 'pilot scheme' supposed to be for?) 'the question of screening will be considered.' Recently the committee decided to 'postpone any action (on requests for screening) for a period of six months when they anticipate the scheme will be complete. Then there are the two councillors who wrote to residents implying that the Royal Fine Art Commission approved the design of the 'pilot scheme' when in fact they severely criticized it; the official version sent out from the Town Hall in answer to all those who wrote says 'The Royal Fine Art Commission were consulted as to the scheme for the main roads and the side-streets and their views were taken into consideration' and can some of them be blamed for interpreting this as approval?

All these are small points, but to the ordinary resident (and a very large number have protested in every way they can think of) they seem to add up to either intentional or unintentional misrepresentation of the lighting scheme to the ratepayers who are footing this substantial bill (the loan won't be paid off till 1974) as well as suggesting a standard of council accuracy more worthy of some backwoods rural district than a Metropolitan Borough.

This dismal business is given a touch of farce by the council's design for a wall-bracket lamp for the mews and narrower side-streets of Chelsea.[5] The idea of brackets is sensible, for economy, for traffic safety and for preserving the character of small streets. But the bracket lamp proposed—one was put up in Godfrey Street 'experimentally' after some persuasive personal visits by the borough engineer in quest of the necessary wayleaves—was simply the lantern of the standard lamps ponderously planted on a lumbering steel bracket which, as someone observed, might have looked all right on a very large battleship. This picturesque equipment, which was blessed by a Royal Academician, was revealed after some probing to have been thought up by someone in the borough engineer's office (some very good designers live in Chelsea). A deputation from Godfrey Street Residents' Association was told this, when they went to voice the general dislike in the street of the bracket design and to ask for a better one. They were told too, that the brackets had already been ordered (though even here the committee and the officers contradicted each other on details, in writing).

Apart from being clumsy and incongruous in a narrow street of basically two-storey late Georgian terrace houses, the design was obviously too heavy for houses fronted with brick that in some cases hasn't been touched since the 1820's, when the street was built. The only concession offered was to shorten the arm of the bracket by a foot from about 2 ft. 6 in.

[3] This report of the Committee claimed that the 'pilot scheme,' which had been strongly criticized by both the Royal Fine Art Commission and the Chelsea Society, had incurred no adverse criticism. It also stated that the 'pilot scheme' was 'put into operation in the Autumn of 1957' [*sic*] when the Council Minutes show that it was not completed until August 1958. Perhaps a trifling error (not a misprint) but this *is* after all a report to a borough council and it *does* imply that the citizens have had two years to brood on the design of the lamps alleged to have been chosen for them, and not one. All these points have been put to the council but so far none of them has been corrected.

[4] It is fair to add that in recent weeks the lamp-posts in Flood Street, Chelsea, have been experimentally painted in various colours, and the public have been asked (by means of notices attached to the posts) to send their opinions on the colours to the town-hall. So in this case residents *are* being consulted. Time will show whether good or ill results.

[5] AR, February 1960, p.81.

to bring the lantern nearer to the wall—a concession more apparent than real as the bracket, 5, is telescopic and one which went nowhere in dealing with the simple objection that the whole thing was out of keeping and out of proportion.

So now the council has put up standards in this hitherto charming street, one of the show streets of Chelsea, where they are monstrously out of scale as in similar streets in other parts of the borough.

Apart from this inappropriate wall bracket and an apparently improvised version for corner sites put up at the junction of Lawrence Street and Upper Cheyne Row, 6 (an ingenious borough engineer's special this one), Chelsea's council seems to have left out of their calculations any idea of accommodating their lighting scheme to the special character of the small side-streets which comprise at least one quarter of the borough. 'As a matter of policy' they have refused to consider any variant of the 15-foot standards with their glaring fluorescent light which, as many people have already remarked, are so much more successful at floodlighting the fronts of the houses than illuminating the roadway; traffic in these streets at night is almost entirely residential just because they are so narrow. They have scouted all suggestions of converting the existing elegant 12-foot gas lamps, 3, to electricity for the small streets, mainly on the grounds that they are all corroded at the base, though there is no evidence that they have followed the example of other London boroughs and tried to salvage enough of the gas lamps for the 40 or 50 streets concerned and convert them to electricity so as to preserve the character of the parts of Chelsea people come from all over the world to see. (It is interesting to note, however, that gas bracket lamps on the Cremorne Estate have been converted to electricity, if only experimentally.) Residents have even been told that conversion, which it has been established can be done for about £6 per lamp, would be more expensive than new lamps at £80 or so! It is not difficult to deduce a reason other than pure regimentalism for this inflexibility. The council have published the information in their Minutes that next year the borough engineer's department proposes to take over the maintenance of the street lighting from the London Electricity Board, and the fewer the types of lamp, the cheaper and less skilled the staff needed to look after them, with less visible impact on the rates (the gas lighting would now be running at an estimated annual £34,000, whereas at rates obtaining in November, 1956, the annual estimated cost of the new electric lighting is £38,000. But, says the council, in 1974, when the loan is paid off, this will be reduced by £18,000 a year—ratepayers naturally hope that the value of the £ won't go down too much by then).

Anyone reading the evidence offered by the Chelsea Borough Council representatives to the Royal Commission on Local Government in Greater London can hardly help being struck by the readiness of this small borough (which might, under any radical reorganization of metropolitan boroughs, be absorbed into Fulham, Kensington and Westminster) to take on any and every local government function—planning, education, health, and, of course, street lighting maintenance. The rigid, inappropriate and pretty expensive relighting scheme which is being forced on the ratepayers can then be seen as a prestige move in Chelsea's fight for autonomy. However much one may applaud the motive, one can only deplore the methods. Some people may even feel that if the presentation of the lighting scheme is typical of the local government they are going to get, being part of Fulham or Westminster might have its points.

The moral of all this is that as long as provision of street lighting is considered primarily as a road engineering matter, English towns and boroughs will continue to be defaced by inappropriate street lamps in the name of efficiency and 'cheerfulness' by councillors without the aesthetic judgment to stand up to the advice of technicians. As the Ministry of Housing and Local Government has acknowledged responsibility for advising local authorities on the preservation of buildings and on urban tree planting, it should also assume responsibility for trying to guide them on aesthetics of street furniture, especially lighting. The present Minister of Transport has been a Parliamentary Secretary to a Minister of Housing, and when he has some respite from his traffic preoccupations he might well be sympathetic to such a proposal.



1

current architecture

recent buildings of interest briefly illustrated

1, the hostel from Princes Gardens.
2, close up, with the entrance hall and staircase and glazed lift tower on the left. On the right are the assembly hall and conference room on the ground floor and study-bedrooms on the upper floors.



2

STUDENTS' HOSTEL, PRINCES GARDENS, LONDON, S.W.7

ARCHITECTS: RICHARD SHEPPARD, ROBSON AND PARTNERS

Weeks Hall is the first hostel to be built in Princes Gardens as part of the residential precinct for the students of the Imperial College of Science and Technology. It is designed as a separate building but will be linked with future developments through the glass-fronted staircase and lift tower.

The ground floor contains the common and dining rooms, assembly hall, conference room and offices. In

Students' Hostel, London, S.W.7

3, 4, *inside a typical study-bedroom.*
5, *the assembly and conference room on the ground floor, with the dining room beyond.*



3



4



ground floor plan



upper floor plan

the basement are the heating plant, housekeeper's room and four study-bedrooms. The other study-bedrooms are grouped in sets of eight on each of the first to eighth floors, each set sharing a kitchen, bath, shower and two w.c.'s. On the ninth floor is the warden's flat.

The structure is basically three reinforced concrete cross walls supporting precast prestressed floors, which gives complete freedom from columns and projecting beams. External cladding is precast concrete units faced with Cornish granite and Norwegian quartz. The reinforced concrete structure is exposed at ground floor and penthouse levels, where Cornish Lee Moor sand was used in the mix to give better weathering properties.

The horizontal cill units also form the 3 ft. high back-up walls to meet the fire regulations. These units sit on the edge of the structural floor slab and the vertical units are notched into them above and below. There are no bronze cramps as in traditional cladding fixing. The units are profiled so that they restrain each other and bronze bolts or dowels key them into the structure. The in-situ concrete flank walls have projecting nibs at floor levels on which the L-shaped horizontal units sit. The vertical units in turn rest on these and are prevented from falling outwards by the horizontal units on the floor above.

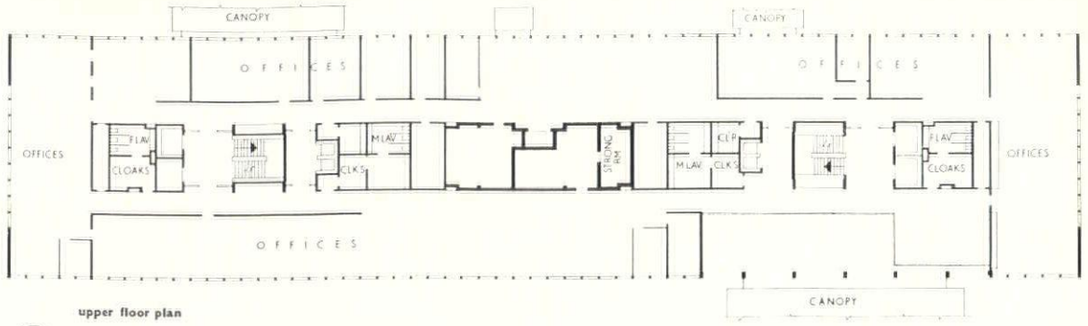
The elliptical secondary stairs were precast in flights and bolted direct to the floor slabs. The study-bedroom windows are Burma teak untreated externally and oiled internally. All other windows are metal, painted dark blue-grey. Internally, the structural walls and columns are smooth concrete. Ground floor brick-work is fair faced, flush pointed and painted gloss white. Woodwork is polished beech. The study-bedrooms are plastered and painted white, but occasionally a colour is used on one wall. Each room has a built-in wardrobe and cupboard unit made of polished beech. A precast terrazzo window seat is fitted with a heater below it which blows warm air up through slots in the back. The lift is in a steel cage fixed in the main staircase well and glazed with polished wired plate glass.

5

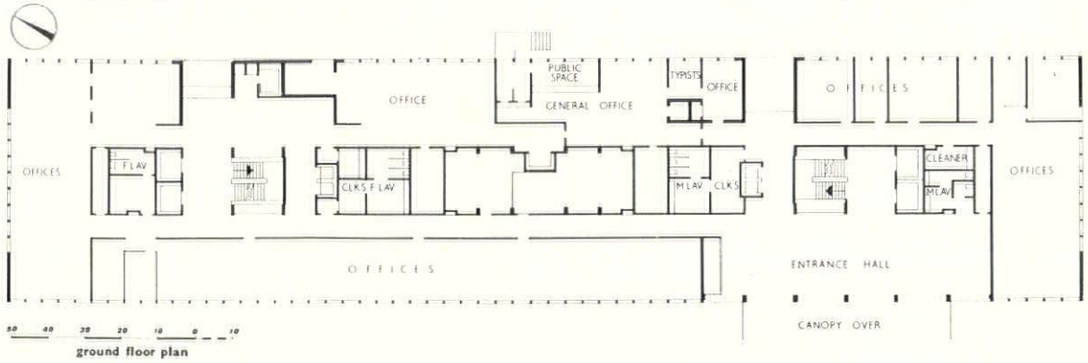


OFFICES AT BILLINGHAM, CO. DURHAM

ARCHITECTS: ARCHITECTURAL DEPARTMENT OF ICI LTD.



upper floor plan



ground floor plan

6, the west elevation. The building is ventilated mechanically and the windows, which are of aluminium alloy with teak outer frames, are locked shut except for cleaning. Cladding is Portland stone and Westmorland riven slate 'tiles' which have been cast with the precast spandrel panels and bolted between structural mullions.

This eight-storey block with a partial ninth floor above the general roof level is for the Billingham Division of ICI Ltd. The 285 ft. long building is designed on a 4 ft. 6 in. module, so that two modules give approximately a 9-ft. room. Flanking a central service core are 6 ft. wide corridors opening into 17 ft. deep rooms, which are on the perimeter of the building. A board room and two conference rooms are on the top floor.

The structure rises from a 3-ft. reinforced basement floor acting as a raft. The basement walls are 12 in. reinforced concrete. Floors are built up of precast units spanning 24 ft. Internal partitions are of brick and plaster, painted. Offices have linoleum floor covering and perforated metal acoustic ceilings.





7, inside the courtyard, looking towards the trade counter on the ground floor. Landscape adviser for garden, Philip Hicks; sculpture and mosaics by Jupp Dernbach-Mayen.

WALLPAPER AND FABRIC SHOWROOMS, LONDON, W.1

ARCHITECTS: SLATER AND UREN

The building is in Berners Street and is the new headquarters of Messrs. Sanderson. It consists of a main six-storey block built around a centre well and a smaller eight-storey block behind. In the centre well are the entrance to the car park in the basement, which has space for 70 cars, and a Japanese garden of rocks, sculpture, a rectangular pool, evergreen plants and a weeping beech tree.

The main block is 230 ft. long by 45 ft. deep and the in situ reinforced concrete structural frame is supported by columns on a 27 ft. grid—the remaining 9 ft. on the perimeter is cantilevered from the main structure above the ground floor.

The Berners Street façade can only be seen obliquely, so emphasis has been placed on the verticals by setting the curtain wall back several inches in the mullions which run from the top to first floor level. Above the entrance canopy the glass is set still further back to give variety to the façade. The mullions are on a 4 ft. 6 in. module around the building and are made of aluminium. They are symmetrical in section and contain all the services, including rainwater pipes, heating and hot water pipes, air-conditioning ducts and sprinkler risers.

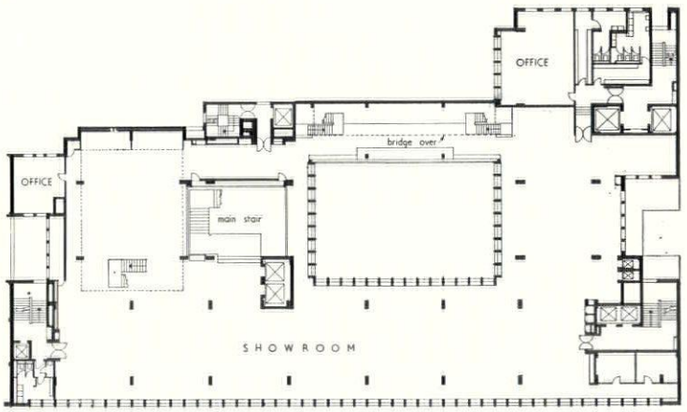
At ground floor level the set-back square columns are exposed, and behind them are the fully glazed trade showroom windows. The ground floor has 5,000 sq. ft. of trade

Wallpaper and fabric showrooms, London, W.1

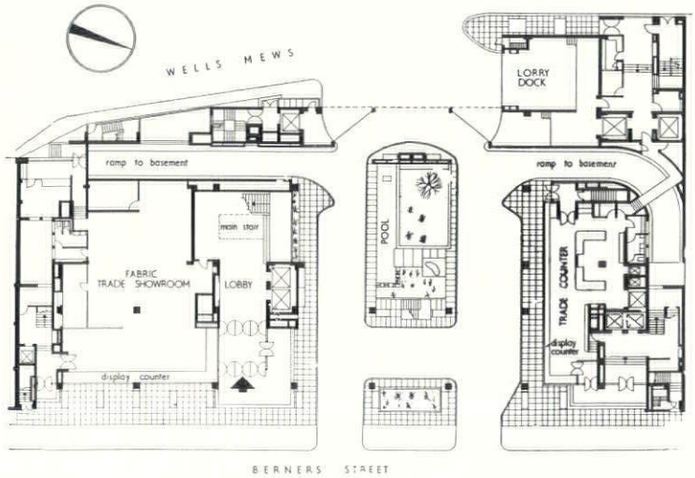


8

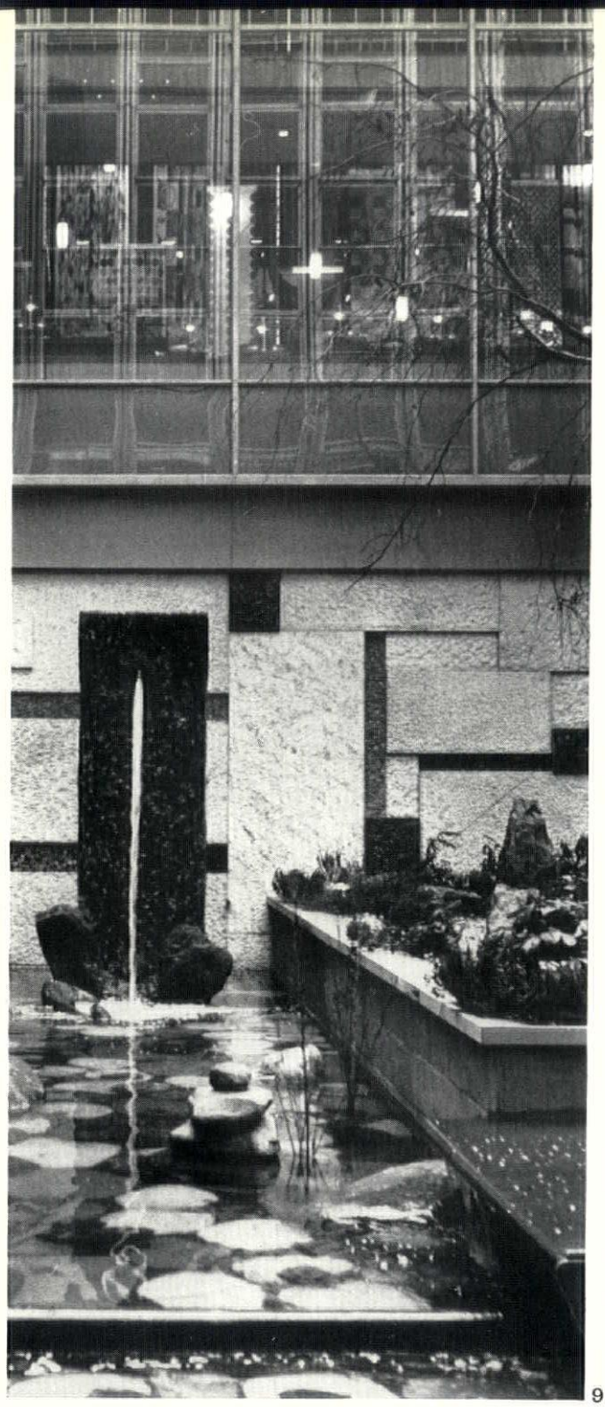
showrooms. There is 34,000 sq. ft. of retail showroom area on the first, second and third floors, with some of the display areas running through two storeys. The remaining floors are devoted to offices. The showroom interiors are described in detail in ID on pages 405–409.



first floor plan

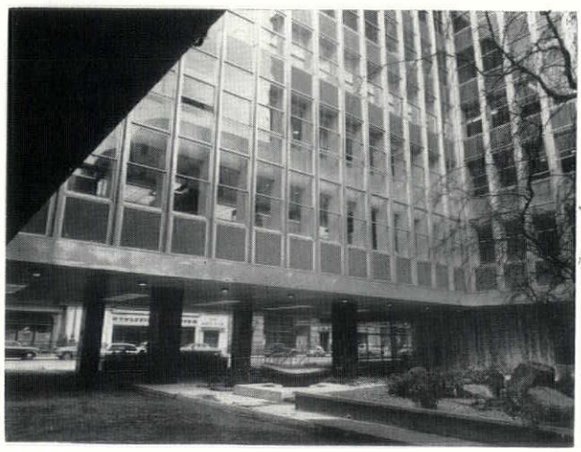


ground floor plan (Scale: 1/64 in. = 1 ft.)



9

8, the front elevation in Berners Street.
9, the pool in the internal courtyard, with the first floor showroom above.
10, view from courtyard, looking out into Berners Street.



10

EXHIBITIONS

PAINTINGS & SCULPTURE

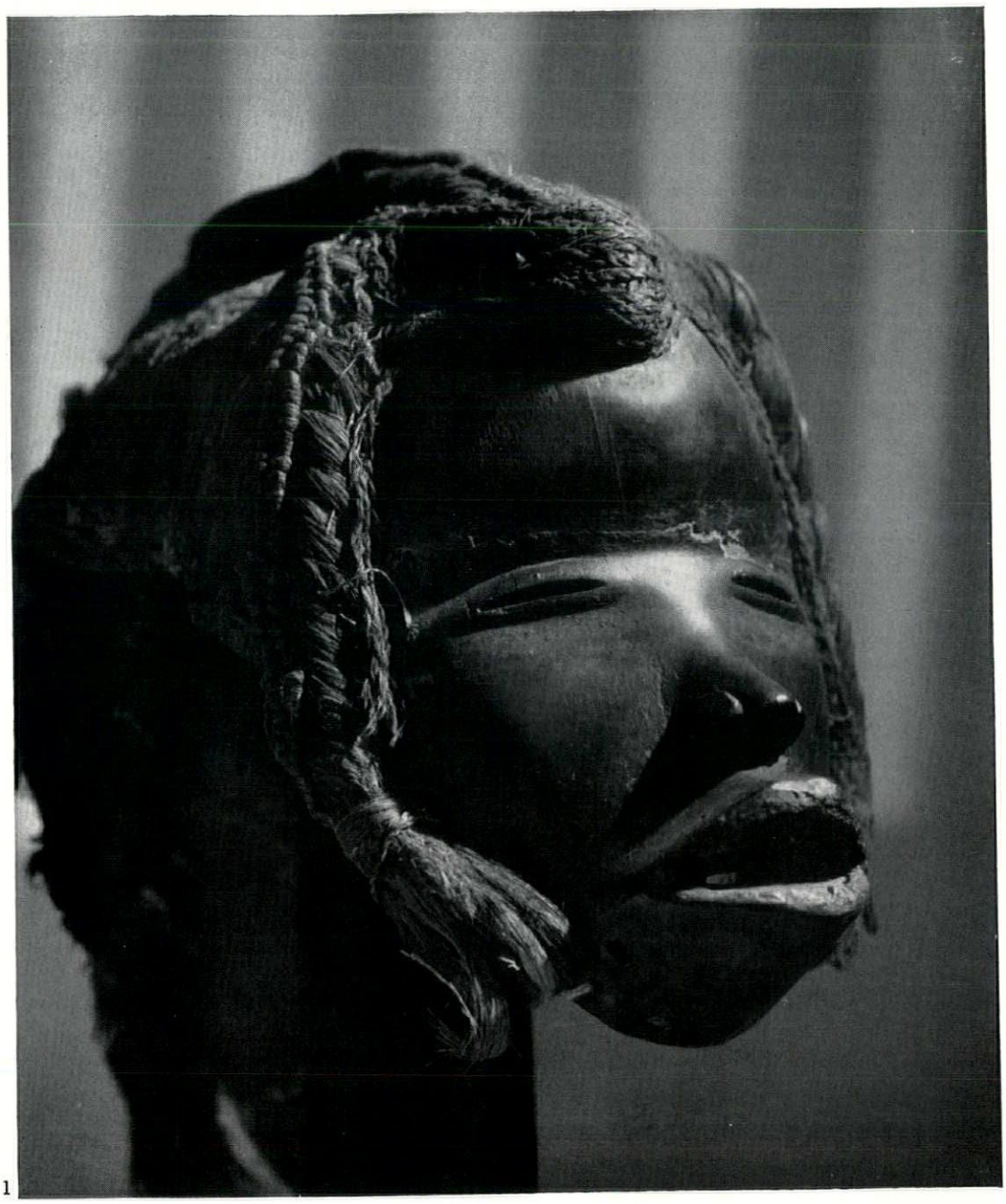
I respect William Fagg's expert knowledge of African tribal art, but I am puzzled by his attempt to use Epstein's collection of tribal and archaic sculpture as a weapon against some of the best artists of our time, and I am surprised that Basil Taylor should have followed his lead.

William Fagg says in his introduction to the catalogue of the Arts Council exhibition that the collection has been put on view primarily as 'a comment on the little understood relationship between so-called "primitive" art and that of twentieth-century Europe,' but I don't see how he can expect members of the public to obtain a better understanding of the relationship simply by showing them examples of one side of it. His tendentious remarks on the subject were a pretty poor substitute for a comparative group of twentieth-century European works.

One of his statements, reflecting on the collection itself, seems to me to be a choice example of the professional in action against the amateur: 'the desire,' he writes, 'to represent adequately the balance and intensity of Epstein's interests has often been allowed to override considerations of ethnographical purism, which would carry greater weight in an exhibition of tribal art *per se*.' On a first reading, I thought that this was a fancy way of saying that some of the exhibits were fakes, but he says later on that 'a few pieces aroused enough doubt to lead to their exclusion,' and as this presumably means that the fakes were weeded out, I can't imagine what the first statement might mean. Is he saying that because some of the items are much less fine than others that the collection is not 'ethnographically pure'? I don't think he can mean anything quite as ridiculous as that. Perhaps such terms as 'unidentified tribe' and 'no obvious stylistic features' which appear in the catalogue are code-words for 'probably not genuine.' If so, why should works of doubtful authenticity help us to arrive at a better understanding of the relationship between tribal art and the art of twentieth-century Europe? And if, as he contends, Epstein apprehended 'the real nature of tribal sculpture more profoundly perhaps than any other artist of our time,' was his understanding intensified by these doubtful or 'impure' works?

With regard to Fagg's contention that Epstein made better use of his appreciation of tribal art than 'perhaps any other twentieth-century artist,' Basil Taylor, in his review of the show, reads into it exactly what Fagg would like everyone to read into it, and agrees that apart from Epstein, who used the qualities of tribal art 'sensibly,' whatever that may mean, 'the kind of twentieth-century art modelled most immediately upon them and which made them accessible to the modern spectator cannot match them in expression or presence.' This, if I may say so, puts Basil Taylor in a very curious position, for he is saying, in effect, that Epstein is a greater artist than Picasso. He knows better than this, and I'm sorry that he has allowed himself to be jockeyed into such a position by an ethnographical purist.

If there is a special point to be made about the Epstein collection it is that when a creative artist turns collector he is in a somewhat stronger position than the wealthy amateur or the average museum official to rely on his personal judgment, and Fagg seems to be endorsing this view when he says that 'in general it must be said that a great sculptor's appreciation of artistic sincerity in the work of others has in this case proved an almost unerring guide,' and I can well believe his declaration that the group of Fang heads and figures is the most important in the world. It was exciting to see the range of variations achieved by the carvers within a convention rigid enough to have led to monotony in less warm and inventive hands. Each piece seems to add to the force of the convention, and although there were some larger and more dominating pieces from other tribes, including one



1

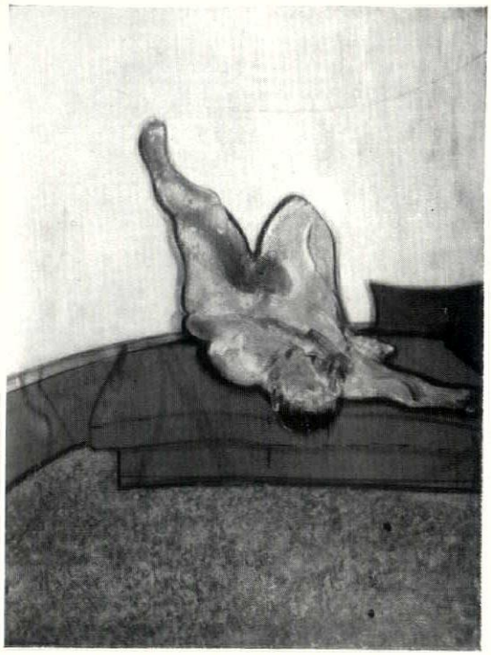
of the huge Baga dance masks with the beautiful and demonstrative 'nose of increase,' the Fang pieces generated more power as a group than any other section of the show.

The Dan mask illustrated here, 1, is so near to being a portrait that I have the feeling that I've seen the girl herself somewhere. It made a striking contrast to the masks of the neighbouring Ngere tribe whose more radical abstractions summon up fierce and sinister presences. But no doubt I would realize that they are not in the least fierce or sinister if I knew more about them, so I had better move on.

But to move on to the exhibition of recent paintings by Francis Bacon at the Marlborough Gallery is to get on to more familiar but far from safer ground. There is something of the early Munch in Bacon's new paintings, but it's hard to pin down what it is. Partly, I think, it's to do with the slippery, ectoplasmic treatment of the flesh in some of his figures (where the paint seems, in a creepy, unimaginable sort of way to issue from the body it is forming), and partly with the reduction of the figure to a kind of *Jugendstil* silhouette, complicated in Bacon's case by its application to foreshortened figures and to figures only partly in view, which gives them the look of mishandled materializations. But probably the sense of a relationship to Munch is mainly due to the meaning of Bacon's imagery, which is as obviously concerned with sexual disturbance as Munch's studies of puberty and adolescence. But whereas Munch dealt with the oncoming of virility, passionate intercourse between the sexes and the conflict between shame and desire, Bacon is concerned with the play of an anarchic, aimless genitality upon the human condition, and if there is conflict in his paintings it is a conflict between two physical states, between exhaustion and galvanization, between a loosening and tightening of tension, in a single figure.

It is now apparent that his paraphrases of Van Gogh's *On the Road to Tarascon* were more an interlude than a development and that the 'figure in a landscape' was a departure from his main theme, which might be described as 'the performer in a secret arena.' It's possibly due to the influence of Van Gogh's sunlit landscape that the arena is no longer in semi-darkness, but if so, the sunlight has been transformed into a harsh electric glare, and the streaks of red and green in his expressionistic treatment of Van Gogh's landscape have now turned into flat bright areas of crimson carpet and billiard-table green wall.

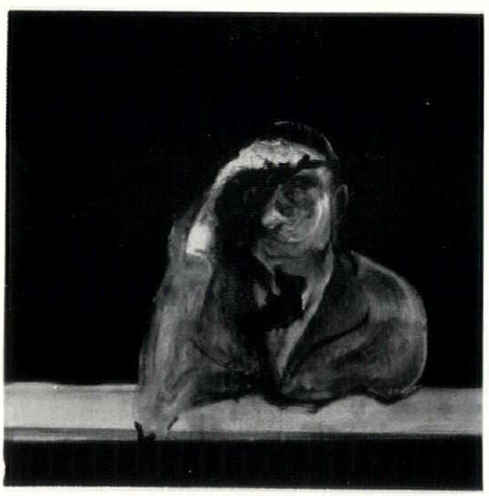
Like the can-can, the paintings of nudes lying on couches with one leg up the wall,



2

2, are designed to draw attention to the fork of the human body, and when they were on exhibition they provided the ceremonial aspect of a grand re-union of the creatures of Eros, which included a sprinkling of popes and business men and many reclining and seated figures, clothed and unclothed, grinning or shouting, for whom the artist risked a charge of incompetence in order to give them the appearance of leaping across the room, as if at one and the same time they were both couchant and rampant.

The smaller paintings of heads operated as formal portraits of the performers, and



3

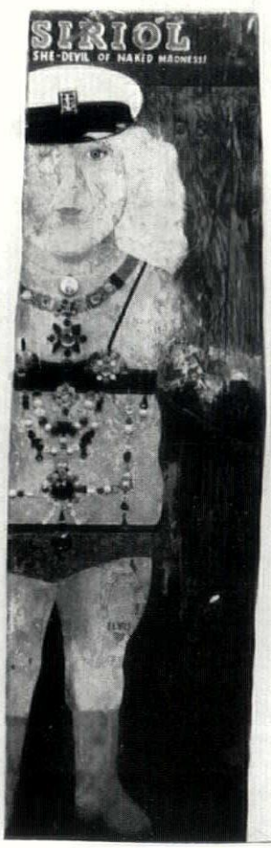
their faces, 3, ravaged by a melancholy as distorting as the grins and the equivocal acrobatics, presented them, so to speak, at their most presentable.

At the exhibition of Alan Davie's recent paintings at Gimpels it occurred to me that if Bacon were to depict one of his nudes in the act of painting a picture, the picture might well bear a resemblance to Davie's work. There was no indication that Davie is thinking of giving up the voluptuous pleasure of debasing the emblem. It gives his paint something to do. In 'The Monk's Vision,' 4, he would seem almost to have thought of the title first and been tempted to



4

illustrate it, for it contains a remote resemblance to a Christmas tree decorated with hearts, crescents, crosses and playing cards, and in the circumstances he would have done better to suppress the title, for it underlined the commonplaceness and pretentiousness than can accompany a remarkable talent for applying paint to canvas. He uses his canvases as sub-metaphysical fly-papers for catching his

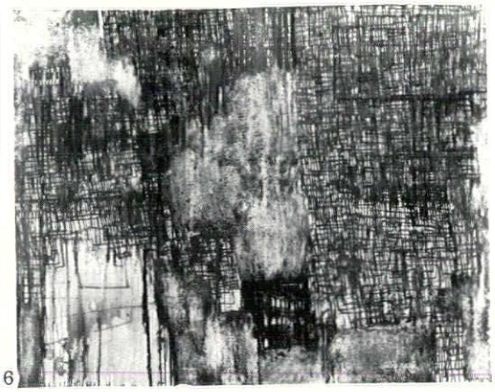


5

own floating thought-oddments. At his curious best, he can give simple signs and devices a fat, maggoty look and set them creeping and crawling, but he was not quite at his best in his latest show.

Peter Blake, working unpretentiously upon the commonplace, rediscovers the poetry of signs and emblems on the tunics of drum majorettes and the lapels of small boys. He seems to me to have a more decent and adult attitude to the vulgarization of values than those other young men who accompany their all-too-free abstracts with statements about their allegiance to the mass media and every kind of pop, which are intended to emphasize their superiority and 'difference.' Peter Blake, in his paintings of tinselled fair-ground performers, 5, and young people who bedeck themselves with all the badges they can collect, is out to confirm the surrealists' belief that poetry can be made by all. His show at the recently opened Portal Gallery was a small retrospective, and at his best he is able to add ready-made material to his paintings in an enchantingly humorous way.

There was a pleasant lightness of colour about most of the exhibits in the Redfern Gallery's group showing of twelve Greek painters, but no outstandingly good or original work. Most of the landscapes lost their identity under a veil of tachisme. The abstract decorations of Nicholas Georgiadis were among the most charming things in the show, but according to the titles he too is concerned with landscape, and the typical example of his work illustrated here, 6, is called 'Inland Harbour.'



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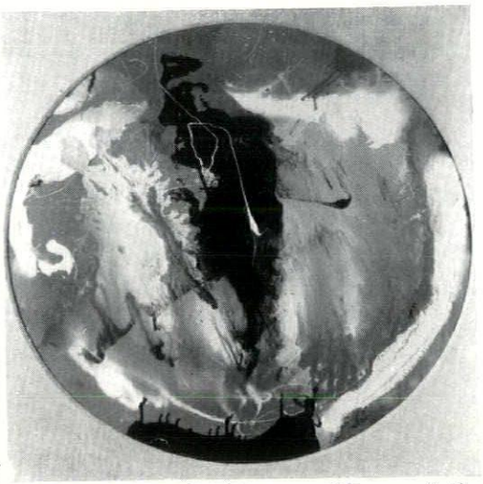
Paul Jenkins brings to its final polish the art—or should I say 'craft'?—of abstract texturing produced by the controlled precipitation of wet paint. There is no doubt about his virtuosity nor, if we may go by such titles as 'Moon of the Falling Fish,' 'Eyes of the Dove' and so on, his poetic intentions. But the effects of gaseous phenomena and vast explosions occurring in an outer-space dreamland are spoilt by the fact that the pretty vapours and sheets of flame lie still and inert on the canvas; but things like his circular 'Firehoop,' 7, should have an immediate appeal for interior decorators.



7

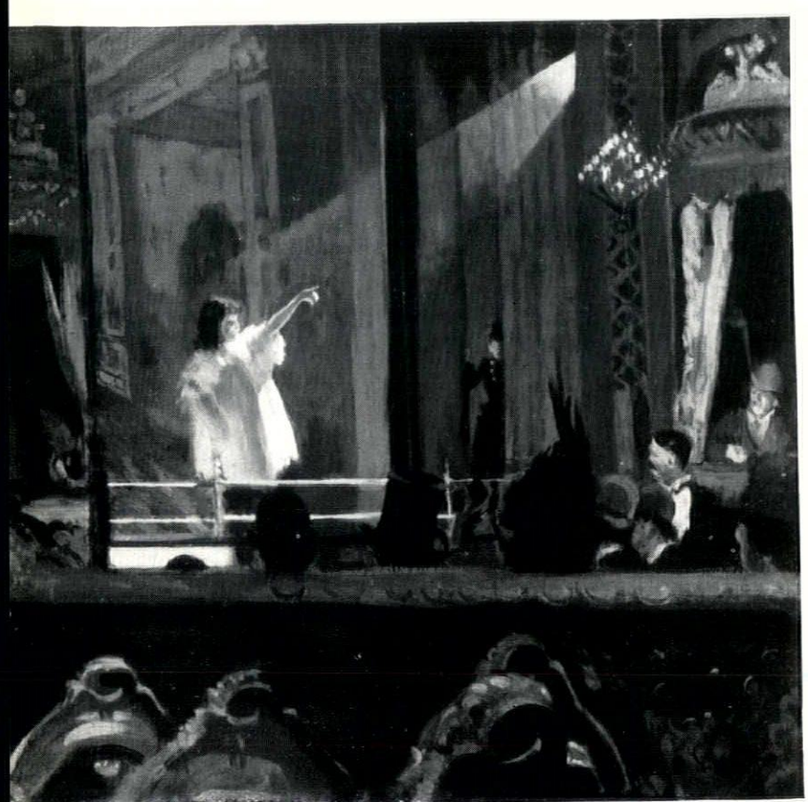
I propose to reserve comment on the exhibitions which celebrate the centenary of Sickert's birth until I have seen the major retrospective at the Tate. Meanwhile, I would like to take advantage of the splendid exhibition of moderate-size paintings from private collections held at Agnews, by stiffening up my group of illustrations with the lovable picture of Little Dot Hetherington singing 'The Boy I love is up in the Gallery,' painted in 1889, 8, and the beautiful 'Lion of St. Mark's,' 9, painted six years later.

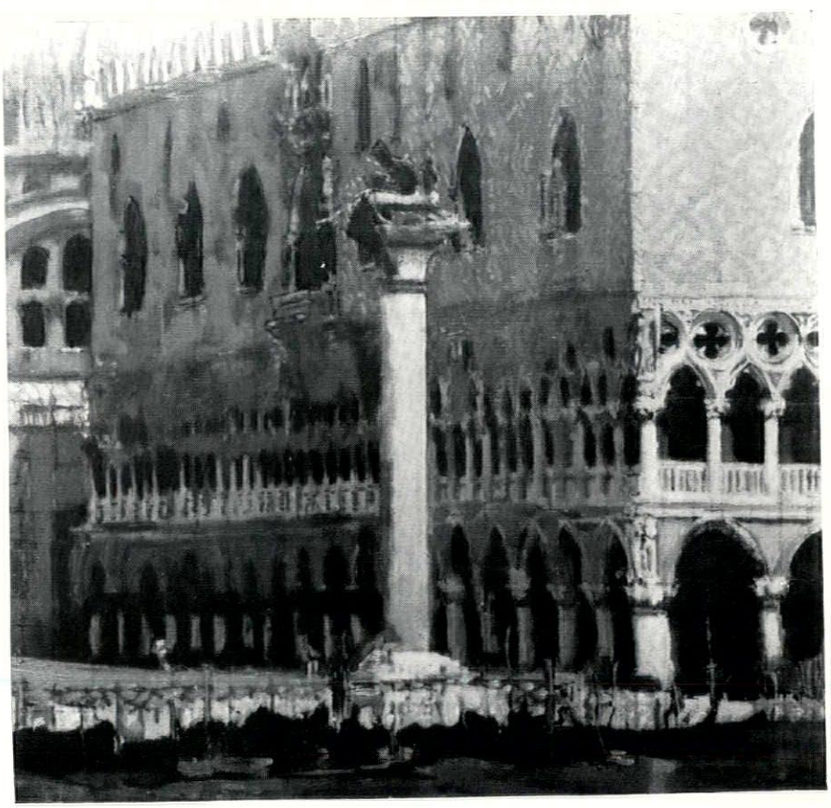
Robert Melville

OBITUARY

SIR GILES SCOTT

Sir Giles Gilbert Scott, son of George Gilbert Scott and grandson of Sir George Gilbert Scott, died on February 8th this year. Whatever else he may later have designed, he always remained to the British public the man who won the competition for Liverpool Cathedral at the age of twenty-two, so young that Bodley was attached to him as a





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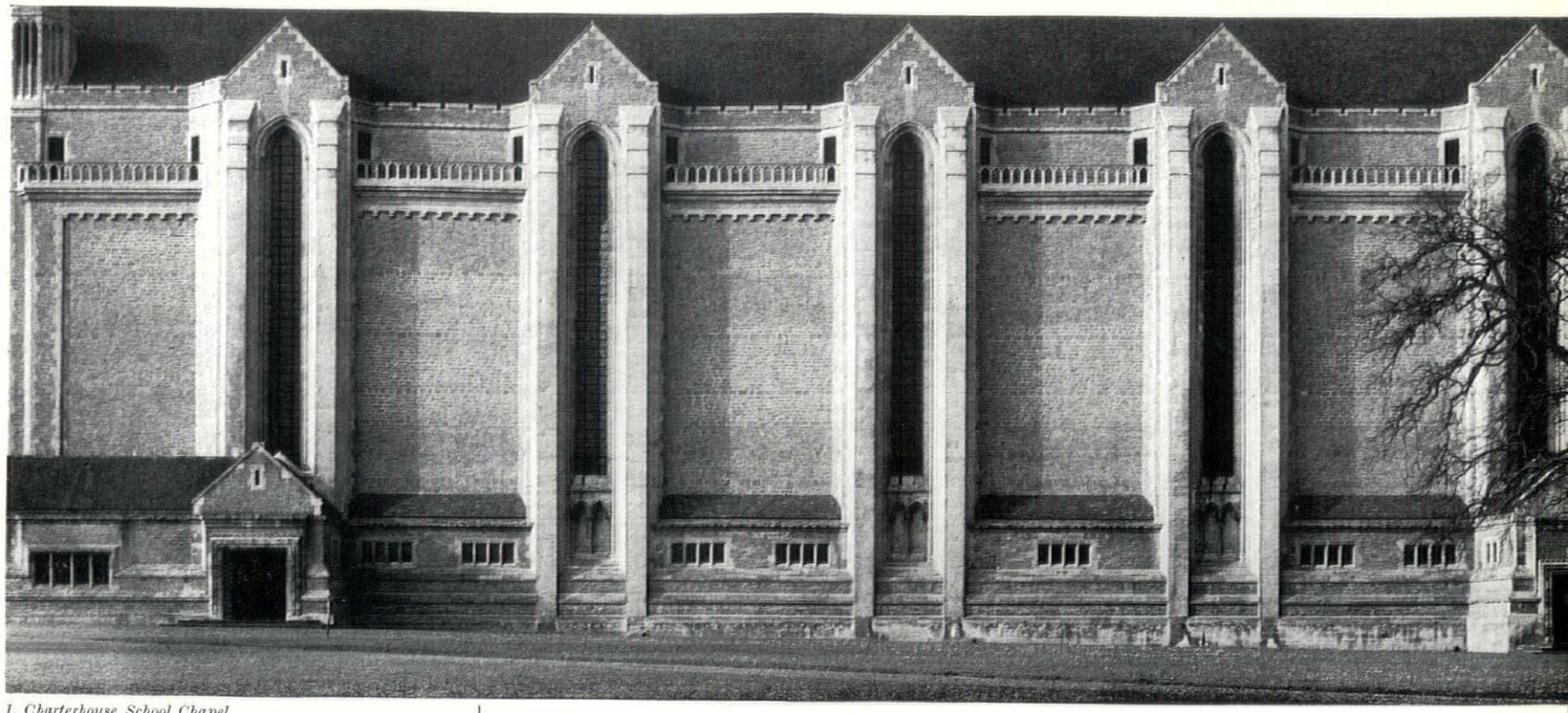


1

1, Charterhouse School Chapel.
2, Church of St. Francis near High Wycombe.

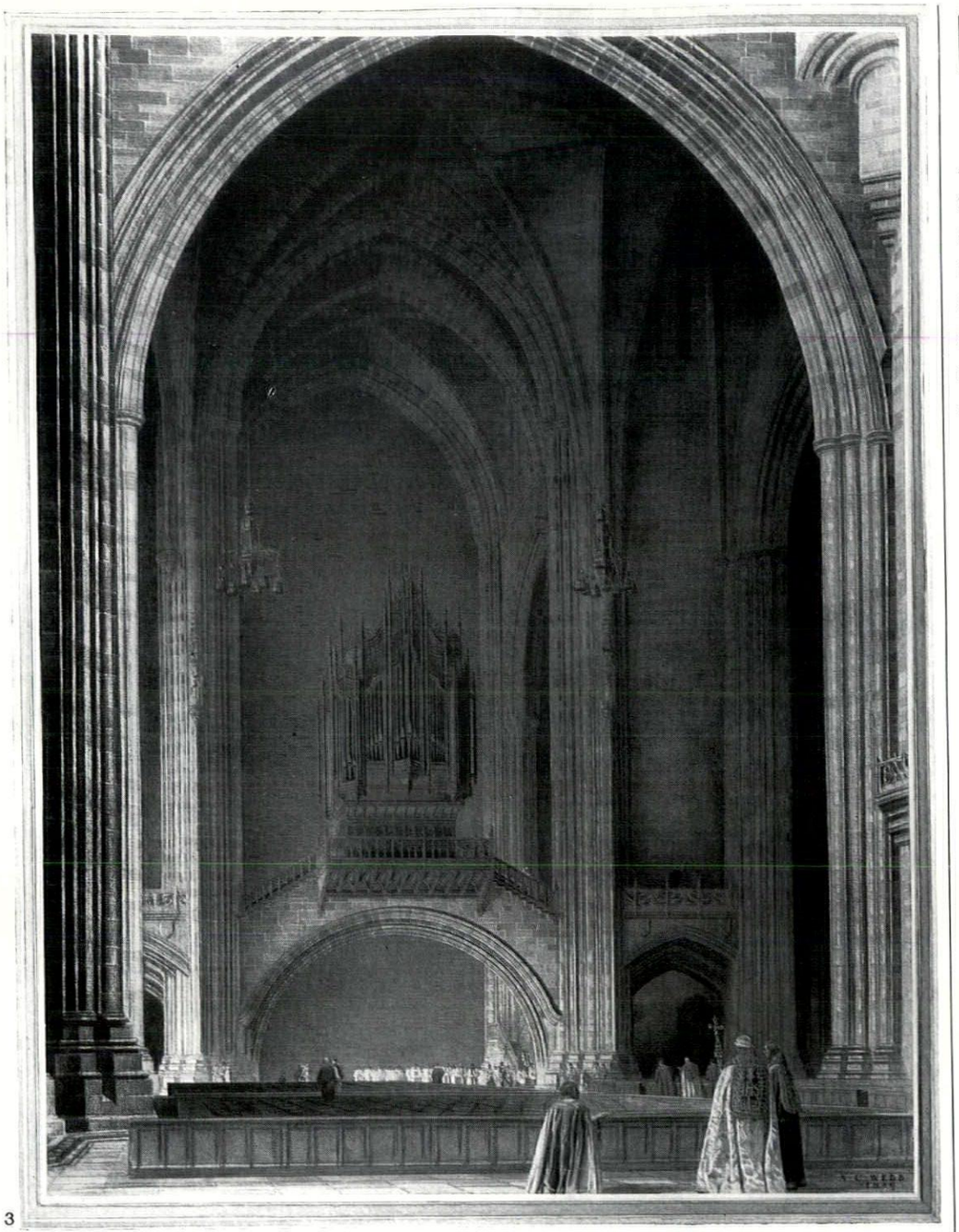
kind of supervisor, an arrangement which came to an end at Bodley's death in 1907.

Liverpool Cathedral, 3, is indeed a prodigious design for so young a man—competent and perfectly confident and at the same time daring in its use of the romantic possibilities of such an exceptional scale. It is recognizable as an early work of Sir Giles Scott's in that its Gothic is handled more historicistically than he did later. But Liverpool Cathedral expresses already what was to be Sir Giles's distinguishing trait among the last generation of historicists and semi-historicists—a sense of thrilling contrasts between exceeding heights and a puny human size, contrasts developed from Piranesi rather than the Scotts of the nineteenth century and paralleled in Fred Griggs's never-built architectures and in some of Lutyens's palaces and castles.

It is this trait that makes Scott's best buildings memorable, buildings such as the Charterhouse Chapel outside Godalming (of 1922), 1. Very tall proportions, sheer walls, immensely high, immensely narrow windows, dramatic, unexpected lighting—such are the effects one ought to look for. They are by no means most conspicuous in his more familiar works. On the contrary; Sir Giles Scott is, unfortunately, remembered primarily by buildings lacking in these qualities, and the unevenness of his modes of expression will always remain baffling. The Cambridge University Library of 1933, the Bodleian of 1935, the remodelling of the House of Commons, the recent office building for the City behind the Guildhall—they are all accommodating



2

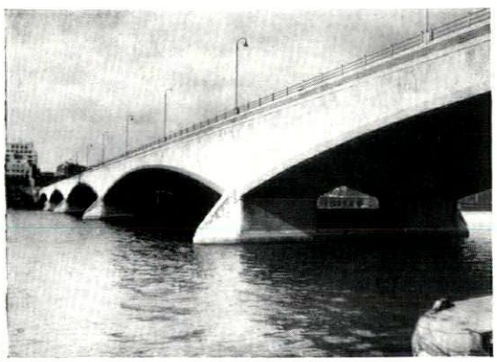


3

3, the nave of Liverpool Cathedral.
4, Waterloo Bridge.

and *juste milieu*, whereas such a church as, for instance, St. Francis Terriers outside High Wycombe, 2, is not.

But Sir Giles's possibilities ranged yet wider, and Waterloo Bridge, 4, seems to fit into neither of the two categories so far demonstrated. The elegance and simplicity of the lines of the bridge which, against all expectations, turned out to be a worthy twentieth-century successor to Rennie's nineteenth-century masterpiece, were almost as much a surprise when they were first illustrated just before the war, as had been the designs for the Battersea Power Station nearly ten years earlier. Battersea was in fact one of the first industrial buildings in England that can be seen as belonging to the twentieth century. It created a style for brick-built power stations recognizable all over the country, and Sir Giles, a modest, entirely unpompous man, was proud of this unforeseeable result of his care for the fitting appearance of an exceptional job. **N. Pevsner**



4

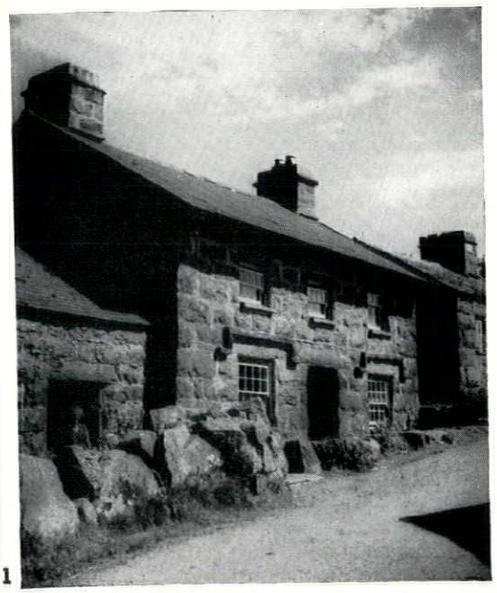
TOWNSCAPE

TERRORS OF TAMENESS

An appreciation of the charms of rusticity is part of the heritage we owe to the Picturesque. The tragedy is that conscious attempts to achieve rusticity are so often ruined by trying to achieve something else that just won't mix with it, at the same time.

Even those who, like J. T. Smith, are 'by no means *cottage-mad*' and are 'content that rural and cottage-scenery shall be considered as no more than a sort of *low-comedy* landscape'[1] will be able to enjoy the complete harmony of the scene in the first photograph: cottage, wall of boulders, rough grass verge—there isn't a single false note. Now look at the second photograph. It was taken in the same locality, in North Wales, and the main components of the scene are identical. Yet what a change is here! It isn't so much the fact that the new cottages are inferior as architecture. (On this subject one may note that the eighteenth-century one in

[1] *Remarks on Rural Scenery*, 1797; quoted by John Piper AR, September 1947, p. 88.



1



2

the first photograph, though humble enough, was in the up-to-date idiom of its day so far as general design was concerned, even if its builder sensibly considered himself at liberty to retain a functional feature from an earlier age in the Tudor drip-moulds over the windows; those in the second, on the other hand, are what is called 'traditional', which may be translated as *un-twentieth-century*, in general form, with an up-to-date though not particularly functional *cliché* in the design of the porch.) The trouble lies rather in the fact that the scene has no consistent character; somehow it manages to be neither rural, nor urban, nor even suburban; everything in it seems bent on contradicting, on showing up, everything else. How should that have come about? The short answer, of course, is that it has been no one's business to see that it has a consistent character. But it is important to notice that the kind of contradiction that is so obvious in the scene as a whole is also found in its individual elements. And most conspicuously in the wall. 'Stone is plentiful in these parts,' someone says, 'so let us have a stone wall.' Well and good. But having decided upon a stone wall, you must decide upon the character appropriate to it, and carry the thing through to the end with that character in your mind's eye. What has happened here is that a technique lending itself to the character of rusticity has been chosen—and then it has been decided that the wall must be neat, or whatever the word may be, as well; and that vicious eye-irritant in the shape of a quasi-battlemented coping is the result.

Rusticity and neatness, formality and informality—attempts to reconcile irreconcilables such as these are the cause of the failure of so much of what is done in the name of improvement today. The irony of it is that it is really so much easier, as well as so much better, to aim at one effect at a time. **M.W.**

TRAVEL

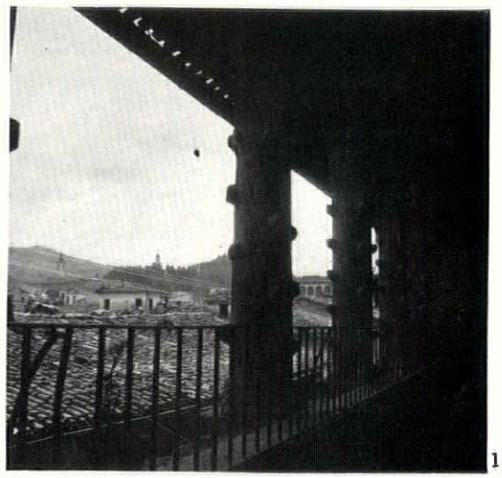
PALAZZO MALASPINA AT ASCOLI PICENO

The Renaissance palace of the Malaspina in Ascoli Piceno, which is attributed to Cola dell'Amatrice, has what is probably the most original loggia of any palace of its kind: the columns are made in the form of thorny tree-trunks, clearly a borrowing from Bramante's colonnade of the Canonica of S. Ambrogio at Milan, 1. There was considerable argument among the local inhabitants when I asked at what time of day the sun fell upon the columns of the loggia, as I wanted to photograph it and had only one free day in Ascoli.

Finally I was reduced to going to the palace the evening before and climbing up to the top storey to ask the tenants of the flats (into which the palace is now divided) when the sun fell upon their loggia. The reply was, 'At this time of year (mid-May) and in the summer, never; but in the winter when the sun is low on the horizon, the loggia is full of sun.'

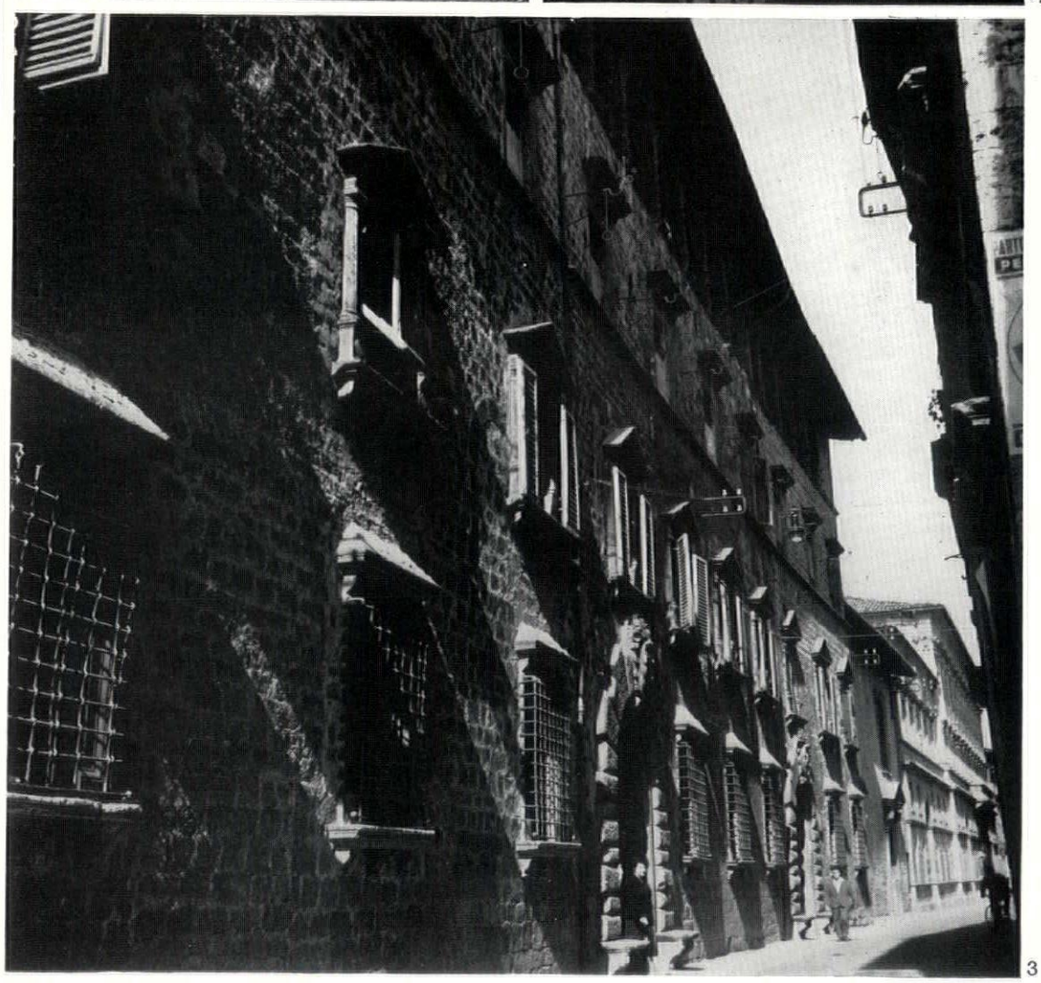
The overhang of the roof is so wide and pitched at such an angle as to prevent the high sun of summer from entering it, 2, 3. This is rapidly becoming a commonplace of modern architecture, but it is interesting to note that Italian Renaissance architects, even in the remote Marche, made use of this particular structural device, in a town which is cold in winter and hot in summer. **Georgina Masson**





1,2

1, the colonnade of the Canonica of S. Ambrogio at Milan. 2, the interior of the loggia of the Palazzo Malaspina and 3, the exterior of the building, showing the deep shade provided by the eaves.



3

SKILL

DESIGNING FLOORS FOR CLEANING

by Lance Wright

It is a truism to say that as labour becomes more expensive, maintenance counts for more in design. Particularly is this true of commercial type buildings where the intensity of use is very great. In an earlier article we have discussed the cleaning of the outsides of tall buildings: in this one we consider floors.*

Broadly speaking, there are two methods of off-setting the high cost of floor cleaning. One is to use some form of seal which will make cleaning less arduous and less frequent. The other is to use a machine.

Machines versus Floor Seals

One very large firm of office cleaners consulted on this point said that they were opposed to the use of machines for routine cleaning. The reason given was that, when the machines went wrong, it was a difficult matter to get them mended and much time was lost. This argument might not apply where a firm does their own cleaning and where repair staff are constantly at hand. Another objection against commercial type equipment is that it is difficult to control in narrow spaces and can easily mark skirtings and door jambs. To some extent this is a defect which can be overcome in design by using skirting materials which are easily cleaned, such as melamine plastic. Also there are certain floor cleaning jobs which can only be done by machine. The same firm of office cleaners invariably make use of machines for removing the build up of wax at the beginning of a cleaning contract. Machines are also at a premium in hospitals, where the mop is suspect as a cause of cross infection; and there is no doubt that, for the organization which does its own cleaning, recruitment is easier if machines are used.

Slipperiness

If the defect of heavy cleaning bills is one which will only become apparent in course of time, that of slipperiness is noted at once. It is reported that the wood floors of one large new London office block were found to be so slippery (a Director fell down three times in a matter of weeks) that all had to be sanded. The main cause of slipperiness is wax left on the surface and both of the new approaches to floor cleaning tend to diminish it: machines, by burnishing the floor and forcing the wax below the surface, seals by making waxing unnecessary. Even if wax is of no danger on any particular floor, it may still be carried about on people's heels. It is particularly dangerous where floor surfaces change, as, for instance, where a wood floor adjoins a terrazzo staircase. One solution to this problem is to lay a rubber mat on each landing. This has the double effect of forcing people to brake before passing on to the different surface and of removing a certain amount of wax at the same time. For this reason, the door mat at the entrance to a building has a more important functional purpose than is commonly realized. Except in wet weather few people go through the ritual of solemnly wiping their feet and for this reason mats should extend six or seven feet in the direction of travel so that those coming in are bound to place both feet on them in the course of walking through. One type used at the headquarters of a firm of office cleaners uses three separate mats in the direction of travel so that the mats can be changed round every now and then and uneven wear prevented.

*The cleaning of High Buildings, April, 1960.

Floor Sealers

The favourite finish of the flooring contractor is button polish and wax, for this gives the floor a formidable initial appearance and hides all defects. Unfortunately it is at once exceedingly slippery and exceedingly hard to maintain. The alternative is to use a floor seal. Flooring contractors do not like seals because these show surface defects; also, of course, they are expensive, particularly where applied to relatively porous surfaces. Nevertheless, as has already been said, seals have the dual advantage of reducing cleaning and of reducing slipperiness. At the present time the Timber Development Association is testing different proprietary makes in an existing office building. One interim report† has been issued which lists no less than 60 different makes. While awaiting the final report a number of points can be made. The first is that no seal lasts for ever. TDA consider that their life depends partly on composition, partly on thickness. Other factors being equal, a two-coat seal will be better than one coat and it is calculated that a busy office corridor treated with two coats should be renewed once a year. One of the problems of sealers is that those which last the longest (i.e. the 'two-can' urea-formaldehydes) may prove the most troublesome to renew. Floors treated with sealers need only to be 'run over' with a damp mop. They can, indeed, be waxed, but this treatment, though giving them an almost indefinite life, deprives them of their two chief advantages. Lastly there are two types of floor which cannot be sealed: thermoplastic and rubber.

†Floor Seals by V. R. Gray, M.A., Ph.D. published by TDA. 3s. 6d.

Mechanized Floor Cleaning

Mechanized floor cleaning is closely analogous to grass cutting by motor mower in that both favour the large uninterrupted, undifferentiated, area and that both run into difficulties at right-angled corners.

This article is concerned only with commercial type buildings and for these only commercial type equipment should be used. The difference between commercial and domestic equipment is clear cut and depends on the kind of electric motor. A domestic machine ('vacuum cleaner') does not have a continuous rating: its efficiency falls off quite sharply after it has been running from five to ten minutes on end. This does not matter in a house room since use is always intermittent. The commercial type machine, on the other hand, has a continuous rating and can go for long periods without any drop in efficiency. This differentiation is also reflected in the industry, for there seems to be an unofficial agreement whereby no firm manufacturing one type of equipment manufactures the other also.

Commercial polishers cost between £40 and £100; and £20 must be added to these figures if the machine is to be used for scrubbing also: commercial driers cost about £80. The decision to use these rather than the much less expensive domestic equipment will turn not so much on the areas to be cleaned as on the intensity of use. In normal surroundings the amount of cleaning necessary is in direct proportion to the number of people using a building and the number of hours per day they are in it; and in all commercial type buildings (shops, office, factories, etc.) this is so much greater than in houses as to create an entirely different problem.

The use of commercial type machines creates a number of physical problems which affect design. The first and most obvious is that of corners. No machine can get into a corner; which means that the little triangle of space where the machine cannot reach must be cleaned (if it *is* cleaned) by hand. This is of no great account in an ordinary room (there is no acceptable architectural recipe for getting rid of corners altogether); but it does furnish a motive for not having unnecessary recesses on plan at floor level (e.g. underneath windows).

Another problem is that of getting equipment underneath fixed furniture and any projections standing out from the wall. This is particularly troublesome where floors are to be washed and must, therefore, be dried; for the drying machine, as it contains a vertical tank, may need a clearance of as much as 2 ft. 6 in. Projections in this case should not be lower than three feet. Polishing and scrubbing equipment is much shallower. One type which is driven by belt can get under shallow projections which are as little as six inches above floor level. Machines driven by crown and pinion are more common, however, and these need a clearance of at least one foot.

If these are the limitations imposed by machines on plan and section, there remain two extra provisions that must be thought about. The first is power supply. Some large users of electrical equipment (among them British Railways and ICI) insist that the voltage should be stepped down to 50 or 110. For the higher voltages the long trailing flex is unquestionably a source of danger and power points should be provided at not less than 15-yard intervals. The other provision is that of a cupboard in which machines can be stored. An area 4 ft. by 4 ft. on plan is large enough.

Conclusion

It is not necessarily the architect's business to provide the most economical and the safest floor; but it is his business to know, when he is producing a floor which is neither of these, by how much it falls short, and what greater benefit he can show to justify his choice. The cost of a floor should be measured by the year

[continued on page 429

continued from page 428]

and should consist of the first cost divided by the expected life in years, plus interest on the first cost (usually taken at 5 per cent), plus the annual cost of cleaning. One recent estimate prepared on these lines for the most used areas of a large office building showed that terrazzo was the most economical; that linoleum, the next most economical, cost about twice as much; and that rubber and thermoplastic, which were the most expensive, cost about three times as much as terrazzo.

The detailing of floors for cleaning is a matter which has not received much attention. Of the broad design issues, one which is often missed is the need to avoid placing side by side, in the same space, floors which need a radically different cleaning treatment. The worst case of this is where a floor which must be washed (e.g. stone or terrazzo) is placed alongside a floor which must be sealed or polished.

Of the narrower design issues, what happens at the foot of the wall is by far the most significant. In the early days of the Modern Movement the standard solution, both at the foot of the wall and at corners, was to use a cove. This was completely acceptable hygienically, but less so visually. There is no doubt that an architecture of planes cannot afford the kind of blurring at the edges which a cove gives. Visually, the problem has become more acute in the last twenty years in that our hard, machine finished surfaces cannot stand up to the kind of misfortunes which cleaning brings about. The cleaners' high water line at skirting level on the washed floor, the incursions of polish on vertical paintwork, the black scuff marks from the bumpers of cleaning equipment, all of these are becoming more noticeable. The general answer seems to be to use a dark skirting and, where possible, to recess it as well. The line at which wall and floor meet will always be a line of imperfection and to withdraw it from sight seems a legitimate subterfuge.

The one-foot clearance for the floor polisher may often be acceptable for free standing furniture, but we cannot tell if it will prove the same for projections from the wall. It might be worth while for projecting wall cupboards or lockers, which otherwise add gratuitously to the number of inaccessible corners.

If information on cleaning is still less than is needed for effective design, this is because enough attention has not yet been paid to it. A recent study by R. A. Stone of BRS* showed that maintenance and decoration accounted for 13 per cent of the total cost of office buildings, 'total cost' meaning first cost plus running costs during the expected period of life. Only a part of this is attributable to floors, but it is certainly a significant part. For the architect, however, the motive for giving attention to this is not wholly economic; it is also visual. The fine, hard surfaces of modern building technique are training our eyes to notice surface defects more readily. Also, of course, there is no plethora of mouldings to distract the eye from them. The detail, therefore, which cannot be easily and effectively cleaned will soon become anathema. Apart from this, cleaning policy itself greatly affects appearance: too high a polish on too large an area is just as destructive of visual effect as too little. If the architect wishes to stabilize his visual effects (and which architect doesn't?) he must not only think of cleaning from the start of the design process, but must give his client exact instruction on how to clean on handing over the building.

*'The economics of building designs' given to the Royal Statistical Society on March 16, 1960.

THE INDUSTRY

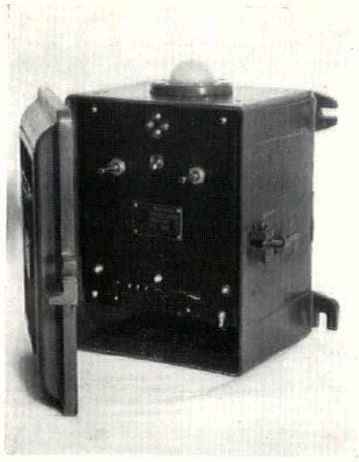
Wallpapers on Tottenham Court Road.

The choosing of wallpapers is perhaps one of the most skilled operations in architectural practice: room size, room shape, the direction and quality of light, all of these and many other factors besides, make each room a special case. No conceivable method of wallpaper display can cut out all hazards, but it is encouraging to notice that wallpaper manufacturers are generally setting out to provide more room for seeing papers and wider surfaces for displaying them. John Line's rehabilitated showroom in Tottenham Court Road (architect Jack Dalling) is disappointing as a design (the layout reminds you of its near neighbour, the Building Centre), but the firm continues to turn out a high proportion of the season's good wallpapers and these are much better displayed than before.
John Line & Sons Ltd., 214 Tottenham Court Road, London, W.1. Museum 3300.

Automatic switching

The amount of work which does not have to be done by the occupants of a building is increasing with the introduction of more gadgets and automatic controls. A new switch gear, 1, which operates on the level of daylight has been developed by Londex Limited to control lighting or other electrical circuits in factories, railway sidings, loading bays, hotel and theatre foyers.

Components of the gear are mounted on to a printed circuit which is fixed behind the insulated panel in front. The whole unit is mounted in a weatherproof cast iron case. Light falls on to the photocell through the glass dome on top of the casing and will cause the contacts in the unit to operate when the light has decreased to the level set on the controls provided. Similarly when the light improves to the 'lights off' level, the contacts are restored to their original position. The output contacts operate approximately 30 seconds after the pre-set light intensity has been reached. A switch is provided, however, which enables the delay period to be eliminated when required. The unit is suitable for connecting to a 200–250 volt AC supply. One advantage over time switch gear is that it comes into operation when the natural light falls below a given level, irrespective of the time.
Londex Limited, Anerley Works, London, S.E.20. (Sydenham 3111.)



1, *photo-electric switchgear by Londex.*

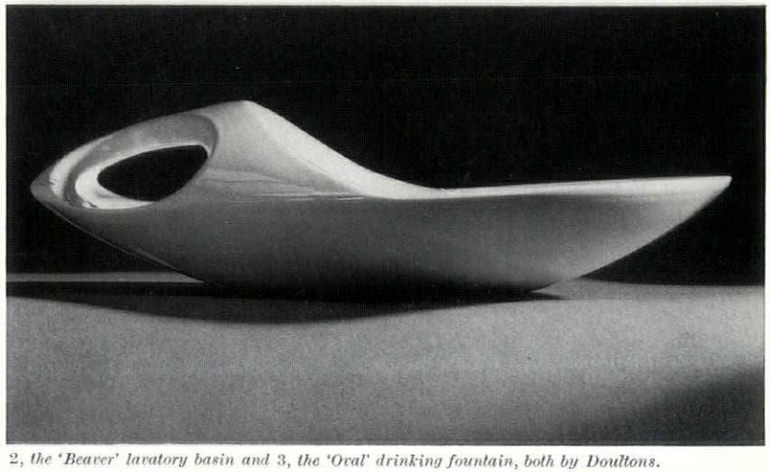
New sanitaryware

Doultons have just produced a catalogue illustrating a range of new vitreous china sanitary fittings—lavatory basins, drinking fountains, urinals, wc pans and cisterns. This section of the industry has shown exciting advances in the design of fittings over the last decade and Doultons' most recent contribution maintains the standard. The improvement in design is, no doubt, the result of employing good designers and their work reflects a careful study of functional requirements married to a feeling for the purely sculptural possibilities of lavatory basins, urinals and the like. The lavatory basin, 2, is 20 in. by 16 in. overall, has a central soap dishing and is supplied either with two tap holes or right hand one only. It is a bracket basin supported either on an aluminium central bracket or painted cast iron concealed brackets. The drinking fountain, 3, which is 11½ in. by 8½ in. has a hood at one end which protects the nozzle and has two holes in it for cleaning purposes. The nozzle is above overflow level. Colours are described as primrose, old ivory, opal green, sky blue, turquoise, light coral, mist grey, and, of course, black and white. Fortunately the admen have not yet thought of more exotic terms for black and white.
Doulton Sanitary Potteries Ltd., Doulton House, Albert Embankment, London, S.E.1. (Reliance 1241.)

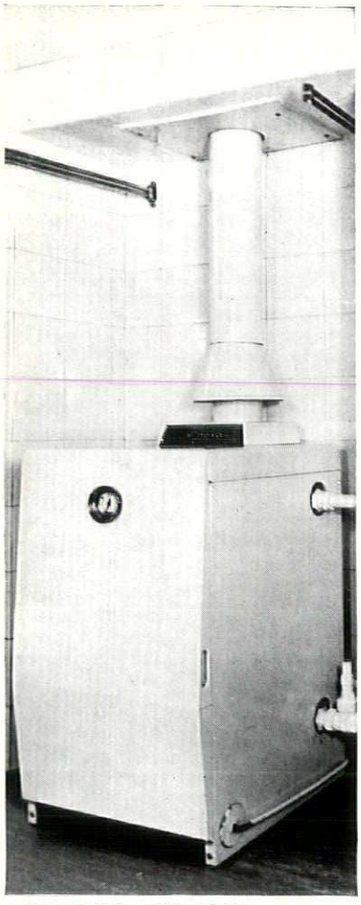
Two boilers

Two new oil-fired boilers by Valor are the SA25 and the SA35, 4. These new designs are identical except that the SA35 is larger than the SA25. They can be used either exclusively for water heating or for water heating, radiators and skirting board heating. The SA25 is suitable for two to three radiators plus 30 gallons of hot water and the SA35 six radiators and 30 gallons of hot water. Operating thermal efficiency is claimed to be approximately 80 per cent in both cases. Fuel consumption is 1 pint per hour for the SA25 and 2 pints for the SA35. The makers say that the running cost of the SA35, for instance, does not exceed 4½d. per hour. Both boilers have a steel case finished in hard white enamel and a large glass-fronted inspection hole. They incorporate the Valor Blue Flame steel sleeve burner. The pilot flame burner is a turn-down device for economical running, while the built-in oil control valve incorporates a safety non-flood device as well as a thermostat which maintains an even boiler temperature within the 140–180 degree F. range. Tappings are supplied





2, *the 'Beaver' lavatory basin and* 3, *the 'Oval' drinking fountain, both by Doultons.*



4, *the new Valor oil-fired boiler.*

both on the right and left-hand sides of the boilers. Vitreous enamel draught diverters are also supplied which may be connected to 4 in. or 4½ in. flue pipe or an existing chimney stack. The boilers are each 32 in. high, 16½ in. wide and 20¼ in. deep. The SA25 costs £65 and the SA35 £77 10s.
Valor Co. Ltd., Wood Lane, Bromford, Erdington, Birmingham, 24. (*Erdington* 6151.)

TDA bulletins

The latest batch of TDA Information Bulletins includes two which are particularly significant as they are concerned with design and construction in what is now known as timber engineering, a field of structures which is becoming rapidly popular. In all fairness the use of timber as a structural element on a large scale is not new, pre-dating, in fact, steel and concrete. The trouble is it somehow got crowded out by these 'newer' materials at about the time of the eighteenth century civil engineering heyday. Now, encouraged by the adhesives manufacturers, a few enlightened engineers and by the TDA itself, more and more firms are establishing themselves as not only manufacturers of large structural elements (trusses, box beams, etc.) but also constructors of buildings using these elements.

Anyone interested in timber engineering will soon find that as yet there is little data for the designer. Perhaps it is more accurate to say that the data is possibly there but not collected together in a form in which it is easily get-at-able. The new TDA Bulletins should help overcome this problem.

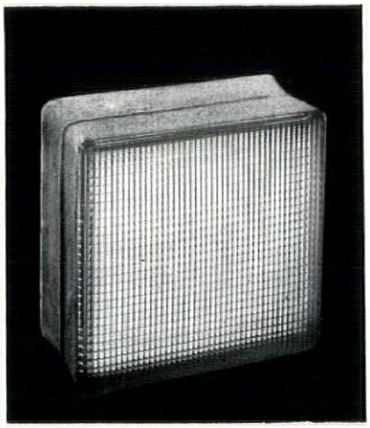
'Fabrication Manual for Connectored Assemblies' is concerned with structural units using nailed, screwed, bolted or timber connector joints. It establishes quality standards for materials and information on grading of timber and plywood. Other sections deal with engineering practice in the workshop, site work, inspection and maintenance.

'The Effective Width of Plywood Flanges in Stressed Skin Construction,' by H. Tottenham, MA, is a fairly technical study of the subject and is considerably helped by a design example at the back of the book.

Both Bulletins are available from the TDA at 3s. 6d. each.
Timber Development Association, 21 College Hill, London, E.C.4. (*City* 4771.)

Glass blocks

Amongst Pilkington's latest batch of new designs in glass hollow blocks is the PB4 Prismatic, 5, described as a light directing block. It is of usual size (7¾ in. by 7¾ in. by 3⅝ in.) and weighs 7 lb. For the purposes of description the four faces of the block (two for the front and two for the back) are referred to as 1, 2, 3 and 4. Of these the external faces (1 and 4) have vertical ribs and internal faces (2 and 3) have horizontal prismatic ribs at different angles. The makers say that face no. 1 is designed to collect light from wide azimuth angles; no. 4 to refract the transmitted light horizontally, thus reducing contrast glare and helping to keep the apparent brightness of the blocks low and uniform even under intense sun or sky brightness. The internal faces bend the incident light upwards, so that the maximum amount emerges above the horizontal. This prevents sun and sky glare and throws part of the light on to the ceiling, from where it is reflected



5, *the P.B4 Prismatic glass block by Pilkingtons.*

into the depth of the room, giving a uniform high daylight factor.
Pilkington Brothers Ltd., St. Helens, Lancs. (*St. Helens* 4001.)

Small bore accelerator

Small bore central heating is one of the most significant developments in whole house heating in recent years and equipment pertaining to it is, naturally, of considerable interest to architects. The use of small bore pipes is made possible by pumping or 'accelerating' the water through the pipes. Ideal Boilers and Radiators are now marketing a very neat little accelerator, 6, suitable for domestic installations. Made of non-ferrous metal it has a projection of less than 3 in. from the centre of the pipe. It is quiet in operation and suitable for temperatures up to 275°F. The manufacturers describe it as having no seal or gland to leak or require servicing. Accessories include a set of four flanges for

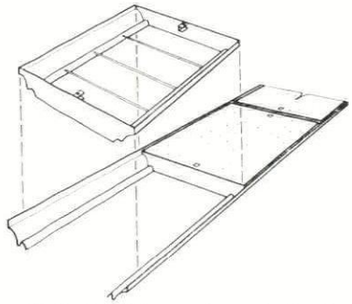


6, *Ideal-Hotflow accelerator for small bore central heating.*

connection between accelerator and pipe.
Ideal Boilers and Radiators Ltd., Ideal House, Great Marlborough Street, London, W.1. (*Gerrard* 8686.)

Duct cover

Broads have produced a new floor duct frame and cover, 8, called 'Stelduct.' It is manufactured from 12 gauge zinc-coated steel. The frame which supports the cover trays is made in lengths of 5 ft. and requires a 3 in. deep by 4 in. wide rebate along either side of the floor duct. The cover is in lengths of 2 ft. 6 in. and will take a safe distributed load



8, *'Stelduct' duct frame and cover by Broads.*

of 1,120 lb./sq. ft. when filled to the top with 4 : 2 : 1 concrete mix. The tray has ⅜ in. diameter rods across it at intervals to provide a 'key' for the infill.
Broad & Co. Ltd., 4 South Wharf, Paddington, London, W.2. (*Paddington* 7061.)

Ceiling panel

A new ceiling panel produced by the Building Boards Division of the Bowater Organization consists of a timber frame, ¾ in. thick, faced on the exposed side with ⅛ in. thick bevelled edge leather grained hardboard and on the back with an aluminium faced waterproof paper, providing a sealed air space between. Each panel is 2 ft. square, 7.

It is fixed direct to timber joists or grounds by nailing through the frame with 1½ in. lost head nails. The exposed edges of the timber frame are grooved and hardboard splines are slipped into these to ensure alignment of panels. Covering capacity is 2¼ panels per square yard of ceiling area. Holes can be drilled for lighting fittings, etc., and as the frame is closely bonded to the hardboard face, removal of sections of the frame will not impair the strength of the panel as a whole. The makers claim that used in conjunction with ¾ in. thick tongued and grooved boarding the panel provides a U value of 0.22. Price per square yard, supply and fix, is 15s. for normal installations.
The Bowater Organization, Bowater House, Knightsbridge, London, S.W.1. (*Knightsbridge* 7070.)

Gas cooker

There has been a lot of rethinking on cooker design in recent years and the various parts of this essential item of domestic equipment have all, in their turn, been the subject of study by the designers. A few years ago it was the oven, with the emphasis on being able to see what it was doing to the Sunday joint without opening the door. Now it is the griller and it is probably true to say that this item has come up in the world. Eye level grillers are the thing. A smart new cooker, 9, by R. and A. Main Ltd. has, as one of its principal features, a griller at eye level and a shelf beneath this on which plates may be stacked. The warming compartment and shelf combined will accommodate six large plates. A tap on the right-hand top side of the back plate automatically operates both griller and warming burner. An anti-clockwise turn puts on the griller and a clockwise one the warming burner. This tap incorporates an interlock mechanism which ensures that the gas to the griller cannot be turned on with the door to the compartment

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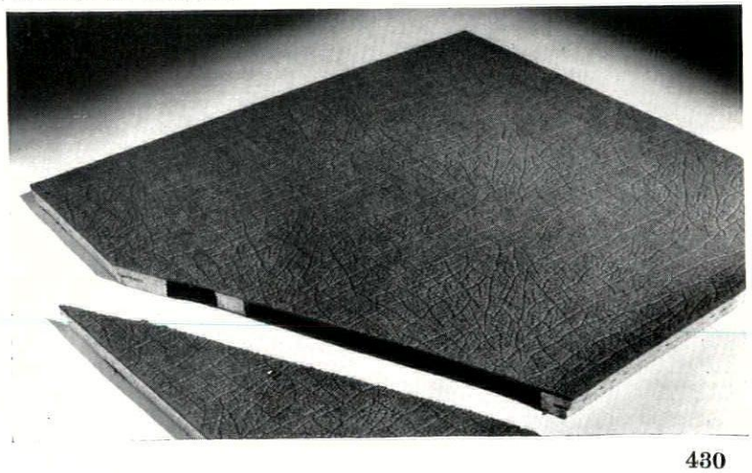
7, *the Bowater D/C ceiling panel.*





Boardroom Castrol House.

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Architects for Castrol House: Messrs Gollins, Melvin, Ward and Partners, in association with Sir Hugh Casson and Neville Condor.

continued from page 430]

closed or the door closed if the gas is on.

The oven has a drop down door, counter-balanced for easy handling, is spring loaded and seals into a stainless steel spring grip fitted around the front edge of the oven. Automatic temperature control is by means of a rod type thermostat, the setting knob being on the fascia immediately above the oven door. A single burner is fitted at the back and is lighted through a flash port situated at the front of the oven.

Finish is high-gloss vitreous enamel and it is available in white or cream. Overall dimensions are 57½ in. high, 23½ in. wide (including the gas torch at the side), 23⅝ in. deep. The hot plate is 34 in. above floor level.
R. and A. Main Limited, 48 Grosvenor Gardens, London, S.W.1. (Sloane 6241.)



9, the 'Monarch' gas cooker by R. & A. Main Ltd.

New catalogues

To the busy architect it is bad enough to be inundated with manufacturers' leaflets which tell you nothing about the product—at least nothing of any use to the architect. But to be sent a so-called Architect's Catalogue which also succeeds in telling you nothing is infuriating. The manufacturer who produces a catalogue which looks good and at the same time contains *all* the technical information about his product is to be encouraged for he is a rare bird. The Cape Asbestos Company Limited has just produced a set of three handsome catalogues which deal with one of their products, 'Rocksil.' One catalogue is devoted to the use of 'Rocksil' in marine engineering, one to its use in industry and a third to its application to transport, kitchen equipment and domestic piping. Each catalogue tells you on its front cover what it is about. Each one contains a detailed specification of the product and other information, such as thermal conductivity. The layout is imaginative and yet clear and simple. For example under each type of 'Rocksil' (i.e. rocks, slabs, building mat, loose wool, etc.) the information is tabulated as follows: 'description,' 'packaging,' 'use,' 'density,' 'size,' 'thickness,' 'price unit.' All the catalogues are of the same size. The pity is that they are all the wrong size! Why the designers (Woodhuysen Design Group) who, otherwise, have done such a good job, should have failed to look up the appropriate British Standard (BS 1311 : 1955) for guidance on size is hard to understand. For years architects have been campaigning, not just for better design, but for standardization of sizes and the failure to produce them to A4 size takes the edge off the welcome these catalogues deserve.
The Cape Asbestos Company Limited, 114/116 Park Street, London, W.1. (Grosvenor 6022.)

Partitions

The rapid increase in commercial building in our cities has meant that the planning of offices is a fairly constantly recurring problem for architects. In the USA much emphasis is placed on a large open area or general office in which everybody works including, sometimes, the executives. We, on the other hand, are loyal to the idea of relatively small working spaces where some degree of privacy is possible. Hence the market for office partitions.

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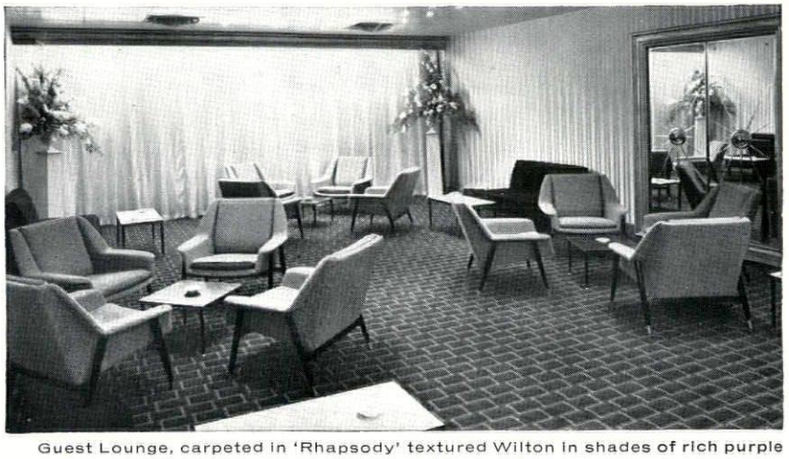
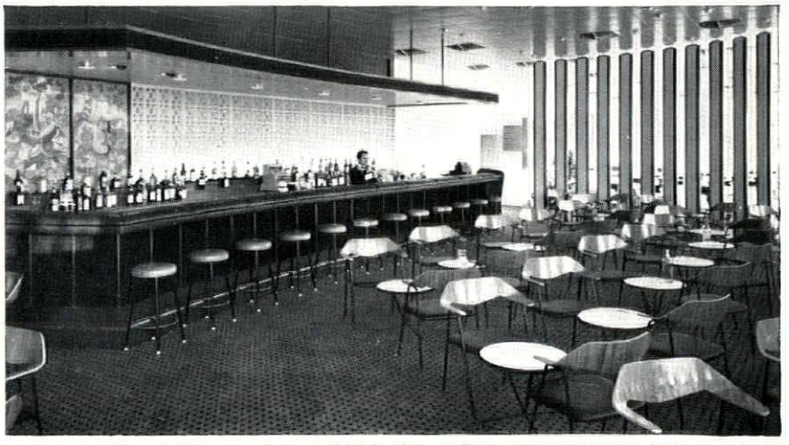


Guest Lounge, carpeted in 'Rhapsody' textured Wilton in shades of rich purple



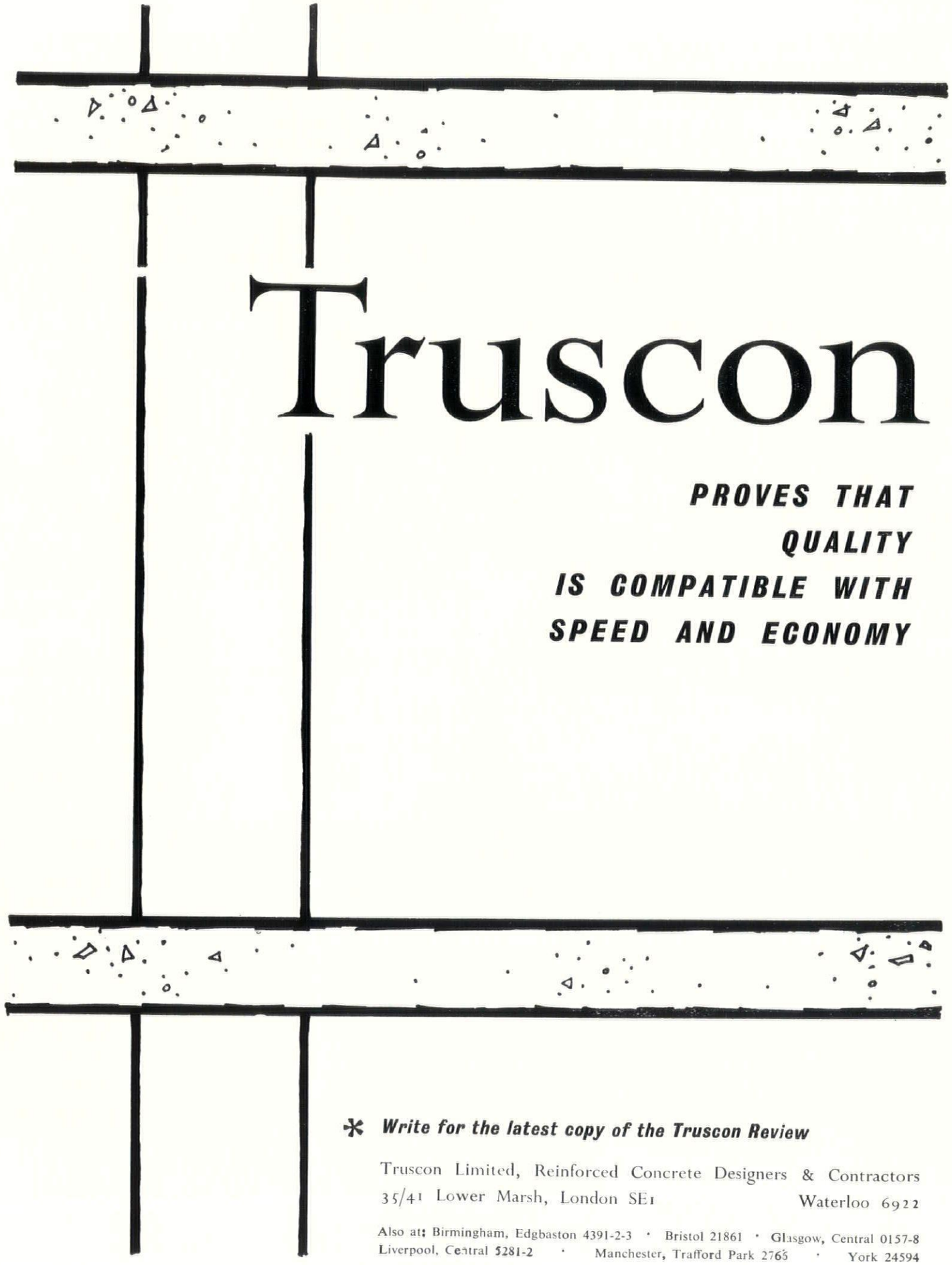
Cocktail Lounge, carpeted in 'Deva' fine woollen Wilton in lacquer red

Skyway Carpets

All the fine carpets in the new SKYWAY HOTEL at London Airport have been made and installed by Carpet Trades Limited, Kidderminster (supplied through Messrs. Andrew Bruce & Co. Ltd. London).

CARPET TRADES LIMITED
G.P.O. BOX 5, MILL STREET, KIDDERMINSTER

Carpets are supplied only through normal trade channels.



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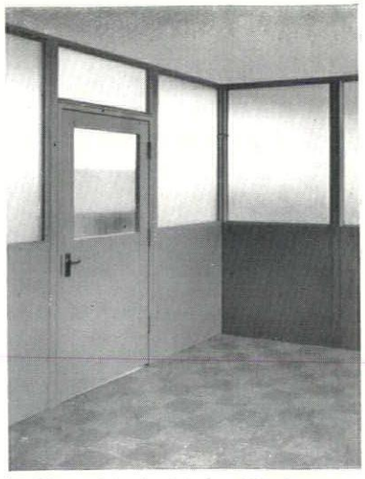
Despite the preference of some architects to design the partitions along with everything else in the building and the fact that most large manufacturers will purpose-make any partition you want, there is an increasing range of sound design in 'off-the-peg' partitioning.

The steel partitions, 10, are of the usual neat and sturdy form which is possible using this material. One of the advantages of steel for this purpose is that the designer can more easily rationalize his design to the point where site assembly is almost as simple as putting together a meccano set. No fixings are visible and, in fact, very few fixings are required to the building's structure itself. The standard Norwood partition is on a 3 ft. 2 in. wide module and panels are made in standard heights of 7 ft. 2 in., 8 ft. 2 in., 9 ft. 2 in. and 10 ft. 2 in. The solid section of the panel is a metal casing with an infill of mineral wool to assist in sound reduction. All metal parts are stove enamel and there is a variety of standard colours available. The connection between panels is a particularly sound detail providing for a snap-in cover plate on one side. The removal of this plate enables access to the fixings between panels and the space is suitable for vertical conduit runs. It is interesting to note that the number of principal component parts has been reduced to four.

Norwood Steel Equipment Limited, 149 *Borough High Street*, *London*, *S.E.*1. (*Hop* 5033.)



10, *Norwood standard steel partitioning.*

CONTRACTORS etc

Three Power Stations. *Architects:* Farmer & Dark. **Willington, Derbs.** *Main contractors:* Marples Ridgway & Partners Ltd. *Ash pipeline construction:* Crowley Russell & Co. *Structural steelwork:* Edward Wood & Co. *Main cold water storage tank:* Braithwaite & Co. Engineers Ltd. *Aluminium cladding, patent glazing, metal windows, lantern lights, concrete roof lights and opening gear:* Williams & Williams Ltd. *Asphalt roofs:* Ragusa Asphalte Paving Co. *Sanitary fittings:* Broads Manufacturing Co. *Heating and hot water installations:* Rosser & Russell Ltd. *Metal flooring and handrailing:* Power Utilities Ltd. *Glazed wall and floor tiling and quarry tiling:* Alan Milne Ltd. *PVC and rubber floor tiling:* Semtex Ltd. *Door furniture and ironmongery:* Comyn Ching & Co. (London) Ltd. *Sliding folding doors:* Bolton Gate Co. *Light weight barrel vault roofing:* Cheeseman & Sons; Tubewrights Ltd. *Timber flush doors:* Gliksten Doors Ltd. *Steel partitions:* Roneo Ltd. *Open mesh steel partitions:* Steelbrac Ltd. *Aluminium cubicles partitions:* Wm. Mallinson & Sons. *Acoustic tile ceilings and wall linings and glazed screens to control room:* Anderson Construction Co. *Wood block floors:* Vigers Bros. Ltd. Bennett's Wood Flooring (Tungit) Co. *Asphalt floors:* Limmer & Trinidad Lake Asphalt Co. *Granolithic floor tiling:* Prodorite Ltd. *Cement glass wall finishes:* Modern Surfaces Ltd. *Special roof finishes and weather hoods:* Samuel Wheeler Ltd. *Metal clothes lockers:* Norwood Steel Equipment Ltd. *Rolling shutters:* Haskins. *Post and wire fencing:* Allen Fencing Ltd. *Unclimbable steel fencing:* Bayliss Jones & Bayliss Ltd. *Venetian blinds:* Contravent Ltd. *Cycle and motor cycle stands:* Odoni Productions Ltd. *Paint suppliers:* Leyland Paint & Varnish Co. *Facing brick suppliers:* Uxbridge Flint Brick Co. *Reinforced concrete chimneys:* Tileman & Co.

Marchwood, Hants. *Civil engineering:* Sir Robert McAlpine & Sons. *Building work (except workshop and stores):* Staverton Builders Ltd. *Structural steelwork:* Alexander Findley & Co. *Chimney number one:* Chimneys Ltd. *Chimney number two:* J. L. Kier & Co. *Sub-contractors: Cladding (main buildings):* Aypex Ltd. *Cladding (canteen and welfare block):* Hills (West Bromwich) Ltd. *Heating, ventilating and plumbing:* Benham & Sons Ltd. *Painting:* Baxter Bros. Ltd. *Asbestolux internal linings:* The Cape Asbestos Co. *Column guards:* Huntley & Sparks Ltd. *Floor tiles:* Alan Milne Ltd. *Clothing lockers:* Speedweel Gear Case Co. *Facing bricks and sanitary fittings:* Broad & Co. *Roller shutter doors:* Dennison, Kett & Co.

Belvedere, Kent. *General contractor:* M. J. Gleeson (Contractors) Ltd. *Steelwork:* Sir Wm. Arrol & Co. *Reinforced concrete chimneys:* Tileman & Co. *Sub-contractors:* Atlas Lighting Co., Atlas Stone Co., D. Anderson & Son, Ancorite Ltd., Adamsez Ltd., Broad & Co., James Briton, British Patent Glazing Co., William Briggs & Sons, Cape Building Products Ltd., Carter & Co. Clark & Fenn Ltd., Claridges (Putney) Ltd., Carter-Horsley (Engineers) Ltd., Colt Ventilation Ltd., Concrete Ltd., Coronet Engineering Ltd., Courtaulds-Celanese, Durasteel Ltd., Dover Engineering Co., Diespeker & Co., Electric Installation Co. (Wimbledon), G. Forrest & Son, Greenwood Airvac, Stewart & Gray Ltd., Hall & Co., Heyman Construction Ltd., W. H. Heywood & Co.,

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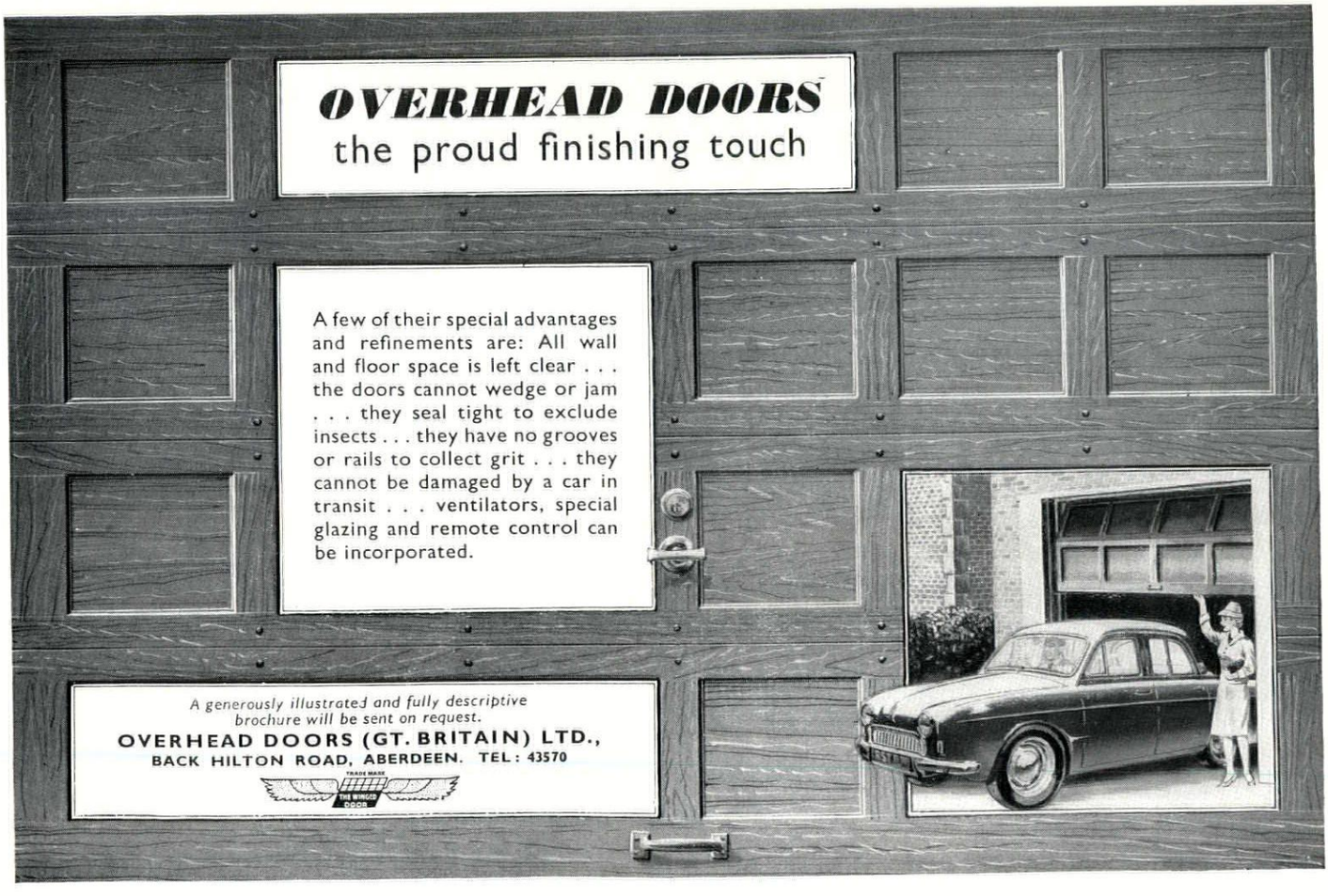

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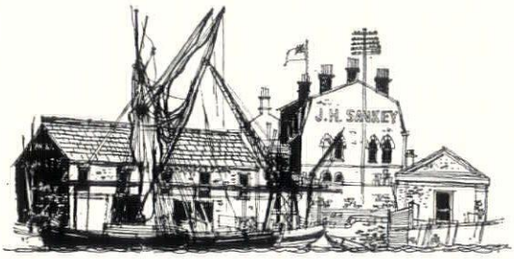

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continued from page 434]

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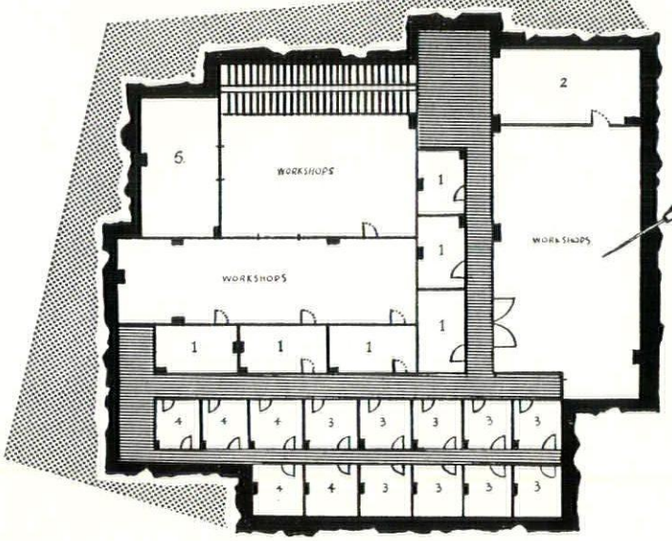

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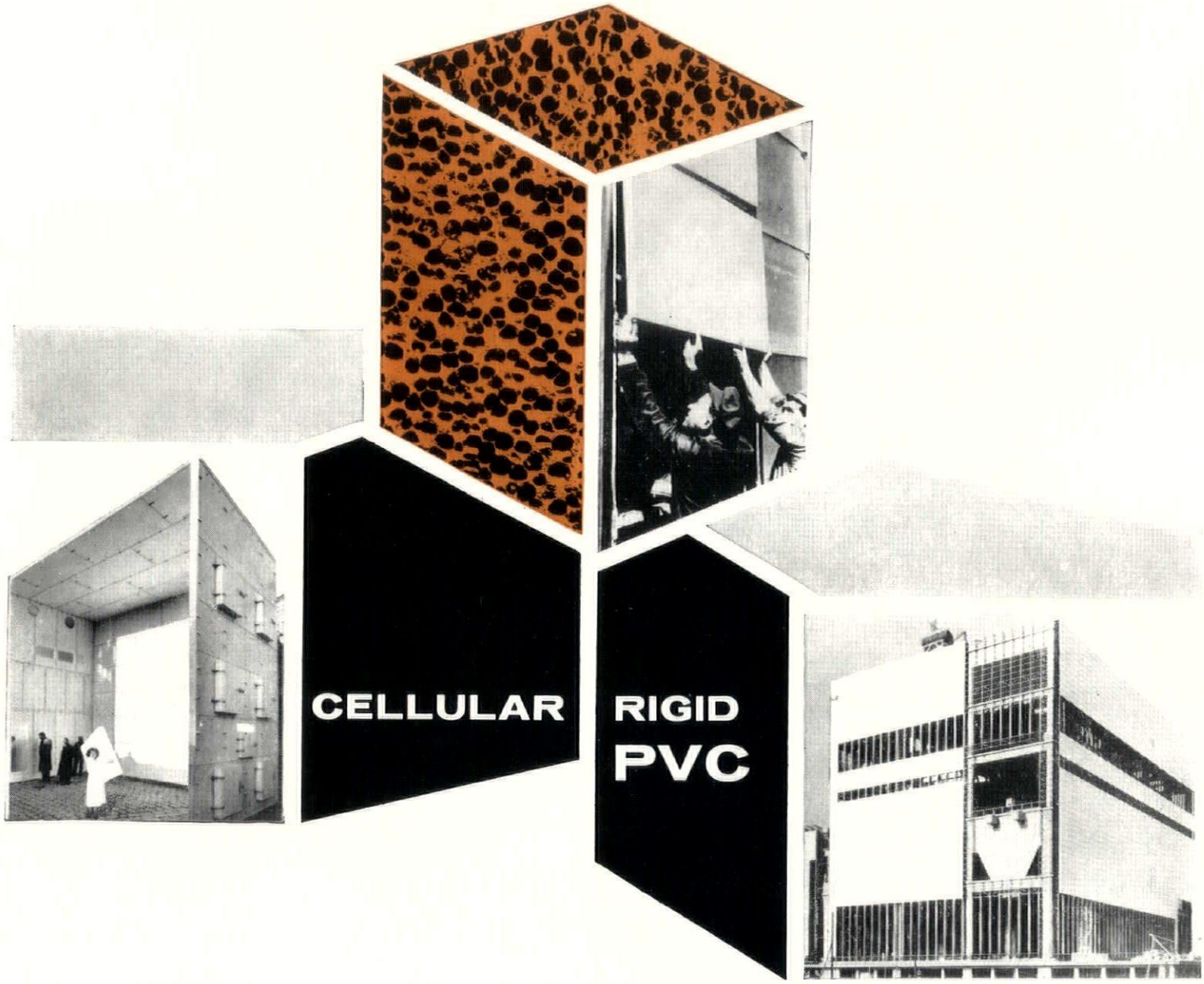

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