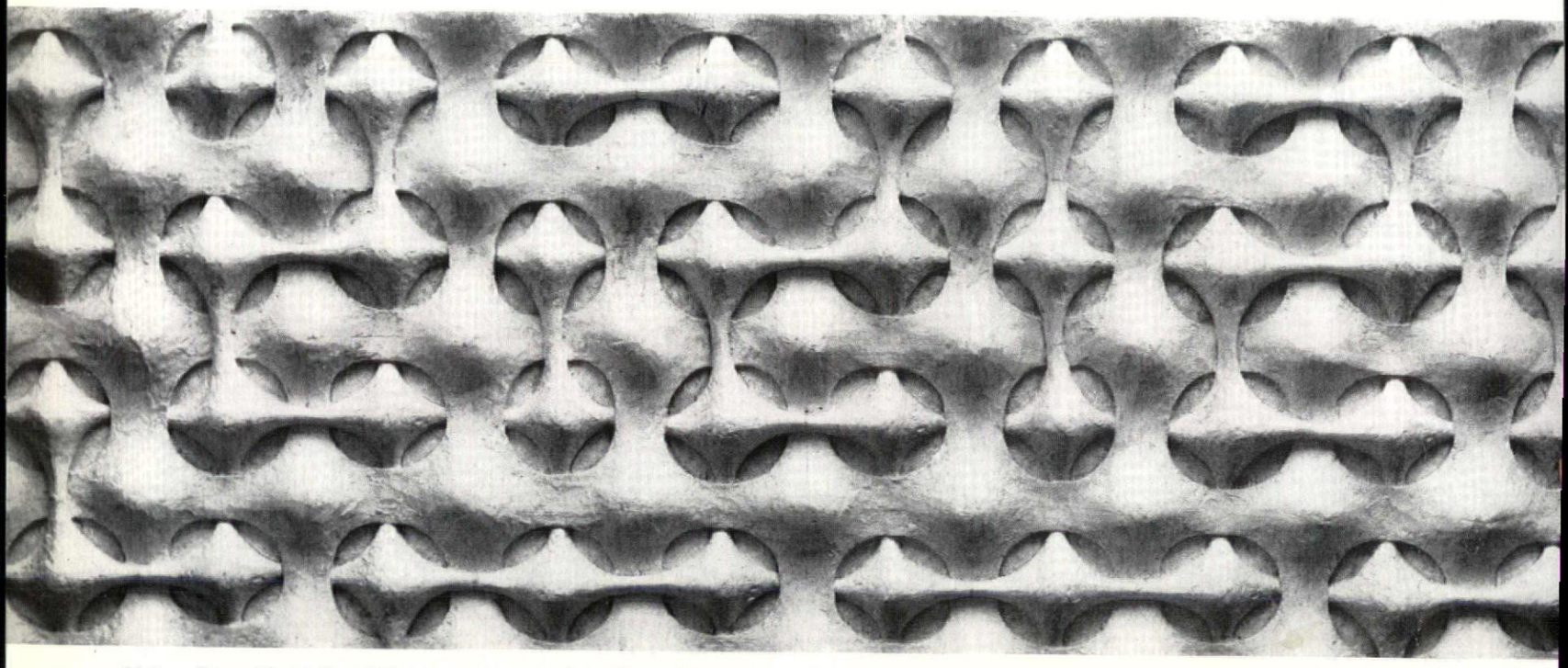
preview

6736
1

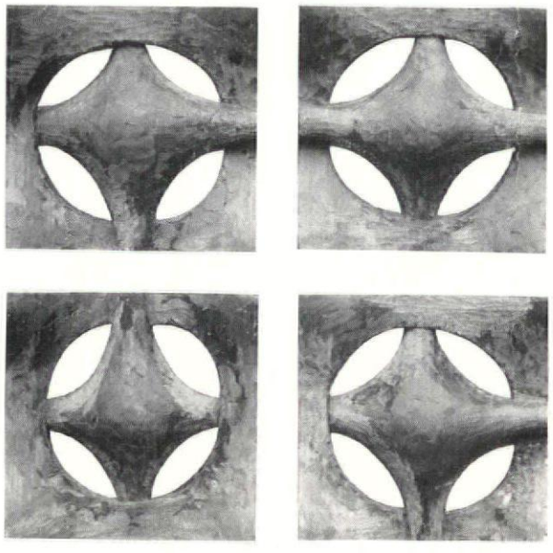


Sculpture by the yard . . .

FROM A DOORHANDLE TO A MONUMENT*



Unit sculpture "Lattice" wall for cast stone, carved marble, or bronze: to be solid or pierced, freestanding and double-sided





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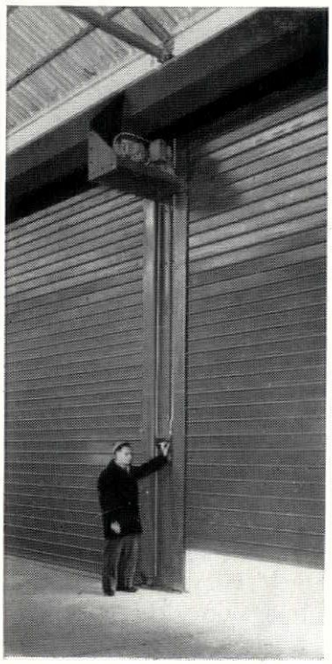

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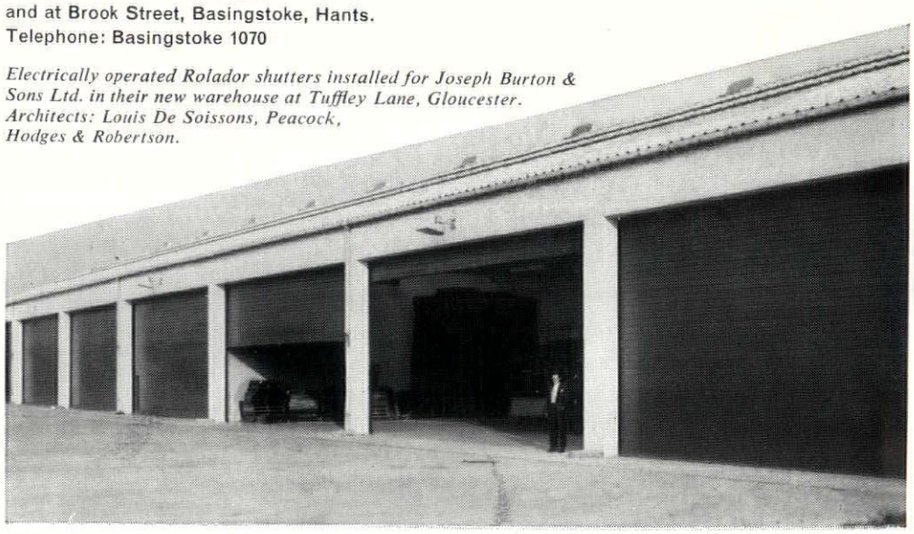
Electrically operated Rolador shutters installed for Joseph Burton & Sons Ltd. in their new warehouse at Tuffley Lane, Gloucester. Architects: Louis De Soissons, Peacock, Hodges & Robertson.



The Greatly Increasing Use of Gas Warm Air Heating

. . . it emerges that the Gas Industry has more than doubled its sales of central heating and warm air units in the past 12 months, which is indicative of the great advantages which gas offers as a central heating fuel.

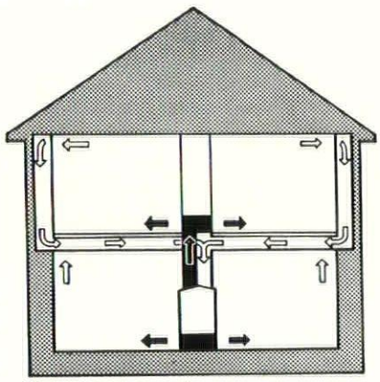
Central heating by warm air is an alternative to hot water central heating.

In this system air is drawn through a suitably placed heat-exchange unit, warmed and impelled by a fan along ducts to grille-outlets in the various rooms, these outlets being individually opened or closed as required. The air is filtered when it is returned to the heater from the rooms.

Warm air is becoming increasingly popular for installation in all types of new property, flats, bungalows and houses. The reason for this popularity is its generally lower capital cost, its exceptional flexibility and speed of heating. The output of heat is controlled by room thermostats; and as gas is quick to respond to changes of temperature it is a 'natural' fuel for such a system, particularly as regular servicing can be obtained for a small annual charge.

Warm air units can also supply a hot-water system either with a single heater serving both an indirect storage cylinder and a fanned water-to-air heat exchanger (a heat exchanger can be installed remote from the heating unit); or by incorporating two separately fired appliances in the same casing and sharing one flue and gas supply, thus making the best use of the flexibility of gas. Alternatively, hot water may be supplied by a separate gas water heater. There are many different methods available, each with its own particular advantages. One may choose either a 'whole-house' or a 'selective' standard of heating and the unit can also be installed in existing properties.

Reference is made below to 'Halcyon', 'Ductair' and 'Heat-inaire' which are proprietary ducted warm air systems and to their use with multipoint ('Ascot' and 'Circulyn') gas water heaters.

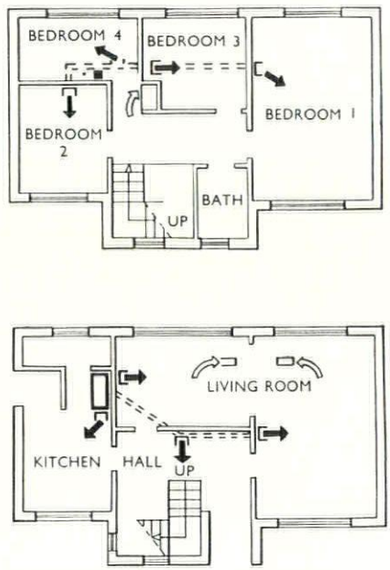


Sectional diagram illustrating warm air heating system with warm air discharging from the inner walls.

Technical notes have been published on gas warm air heating systems in the publication 'Gas Handbook for Architects and Builders' (1960), and other publications are available from the individual Area Gas Boards.

This system of whole house heating by warm air is sufficiently flexible and economic to make it attractive for every type of home. Its nation-wide success will be appreciated from a few examples of current installations.

The Southern Gas Board have installed 'Halcyon' systems both in 32 luxury flats in Lindsay Road and in 6 Corporation flats in Skinner Street, Poole. The latter, originally designed to be all-electric, use 'Ascot' balanced flue water heaters too. In Camberley two 22,000 Btu./h. 'Halcyon' heaters warm a contemporary style Canadian timber-framed house. The Renway Construction Company at Reading are incorporating 'Halcyons' in 200 houses and bungalows, each combined with a gas hot water system. At Bognor Regis 27 bungalows are fitted with the 'Ductair' system, the first phase of a large scale



First floor plan (top) and ground floor plan (bottom) of system illustrated on left.

development. Running costs will vary from about 25/- per week to 35/- per week, spread over the year, depending on the size of the premises, but will include all gas used, not only for heating and hot water but also for cookers, refrigerators, etc.

The South Eastern Gas Board will be supplying two 8-storey blocks of flats containing 64 flats at Wingate Crescent, Croydon, using 'Halcyon' warm air heating with 'Ascot' multipoint water heaters, and an 8-storey block of 32 flats at Mayday Road, Croydon is adopting the same system.

The North Western Gas Board at Preston have equipped two 11-storey blocks of flats with 'Halcyon' heaters and gas circulators for hot water and at Birkenhead a large scheme of four 14-storey, three 11-storey and eight 4-storey blocks of maisonettes will use the 'Halcyon' system with 'Ascot' multipoint gas water heaters. In Scotland 66 'Halcyon' and 'Heatinaire' units

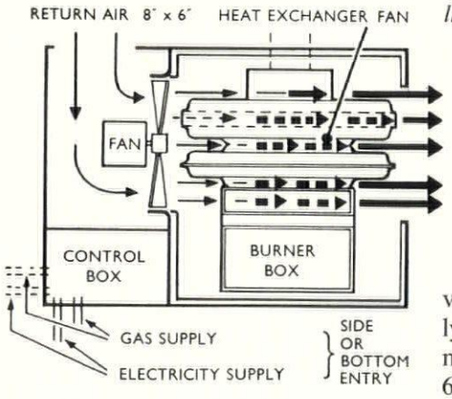


Diagram of 'Ductair' Warm Air Space Heater Unit

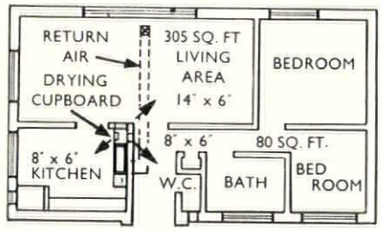
are being used for special purpose cottage type houses in Aberdeen.

Yet a different application is in the South Western Gas Boards' area where in addition to the very many installations in new private development of houses, flats and bungalows, a Regency house has been converted into six flats at Cheltenham, making use of 'Halcyon' heaters and 'Ascot' multipoint heaters for hot water.

The Ideal Home magazine and the R.I.B.A. recently organised a Small House Design Competition and the prize winning three-bedroom house at Windsor contained a 'Halcyon' warm air unit, domestic hot water coming from a 'Circulyn' gas circulator. Wates, builders of Dormy houses, are also using 'Halcyon' heaters.

230 houses and chalet bungalows being built by Hallmark Homes Ltd. at Angmering and Goring use 'Ductair' warm air heating units including a 'Circulyn' gas circulator for hot water.

It is thus apparent that throughout the country architects and builders, by making contact with their Area Gas Board, can see many examples of installations of warm air heating in a wide



Typical ducting layout serving main living rooms in a bungalow.

variety of buildings. Undoubtedly the difficult problem was in multi-storey dwellings more than 6 storeys high where solid fuel is often excluded for delivery and storage reasons. But here, the 'Se-Duct' flue system developed by the South Eastern Gas Board and made available to every other Area Gas Board has enabled the combustion products to be removed safely, cheaply and efficiently.

When one analyses the sales figures for central heating units (either by warm air or small bore low pressure hot water) it emerges that the Gas Industry has more than doubled its sales in the past 12 months, which is indicative of the great advantages which gas offers as a central heating fuel. In a recent survey by the Institution of Heating & Ventilation Engineers—'Central Heating in your Home' 1960—it was seen that when capital and running costs were compounded over a five-year period, gas turned out to be cheaper than kerosene for the small popular house and highly competitive with solid fuel.

The advantage of gas is that not only is it smokeless, thus complying with the Clean Air Act, but gas is always 'on tap' and by means of a clock control it can be turned on and off as required, giving complete flexibility to the user—for there is a wide spread in heating requirements from one household to another due to different family living habits, economic considerations and the use of supplementary appliances. In service and in performance gas is the perfect fuel for central heating and as most Area Gas Boards are offering attractive bulk tariff terms, this pre-eminent domestic fuel is obtainable at a competitive price. In fact, field tests have established that with present day tariffs (1961) warm air heating costs from 11/3 to 16/3 per average week, which is highly competitive with other fuels in relation to the level of service offered.

Indeed, the increase in gas sales over the last financial year to a record peak of gas usage in the U.K. has been attributed largely to the popularity of gas as a central heating fuel.

Scottish Gas Board, Edinburgh
Northern Gas Board, Newcastle-upon-Tyne
North Western Gas Board, Manchester
North Eastern Gas Board, Leeds
East Midlands Gas Board, Leicester
West Midlands Gas Board, Birmingham
Wales Gas Board, Cardiff
Eastern Gas Board, Watford
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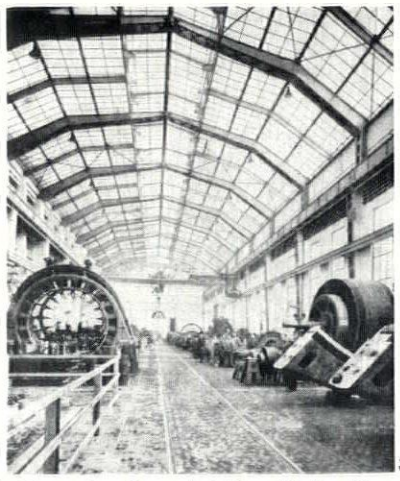
WORLD

1

THE WALLED CITY

Aesthetic preferences cannot stand against the hard fact that the most consequential building of 1961 enclosed no splendid space nor provided any stimulating sequence-experience, although it might be said to have provided a degree of environmental control, in that it prevented East Berliners from escaping to West Berlin. The great ridiculous wall of Berlin, 1, splitting a city in half for the benefit of two power-blocks whose interest in it is purely negative, has provoked many outbursts of anguish and outrage, and stimulated *Bauwelt* to produce a special issue (41-42, 1961) summing up both the fatuity of the Wall and the position of Berlin as a 'Dokumente europäischen Bauens.' The record of Berlin as a city of Modern Architecture is as impressive as it is sometimes heartbreaking. *Bauwelt* (a Berlin paper and proud of it) has quite a chronicle to unfold, from Franz Schwechten's Anhalter Station to Fritz Bornemann's new



3

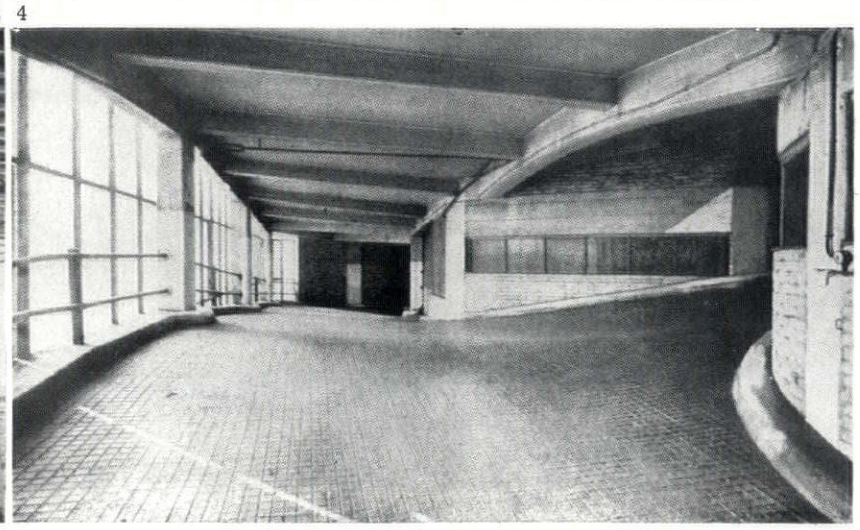
Deutsche Oper (which will be illustrated shortly in the REVIEW). Some of the more remarkable buildings along the way are August Endell's Mariendorf stadium of 1900 looking very much less Art-Nouveau, 2, than

5

its date and designer would suggest; Peter Behrens's *other* erection hall for AEG, 3; Zwiegenthal and Paulick's pioneer multi-storey garage of 1930, the Kant-palast, 4, 5; all the great Siedlungen of the Twenties and Thirties and the towers of the Hansaviertel rising above the bomb-damage; and ever and anon *die Mauer* running blankly through *Platz* and *Strasse* and adding new, and chilling point, to Hans Scharoun's question, first asked in 1947 and now no longer rhetorical, *Bliebt Berlin Weltstadt*? —is Berlin still a Metropolis?

2 4





1

ABERRANT TOWER

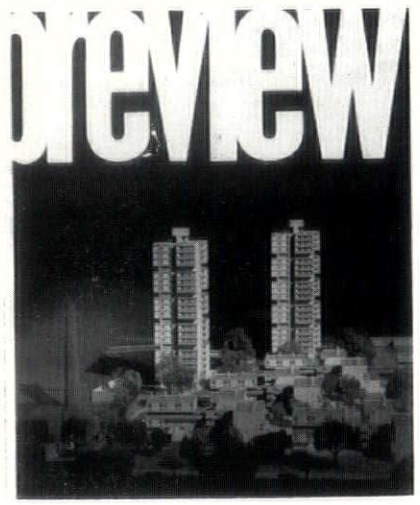


6

Just as the public image of a TV tower seemed about to crystallize into one or other of two standard forms—the Eiffel type of tapering lattice or the Stuttgart type of club-headed column—the image is back in the melting pot. MoW's waisted cylinder in Bloomsbury (AR, April, 1961) is one step back towards a more regular architectural form, the general purpose (FM, TV) tower on top of Sao Paulo, 6 (illustrated in *Acropole*, 271), takes it a step further still. Designed by the engineers Mainieri

ACKNOWLEDGMENTS

COVER: LCC. WORLD, pages 1–4: 1, *Life*; 2–5, *Bauwelt*; 6–7, *Acropole*; 8–10, *Kokusai Kentiku*; 11, 13, *The Times*; 14–17, *Edilizia Moderna*; 20, 21, Langford Studios; 23, Dwight E. Nolan; 25, Studio Diaphragma. VIEWS AND REVIEWS, pages 5–7: 1, Edgar Hyman. PREVIEW, page 11: Toomey Arphot; page 13, bottom: J. S. Markiewicz; page 21: Alfred Cracknell; page 22, top: Henk Snoek; centre, Alfred Cracknell; bottom, W. E. Middleton; page 25, centre: Toomey Arphot; bottom, T. P. Roskrow; page 26, lower centre: Alastair Hunter; bottom, Armour; page 29, top: Norman Gold; bottom, Sam Lambert; page 30, upper centre: G. Forrest Wilson; lower centre and bottom, Toomey Arphot; page 33, centre: Toomey Arphot; bottom, W. E. Middleton & Son; page 34, top: Henk Snoek; centre, Alfred Cracknell; bottom, Toomey Arphot; page 36, top: W. E. Middleton & Son; bottom, Alfred Cracknell; page 37, top: W. E. Middleton & Son; bottom, Alfred Cracknell; page 38, bottom: Toomey Arphot; page 41, bottom: Colin Westwood; page 42, top: Armour; above centre, Alfred Cracknell; bottom, Elsam, Mann & Cooper; page 44: C & B Photography; page 47: Henk Snoek; page 51, centre right: Toomey Arphot; page 52, top: Toomey Arphot; centre, Alastair Hunter; page 53, centre: Entwistle, Thorpe & Co. Ltd.; page 55, top: Toomey Arphot; page 58, centre: Michael Boys; bottom, Toomey Arphot page 59 top: Henk Snoek; bottom: Toomey Arphot; page 60: John Maltby; page 61: Logan; page 62: Henk Snoek; page 63, left: Sydney W. Newbery; page 64, bottom: Salisbury Photo Press; page 67: Alfred Cracknell; page 69: Henk Snoek; page 70, top: Sydney W. Newbery.



The Cover *shows a model of a housing scheme at Bermondsey, London, designed by Hubert Bennett, Architect, London County Council, one of the projects in this annual Preview number, see also pages 44-45.*

preview

a special issue of

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compiled by

C. Michael Pearson

who has been responsible for the research and organization required in the collection of the material for this issue, and, in collaboration with the editors and staff, for the selection of projects and their presentation.

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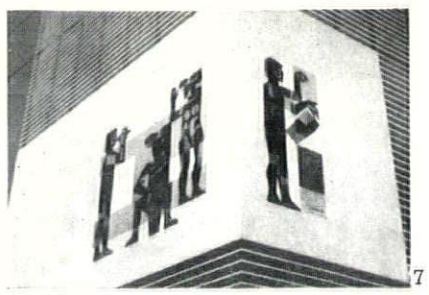
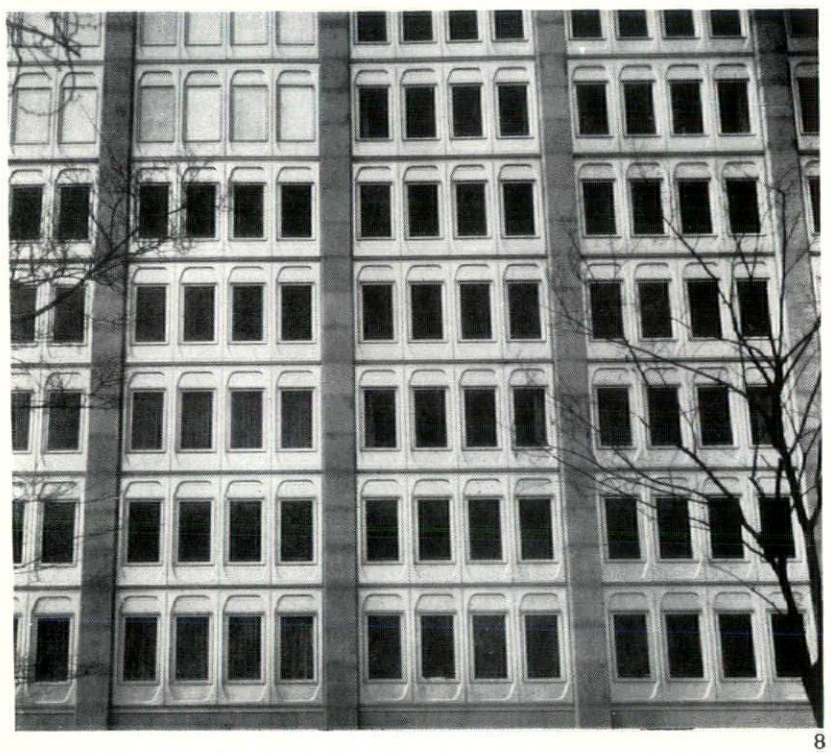
Tower



7

and Ferronato, with the collaboration of the architect Gregorio Zolko, it consists of a stack of office floors interrupted at the second by a substantial studio floor, expressed on the outside by the blank walls with murals by Gershon Knispel, 7. At the top, as will be seen, the building is cut back within the frame to give line-of-sight clearance for the repeater aerials, and the whole is topped by a conventional lattice transmitting array added since these photographs were taken.



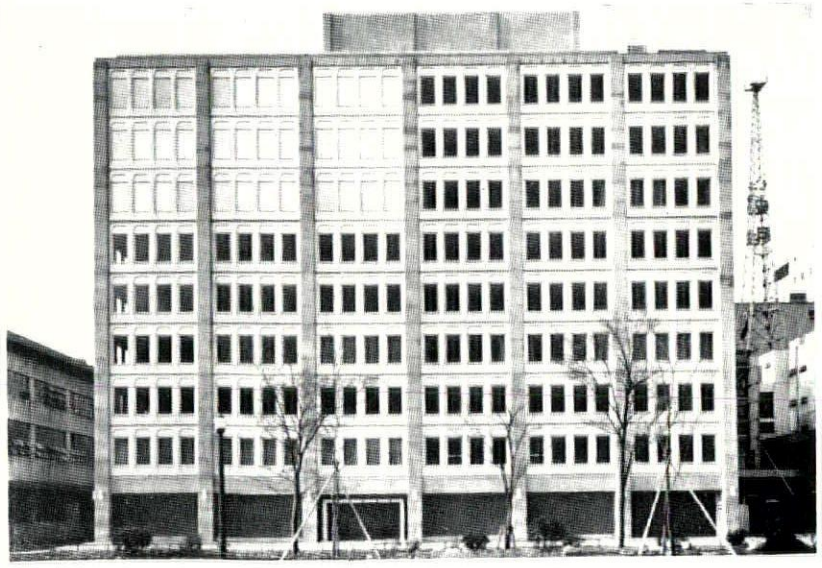
8

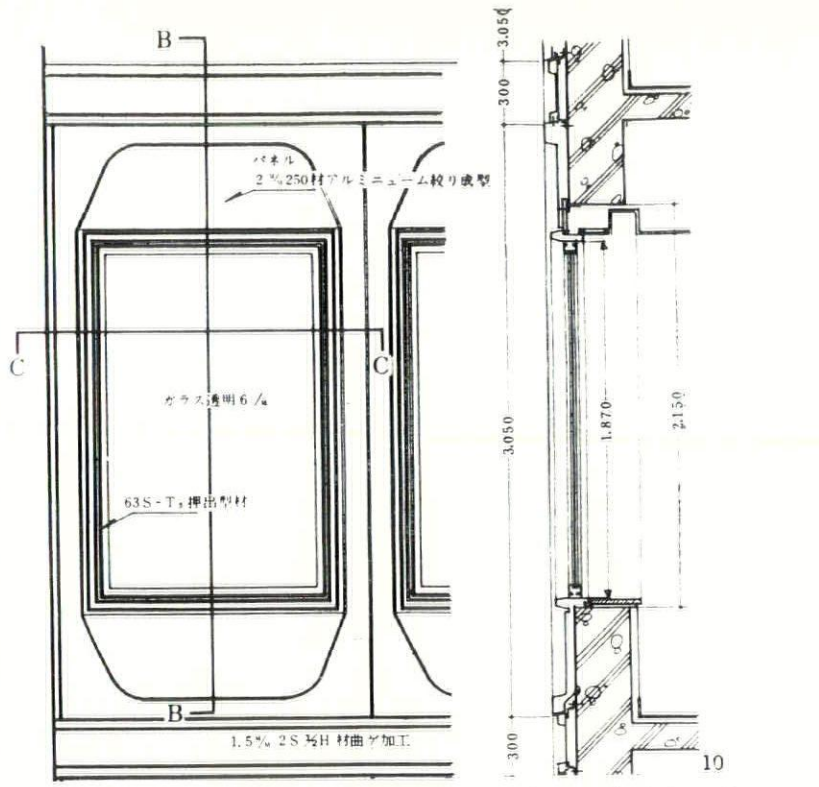
WHERE? WHEN? . . .

Now that the emergence of distinctive national strains of modern architecture seem securely established, replacing their common parent, the International Style, there comes a building that is clearly modern, 8, yet difficult to fix by its appearance alone to a definite time and place. Quadruplet 'railroad car' window units suggest the USA, but their apparent material, metal, seems to conflict with a light, subtle *modenature* that suggests, if anything, the recent concrete work of I. M. Pei. Although the detail of these window units makes a nineteenth-century date impossible, the blank pilaster strips suggest . . . Chicago (Jenney?) or even Prussia (Schinkel's warehouse aesthetic?).

The solution is: the Hibiya Kaikan Television Building (there is a studio behind the blank panels in 9) in Tokyo, by Dr. Kume and Associates. Such extremely bald but well-detailed

9





10

functionalism would be welcome anywhere today, but among the exuberant and ever more hypermaniac plasticities of recent Japanese architecture it is like a good deed in a naughty world. In addition, the very slight modelling of the metal panels is what it appears to be—the manipulation of an extremely thin skin that nowhere projects more than six inches beyond the face of the reinforced frame of the building, 10, rather than the surface enrichment of a thick cladding element, as in Pei's work.

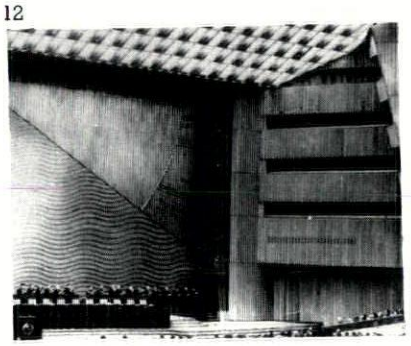


11

Type K, Mk. 1

Incredible as it may now seem, it is *over* six years since a little-known Communist functionary named Nikita Alexandreivitch Kruschev interrupted an architectural congress in Moscow with a few characteristically down-to-earth cracks about pointless monumentality and unwarranted expense, and thus brought to an end the wedding-cake phase of Soviet architecture. But if he made an end, the world has had to wait a long time for definite signs of a positive new beginning, and it has come at last, and fittingly, under Kruschevian auspices once more—in the vast new Kremlin auditorium where he put in train the final de-Stalinization of Soviet politics. The auditorium block, 11, designed by a team from the Moscow architectural department under Mikhail Posohkin, is sunk somewhat below datum in order not to obstruct the skylines of the Kremlin too much, and this may contribute to the slightly irresolute air of the exterior, which does not go much beyond the 'peeled classicism' implications of Kruschev's 1954 speech. It is not altogether easy to see what can have inspired the suggestion that the exterior is like the UN Congress building (unless it be the close rhythm of columns and glazing) but the interior certainly goes some way to meet Wally Harrison, especially, 12, in the acoustic baffling

12



Kremlin

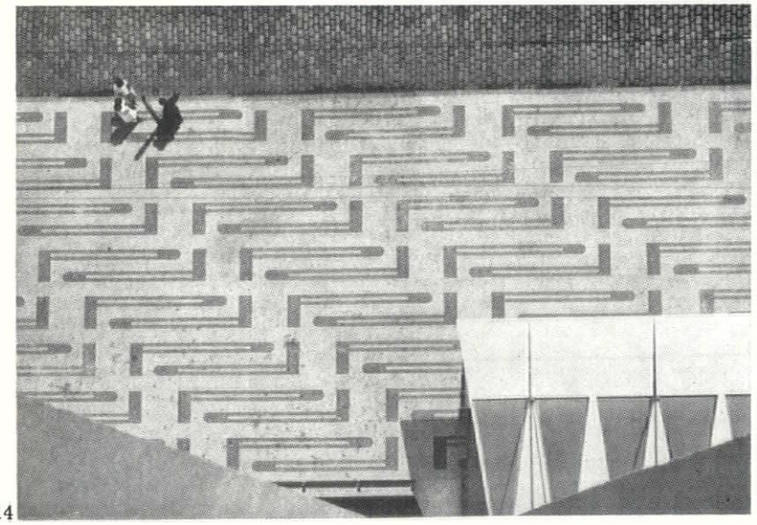
and translators' boxes, etc., around the proscenium, while the rest of the interior, 13, is in international concert-hall modern. Although Soviet sources speak of the care taken in ensuring excellent acoustics in spite of the deep, flat section of the hall, there appears to be provision for boosting them with a system of 7,000 small speakers (ostensibly for sound-effects, etc., when the hall is in non-political use) on a stereoambiophonic hook-up—indeed, the electronic specification of the hall, which includes provision for simultaneous translation into twenty-nine languages and a lighting rig of heroic wattage, promises to be one of the most interesting aspects of the auditorium when, and if, full technical details are published.



13

ANOTHER PIRELLI

The view down to a corrugated canopy and a tessellated forecourt, seen in 14, may well strike a familiar chord, without showing a building that the reader can identify. When the reader has identified the basic unit of the floor pattern, he will at least know that he is dealing with *a* Pirelli building, if not the famous *Pirellina* in Milan.



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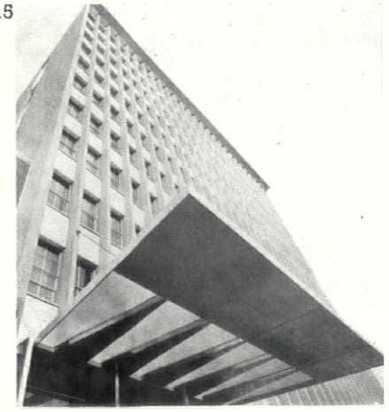
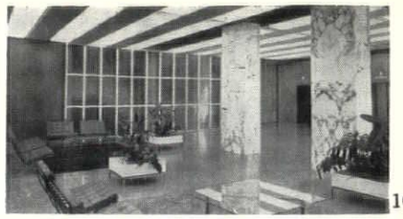


15

This one, 15, is in Sao Paulo, and designed by one of the Milan team, Giuseppe Valtolina, with Maurizio Mazzocchi as site architect and interior designer. As will be seen, the building is a plain rectangular slab with a façade of closely spaced, stone-faced mullions with anodized aluminium spandrel panels under the windows. At the back is a service court, flanked by a four-storey wing, giving an L-shaped block-plan. The interiors have a more pronounced and individual character, and are in some ways more striking than those of the main office in Milan—the entrance hall makes a strong showing of figured marbles, suspended ceiling and Barcelona chairs, 16, and the conference hall, 17, appears to be one of the best Pirelli interiors of recent years. Lest this particular view be thought to betray the hand of the Master of Milan, it should be pointed out that the decorative panel on the right is not by Gio Ponti, but by Bramante Buffoni.



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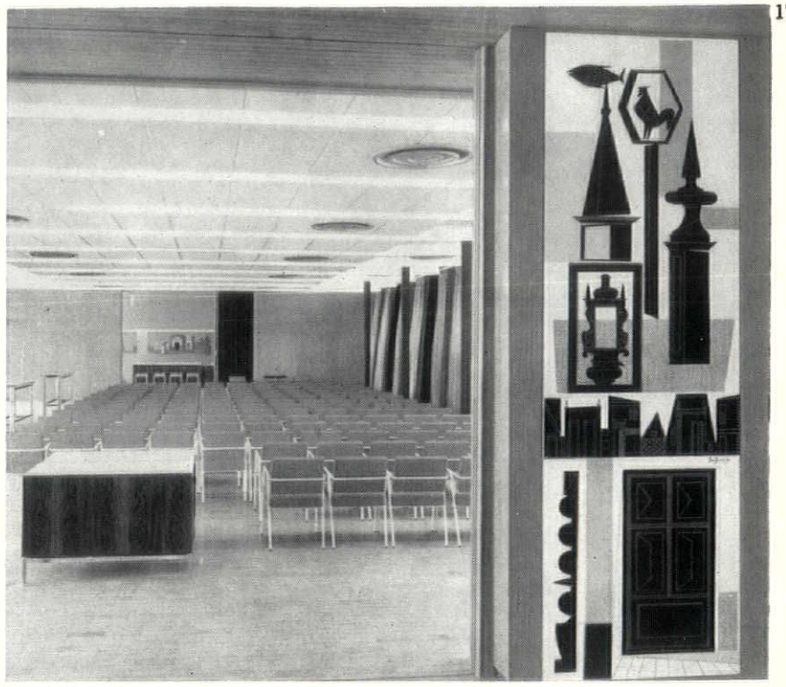

17

18

SMUDGES

19

Architectural polemic in Australia should be considerably enlivened by the revival of *Smudges*, the Melbourne student broadsheet that provided much of the bad blood necessary to a healthy architecture in the late Thirties, but finally died of sweetness and light in the early Fifties. In the first of the revived issues (November, 1961) the editor, Peter Corrigan, looks back in disdain, if not in anger, at the student publications of the decade when *Smudges* was dormant, and looks sideways at some of his contemporaries, such as *Cross-Section*, and finds them wanting. As for itself, *Smudges* promises 'some soul-searching in the form of a clarification of principles; rather than beating the tub for bright new programmes to bridge the gap of public awareness.' Nevertheless, *Smudges*' most endearing activity, the award of Blots and Bouquets, brings it well into the public domain. The Blot, 18, for the decade is awarded to 'our ex-Lord Mayor, for wonderfully dogged consistency in the face of slowly improving standards. . . . Copolov's shop front, 505 St. Kilda Road, Ampol House and Heart's Desire Home have maimed public taste for at least another twenty-five years. . . .' The Bouquet, 19, 'is extended to the firm of Grounds, Romberg and Boyd for their giant contribution to the creation and acceptance of a legitimate public image of architecture. . . .' This last seems a curiously conformist choice, since G R & B currently receive bouquets from all over—surely *Smudges* could have found a disagreeable outback genius that even *Australians* have never heard of?

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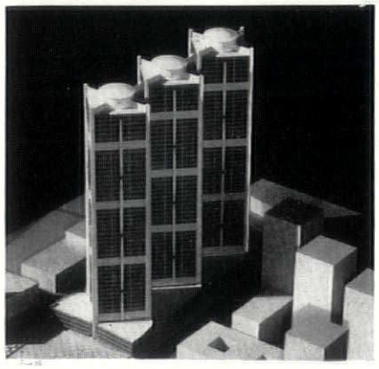
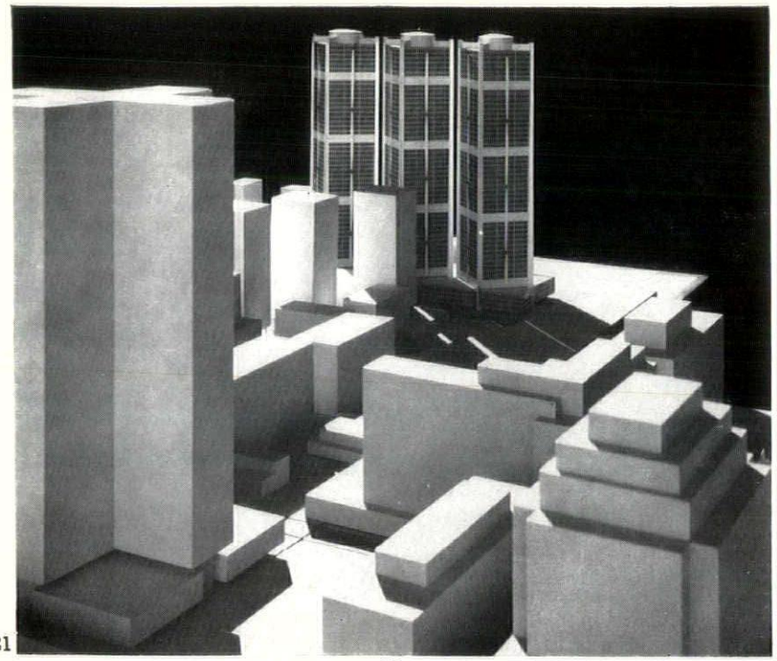


PLACE VICTORIA

The prospects of Montreal displacing Manhattan as the focus of new skyscraper development in North America are materially advanced by the announcement of the Place Victoria project, 20. Financed by a thought-provoking consortium of Dutch, Ita-



21

Place Victoria

lian and Canadian interests, and located only a couple of blocks distant from the Place Ville Marie scheme (World, October, 1961), as the block model shows, 21 (Place Ville Marie in left foreground), the new project not only brings the talents of Nervi to the New World again, but also those of Luigi Moretti—whose distinctive manner has not been exercised on this scale, nor with this kind of structure before. As the plan shows, 22, each tower is to be supported by a massive reinforced concrete stanchion in each corner, while intermediate floor loads are collected by tapering vertical members in the centre of each face, and transferred to the main stanchions by storey-deep beams, and a cruciform core collects the internal loads and also provides the main wind-bracing. The general layout of the site at ground level has been worked out by Professor Spenser-Sales, of McGill, though his responsibility does not appear to extend to the way the blocks themselves meet the

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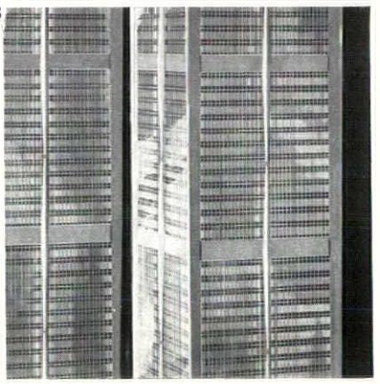
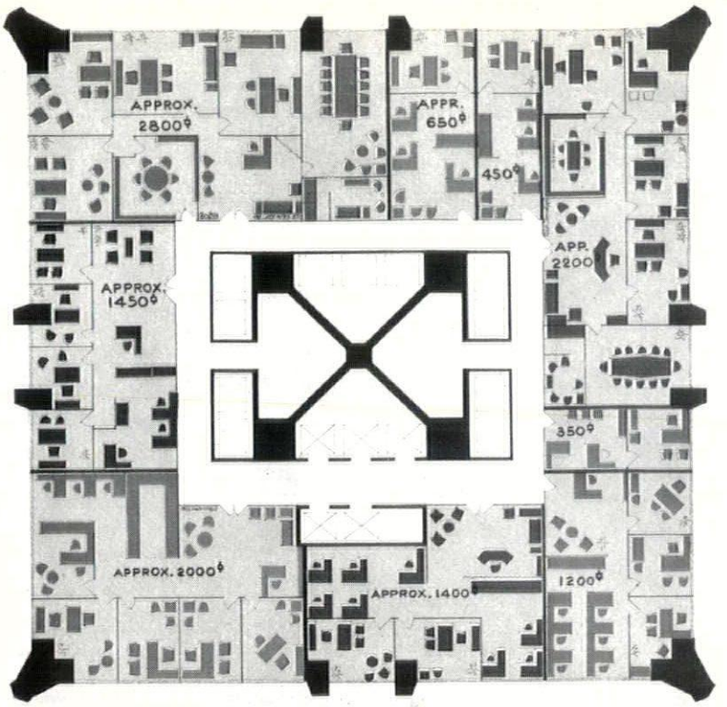


ground, 24—and from this view some uncertainty about the form of the vertical intermediate members seems evident. Comparison of what can be discerned near the top of 21, with the version given in the plan, 22, and the detail view, 23, suggests some difference of opinion about the solution of this member, and this, in turn, may reflect the influence of a sizable committee of other engineering consultants besides Nervi himself.



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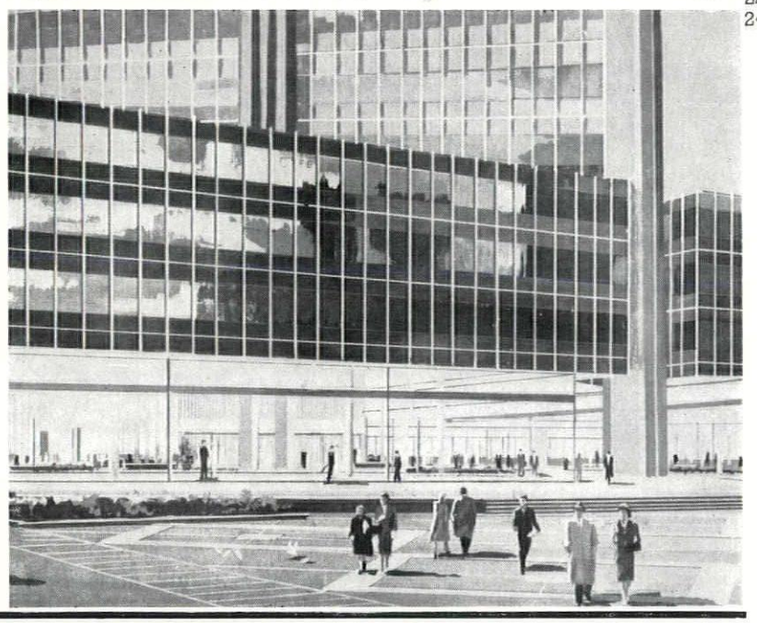

24

REX

Since *World* went so far as to doubt (June, 1961) that the project was seriously intended for building, it is only proper now to make the *amende honorable* and draw attention to the fact that the *Rex* factory at Pordenone has now been completed, 25. What is more, comparison of this photograph with the drawings of the original project by Studio Valle will show that it has been built substantially as they designed it. Whatever lingering reservations about a putative resurrection of heroic modernism may survive, they must now be very seriously tempered by the reflection that this is a striking addition to the small roster of original factory-designs produced by European architects, and a full evaluation of the scheme will be awaited with interest.

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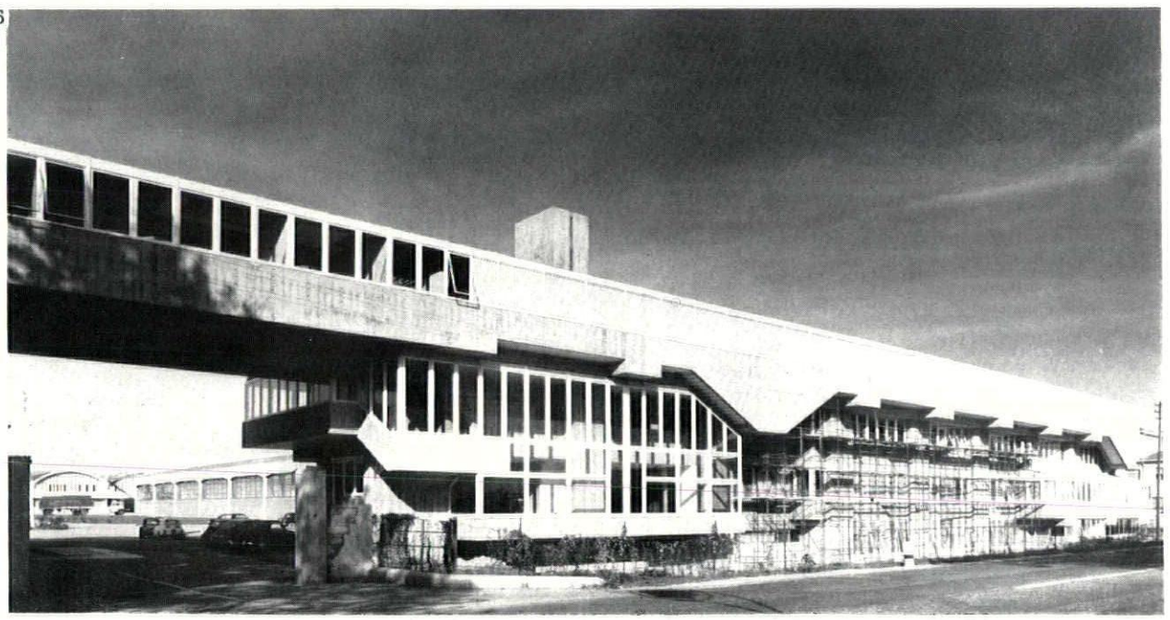


views and reviews

MARGINALIA

PERIOD PASTICHE AND THE CoID

Those who like to think that the battle for good modern design is as good as won have received yet another rebuff—this time from the Council of Industrial Design, of all people. In a most disturbing fit of boat-rocking, the magazine *Design* for November, 1961, published a kind of symposium on whether the Design Centre should exhibit period revival designs (so-called 'traditional' wares). The apparently scrupulous impartiality of this exercise, with five contributors for, and five against, should not be allowed to conceal the fact that the issue is pre-judged anyhow—in that the Centre has already shown such designs on occasions—and that it represents a misconception of the function of the Design Centre and a perversion of the aims of the Council. The pressure to exhibit period pastiches comes from a group of non-reconstructed manufacturers who believe that modernists are getting an unfair outlet in the export market via the Centre, forgetting that the aims of the centre are not *only* to provide a shop-window for manufacturers, but to provide a great number of other services as well (though the whole affair shows how thin was the ice on which the Council launched itself when it made the Centre a semi-commercial operation).

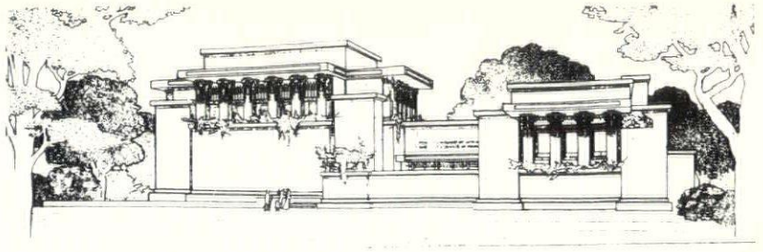
But, more than this, the granting of equal status to revivalist designs would be a negation of the basic proposition underlying the Council's foundation—that design can be improved. If we cannot design a better teapot than an imitation of a Regency one, we might as well give up the whole operation. The fact is, however, that we can, and that is the point that the Council has got to flog and go on flogging. A semi-apologetic editorial note at the end of the discussion in *Design* endeavours to defend its publication with the proposition that all controversy is good because it proves that the subject is alive, but more harm than good is done by treating as a live issue something which should have been regarded as settled long ago if the CoID believes in its own cause.

INTERNATIONAL JEWELRY

The current, rather nervous, interest in Art Nouveau will have received a considerable boost from the International Jewelry exhibition which was staged at Goldsmith's Hall, London, in November and December. Admirably presented, 1, in diamond-cut display cases by Alan Irvine, the exhibition covered the period from 1890 to the present day, and ranged over the work of commercial jewellers, unknown designers, artists from other fields (such as Giaccometti and Alexander Calder) and even a few architects (notably Josef Hoffman). Neither Irvine's display, nor the massively-documented catalogue showed any partiality to one period rather than another, but the Art Nouveau pieces (which will be the subject of a forthcoming article in the AR) naturally occupied one room, separate from the rest of the exhibition, and this served to point up a generally greater variety, gusto and inventiveness than were shown by works of later periods. No doubt the learned historians of art and culture will have the phenomenon suitably pigeon-holed and accounted for in due course, but for the ordinary visitor, neither instructed nor forewarned, it was a quite unexpected window into the mind of the 'nineties.

UNITY RESTORED

It is so rarely that the 'fabric committee' of a major modern masterpiece has to draw public attention to work of restoration that a letter lately received from the Board of Trustees of the Unitarian Universalist Church in Oak Park (Illinois), announcing the completion of cleaning and redecoration there, came as something of a shock. But Unity Temple (Frank Lloyd Wright's own, and better known name for it) had stood for over fifty years in that Chicago atmosphere that was never notably kind to buildings, and it had reached a condition where restoration work was imperative. The estimated cost was well beyond the means of the relatively small congregation, and though various bodies which were approached were free with moral support, finance was not forthcoming. Finally, the work was undertaken as a collaborative do-it-yourself project by the congregation and two architects from Taliesin Associates, William Peters and John Howe. Clean and repainted, the Temple—seen in 2 in a Wright drawing from the Board's letterhead—is now pretty well as the Master first intended it to appear. But this is only the first phase of the



2, *Frank Lloyd Wright's drawing of Unity Temple.*

1, *display cases at the Jewelry Exhibition, designed by Alan Irvine.*



operation; more work, and more money, will be needed to bring the work to a successful conclusion.

The devoted success of these men of religion is the more commendable when compared to the 'conscience' restoration of the Robie House by William Zeckendorf's men of commerce. Grateful as one may be to Webb and Knapp for preserving the house, the brickwork has been repointed flush, instead of with horizontal raked joints, and the effect is far more disastrous to the architecture than can be imagined without seeing it. Let us hope that the example of the Unitarian Universalist Church will spread to other bodies who now find themselves the custodians of early Wright masterworks.

GRAVEN IN CELLULOID

The 'book of the film' is usually little more than an attempt to squeeze some further profit from a story-line that is already common property, but *Erfindung des Verderbens: ein Jules Verne Film*, is a very different affair. The marriage of science-fiction and the cinema was the first major event in the cinema's career as a mass-medium, and Georges Méliés's fantasies are among the earliest films of any sort that have survived. As a subject, SF has always fascinated film-makers, and the incunabula of the genre have the added fascination of providing an excuse for costume epics into the bargain.

The films based on the works of Jules Verne are therefore legion, and Hollywood now has a well-developed technicolor technique for producing them, but an alternative approach is always welcome and when it is as imaginative as the Czech director, Karel Zeman, has been in this version of Verne's *Face au Drapeau*, it is doubly welcome. Deservedly bemedalled at the Brussels exhibition, *Vynalez zkazy* lies right outside the Hollywood tradition, and sets its actors against scenery and interiors that simulate Victorian graphic art, 3, of the Verne period. The result combines the ghoulish frisson of a Max Ernst collage, 4, with the Ealing-Studios charm of primitive machine aesthetics, 5. For all the appeal that this will undoubtedly have for a trained architectural eye, the film might still have failed to rise above the conventional horrors and humours of costume SF, had not the director shown himself capable of rising, on occasions, to heights approximating the master-illustrators of the period—a scene such as 6 demands comparison with Doré, and can stand it. It may be that these intensely graphic images register better as stills than as parts of a movie sequence; certainly this recent German-language book-of-the-film, published by Artia, of Prague, from which these reproductions are taken, seems to bring out this quality even more strongly than did the original.

COMMONWEALTH ARCHITECTURE

The two recent special numbers of THE ARCHITECTURAL REVIEW devoted to architecture to-day in the British Commonwealth have been republished in book form under the title *New Buildings in the Commonwealth* (Architectural Press, 56s.).

The first of the two numbers dealt with the older Dominions, and this provides the first half of the book except that the section on South Africa has been omitted, South Africa having left the Commonwealth in the meantime. But a quantity of additional material from Australia, New Zealand and Canada that has become available since has been included. The introductory text is by Nikolaus Pevsner. New material, to bring it up to date, has also been added to that in the second number, which dealt with the tropical Commonwealth territories in Africa, the West Indies and the Far East and which makes the second part of the book. This is introduced by G. A. Atkinson.

Though there is great architectural activity in these rapidly developing countries and much of interest and quality emerging, it has hitherto been given too little attention. This book puts it for the first time on permanent record.



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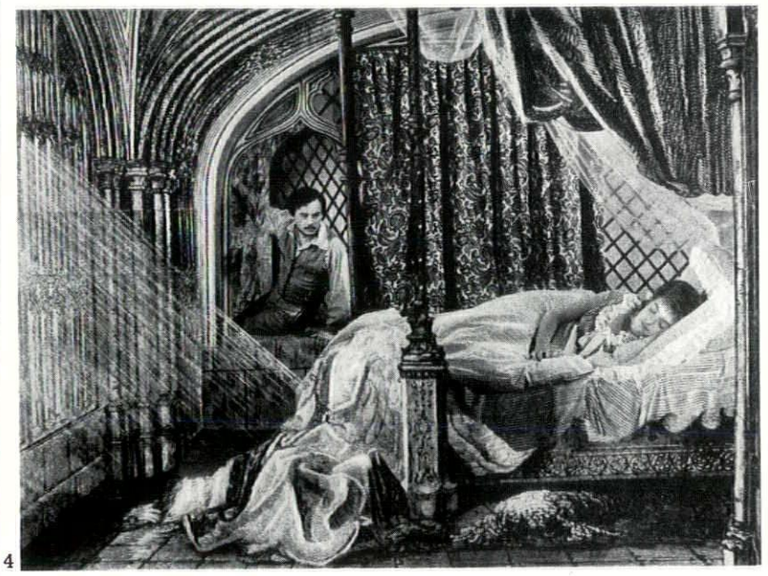

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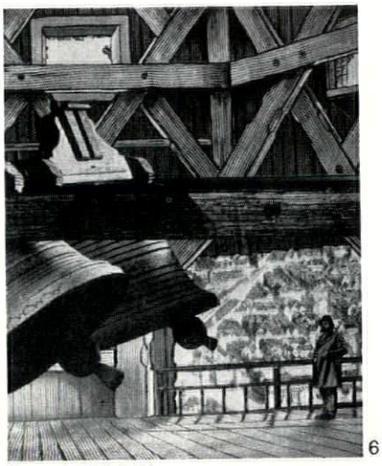

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3–6, *illustrations from* Ein Jules Verne Film—*see 'Graven in Celluloid.'*

EXETER ROOD SCREEN

Illustration 7 on page 315 of the November 1961 AR, showed the chancel vault at Wells cathedral and not the strainer arches.

GENTLE, NOT GENTEEL

On page 393 of the December 1961 AR, the architect for Priory Mews Wallingford, should have been given as Tom Hancock of Morton Lupton.

CORRESPONDENCE

MACKINTOSH AND OTHERS

To the Editors.

SIRS.—The publication of the splendid memorial to the Paris Exhibition of 1960, with its great emphasis on the work of C. R. Mackintosh*, has made my head swim with memories of my girlhood till 1916, and marriage.

William Morris was one of my favourite authors—my father describes him as walking with a rolling gait, like a sailor, his hands in his pockets. I was impressed when taken along to Kelmscott House in Hammersmith to see the small hall stuck on to the house still arranged with its chairs, as when Morris lectured there. The house, lived in then by H. C. Marillier, was perfectly beautiful, untouched and unspoiled, with an entrancing garden complete with classic statues and almonds ready for eating.

It was September, and we were staying with the Muthesiuses in their house close to Battersea Bridge. This was a good old Georgian red brick house, with practically no plumbing—I should think it only had one cold water tap. After four months living in the same conditions at Walberswick in Suffolk, we had been promising ourselves the luxury of a Hot Bath. Quite seriously Herr Muthesius, always thoughtful and interesting, was a strange foil for his exotically beautiful wife. It was a happy household. My father painted a good sketch of Frau M. in a beautiful green and blue Javanese wax print—a real innovation. It was reproduced as a cover of *Jugend*.

We also stayed with the Waltons in an Ashbee house, next door to Whistler. The beautiful Mrs. Ashbee used to walk on the Embankment in bare feet and sandals—in 1900 another innovation. My mother used to get sandals made for us, till Edward Carpenter started to make them—all by hand.

At home in Glasgow, Walter Crane used to come to adjudicate. He brought us his illustrated books and wore, for evening, a bottle-green tailed coat with brass buttons. A tall thin man with a grey 'Imperial,' he looked like Uncle Sam.

Voysey nearly got the appointment as Head of Design for the Glasgow School. He was the dearest little

**The Sources of the Twentieth Century*. By Jean Cassou, E. Langui and Nikolaus Pevsner. Thames & Hudson, 1962. 3 guineas.

man — elderly then — with bright twinkling eyes. He wore lovely bright blue shirts, jackets specially made with no revers, and scented his handkerchief with Mitcham lavender, as he said: 'Why neglect any of your seven senses?' When the appointment was virtually his, he was invited to ask any questions.

'What is the price of a 1st Class Season ticket to London?'

This lost him the job, which was a great disappointment to my father, and loss to the School.

J. J. Burnet, a man of a silvery, distinguished appearance who had a thin-lipped hostility to Mackintosh, must have been one of the strong factors to keep Mackintosh out of work. My parents called this group the Beaux Arts lot.

We would have had a complete Mackintosh house if my mother had had her way, only my father couldn't give up his much loved antique furniture. Mother never tired of telling her great story of an architects' dinner, I think at Breslau or Leipzig, where the toast was 'to our master—Charles Rennie Mackintosh, the greatest since the Gothic.'

Getting on for seventy, I sometimes feel a bit like Rip van Winkle, perhaps because my retentive memory—inherited from my father—started to register at an early age. I so often regret now the questions I could ask my parents—it is now too late, but here I am remembering and hoping not to have bored you.

Yours, etc.,

MARY N. STURROCK.

Edinburgh.

BOOK REVIEWS

PREMATURE MONUMENT

CIAM '59 in OTTERLO. *Compiled by Oscar Newman, Tiranti (Documents of Modern Architecture Series, No. 1, edited by Jurgen Joedicke).* £4 10*s*.

This first volume of Joedicke's *Documents* series is assured of a place at least among the *curiosa* of architectural literature. As background material on the much-publicized 'death' of CIAM, and the undignified brawl between Giedion and Bakema that has ensued, it will be required reading for historians (supposing either of these events proves to be of the slightest historical consequence). Like all records of discussions between intelligent men of divergent principles it has a certain quality of drama, but drama of a very low order—indeed, one wonders how the compiler could have been so callous as to leave in those passages in which the unfortunate Wendell Lovett allowed himself to be manoeuvred into a Jerry Lewis role and then bladdered over the head by the other *dramatis personae*.

Again, students of the present malaise of Italian architecture will no doubt be interested in the dissertations (of heroic length and positively jesuitical involution) by Ernesto Rogers and Giancarlo di Carli. But as one of them was defending an intrinsically bad building, and the other an extremely trivial one, there is very little useful contribution here to the present problems of architecture. Many a reader will probably throw the book down out of sheer *noia* and *accidie*, when after wading through di Carli's inexhaustible verbalization he finds that all this forensic skill has been devoted to the justification of a building in a local version of New Town Vernaculistic. Fortunately, most of the buildings in the book are a good deal better than this, but—*un*fortunately—the amount of space and discussion devoted to them is not commensurate with their quality.

Although one has not the slightest doubt that it was an inspiring and cathartic experience to be at Otterlo, and while one can see Bakema's reasons for 'ordering' the compilation of the text, the book—save for rare flashes of low comedy or ill-veiled hostility—will rarely make the reader think 'By George, I wish I had been there,' in the way that the ill-printed records of the meetings of the *Internationale Situationniste* so often do. Nor will it often present him with a truth that seems sufficiently durable to be worth recording in printer's ink so long after the event. Above all, it seems the greatest of pities that Joedicke's extremely promising series should have got away to such a flat start with a volume that threatens to disappoint even the few *illuminati* it was destined to interest. Clearly, the 'second CIAM' has hastened to monumentalize itself in print too precipitately, and has left Joedicke with something of an empty cenotaph. Fortunately, the second volume, compiled by the series editor himself and dealing with a subject on which he is undoubtedly qualified to speak—the architecture (not just the engineering) of shell vaults—promises to be vastly more rewarding.

Reyner Banham

ARCHITECT'S ARCHITECT

THE ARCHITECTURE OF SIR JOHN SOANE. *By Dorothy Stroud. The Studio.* 70*s*.

Round about the time (1927) when his best work in the Bank of England was torn down, it began to be said that Soane's architecture had some affinity with the modernism of the day. This was based on nothing more profound than the austere dedication of his personality and the plainness of his surfaces. It could just as truly have been said that in other ways, for example in his almost obsessive refinement and his supreme concern with internal volumes, he was at the opposite pole from the thirties. The fact surely is that to a quite exceptional degree Soane has no affinity with anyone. He admired Vanbrugh and his sculptural handling of rectangular masses must have been under his influence, but it is rather like Mahler after Wagner: scaled down, introspective, even morbidly self-conscious. Inevitably also he started by copying his teachers, Henry Holland and George Dance, but he was too eccentric to stay put in either the neo-classic or the picturesque categories. As for his supposed continental affinities, he is utterly remote from the rough magic of Ledoux (Vanbrugh's true heir) and as remote from those cold fish Gilly and Schinkel. He was, it is clearer then ever in the light of Dorothy Stroud's splendid illustrations, a genius: the one thing none of his contemporaries quite were. But like most great architects he was the withdrawn kind of genius, hard to recognize either alive or dead, and temperamentally quite out of touch with the emotional needs of an age that was both frivolous and sentimental.

He therefore had no followers, and he is still a 'difficult' architect—an architect's architect. Yet to a generation so obsessed with precision, with volumes, with the disassociation of planes (or what we generally call 'floating'), Soane, whose mature style shows all these characteristics, cannot fail to be illuminating. Of course these are only some of his characteristics, just as they are only some of our obsessions. He was no townscapist, no environmentalist, no scene-setter, and the brutalist element in us must presumably be repelled by his skimpy forms, his fastidious finishes and the almost Art Nouveau flaccidness of some of his curves. This is, in the end, the nagging fascination of Soane: formally you cannot pin him down.

Whatever attraction or replusion Soane's peculiar quirks may have for our generation, he is most certainly on our wavelength in the fundamentals of his approach to design. If ever there was one, he was what the Communists call a Formalist. In this lay his splendid detachment, not merely from Nash the social realist, but from the whole ideology of his age, which was unanimously and passionately concerned with the *associations* of architecture and not with its aesthetics. Yet there was nothing cold about his formalism. As Professor Hitchcock points out in his lucid and balanced introduction, Soane's work has an intensity of feeling 'which sets him apart from the great majority of English architects.'

Miss Stroud's book is multi-purpose. It is primarily a *catalogue raisonné*, but it also contains a critical assessment and a straightforward biographical chapter, and by printing its text on grey cardboard and its illustrations a handsome size it presumably sets its sights on the glossy market as well. No complaints, except that this method of presentation is necessarily fragmentary and to some extent repetitive. One has some nostalgia for the one-piece 'Life and Work' critical biography. One may also wish that Miss Stroud had allowed herself some Summersonian derivation-hunting. Where did Soane find that lightly floating saucer dome with its pendentives formed by cutting flattish segments out of it? Whence the indirect lighting and the famous grooves? What is the genesis of his fairylike palace façade with its astylar arched openings, of which No. 13 Lincoln's Inn Fields is the only surviving fragment? She modestly sticks to facts, which she gives in admirably scholarly prose; and perhaps rightly. These strange forms probably have no other source than Soane's mysterious and for ever unfathomable imagination.

Lionel Brett

BUILDING MATERIALS

A HISTORY OF BUILDING MATERIALS. *By Normam Davey. Phoenix House* 65*s*.

This is a book bearing the stamp of authority. Its writer was for many years a senior member of the staff of the Building Research Station at Watford. He is evidently a specialist on bricks and tiles (of which he has even had first-hand experience in southern Persia), and the chapter on Roof Tiling, in particular, is a model of how to compress a great deal of relevant and interesting knowledge into a few pages. The chapter on Glass is no less admirable.

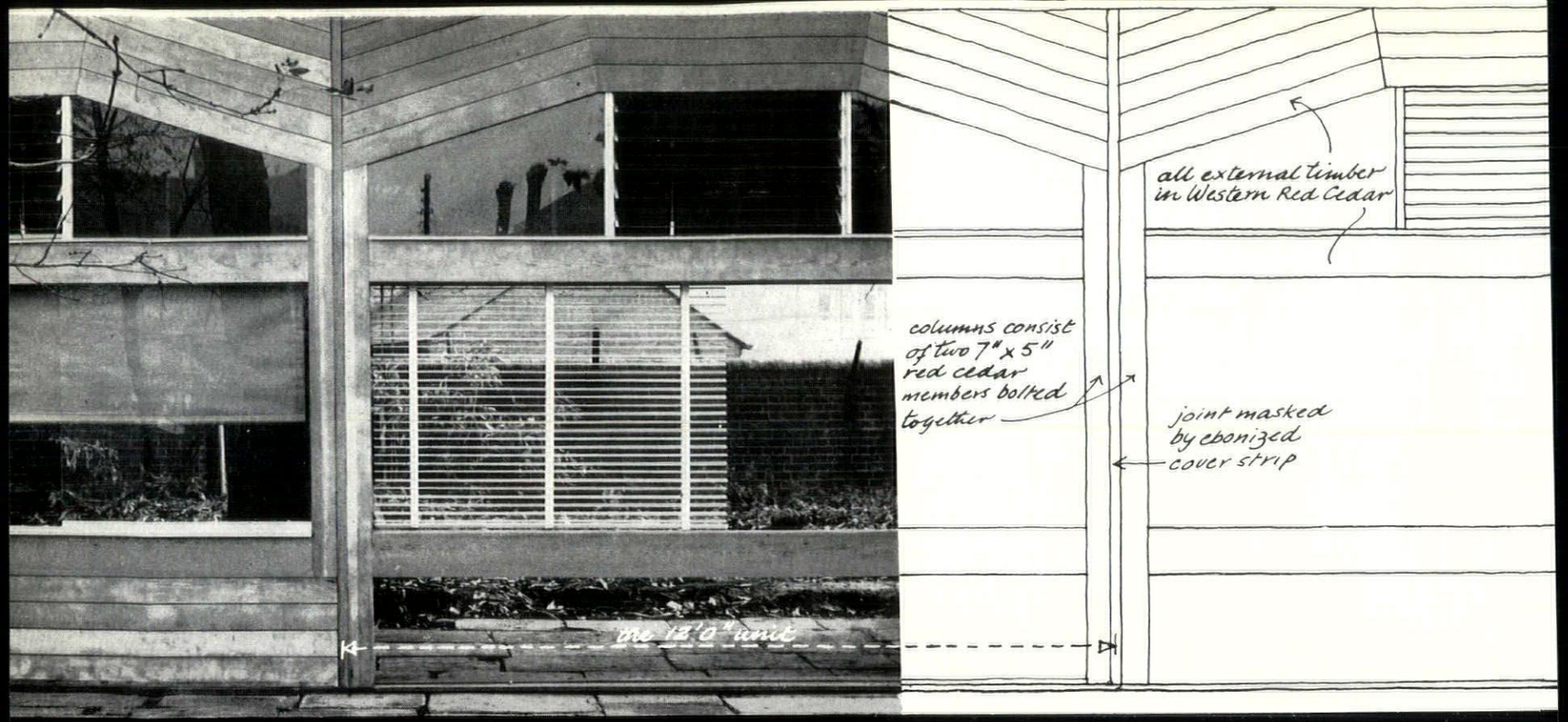
Although the range of the book is world-wide, it will probably appeal most to the specialist, for its pages are packed with information and somewhat dry in presentation. Perhaps too much space is given to primitive buildings such as mud huts, log cabins, dwellings of reeds and so on, and mature achievement, by contrast, receives less than its due. The history and properties of stone—surely the finest of the world's building materials—might have been considered in very much greater detail; indeed, many famous building stones, both British and foreign, are not even mentioned.

In some of the later chapters, on the other hand, Dr. Davey seems to be thinking in terms of architectural *forms* ('Arches,' 'Vaults and Domes') and in others of *use* ('Flues,' 'Water Supply and Drainage') rather than directly of materials, and one feels that these really belong to a different book. The last chapter, 'Modern Trends,' contains some serviceable notes on new building materials and technical methods, and on new ways of handling traditional ones like timber and brick.

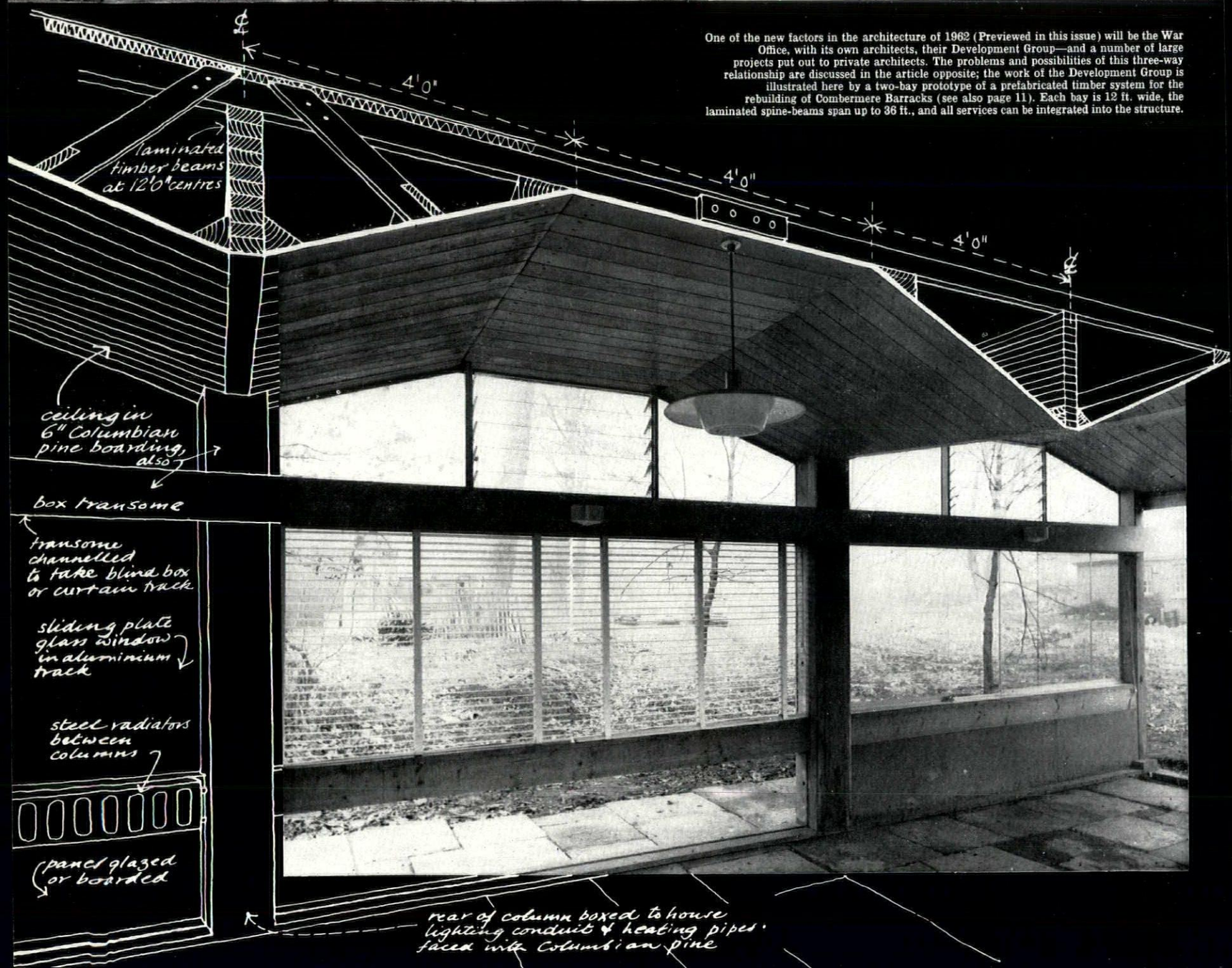
Although one might cavil at one or two points of detail, such as the use of the term Hellenistic to denote the whole era of ancient Greek culture, this is a book notably free from errors. The author is, however, at fault in saying that scagliola was introduced into England by artists from Paris at the instigation of Henry Holland, for the Prince of Wales. It had appeared on a small scale more than a century earlier, as can be seen in the Queen's Closet at Ham House, where the charming fireplace surround, probably imported from Florence but made to order, dates from about 1674. Craftsmen in this material must have been working in England before 1739, since the whole of the wall decoration in the Temple of the Four Winds at Castle Howard, completed in that year, is in scagliola. In the 1760's, it was used to great effect by Adam in the Saloon at Kedleston and in the Ante-Room at Syon, and also by John Carr and probably Chambers; and by 1773 at least two firms in London were manufacturing it.

There are references at the end of each chapter, but no bibliography. The book is generously illustrated throughout, both by photographs and by line drawings in the text. The latter are notably good: are they by the author? If so, he modestly leaves no clues. Specially admirable are the drawings which accompany a most interesting 15-page appendix devoted to all kinds of builders' tools. The quality of the plates is more variable, and these, as so often, are numbered separately, so that as one reads one has to go chasing backwards and forwards in order to find them. When *will* publishers adopt the simple practice of using one set of numerals only for all the pages, whether of text or illustrations?

Alec Clifton-Taylor



One of the new factors in the architecture of 1962 (Previewed in this issue) will be the War Office, with its own architects, their Development Group—and a number of large projects put out to private architects. The problems and possibilities of this three-way relationship are discussed in the article opposite; the work of the Development Group is illustrated here by a two-bay prototype of a prefabricated timber system for the rebuilding of Combermere Barracks (see also page 11). Each bay is 12 ft. wide, the laminated spine-beams span up to 36 ft., and all services can be integrated into the structure.



PREVIEW

The preview of British architecture now building or about to start, which forms the subject of this special issue of THE ARCHITECTURAL REVIEW* reveals the emergence of a substantial new corporate client, the War Office, whose rapidly-expanding programme of building at home and overseas embraces the output of both its own staff architects and private offices outside.

Such internal/external relationships, in which a client's design-needs are catered for by architects in both the public and private sectors, contains the seeds of some promising developments for British architecture—if and where the client's architectural staff includes an active Development Group, as is the case at the War Office. The philosophy and nature of Development Groups were most explicitly stated by Roger Walters (himself a member of the War Office architectural staff) in a classic paper delivered to the RIBA last March. Whether or not his paper represents War Office policy, it summed up the best aspirations of Development Group work, and indicated the kind of output that best justifies such a Group's existence.

Among the prospects that, on Walters's showing, could render attractive an active liaison between a private architect and a Development Group, one may note the following. Firstly, the client will have a building programme extending some way into the foreseeable future (otherwise Development would be pointless); secondly, the client should have a fairly precise idea of his immediate functional needs, and the way these will mutate into future needs (if the client did not set out with such an estimate of needs, the Development Group will have had to give him one); thirdly, the Development Group will have the habit of formulating and communicating information about its research to other limbs of its parent body, and should be capable of extending that service to outside architects.

In this way, even temporary and peripheral association with such a body should free the private architect from the inevitability of the situation which Walters described thus: 'The designers of an individual building seek to understand the needs of an individual client, and to satisfy them by constructing a particular building on a particular site. *For both the client and the designers it is the first and last attempt to get it right.*' But where an architect works with a body such as the War Office or some other authority that supports a Development Group, he should be able to take his place in a consequential stream of ever-better attempts to design a building of that type, supported by a body of accumulated and digested experience.

How far, in practice, authorities will release the results of their Groups' researches to outside architects remains to be seen as more authorities enter the field, but it is clear that many members of Development Groups regard the dissemination of information as a moral obligation. In this one must concur, but the experience of direct collaboration should be even more stimulating to architects in the private sector than even the best-

*Once again compiled on behalf of the Editors by Mr. C. Michael Pearson.

presented report. Paper publication may be an adequate means of promulgating the type of preventive legislation and legal minima which hitherto have been the only way of expressing the public will in the common architecture of democratic states, but it has tended to result in an entirely negative type of building, and to reduce building-design to the mental and moral stature of tax-evasion.

Direct design by public authorities reverses this negative trend; development work and research give this positive expression of the public will a unique dynamic, because private architects can rarely carry the burden of research*; but these creative expressions of the public will can only be fully made by private architects if they have access to the Development Group as direct as that enjoyed by staff architects of the parent authority. The War Office has already set up briefing conferences for outside architects, which should begin to serve this end. Two other problems present themselves, besides that of the operational relationship between inside and outside architects. Firstly, how far are private architects willing to make themselves servants of the public will in the same way as those inside the Authorities? At a time when public service is still an attractive choice for an architect, they may well have compelling moral or psychological reasons for opting for the private sector, and may feel strongly that too close an involvement with the Development Group will limit their right to make an original contribution to the design problem in hand. On this point, it should be observed that the fear is not reciprocated, and the sober methodologists of the Development Groups are usually well-disposed towards the free-standing geniuses outside, whose activities will often provide a kind of incidental criticism that can prevent research becoming too narrow or too smug.

Secondly, what is to be done about those aspects of building design that need research, but where no Development Group work is in hand? The pages of this preview issue show that the design of office-blocks is still a major part of British architectural practice, and office-design is a gravely under-researched field. But, although it is a 'spending authority' (in Development Group parlance) in this field, with its own staff architects, the Ministry of Works is undertaking no research comparable with that of the Development Groups at the War Office, or the Ministries of Health, Housing and Education.

The public will in this field is still being expressed only in terms of preventive legislation —an Offices Act will become effective in the next twelve months—rather than creative research. Private enterprise and private architects still provide the initiative in office building, and on neither side does there seem to be either the money or the will for research. Outside England, some of the most valuable development work that has been done lies in the field of privately sponsored office-design investigations. But we do not know if Skidmore, Owings and Merrill ever pass on the expertise gained in working with Connecticut General Life Insurance to other clients who (unlike Connecticut General) cannot afford to pay for research.

But do we have to wait for such a fortunate coincidence of client and architect before we have proper research on office accommodation over here? The Offices Act could provide the stimulus for the creation of specialist consultant practices in office design, providing the germ of something that, with proper architectural direction, might become a kind of research organization that could complement, in the private sector, the work of the Development Groups existing under official patronage.

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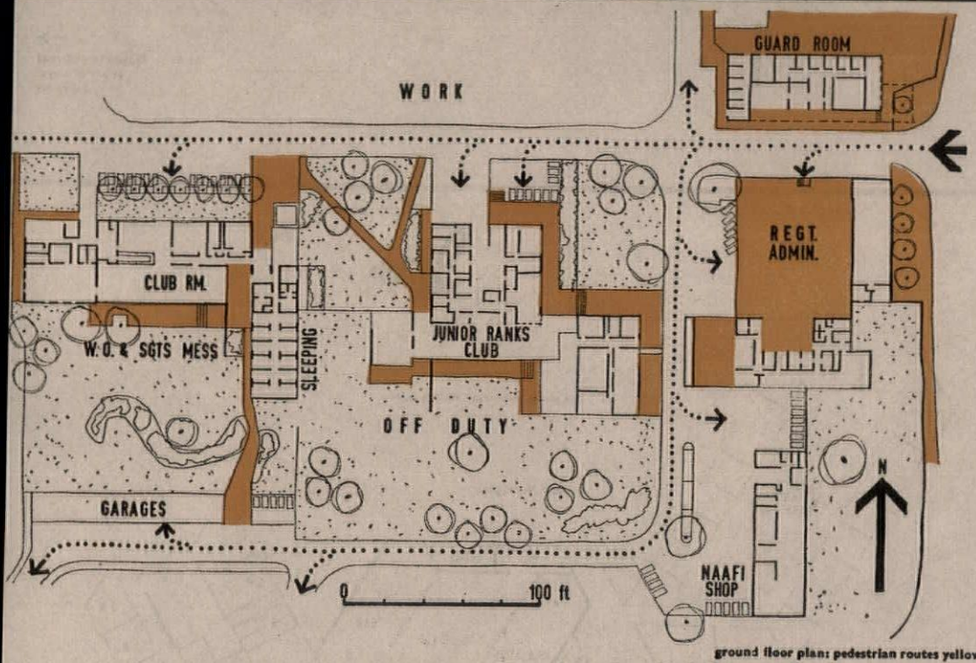
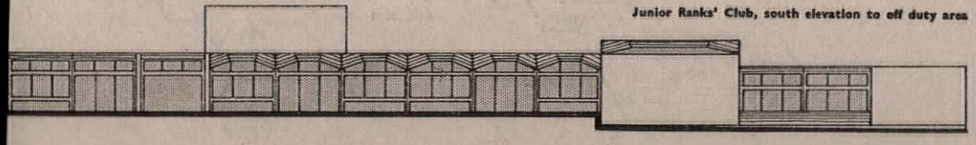
* One major private office, handling at least two very large planning projects, does maintain a separate Research Department, but organizational recognition of research is rare.

MILITARY



ground floor plan: pedestrian routes yellow



Junior Ranks' Club, south elevation to off duty area

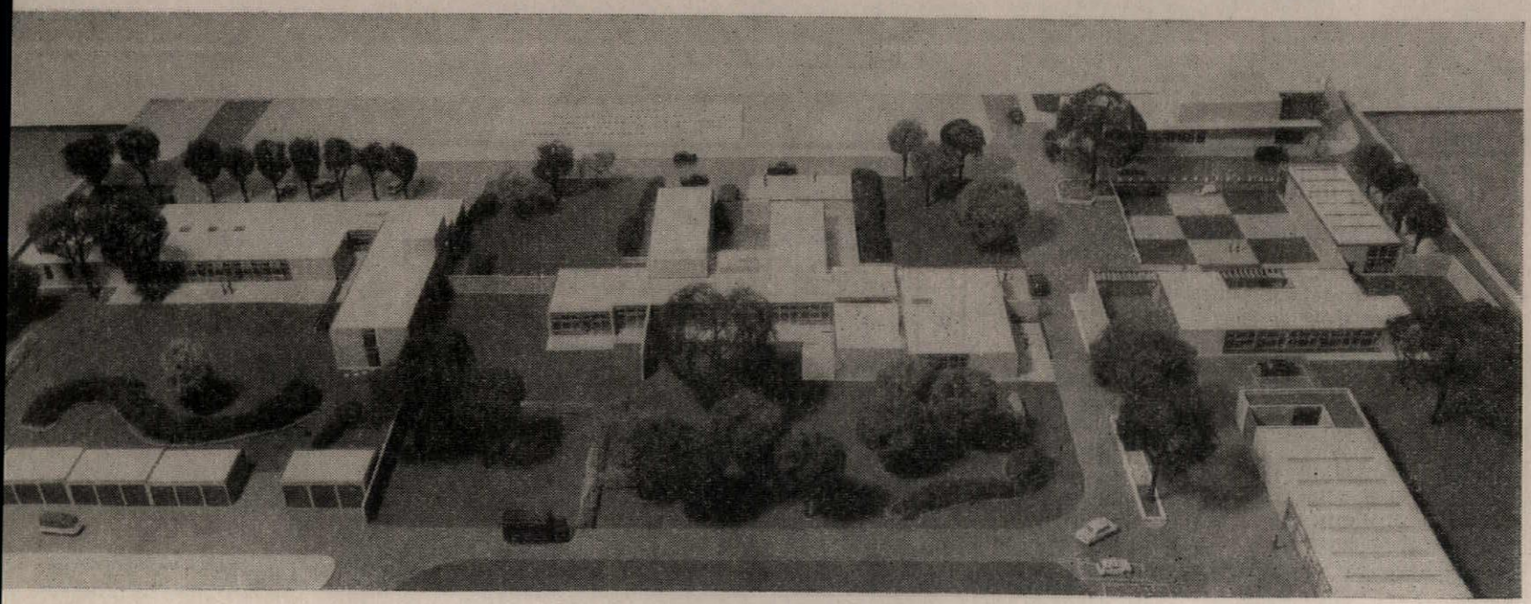
Barracks, Combermere

Directorate of Works, War Office

CLIENT: War Office.
SITE: Existing barracks near Windsor. Zoned into duty and off duty.
ACCOMMODATION: For off duty: WO and sergeants' mess, Junior Ranks' Clubs, NAAFI shop. For duty: RHQ offices, with Museum and Guard House. Kitchens, stores, lavatories, etc., screen off duty zone. Main rooms each overlook secluded south area.
STRUCTURE AND FINISHES: Bored piles. In situ concrete slabs, service ducts cast in. Factory prefabricated western red cedar wall and roof units. 12 ft. wide by 24 to 36 ft. span roof units shaped in section to reduce dead roof space. 12 ft. H-frames, with horizontal sliding window, roller or venetian blind, wall bracket light, radiator and vertical duct, bolted together gripping truss spine in between. Non-grid parts of building; load-bearing brick, concrete floors, timber roofs. Exteriors maintenance free.
CONTRACT: Timber design checked on two-bay prototype erected before main contract. Standard design and detailing of phased project enabled part of work to be provisional sums. Careful cost planning ensured their accuracy. Work could thus start before completion of working drawings of whole project.
SITEWORK: Started September 1961, completion by May 1963.

Team architect, E. H. Lockton. Job architect, D. J. Wager. Team: F. O. Rettie, S. Jolliffe, M. Palmer, E. Walker, H. L. Froome-Lewis. Structural consultant, C. J. Pell & Partners; Partner in charge, W. W. Frischmann. Quantity surveyors, War Office. Job surveyor, T. J. Cocks. Mechanical and electrical consultants, War Office. Landscape architect, Clifford R. V. Tandy.

Below, from south with off duty zone in foreground

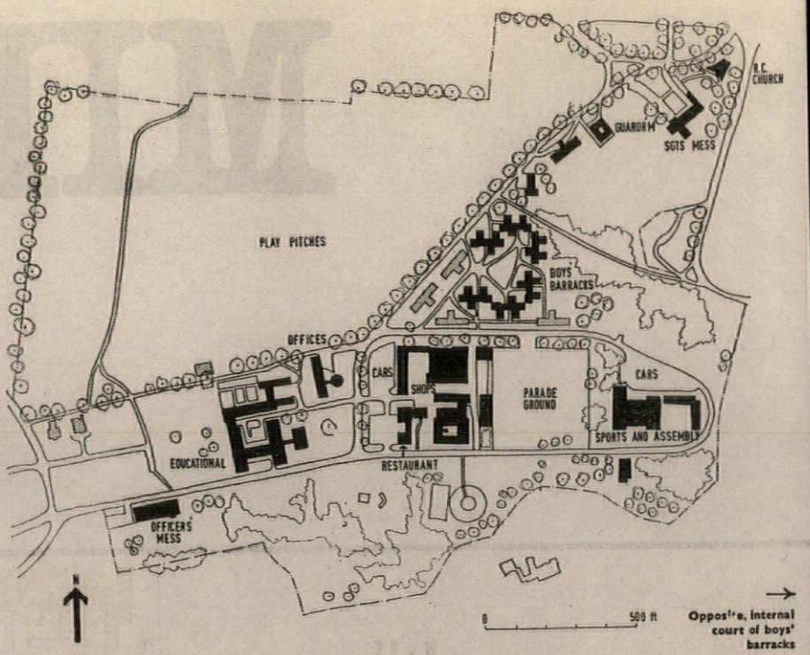


Junior Leaders' Unit, Shorncliffe, Kent

Bryan & Norman Westwood & Partners' in collaboration with D. E. E. Gibson, Director-General of Works, War Office

CLIENT: War Office.
SITE: Exposed plateau at 250 ft., overlooking sea to the south. Large grassed area surrounded by trees will form playing fields.
FUNCTION: Training 750 boys (15½ to 18 years) in all aspects of life before becoming NCOs.
ACCOMMODATION: In four groups: three-storey boys' barracks with typical unit repeated and linked to form irregular court; central group of boys' mess, stores, boiler house, NAAFI and MT workshop around a service yard; educational block for studies, weapon training and hobbies; hall, gymnasium, covered swimming bath and rifle ranges.
STRUCTURE AND FINISHES: Walls, grey load-bearing brick. Floors and roofs in situ r.c. with folded slabs on long spans. Deep parapets, black exposed concrete.
SITEWORK: Expected to start April 1963, completion in two years.

Associate in charge, Z. J. Pietruszewski. Structural consultants, The War Office. Heating and ventilating consultants, Oscar Faber & Partners. Quantity surveyors, Leon & Westwood.



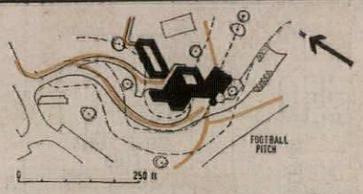
Opposite, internal court of boys' barracks

WRAC Mess, Tanglin, Singapore

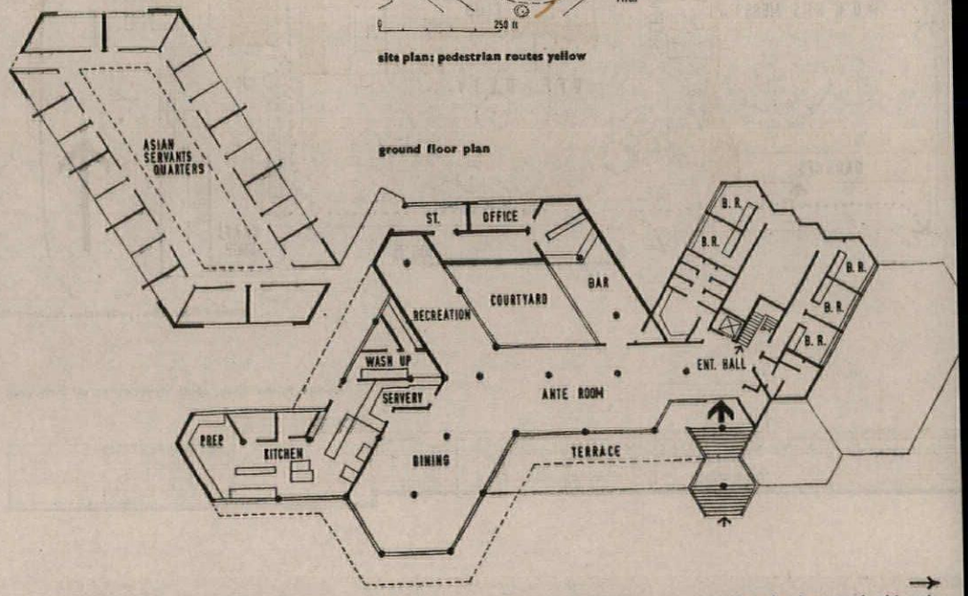
Directorate of Works, War Office

CLIENT: War Office.
SITE: Rising ground with steep slopes (1 : 5 average) on three sides. Remaining side slopes steeply up to existing WRAC quarters. Thick tropical planting on north boundary. Fine open views to south.
ACCOMMODATION: 60 WO's and sergeants in eight-storey tower of single rooms. 18 Asian staff in adjacent building. Mess, kitchens and ancillary rooms.
STRUCTURE AND FINISHES: Tower; r.c. cross walls, floors, roof and foundation raft. Mess, r.c. hexagonal mushroom roofs. Internal and external concrete left fair-faced from board shutters. Infill, concrete block and asbestos cement. Joinery, local hardwoods. Japanese mosaics and tiles.
SERVICES: Electric throughout. Bedrooms, bar and games room, air-conditioned. Other rooms, natural stack ventilation.
CIRCULATION: Vehicles approach carport up steep, twisting slopes. Parking for 25 cars.
SITEWORK: Starts April 1962, completion by December 1962.

Works abroad team: Team architect, A. A. Coutts. Team, C. P. Higgins, R. V. Mayne, I. H. Talbot, E. Driver. Quantity surveyor, W. J. F. Tillyards. Mechanical and electrical consultants, E. Wingfield-Bowles & Partners.



site plan: pedestrian routes yellow



ground floor plan

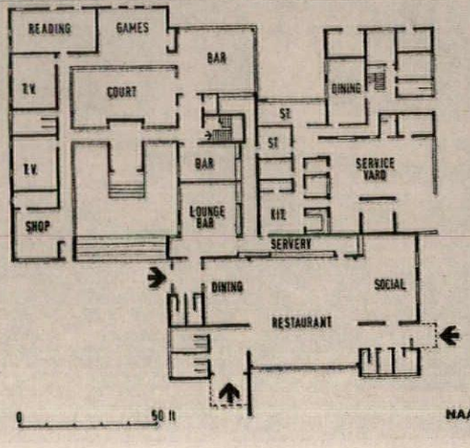
Opposite, from south with main entrance and mess to left

RAF Station, Ballykelly

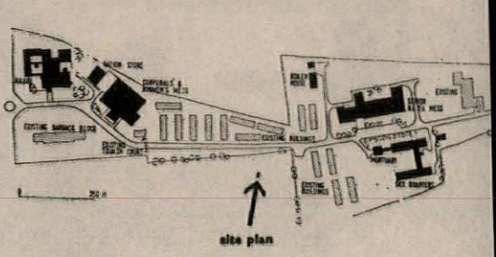
Munce & Kennedy

CLIENT: Air Ministry.
SITE: Wartime coastal command station. Irregular shape with constriction in middle. Slope from north to south. Exposed to very strong north winds.
ACCOMMODATION: Sick quarters, messes, stores and boiler. NAAFI designed as social concept with each area usable independently or with adjacent rooms.
STRUCTURE AND FINISHES: Load-bearing, chocolate brown, rustic brickwork. Windows, metal painted.
SITEWORK: Started April 1961.

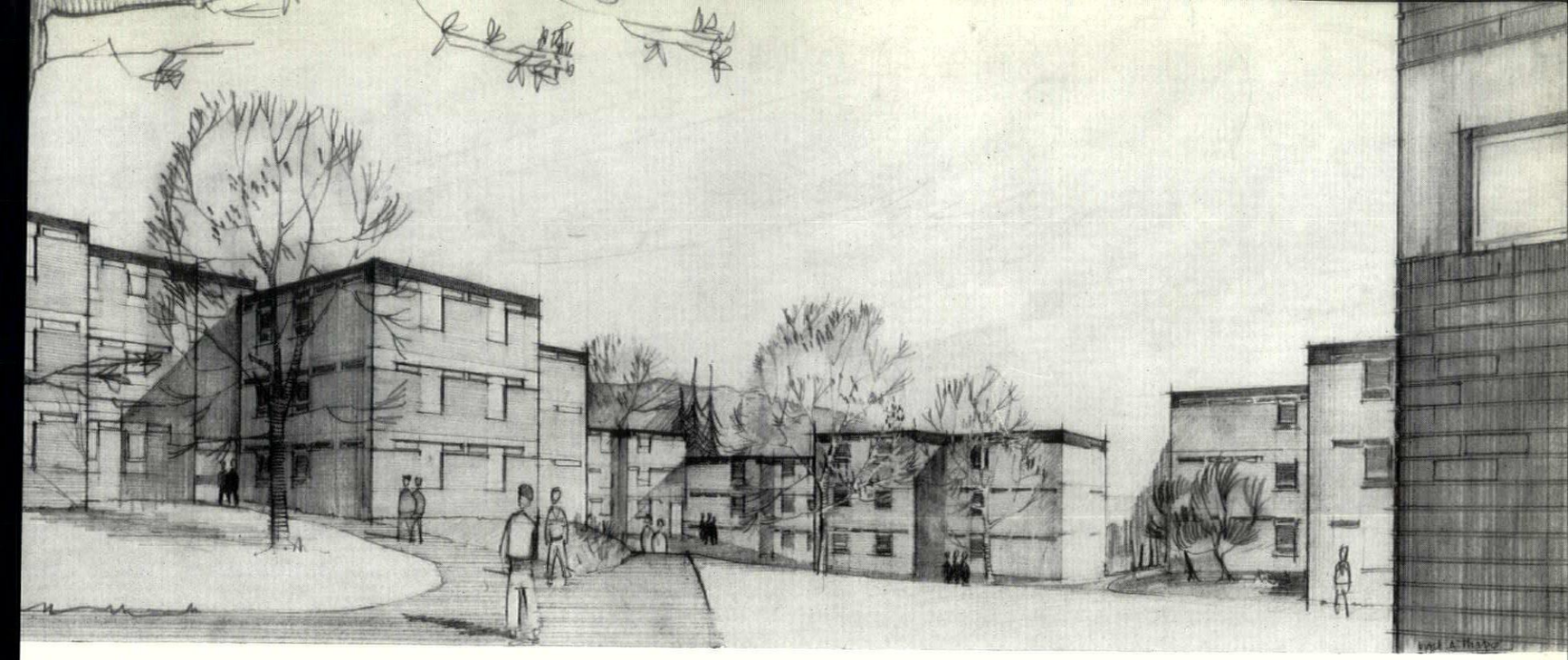
Partner in charge, John Sheldon. Assistant architects, S. Bakhle, J. Wyatt, P. Ferguson, P. Piennaar, M. Sutcliffe. Heating and electrical consultant, J. Waring. Quantity surveyors, E. C. Harris & Partners.

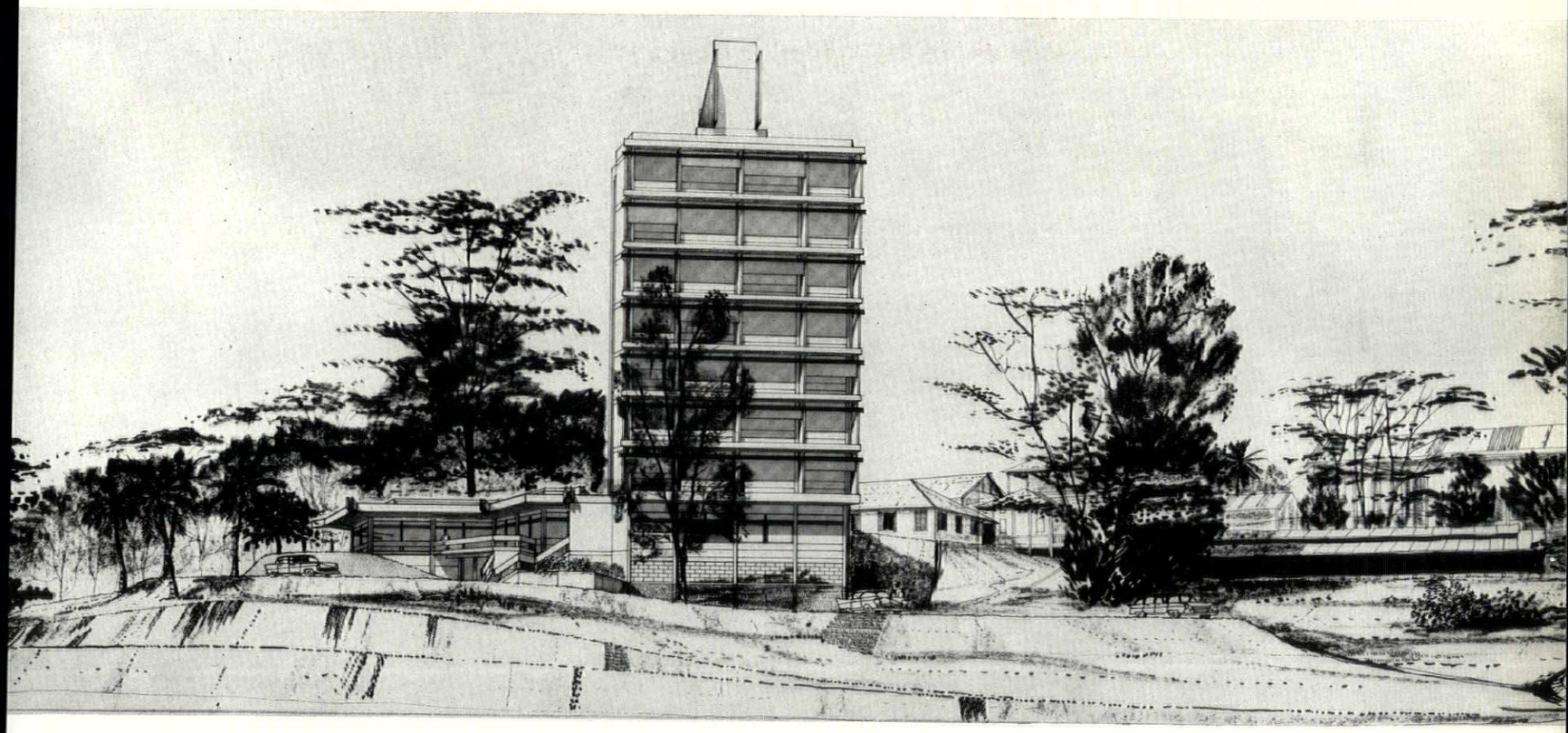


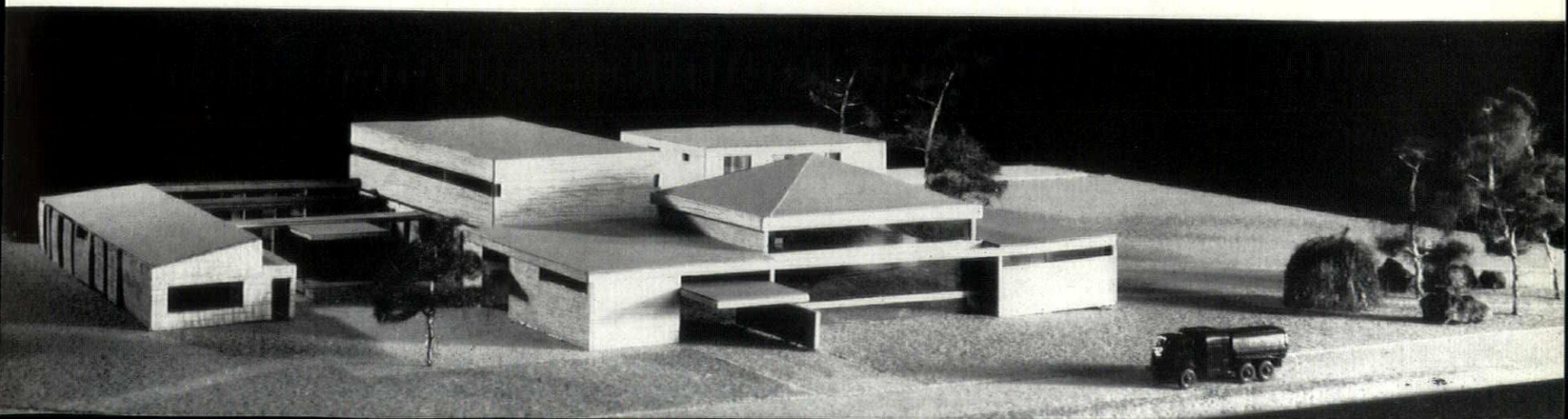
NAAFI, ground floor plan

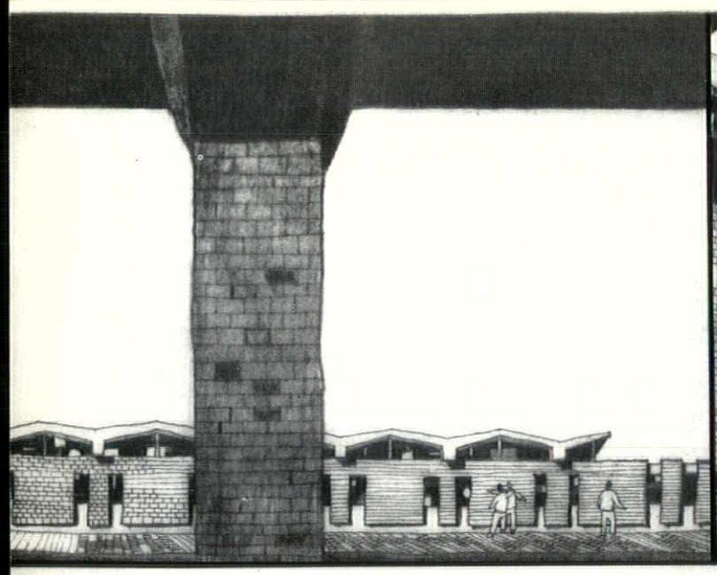


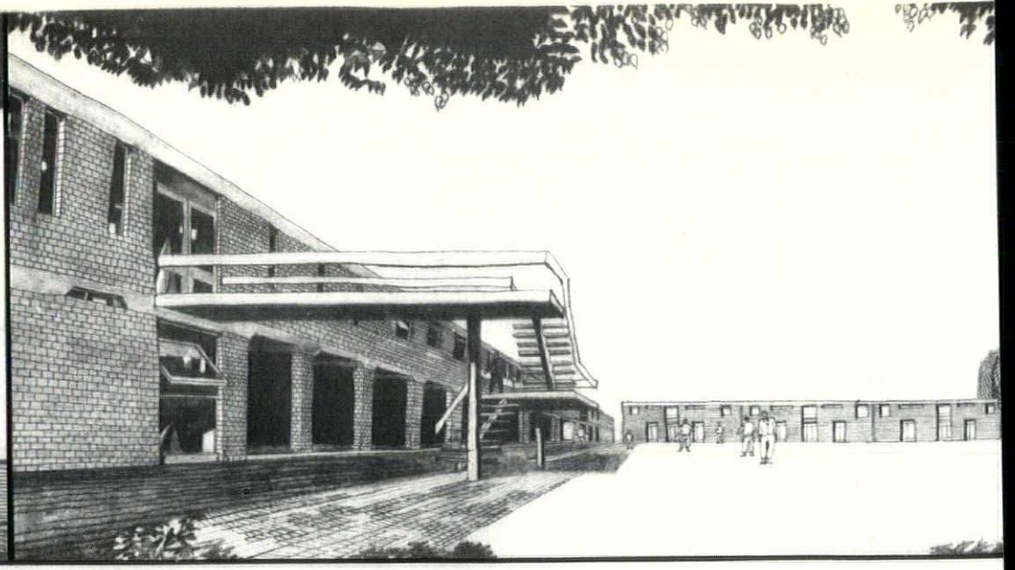
Opposite, the NAAFI from south

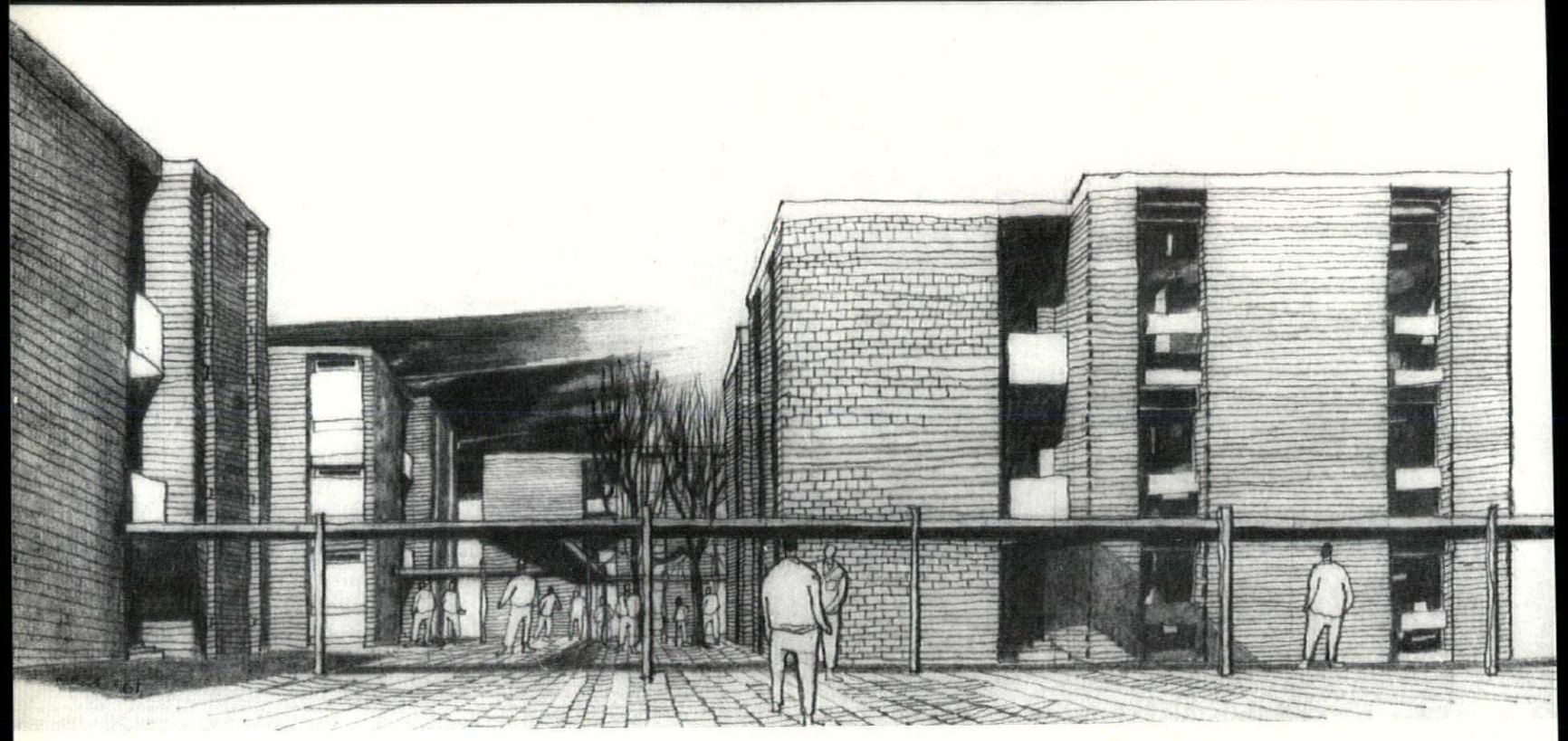


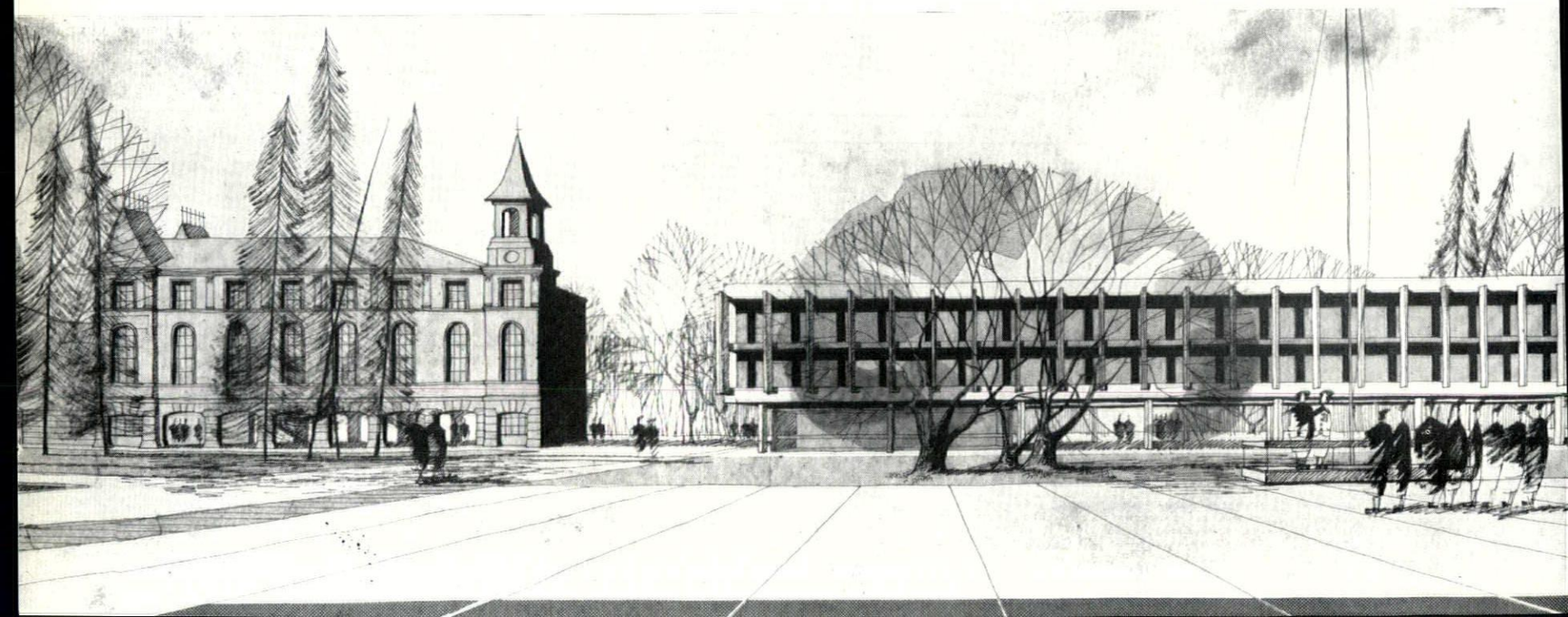










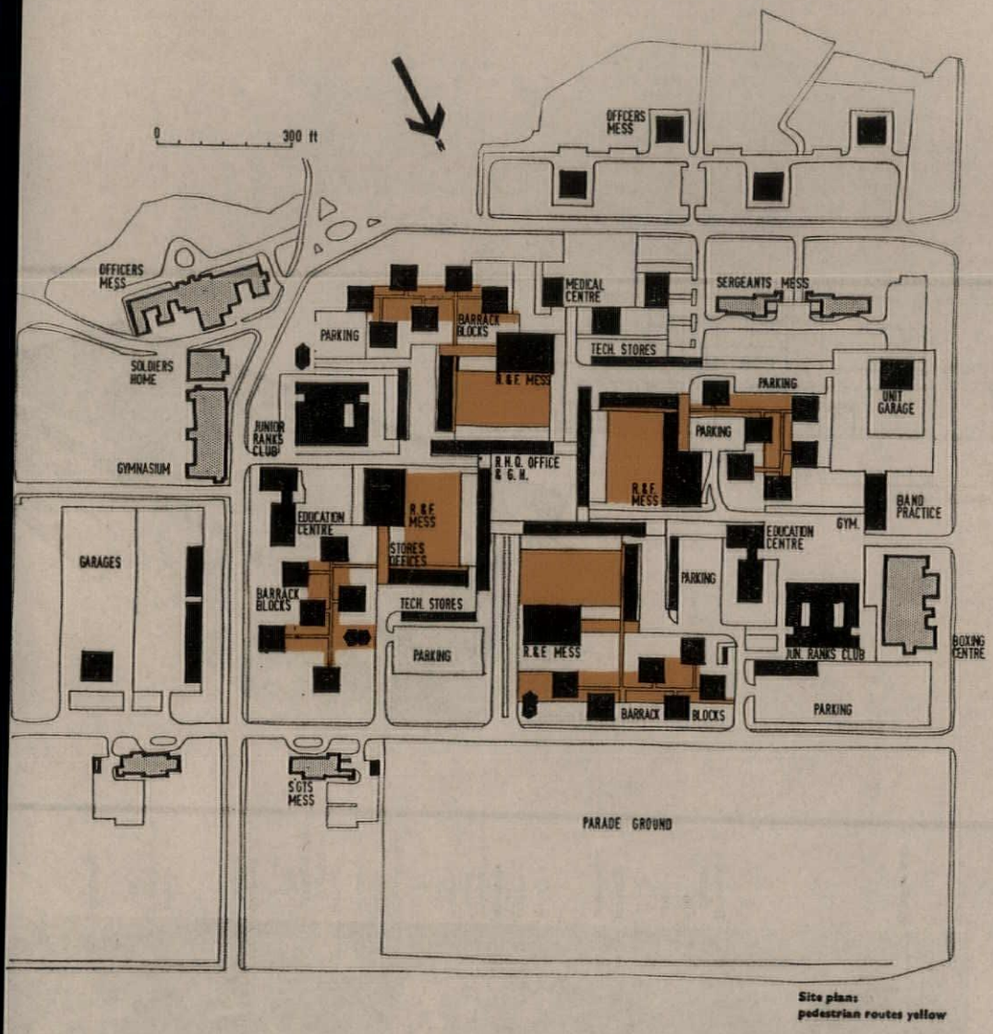


← Opposite top left, from RHQ and Armoury across square towards R and F Mess
Opposite top right, along side of RHQ and Armoury towards Company Stores and Offices
Opposite centre, three-storey barracks with covered link

Barracks, Aldershot

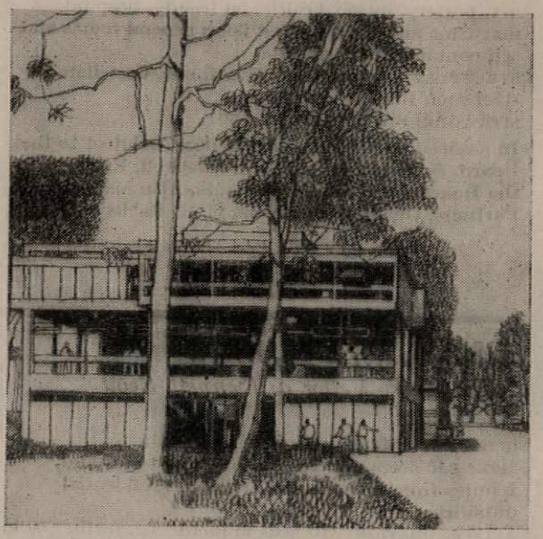
Design Partnership in collaboration with D. E. E. Gibson, Director-General of Works, War Office

CLIENT: War Office.
SITE: Stanhope Lines West. Most of existing barracks being demolished. 45 ft. fall to north. Many mature trees lining roads.
ACCOMMODATION: Four barracks with administrative offices around central square forming nucleus of brigade group. Layout compact and intimate but unit segregation maintained by independent access to their own areas and group parade ground. Six blocks of three-storey, 84-man living quarters, linked by covered ways, are arranged away from main duty areas. Essentially pedestrian in character with semi-formal paving but softened with some shrubs, trees and seating. Each arrangement different to give separate identity. Working area divided into pedestrian, light and heavy traffic.
STRUCTURE AND FINISHES: Dependent on eventual system used.
SITEWORK: Starts May 1962, completion by May 1964.
Associates, P. T. Renninson, G. L. C. Rossant, D. A. Rock. Job architects, M. F. Cross, R. J. Greenslade, R. M. Smart, J. Moore. Quantity surveyors, C. E. Ball & Partners. Structural consultants, W. V. Zinn & Associates. Mechanical consultants, Hoare, Lea & Partners.



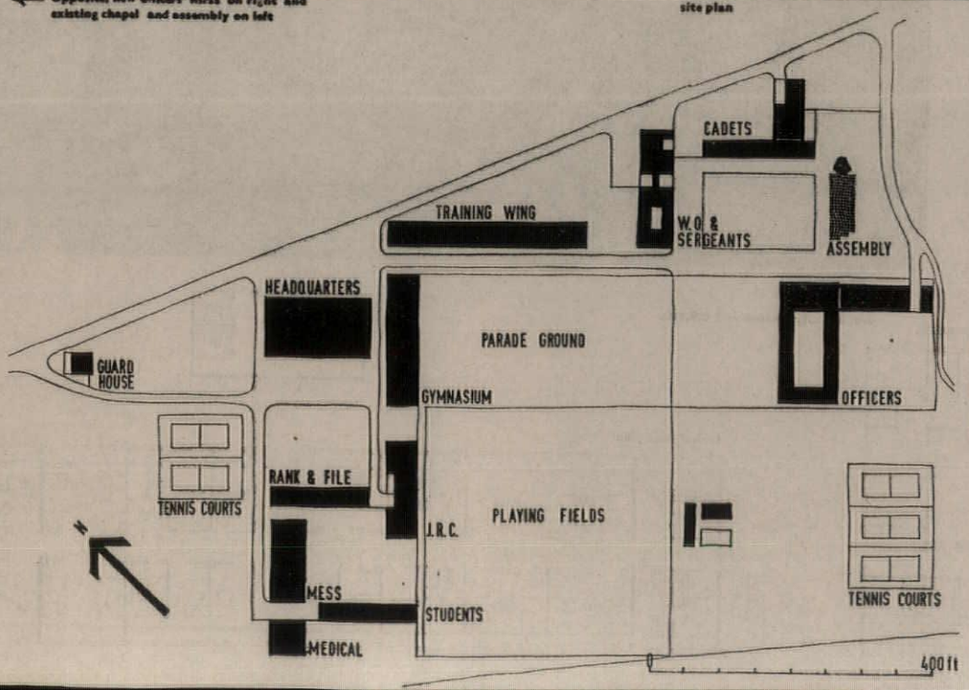
Site plan: pedestrian routes yellow

Below, officers messes



← Opposite, new officers' mess on right and existing chapel and assembly on left

site plan



WRAC School of Instruction, Camberley

Gollins, Melvin, Ward & Partners in collaboration with D. E. E. Gibson, Director-General of Works, War Office

CLIENT: War Office.
SITE: 13 acres, with two clearings, on flat plateau surrounded by woodland. Drive fringed with mature shrubs and trees.
FUNCTION: Transfer of WRAC school from hutted Hindhead Camp.
ACCOMMODATION: For training, living, messing and recreation. 150 training and maintenance staff. Students: 30 officers, 50 cadets, 60 other ranks, OTC etc. Training separated from sleeping and recreation. Officers and other ranks each have their own environment.
SITEWORK: Expected to start September 1962.

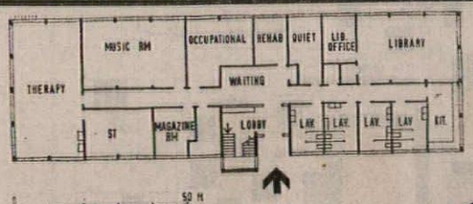
HOSPITALS

Occupational Therapy Department, Sutton, Surrey

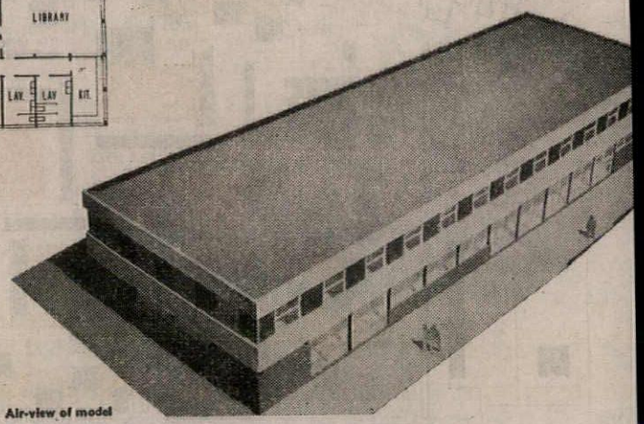
Hammett & Norton

CLIENT: SW Metropolitan Region Hospital Board.
SITE: Belmont hospital. On fringe of playing fields.
ACCOMMODATION: Ground floor, specialized rooms; art, pottery, music, health and beauty, hospital magazine and library. First floor; general rooms and self-contained clinical suite.
STRUCTURE AND FINISHES: R.c. frame. Castellated steel roof. Blue brick facings.
SITEWORK: Started October 1961.

In association with Richard Mellor, Architect to the Board. Services engineer, K. J. Eatwell, Engineer to the Board. Structural consultants, Alan Marshall & Partners. Quantity surveyors, E. R. Babbs & Sons.



ground floor plan

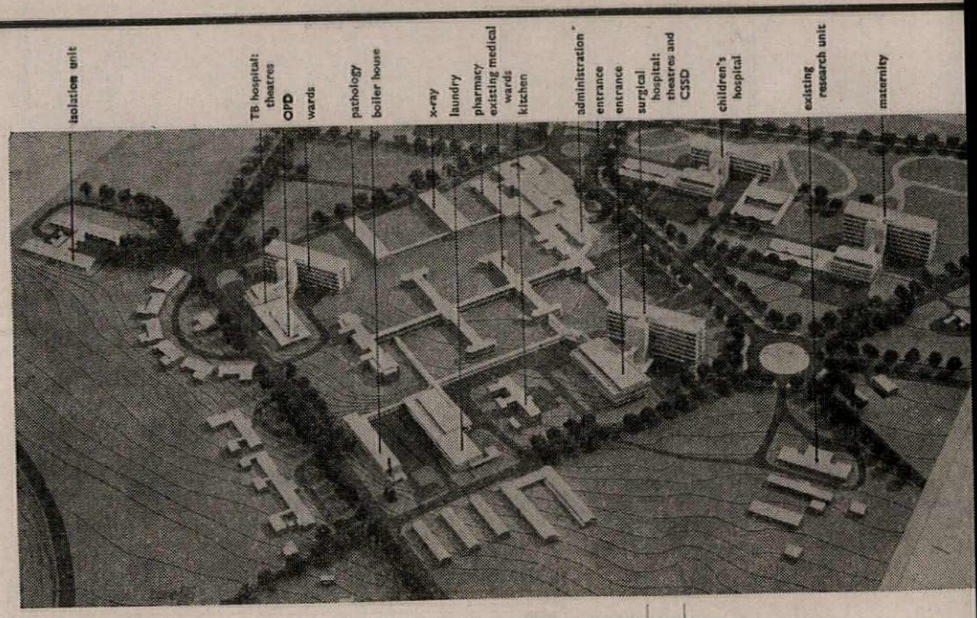

Air-view of model

Hospital, Korle Bu, Accra

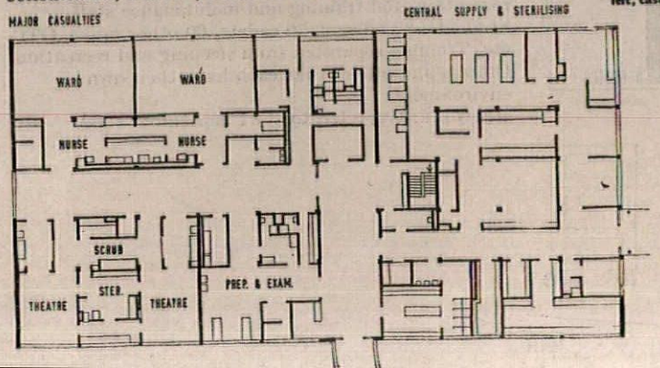
William F. Vetter & Kenneth Scott Associates

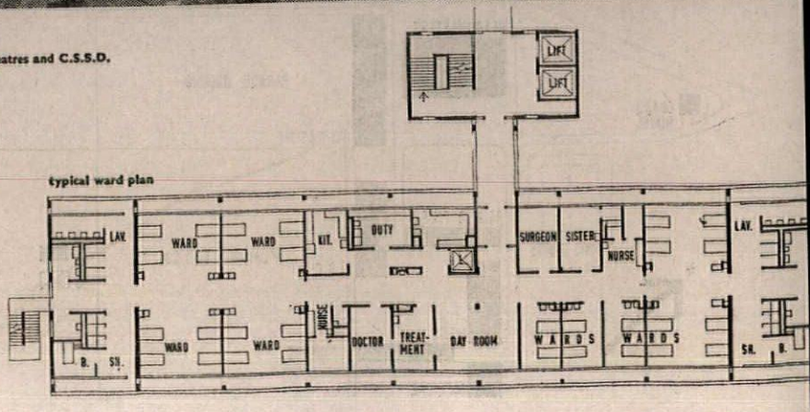
CLIENT: The Ghana Ministry of Health.
SITE: 650 acres, centred on Gold Coast Hospital, 2 miles from town centre. Overlooks residential outskirts.
ACCOMMODATION: 810 beds in phase one, further 50 in phase two. Multi-storey wards linked by bed lifts and stairs to double-storey treatment department.
STRUCTURE AND FINISHES: Ward and treatment blocks, standardized r.c. frame. Roofs, timber secondary beams, wood wool and felt. Walls, concrete block with tyrolean render. Vertical louvres to wards.
SERVICES: Air-conditioning to theatres and treatment areas. Medical gases (N_2O, O_2), vacuum, etc., piped to theatres and O_2 to every fourth bed. Central, endless belt, infra-red sterilizing in surgical block. Theatre wings have own high-speed wash and sterilizing equipment for emergency instruments.
SITEWORKS: Started September 1959, phase one completion by 1963.

Quantity surveyors, Widnell & Trollope. Structural consultants, Ove Arup & Partners. Mechanical consultants, J. Roger Preston & Partners. Electrical consultants, Barlow, Leslie & Coombes.

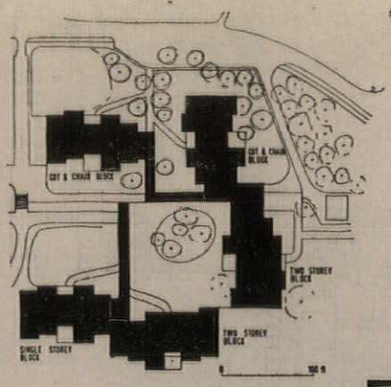


left, casualty theatres and C.S.S.D.

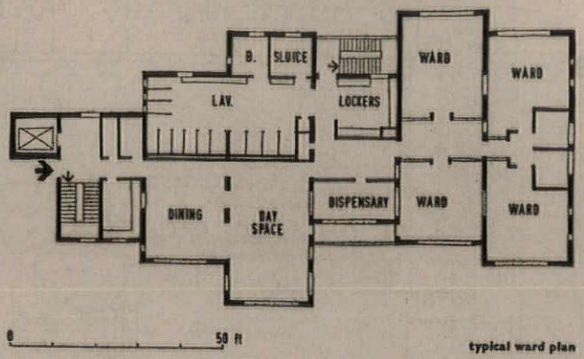




site plan



Below, section: cot and chair block left, two-storey block centre, section through two-storey block right



typical ward plan

Psychiatric Hospital Extension, near Reading

Llewelyn Davies & Weeks in association with W. J. Jobson, Architect, Oxford Regional Hospital Board

SITE: Existing mental hospital in converted mansion at Borocourt about four miles from Reading. Extensive parkland, mature trees, marvellous views to south.

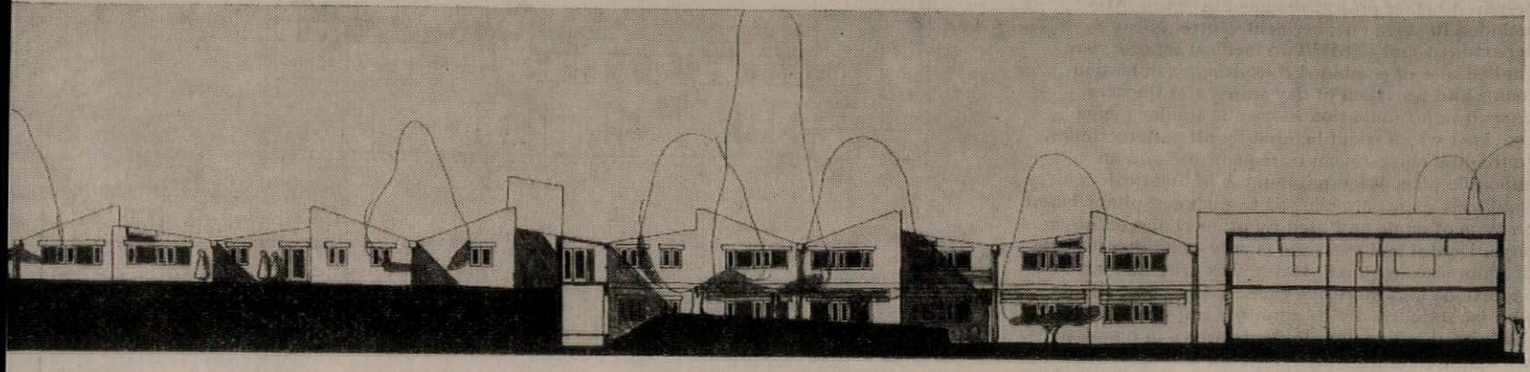
PURPOSE: Rehabilitation in environment similar to patients' homes, rather than institutional building.

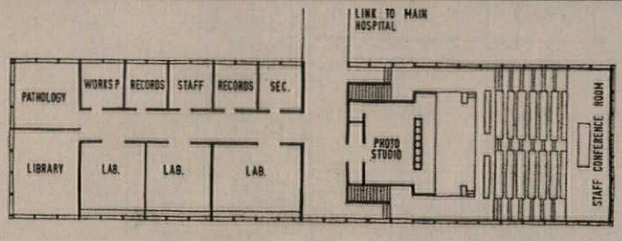
ACCOMMODATION: Seven independent 30-bed units; interchangeable for high and medium grade patients, two for low grade cot and chair patients. Circulation by two-level link corridor.

STRUCTURE AND FINISHES: Load-bearing brick walls, concrete floors, timber roofs on laminated trusses. Timber windows, with wide louvred panels over at ground floor. Internally, plaster and paint.

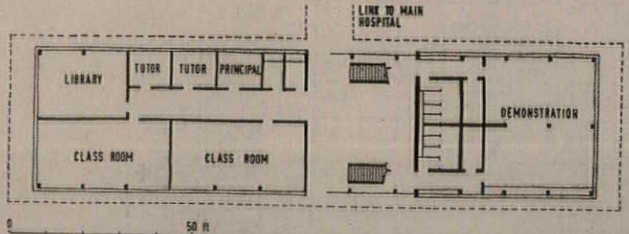
SITEWORK: Starts Spring 1962, completion after two years.

Structural consultants, Charles Weiss & Partners. Quantity surveyors, Oxford Regional Hospital Board.





first floor plan



ground floor plan

Below, Long elevation with main hospital behind

Hospital Extension, Edinburgh

Morris & Steedman

CLIENT: Edinburgh Central Hospitals.

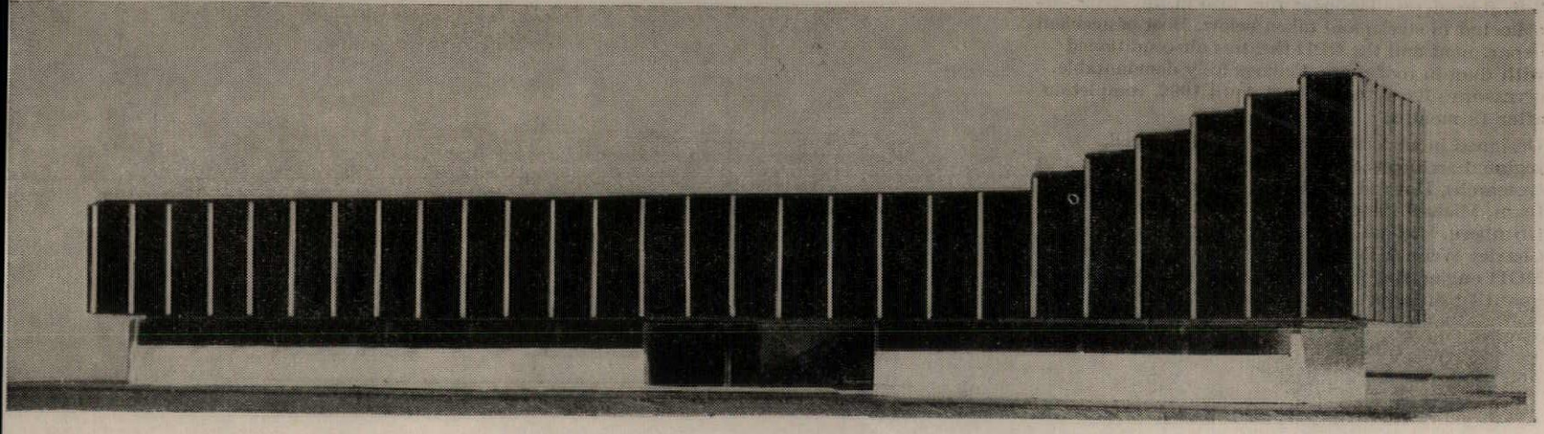
SITE: Princess Margaret Rose Hospital. Narrow piece of ground at end of existing corridor system.

ACCOMMODATION: Nurses' training on ground floor. Orthopaedic department over. Staff conference room designed to show orthopaedic cases. Changing and waiting area adjacent to stage at same level as hospital floor. Cases wheeled direct on to stage. Audience have good view of stage for display of leg and foot cases.

STRUCTURE AND FINISHES: Ground floor r.c. with brick facings. Upper floor; light steel to reduce load on cantilevers, glass curtain wall, moveable partitions.

SERVICES: Staff conference room air-conditioned. Bed lift in adjoining building.

Job architect, C. Jeremy Wilson. Quantity surveyors, James Gentles & Son. Structural consultants, Blyth & Blyth. Services consultants, Ian Hunter & Partners.

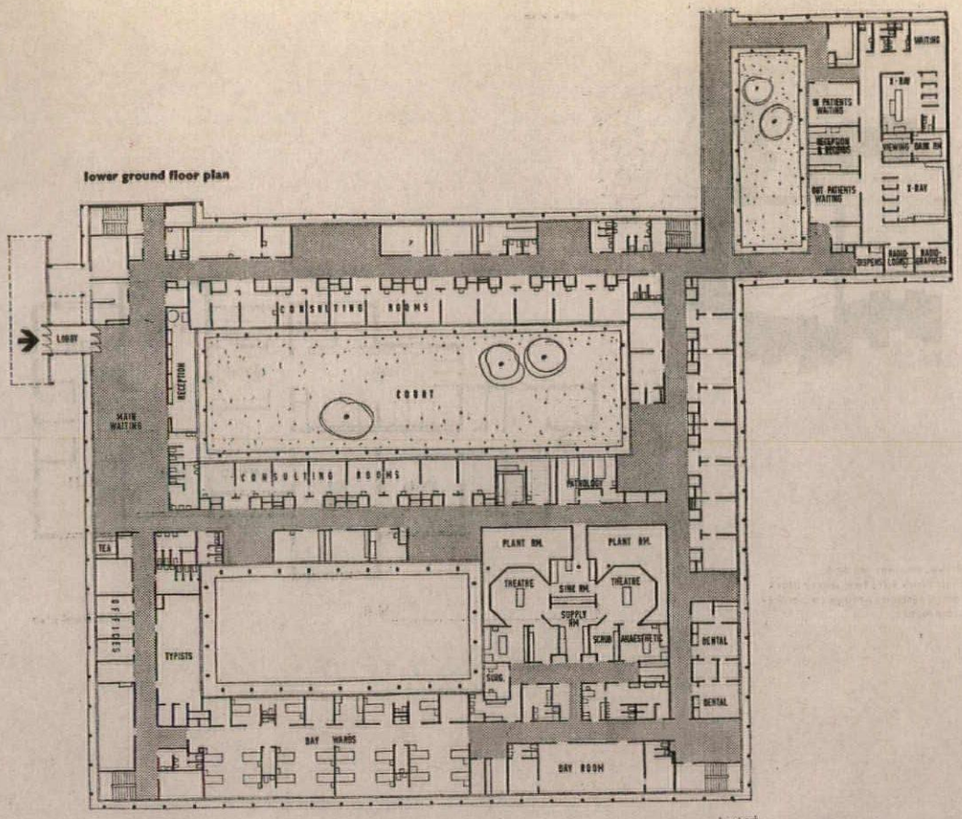


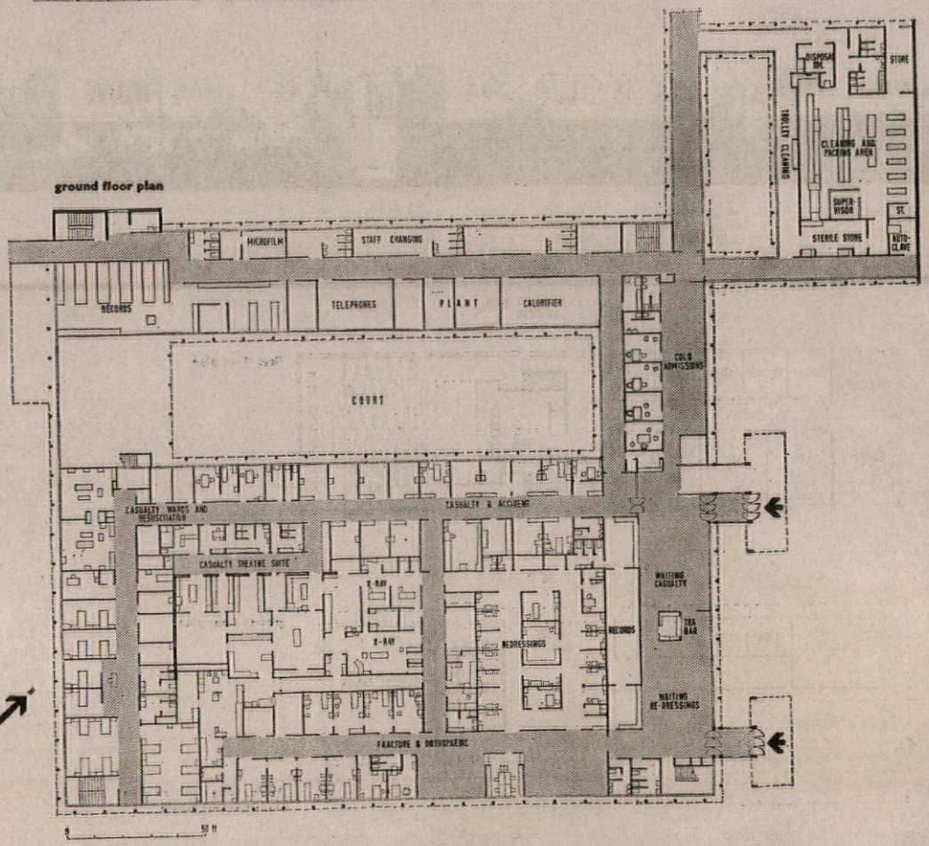
Hospital Redevelopment, Stage One, Liverpool

W. E. Tatton Brown, Chief Architect, Ministry of Health

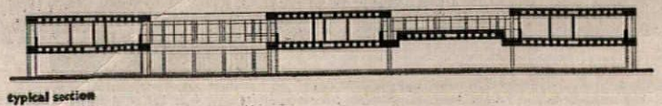
CLIENT: Liverpool Regional Hospital Board.
SITE: On playing fields in front of Walton Hospital built about 100 years ago. Slopes to east. Semi-mature trees on perimeter.
FUNCTION: Redevelopment, stage one. Out-patients' Department designed by Ministry as development project. CSSD, X-ray and Accident departments designed by Regional Architect within same structural system. Pilot project by research and development team to investigate:
1. Planning to meet new medical needs.
2. Rationalization of planning and construction.
3. Complete cost plan based on Ministry allowances.
4. Completed hospital buildings, having previously recorded all factors leading to original design.
User requirement data was collected on pro-forma system (described at RIBA Hospital Course, 1960). All information is recorded and filed to form single source used by all disciplines.
ACCOMMODATION: Comprehensive redevelopment plan prepared before project designed in detail. Also included in stage one; accident centre, X-ray department and CSSD. Two medical aspects were studied: use of combined consulting/examination rooms and provision of day wards and theatres. Consulting/examination rooms: 24 similar rooms provided which could be used by all various clinics. Individual clinics mean infrequent use and an inflexible plan. Required number of identical combined rooms are allowed to each consultant based on type of clinic and used by other clinics on other days. Dental and eye suite is only exception because of room sizes required. Day wards provide for minor operations and extensive examinations on patients who would normally be admitted but can in fact be discharged in one day. Patients arrive in morning, are operated on, if fully recovered they are sent home in evening. This reduces load on in-patient beds thus reducing cost of treatment and by employing part-time nursing staff eases staffing problems. Because cases are minor ones, theatres have faster turnover which influences design.
PLANNING GRID: Existing grids studied. 2 ft. 8 in. grid selected subject to limited use of a half-grid increment, 1 ft. 4 in. It seemed desirable to make the building modular and it has been based on the 4 in. (10 cm.) module. A hospital planning difficulty is reconciling large numbers of different sized small rooms. Investigations showed increments of 2 ft. 8 in. normal to windows would be adequate. Structural grid coincidental with room sizes was impossible. So columns placed outside window wall. Also gives cleaning space, degree of sun protection, extreme flexibility in planning.
STRUCTURE AND FINISHES: All above ground floor slab, precast r.c. Double-storey height aggregate faced columns at 10 ft. 8 in. centres. Beams, 2 ft. 8 in. deep verendeels spanning 42 ft. 8 in. Floor slabs, precast lightweight r.c. Aggregate faced fascia panels act as tie beams. Window wall, storey height aluminium frames with sliding windows and stove enamel faced spandrils. Efforts made to reduce maintenance. No external painting. Internally, great use of plastic faced doors and pvc wall coverings.
SERVICES: In floor and ceiling spaces, justifying 2 ft. 8 in. depth. Drainage runs also in this space, are collected to stacks and taken below. Most of accident department and the OPD theatres air-conditioned with duct in roof space. Ceilings fully demountable.
SITEWORK: Expected to start April 1962, completion after 18 months.

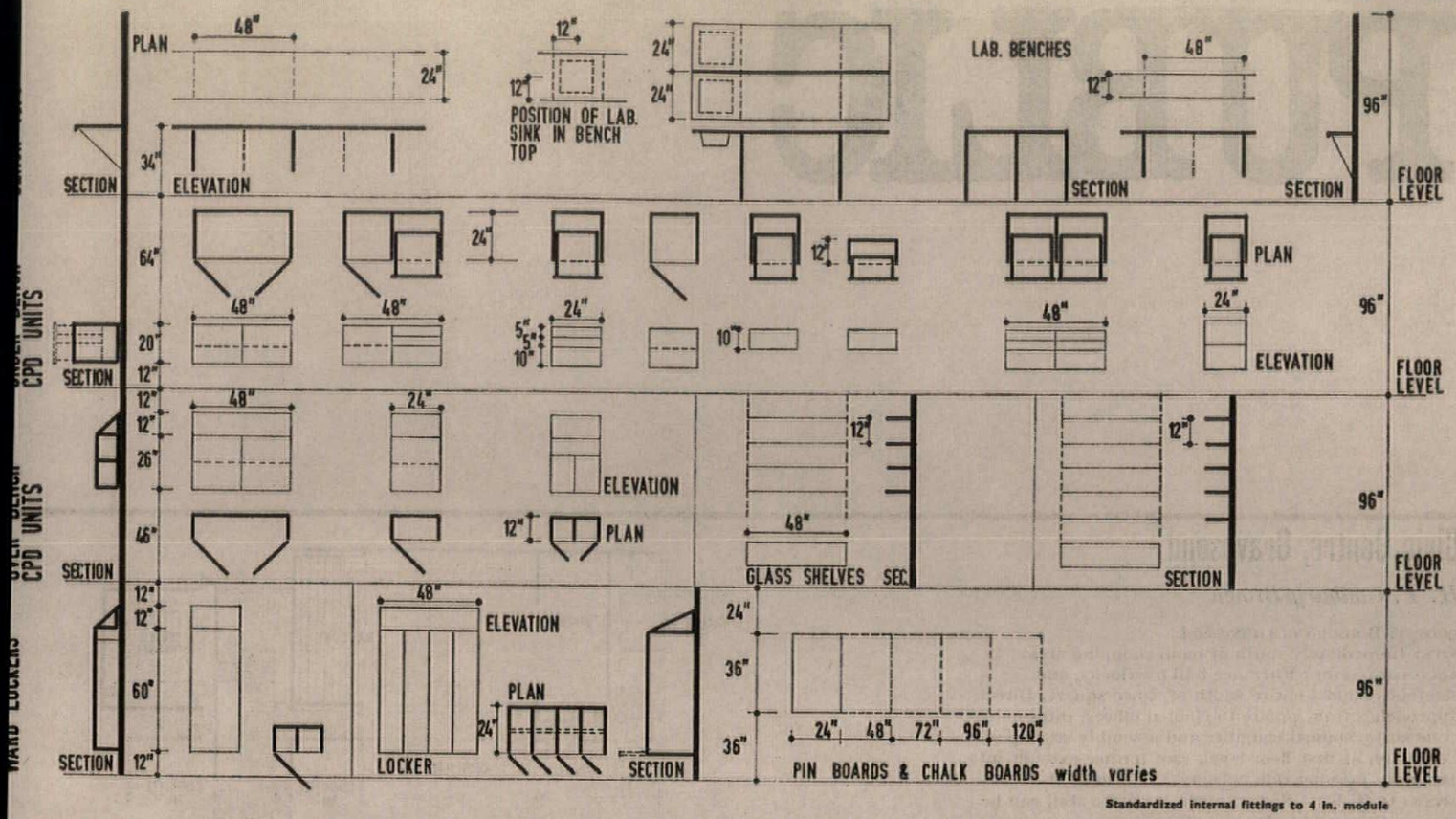
Designed in association with T. Noel Mitchell, regional architect. Senior architects, D. J. Petty (research), Howard Goodman (development). Design team, Michael Bench, Derrick Martin, Roman Grunberg, Michael Malone. Structural consultants, Charles Weiss & Partners. Mechanical consultants MOH engineering branch. Quantity surveyors, MOH quantity surveyors, Eric Lynde & Partners.



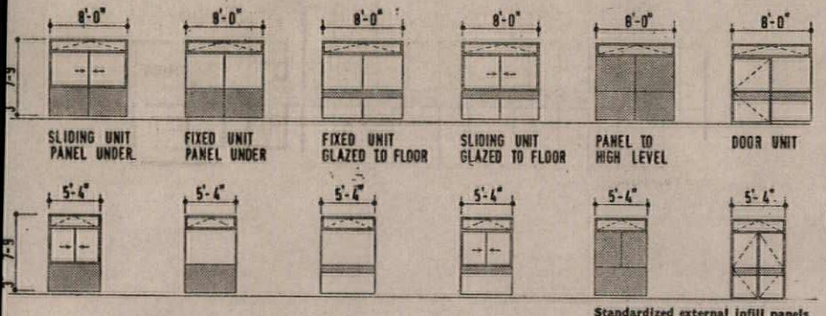




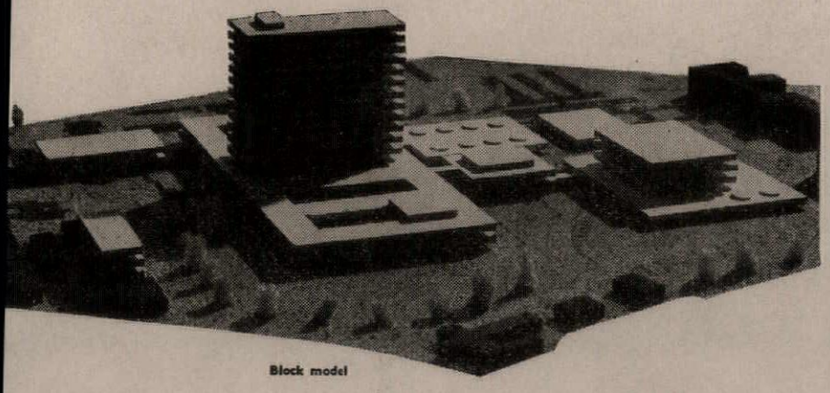




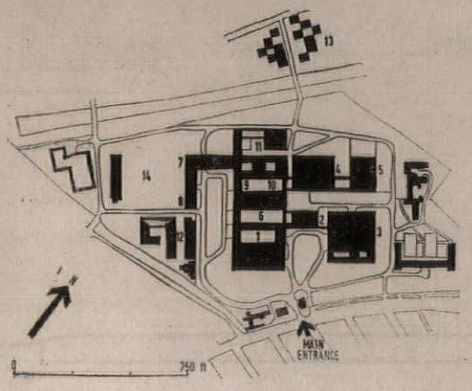
Standardized internal fittings to 4 in. module



Standardized external infill panels



Block model

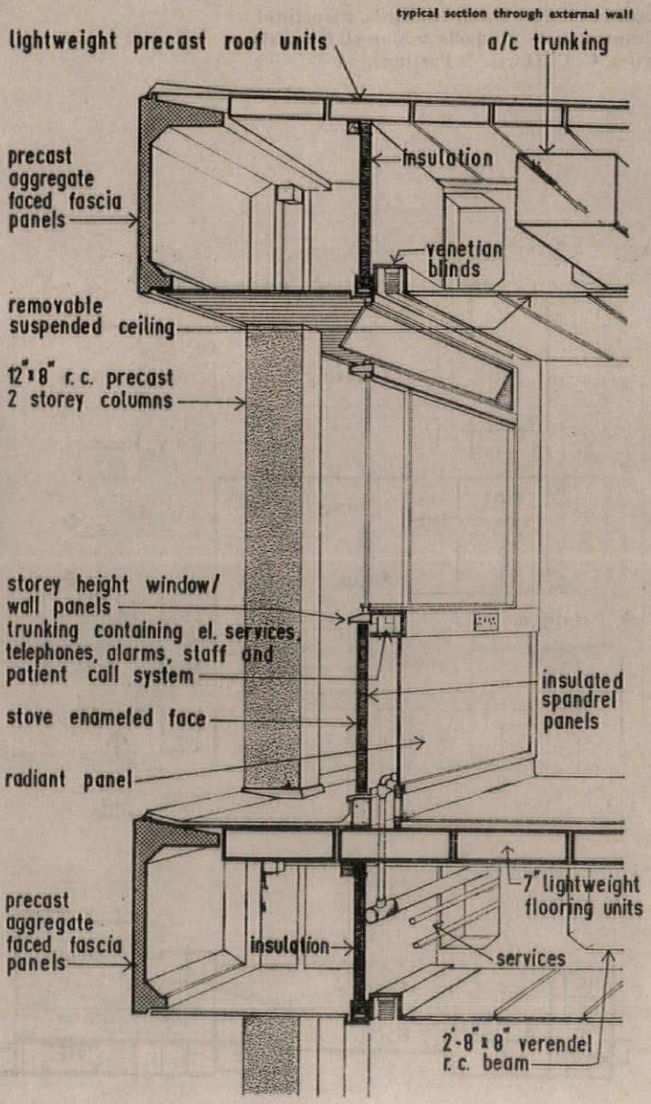


Development plan

key

OPD and Accident/Emergency	1
X-ray/CSSD	2
neurosurgical unit	3
theatres	4
kitchen and stores	5
wards	6
psychiatric/geriatric	7
HMC offices	8
physiotherapy	9
pathology	10
service zone	11
maternity	12
staff housing	13
car park	14

typical section through external wall



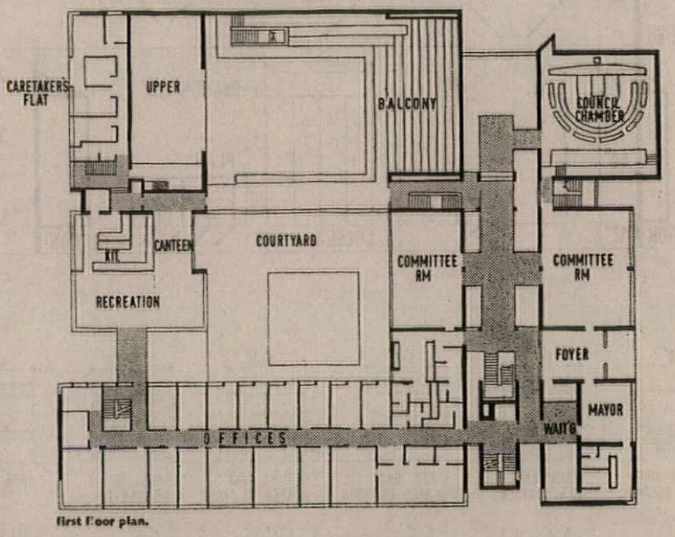
PUBLIC

Civic Centre, Gravesend

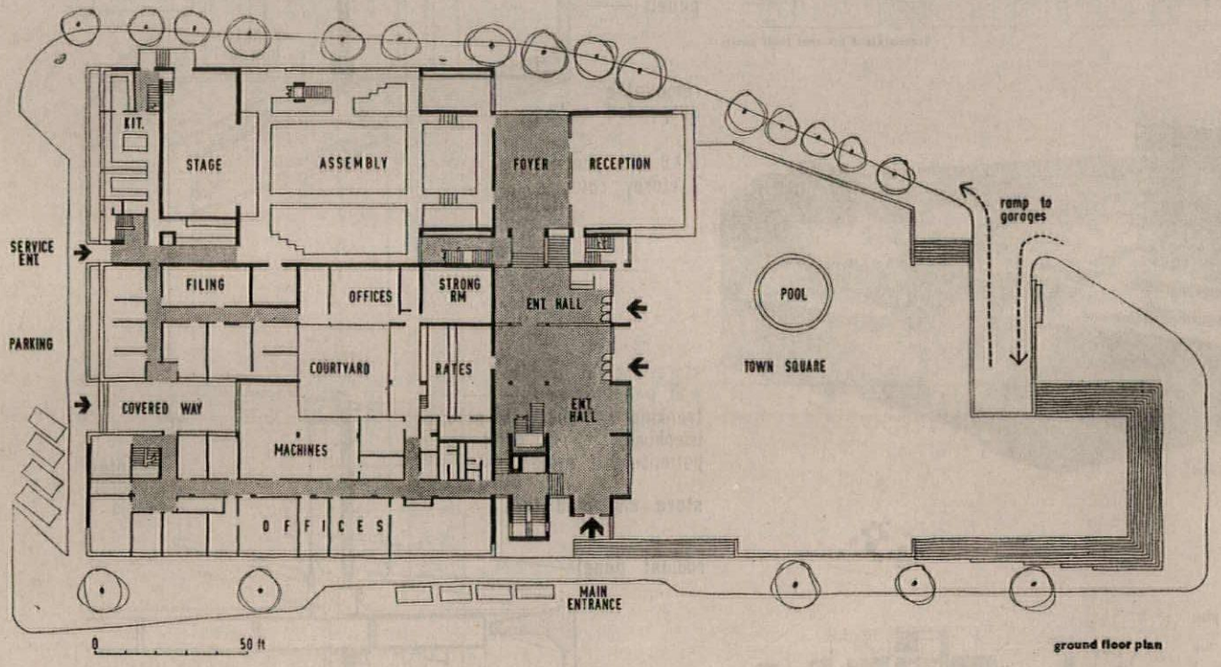
H. T. Cadbury-Brown

CLIENT: Borough of Gravesend.
SITE: Immediately south of main shopping area.
ACCOMMODATION: Entrance hall overlooks, and stretches almost entire width of, town square. Direct approaches from square to council offices, rates hall, civic suite, council chamber and assembly seating 900. Centrally, at first floor level, roof terrace extends into assembly forming side balcony. Civic suite also has access to it. First floor canteen for office staff can be used with assembly for civic functions. Assembly seats 400 for banquets. Garage for 56 cars beneath square.
STRUCTURE AND FINISHES: R.c. frame. Precast panel facings. Teak windows.

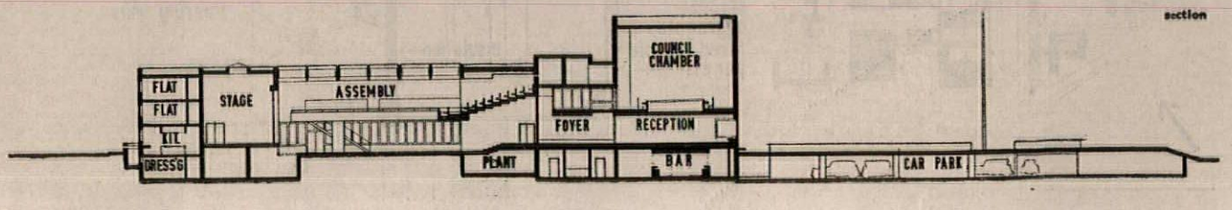
Assistant in charge, Brian Richards. Structural consultants, Clarke Nicholls & Marcel. Quantity surveyors, E. C. Harris & Partners.



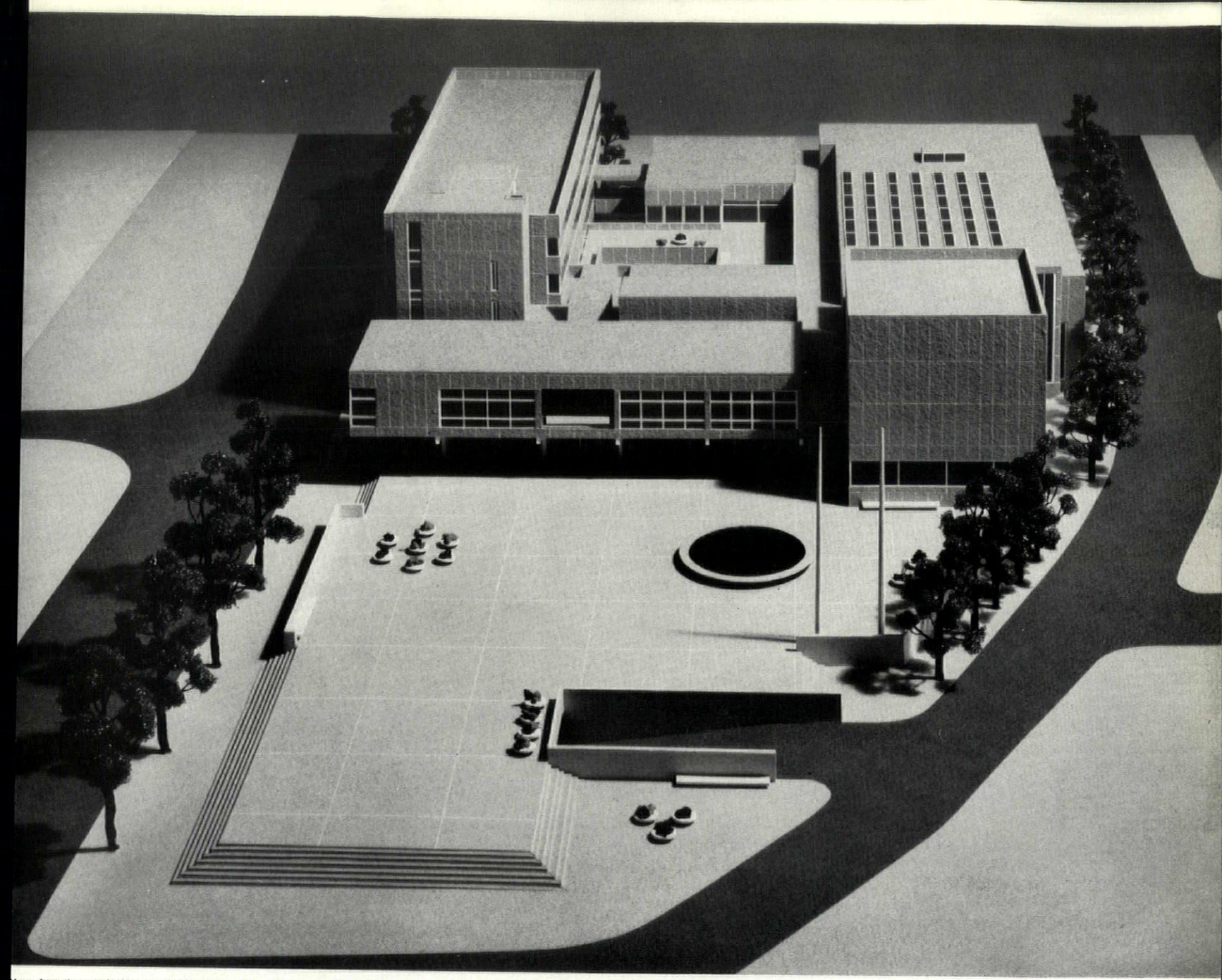
first floor plan.



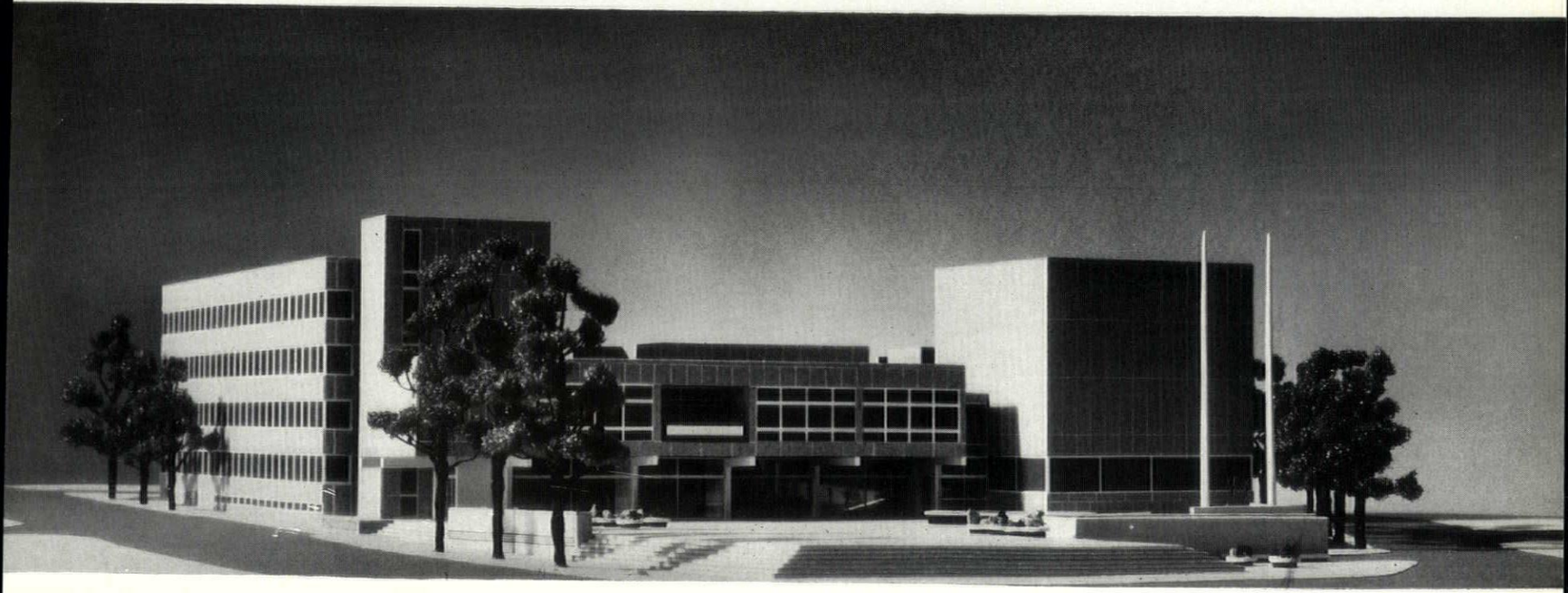
ground floor plan



section

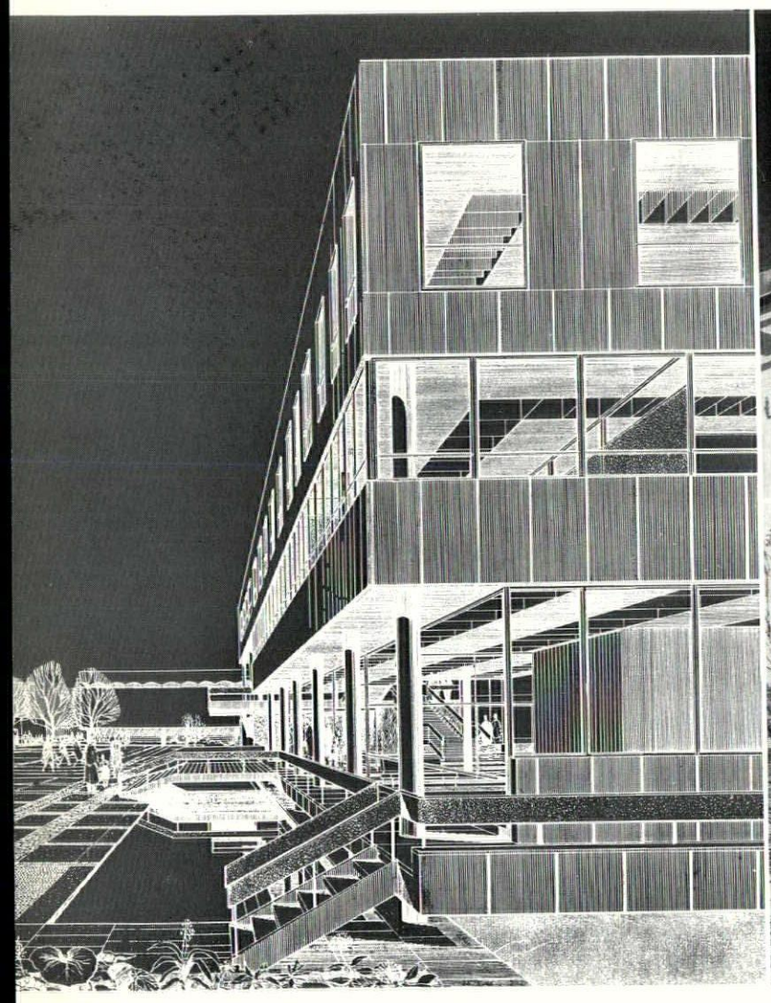


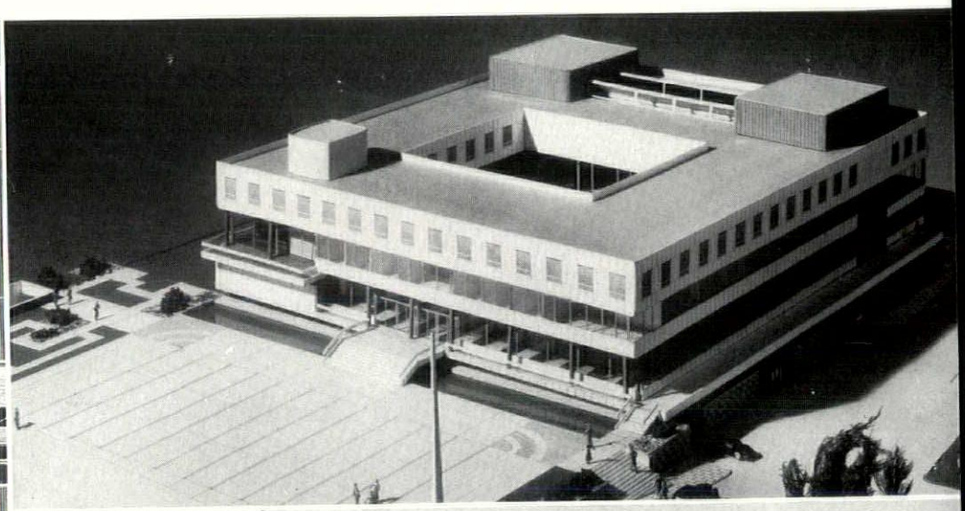
Above, from the south looking over the town square. Below ,the entrance with the council chamber on the right and offices on the left

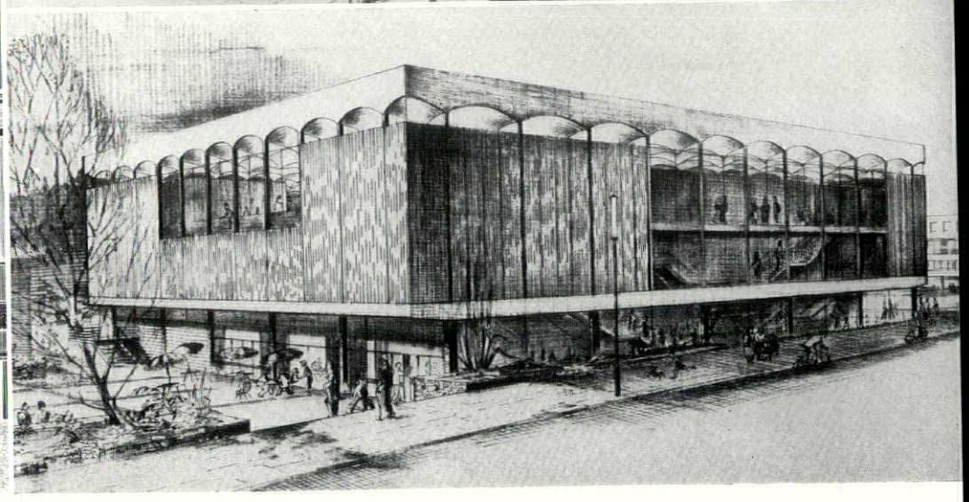


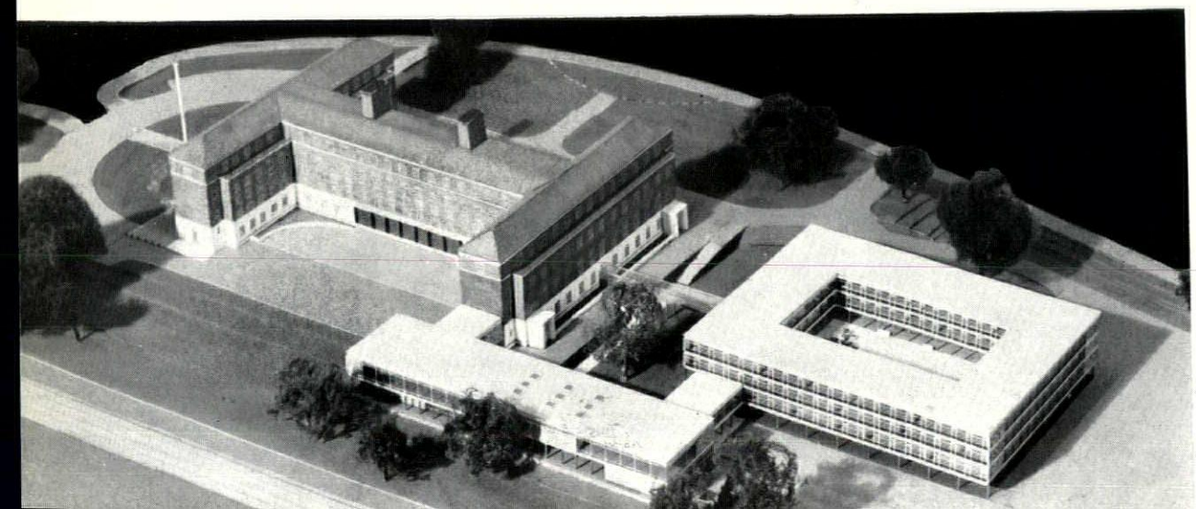






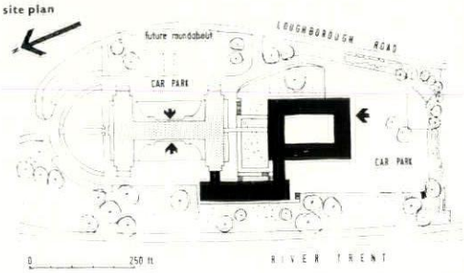


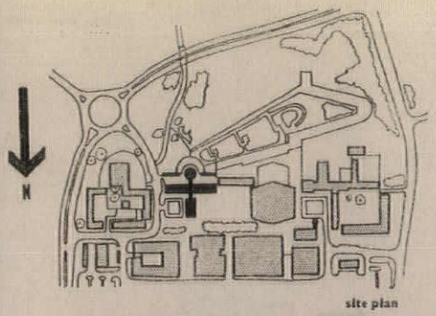




County Hall Extension, West Bridgford: left, air-view from south-west

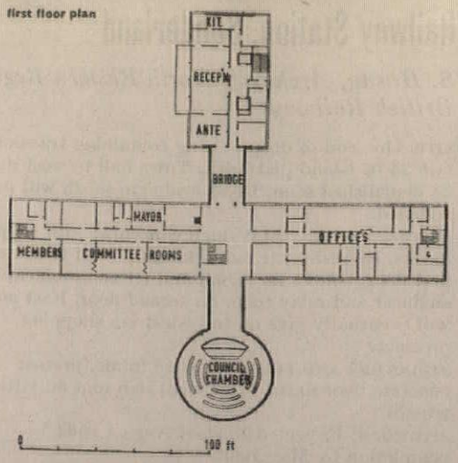
site plan





site plan

first floor plan



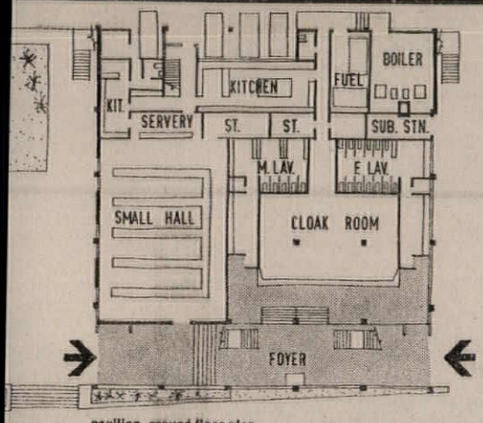
Opposite left, civic square from the east:
← opposite right, from north-east with stepped, formal garden with linking landscape wedge on right

Town Hall, Harlow

Frederick Gibberd

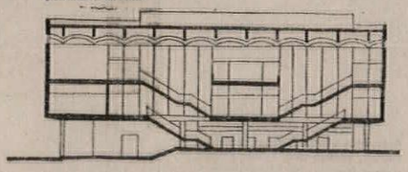
SITE: South boundary of town centre. Part of inter-related system of squares formed by law courts, government buildings and technical college.
ACCOMMODATION: Municipal office tower forming dominant element in civic centre. Two-storey wing with committee rooms, mayor's parlour, etc., is now completed. A civic suite is on first floor of tower. Glazed, vaulted room on top of tower houses maps and models of town.
CIRCULATION: Pedestrian approach from square. Vehicular approach at lower level on opposite side.
STRUCTURE AND FINISHES: R.c. frame. Infill panels, Cornish granite reconstructed stone.

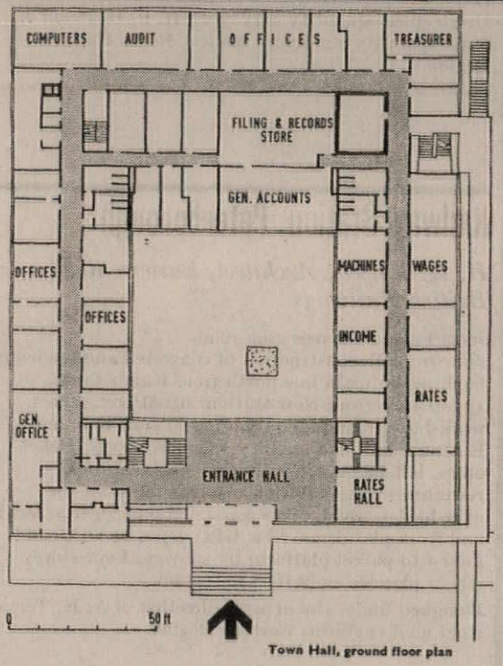
In association with A. W. R. Webb, Engineer and Surveyor, Harlow U.D.C.



pavilion, ground floor plan

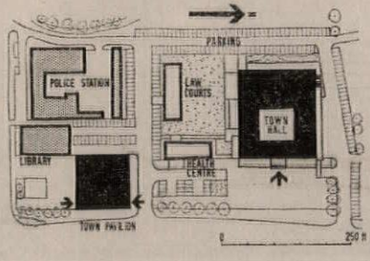
pavilion, section





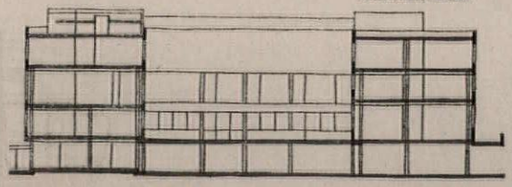
Town Hall, ground floor plan

Opposite left, east side of town hall:
← opposite top right, town hall from north-east:
opposite bottom right, pavilion from south-east



site plan

Town Hall, section



Town Hall, Hemel Hempstead

Clifford Culpin & Partners

SITE: North end of new centre on main shopping street.
ACCOMMODATION: Council suite, town clerk's, engineer's, treasurer's, public health and housing departments. Top floor has additional departments for county council. 243 parking places. Garage for 84 cars under forecourt with direct access to entrance hall. Further 60 spaces beneath main building.
STRUCTURE AND FINISHES: R.c. frame, Portland stone facing, metal windows.
SITEWORK: Foundations start April 1962. Superstructure starts October 1962, completion by Spring 1964.

Structural consultants, Ove Arup & Partners. Services consultants, James H. Ross & Partners. Quantity surveyors, Dearle & Henderson.

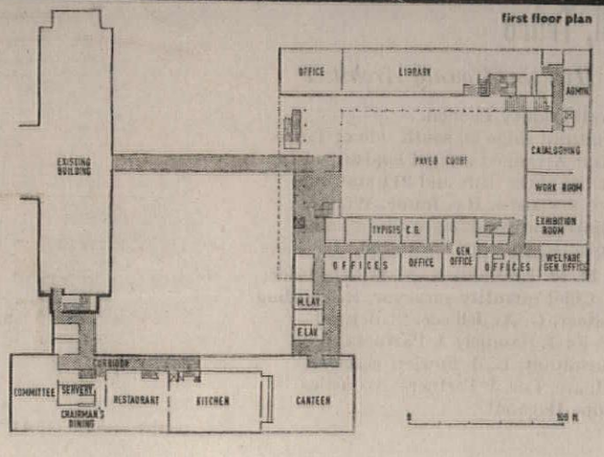
Pavilion, Hemel Hempstead

Clifford Culpin & Partners

SITE: Close to town hall, as above.
FUNCTION: Public hall as main centre of entertainment separated from more formal town hall. Providing for full orchestra, dancing, boxing, theatre in the round, etc.
ACCOMMODATION: Main hall for 1,109 including balcony. Second floor dining gallery, foyer and bar. Hall seating 140 diners or 250 for lectures, etc., at ground level.
STRUCTURE AND FINISHES: R.c. frame. Roof, steel trusses. External facings; modelled exposed aggregate slabs, Portland stone fascia.
SERVICES: Air-conditioned. Lighting mainly from shallow ceiling domes.
SITEWORK: Starts Autumn 1962, completion by Summer 1964.

Structural consultants, Ove Arup & Partners. Mechanical consultants, Maurice G. Bland & Partners. Quantity surveyors, Dearle & Henderson.

first floor plan



County Hall Extension, West Bridgford

W. D. Lacey, County Architect

CLIENT: Nottinghamshire County Council.
SITE: County Hall immediately south of Trent Bridge.
ACCOMMODATION: Six departments. Two-storey link; committee room, dining, staff rooms, caretaker's flat.
STRUCTURE AND FINISHES: Lower ground floor, in situ r.c. forming platform for light steel upper part. Modified CLASP. Portland stone bands at roof and floor levels. Windows; horizontal sliding, louvres over.
SITEWORK: Phase 1 expected to start early 1962.

Group architect, E. H. Turner. Job architects, A. Meikle, R. J. Patterson. Quantity surveyors, Clevely & Bass. Sub-structural consultants, University of Nottingham. Mechanical consultant, R. J. Fowler. Catering consultants, J. Lyons & Co. Ltd.

PUBLIC

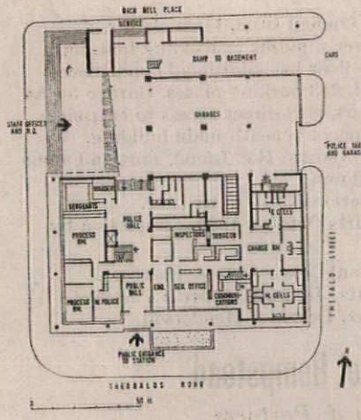
Police Station, Holborn

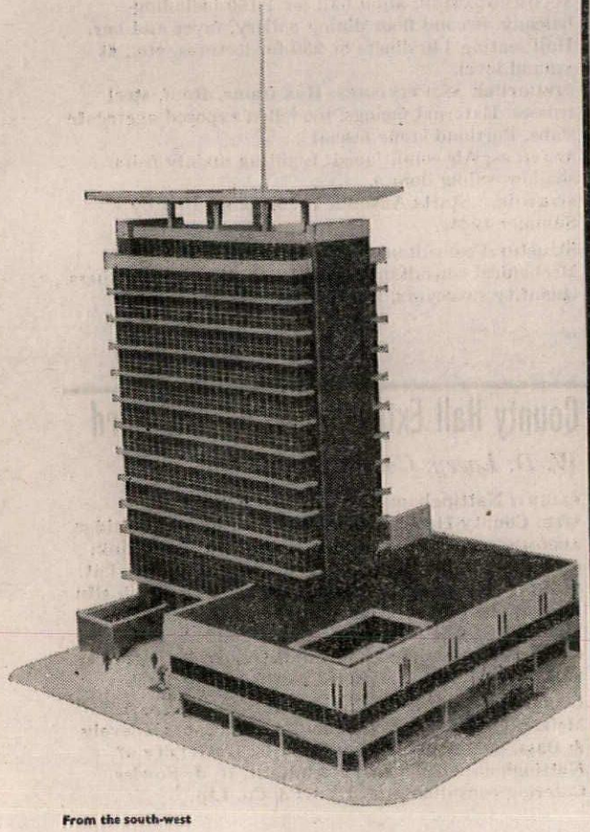
J. Innes Elliott, Chief Architect and Surveyor, Metropolitan Police

SITE: At corner of recently widened Theobalds Road and Lambs Conduit Street. Plot ratio 3.5 : 1.
ACCOMMODATION: Sub-divisional station, aliens' registration office and office block.
STRUCTURE AND FINISHES: In situ r.c. frame, flat beams, raft foundation. Lower peripheral bay founded higher and supported from central core. End walls, blue brick capped with Portland stone. Aluminium window walls, roof canopy and mast. Projecting floor slabs faced with white mosaic. Podium; aluminium double glazing, Portland stone bands, dark brick to detention area.
SITEWORK: Starts June 1962, completion by December 1963.

Deputy chief architect, D. T. Edwards. Senior architect, S. J. Hanchet. Architect, A. J. Gasson. Assistant architect, I. G. Mowat. Modelmaker, D. H. Griffin. Structural consultants, F. R. Bullen & Partners. Quantity surveyors, T. Barrett, Sons & Partners.

ground floor plan





From the south-west

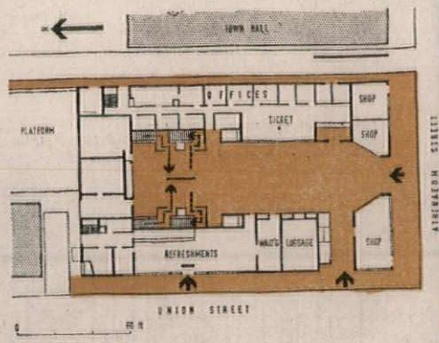
Railway Station, Sunderland

→ Opposite, from south

S. Hardy, Architect, North Eastern Region, British Railways

SITE: One end of deep cutting containing tracks and two 25 ft. island platforms. Town hall to west due to be demolished soon. Road bridge to south will be widened.
ACCOMMODATION: 30 ft. high concourse with shops and kiosks. Refreshment room, kitchen, staff rooms on first floor. Offices for signal and telecommunications engineer and relay room on second floor. East access will eventually give on to pedestrian shopping precinct.
STRUCTURE AND FINISHES: Steel frame, precast concrete floor units. Woodwool slab roof on lattice trusses.
SITEWORK: Expected to start August 1962, completion by May 1963.

Under the general direction of E. L. Triffit, chief civil engineer, North Eastern Region. Senior assistant architect, C. M. Little. Leading assistant architect, H. N. Cameron. Assistant architects, D. Mansbridge, M. Steeples. Quantity surveyors, R. P. H. Brind & Staff, quantity surveyors section, North Eastern Region.



ground floor plan: pedestrian routes, yellow: access routes, broken line: egress routes, dotted line

Railway Station, Peterborough

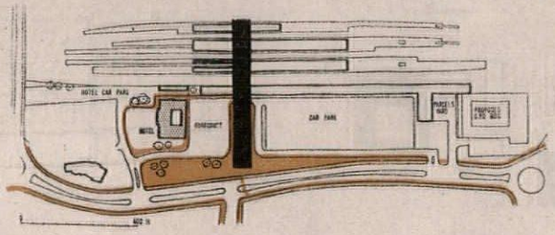
H. H. Powell, Architect, Eastern Region, British Railways

SITE: Facing the new ring road.
FUNCTION: Reconstruction of congested and inadequate facilities on main line north from King's Cross.
ACCOMMODATION: New station, signal box, offices, workshops, marshalling yards and staff building. Entrance hall and enquiry at ground level. Ticket office, left luggage, waiting rooms, lavatories, refreshments and station master's office are on over-bridge which gives separated passenger access to and from platforms. New GPO depot at north end, linked to parcel platform by subway. Four-storey offices planned on 2 ft. 8 in. module.

Designed under the general direction of A. K. Terris, chief civil engineer, Eastern Region.



first floor plan of bridge: access routes, broken line: egress routes, dotted line



site plan: pedestrian routes yellow

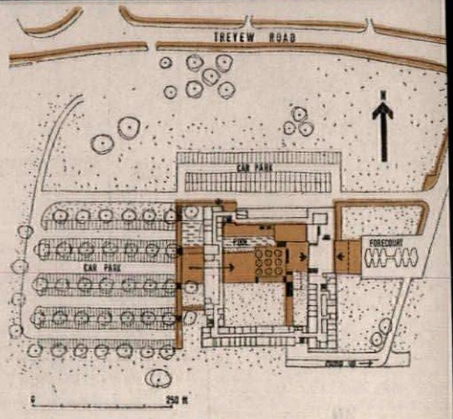
→ Opposite, air view

County Hall, Truro

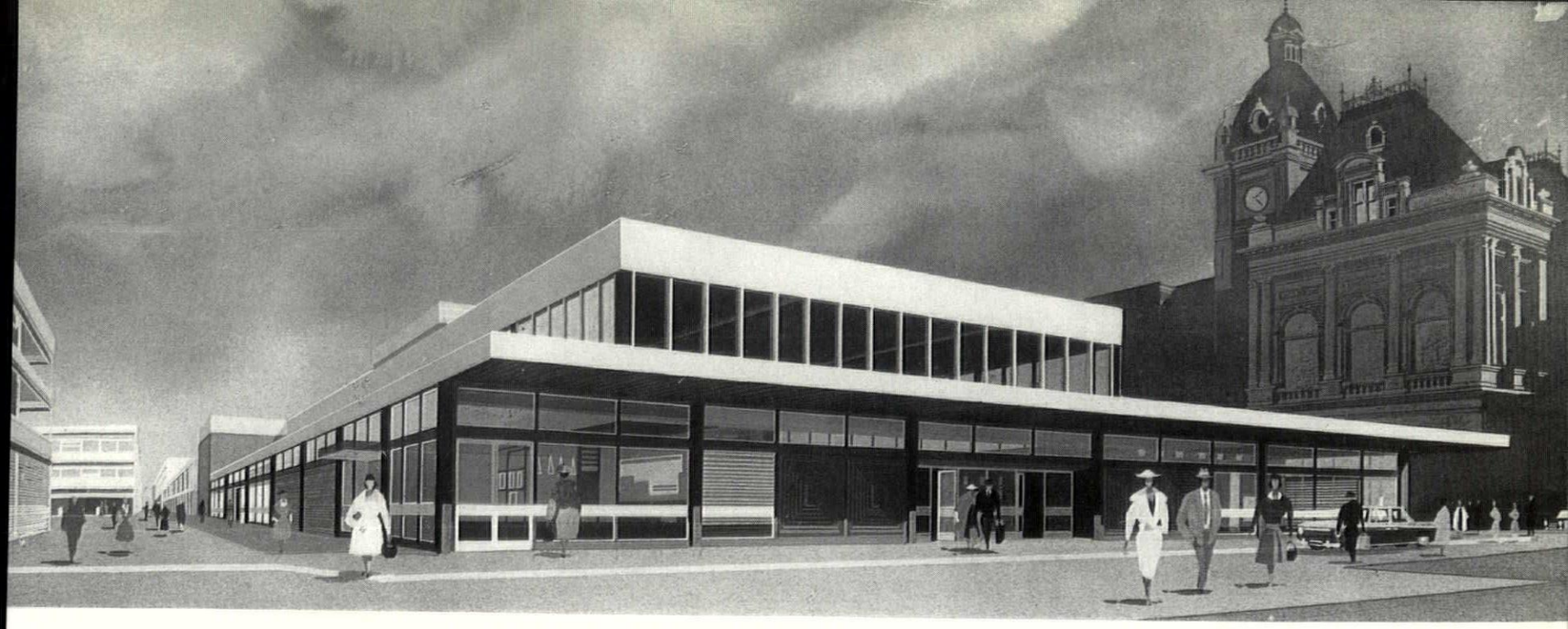
F. Kenneth Hicklin, County Architect

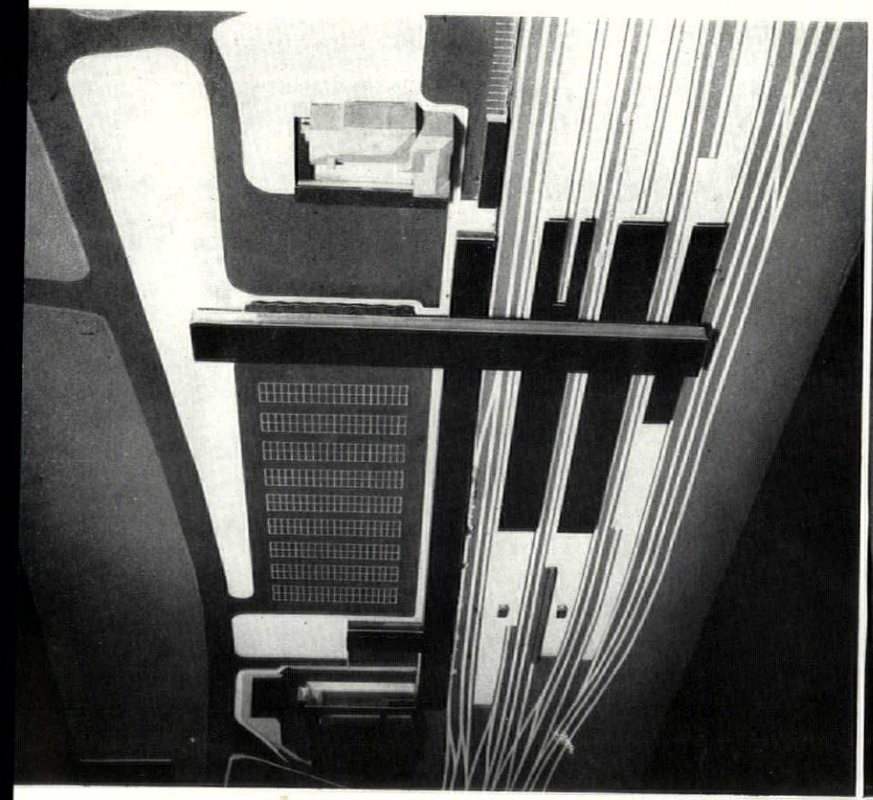
CLIENT: Cornwall County Council.
SITE: Part of natural ridge on south side of Truro.
ACCOMMODATION: Arranged around landscaped court. Parking for 91 members' cars and 211 staff cars.
STRUCTURE AND FINISHES: R.c. frame. Windows, aluminium. Plinth and retaining walls, granite.
SITEWORK: Expected to start April 1963.

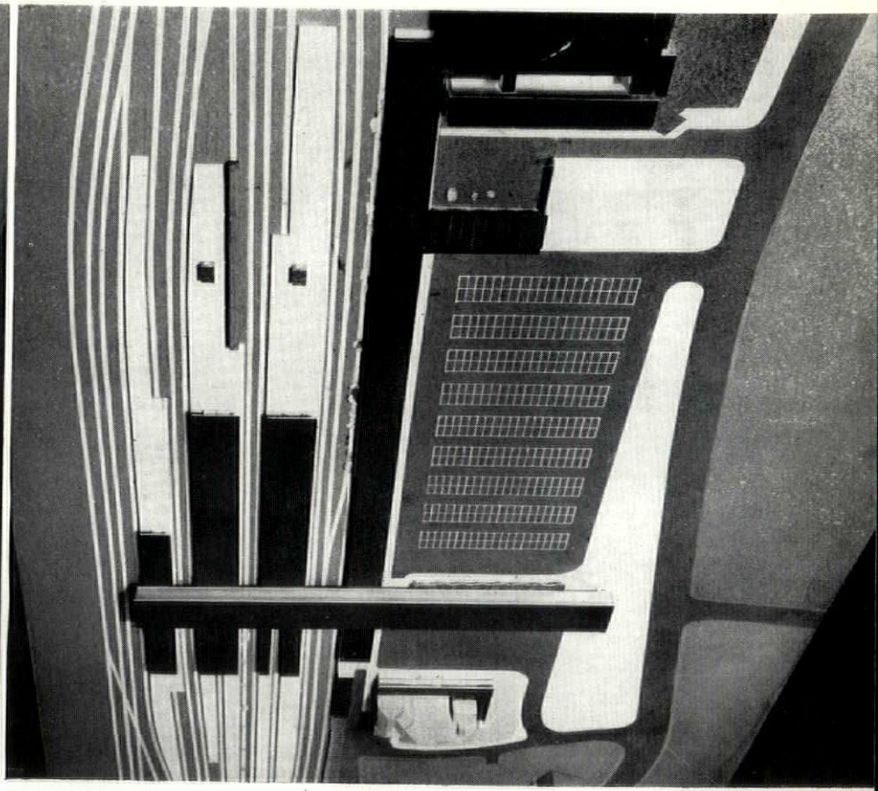
Assistants, A. H. M. Linscott, K. M. G. Kirkbride, J. R. Coward. Chief quantity surveyor, R. Harding. Advisory architect, G. A. Jellicoe. Structural consultants, Felix J. Samuely & Partners. Mechanical consultant, L. J. Fowler. Electrical consultants, Hoare, Lea & Partners. Acoustics consultant, Hope Bagenal.

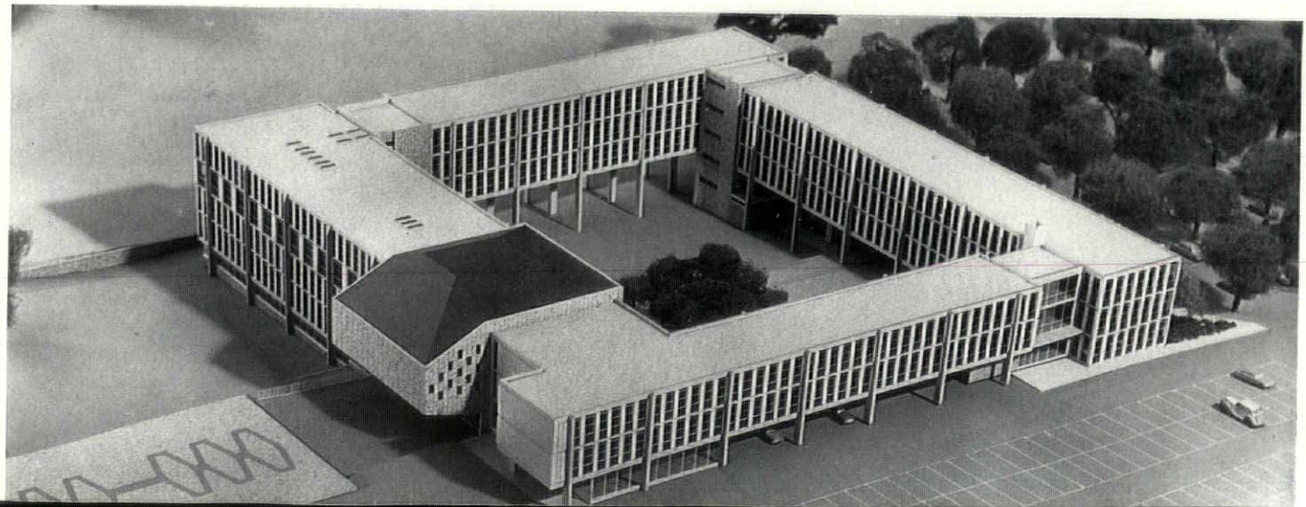


site plan: pedestrian routes yellow

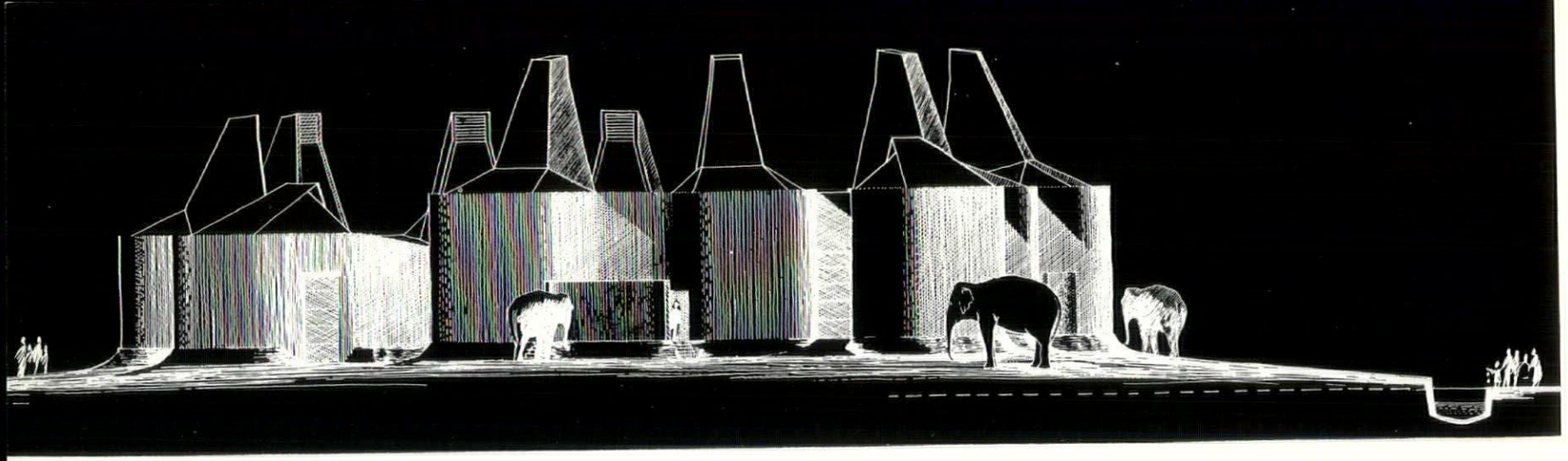


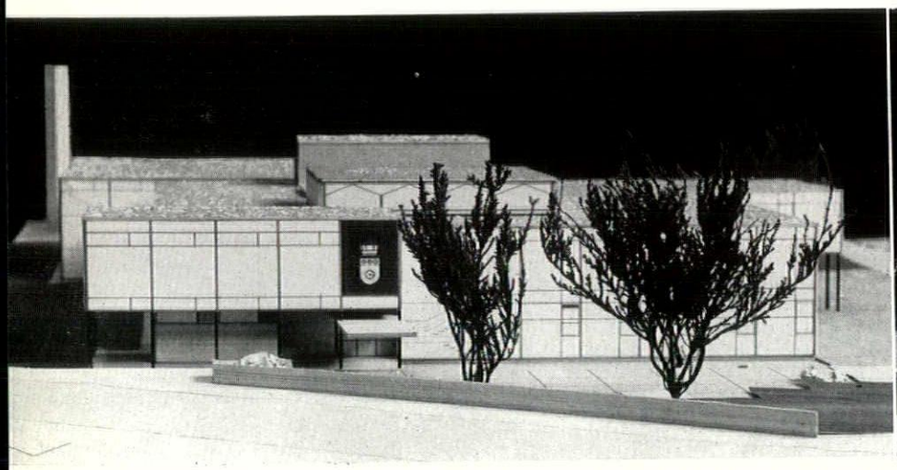


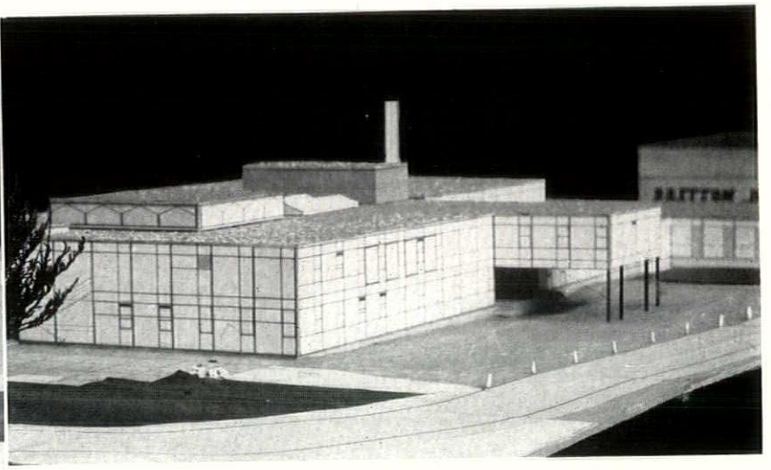


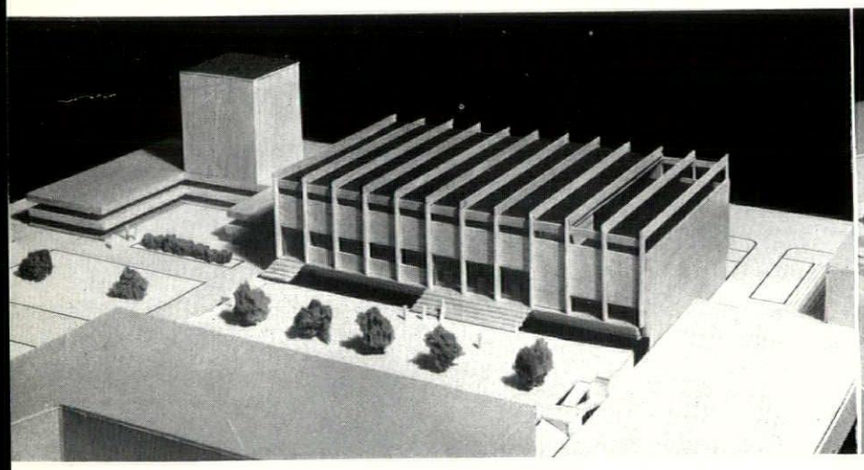


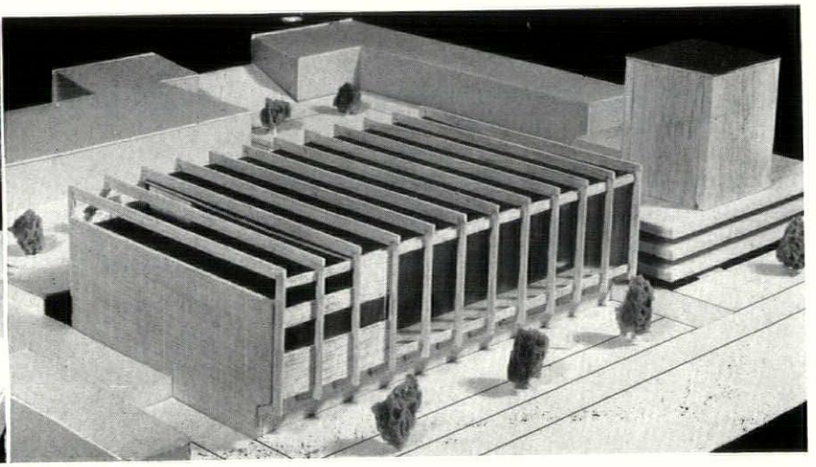
County Hall, Truro. Left, from north-east with main entrance beneath council chamber. Ground falls away from foreground. Staff parking among trees, top right

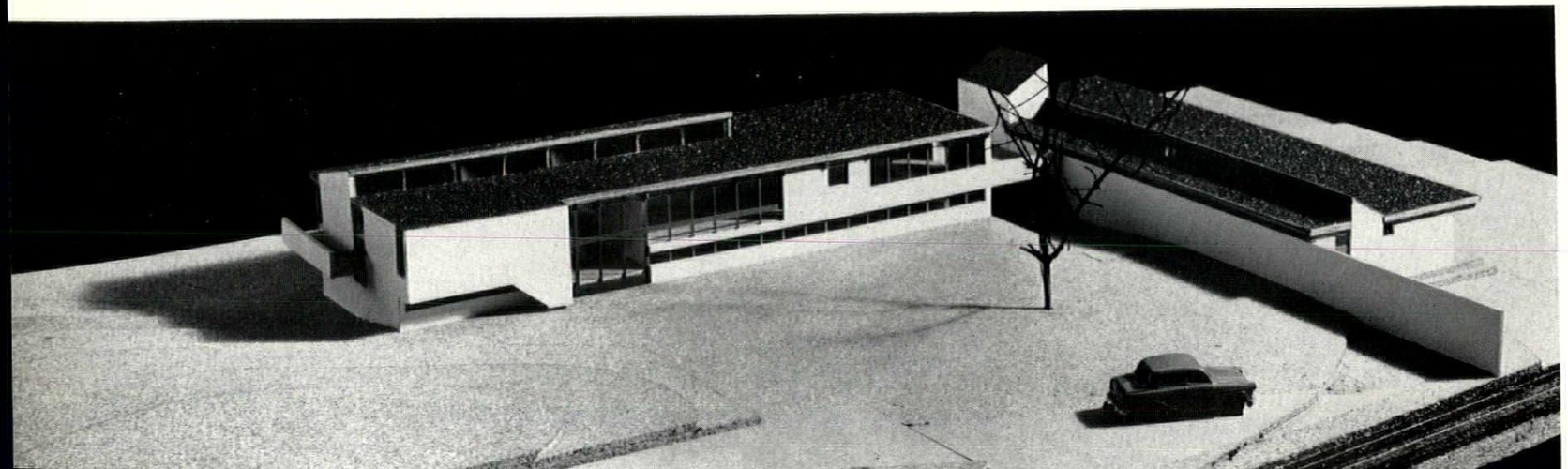




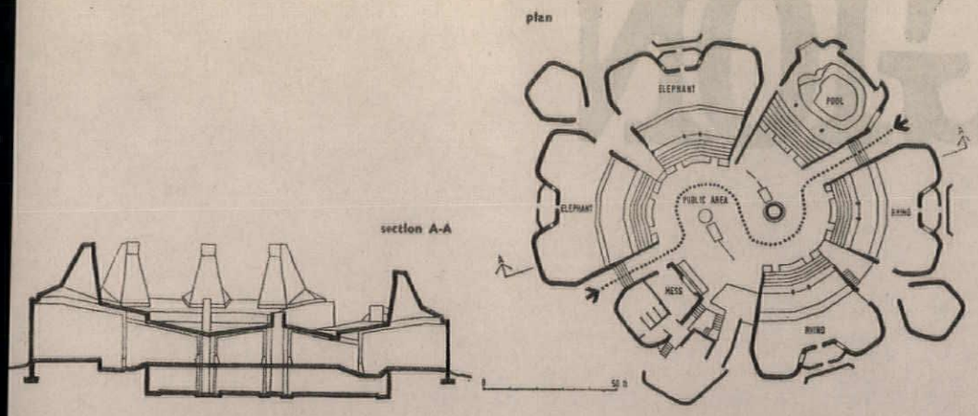








← Opposite: elevation, elephant pens on the right



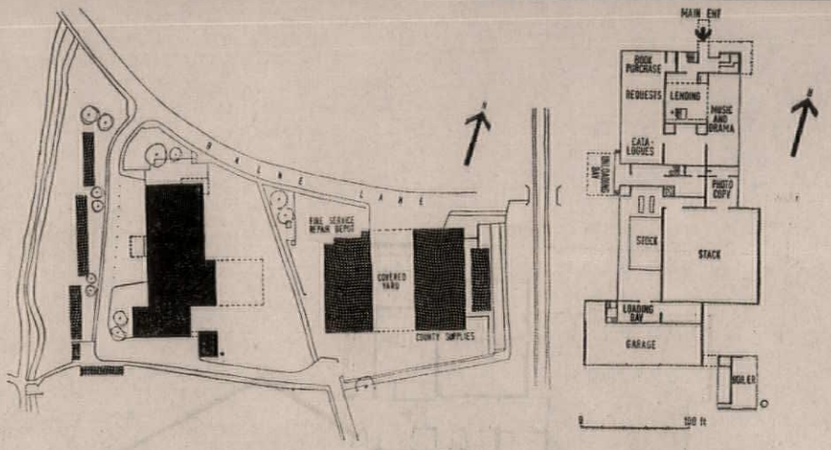
Elephant House, Zoo, London

Sir Hugh Casson, Neville Conder & Partners

CLIENT: The Zoological Society.
SITE: Where present antelope house stands.
ACCOMMODATION: Four elephants and four rhinoceroses in paired pens, each with access to sick bay and moated external paddock. Designed in spirit of exhibition building to display animals in most dramatic way. Central space low and dark. Only internal lighting is above pens and reflects on cycloramic walls showing animals in silhouette.
STRUCTURE AND FINISHES: External walls, r.c. with ribs hacked to expose aggregate. Roof, copper.
SITEWORK: Starts February 1962.

Structural consultants, Jenkins & Potter. Quantity surveyors, A. S. Wilson & Partners.

← Opposite left, main entrance from north: opposite right, from north-west



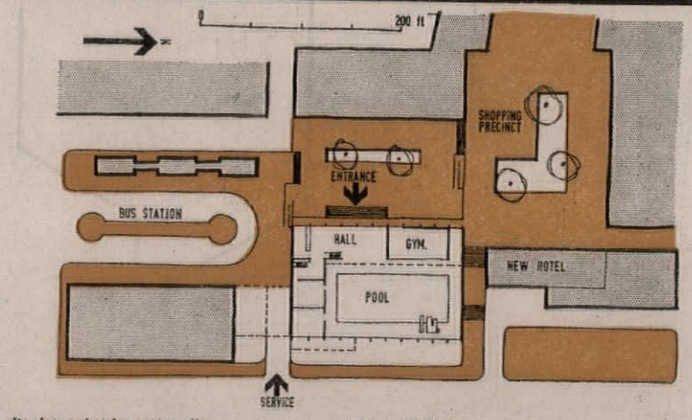
County Library HQ, Wakefield

A. W. Glover, County Architect

CLIENT: Yorkshire (W. Riding) County Council.
SITE: A featureless part being redeveloped.
FUNCTIONS: 1, headquarters of large organization. 2, depot and handling centre.
ACCOMMODATION: 225,000 volumes at first with expansion in stacks to 450,000. Rooms for teachers' meetings, library associations, etc. 64 staff. Eight vehicles for distribution up to 100 miles.
STRUCTURE AND FINISHES: Steel frame, selected for speed of erection. Infill panels, vitreous enamel.
SERVICES: Heating and ventilation by warm air.
SITEWORK: Expected to start early 1962.

Deputy county architects, A. Robinson, W. T. C. Walker. Assistant architects, E. L. Cathery, R. C. Marshall, E. R. Trotter.

← Opposite left, main entrance from pedestrian way: opposite right, from south-east



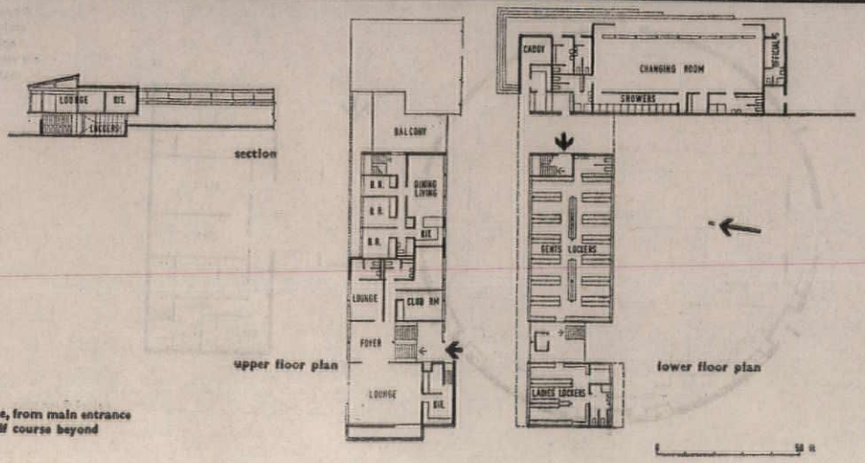
site plan: pedestrian routes yellow

Swimming Baths, Kirkcaldy

Alison & Hutchison & Partners

CLIENT: Royal Burgh of Kirkcaldy.
SITE: South-east corner of central redevelopment.
ACCOMMODATION: International standard pool, at level of main entrance from shopping square. Small pool. Seating for 1,000 spectators. Changing for 500. Restaurant for 60 overlooks Firth of Forth.
STRUCTURE AND FINISHES: R.c. frame faced externally with mosaic.

Senior partner, R. Forbes Hutchison. Partner in charge, Walter Scott. Quantity surveyors, James Gentles & Son. Structural consultants, Leonard & Grant. Heating and electrical consultants, Ian Hunter & Partners.



← Opposite, from main entrance with golf course beyond

Sports Pavilion, Edinburgh

Alan Reiach & Partners

CLIENT: Edinburgh Corporation.
SITE: Silverknowes golf club on north side of city. Beautifully situated. Fine views.
ACCOMMODATION: 500 golfers and six football teams. Players enter from car park and descend to changing. Lounges, bar, etc., on first floor.
STRUCTURE AND FINISHES: Load-bearing, painted, stock bricks. Part framed with exposed laminated timber beams. Windows, timber. Roof, asphalt.
SERVICES: Heating, electric tubular fittings.
SITEWORK: Starts 1962, completion by 1963.

Partner in charge, Stuart Renton. Structural consultants, T. Harley Haddow & Partners. Quantity surveyors, Thomas & Adamson.

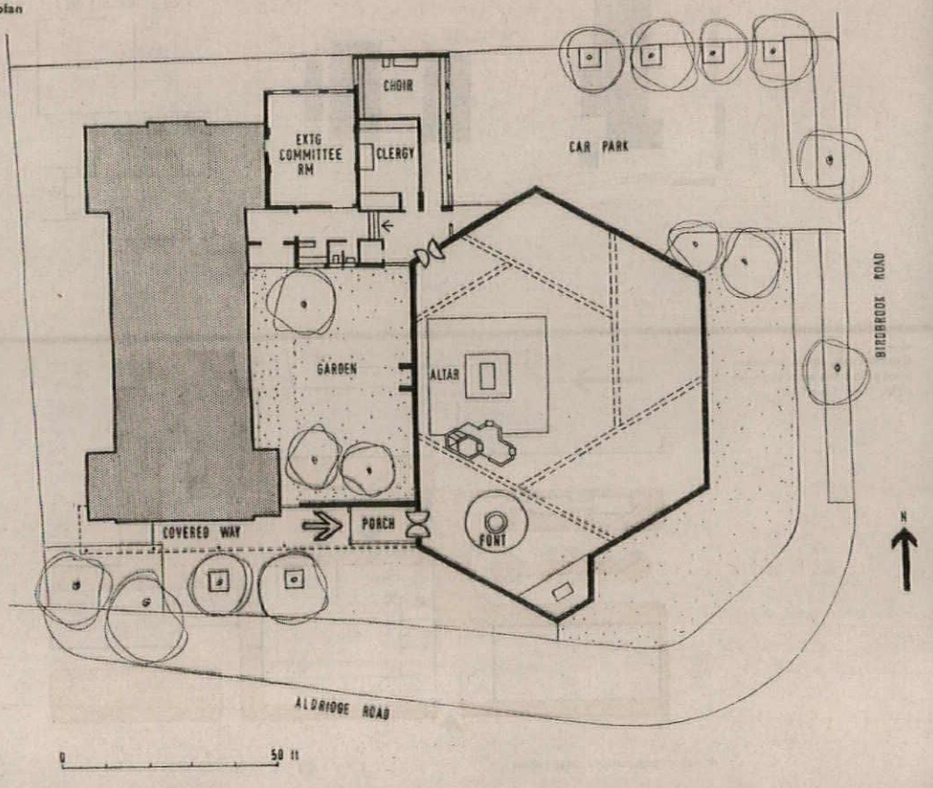
RELIGION

Church, Perry Beeches, Birmingham

Robert Maguire & Keith Murray

SITE: With pre-war hall, faces open green space to south. At bottom of a valley so building seen from above.
ACCOMMODATION: Seating for 400. Spatial form and placing of things within are outcome of investigation of worshipping traditions. Architects' aim to achieve relationship between various functions of the liturgy by spatial relationships in the building. It may then become a creative element in the life of the people it serves: the only justification for building a church. Circular font, by entrance, stands under lowest semi-hexagonal roof defining baptistery. From here roofs ascend in a progression to regular hexagon over sanctuary. Seating can be arranged in various ways and is entirely independent of spatial relationships. Font can be seen by congregation without turning round. Its own character is essentially an architectural context of water. The altar given character of a thing 'set up'; four-square, short and wide, rectangularity emphasized by square sanctuary. The place for readings, and some preaching, given affinities with the building form, emphasizing quality of a 'place' not an object in its own right. The bell hangs in a frame high on west wall.
STRUCTURE AND FINISHES: Fair-faced, load-bearing brickwork. R.c. beams and tie bands. Roof, exposed timber, flax fibre decking, aluminium covering. Floor precast concrete flags.
SERVICES: Electric industrial heaters in pits below floor.
SITEWORK: Starts Spring 1962, completion in one year.
Structural consultants, A. J. & J. D. Harris. Electrical consultants, Peter Jay & Partners. Quantity surveyors, Lemon & Blizard. Acoustic consultant, Henry R. Humphries.

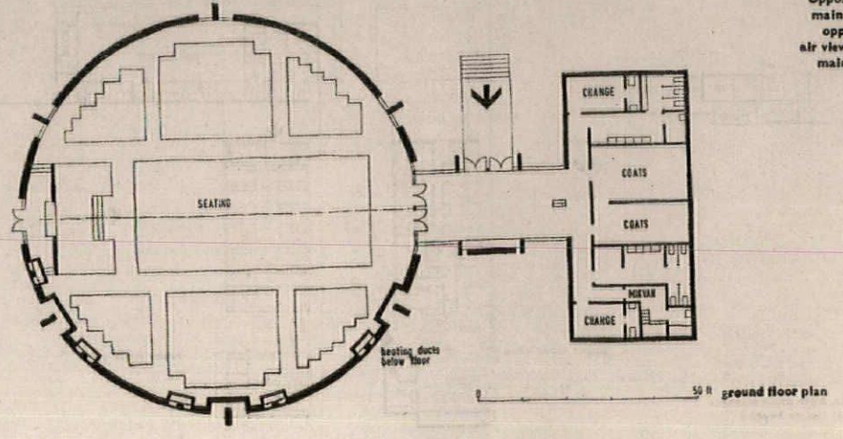
plan



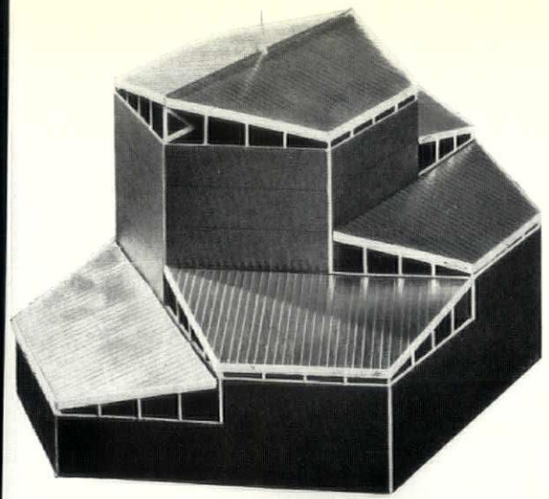
Synagogue, Belfast

Yorke, Rosenberg & Mardall

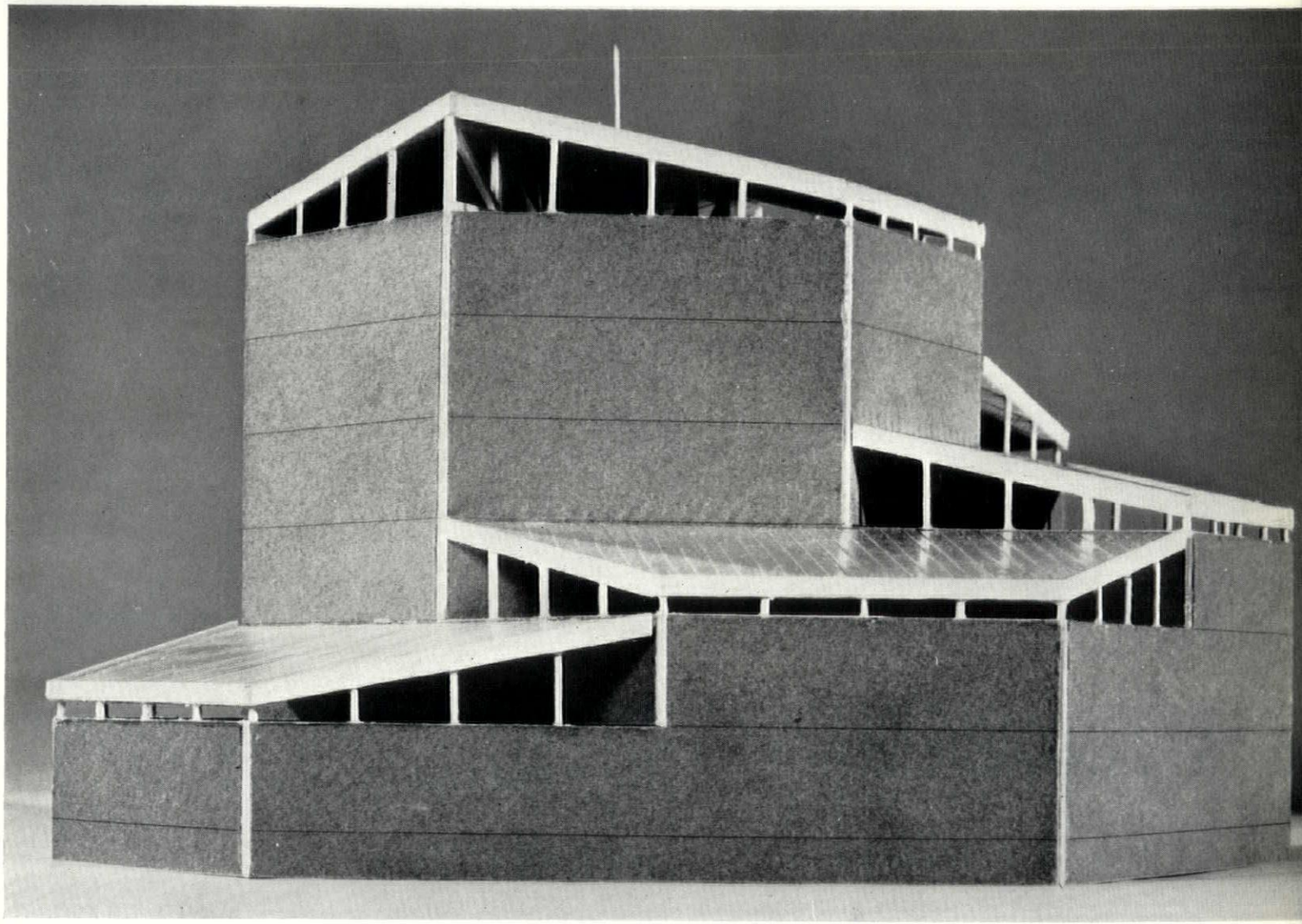
CLIENT: Belfast Hebrew Congregation.
SITE: Parkland in northern residential area with extensive planting along perimeter.
ACCOMMODATION: Hall for 700, connected by glazed entrance hall to top lit service block.
STRUCTURE AND FINISHES: Six polished r.c. columns support intersecting beams forming Star of David. Roof over; timber joists boarded top and bottom, covered with copper. Walls free standing between columns, blue brick facing externally and acoustic texture internally. Service block; brick cavity and cross walls, timber floor and roof.
SERVICES: Forced hot air through external wall grilles.
Assistant architect, K. Kapolka. Structural consultants, F. J. Samuely & Partners.

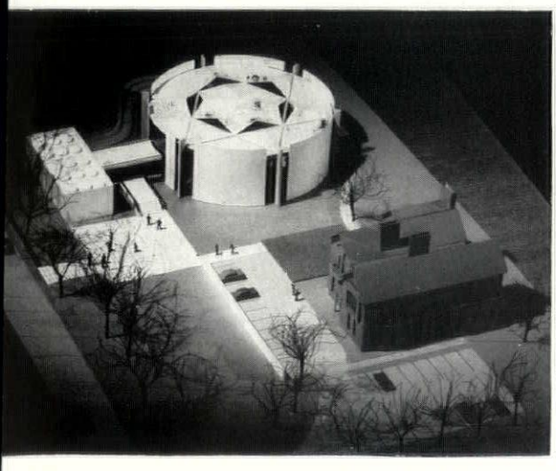


→ Opposite right, main entrance: opposite left, air view towards main entrance

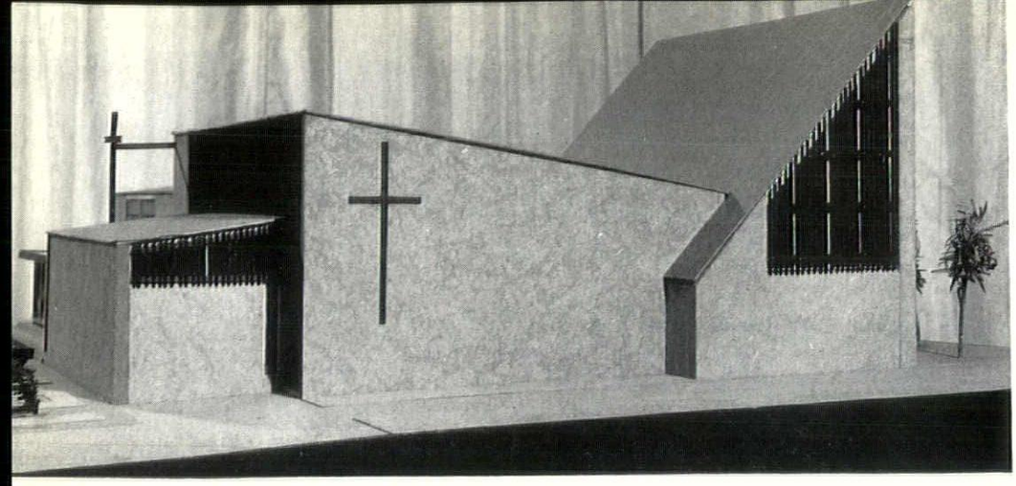


Church, Perry Beeches, Birmingham: views from south-east

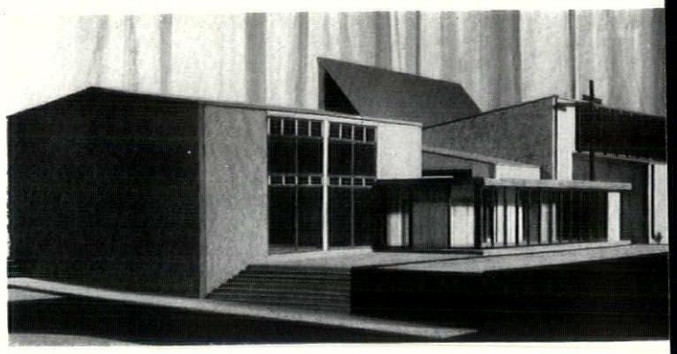


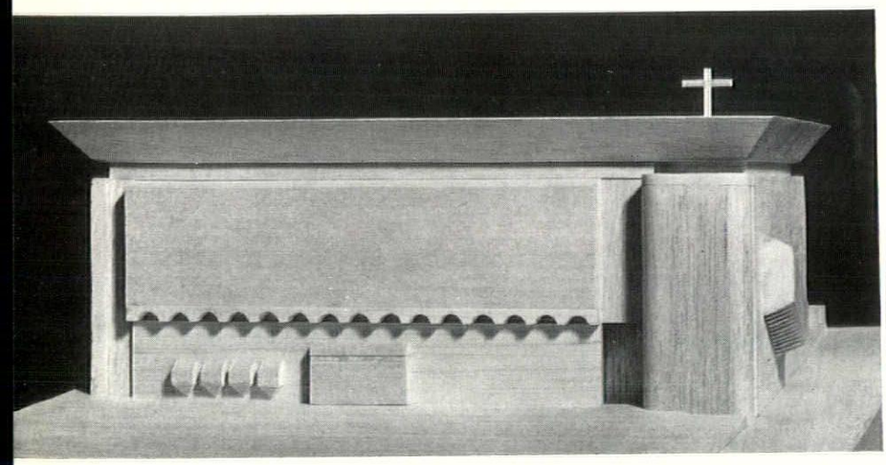


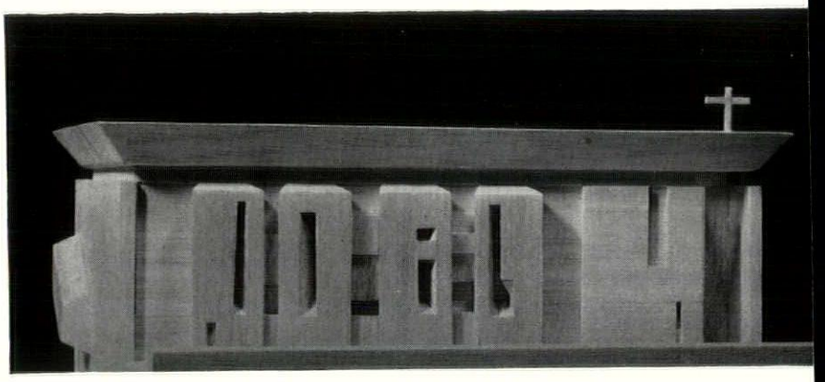




Church, Cumbernauld: left, from west
below, main entrance from north

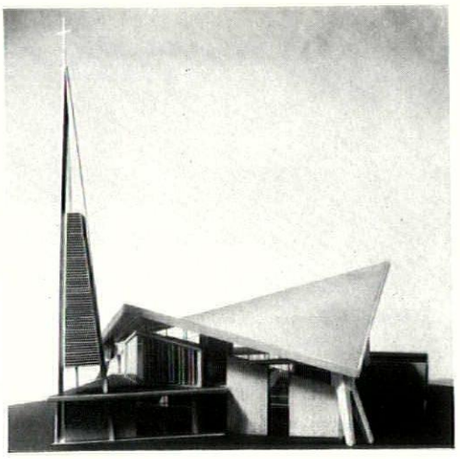


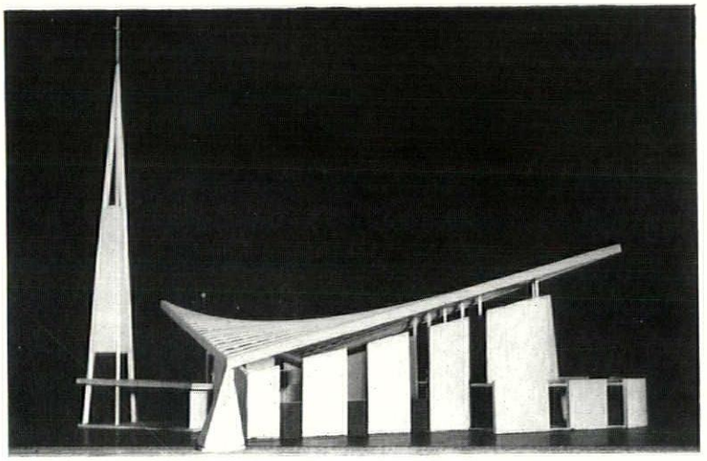


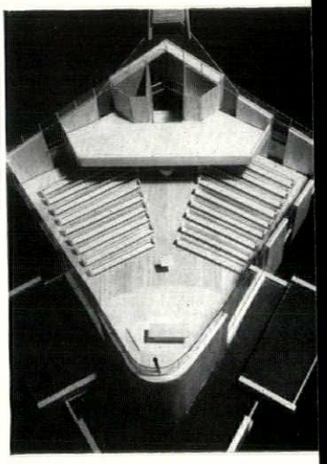


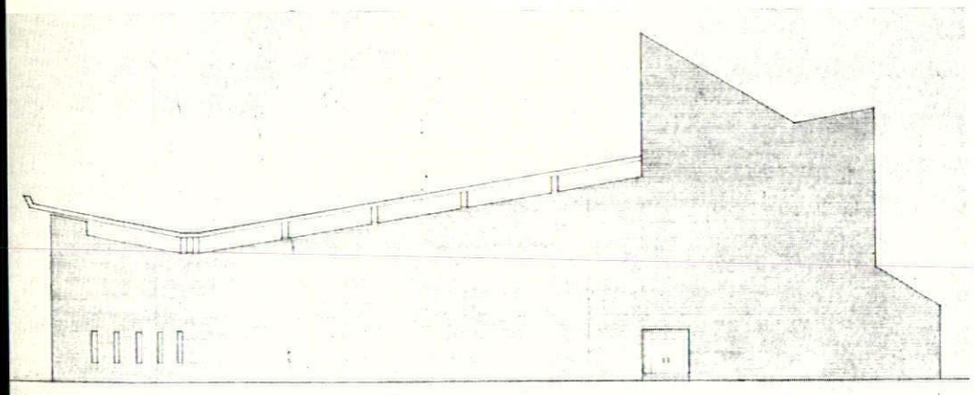
Church, Kilsyth:
left, main entrance from west
above, from east

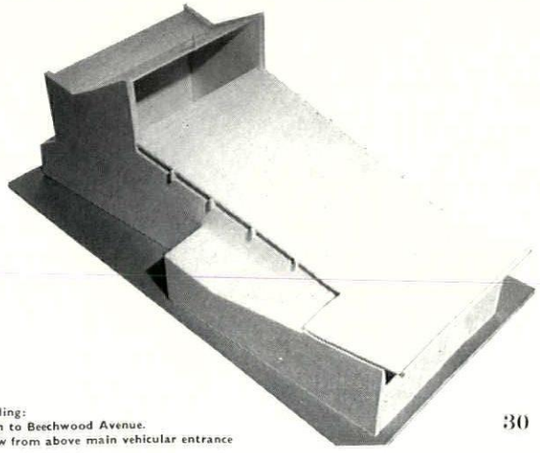
Church,
Gloucester: left,
from south
centre, from south-east
right, internal
arrangement



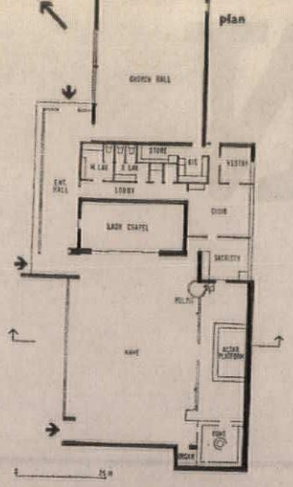


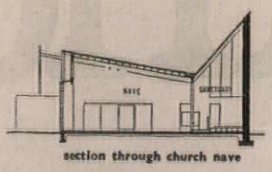






Church, Reading:
left, elevation to Beechwood Avenue.
right, air-view from above main vehicular entrance



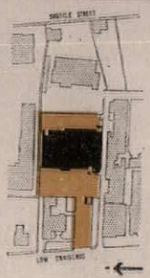


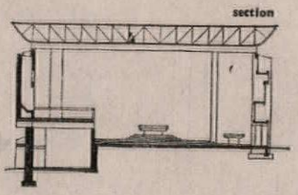
section through church nave

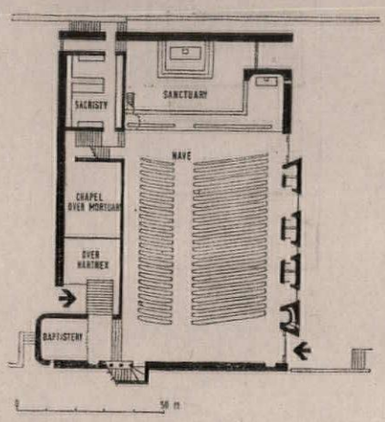
Church, Cumbernauld

L. Hugh Wilson, Chief Architect & Planning Officer

CLIENT: Scottish Episcopal Church.
SITE: On a ridge of main hilltop between a housing area and centre. Tree belt along south boundary.
ACCOMMODATION: Seating for 224, plus future extension for 110. Chapel for 36 with sliding doors to church. Hall for 180. Celebrant can stand behind altar which is thus related to congregation.
STRUCTURE AND FINISHES: Fair-faced brickwork. Roof, timber on laminated timber beams, copper covering. Timber louvres externally.
SERVICES: Electric underfloor heating.
SITEWORK: Started May 1961.
Assistants, A. A. Coutts, R. A. Barlow. Electrical consultant, C. H. Smith.




section

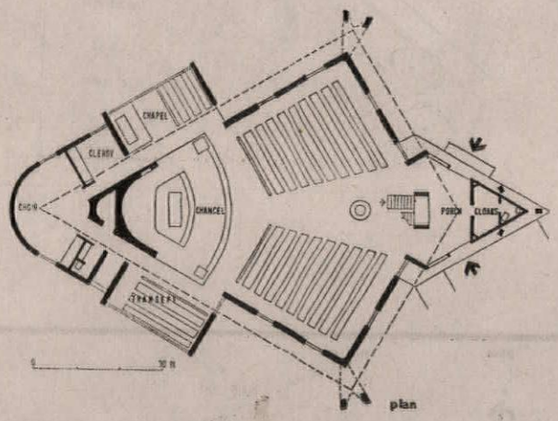
plan


Church, Kilsyth

Gillespie, Kidd & Coia

CLIENT: The Archdiocese of St. Andrews & Edinburgh.
SITE: Originally a quarry, has sharp changes of level. Existing Victorian gothic church in built-up area near town centre to be demolished.
ACCOMMODATION: For 695, with three confessionals, mortuary chapel and sacristies.
STRUCTURE AND FINISHES: Massive load-bearing brickwork, fair-faced both sides, pierced and modelled. Roof, steel framed with copper covering. Fascia and ceiling lined with copper.
SERVICES: Heating, embedded hot water coils boosted by convectors.
SITEWORK: Starts Spring 1962, completion by 1964.
Assistants in charge, I. Metzstein, M. Lutomski.


site plan

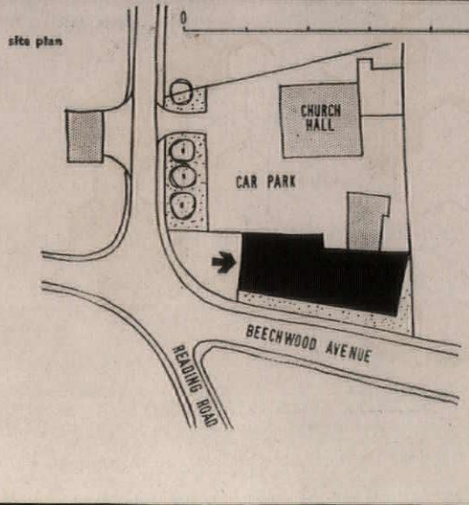


plan

Church, Gloucester

Robert Potter & Richard Hare

CLIENT: Vicar and Parochial Church Council.
SITE: Alongside inner by-pass to south-east.
ACCOMMODATION: Seating for 300. Plan aims at close participation of congregation in liturgy at high altar. Font central in nave.
STRUCTURE AND FINISHES: Timber hyperbolic paraboloid shell. Covering, aluminium or copper. Walls, fair-faced brick, plastered internally. Belfry, precast concrete with iroko louvres.
SERVICES: Electric underfloor heating plus slow fans and silicone tubes at windows.
Assistants, K. Wood, R. Pring. Structural consultants, E. W. H. Gifford & Partners. Quantity surveyors, Bernard & Sons.

site plan


Church, Reading

Brett & Pollen

CLIENT: The Priest and Church Council, Woodley.
SITE: At road junction in low density suburban area.
ACCOMMODATION: Seating for 600. Maximum volume possible with building and sight lines, etc. 36 parking places.
STRUCTURE AND FINISHES: Second-hand London stock brickwork. Timber or steel roof beams span 40 ft., wood wool and copper covering. Natural finishes inside. Will be built by direct labour.
SITEWORK: Starts Spring 1962.
Sculptor, David John.

EDUCATION

Junior Training Centre, Islington

Hubert Bennett, Architect, London County Council

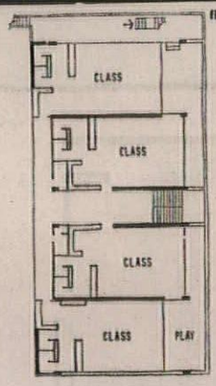
SITE: Small triangular island on Basire Street.
FUNCTION: For mentally subnormal children incapable of receiving any academic education. Generally very helpless and emphasis will be on habit training and making them socially manageable. Physical training and free play important in time-table. Many will arrive by ambulance and use wheelchairs.
ACCOMMODATION: 112 children. Four main classrooms at first floor have access to ground floor and roof play areas. Ground floor nursery has its own play area. Special unit for more physically handicapped in single-storey block with separate access. Assembly, kitchen and staff rooms unite the blocks.
STRUCTURE AND FINISHES: R.c. frame planned to minimize deep foundation work on difficult site. Designed shutter finish to all exposed in situ concrete. First floor balustrade, precast panels. Glazed walls, varnished softwood framing.
SERVICES: Gas-fired small bore heating. Convectors and skirting heating, no hot pipes within children's reach.

Deputy architect, F. G. West. Senior architect, special works division, G. F. Horsfall. Assistant architect, special works division, J. G. Cairns. Architect in charge, F. O. Brown. Job architect, M. Brewer.



site plan

first floor plan



ground floor plan

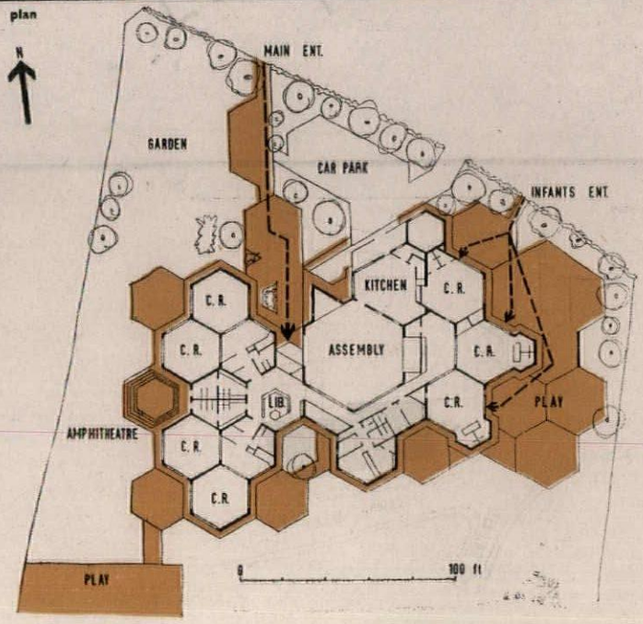
Primary School, Nottingham

Bartlett & Gray

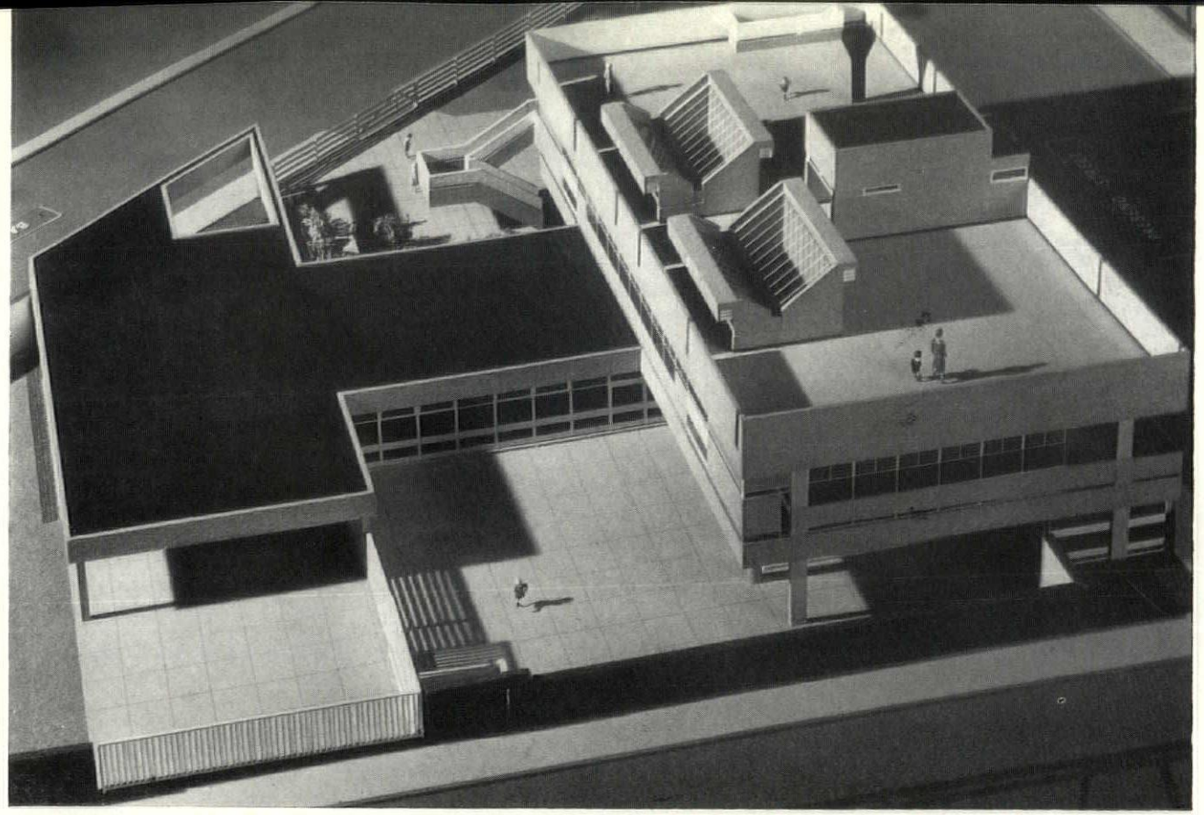
CLIENT: Nottingham Roman Catholic Diocese.
SITE: 2.8 acres, near river Trent, flat and surrounded by housing. Mining settlement is complete.
ACCOMMODATION: 280 children from large area. Classrooms clustered around common practical areas. With staff rooms these surround a linear centre from entrance hall, through assembly, to infants' practical area. Assembly will be used for chapel and dining.
STRUCTURE AND FINISHES: Traditional. Cavity walls, painted internally, support stressed skin timber roofs.
SITEWORK: Expected to start March 1962, completion by June 1963.

Assistant in charge, J. S. Doncaster. Quantity surveyor, M. E. G. Felton.

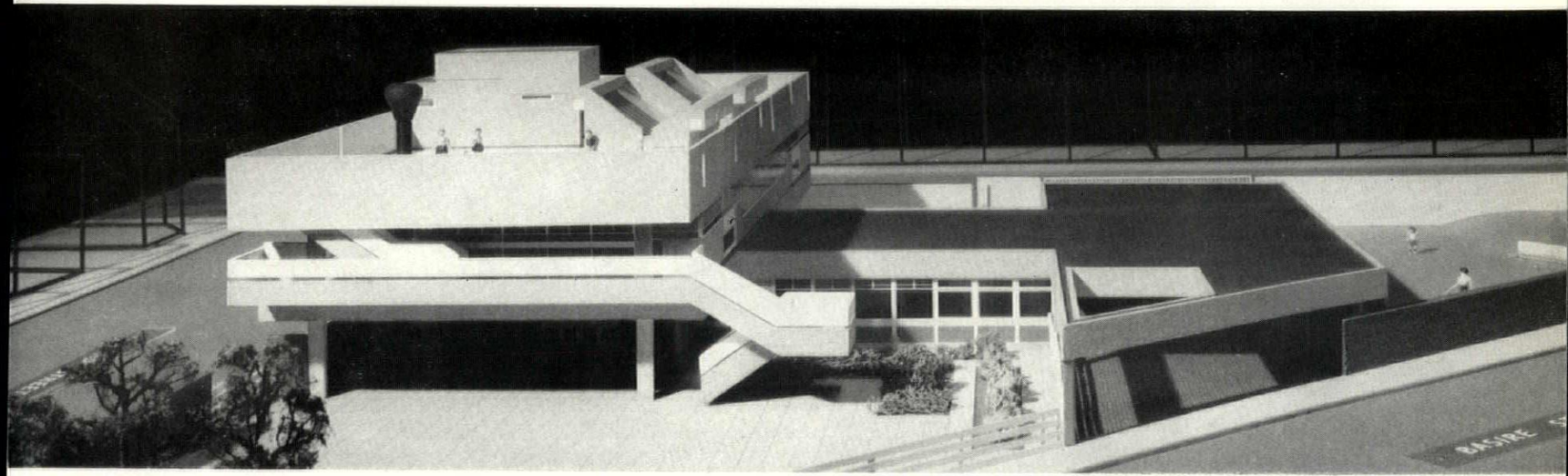
plan

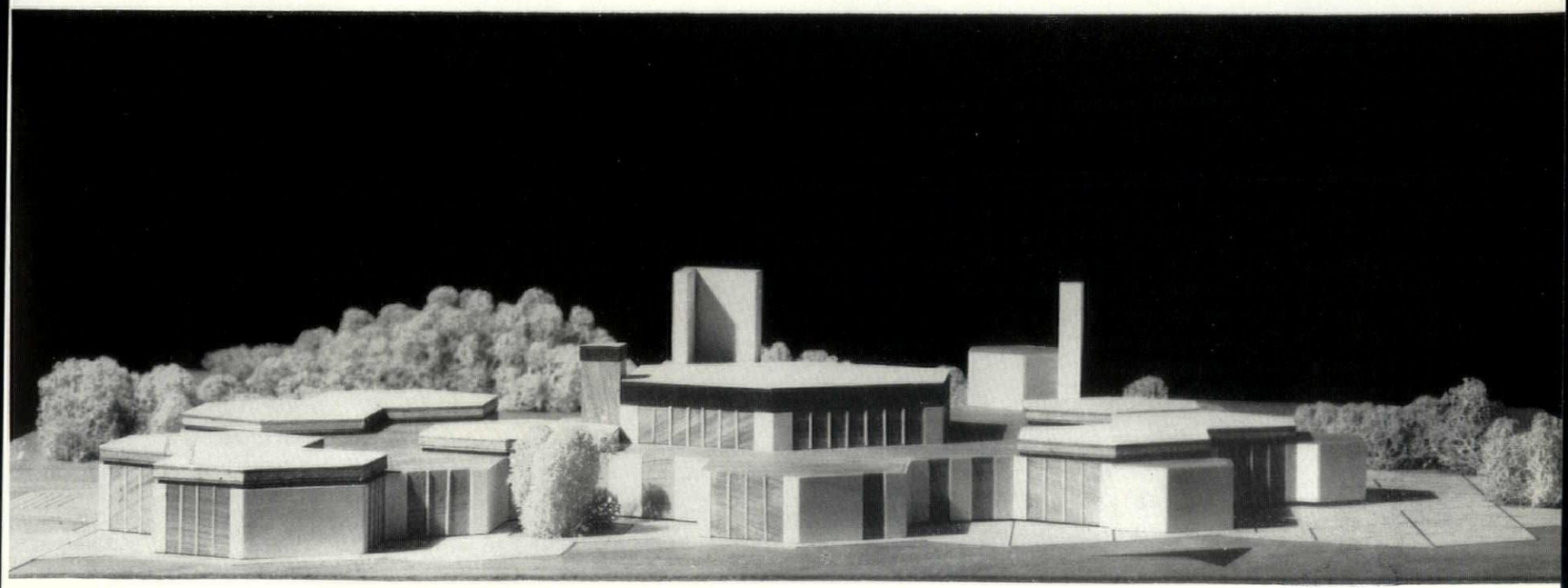


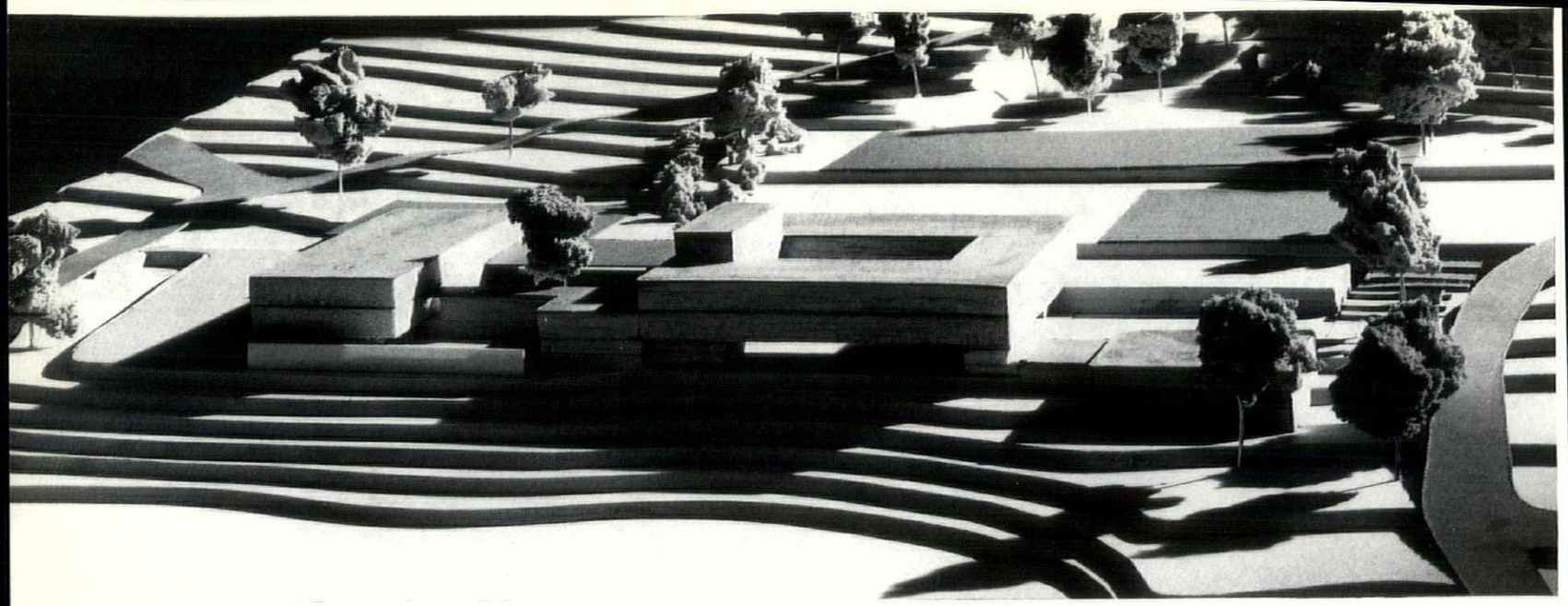
Opposite bottom, from south →



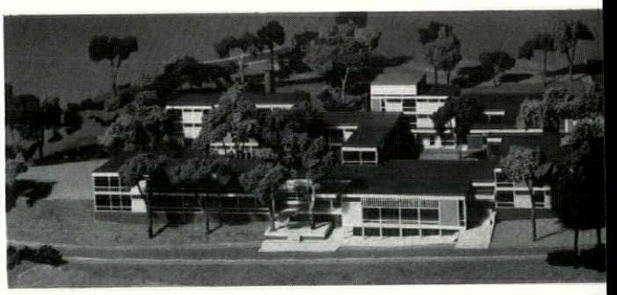
Junior Training Centre, Islington: right, from west with assembly link in the centre: below, from north-east

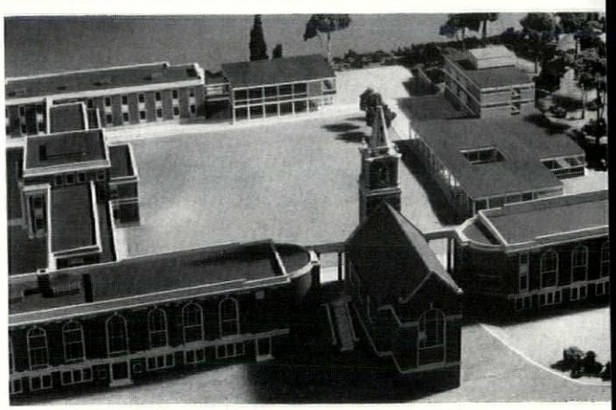




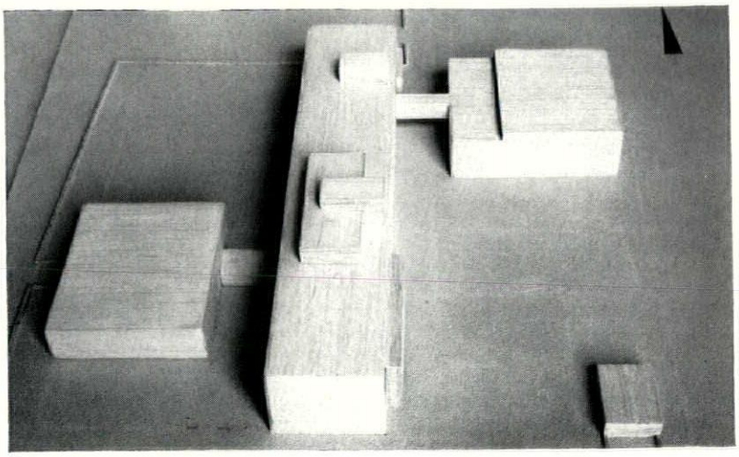


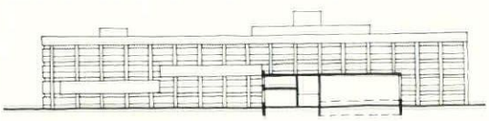






School, Croydon: left, Senior School from east with girls' boarding house in foreground: top right, Junior School from west: bottom right, Senior School from north





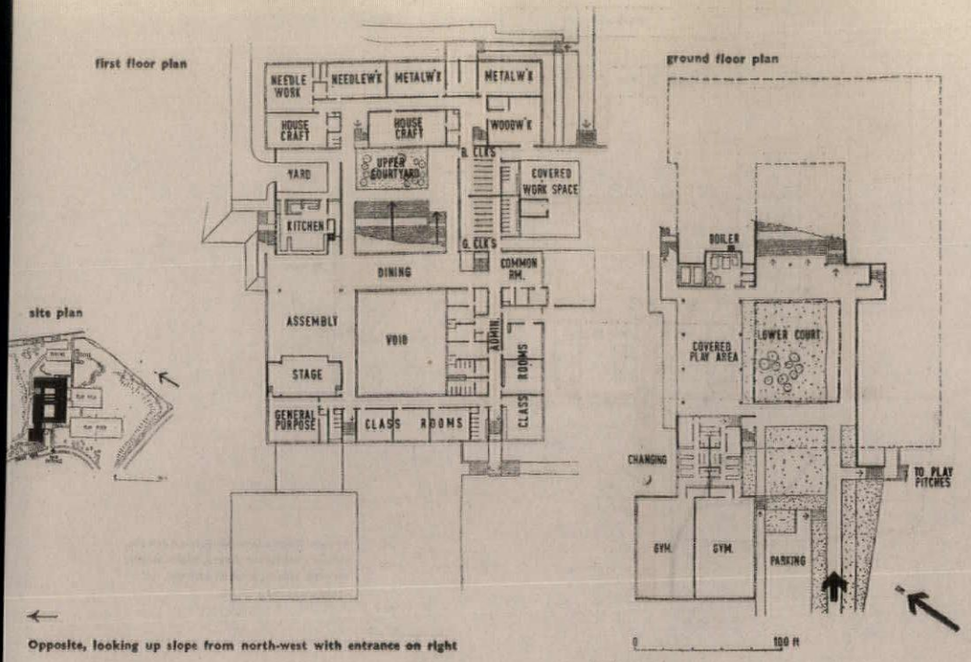
Secondary School, Shoreditch: left, block model from south: above, west elevation of teaching block and section through assembly and admin

Secondary School, Southampton

Richard Sheppard, Robson & Partners

SITE: Strip of land with slope from south to north. South boundary has heavily wooded escarpment rising 60 ft., another cliff 45 ft. high runs across centre forming two plateaux. Extensive views to north over Itchen basin and town.
ACCOMMODATION: 985 boys and girls. Compactly planned, around equal size courts, near edge of central cliff which will be stabilized by filling to shallower gradient. Main entry, under bridge of classrooms, into west court one storey below general ground floor level. Movement between courts is under central dining with library over.
STRUCTURE AND FINISHES: R.c. frame on pad foundations. Walls, brick enclosing frames between continuous strip metal windows which vary in height.
SITEWORK: Starts April 1962, completion after 27 months.

Associate in charge, John Heywood. Job architect, Roger Tucker. Structural consultants, Clarke, Nicholls & Marcel. Quantity surveyors, E. C. Harris & Partners.



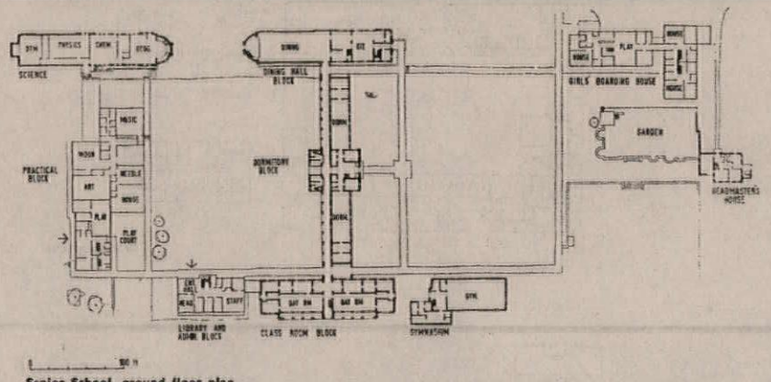
Opposite, looking up slope from north-west with entrance on right

School, Croydon

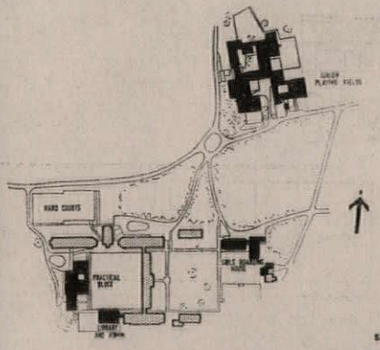
Robert Matthew, Johnson-Marshall & Partners

CLIENT: Royal Warehousemen, Clerks & Drapers Schools.
SITE: In Addington hills. Views over London to north-west. Existing building by Sir Aston Webb, intended for extensions symmetrically.
FUNCTION: Rehousing senior girls' and juniors' schools from Purley and creating larger sixth form in the combined senior school.
ACCOMMODATION: Senior school; new library, boarding house for 50 and practical block added to existing chapel quad. Alterations provide chemistry laboratory and geography room. New girls' boarding house for 90. Junior school; for 240 in three houses plus separate house for 40 youngest children (5 to 7).
STRUCTURE AND FINISHES: Proprietary concrete system with two types of aggregate panels and profiled concrete panels. Some brickwork on ground floors. Internal walls, concrete block plastered.
SERVICES: Hospital and panel radiators, forced warm air convectors in large spaces, oil fired boilers.
SITEWORK: Started November 1960, completion by Spring 1962.

Partner in charge, Peter Newnham. Assistants, Stephanie Morland, Ronald J. Brown, Michael Brownson, Judy Millett. Structural consultants, A. J. and J. D. Harris. Mechanical and electrical consultants, J. Stinton Jones & Partners. Quantity surveyors, Franklin & Andrews.

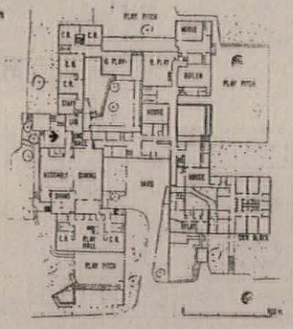


Senior School, ground floor plan



site plan

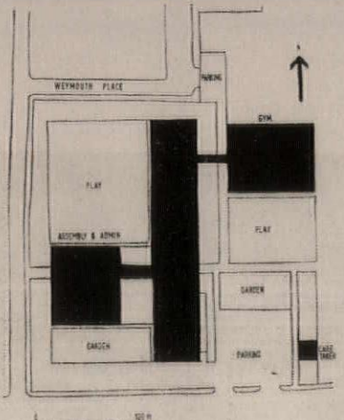
Junior School ground floor plan



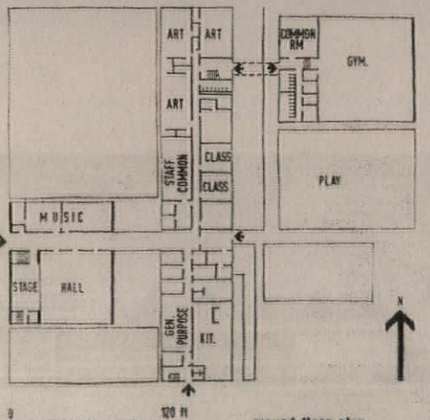
Secondary School, Shoreditch

Ernö Goldfinger

CLIENT: London County Council.
PURPOSE: Six-house school for 1,000 girls with youth club and evening institute. Old school to remain functioning until new teaching block complete.
ACCOMMODATION: Planned in three main blocks and school-keeper's cottage. Main entrance hall, assembly, music room and administrative suite face Weymouth Street. North-south teaching block has open plan with centre corridor served by three staircases, internal partitions can be rearranged on grid corresponding to window mullions. Gymnasium block, east of main block for easy access to playgrounds, includes youth centre. Service roads and parking from Dunloe Street. Pedestrian access from Weymouth Street, Weymouth Place and Dunloe Street.



site plan



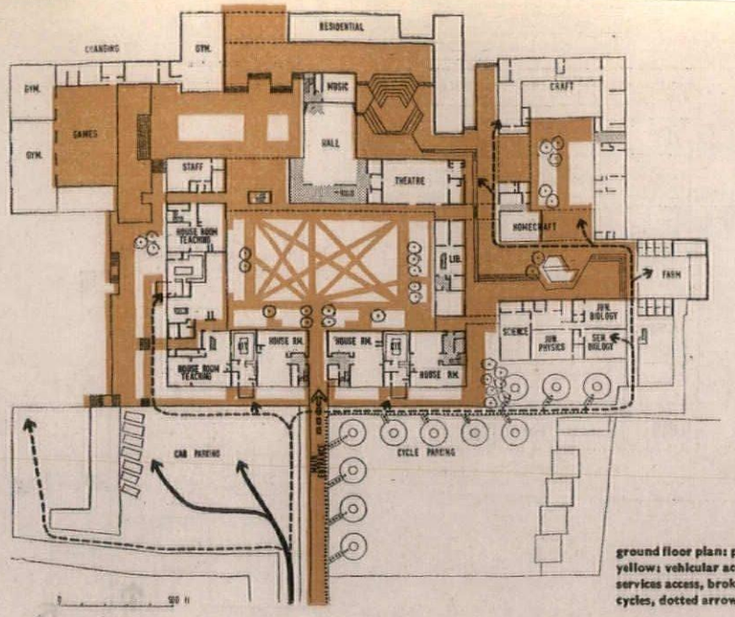
ground floor plan

Comprehensive School, Ollerton

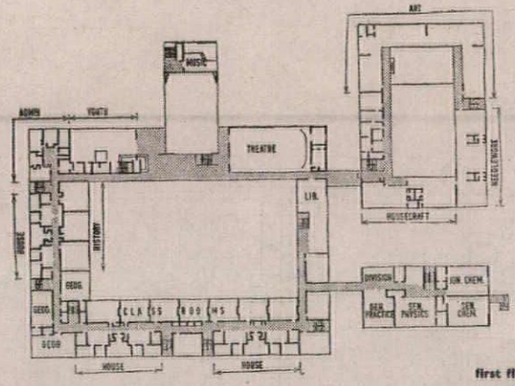
W. D. Lacey, County Architect

CLIENT: Nottinghamshire County Council Education Committee.
SITE: 46 acres liable to mining subsidence. Falls to north and east. Views over open country.
FUNCTION: One of first two comprehensive schools for the Council. First phase of mixed 9 form entry serving radius of six miles.
ACCOMMODATION: 1,290 children. Hall primarily for music, assembly is on house basis. Theatre, raked floor and variable stage. Craft rooms around roofed craft courtyard. Six houses with houserooms solely for social and recreational purposes. Closed circuit TV will beam in on Teachers Training College eight miles away. TV studio in science block. Residential youth training hostel for 40 leaders and self-contained youth reception centre offering all school facilities. Four cottages for caretaker and ground staff.
STRUCTURE AND FINISHES: School in standard CLASP. Hostel and cottages; short span 1 ft. 8 in. CLASP developed for domestic, welfare and semi-public buildings. This can be used with standard 3 ft. 4 in. system.
SITEWORK: Started December 1961.

Deputy county architect, H. T. Swain. Group architect, A. J. Griffin. Job architects, B. Seaman, F. D. Trout. Quantity surveyor, J. C. Barnsley.

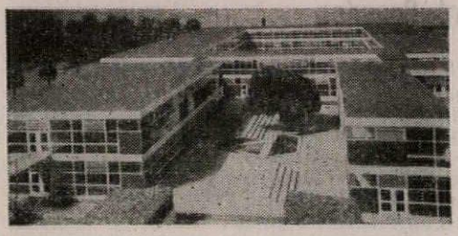


ground floor plan: pedestrian routes, yellow: vehicular access, black arrows: services access, broken arrows: cycles, dotted arrows



first floor plan

From the north, looking towards the library



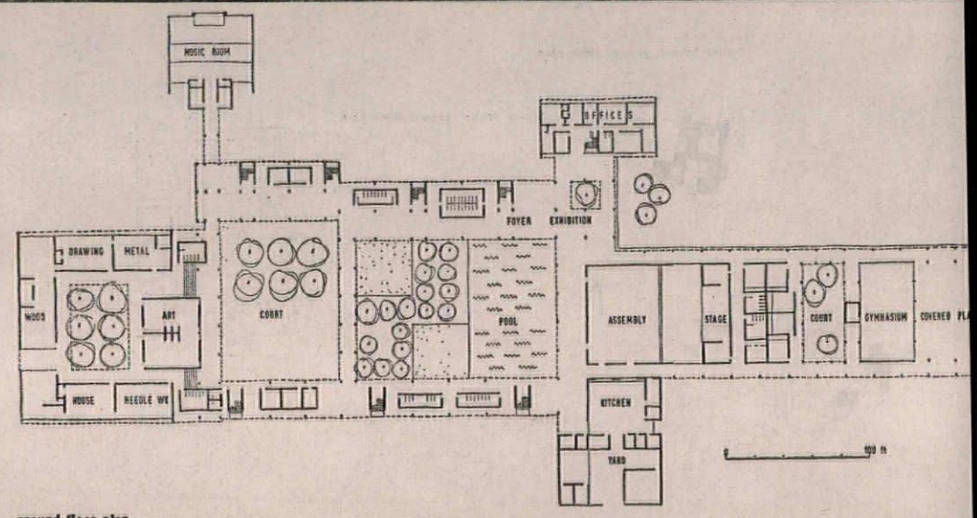
From the north-east →

Secondary School, Pasir Panjang, Singapore

Robert Matthew, Johnson-Marshall & Partners in collaboration with D. E. E. Gibson, Director-General of Works, War Office

CLIENT: War Office.
SITE: Five miles west of Singapore. Mostly low lying but has an east-west ridge along which the school is arranged thus avoiding the extremes of sunlight.
ACCOMMODATION: For 950 children. Two-storey blocks house classrooms, library and science laboratories. All teaching spaces are air-conditioned. Light and glare control achieved by horizontal louvres and extension of floor slabs. Vertical louvres form part of structural concrete frame. Shallow concrete pyramids 70 ft. by 20 ft., with large superimposed hoods, give full protection against sun but allow good daylight.
SITEWORK: Starts Spring 1962, completion by September 1963.

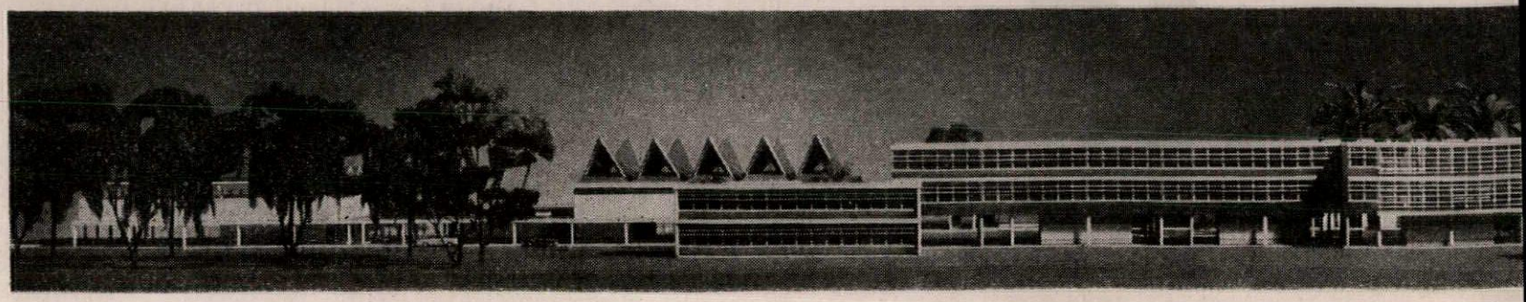
Partner in charge, Maurice Lee. Job architect, David Wicks. Associate architects, Swan & Maclaren. Structural consultants, Scott & Wilson, Kirkpatrick & Partners. Services consultants, Weatherfoil Ltd.

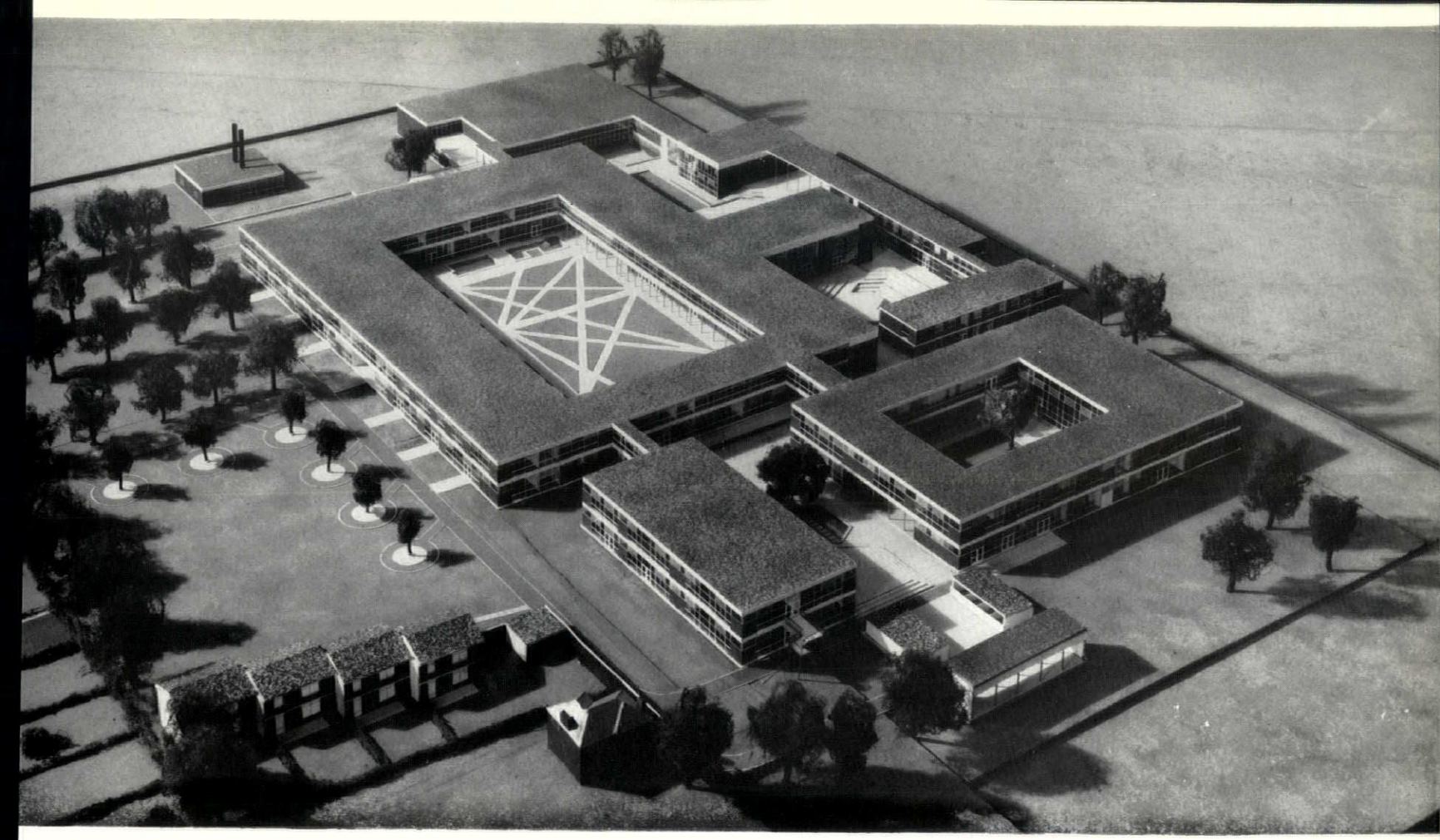


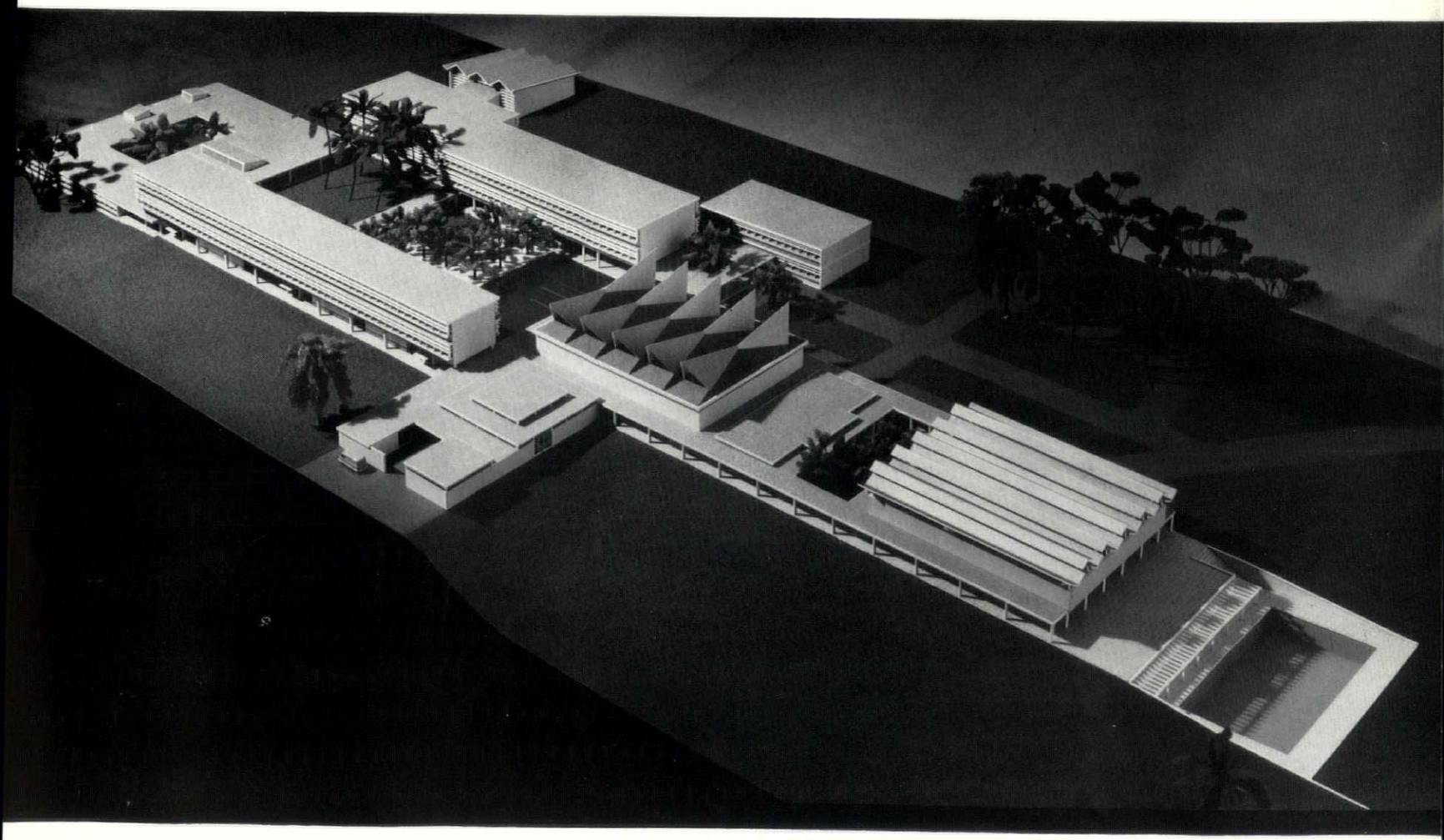
ground floor plan

below, north side

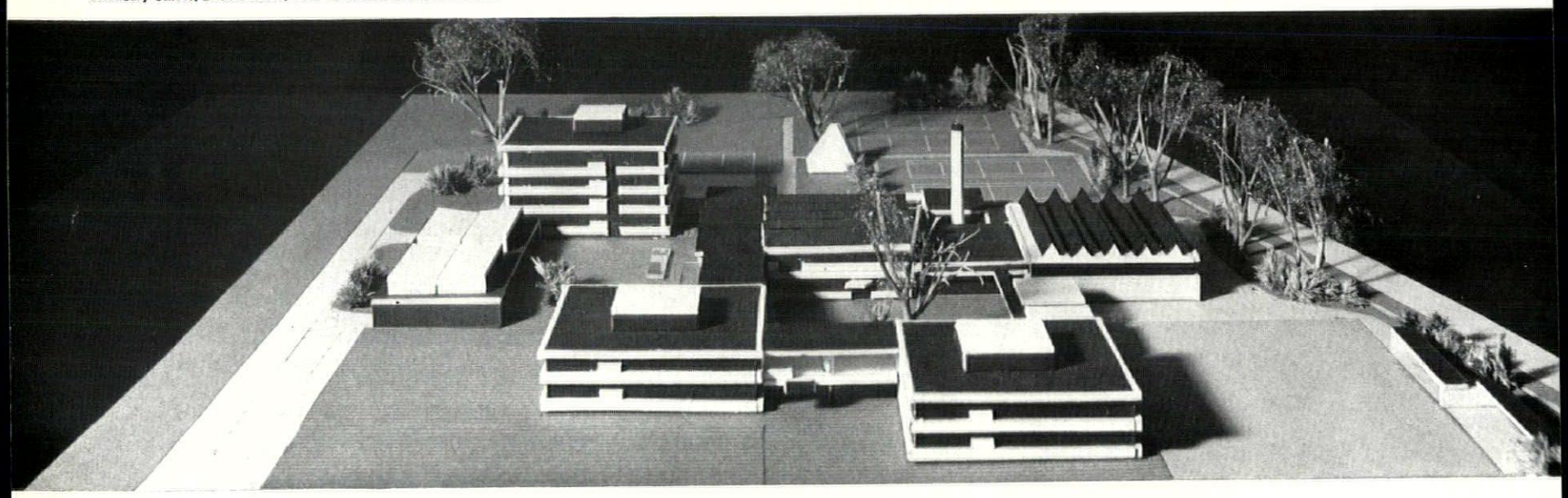
From the south-east →



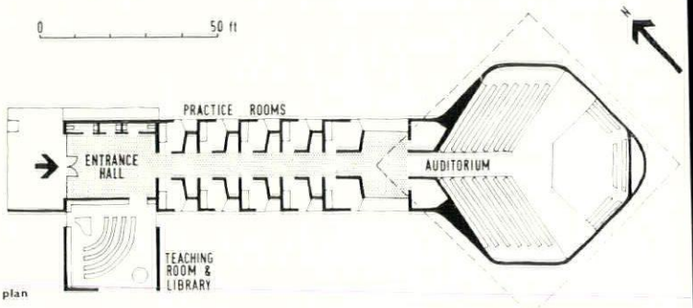




Secondary School, Enfield: above, from north-east: below, from south



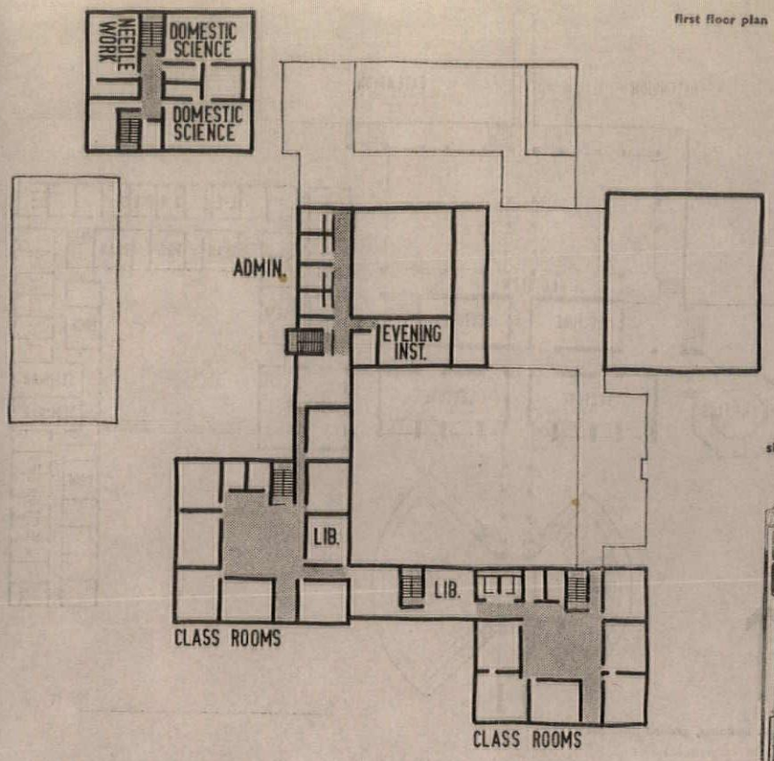




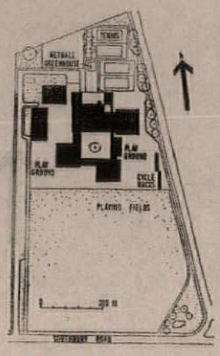
plan

Music School, Edinburgh: left, from north

first floor plan



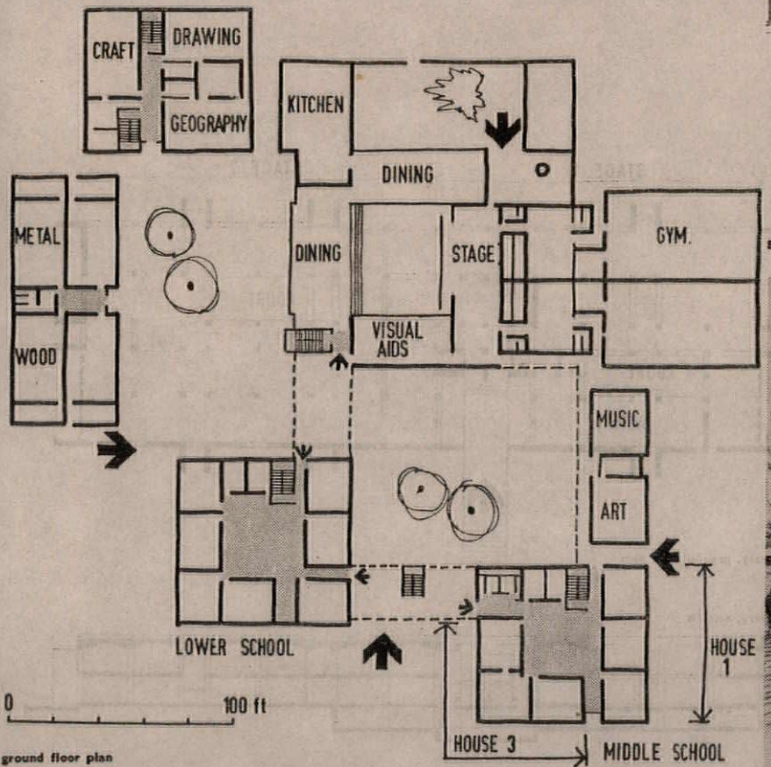
site plan



Secondary School, Enfield

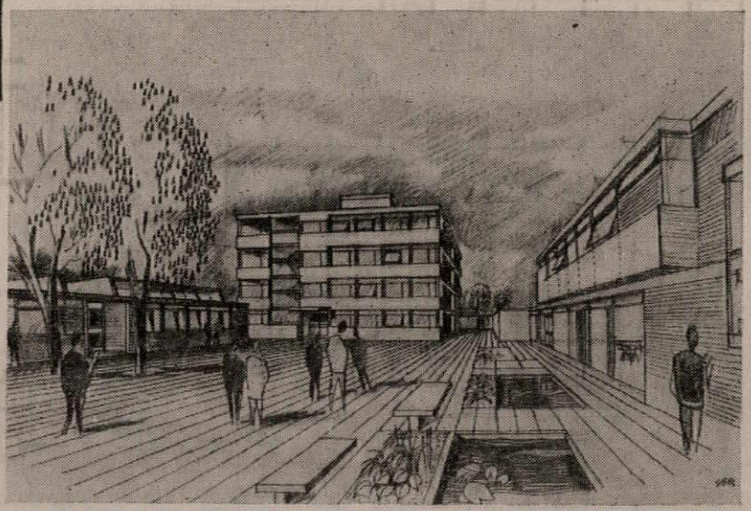
Whitfield Lewis, County Architect

CLIENT: Middlesex County Council.
SITE: 10.5 acres of flat land adjacent to Great Cambridge Road.
FUNCTION: 6 form entry modern mixed school for 900. First two years in lower school before progressing to middle and upper schools. House system superimposed on educational arrangement.
ACCOMMODATION: Square, two-storey lower school with six classrooms per floor. Middle school similar but with rooms arranged as house units. Both blocks have study bays where wheeled coat racks can be stored to create central activity space. Link formed by first-floor library. Lower school linked to communal block by administration and study areas. This has enabled stairs to be reduced to a minimum. Open covered ways give protection between blocks and access to playing fields from south quadrangle. Four-storey science block forms dominant feature of west quadrangle. Heavy craft block isolated because of noise and close to road for delivery of materials. Main hall, extendable in three directions by use of sliding folding partitions, has floor recessed 2 ft. 6 in. for better viewing and greater flexibility.
STRUCTURE AND FINISHES: Brick crosswalls. Concrete floors. Hyperbolic paraboloid roof over each cloaks hall. Steel space frames over larger spans, with roof lights to assembly. External walls, precast white exposed aggregate panels and purple facing bricks.
Deputy county architect, C. E. Hartland. Assistant county architect, D. R. Duncan. Job architect, S. B. Mendelsohn.



ground floor plan

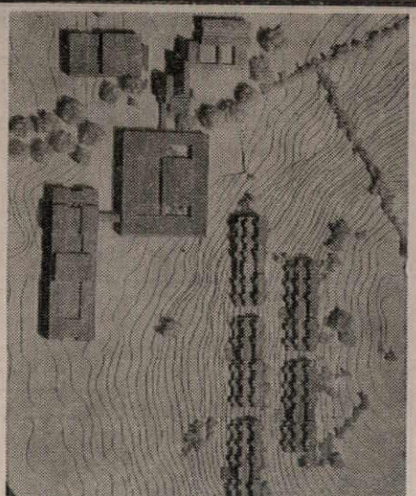
Below, looking north towards four-storey science block with workshops on left and assembly group on right



Music School, Edinburgh

Michael Laird

CLIENT: George Watson's College.
SITE: Adjoining main school and playing fields. Close to line of poplar hedge on north boundary.
ACCOMMODATION: Memorial building with 10 well-insulated practice rooms, music library and auditorium seating approximately 200. Both large rooms to be used for teaching classes of 34 boys.
STRUCTURE AND FINISHES: Walls, ashlar stone with brick plastered internally. Roofs, timber covered with aluminium. Auditorium roof; honeycombed timber hyperbolic paraboloid, plastic paint covering.
SITEWORK: Starts summer 1962, completion by 1963.
Structural consultants, T. Harley Haddow & Partners. Quantity surveyors, James D. Gibson & Simpson. Acoustics consultant, Sandy Brown.



College of Education, Bearsden

Gillespie, Kidd & Coia

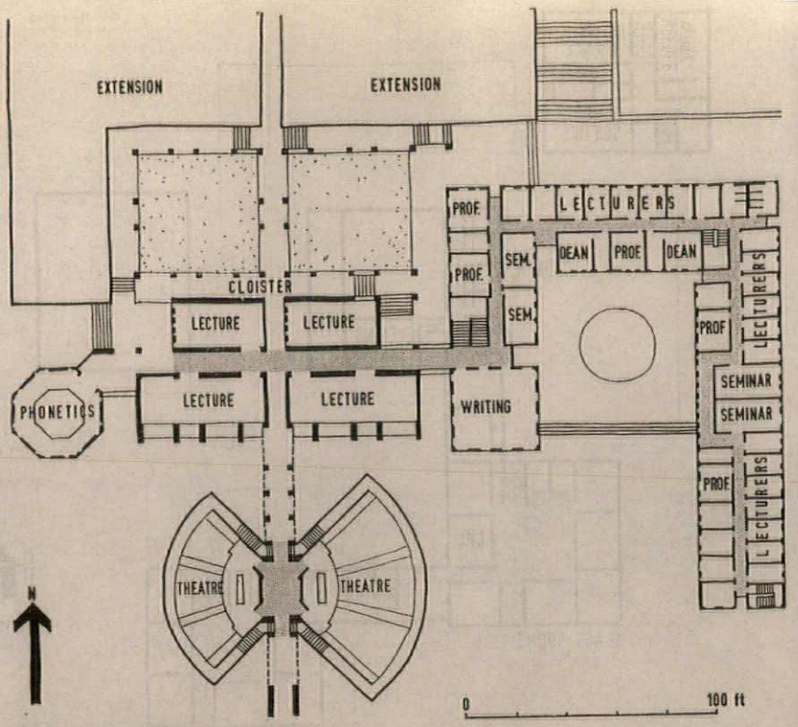
CLIENT: Board of Governors, Notre Dame College.
SITE: Prominently situated at road junction to north.
ACCOMMODATION: Teaching unit for 500 women teachers. Assembly with dining, kitchens, administration, common room and music, speech and drama departments. Two gymnasia and swimming pool. Five similar residential buildings housing total of 350. Convent for 20 nun teachers.
STRUCTURE AND FINISHES: Off the shutter r.c. Fair-faced brickwork. Areas of plaster and render.
SITEWORK: Starts September 1962, completion by 1964.
Assistants in charge, A. MacMillan, I. Metzstein. Quantity surveyors, McLernan & Whyte.

University Buildings, Brighton

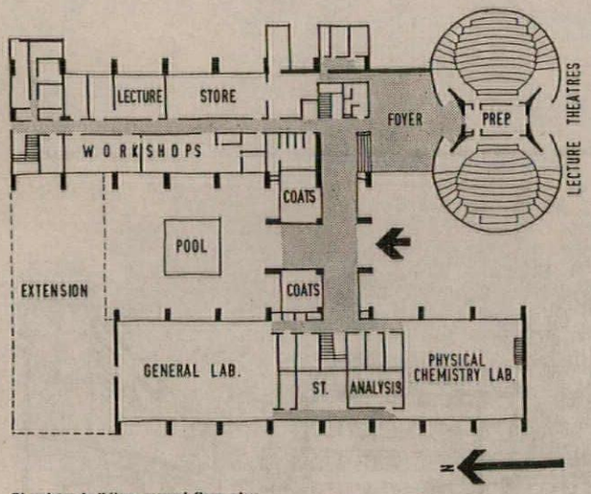
Sir Basil Spence

CLIENT: University of Sussex.
SITE: A valley near Falmer, about 3 miles north of Brighton, in a countryside of great trees and rolling hills.
ACCOMMODATION: 1,200 students by 1965. College house and physics building under construction. Administration, library, chemistry, engineering and natural sciences buildings to follow. Close knit horizontal development of interlocking courtyards grouped around main campus.
STRUCTURE AND FINISHES: 10 ft., 15 ft. and 20 ft. wide concrete vaults, dowel-jointed columns, beams and floor slabs being cast on site. Brick walls and piers give lateral stability. Vaults have main beams spanning 40 ft., secondary ribs at 5 ft. or 3 ft. 9 in. monolithic with curved smooth ceiling units and ends are closed by curved gable beams. Vertical concrete cast in rough board moulds to contrast with ceilings. Roofs, copper. Arch head windows, steel. Square head windows, white painted wood.
SERVICES: Run in 6 ft. 6 in. by 5 ft. 6 in. underground duct.

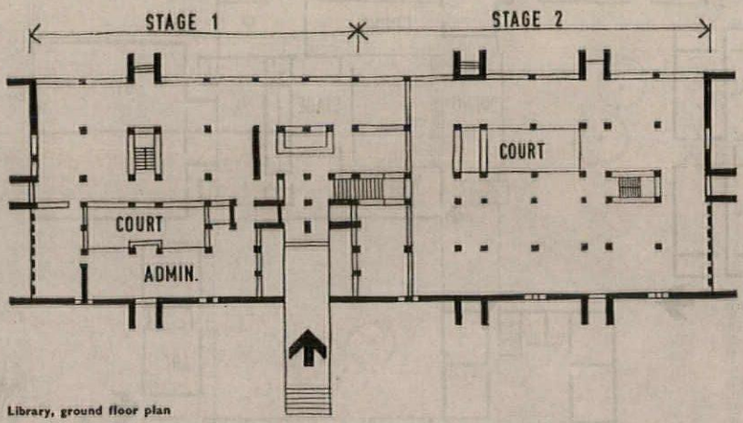
Associate, Gordon Collins. Structural consultants, Ove Arup & Partners. Mechanical and electrical consultants, Steensen, Varming & Mulcahy. Quantity surveyors, Reynolds & Young.



Arts building, ground floor plan

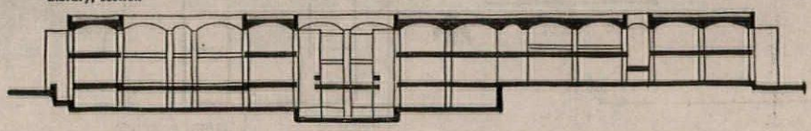


Chemistry building, ground floor plan



Library, ground floor plan

Library, section

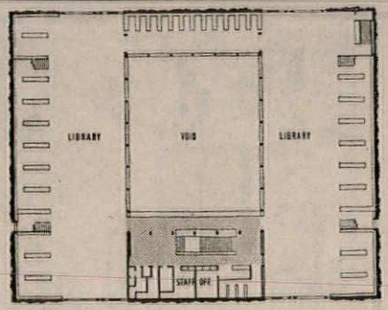


Arts Library, Liverpool

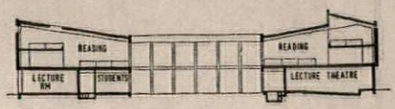
Bryan & Norman Westwood & Partners

CLIENT: University of Liverpool.
SITE: Slum clearance area.
ACCOMMODATION: Library at first floor looks inward to courtyard with main route passing through it. Large lecture rooms on each side at ground level.
STRUCTURE AND FINISHES: Load-bearing brick ground floor. Above, precast concrete units combine structure and finish. Wall units have tamped surfaces and vary in inclination to the vertical giving a sculptural effect.
SITEWORK: Started September 1961, completion by June 1963.

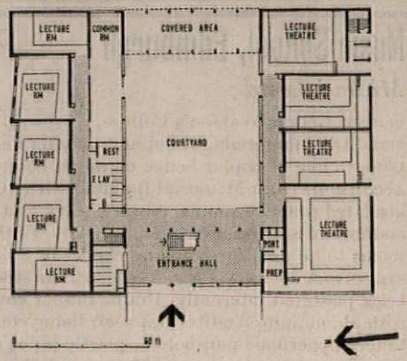
Associate partner in charge, Z. J. Pietruszewski. Structural consultants, Cyril Blumfield & Partners. Services consultants, Oscar Faber & Partners. Quantity surveyors, L. A. Francis & Sons.



first floor plan

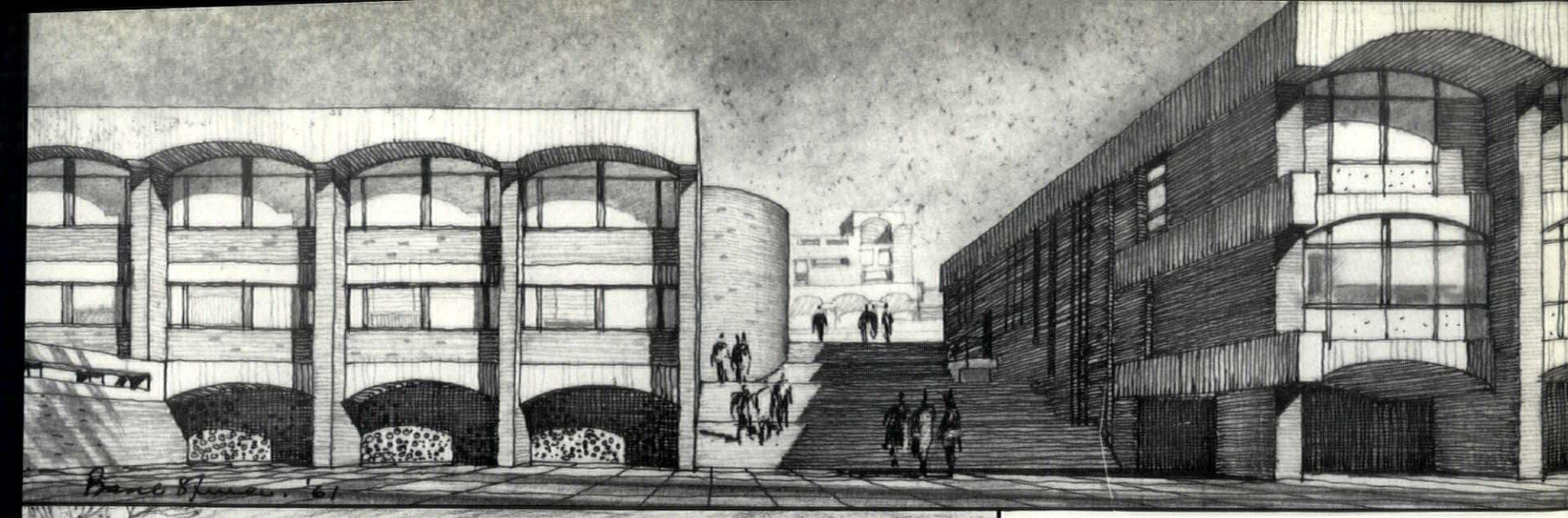


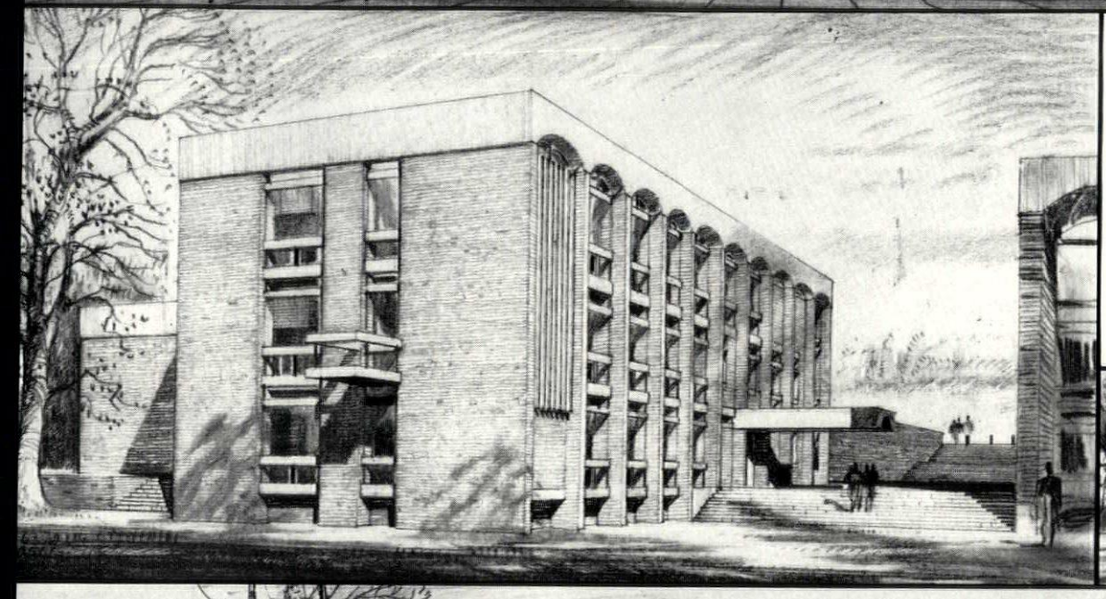
section



ground floor plan

Opposite, from the east →





University Buildings, Brighton

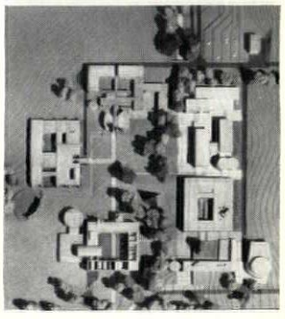
Above, from the campus looking east with physics building right and chemistry building left

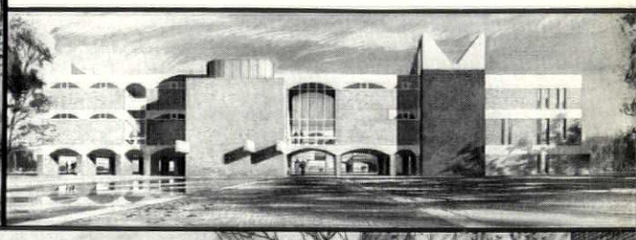
Left, engineering building looking north-east towards main entrance

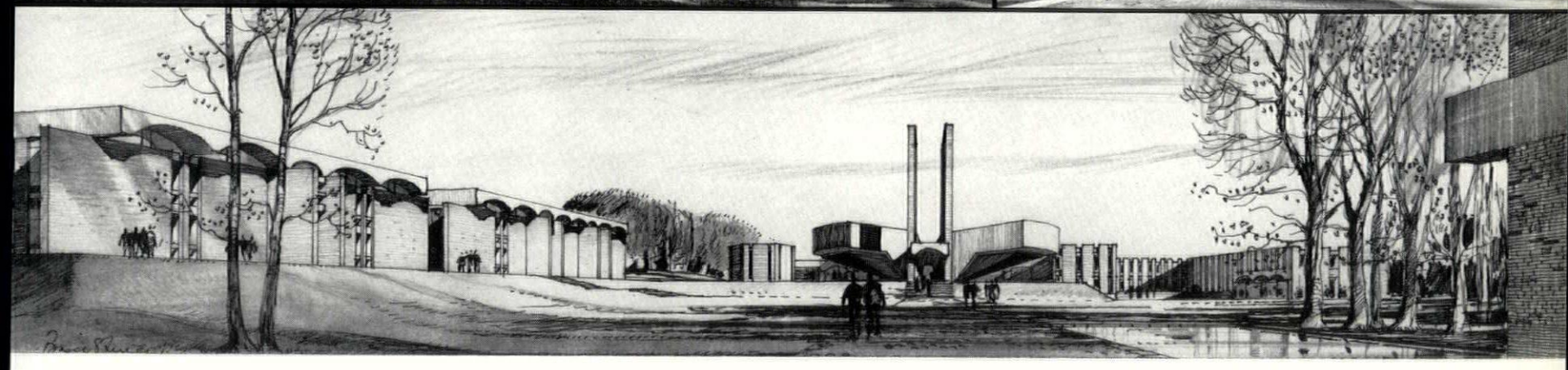
Right, site layout (north vertical)

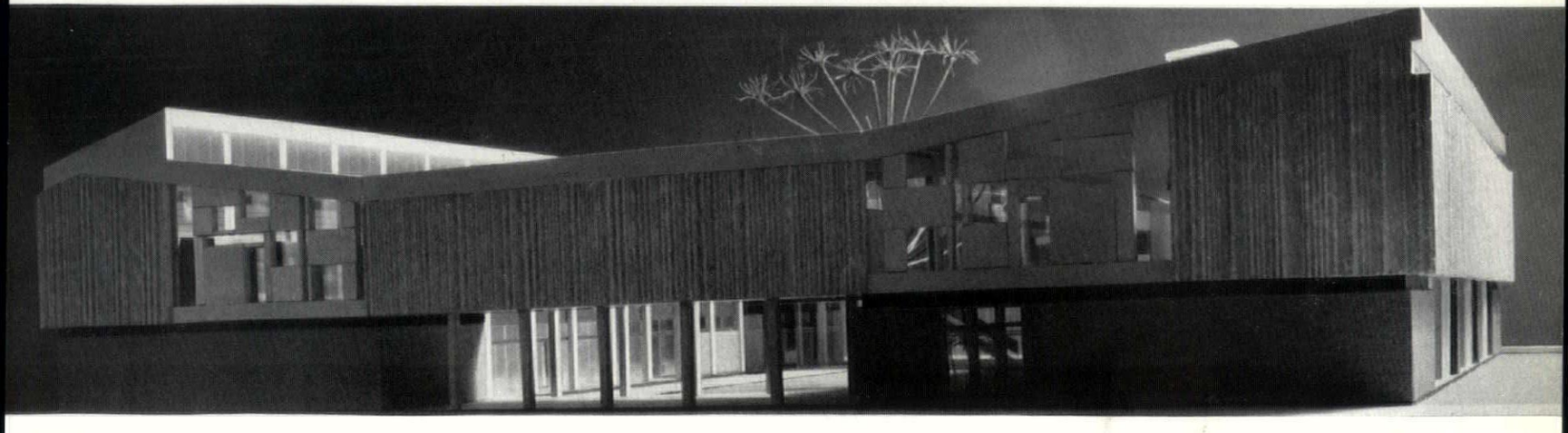
Below left, looking north across the campus from College House to arts building, Library on the left

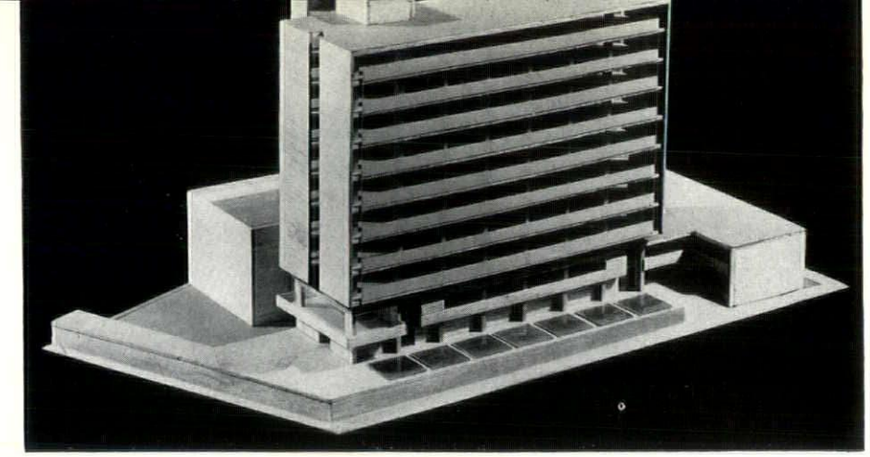
Below right, looking south from the campus towards College House and the main entrance beyond

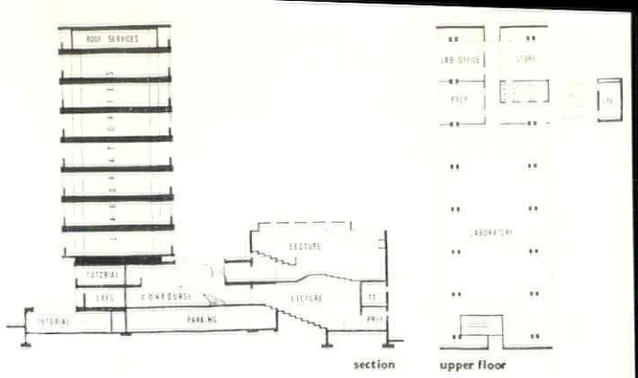




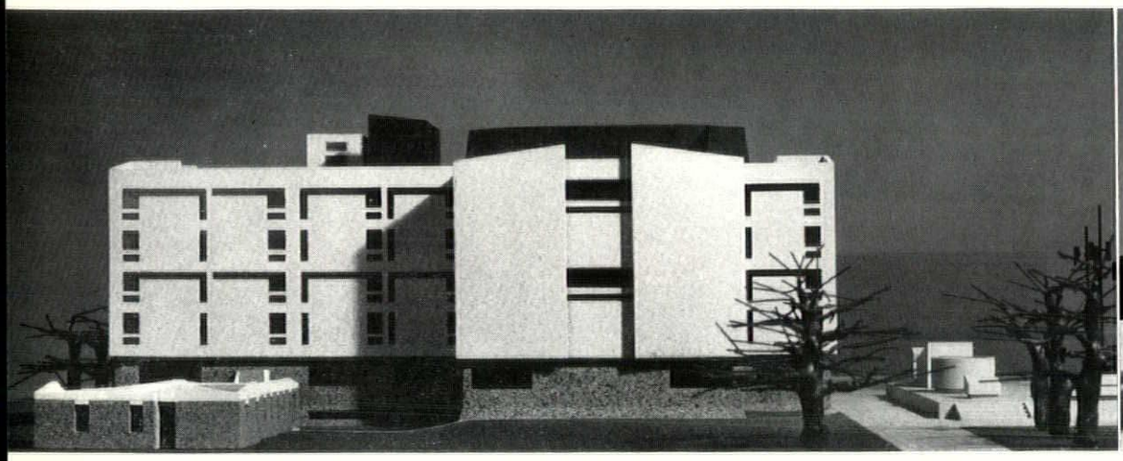


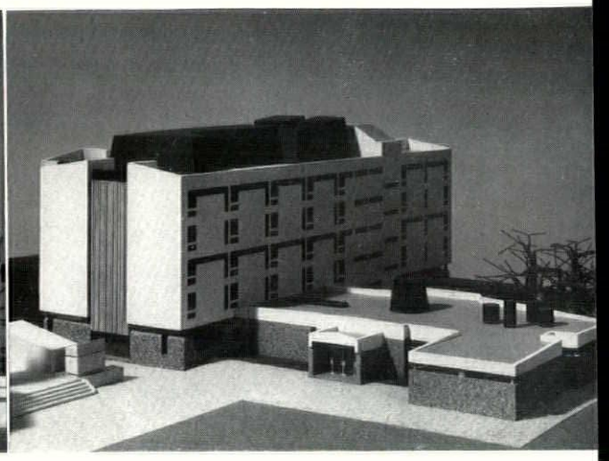


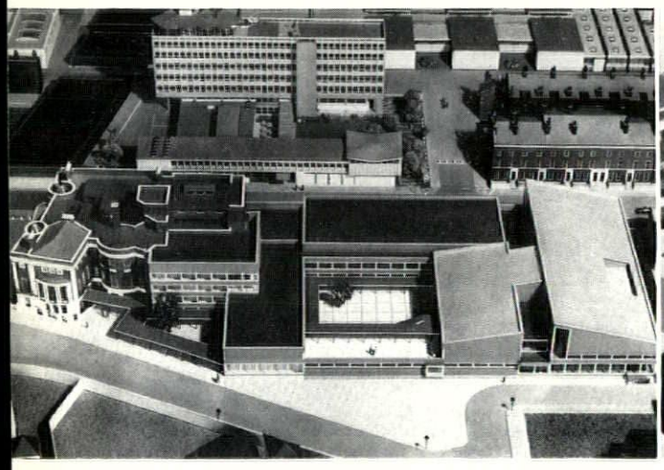


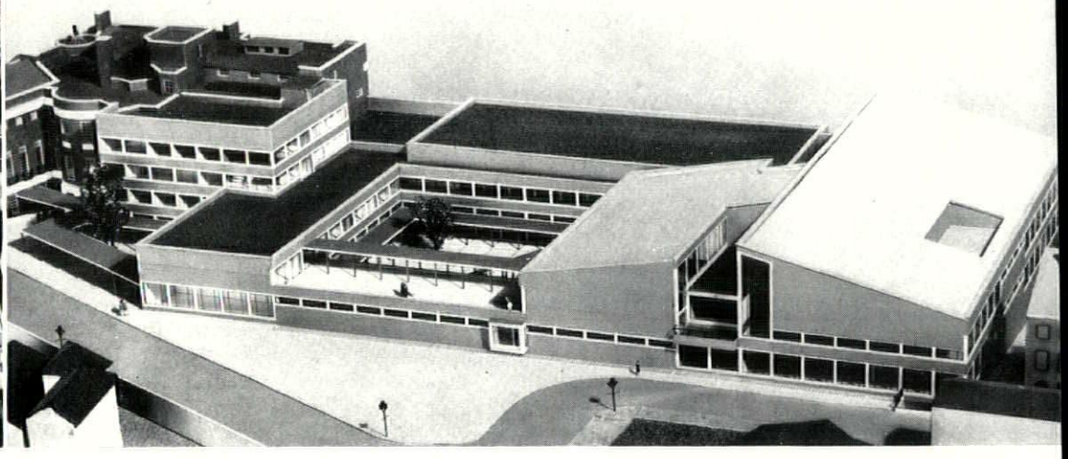


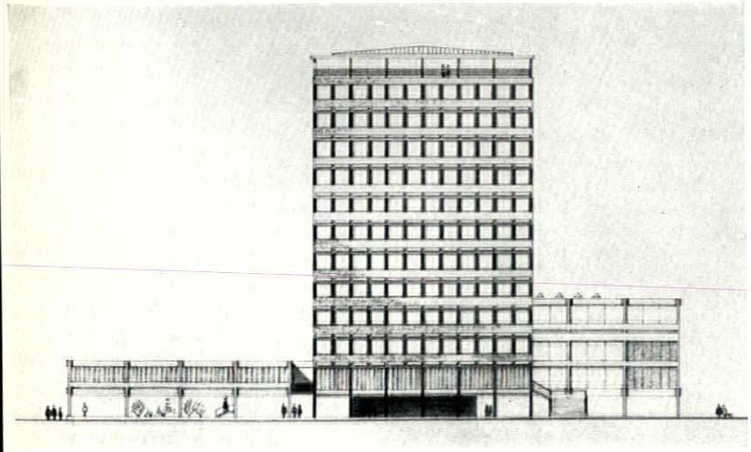
Science Building, Edinburgh: letf, from north-east



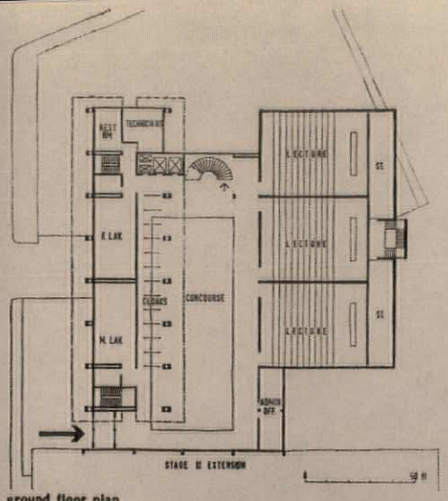




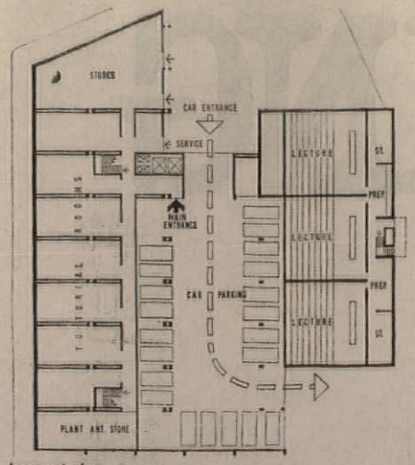








ground floor plan



basement plan

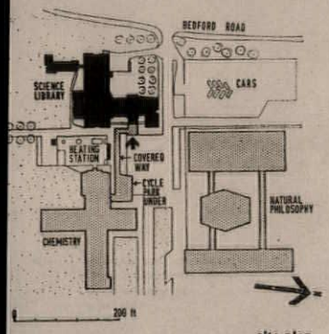
Science Building, Edinburgh

Alan Reiach & Partners

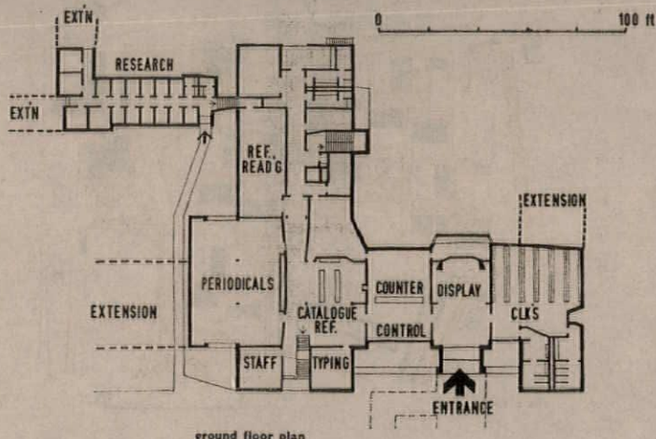
CLIENT: Edinburgh University.
SITE: North-east corner of George Square precinct.
ACCOMMODATION: First year chemistry, zoology, botany and geology. Laboratory tower and lecture wing with a tutorial block in stage two. Basement garage for staff.
CIRCULATION: Vehicles approach from rear. Square will be free from cars.
STRUCTURE AND FINISHES: Tower, r.c. frame with cantilevered floors faced in stone slabs.
SITEWORK: Starts 1963, completion by 1965.

Partner in charge, G. A. Macnab. Senior architect, J. R. Oberlander. Structural consultants, Blyth & Blyth. Quantity surveyors, Gibson & Simpson. Services consultants, Ramsay & Primrose.

← Opposite left, from south: opposite right, main entrance from north-east



site plan



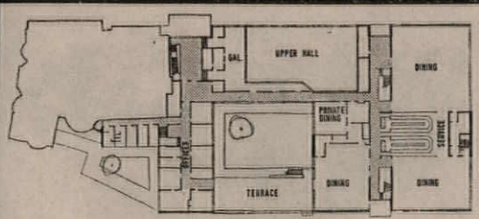
ground floor plan

Science Library, Aberdeen

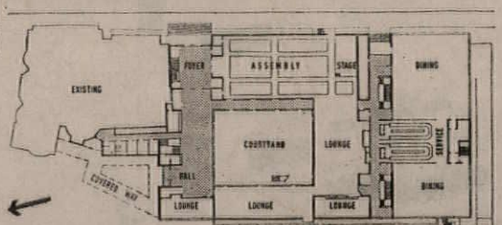
George, Trew & Dunn

CLIENT: University of Aberdeen.
SITE: Adjoining old Aberdeen. Part of new complex.
ACCOMMODATION: Upper floors, identical reading and bookstacks with mezzanines.
STRUCTURE AND FINISHES: R.c. frame. Granite and granite chipping face blocks to lower floors with deep set windows. Upper floors faced with bush-hammered white render, windows nearly flush. Internal walls, rough textured rendering. Acoustic ceilings. Plant room and entrance top lights, treated copper.
SITEWORK: Starts December 1962, completion by June 1964.

Assistant in charge, Miss R. Hall. Structural consultants, F. A. MacDonald & Partners. Services consultants, Donald Smith, Seymour & Rooley. Quantity surveyors. John Dansken & Purdie.



first floor plan



ground floor plan

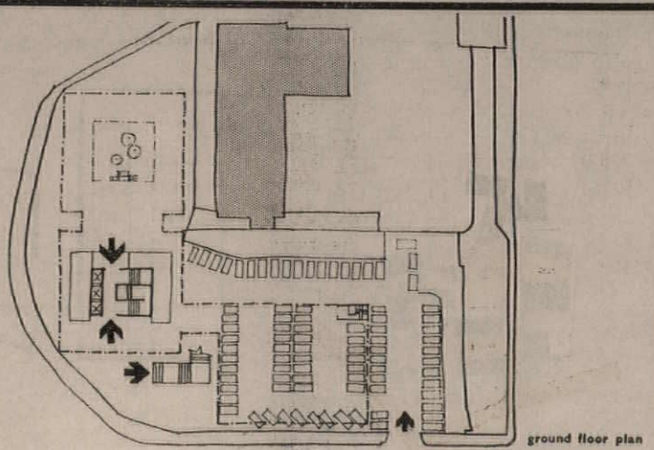
←Opposite left, air-view from west with physics and mathematics buildings beyond: opposite right, from south-west

Students Union Extension, Liverpool

Bridgewater, Shepheard & Epstein

CLIENT: University of Liverpool.
SITE: Brownlow Hill. Cathedral will be built to west.
ACCOMMODATION: Mostly larger social spaces; lounges, bars, hall, dining for 5,000 in two and a half sittings, all opening on to a courtyard. Four-storey offices wrapped around rear to hide unpleasant fletton brick elevation.
STRUCTURE AND FINISHES: In situ r.c. frame on 10 ft. grid. Columns, lintols, cills, faced in light mosaic. External skin, brick.
SITEWORK: Started late 1961, completion in two years.

Assistant, Philip Wise. Quantity surveyors, Gleeds. Mechanical consultants, Steensen, Varming & Mulcahy. Structural consultant, F. J. Samuely & Partners. Catering consultant, J. Lyons & Co. Ltd.



ground floor plan

←Opposite left, south-east elevation; opposite right, air-view from east with gym and assembly on right, lecture theatre and common rooms on left

College of Commerce, Manchester

S. G. Besant Roberts, City Architect

CLIENT: City of Manchester Education Committee.
ACCOMMODATION: For 2,283 students and evening courses for 2,460. Large hall, gymnasium, lecture, dining, administrative, and communal rooms.
STRUCTURE AND FINISHES: R.c. on piled foundations. Slate vertically and smooth cast horizontal panels.
SERVICES: Air-conditioning up to fourth floor.
SITEWORK: Starts August 1962, completion in 2½ years.

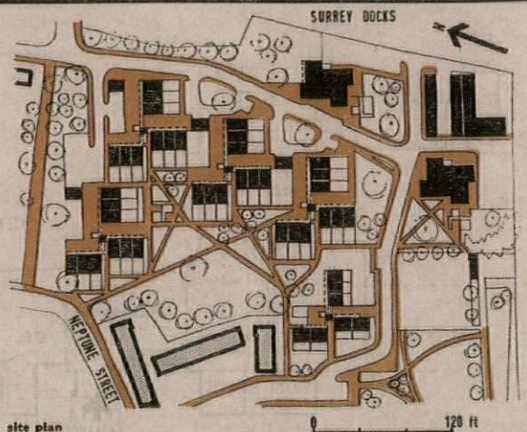
Chief assistant architect (education), R. E. Shapley. Group leader, Joseph S. Cunningham. Project architect, K. Thomson. Structural consultants, Matthews & Mumby Ltd. Heating and ventilating consultants, R. R. Jennings & Partners. Chief quantity surveyor, T. Kinsella. Chief electrical engineer, W. Seddon.

HOUSING

Housing, Bermondsey

Hubert Bennett, Architect, London County Council

SITE: 6 acres near Surrey Docks with housing to north and west. Fine views over river at high level but ground level confined by buildings and dock walls.
ACCOMMODATION: 253 dwellings. Three-room flats in 21-storey block with two-room flats on every fourth floor. 72 maisonettes in four-storey blocks, arranged around central stair giving balcony access to upper maisonette. 36 ground-floor maisonettes have private gardens. 34 garages. 45 parking places.
Deputy architect, F. G. West. Principal housing architect, K. J. Campbell. Assistant housing architect, J. Whittle. Architect in charge, C. A. Lucas. Job architect, P. A. Bottomley.



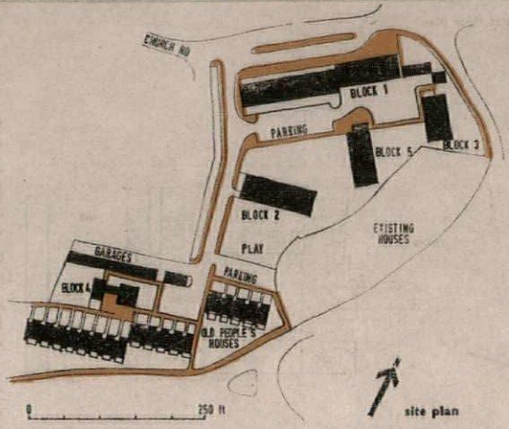
site plan

Opposite top, air view from south-west. See also cover of this issue →

Housing, Filton, Glos

Whicheloe & Macfarlane

CLIENT: Sodbury Rural District Council.
SITE: Approx. three acres between pre-war spec. housing. Good view to south-east.
ACCOMMODATION: 89 four- and five-storey maisonettes and old people's houses. Density, 100 persons per acre. 43 garages. 37 parking places.
STRUCTURE AND FINISHES: Brick cross-walls at 15 ft. 9 in. In situ concrete floors. Precast and in situ concrete fair-faced.
SERVICES: Gas-fired warm air. Gas fires in bed-sitters.
SITEWORK: Started August 1961, completion by 1964.
Assistant architect, Andrew James. Engineer and Surveyor, Sodbury RDC, B. K. Nightingale, Quantity surveyors, Faithful & Gould. Structural consultants, G. C. Mander & Partners.



site plan


Above, from north-east

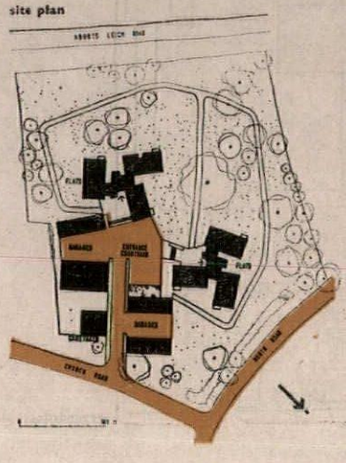
Opposite centre, block 1 from the north-east →

Flats, Bristol

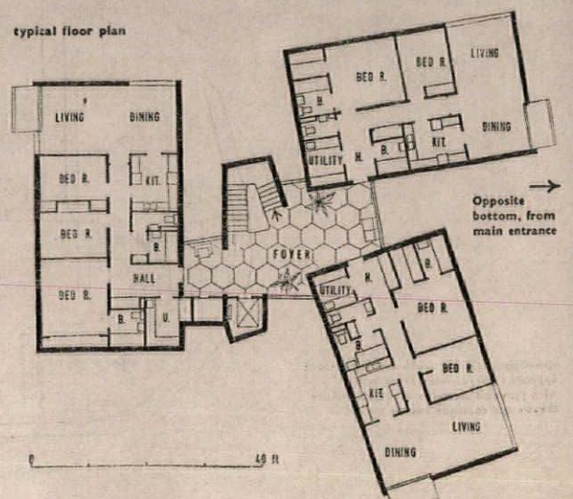
George, Trew & Dunn

SITE: 3½ acres with large house to be demolished. In Leigh Woods, surrounded by National Trust property.
ACCOMMODATION: 24 two- and three-bedroom flats. Arranged in two four-storey clusters. Living rooms at terminal ends to give flexibility and garden outlook.
STRUCTURE AND FINISHES: Fair-faced load-bearing brickwork. R.c. floors with sound and thermal insulation. Roofs, copper. Windows, metal in timber sub-frames.
SERVICES: Electric underfloor heating. Individual hot water storage units. Sink waste disposers.
SITEWORK: Starts April 1962, completion by 1963.
Structural consultants, W. V. Zinn & Associates. Services consultants, Donald Smith, Seymour & Rooley. Quantity surveyors, W. F. Fidgen & Son.

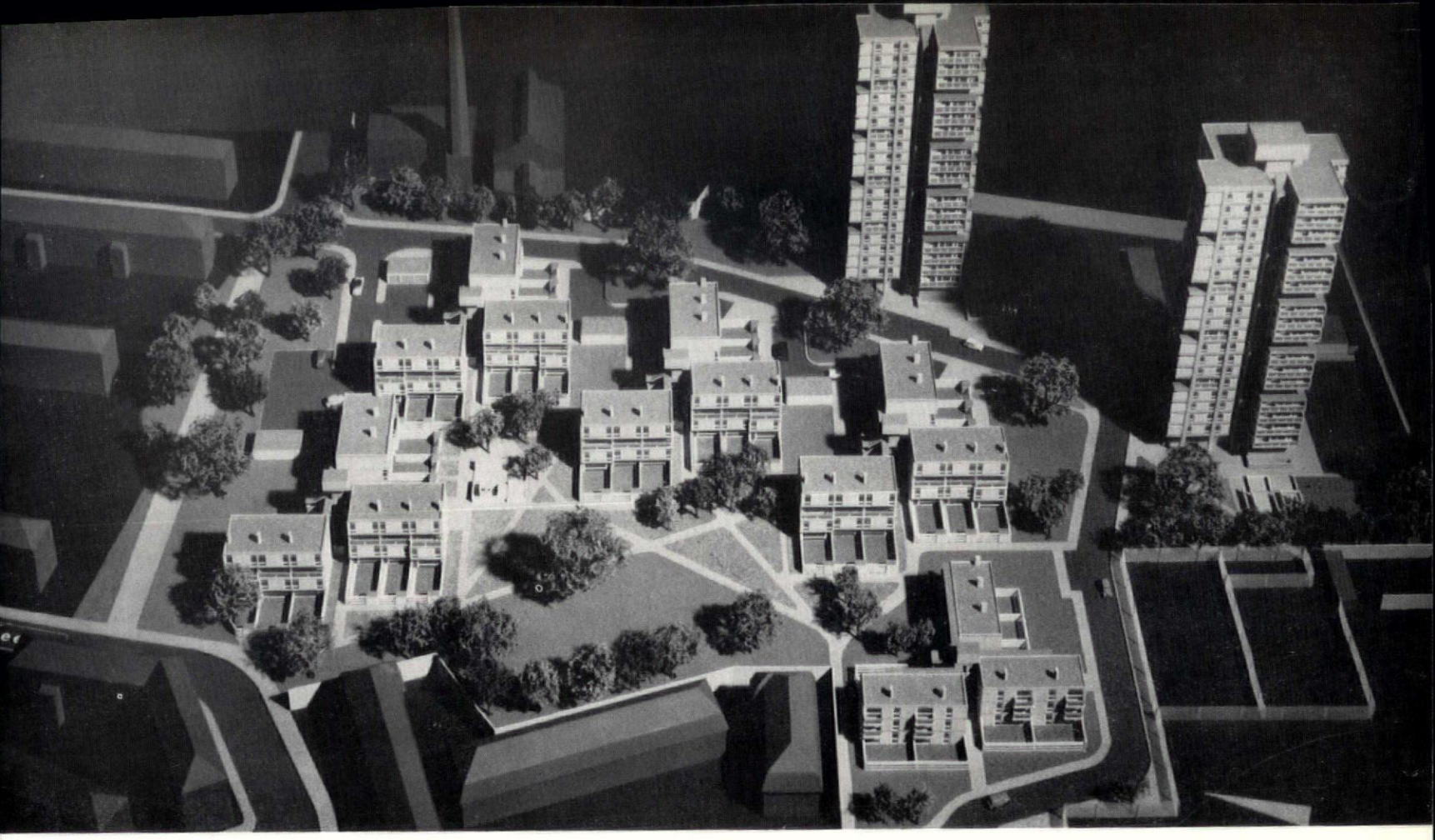
site plan

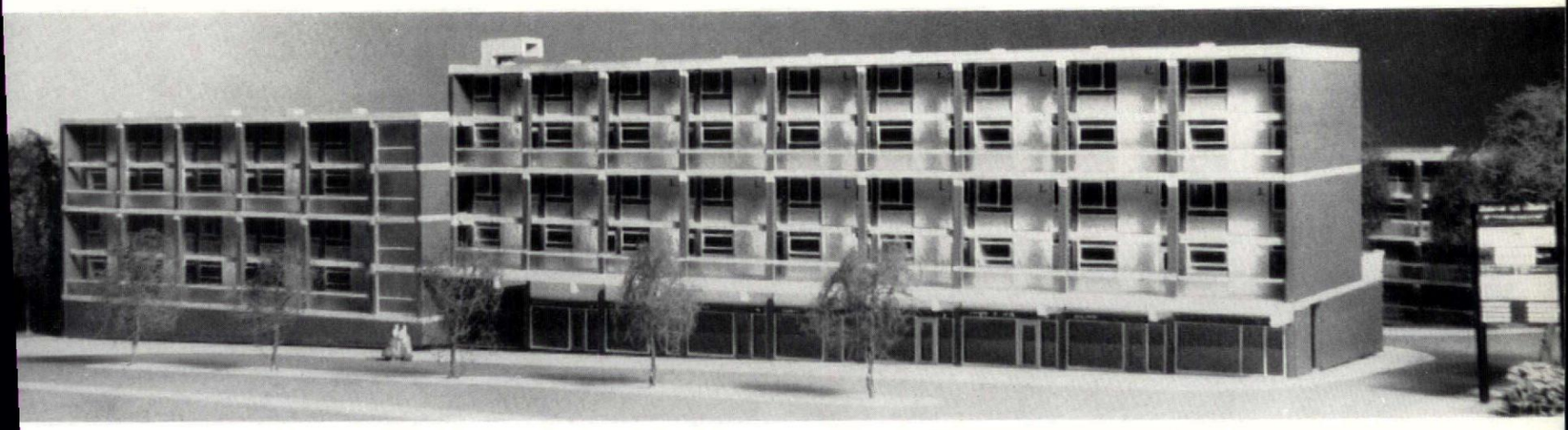


typical floor plan



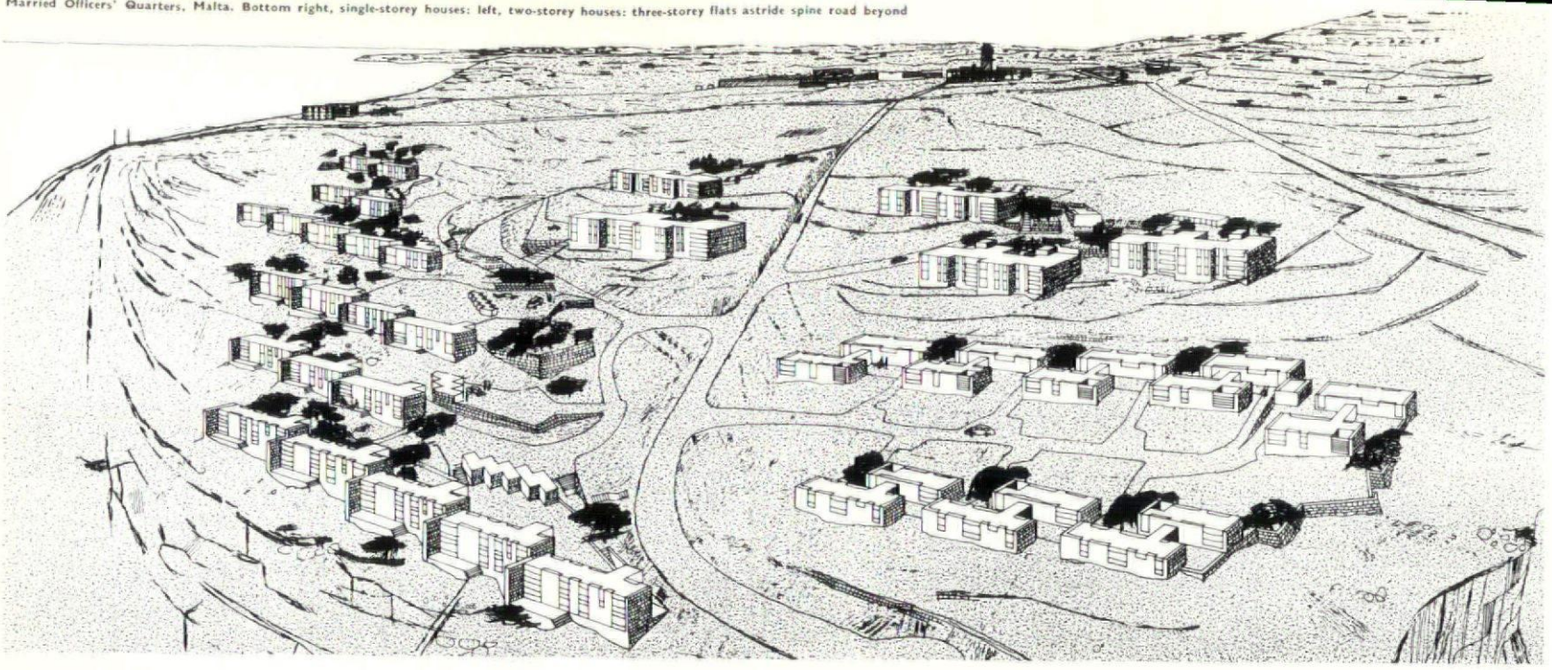
Opposite bottom, from main entrance →



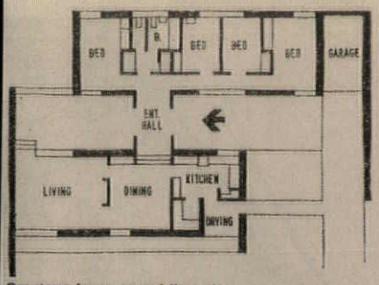




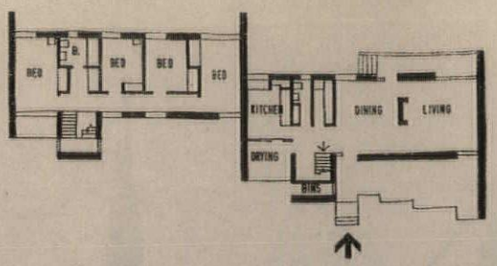
Married Officers' Quarters, Malta. Bottom right, single-storey houses: left, two-storey houses: three-storey flats astride spine road beyond





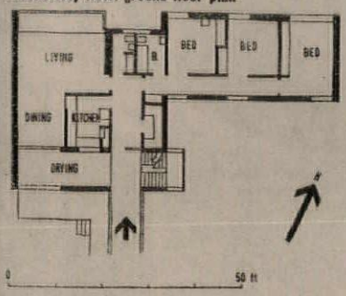


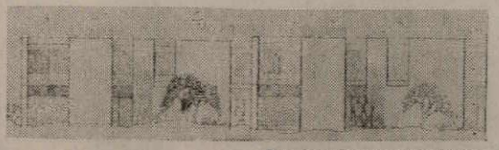
One-storey house: ground floor plan



Two-storey houses: right, ground floor plan: left, first floor plan

Three-storey flats: ground floor plan





Two-storey houses: south elevation

Married Officers' Quarters, Malta

J. M. Austin-Smith & Partners in collaboration with D. E. E. Gibson, Director-General of Works, War Office

CLIENT: War Office.
SITE: At end of isolated barren, natural fault with a fall of 200 ft. (at 1 : 6) towards sea.
ACCOMMODATION: Based on questionnaire, completed by 31 officers in Malta, giving indication of typical living patterns. Staggered terrace houses and three-storey flats generally sited parallel to contours giving magnificent coastal views, catching all available breezes. Only endwalls and roofs face maximum solar penetration. Layout unified like walled fortress, rises in one piece from rock with village complex inside.
STRUCTURE AND FINISHES: Walls; two-skin, load-bearing cavity limestone, which is cheap locally. Roofs, 2 in. slabs laid loose on stone blocks giving 4 in. cavity.
SITEWORK: Started in July 1961, completion by January 1963.

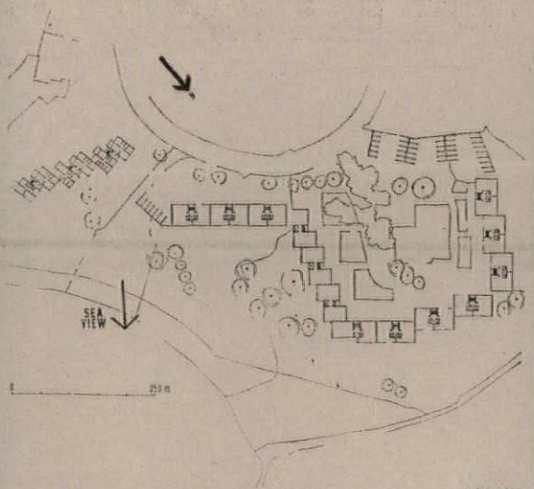
Partner in charge, Geoffrey Salmon. Assistants, Michael Hirst, W. Jarret. Heating consultants, P.G. Pether and Associates. Site supervising architects, Mortimer & Degiorgio. Quantity surveyors, Lemon & Blizard.

Flats, Torquay

Charles Blake

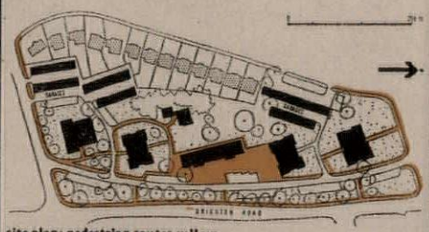
SITE: Adjoining plots (7¼ and 2½ acres) for separate clients, 200 yards from sea; close to local shops. Natural landscape, mature trees, lawns slope towards sea. Magnificent sea views.
ACCOMMODATION: South site, 56 flats with separate dining and two double bedrooms. North site, 182 flats with lounge-dining and two bedrooms. One garage or parking place per flat.
STRUCTURE AND FINISHES: In situ r.c. frame. Exposed aggregate or mosaic facings. Infill, lightweight panels. Windows, aluminium horizontal sliding.
SERVICES: Underfloor heating, sink waste disposers, refuse chutes.
SITEWORK: South side starts early 1962, north side to follow later.

Quantity surveyors, W. T. Hills & Co. (south site). Structural consultants, S. Jampel (south site).



site plan

← Opposite bottom, from north east



site plan: pedestrian routes yellow

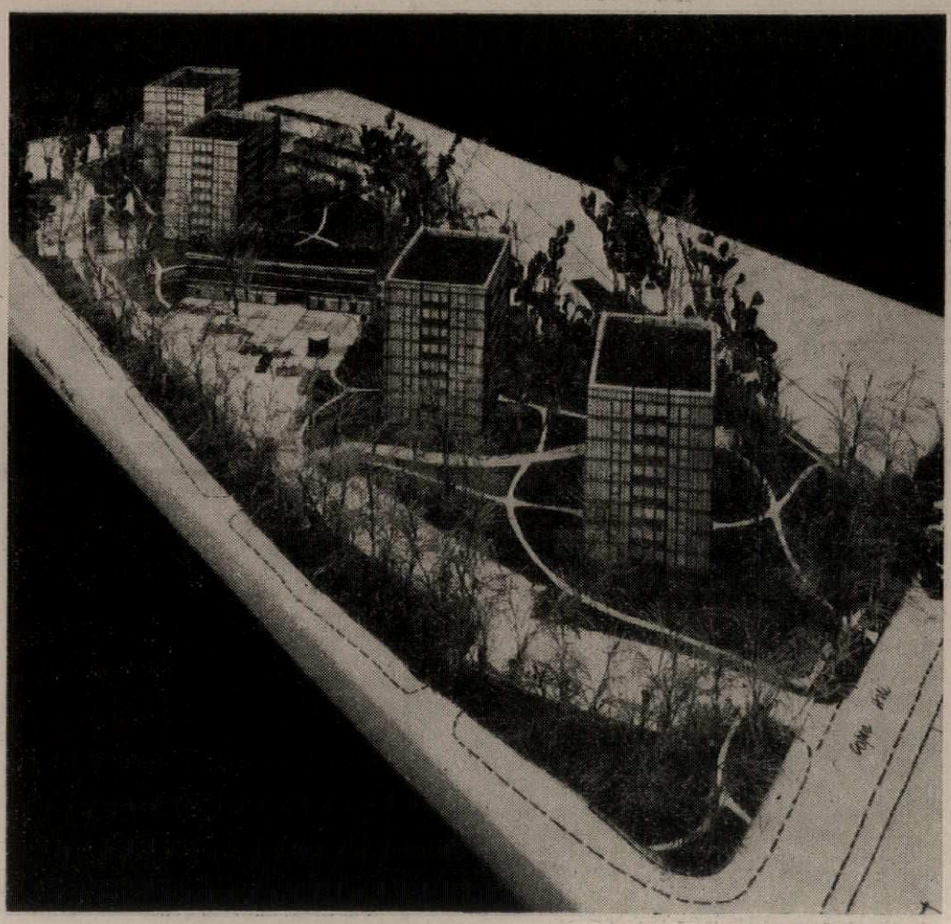
Flats, Sutton, Surrey

Edward D. Mills & Partners

CLIENT: Mutum Property Co.
SITE: Previously occupied by large houses. Alongside the Brighton Road. Many fine trees.
ACCOMMODATION: 149 flats, 72 garages. Four eight-storey blocks with a three-storey block where site narrows.
STRUCTURE AND FINISHES: R.c. frame. Facings, storey-height precast brick panels. Windows, metal. High standard internal finish.

Quantity surveyors, Leslie W. Clark & Partners. Engineers, Kaylor & Pick.

Below, from north-east with Brighton Road bottom left



Flats, Bristol

Raymond Moxley

SITE: Durdham Park. Four acres of existing garden and mature trees, but with 80 ft. deep quarry. Residential area adjacent to downs, one and half miles from city. Fine views.

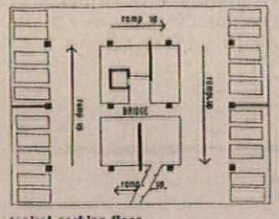
ACCOMMODATION: 88 flats and two penthouses in 24-storey tower. Ground floor left open except for lift hall and completely glazed lounge. Long spiral ramp garage for 140 cars sited in quarry. This provides access to swimming pool and tennis court.

STRUCTURE AND FINISHES: R.c. frame with plate floors. Fire wall under cills, painted lightweight concrete planks spanning across bays. Externally, pearl-grey glass clipped between heads and cills of double sliding aluminium windows. Outer glazing will be anti-sun with venetian blinds in space between.

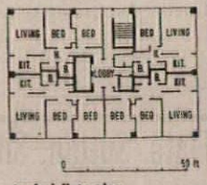
SERVICES: Heating, underfloor electric with convectors for boost. Hot water, off-peak immersion heaters. Sink waste grinders.

SITEWORK: Expected to start late 1962.

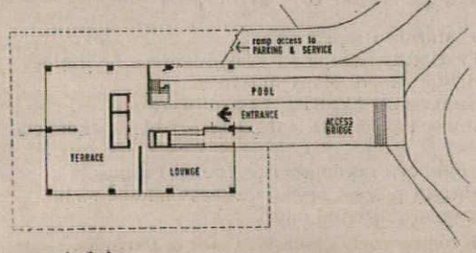
Quantity surveyors, Gleeds. Structural consultants, Clarke, Nicholls & Marcel.



typical parking floor

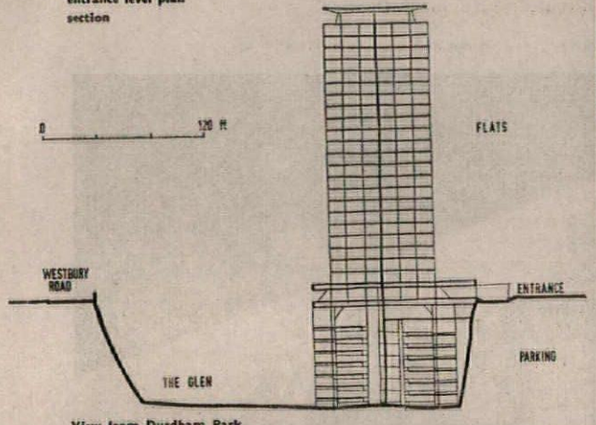


typical flats plan

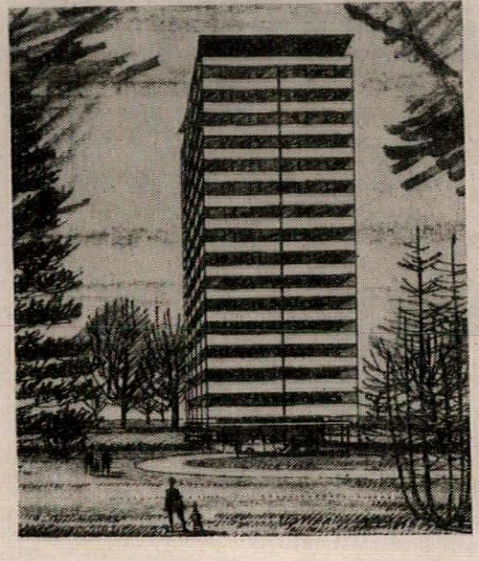


entrance level plan

section

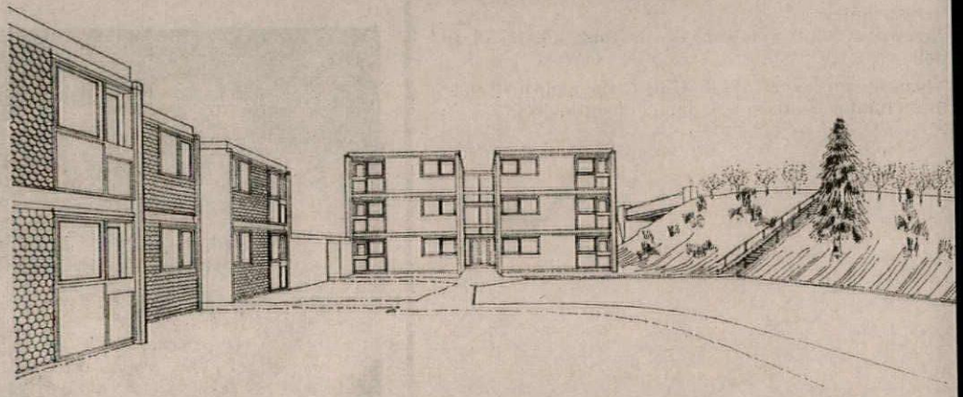


View from Durdham Park

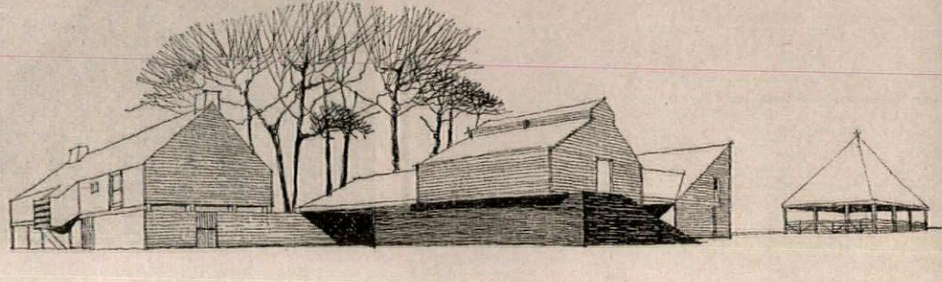




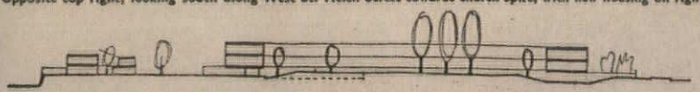
Flats, St. Annes: looking south-west from entrance road with landscaped embankment on right



Farm, Fulmer, Bucks: from the north-east, with the house on the left

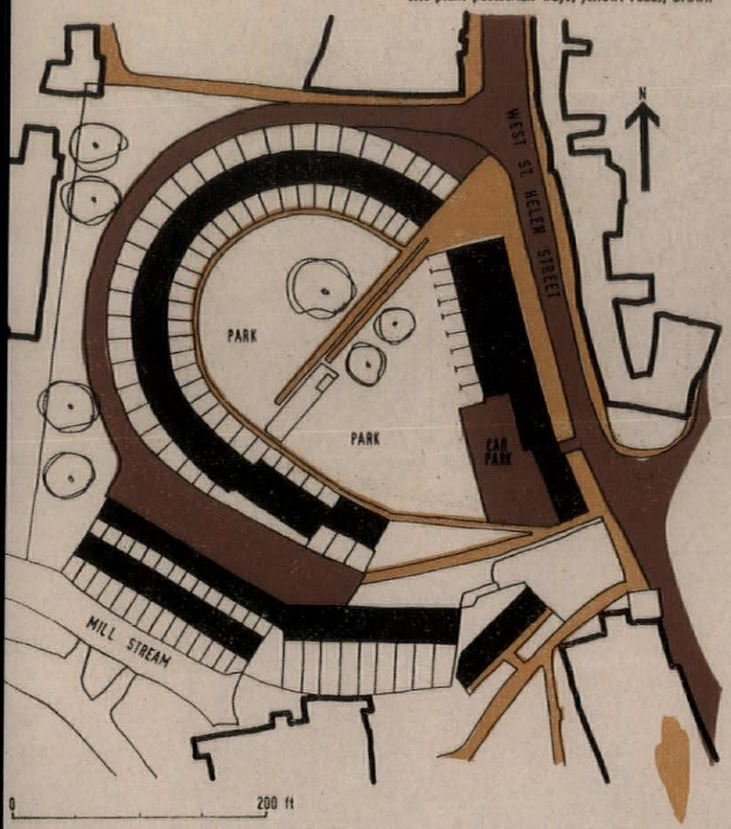


Opposite top right, looking south along West St. Helen Street towards church spire, with new housing on right



cross section through site

site plan: pedestrian ways, yellow: roads, brown

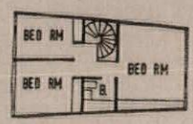


Housing, Abingdon

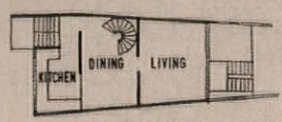
Tom Hancock of Morton Lupton

CLIENT: Townmaker Ltd.
SITE: Part of old central area of Abingdon due for renewal. Twin towers of a maltstery on west side. Superb spire of St. Helen's church. 5 ft. slope from north-east to south-west.
ACCOMMODATION: 92 dwellings and garage/parking places. Crescent; two-storey houses over garage/workshop/spare or playroom, small garden to park and courtyard to front. Terrace with gardens to mill stream; two-storey houses, garage/entrance/workshop complex facing square. Street block; three and a half and two-storey flats and maisonettes, communal parking at lower level, ground floor arcaded sheltering pavement. Single- and two-storey houses. Park provides town space with church spire emphasized as focal point.

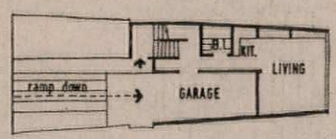
first floor plan

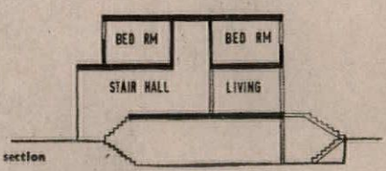


ground floor plan

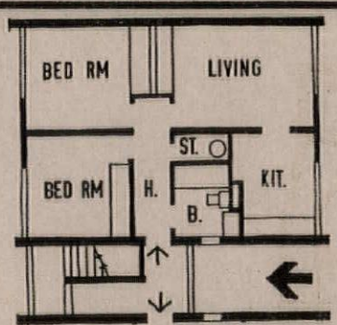


lower ground floor plan



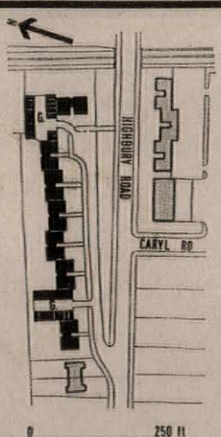


section



typical plan of flat and entrance hall

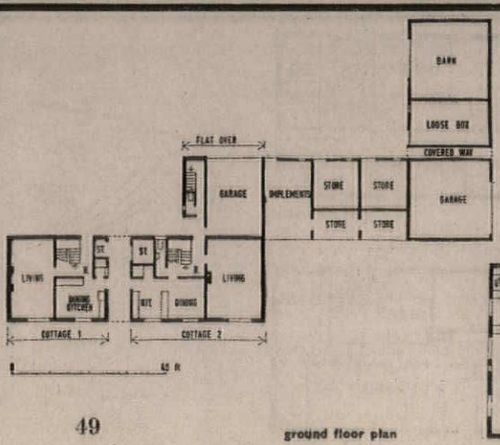
site plan



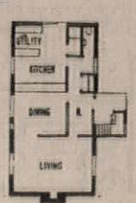
Flats, St. Annes

William Cowburn

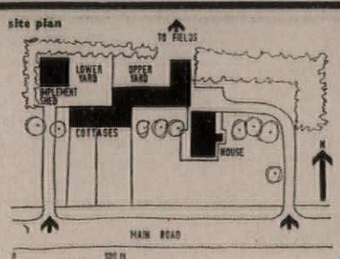
CLIENT: Lytham St. Anne's Property Co. Ltd.
SITE: Part of an area having a few existing large houses recently developed as bungalow estate.
ACCOMMODATION: 32 flats form a private close around the access road. Landscaped road embankment giving enclosure to the south. Generally, two-storey blocks but three-storey blocks adjacent to garages to emphasize rhythm of façade set backs.
STRUCTURE AND FINISHES: Cross walls, concrete brick. Precast beams at floor level increase stability and carry timber frame façade panels.
SERVICES: Underfloor heating, sink waste disposers.
SITEWORK: Starts Spring 1962, completion by 1963.
Assistant, Niel Parker. Quantity surveyor, Tom Lucas. Structural consultants, Helena-Ericson Ltd.



ground floor plan



site plan



Farm, Fulmer, Bucks

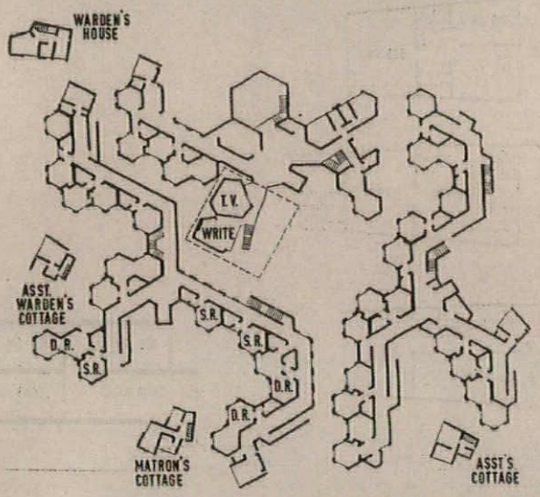
David Dry & K. Halasz

SITE: Part of estate in green belt now split up.
ACCOMMODATION: General agricultural buildings. Two three-bedroom cottages and single-room flat for employees, placed with entrances facing yard and gardens facing south away from work. Main house has separate entrance from road for maximum privacy but remains part of the group.
STRUCTURE AND FINISHES: 9 in. concrete block load-bearing and party walls. Other walls, 3 in. by 2 in. studding. Facings, pressure creosoted deal weather boarding. Internally; blocks painted white, stud walls and ceilings varnished deal boarding.
SITEWORK: Started November 1961, completion by Summer 1962.

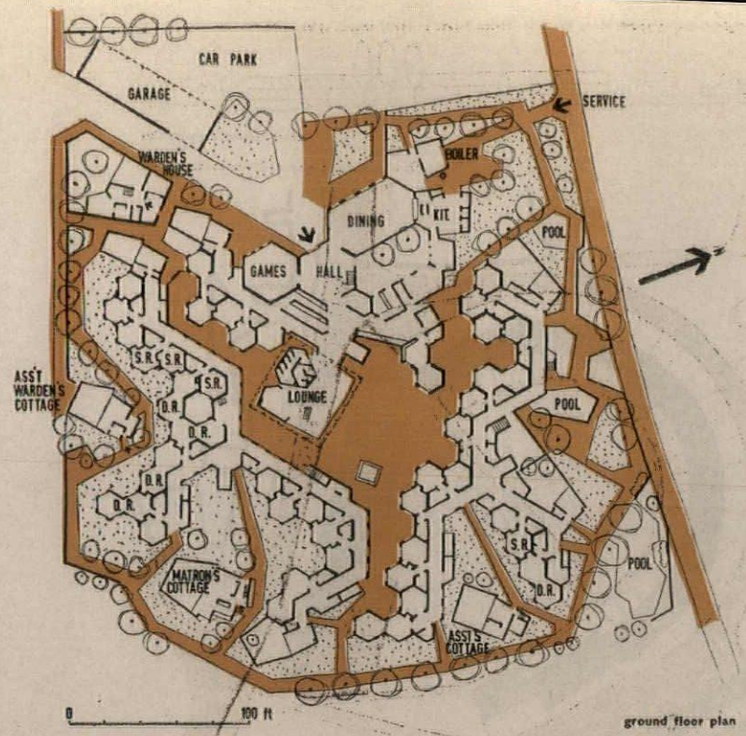
Spastics' Hostel, Birmingham

Architects' Co-partnership

CLIENT: The National Spastics Society.
SITE: Unattractive surroundings. 2½ acres, with no interesting features, in south-east suburbs.
ACCOMMODATION: 100 adults plus staff. Rooms are equivalent to normal person's home, offering company or seclusion. Inward looking village community rather than institution. Rooms for new arrivals close to matron and warden for supervision. Younger and more gregarious people grouped around communal rooms. Established people close to quiet peripheral gardens. Wide doorways and level paths for wheelchairs.
STRUCTURE AND FINISHES: Load-bearing brickwork. In situ concrete floors. Pitched slate roofs. Painted softwood window frames.
SERVICES: Oil-fired hot water and underfloor heating.
SITEWORK: Expected to start late 1962.



first floor plan

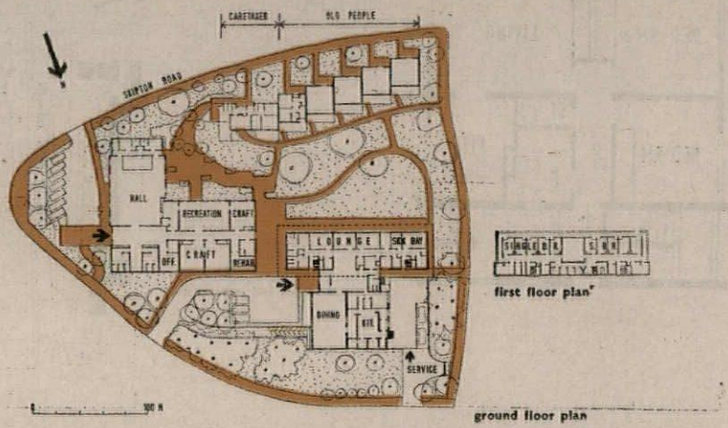


ground floor plan

Handicapped Persons Home and Social Centre, Birmingham

A. G. Sheppard Fidler, City Architect

SITE: 2 acres. Part of comprehensive redevelopment.
ACCOMMODATION: Severely disabled, who do not fit into life of normal old people's home. 70 rooms plus staff rooms.
STRUCTURE AND FINISHES: R.c. frame with storey-height concrete panels. Blue brickwork to kitchen wing.
SITEWORK: Started 1961, completion by 1963.
Deputy city architect, R. J. Ash. Senior architect (general), J. G. Watson. Group leader, R. W. Tippetts. Assistant in charge, H. A. Lees, C. A. Odiakosa. Structural consultants, Alan Marshall & Partners. Services consultants, Donald Rudd & Partners. Quantity surveyors, Harris, Rourke & Simpson.



ground floor plan

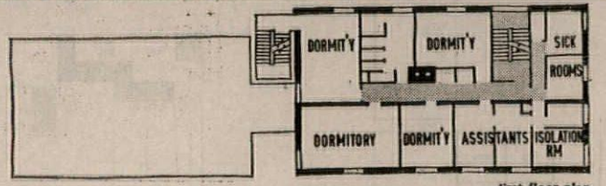
first floor plan

Opposite right, from north
opposite left, from south

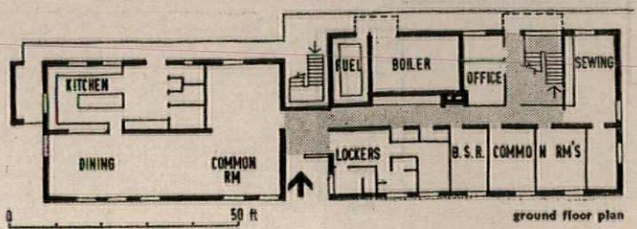
Children's Hostel, Heston & Isleworth

Whitfield Lewis, County Architect, and Elie Mayorcas

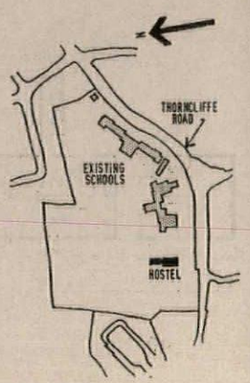
CLIENT: Middlesex County Council.
SITE: Near large waterways depot at Bull's Bridge.
FUNCTION: Education for children working on parents' narrow boats plying between Brentford and Birmingham.
ACCOMMODATION: For 36 boys and girls. Eight dormitories, lavatories, etc. Kitchen, dining and common room.
STRUCTURE AND FINISHES: Roofs and floors, precast concrete units. Load-bearing brickwork.
Assistant architects, R. M. Ridge, John Hoile, Brian Packman. Structural and services consultants, Middlesex County Council. Quantity surveyors, Mercer & Miller.

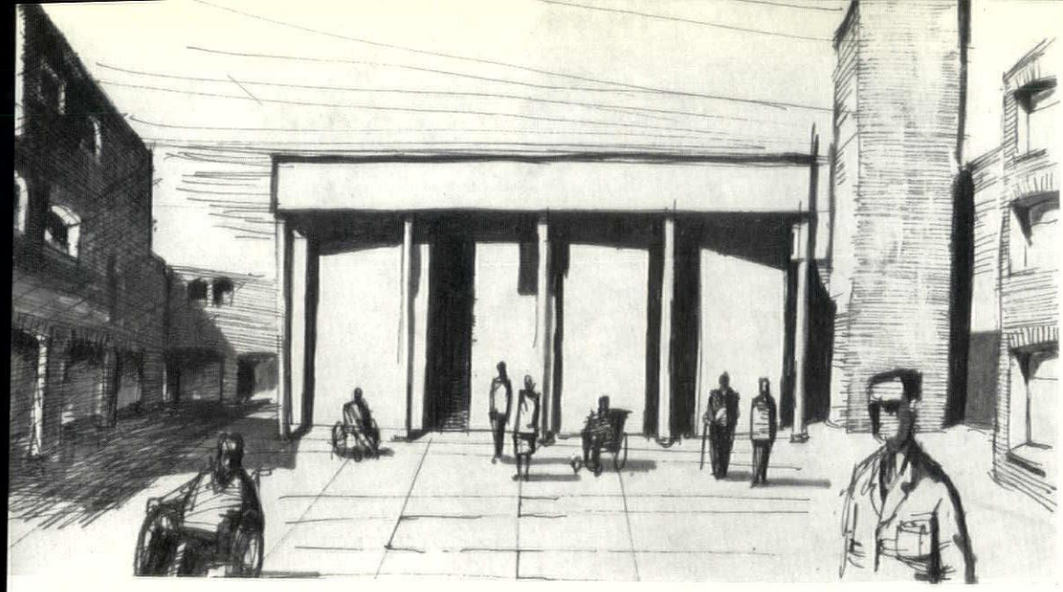


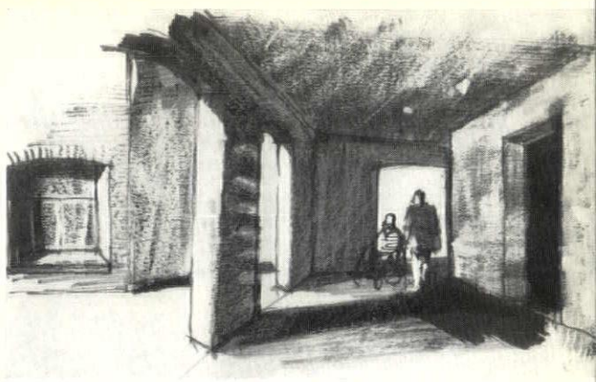
first floor plan



ground floor plan







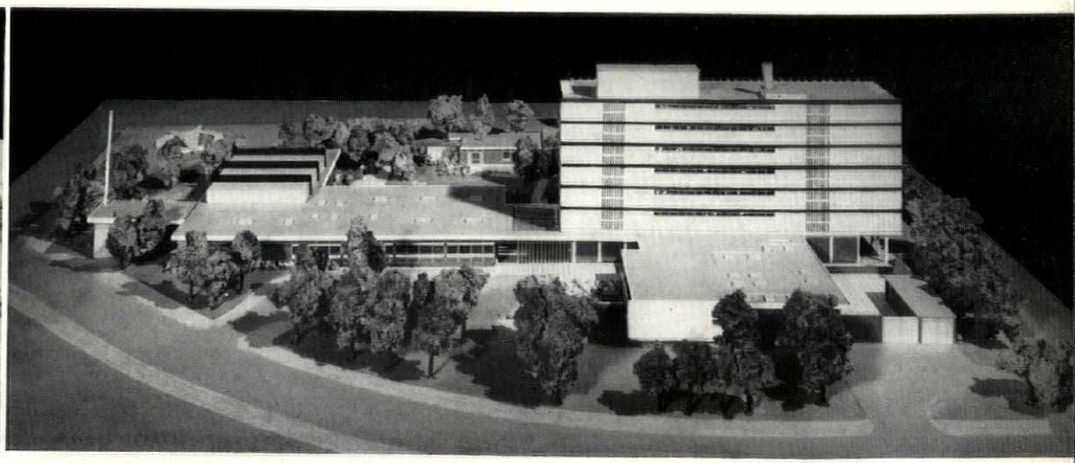
Spastics' Hostel, Birmingham. Above, arcade: above left, main square: below left, beginning of street: below centre, the street: below right, view of garden

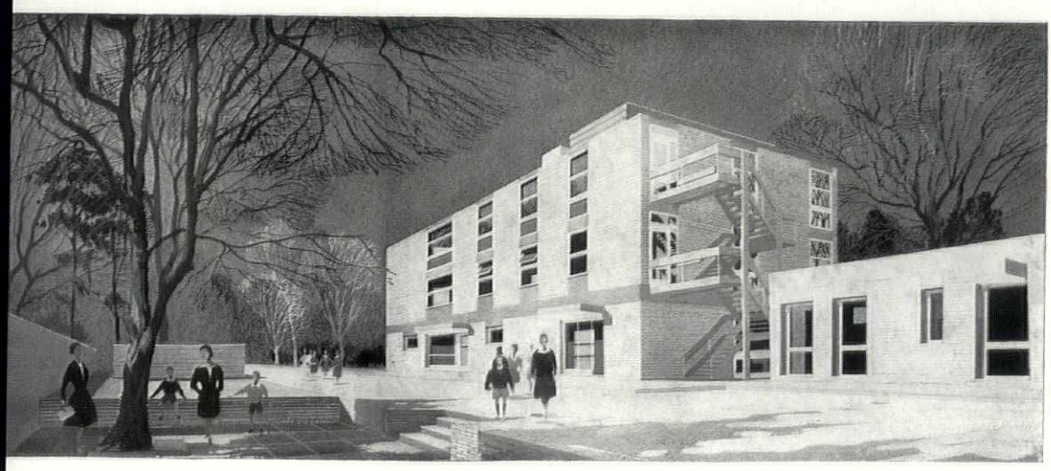




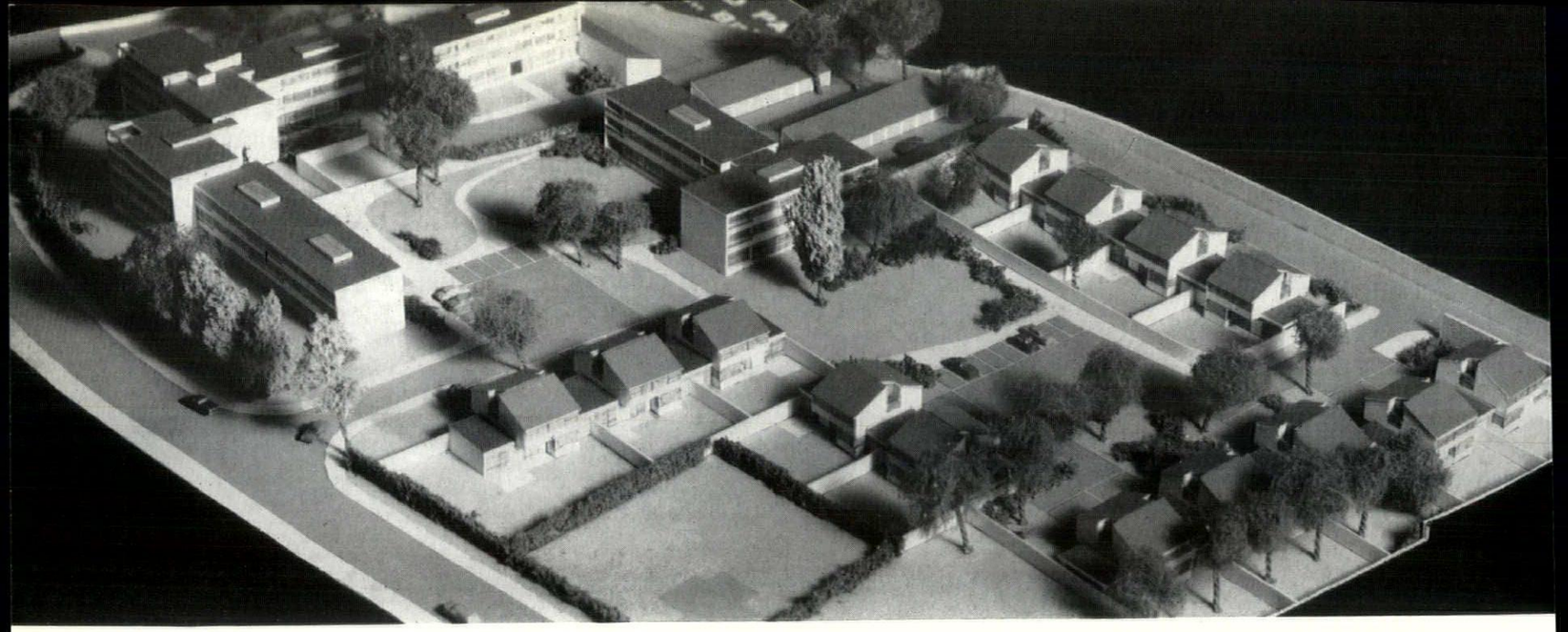


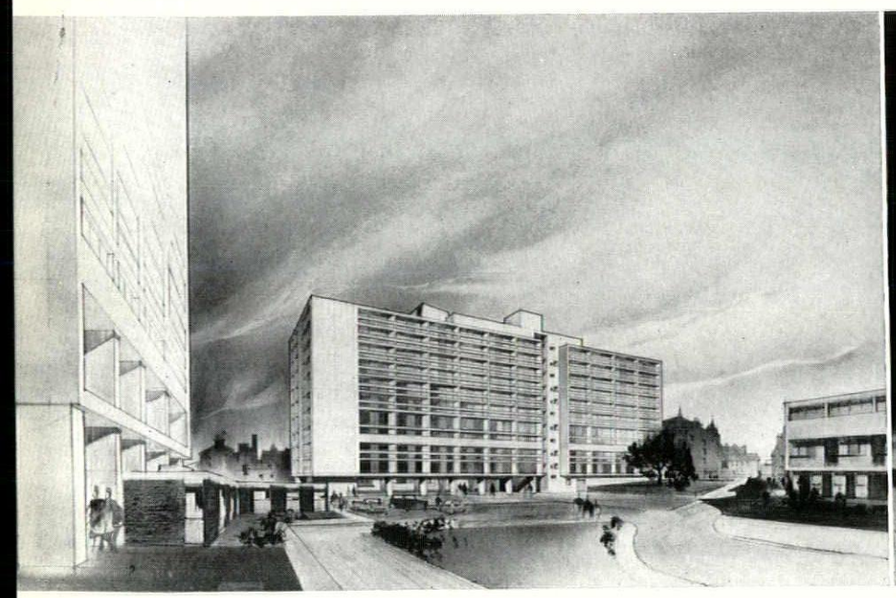


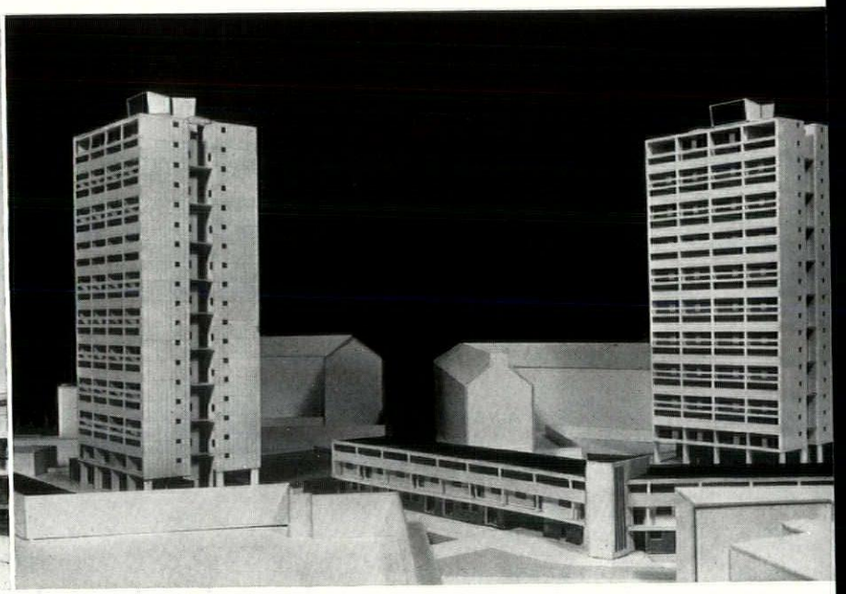


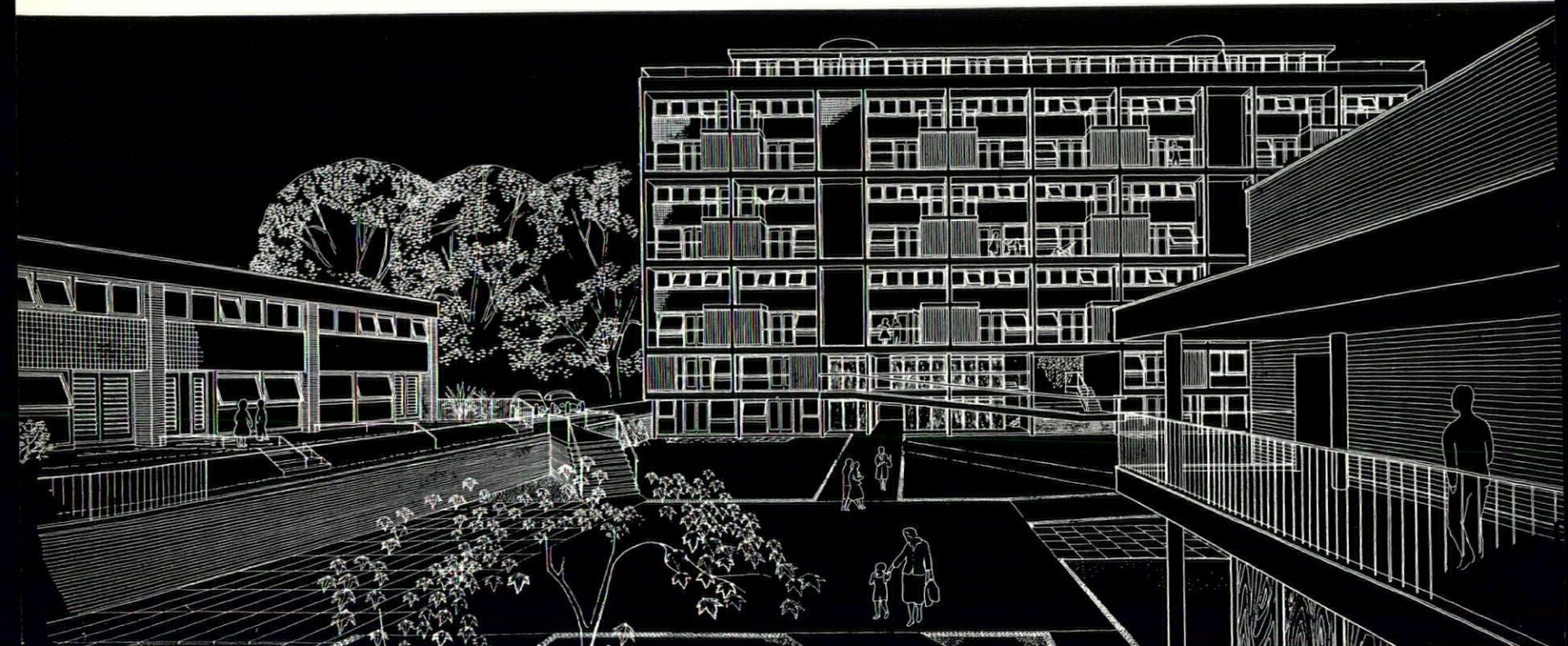


Children's Hostel, Heston and Isleworth, from the north-east, with the dining and common room on the right

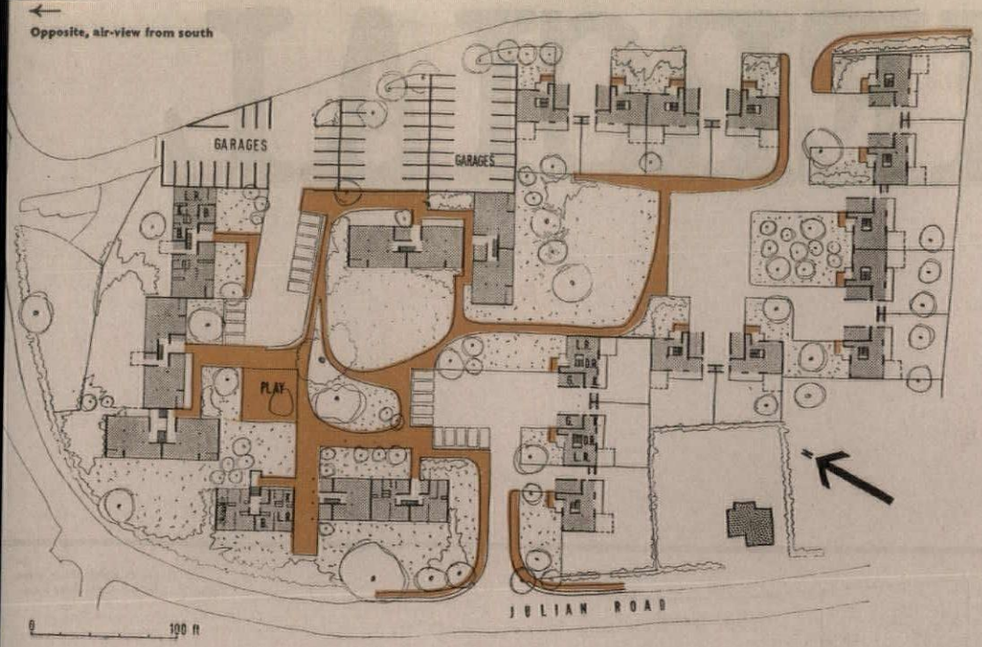








Opposite, air-view from south



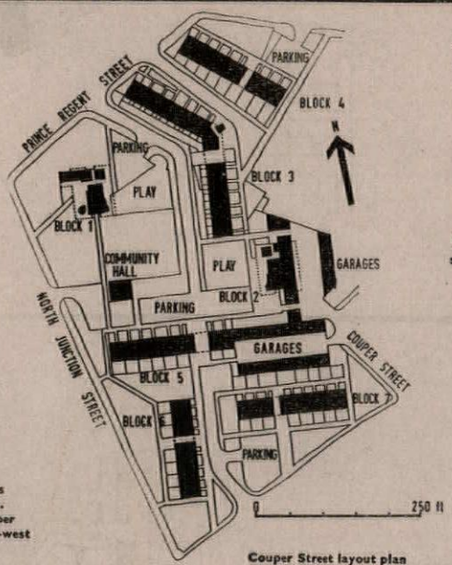
site plan: pedestrian routes yellow

Housing, Bristol

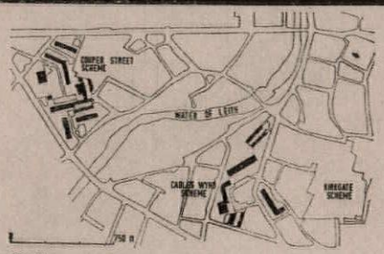
R. Towning Hill & Partners, with Eric Lyons

CLIENTS: Span (London) Ltd.
SITE: Approximately 4 acres in Sneyd Park, a favoured residential area. Garden of large seventeenth-century house with fine trees and views over Bristol Channel.
ACCOMMODATION: 14 detached houses and three-storey flats grouped around two linked precincts. Four-bedroom houses connected by garage and carport.
STRUCTURE AND FINISHES: Composite frame of steel, precast concrete and load-bearing brickwork. Clad externally with timber frames and painted, boarded panels.
SITEWORK: Started late 1961, completion by 1963.

Structural consultant, Clifford E. Saunders. Quantity surveyor, R. H. Mildred.



Couper Street layout plan



site plan

Opposite, left, Cables Wynd looking north. Opposite right, Couper Street looking south-west

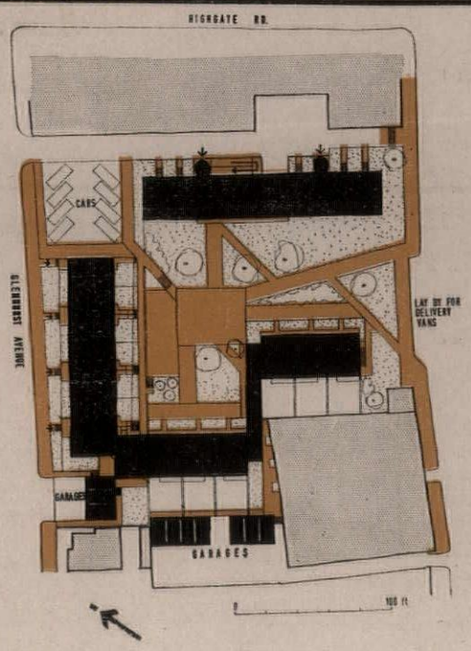
Flats, Leith

Alison & Hutchison & Partners

CLIENT: City and Royal Burgh of Edinburgh.
SITE: Three areas in centre of Port of Leith which became rather de-populated between the wars.
ACCOMMODATION: Eventual density of 160 persons per acre. Couper Street: phase one, 183 dwellings; phase two, 250 dwellings. 50 garages, 90 parking places. Cables Wynd: phase one, 187 dwellings; phase two, 211 dwellings. 60 garages, 60 parking places. Kirkgate site not yet resolved.
STRUCTURE AND FINISHES: Bay width 18 ft. 8 in. 20-storey blocks, r.c. frame. 11-storey block, r.c. cross-walls. Cladding, storey height concrete slabs.
SERVICES: Heating, underfloor electric.
SITEWORK: Couper Street started 1961, completion by January 1964.

Senior partner, R. Forbes Hutchison. Partner in charge, Walter Scott. Senior assistant, F. W. Tinson. Quantity surveyors, James Gentles & Son. Structural consultants, Blyth & Blyth. Heating and electrical consultants, Ian Hunter & Partners.

site plan: pedestrian routes yellow



Opposite, looking north-east across private square towards nine-storey maisonettes

Housing, St. Pancras

Robert Bailie

CLIENT: Housing Department, St. Pancras Council.
SITE: 1.43 acres facing Highgate Road, London, NW5. Slopes 9 ft. Existing changes of level to be retained. Some well grown trees.
ACCOMMODATION: 58 dwellings in large variety of types; two- and three-bedroom maisonettes, three-bedroom houses, one-bedroom flats and bed-sitters. Blocks arranged to form small private square. 11 garages.
STRUCTURE AND FINISHES: Nine-storey block; in situ r.c. box frame, yellow gault brick end walls. Terraces, brick cross-walls with in situ r.c. floors and roofs. Infill panels, special silver grey brick.
SERVICES: Gas-fired space heating and hot water. Louvred drying areas to most dwellings.
SITEWORK: Starts April 1962, completion after two years.

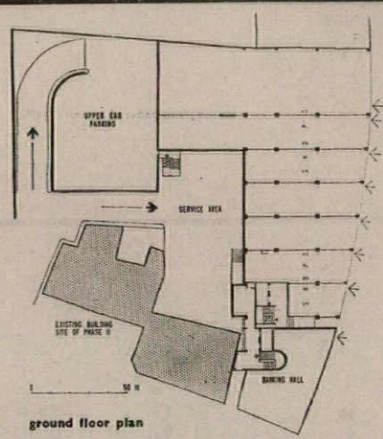
Director of Housing, A. W. Davey. Structural consultants, Bylander, Waddell & Partners. Quantity surveyors, Waggett & Bradford.

COMMERCIAL

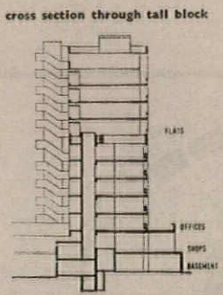
Shops, Offices and Flats, Hampstead

Douglas Stephen & Partners

CLIENT: Aral Investments.
SITE: Swiss Cottage, near underground.
ACCOMMODATION: Shops at ground level with service access to basement at rear. Two-floor parking with access to Belsize Road. Five floors of offices over with separate entrance from Finchley Road. Upper floors mixed residential; 24 one-room and four two-room flats, 10 three-room maisonettes.
STRUCTURE AND FINISHES: R.c. columns and flat slabs with box frame for flats over.
SITEWORK: Stage one started August 1961, completion by August 1963.
Associate partner in charge, Panos Koulermos.
Structural consultants, R. J. Crocker & Associates.
Quantity surveyors, Lionel Simmons & Partners.

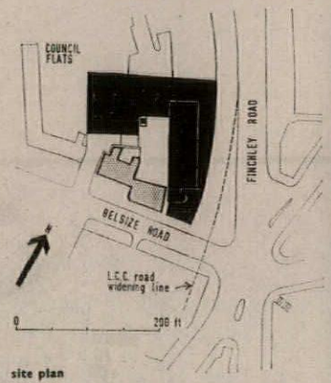


ground floor plan



cross section through tall block

Opposite right, from west
Opposite left, from Finchley Road

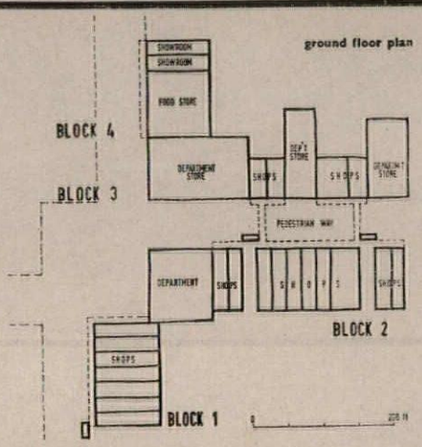


site plan

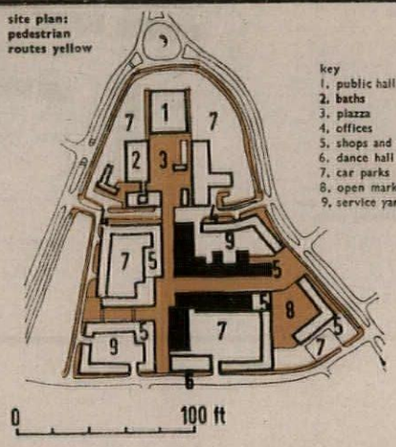
Shopping Centre, Wythenshawe, Manchester

S. G. Besant Roberts, City Architect

CLIENT: City of Manchester Estates Management Committee.
FUNCTION: To provide first class shops, supplemented by private stores, co-operatives, etc.
ACCOMMODATION: 25 shops, with combinations of flats, offices or storage over, and a large food store.
STRUCTURE AND FINISHES: R.c. frame, floors, roofs and stairs. Windows, metal. Infill panels, steel.
SITEWORK: Started April 1960, completion by 1963.
Deputy chief assistant architect (general), G. Carter. Group leader, F. Robinson. Project architect, D. Gosling.



ground floor plan

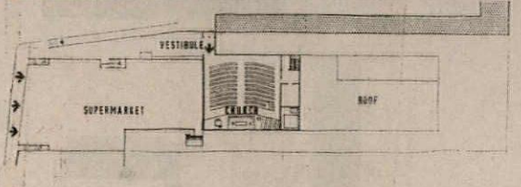


site plan: pedestrian routes yellow

Supermarket, Church and Flats, Upper Norwood

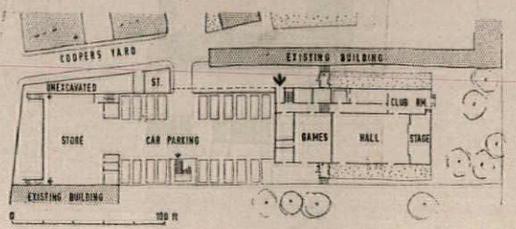
Edward D. Mills & Partners

SITE: Main shopping street, leading to Crystal Palace. Existing Methodist church and school. 30 ft. slope in length of plot.
ACCOMMODATION: New church for 250 with vestries at ground level. Youth club, Sunday school, etc., at lower ground level. Supermarket on street with basement storage and preparation. Four maisonettes over.
STRUCTURE AND FINISHES: R.c. frame. Brick infill. Youth club, load-bearing brickwork and flat roofs.
SERVICES: Oil-fired hot air heating.
SITEWORK: Starts May 1962.

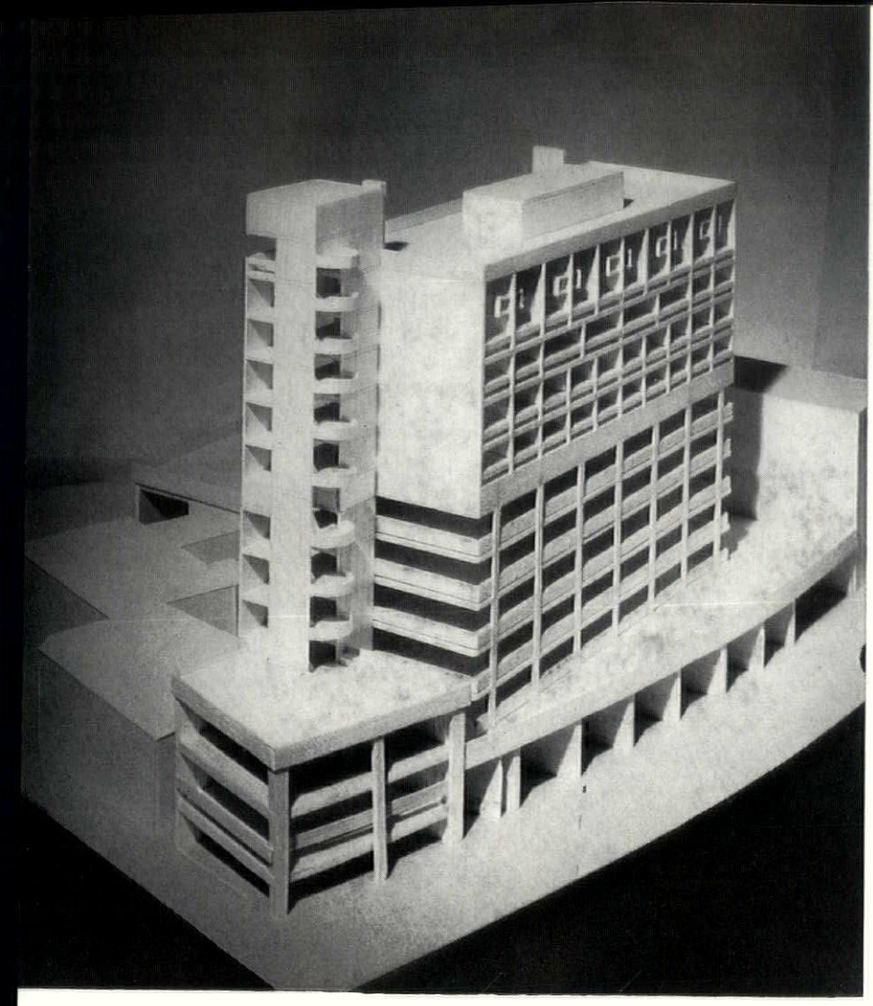


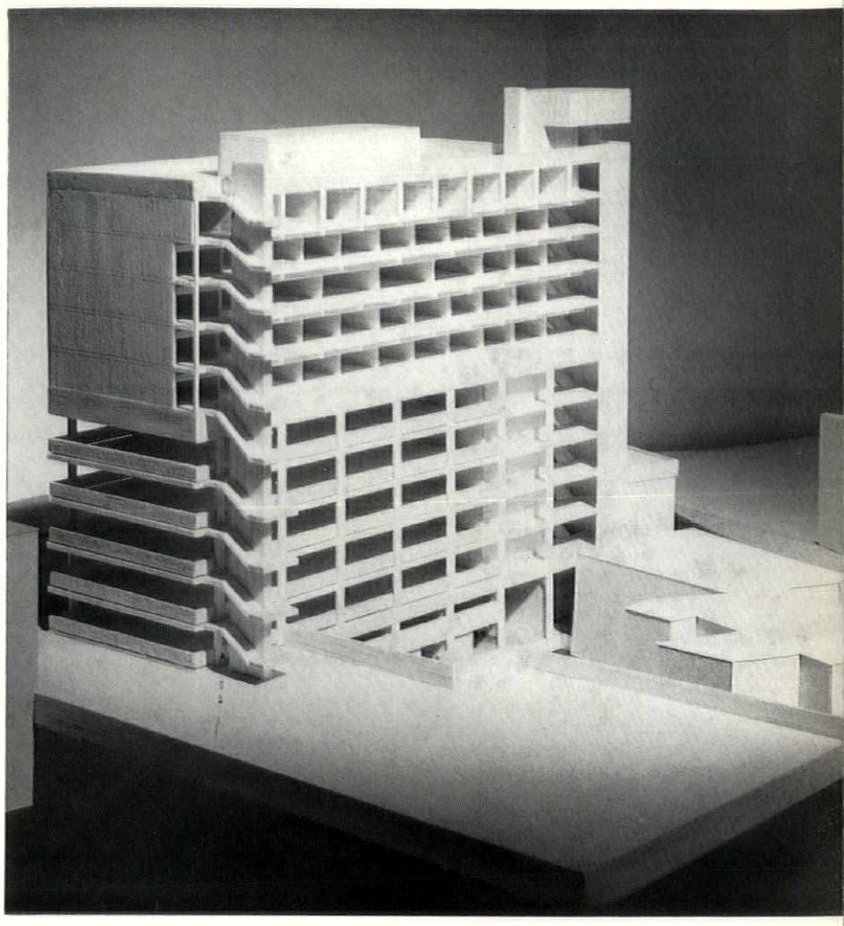
ground floor plan

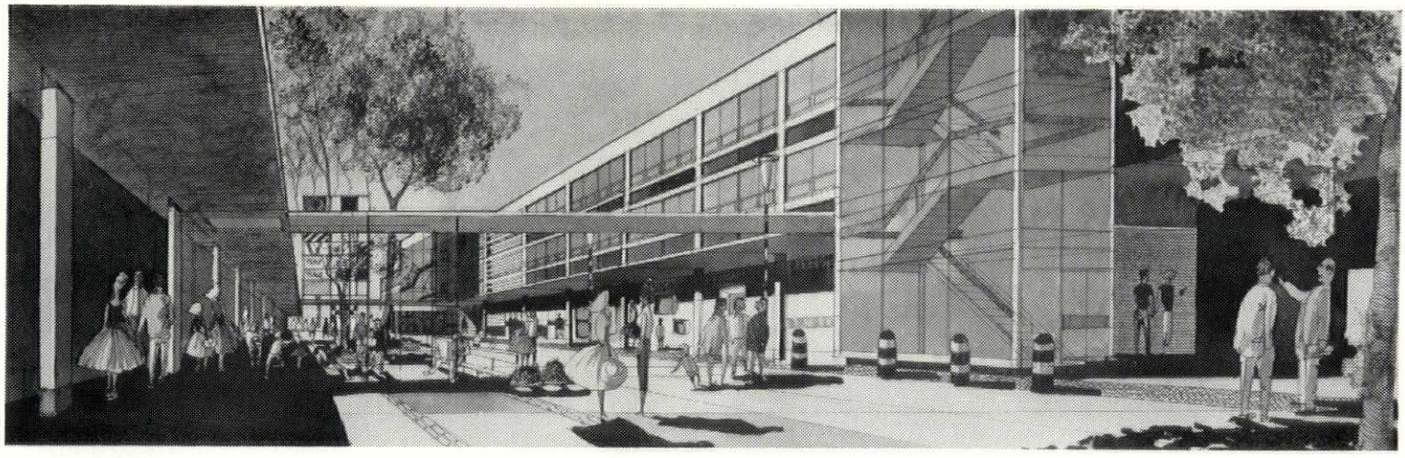
Opposite, long section



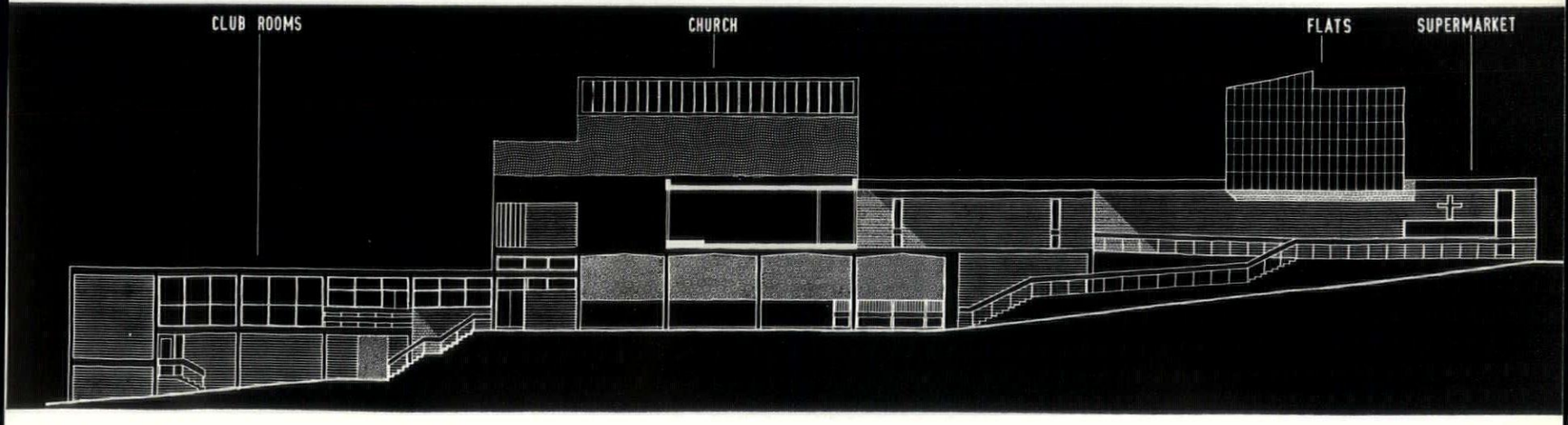
lower ground floor plan



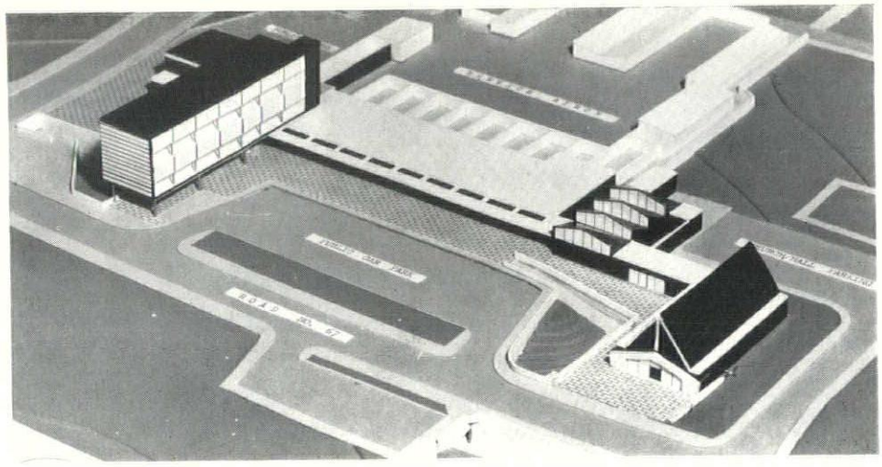




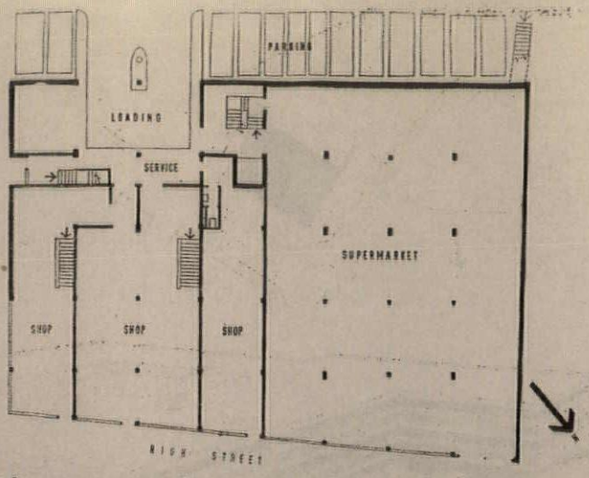
Shopping Centre, Wythenshawe, Manchester:
View along pedestrian way with freestanding stairs to offices, etc., on the right



Neighbourhood Centre, Basildon: from north-east with main public car park in centre foreground. Additional parking and garages at rear of buildings. Main shopping concourse is indicated by paving pattern



← Opposite top, from east showing shops along High Street



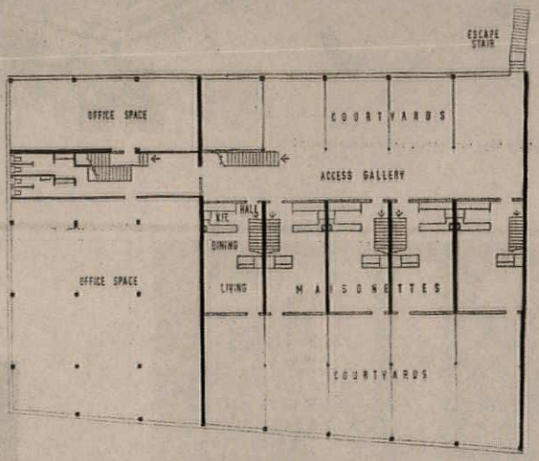
ground floor plan 0 40 ft

Shops, Offices and Flats, Penge

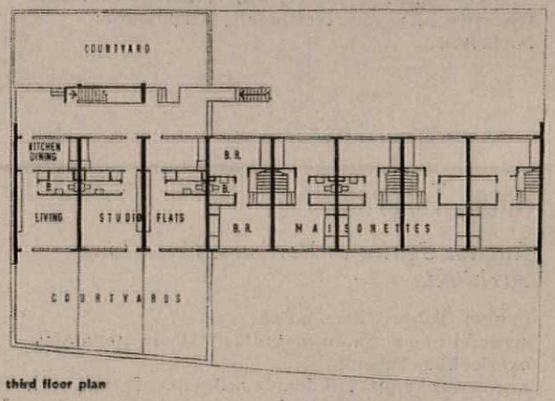
Covell, Matthews & Partners

CLIENT: Colman Properties (Penge) Ltd.
SITE: Of Essoldo cinema, formerly Penge Empire Theatre. One-third acre in shopping centre of improving neighbourhood.
ACCOMMODATION: Supermarket and four shops with basement storage. First floor, offices. Five maisonettes at first and second floors. Three studio flats at second floor.
STRUCTURE AND FINISHES: R.c. frame and flat slab. Precast concrete spandrils and fascia with exposed granite aggregate. Sliding aluminium windows. Storey high columbian pine subframes to dwellings. Courtyards; separated by timber screens, paved with asbestos tiles.
SERVICES: Offices, electric underfloor heating. Dwellings, panel or tubular heaters. Ducting for telephone cables. Hot water by immersion heaters.
SITEWORK: Started September 1961, completion by December 1962.

Design team, B. G. Falk, R. A. Barber.

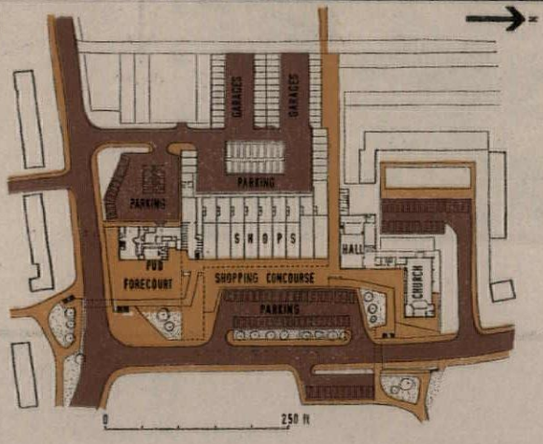


first floor plan



third floor plan

site plan: pedestrian routes, yellow; roads, brown



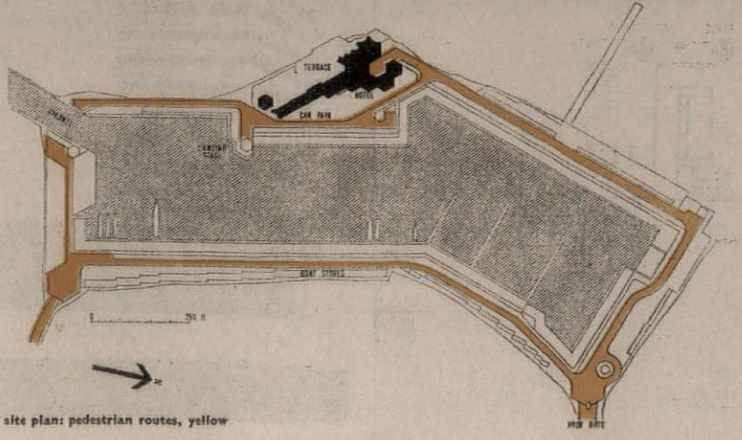
Neighbourhood Centre, Basildon

Anthony B. Davies, Chief Architect/Planner

SITE: Lee Chapel North. 3 acres surrounded by corporation housing. 4 ft. fall from NW to SE. Approximately half a mile from town centre.
FUNCTION: Serving local daily needs of 8,700 people.
ACCOMMODATION: Four-storey block of 14 maisonettes. Nine shops and cobbler's shop. Hall, non-conformist church, pub, depot, surgery, etc., 56 garages.
STRUCTURE AND FINISHES: Load-bearing brickwork, shallow pitch timber roof. Maisonettes, r.c. frame.
SITEWORK: Starts June 1962, completion by August 1963.

Quantity surveyors, E. C. Harris & Partners. Structural engineers, maisonettes, T. C. Durley Hill & Partners.

← Opposite bottom, east elevation of hotel facing yacht basin



site plan: pedestrian routes, yellow

Yacht Marina, Hamble River

Raglan Squire & Partners

SITE: East bank of river opposite Hamble village.
ACCOMMODATION: Moorings and full servicing facilities for 200 yachts, 5 to 100 tons. Yacht club, 40-bedroom hotel, chandlery and store. Plug-in electricity and water behind each boat. Parking for 2 cars and lock-up shed at each mooring.

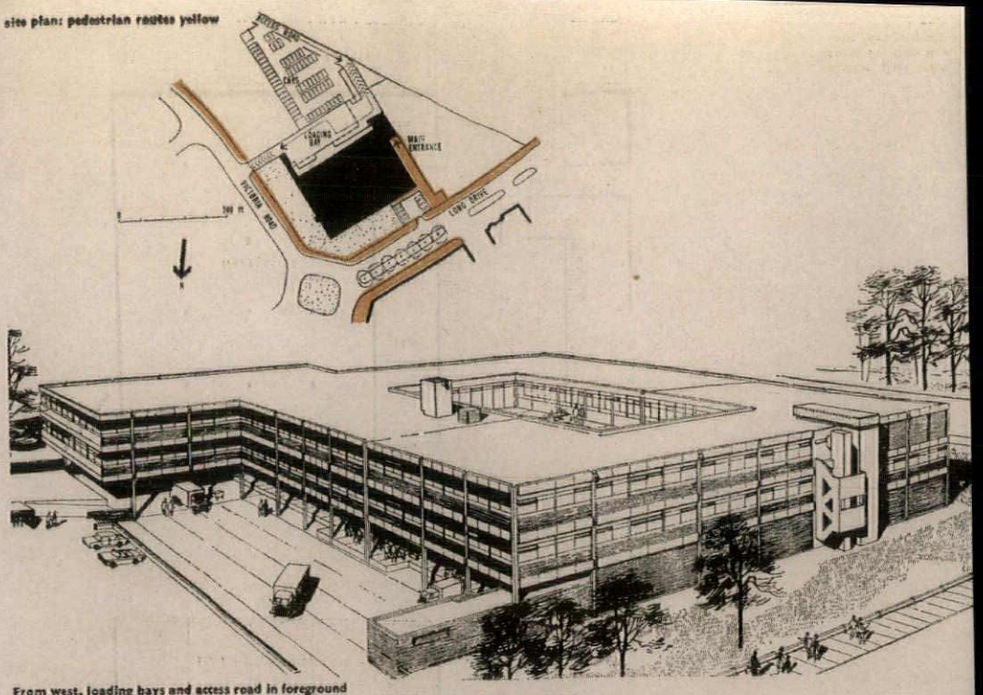
Stationery and Printing Building, South Ruislip

Murray, Ward & Partners

CLIENT: British European Airways.
SITE: Flat and featureless. Close to LTE station. In Northolt Airport flight path (50 ft. height limit).
ACCOMMODATION: Ground floor; loading bays, bulk paper store, stationery store with two mezzanines, various small offices. First floor; printing, duplicating, photographic processing, distribution, packaging and offices. Second floor; offices and roof garden.
STRUCTURE AND FINISHES: R.c. frame. Columns, lift shafts, escape stairs cast in patterned formwork. Precast beam facings with white exposed aggregate. Infill panels, yellow brick. Windows, horizontal sliding.
SERVICES: Oil-fired heating. Undercill convectors and forced-flow units. Paper store air-conditioned. Fire detection system connected to local fire station.
SITEWORK: Started June 1961, completion by July 1962.

Architect in charge, Gordon Maclean. Structural consultants, Scott & Wilson, Kirkpatrick & Partners. Services consultants, Steensen, Varming & Mulcahy. Quantity surveyors, Northcroft, Neighbour & Nicholson.

site plan: pedestrian routes yellow



From west, loading bays and access road in foreground

Hotel, Teheran

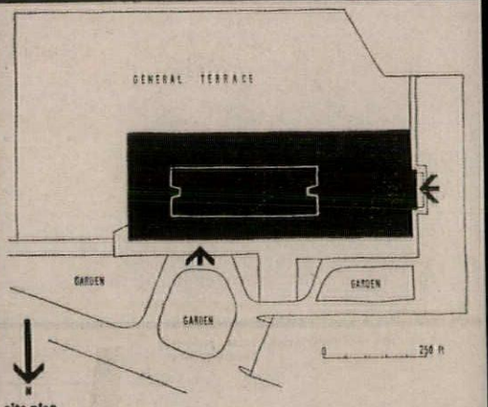
Raglan Squire & Partners, Consulting Architects

CLIENT: Pahlavi Foundation.
SITE: At Shemiran, in foothills of Alborz mountains overlooking Teheran.
ACCOMMODATION: 270 double bedrooms. Persian style restaurant in basement. Two main entrances and royal entrance at ground level. Ballroom for 500.
STRUCTURE AND FINISHES: Earthquake resistant steel frame. Finishes, black and white marble externally.
SERVICES: Air-conditioned for external temperature range, 15° to 100°F.
SITEWORK: Started January 1960, completion by December 1962.

Architects, Foroughi, Zafar, Sadegh & Ghiai. Structural consultant, J. S. Tooke. Services consultants, G. H. Buckle & Partners.



Left, from south-west



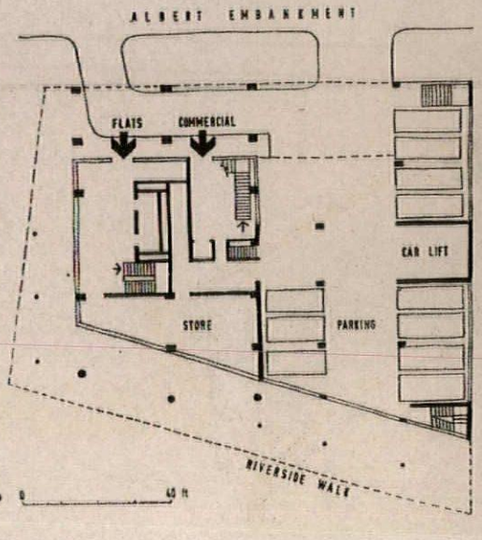
site plan

Showrooms, Offices and Flats, Lambeth

Oscar Garry & Partners

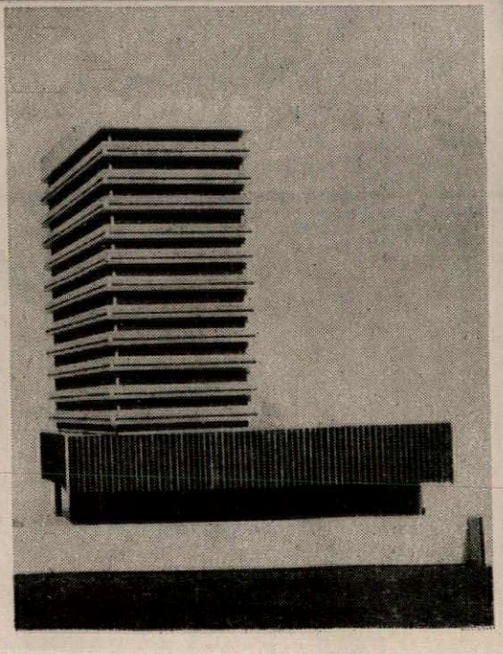
SITE: Albert Embankment, overlooking the Thames, between Lambeth and Vauxhall bridges.
ACCOMMODATION: 20,000 sq. ft. of showrooms and offices on three lower floors cover most of the site and project over future riverside walk. 19 flats in the tower have continuous balcony on all sides giving access to escape stair. Parking for approximately 36 cars.
STRUCTURE AND FINISHES: R.c. frame on bored piles. Concrete faced with white mosaic. Windows, aluminium. Tower double glazed.

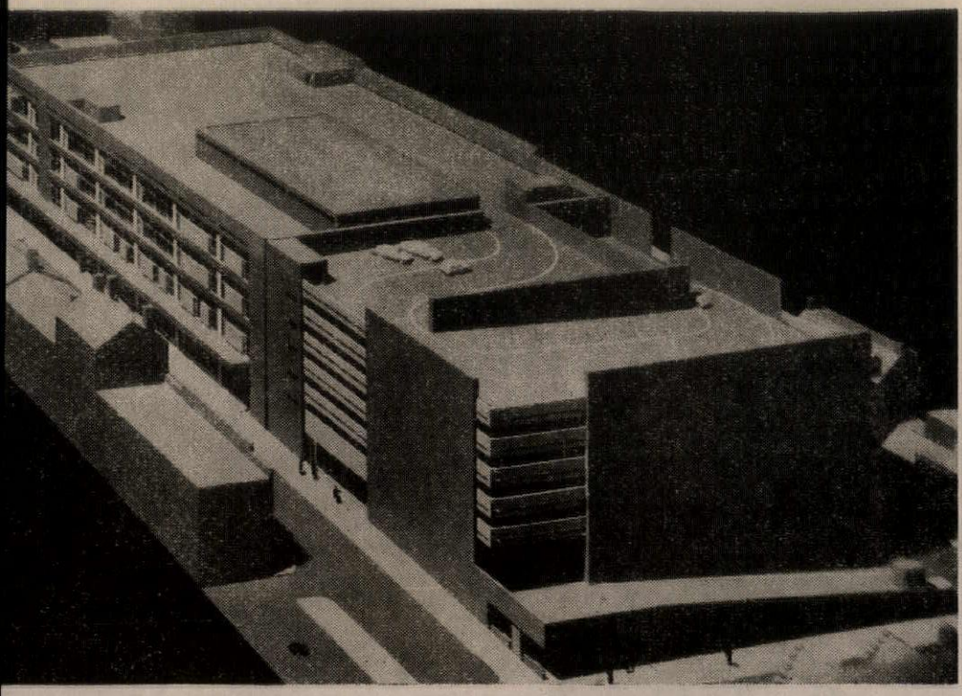
Consulting engineers, J. C. Bianco. Quantity surveyors, L. R. Kinsler & Partners.



ground floor plan 0 45 ft

Right, from the river





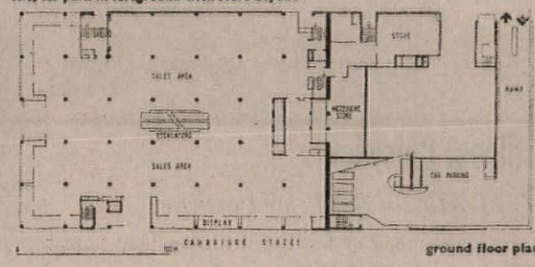
left, car park in foreground with store beyond

Store, Sheffield

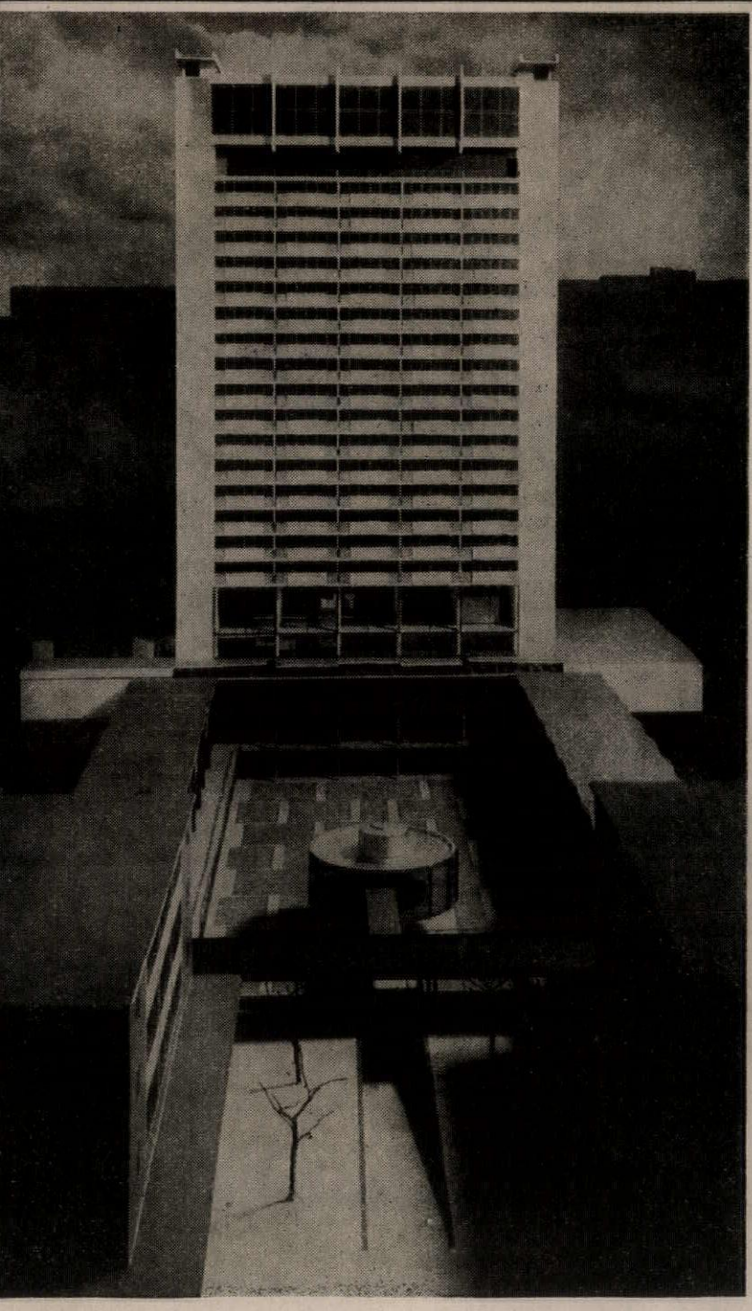
Yorke, Rosenberg & Mardall

CLIENT: John Lewis & Co. Ltd.
SITE: Opposite city hall. Surrounding property will be developed into new shopping area.
ACCOMMODATION: 105,000 sq. ft. selling area, storage, offices, etc. Seven-storey garage for 400 cars.
STRUCTURE AND FINISHES: R.c. frame and flat slab. External facings; white glazed tiles, solid panels in brown mosaic, granite to display windows.
SITEWORK: Started August 1961, completion by 1963.

Associates in charge, Jack Snell, Brian Henderson. Structural consultants, Clarke, Nicholls & Marcel. Services consultant, Alfred J. Smith. Quantity surveyors, Rider Hunt & Partners.



ground floor plan



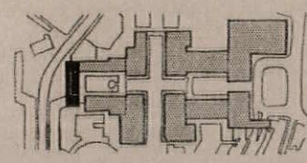
Left, air-view looking west along central shopping precinct

Shops and Flats, Coventry

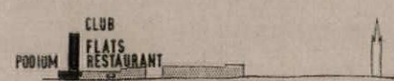
Arthur Ling, City Architect

SITE: West end of central shopping precinct facing old cathedral spire at eastern end.
FUNCTION: Further step in Council's policy of bringing dwellings and evening attractions into commercial centre.
ACCOMMODATION: Multiple store at lower levels with pedestrian access through to precinct. Roof of three-floor podium forms vehicular access, parking and garaging for restaurant, 170 small flats and 22nd floor night club.
STRUCTURE AND FINISHES: High strength r.c. frame on 40 ft. piles. Service towers in 6 in. and 8 in. in situ r.c. carry wind load. Floors, precast, prestressed r.c. units.
SERVICES: Store and restaurant heated from separate basement boilers. Restaurant air-conditioned.
SITEWORK: Starts August 1962.

Principal architect, M. J. McLellan. Group architects, R. J. Edwards, P. J. Lunnon, B. W. G. Roberts. Chief quantity surveyor, R. F. Lear. Structural, heating, ventilating and electrical consultant, Granville Berry, city engineer and surveyor.

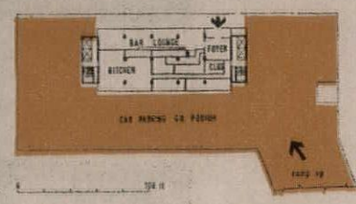


site plan

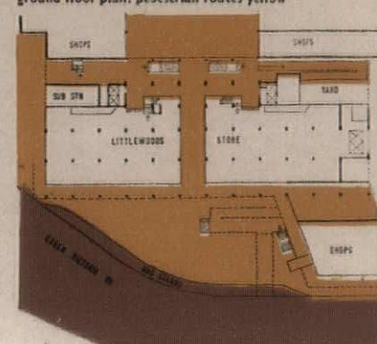


section

fourth floor podium plan



ground floor plan: pedestrian routes yellow



OFFICES

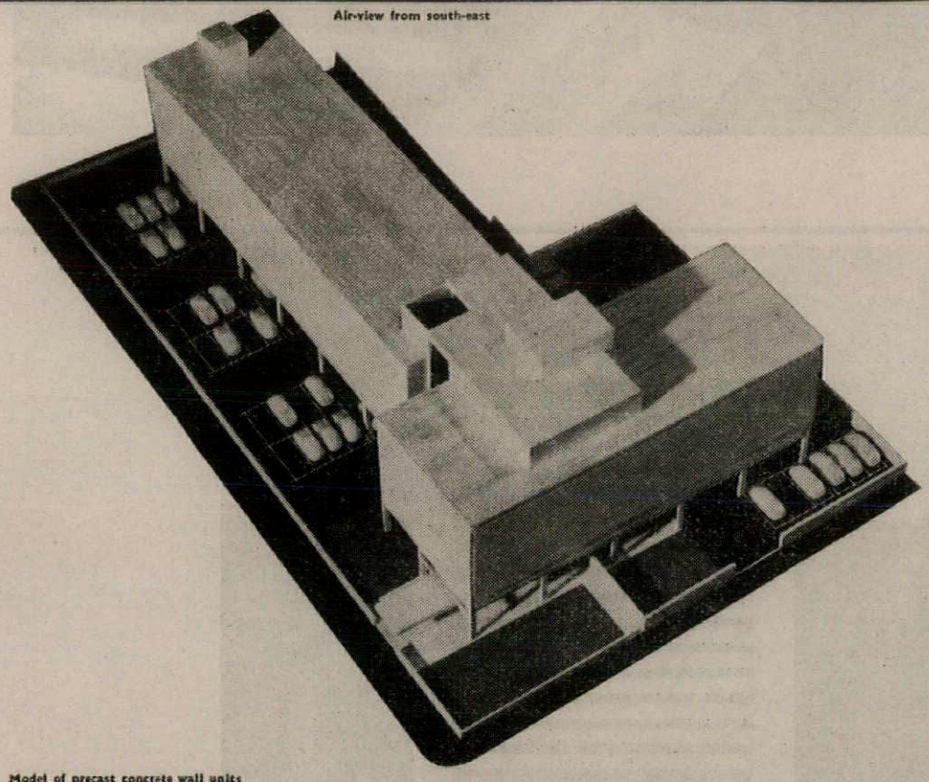
Offices, Chiswick

J. M. Austin-Smith & Partners

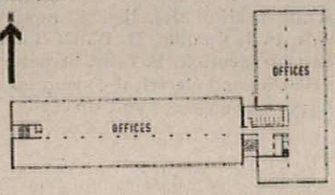
SITE: Surrounded by housing and some light industry. Street level scene chaotic.
ACCOMMODATION: 60,000 sq. ft. gross with 47,000 sq. ft. lettable office space. 120 parking places. General form determined by site, daylighting and economics.
STRUCTURE AND FINISHES: Precast, white mosaic faced r.c. wall panels including window sub-frames, insulation and electrical and heating services. In situ concrete at ground-floor level largely fair-faced from shutter.
SERVICES: Reasonably flexible arrangement of telephone and electrical points at moderate cost. Corridor ceiling ducts carry main runs in conjunction with partition and skirting ducts. Heating, built-in perimeter convectors.
SITEWORK: Starts February 1962, completion by February 1963.

Partner in charge, Geoffrey Salmon. Assistants, J. A. Stinson, H. J. Hodges. Structural consultant, F. Newby, of F. J. Samuely & Partners. Quantity surveyors, Cyril Sweett & Partners.

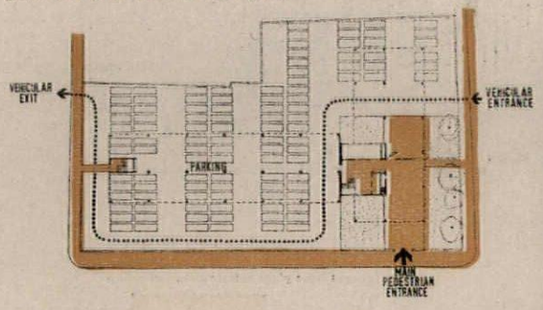
Air-view from south-east



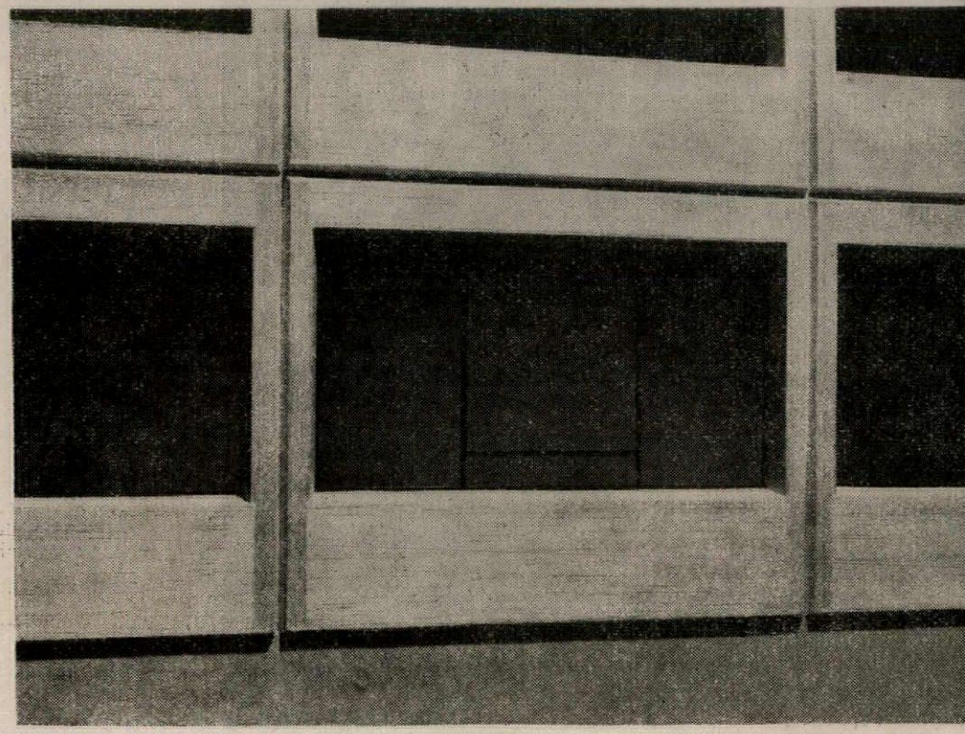
typical upper floor plan



ground floor plan: pedestrian routes yellow



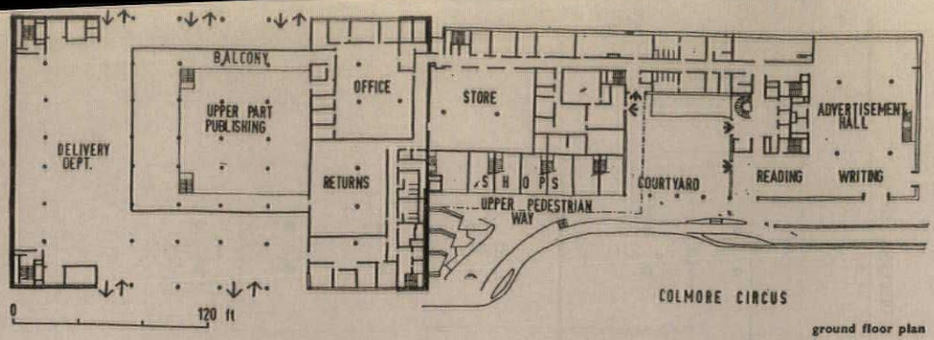
Model of precast concrete wall units



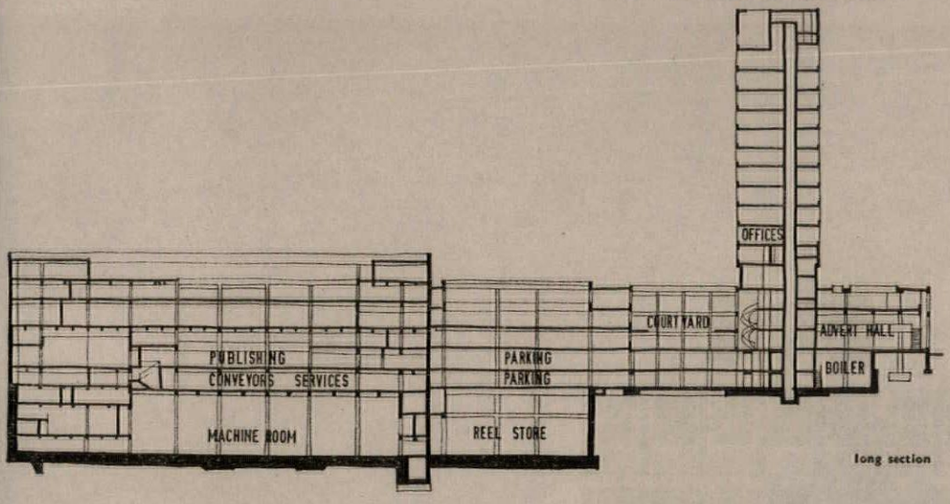
Newspaper Works and Offices, Birmingham

John H. D. Madin

CLIENT: *Birmingham Post & Mail.*
SITE: Important elevated position in centre. Alongside large new square on inner road. Slope from south-east to north-west.
FUNCTION: Complete production of a daily and an evening newspaper, with improved circulation and loading facilities.
ACCOMMODATION: Works, 60 ft. deep machine room with service floor over. Newspaper distributed from publishing floor at ground level. Composing section at first floor with canteen and recreation over. Offices, divided at ground level by large pedestrian entrance court, flanked by double height editorial and advertising halls. Tower, four floors of commercial offices, remainder lettable space.
STRUCTURE AND FINISHES: R.c. frame. Exposed columns to office section faced with marble and granite. Skin walling with grey glass at floor levels.
SERVICES: Works and offices above ground floor, air-conditioned. Conveyors, compressed air delivery tubes, etc.
SITEWORK: Starts March 1962, completion by 1965.
Executive architect, Douglas V. Smith. Project architects, Ramon K. Wood, Ronald E. Cordin. Structural consultant, Roy Bolsover. Quantity surveyors, L. C. Wakeman & Partners.

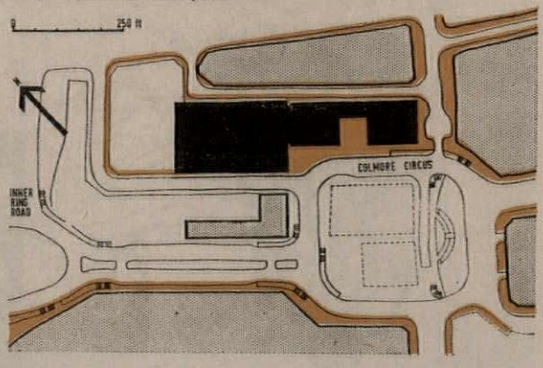


ground floor plan



long section

site plan: pedestrian routes yellow



Below, looking across Colmore Circus from south

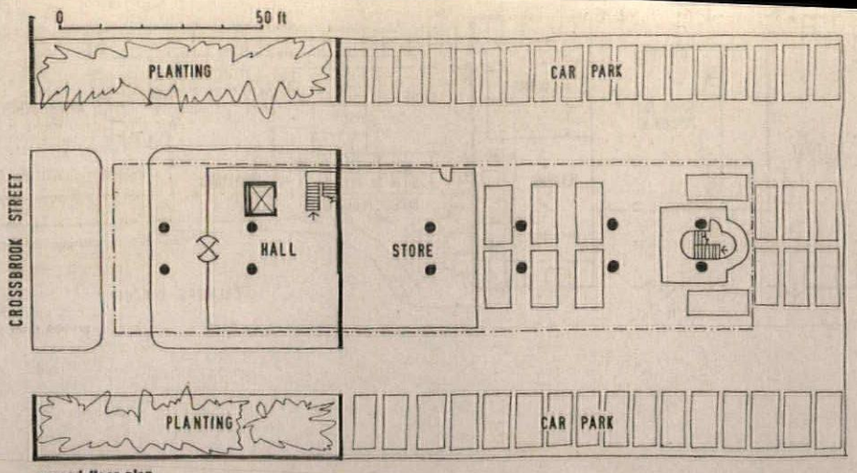


Offices, Cheshunt

C. H. Elsom & Partners

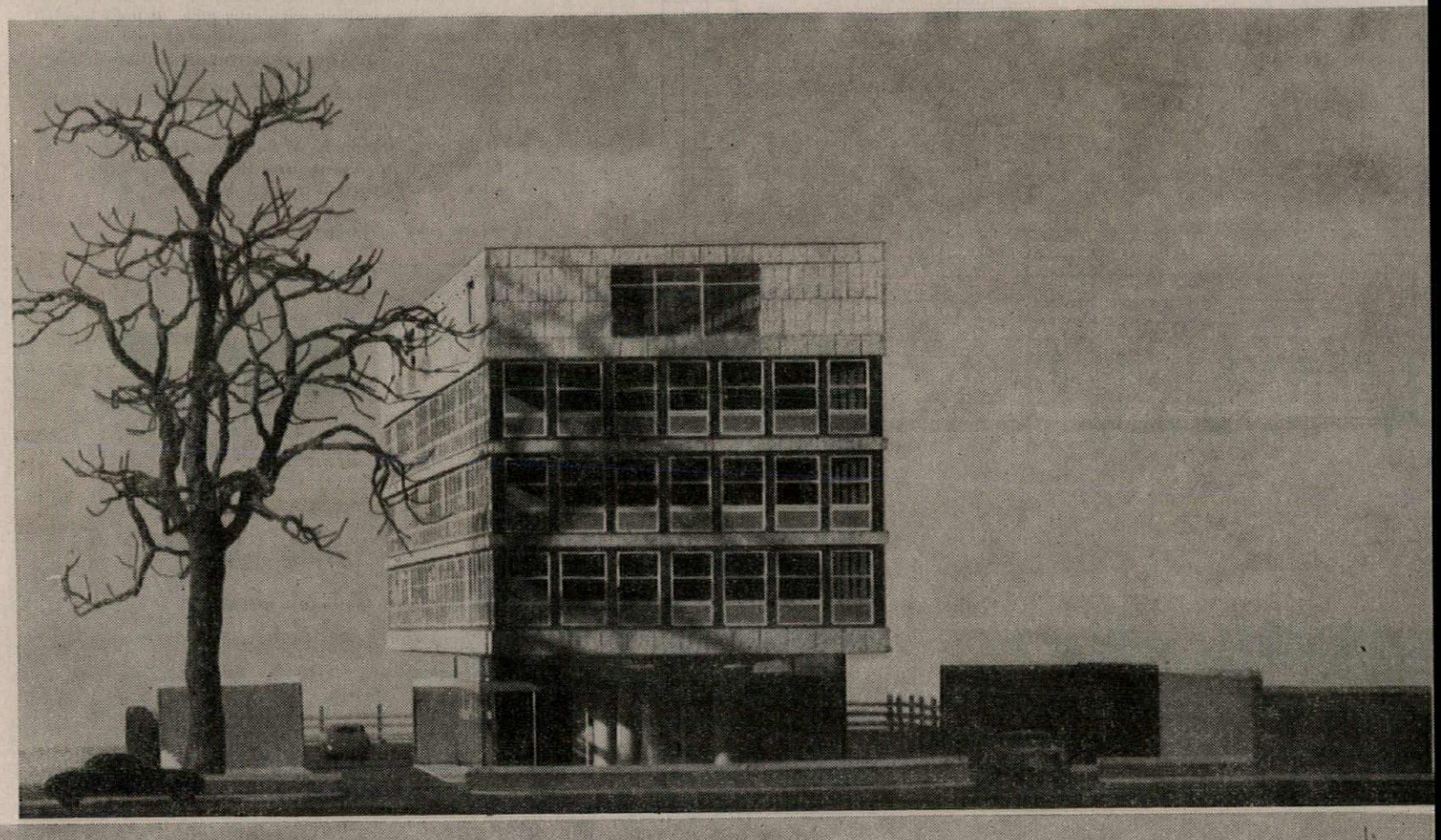
CLIENT: Hubert C. Leach Ltd.
SITE: Former garden of private house on east side of Crossbrook Street. Open grounds of large grocery depot to north and east.
ACCOMMODATION: Prestige offices, display and storage for large building contractor plus maximum lettable office space. Light angles necessitated orientation perpendicular to road. Amount of office space limited by number of parking places.
STRUCTURE AND FINISHES: R.c. frame, columns at 22 ft. centres and 14 ft. cantilevers on each side. Windows, aluminium. Edges of floor slabs faced with Portland stone. Offices generally plastered, lino floors.
SERVICES: Convector heating around perimeter.
SITEWORK: Expected to start early 1962, completion after 12 months.

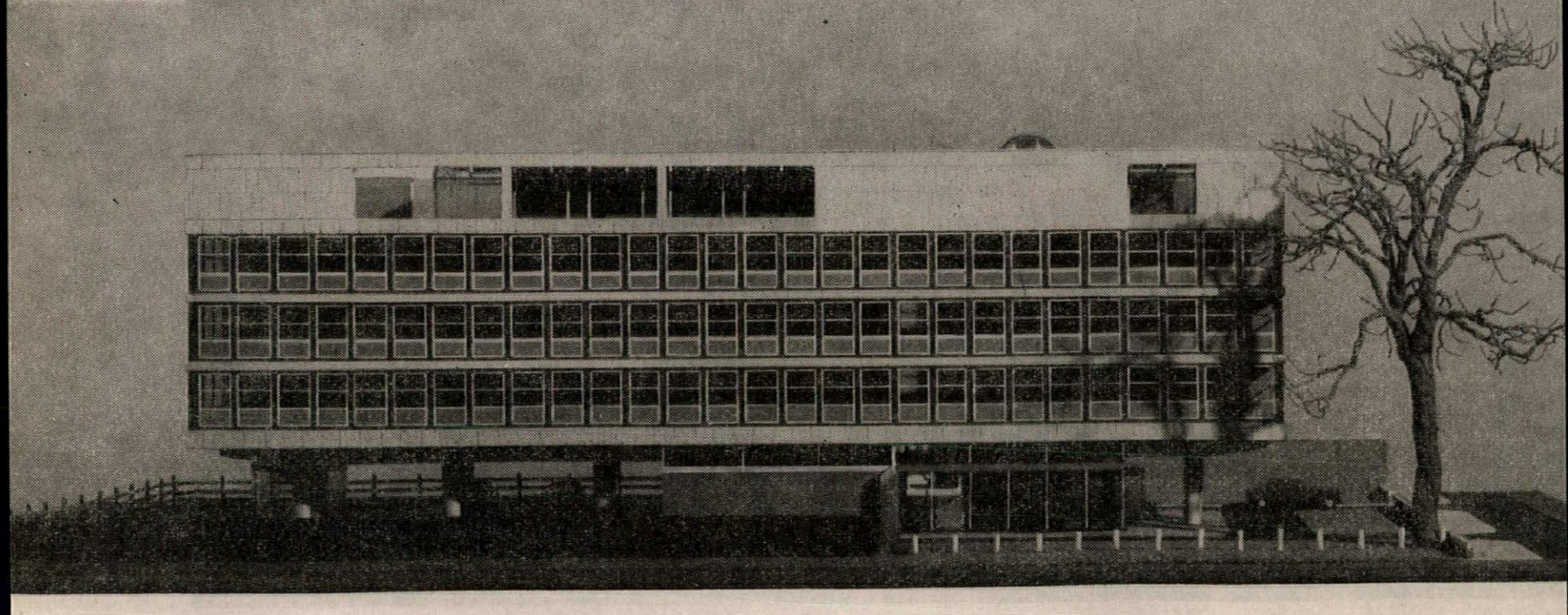
Partner in charge, R. L. Nicholls. Assistant architect, D. Curtis. Structural consultants, Clarke, Nicholls & Marcel.



ground floor plan

Below, looking east from Crossbrook Street: bottom, from the north with main entrance on the right



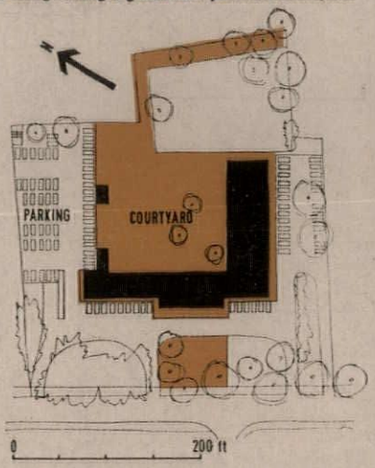


Offices, Surrey

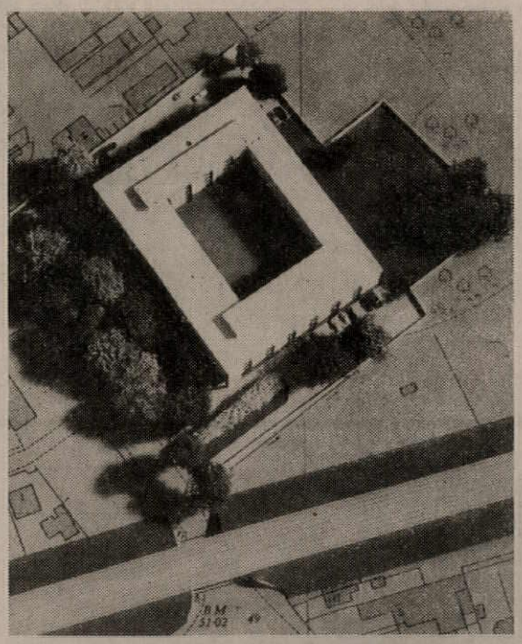
Norman & Dawbarn

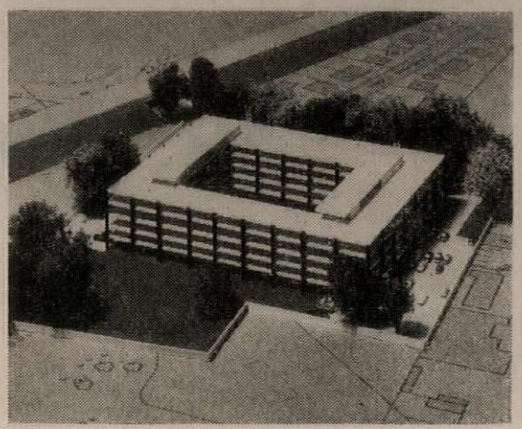
SITE: 2¼ acres. Gardens of two old houses. Many trees and shrubs. Tree belt screens the road.
ACCOMMODATION: 94,000 sq. ft. office space. 5,500 sq. ft. at ground level, part may be used as canteen. Five storeys planned on 4 ft. 2 in. grid, structure on 25 ft. grid. Parking for 180 cars. Pedestrian approach gives views through building to lawn and trees beyond.

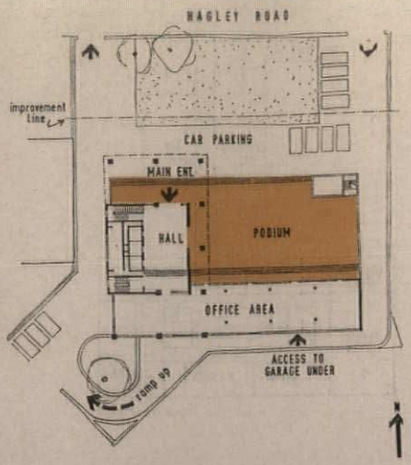
site plan showing building at ground level: pedestrian routes yellow



Below, from the south. Bottom, from the north-east







site plan

Offices, Birmingham

John H. D. Madin

CLIENT: Bernard Sunley Investment Trust (Management) Ltd.
SITE: Hagley Road, Edgbaston.
ACCOMMODATION: 68,000 sq. ft. office space. Basement garage for 43 cars. Parking for 62 cars. Caretaker's flat on roof.
STRUCTURE AND FINISHES: R.c. frame and flat plate floors. Upper floors; mosaic faced precast spandrils, sliding sash windows. Ground floor; columns faced with precast slabs, horizontal sliding windows with louvres at high level. Terrazzo entrance hall.
Structural consultant, Roy Bolsover. Quantity surveyors, Wakeman, Trower & Partners.

OFFICES

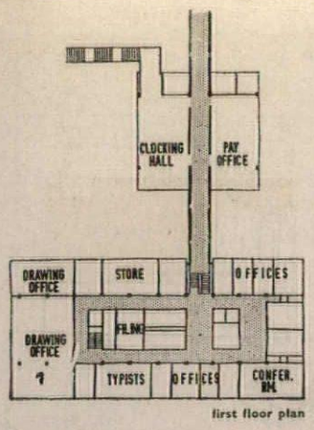
Main entrance from the north-east



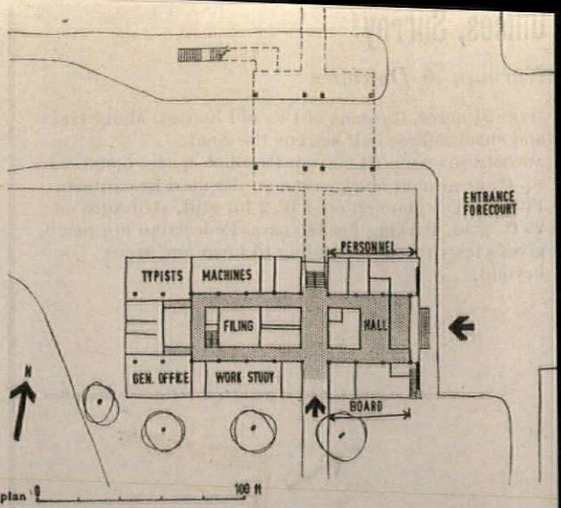
Offices, near Sittingbourne

Farmer & Dark

CLIENT: Bowater Paper Corporation.
SITE: Virtually flat. Extensive views to east, south and west over Swale estuary.
ACCOMMODATION: Bridge over road to offices contains clocking hall and wages offices. Avoids congestion at shift changes when workers have to cross busy road. Park for 100 office workers' cars to south.
STRUCTURE AND FINISHES: In situ r.c. floors and columns internally. Precast exposed aggregate concrete columns at 6 ft. 8 in. centres on north and south faces. Spandril panels brick and precast concrete. Windows, steel. Partitions, lightweight block plastered.
SERVICES: Electric convectors, run from client's own power station. Warm air extracted through central core.
SITEWORK: Expected to start late 1962.
Quantity surveyors, E. C. Harris & Partners.

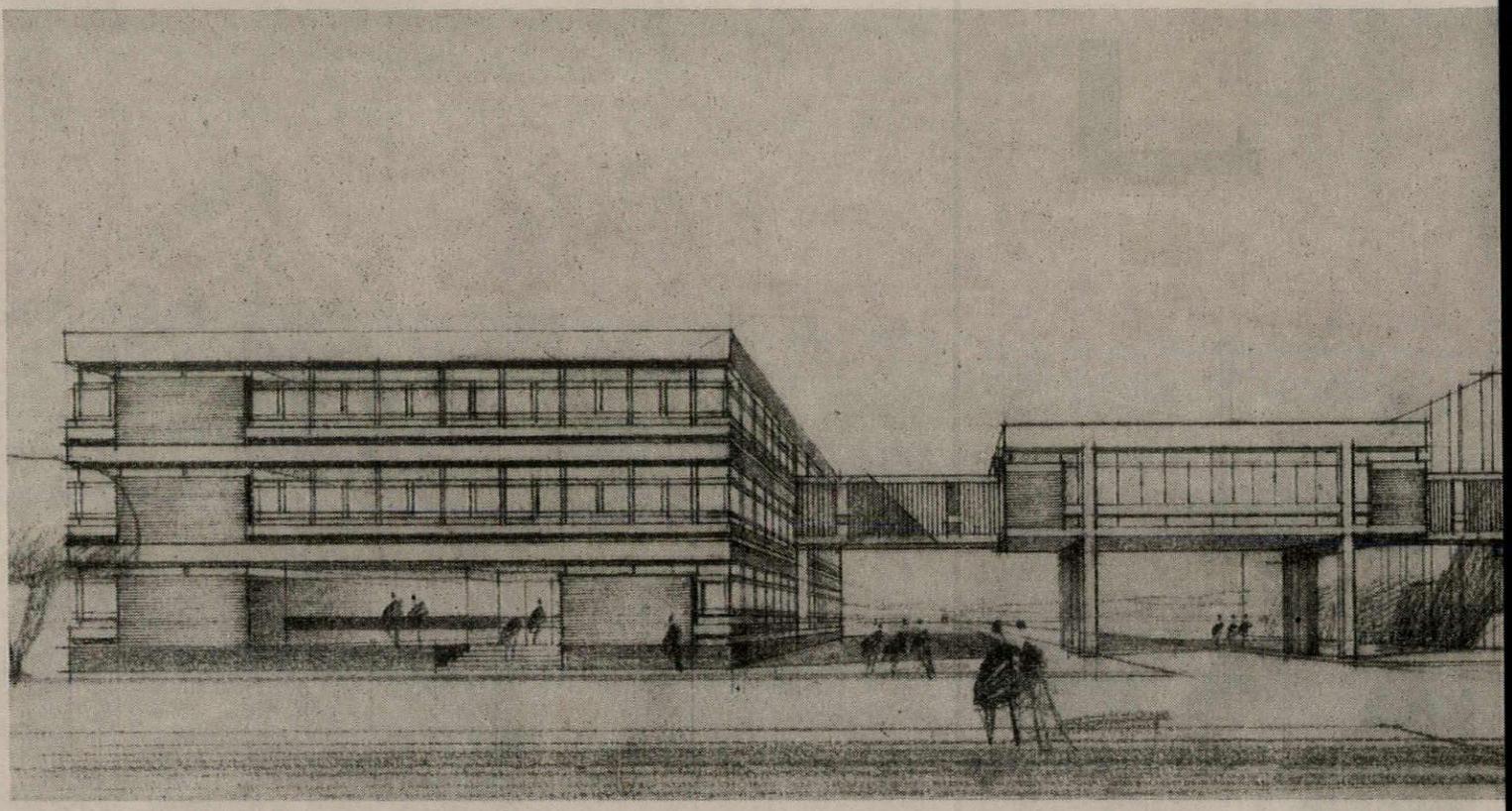


first floor plan



ground floor plan

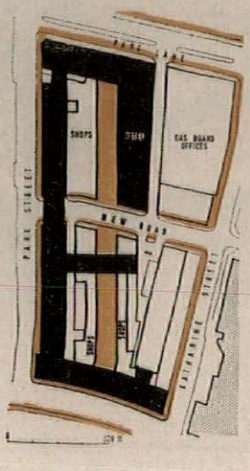
Below, looking along the road beneath the bridge with clocking hall and pay office. Main entrance to offices on left



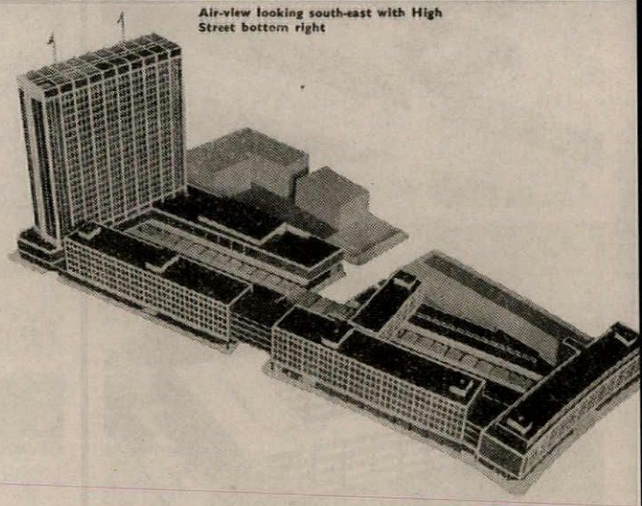
Offices and Shops, Croydon

Ronald Ward & Partners

CLIENT: Croydon Centre Development Ltd.
SITE: In centre, between High Street and Park Lane. Road widening allowed on all sides.
ACCOMMODATION: 330,000 sq. ft. of offices in four to six-storey peripheral blocks and a 23-storey tower overlooking the new technical college. 80 shop units occupy most of ground floor, arranged around two paved and landscaped precincts. 3 public houses will have new premises. A petrol station is included and basement parking for 350 cars.
STRUCTURE AND FINISHES: Flat slab r.c. frame for all offices. Columns and beams faced with artificial stone. Infill panels; mosaic, brick or exposed aggregate. Ground-floor columns faced with black granite.
SERVICES: Heating, cill line units in offices. Main ducts below precincts and new road.
SITEWORK: Stage one started October 1960. Stage two started late 1961.
Partner in charge, L. P. Worboy. Assistants, D. G. Elerkin, K. J. H. Brown. Structural consultants, Hay & Barry. Quantity surveyors, A. E. Thornton Firkin & Partners.

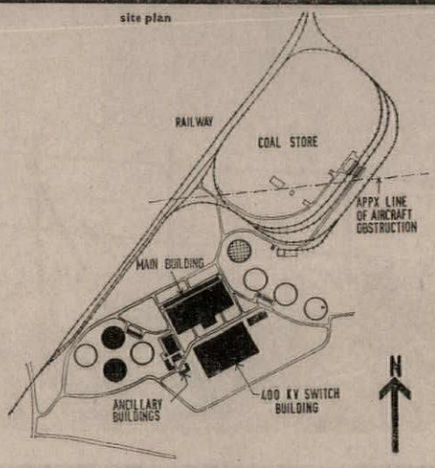


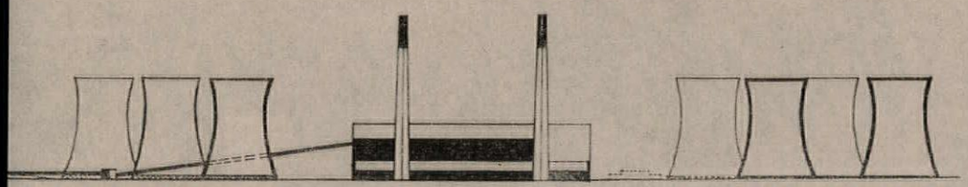
site plan


Air-view looking south-east with High Street bottom right

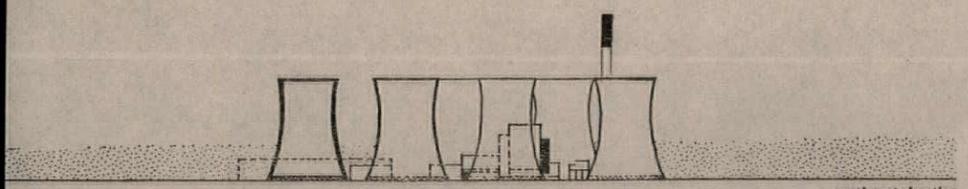
INDUSTRIAL

site plan

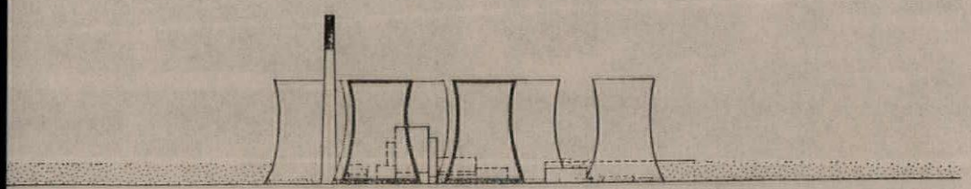




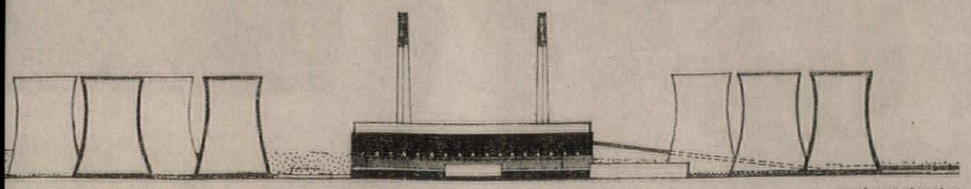
north-west elevation



north-east elevation



south-west elevation



south-east elevation

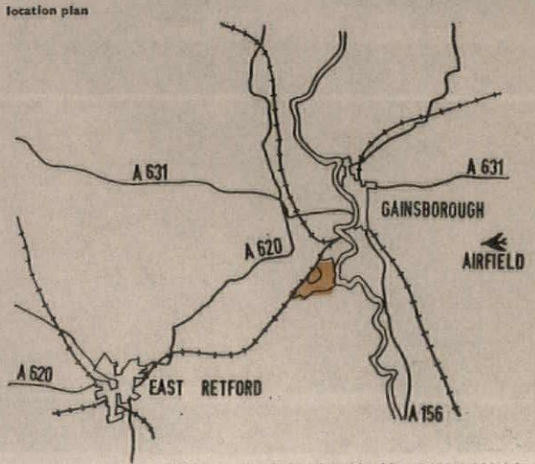
Power Station, near Gainsborough

Architects Design Group; Gordon Graham, Rex Savidge, Robert Cullen, John Pike

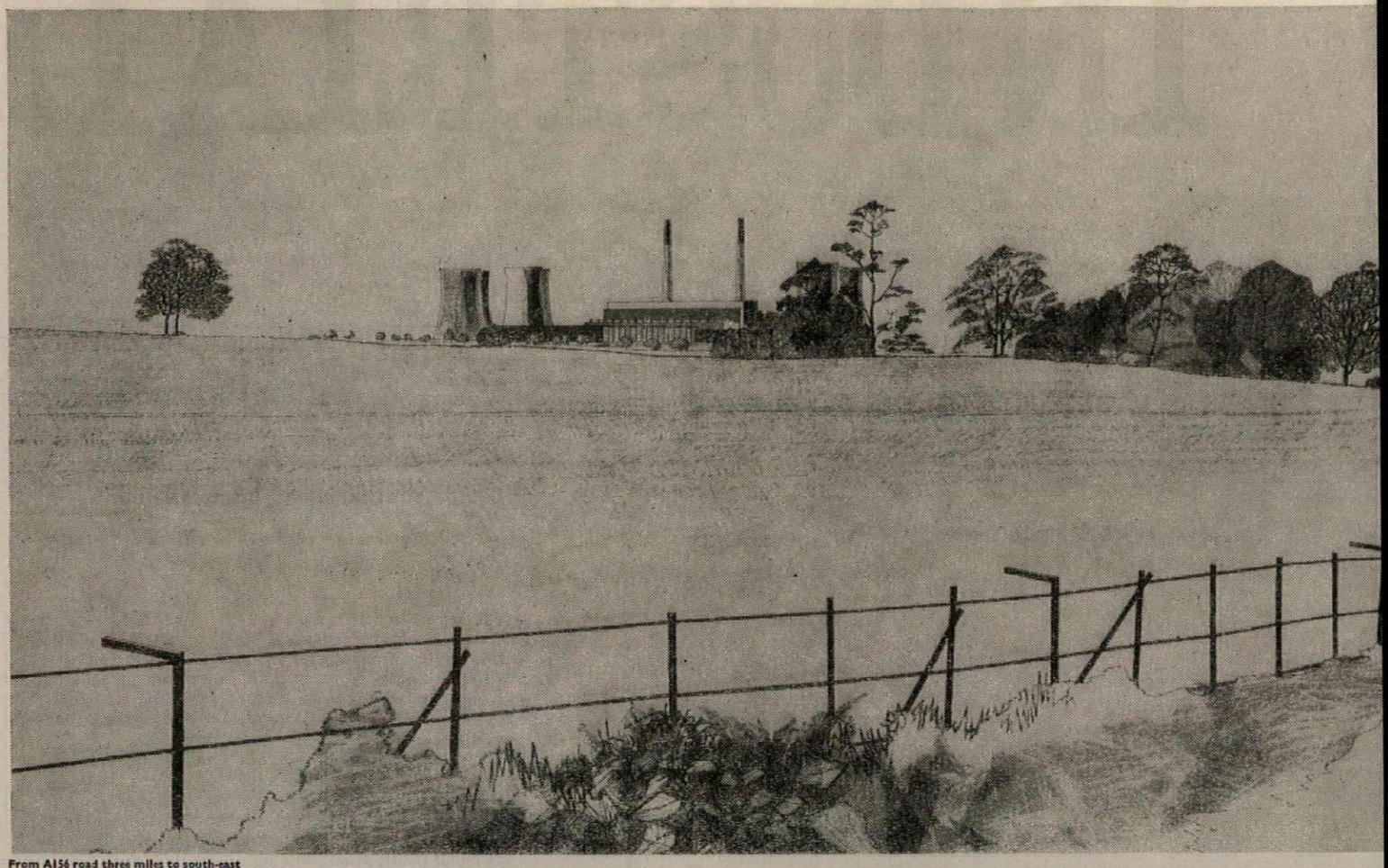
CLIENT: Central Electricity Generating Board, Northern Project Group.
SITE: 500 acres near East Midlands coalfield. 2 miles from Gainsborough. Views from A156, A620 and A631 two miles away. Distant views from Lincoln, 14 miles to south-east.
FUNCTION: Four 500 MW sets supplying power into grid at 400 kV.
ACCOMMODATION: Tower layout exploits line and square formations. Opposite pairs of square group coloured light and dark to avoid tendency of shapes to coalesce when viewed at moderate distance. Offset tower of line group, light colour with intense hue, acts as nodal point. Main buildings; clear, bold forms and outlines. Colours limited to black, white and yellow. Ancillary buildings grouped around two courts through which approach road passes. Switch buildings enclosed in lightweight metal cladding without windows.
SITEWORK: Started 1961, completion by 1967. Executive partner, Rex Savidge. Architect in charge, John Gelsthorpe. Assistant, Norman Simpson. Structural consultants, Merz & McLellan. Landscape consultants, Derek Lovejoy & Associates. 400 kV building design by Transmission Project Group of CEGB with Architects' Design Group as consulting architects.

Further illustrations overleaf.

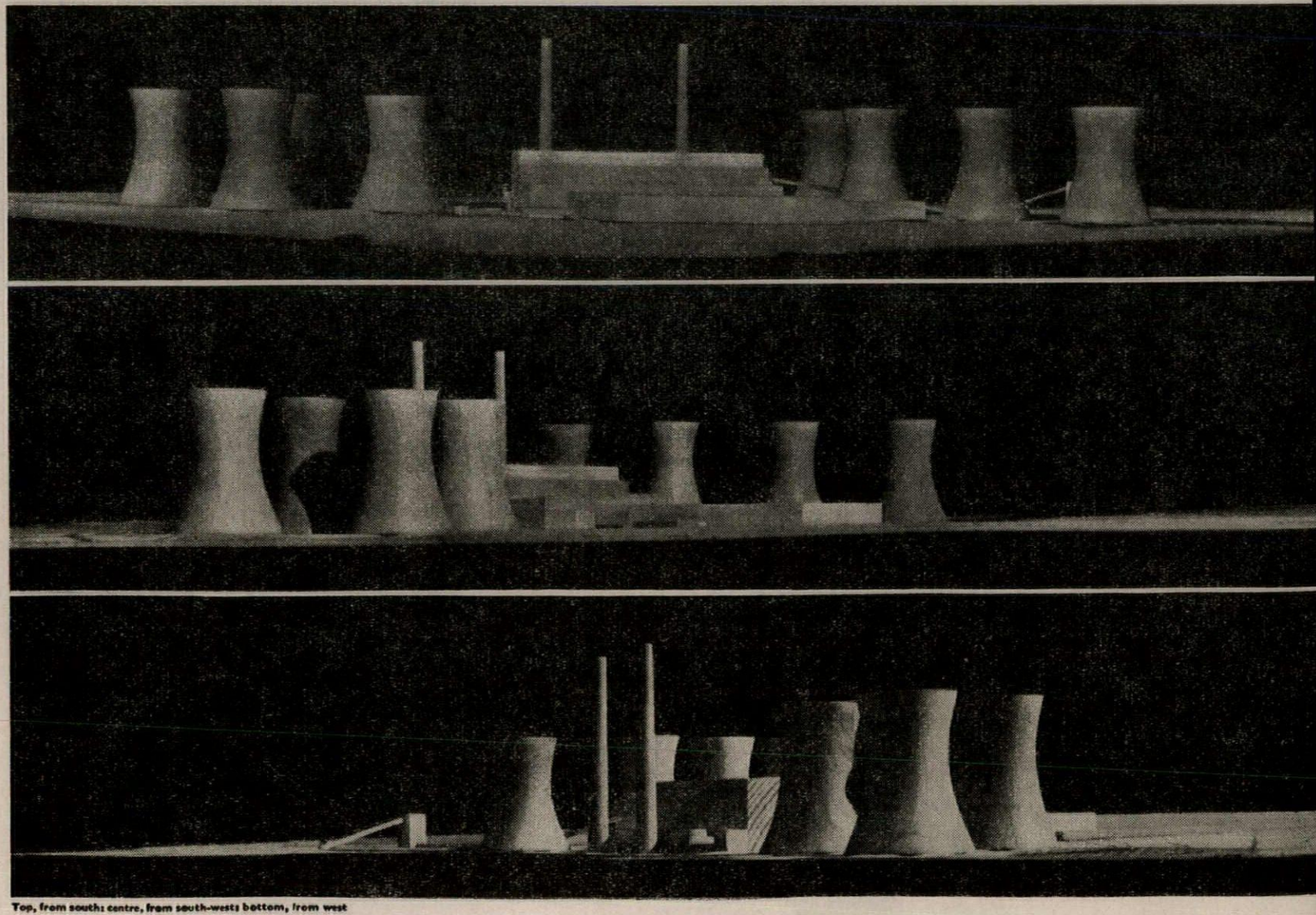
location plan



Power Station, near Gainsborough (continued)



From A156 road three miles to south-east



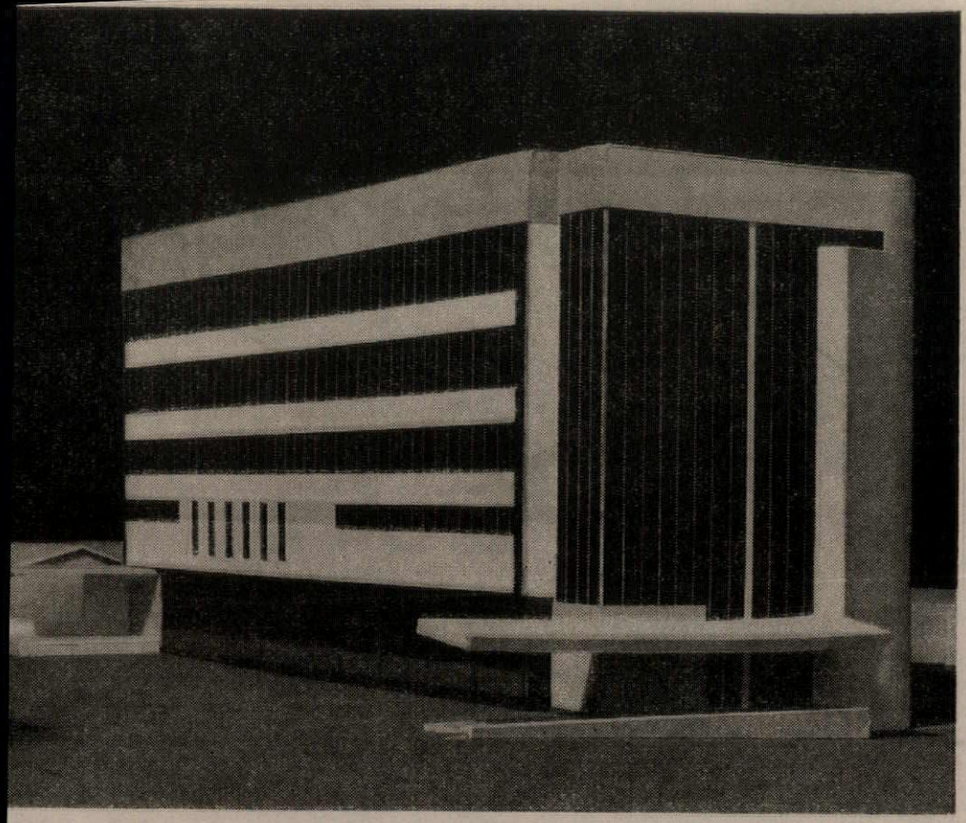
Top, from south: centre, from south-west: bottom, from west

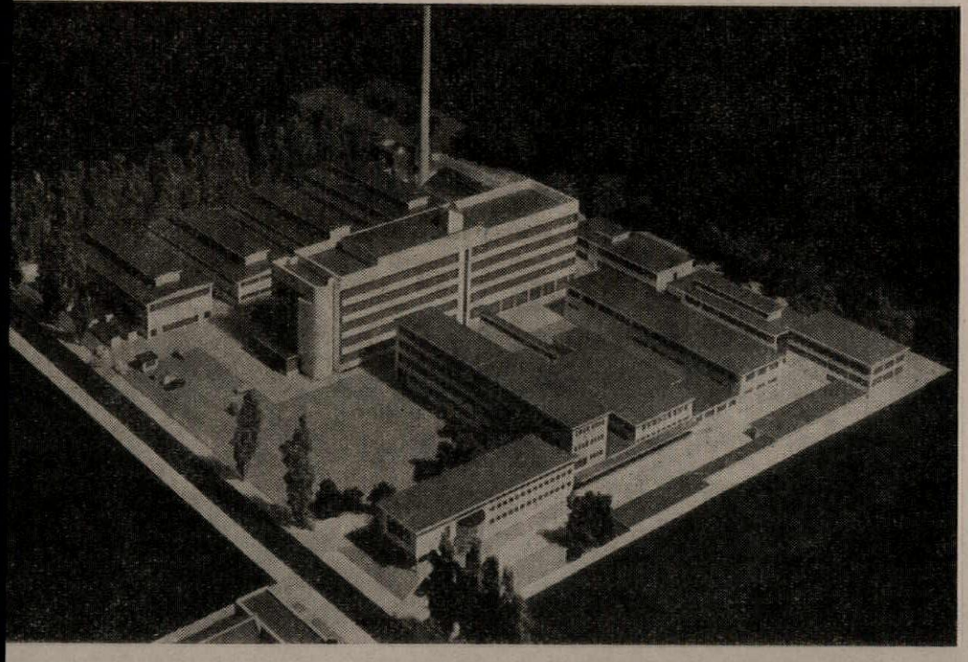
Pharmaceutical Factory, Welwyn

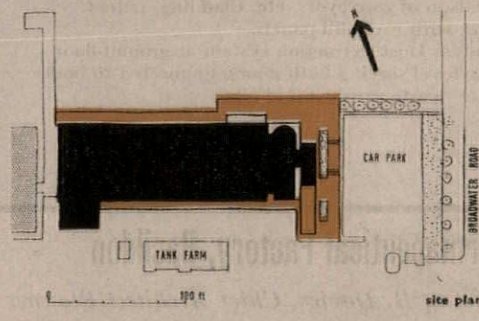
James Cubitt & Partners

CLIENT: F. Hoffman—La Roche & Co., Basle.
SITE: Industrial area of garden city. Among several buildings designed, in 1938, by Professor Otto Salvisburg.
ACCOMMODATION: Production and packing, with welfare and storage on first floor.
STRUCTURE AND FINISHES: In situ r.c. frame. Large precast cladding units. Aggregate, mosaic and slate facings. West end aluminium clad to allow for extension. Four-hour fire rating.
SERVICES: Air-conditioned with some low humidity areas. Pipes in column ducts and floor spaces.
SITEWORK: Started May 1961, completion by November 1962.

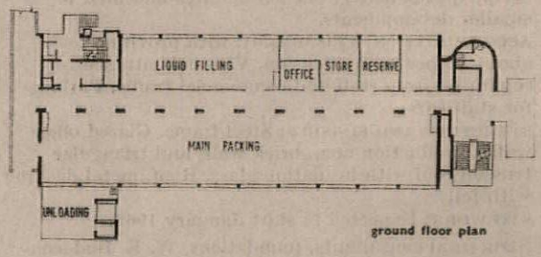
Quantity surveyor, W. J. F. Tillyard. Structural consultants, Flint & Neill.



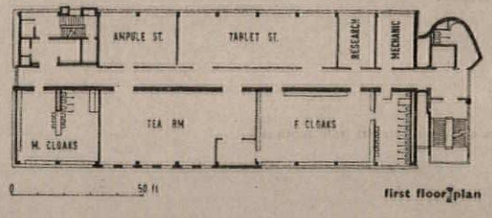




site plan

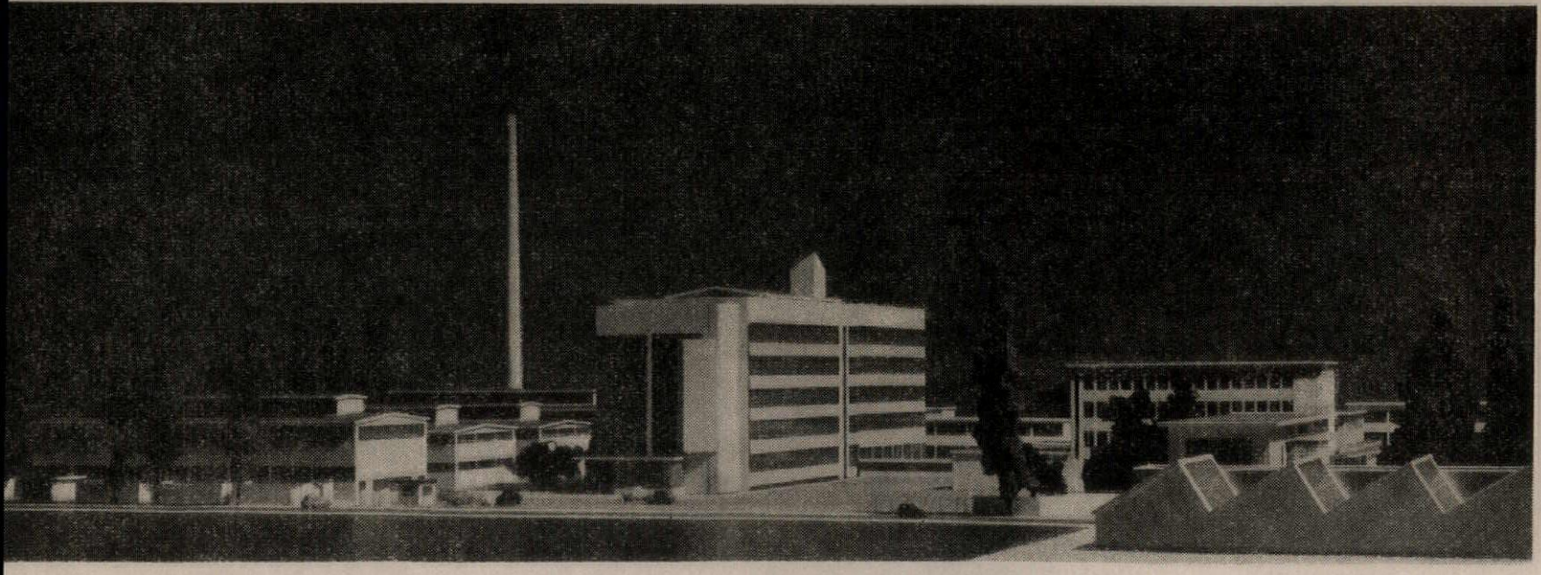


ground floor plan



first floor plan

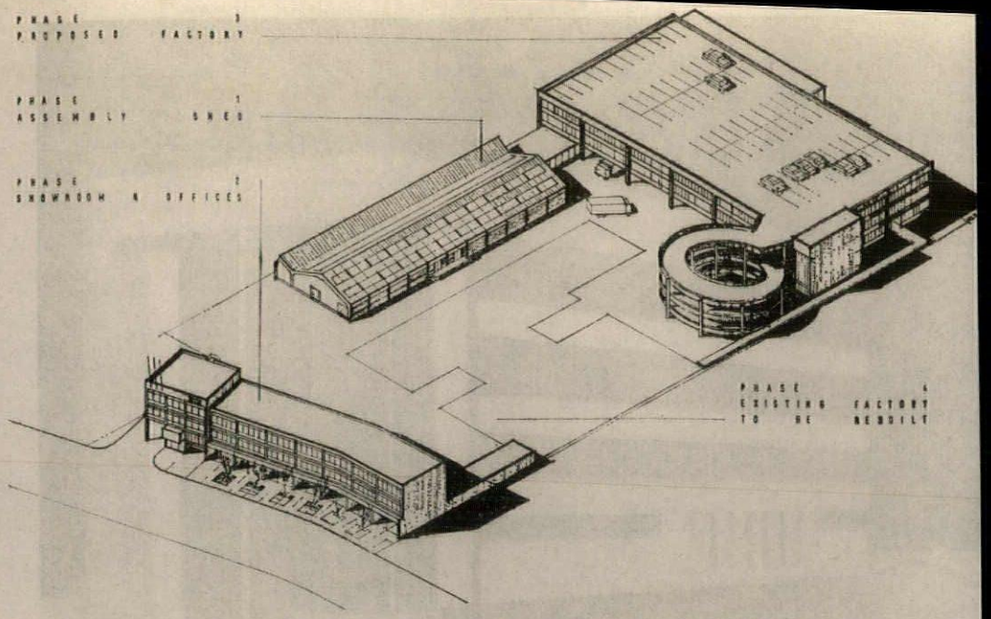
Top left, from south-west with main entrance and stair tower: centre left, air view from north-west: bottom, from west



Furniture Factory, Watford

Ernö Goldfinger

CLIENT: S. Hille & Co.
PURPOSE: Third phase in rebuilding. Second phase, showrooms and offices fronting St. Albans Road, are just completed (illustrated AR, August, 1961). It is envisaged that eventually the old buildings, once part of a brewery, will be demolished and rebuilt.
ACCOMMODATION: 60,000 sq. ft. factory space. 70 parking places on roof approached by spiral ramp. Only two of eventual three floors to be erected at present. Incoming timber cut to manageable size arrives on conveyors from existing factory to south and passes through heavy machinery on ground floor. Partially completed furniture ascends by lift or conveyor and is stacked on loading dock in van-loads prior to dispatch. Furniture requiring upholstery passes through single-storey link to existing factory before reaching loading dock.
STRUCTURE AND FINISHES: In situ r.c. with precast floors. Floors have removable sections to permit re-location of conveyors, etc. Cladding, patent glazing with r.c. infill panels.
SERVICES: Dust extraction system at ground-floor ceiling level serving both floors. Connected to boiler fired by waste sawdust and oil.



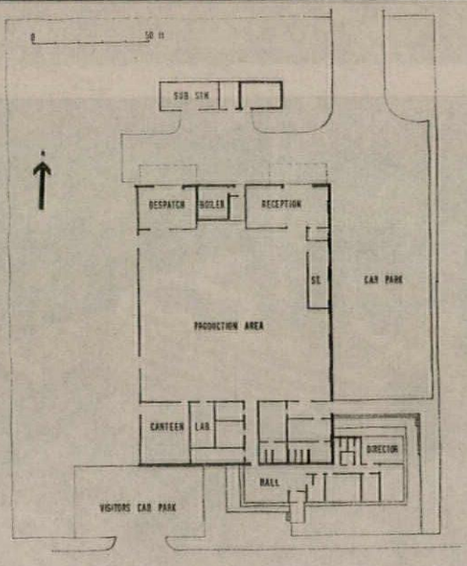
Air-view of whole development

Pharmaceutical Factory, Basildon

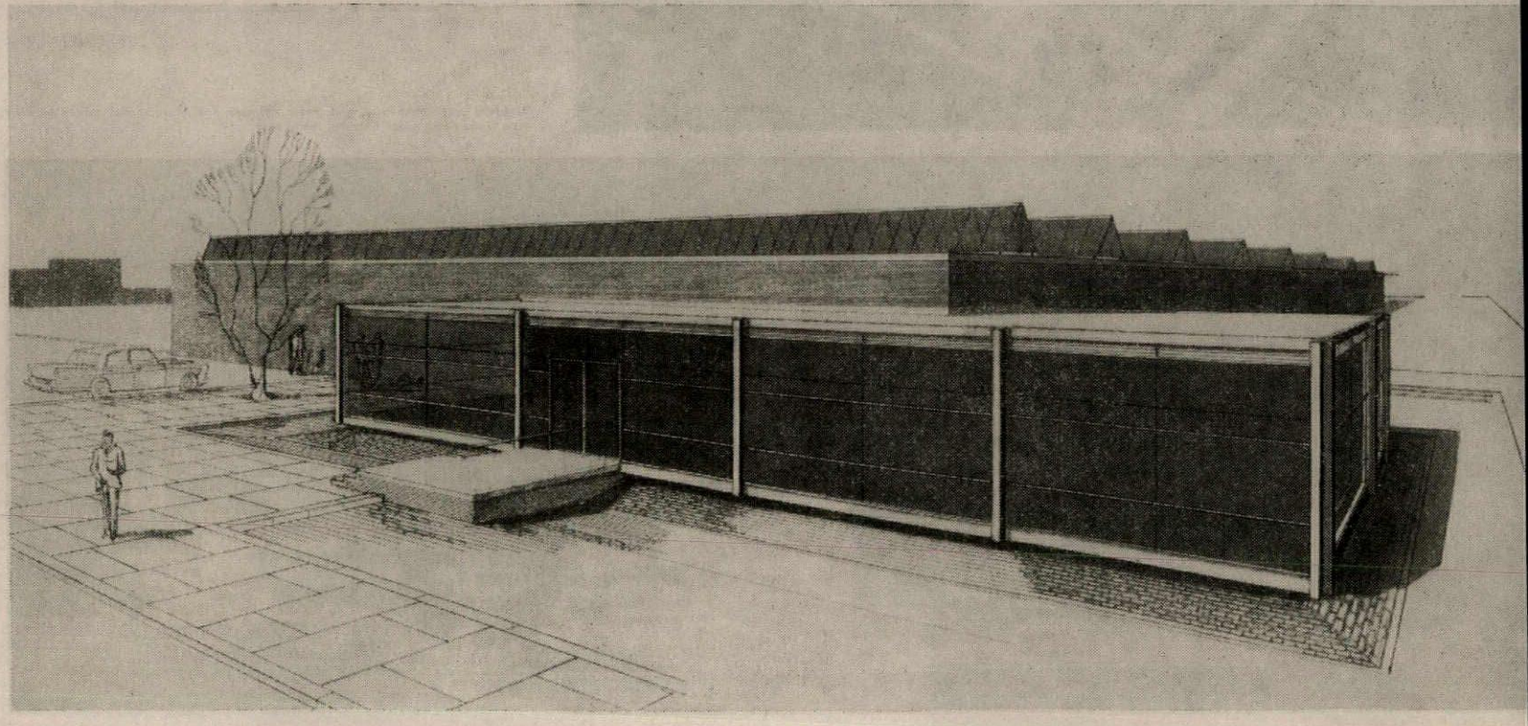
Anthony B. Davies, Chief Architect/Planner

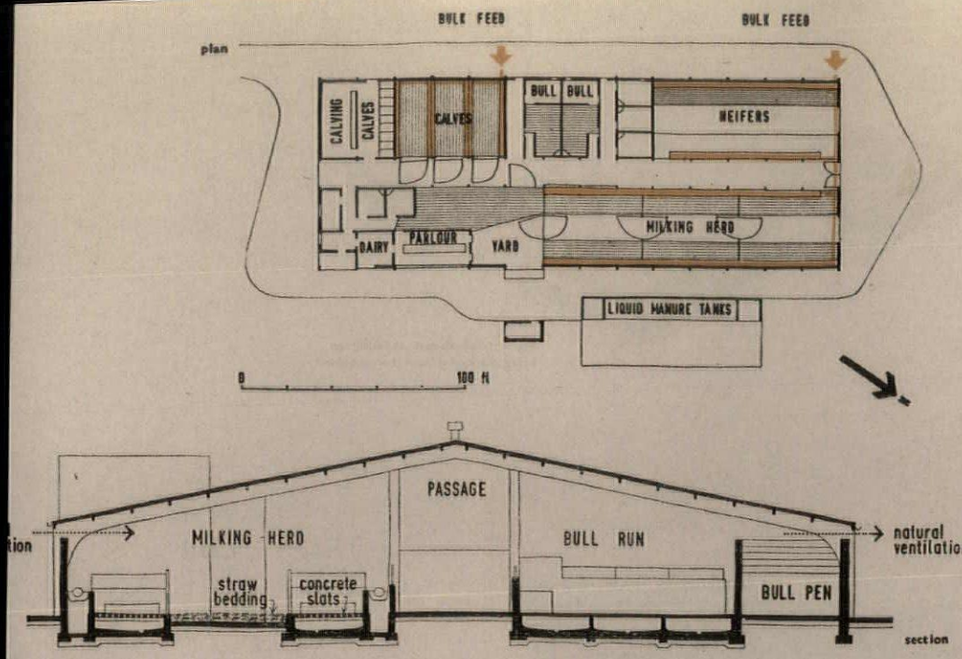
CLIENT: Dispro Ltd.
SITE: Approximately one acre in area allocated to smaller developments.
ACCOMMODATION: 12,000 sq. ft. with provision for about 50 per cent extension. Visitors' entrance separated from staff and commercial traffic. Parking for staff cars.
STRUCTURE AND FINISHES: Steel frame. Glazed office walls. Production area, brick walls and triangular trussed roof with insulating glass. Roof, metal decking with felt.
SITEWORK: Expected to start January 1962.
Structural consultants, foundations, W. E. Budgeon & Partners. Quantity surveyors, E. C. Harris & Partners.

ground floor plan



Offices and main entrance from south-east

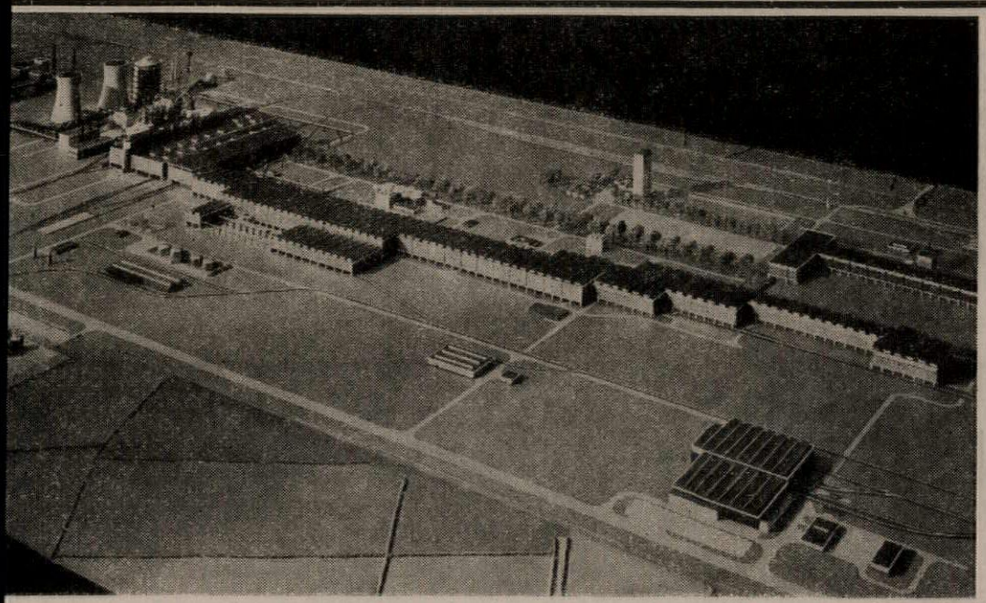




Cattle Unit, Bodiam, Sussex

John Voelcker

CLIENT: Guinness' Hop Farms Ltd., Bodiam.
SITE: Virgin land on a hop farm where disease has caused conversion to cattle farming.
PURPOSE: Experimental, to reduce labour through mechanical feeding, handling, recording and cleaning equipment.
ACCOMMODATION: For 100 milk cattle, 60 fatstocks and heifers, 2 bulls and calves. Building divided functionally by central passage. The herd will spend winter in the yard and summer in the pasture.
STRUCTURE AND FINISHES: Manufacturers of components being brought together at an early stage to agree dimensions and fixings. Precast concrete cantilever frame with props astride central passage. Roof asbestos with translucent sheets. Walls, concrete blocks or planks.
SERVICES: Mangers mechanically filled with bulk feed. Standings, alongside, slatted so dung can be drained off and collected for distribution over pastures. Store over parlour supplies concentrates through hopper and chute.
Assistant architect, Edward Lane.

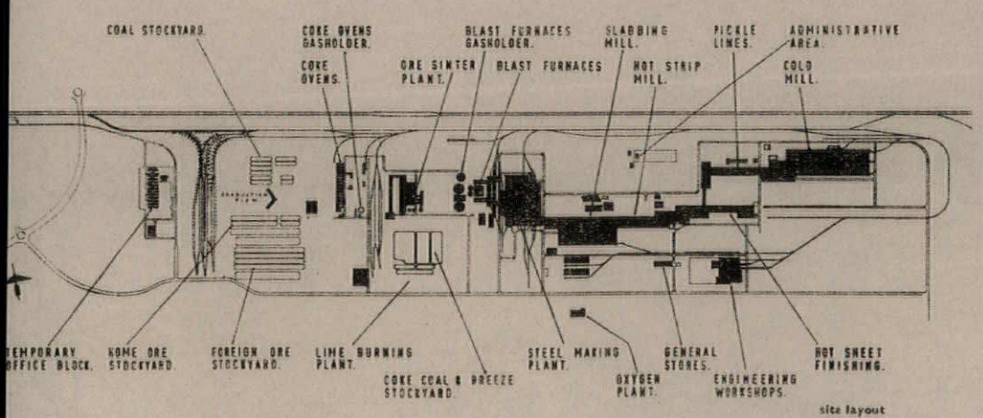


From south-east

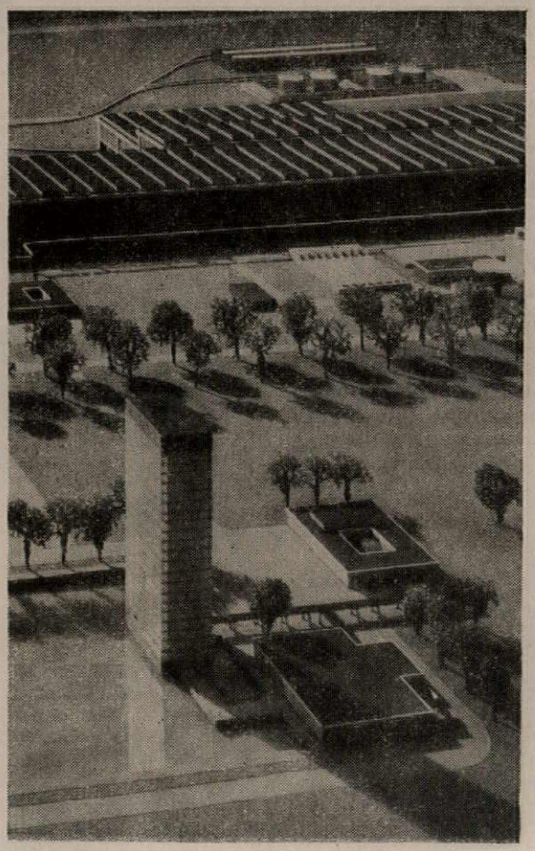
Steelworks, Llanwern

Sir Percy Thomas & Son in association with Gollins, Melvin, Ward & Partners.

CLIENT: Richard Thomas & Baldwins Ltd.
SITE: Near Newport. Five miles long with width for duplicate plant.
PURPOSE: Continuous hot strip mill for widths up to approximately 5 ft. Eventually producing 4 million to 4½ million tons per year. Laboratory, administrative tower, canteen, etc., form prestige executive centre where visitors will be shown round.
STRUCTURE AND FINISHES: Main mill cladding, special steel sheet with painted asbestos fibre compound facing. Amenity buildings, precast concrete frames, glass infill. All bricks are black for uniformity.



site layout



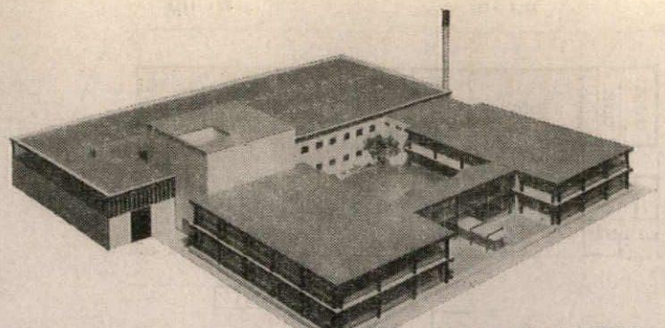
Administrative area from north-east

Technical Centre, Cricklewood

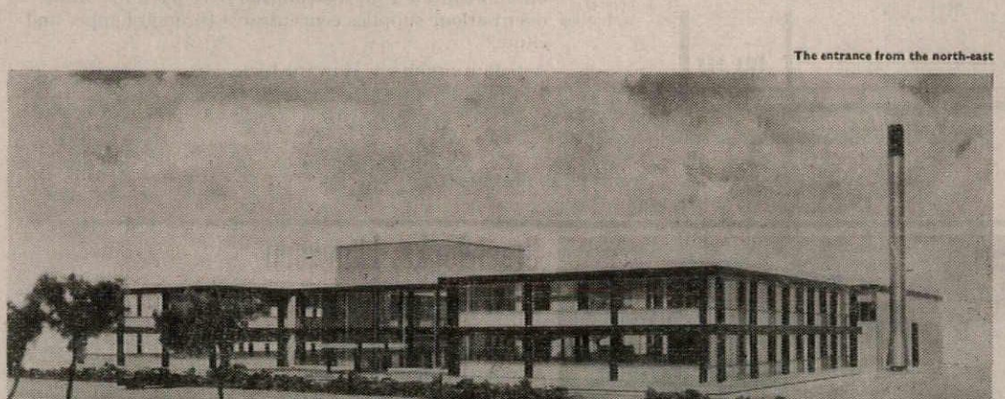
E. D. Jefferiss Mathews of J. Douglass Mathews & Partners

CLIENT: British Oxygen Company Ltd.
SITE: Part of existing works on North Circular Road.
ACCOMMODATION: Heavy workshop laboratories for prototype development. Two-storey bench laboratories. Secretarial and general offices with library on ground and drawing office on first floors.
STRUCTURE AND FINISHES: Heavy workshop laboratories; textured fair-faced concrete walls backed up with concrete blocks, patent glazing clear storey.
SITEWORK: Expected to start 1962.

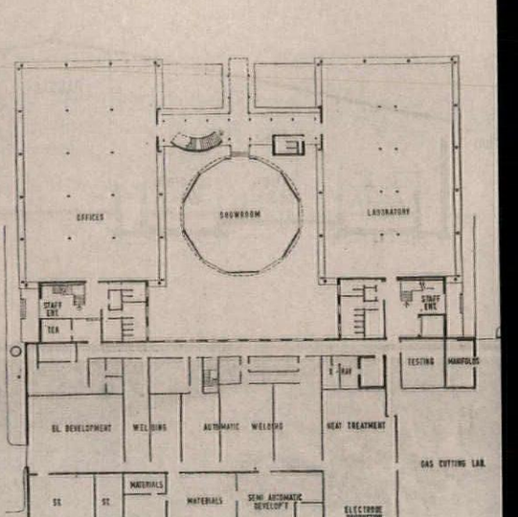
Structural consultants, Professor Sir John F. Baker & Associates, C. V. Blumfield & Partners. Quantity surveyors, Gardiner & Theobald.



From the south-east, showing the heavy workshop laboratories behind



The entrance from the north-east



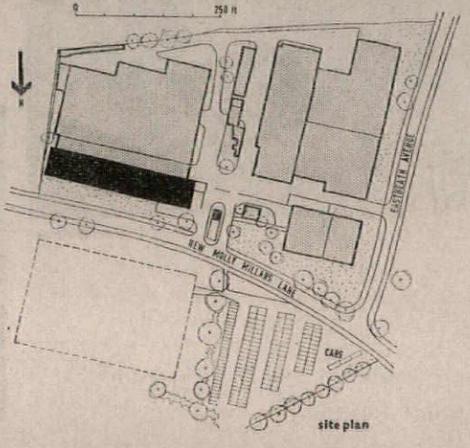
ground floor plan

Research Headquarters, Wokingham

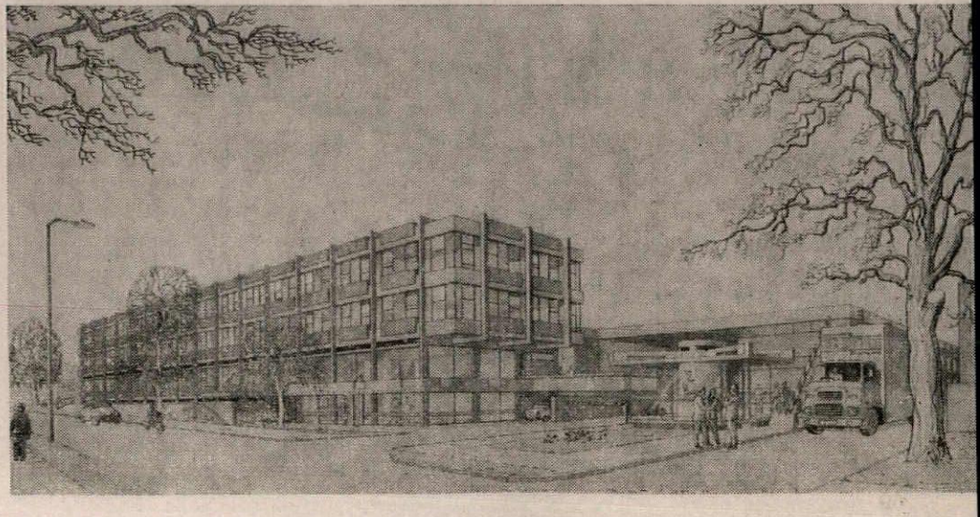
John G. Fryman

CLIENT: Radyne Ltd.
SITE: New road divides site. Factory being redeveloped to master plan.
FUNCTION: Development of high frequency electronic equipment for all branches of industry.
ACCOMMODATION: Ground floor, four large laboratories with engineers and development areas. Stores for prototypes in basement. Upper floors, engineering and draughting staff. Also directors' suite, printing, photography, accounts, etc. 4 ft. grid with alternative corridor positions.
STRUCTURE AND FINISHES: R.c. frame and flat slab. Infill panels, blue brick. Windows, aluminium. Columns and spandrils fair-faced concrete. East gable, brick relief with small, illuminated windows. Gatehouse; 6 ft. r.c. drum supporting 20 ft. square roof on diagonal beams.
SITEWORK: Starts late 1962.

Structural consultants, Clarke, Nicholls & Marcel. Quantity surveyors, Davis, Belfield & Everest.



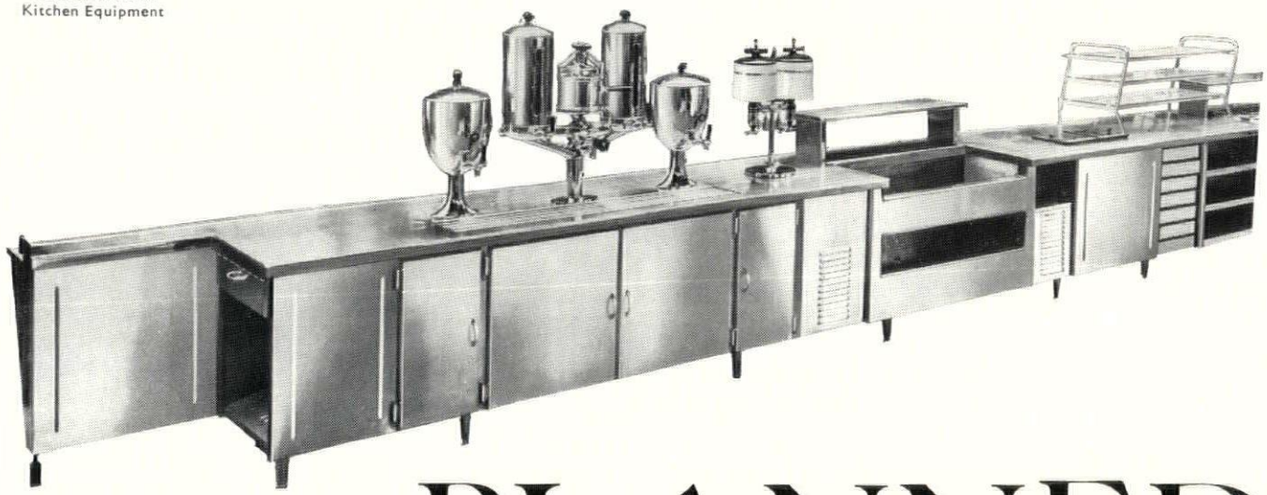
site plan



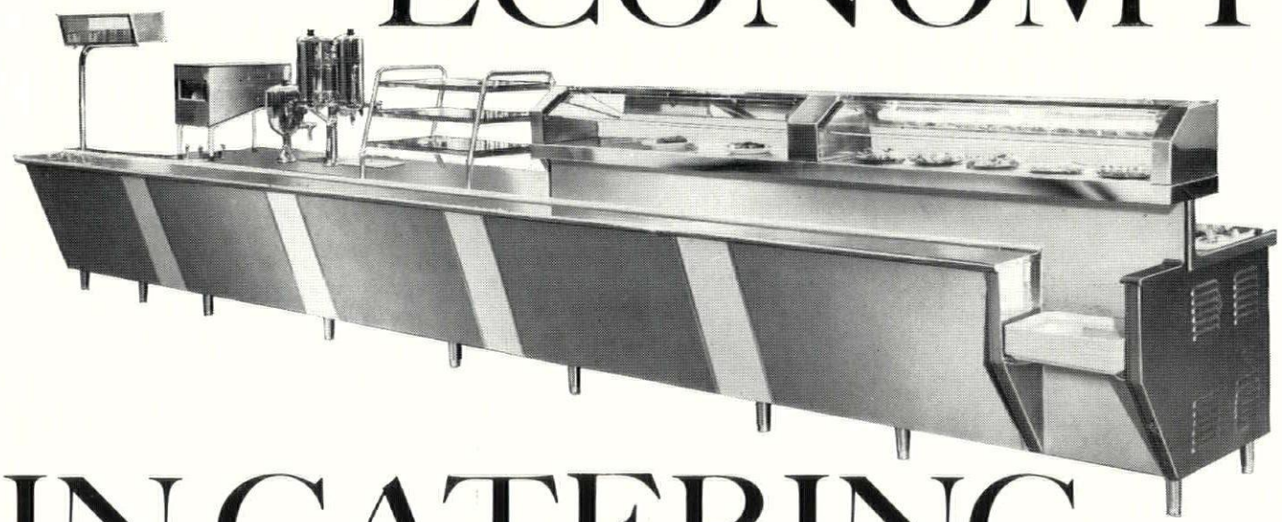
From the north-west with the gatehouse on the right

By appointment to
Her Majesty the Queen
Manufacturers of
Kitchen Equipment

STILL'S....



....PLANNED ECONOMY



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THE INDUSTRY*

Aluminium panels

Hunter Douglas, the makers of Luxaflex blinds, are now marketing a product with a much wider building application. Described, collectively, as 'Luxaflex' aluminium building components, 1, 2, these are made from aluminium strip 3 $\frac{5}{16}$ in. wide and can be used either as roofing or cladding (when the panels are formed so that they interlock), or as a suspended ceiling, 3, or brise soleil. The 'panels' (strips might be a more accurate word) are provided with framing or stringers of different sections to suit each application and these are secured with cadmium plated accessories and nylon washers. Stringers and panels are both made from SWG 23 aluminium and are stove enamelled in twelve excellent colours.

Hunter Douglas Ltd., 33 Sloane Street, S.W.1.

* Further information on the products, etc., referred to in these notes can be obtained by making use of the reply-paid Enquiry Service Form which is printed on coloured paper at the back of each copy of the AR.

Preferred dimension frame

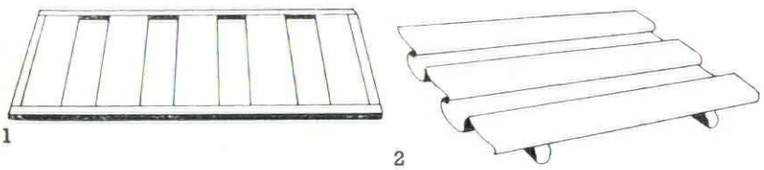
To the best of our knowledge it was the Building Research Station which first publicized the phrase 'the preferred dimension' as a stepping stone leading architects and clients to an acceptance of modular co-ordination. Taking up the idea, Concrete Ltd. now market the Bison Preferred Dimension Frame, 4. This is a prefabricated concrete structure comprising roof, floors, columns and beams for use up to four storeys. These are available for column spacings rising from 10 ft. to 20 ft. in 2 ft. 6 in. increments. But at small extra cost the 'kit' can also be bought with columns at 10 ft. 8 in., 13 ft. 4 in. and 16 ft. spacings, i.e. to accommodate the 4 in. module. Floor spans can be up to 36 ft. Storey heights from 10 ft. to 15 ft. for the ground floor and from 10 ft. to 12 ft. for upper floors, rising in 1 ft. increments in both cases. The design of edge beams varies so that the system can be used either with brickwork, or with curtain walling. It is claimed that the use of this system will save between 15 and 20 per cent of the cost of a tailor-made version. The components are of high quality, being cast in steel moulds. The system is available throughout the country and seems to deserve serious consideration for a large proportion of two to four-storey jobs.

Concrete Ltd., Craven House, Northumberland Avenue, W.C.2.

Window ventilator

Greenwood Airvac have recently put a new window ventilator on to the market. Called the 'Permavent' it is made of extruded aluminium and can

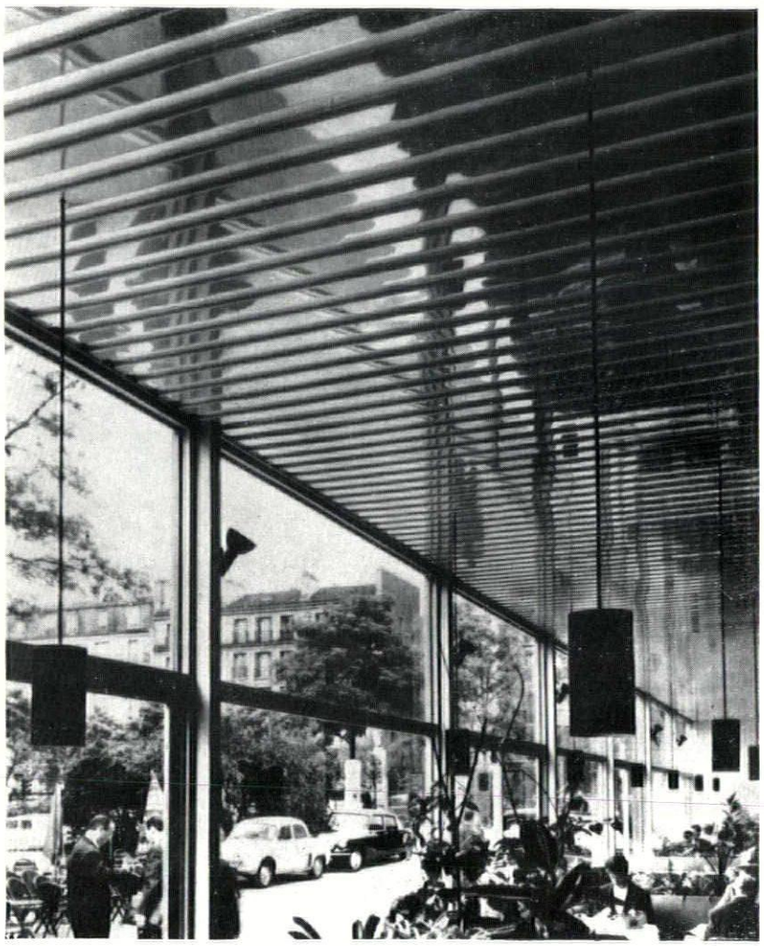
[continued on page 76



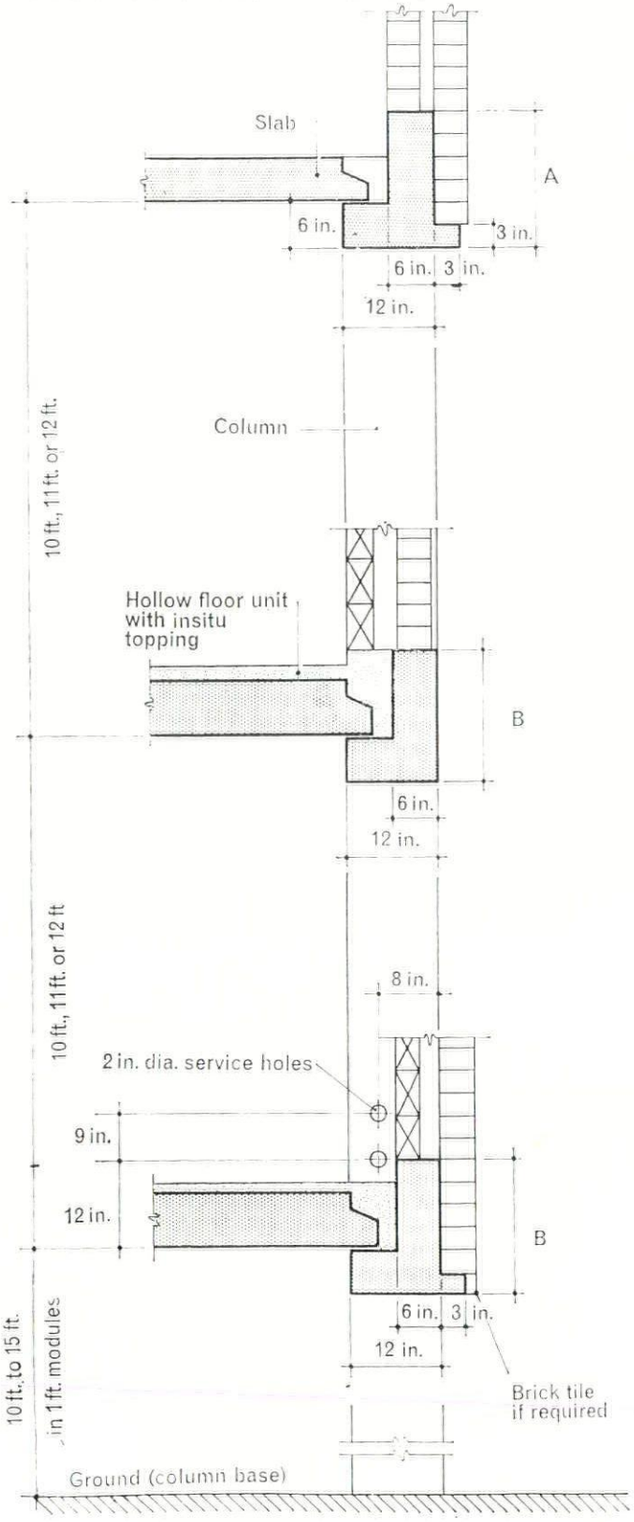
1 2

Luxaflex aluminium panels: 1, panels in U-frame; 2, panels on V-stringers; 3, used as a suspended ceiling at the Palais des Congres, Paris (architect, M. Gravereau).

3



4, section through the Bison Preferred Dimension Frame.



MOISTOP
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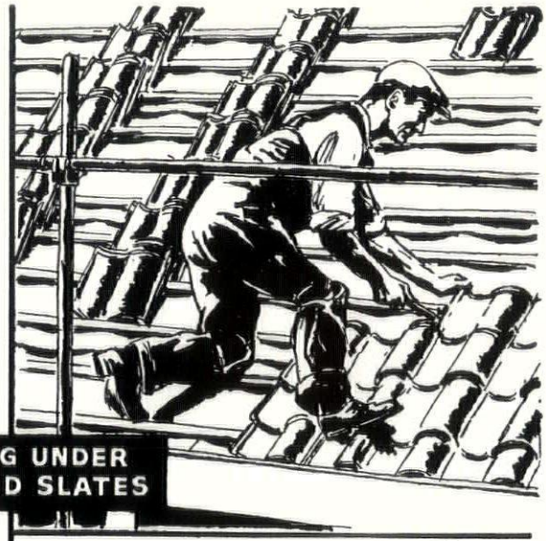
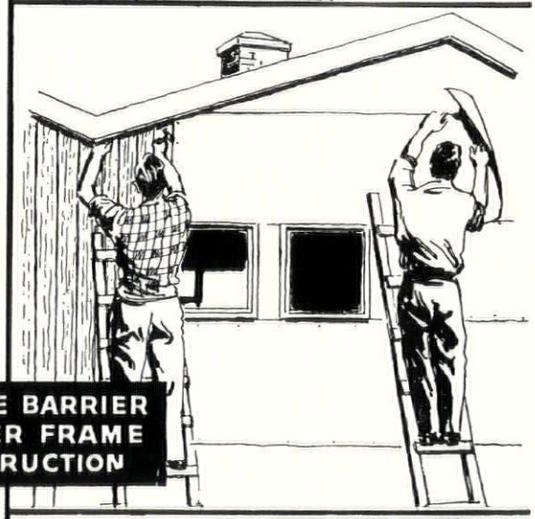
REINFORCED
MOISTURE VAPOUR BARRIER



SARKING UNDER TILES AND SLATES

MOISTOP — is a SISALKRAFT product reinforced with unspun sisal fibres in the longitudinal and cross directions. The fibres are totally enclosed by two layers of high grade bitumen, which in turn are faced with tough, kraft paper, and one surface is coated with a layer of POLYTHENE.

The result of this combination is an effective MOISTURE VAPOUR BARRIER that combines the strength of SISALKRAFT with the virtues of POLYTHENE.



MOISTURE BARRIER IN TIMBER FRAME CONSTRUCTION

APPLICATIONS

Sarking under tiles and slates
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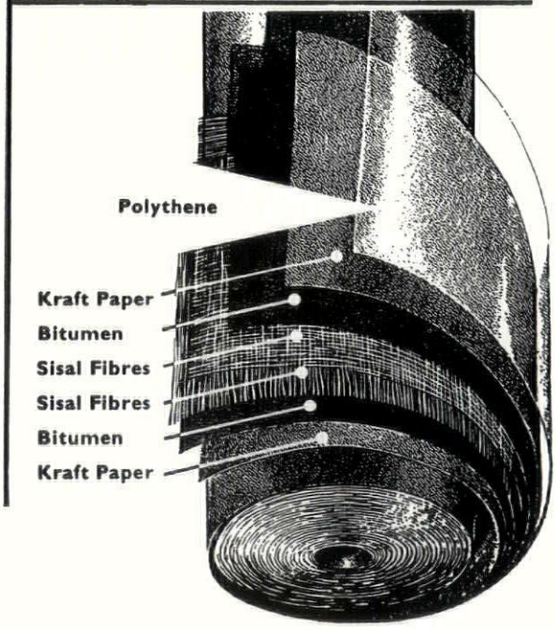

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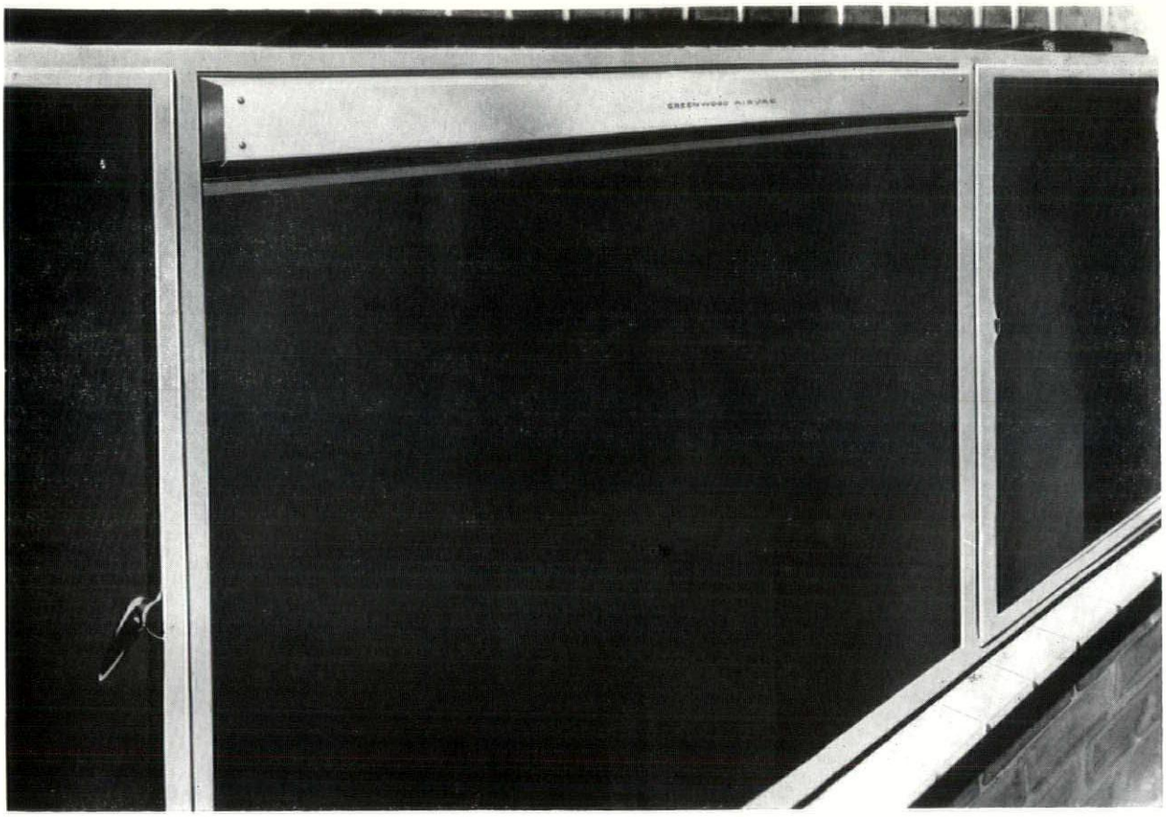


5, *the Greenwood Airvac Permanent horizontal window ventilator in extruded aluminium.*

continued from page 74]

be made to any length up to 6 ft. (and longer if need be). There are two types, Mark I which gives permanent ventilation and Mark II to give controlled ventilation and both can be provided with flyscreens. As can be seen from the illustration, 5, these ventilators are exceedingly neat. They are bedded with mastic into the top glazing rebate of the window (whether this be of wood or metal) and contain a glazing rebate along their lower edge to receive the glass. In these days of machine production of building components when the gaps round window openings are becoming less and less, some form of planned ventilation becomes necessary. This seems a more satisfactory way of providing it than either the air brick or some form of ventilator in the middle of the pane.

Greenwood's and Airvac Ventilating Co. Ltd., Beacon House, Kingsway, W.C.2.

Asbestolux and SfB

One of the most valuable by-products of a classification system like SfB is that it compels all who use it seriously to rethink what they are doing. This applies equally to consumers—that is, to architects and builders—and to those who produce information and who must therefore preclassify it. One by one our more enlightened manufacturers have been undergoing this reassessment and one of the latest to undergo it is Cape Building Products. As you would expect, their conclusions are most interesting. One of the most difficult problems for a manufacturer who puts out a product with many uses is to decide whether the architect will want to keep all publications on this product apart, in one container or whether he will separate them and file them in his SfB collection. Cape, faced with this problem, have decided to put everything into four looseleaf volumes, 6, which, in turn, can be put into one container, 7, marked with Kh1, the SfB constructional heading, so that architects can, if they wish, put this large, rather unwieldly but undeniably handsome entity in sequence in their SfB shelves. Alternatively (and this seems the more correct course) they may take each sheet separately and insert it in its proper place in their own file covers. One innovation which Cape proposes is the use of decimal numbers after each SfB classification to indicate the sequence in which each insertion comes. This seems likely to worry the purists, but whether it is an acceptable solution or not, Cape are to be congratulated on having made a useful contribution to information handling in the industry.

Cape Building Products Ltd., Cowley Bridge Works, Uxbridge, Middlesex.

Formica architectural range

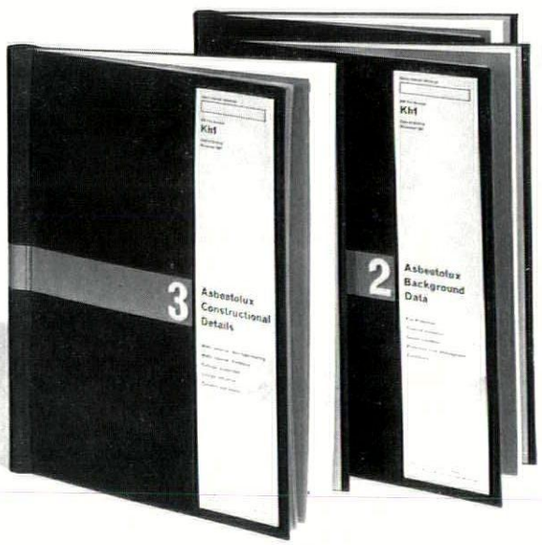
Formica have now put on to the market a new and handsome range of large-scale patterns known as the 'Architectural Range.' There are 26 patterns, fairly evenly divided between free and formal, abstract and representational and these are available in 36 colourways. The broad effect of this range is to give to this material the design impact which we associate with very high quality wallpaper, but of course in a far more durable (and washable) form. Price for the $\frac{1}{16}$ in. veneer only is 4s. 3d. per square foot; when applied to one side of the firm's constructional board (called, so unfortunately 'Beautyboard') the price is 8s. 7d. per square foot and when applied to both sides is 10s. 7d.

Formica Ltd., De La Rue House, Regent Street, W.1. Regent 8020.

[continued on page 78

6, *Asbestolux Constructional Details in loose-leaf volumes and,* 7, *placed in their appropriate SfB classification container.*

6



7



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the one about the sad fate of the AP's bathroom I mean.
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punch and the sorted enquiries are sent off to advertisers.
All so quick and competent. No soap!
Use it?

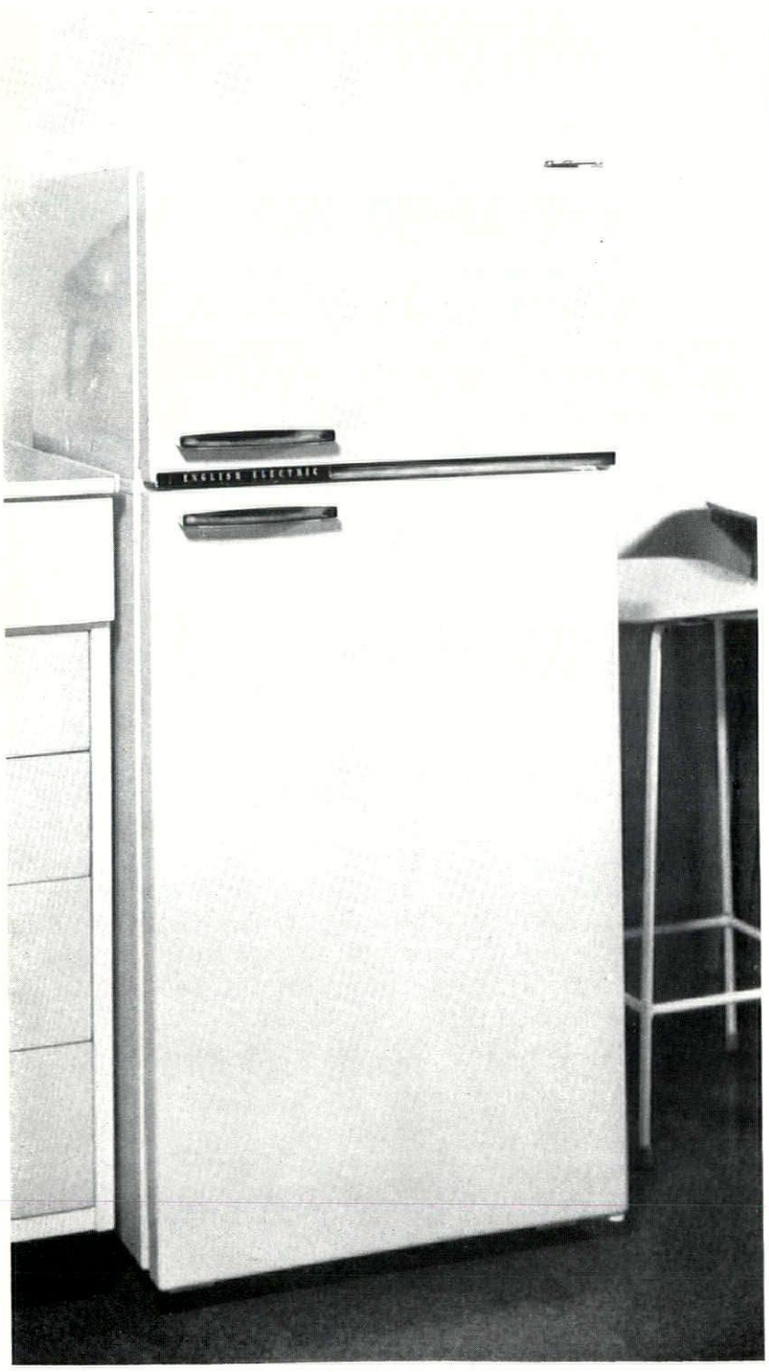
Splendid response to the footnote plea in November AR for bathing facilities. Many thanks. Now need more parties.

continued from page 76]

Combined home freeze and refrigerator

As from March, 1962, English Electric will be marketing a combined home freeze and refrigerator, 8. The freezer compartment is placed on top of the refrigerator and the freeze, like the refrigerator, opens from the front. The refrigerator has 4 cu. ft. of space and the freeze is large enough to hold 50 lb. of frozen food as well as two large ice cube trays. The fresh food compartment of the refrigerator section has an automatic defroster which is arranged so that water from defrosting can be emptied without moving food. The freeze needs no defrosting but is provided with a low wattage heating element to prevent the door from jamming when iced up. Price will be 93 gns., which includes £16 15s. 9d. purchase tax.
The English Electric Co. Ltd., English Electric House, Strand, W.C.2.

8, *the new English Electric home freeze and refrigerator.*



CONTRACTORS etc

RAF Station, Ballykelly. *Architects:* Munce & Kennedy. *General contractor:* Kennedy of Coleraine. *Sub-contractors: Heating and ventilating:* Vaughan Heating Co. *Electrical:* French Ltd. *R.c. beams:* Concrete Ltd. *Timber beams:* Tecton Ltd. *Bricks:* Tyrone Brickworks Ltd.

County Hall Extension, West Bridgford, Notts. *Architect:* W. D. Lacey (County Architect). *Contractors: Heating and ventilation:* Weatherfoil Ltd. *Windows:* Crittalls Ltd. *Solid walling:* Evans Bros. (Concrete) Ltd. *Steel frame:* Brockhouse Steel Structures Ltd. *Catering consultants:* J. Lyons & Co.

Episcopal Church, Cumbernauld. *Architect:* L. Hugh Wilson (Chief Architect and Planning Officer). *General contractor:* Andrew B. Hornall Ltd. *Sub-contractors: Joinery:* Alex. Williamson & Sons. *Laminated beams:* Muirhead & Sons Ltd.

School, Croydon. *Architects:* Robert Matthew, Johnson-Marshall & Partners. *General contractor:* John Laing. *Sub-contractors: Mechanical services:* J. C. Spooner. *Electrical services:* T. Clarke. *Roof lights and glazing:* Faulkner, Green. *Roofing felt:* Briggs. *Plumbing:* Holloway Brothers. *Flooring:* Stevens & Adams, Resilient Tile (Ealing) Ltd., Haskell Robertson. *Ironmongery:* Gibbons. *Suspended ceilings:* Herridge (Cambridge) Ltd. *Sliding door gear:* P. C. Henderson. *Joinery:* H. A. Holmes. *Doors:* John Sadd. *Kitchen equipment:* Benham. *Lift:* Aldous Campbell Ltd.

Comprehensive School, Ollerton, Notts. *Architect:* W. D. Lacey (County Architect). *Structural steel frame:* Brockhouse Steel Structures Ltd. *Concrete cladding and plinth units:* Evans Bros. (Concrete) Ltd. *Vitreous enamel panels:* Edward Curran Engineering Ltd. *Timber window frame units and external doors, timber eaves units:* H. Newsum Sons & Co. *Metal louvre window frame units:* Crittall Manufacturing Co. *Metal roof lights:* Hills (West Bromwich) Ltd. *Aluminium horizontally sliding windows:* Crittall Manufacturing Co. *Internal flush doors:* Leaderflush (Doors) Ltd. *Sanitary fittings:* Buxton & Dawson Ltd. *Cladding tiles:* Maidenhead Brick & Tile Co. *Stainless steel sinks:* Portland Engineering Co. *Metal-faced w.c. partitions:* Flexo Metal Industries. *Heating and hot water installation:* Weatherfoil Ltd.

Secondary School, Pasir Panjang, Singapore. *Architects:* Robert Matthew, Johnson-Marshall & Partners. *Contractor: Services:* Weatherfoil Ltd.

Arts Library, Liverpool University. *Architects:* Bryan & Norman Westwood & Partners. *General contractor:* Tysons (Contractors) Ltd.

Students Union Extension, Liverpool. *Architects:* Bridgewater, Shepheard & Epstein. *Catering consultant:* J. Lyons & Co.

College of Commerce, Manchester. *Architect:* S. G. Besant Roberts (City Architect). *Contractor: R.c. structure:* Matthews & Mumby Ltd.

Married Officers Quarters, Malta. *Architects:* J. M. Austin-Smith & Partners. *General contractors:* S. C. Xuereb. *Sub-contractor: Metal windows:* Crittall Manufacturing Co.

Handicapped Persons' Home and Social Centre, Birmingham. *Architect:* A. G. Sheppard Fidler (City Architect). *General contractor:* Hunt & Pearcey Ltd. *Sub-contractors: R.c. frame:* The Fram Reinforced Concrete Co. *Mechanical services:* Brightside Heating Engineering Co. *Electrical services:* Rex Bros. *Internal sanitation:* David F. Wiseman & Sons Ltd. *Plumbing:* Spencer & Gibbons. *Metal windows:* Henry Hope & Sons Ltd. *Aluminium window walls:* James Gibbons Ltd. *Lift installation:* Otis Elevator Co. *Linoleum, cork tile and vinyl flooring:* Korkoid Decorative Floors. *Facing bricks:* Lunt Bros. Ltd. *Precast exposed aggregate panels:* John Ellis & Sons Ltd. *Sanitary goods:* A. D. Foulkes Ltd. *Ironmongery:* Parker, Winder and Achurch Ltd.

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Offices, Chiswick. *Architects:* J. M. Austin-Smith & Partners. *General contractor:* Allnatt (London) Ltd.

Offices and Shops, Croydon. *Architects:* Ronald Ward & Partners. *Stage* 1 *general contractor:* Tersons Ltd.

Pharmaceutical Production and Packing Building, Welwyn. *Architects:* James, Cubitt & Partners. *General contractor:* Harry Neal Ltd. *Sub-contractors: Air conditioning:* Conditionedair Ltd. *Electrical services:* William Steward Co. *Heating services:* A. G. Manly & Co. *Precast concrete:* Cowley Concrete Co. *Slate cladding:* F. W. Bull (Constructions) Ltd. *Lift installation:* Platt-Schlindler Lifts Ltd. *Goods hoist:* Aldous Campbell Ltd. *Half-hour fire doors and screens and balustrading:* Grundy Arnatt Ltd. *In-situ mosaic:* W. B. Simpson & Sons. *Woodblock flooring:* Vigers Brothers Ltd. *Vinyl flooring:* Catesbys Ltd. *Metal windows:* Crittall Manufacturing Co. *Terrazzo:* Jaconello Ltd. *Window cleaning cradle:* Cradle Runways Ltd. *Four-hour fire doors:* Durasteel Ltd. *Aluminium sheeting:* Starkie Gardner Ltd. (*dies* by James Booth Ltd.). *Steel roller shutters:* G. Brady & Co. *Metal spiral stair:* Safety Tread Ltd.

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Steelworks, Llanwern. *Architects:* Sir Percy Thomas & Son in association with Gollins, Melvin, Ward & Partners. *General contractors:* Sir Robert McAlpine & Sons.

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On 25th July, 1961, notice was given that the Secretary of State had published a draft of the above regulations which he proposes to make under section 3 of the above Act prescribing standards in relation to the matters specified in the Fourth Schedule of that Act. It was stated in the notice that any representation as to the draft regulations must be made in writing to the Secretary of State not later than the 1st day of December, 1961.
NOTICE IS HEREBY GIVEN that the period for lodging such representations has now been extended and that any representation as to the draft regulations must be made in writing to the Secretary of State not later than the 16th day of February, 1962. The representation must state the grounds on which it is made and should be addressed to the Secretary, Department of Health for Scotland, St. Andrew's House, Edinburgh, 1.
Copies of the draft regulations may be obtained (price 5s., by post 5s. 7d.) from H.M. Stationery Office, 13a Castle Street, Edinburgh, 2, or through any bookseller.
The Secretary of State has published also a Memorandum on the draft regulations. Copies of the Memorandum may also be obtained (price 4s. 6d., by post 4s. 11d.) from H.M. Stationery Office, 13a Castle Street, Edinburgh, 2, or from any bookseller.
A copy of the draft regulations and of the Memorandum have been deposited at each of the following places:
(*a*) St. Andrew's House, Edinburgh, 1.
(*b*) Scottish Office, Dover House, Whitehall, London, S.W.1.
(*c*) The office of the Town Clerk of each city and burgh in Scotland.
(*d*) The office of the County Clerk of each county in Scotland.
These copies are available for inspection by the public, free of charge, during normal office hours.
Dated this thirtieth day of November, 1961.

H. F. G. KELLY,
Assistant Secretary.

Department of Health for Scotland,
St. Andrew's House,
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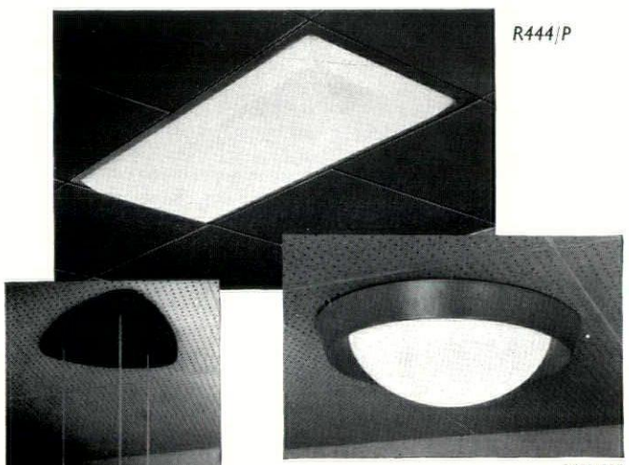

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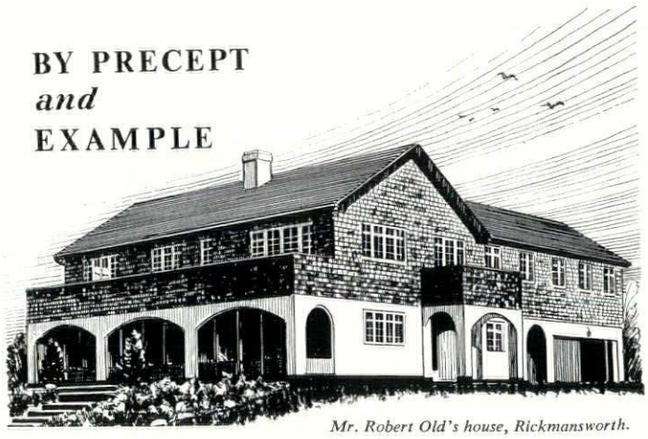

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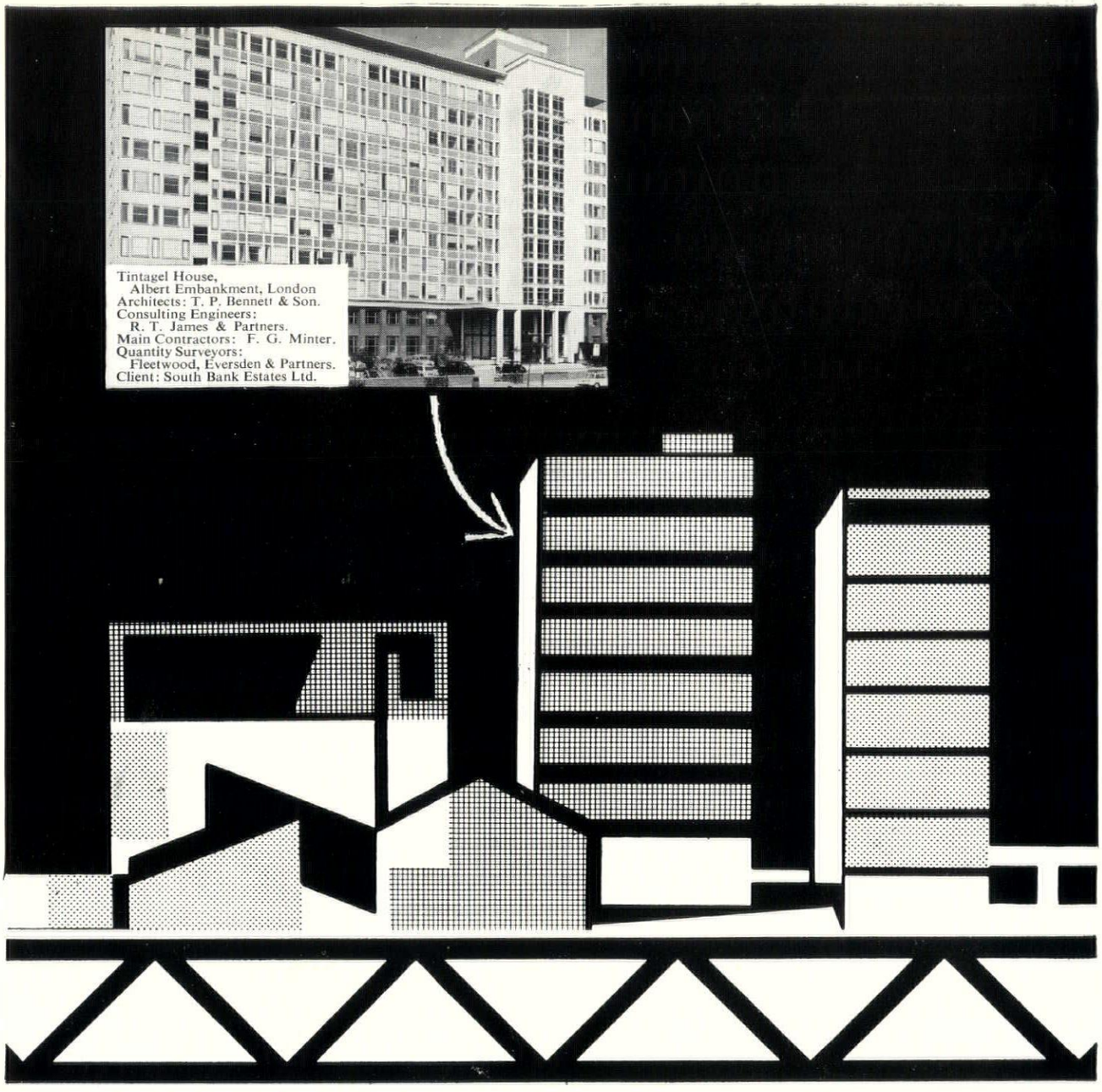

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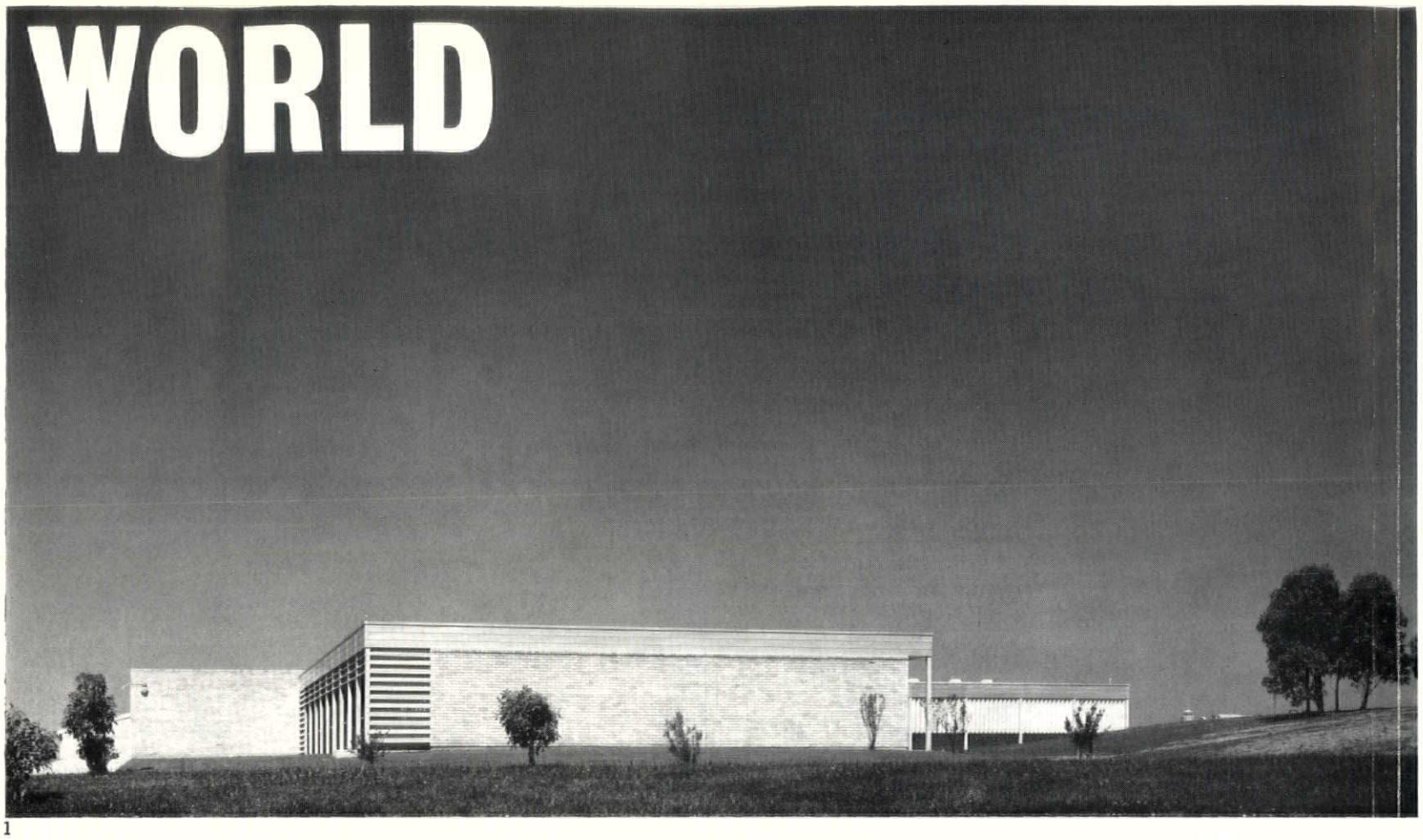


1

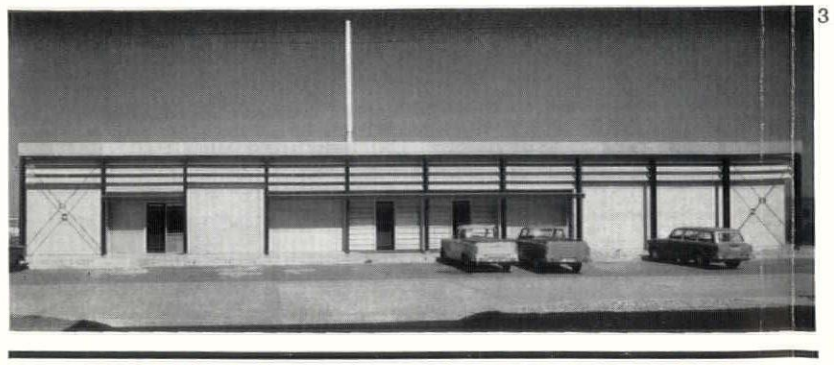
TECHNOCRATIC

Lurking somewhere in the racial sub-conscious of modern architecture is the image of style that does not quite exist. It is a sort of platonic ideal of an architecture for the higher technologies; it ought to exist somewhere in the electronics belt of New England, but when located it usually proves to be merely a TV repeater station, not the Rand Corporation. In its ideal form, this architecture ought to have a desperately understated elegance and calm, because only something as powerful as one of the prospective masters of the universe can afford to be calm and quiet nowadays. Saarinen at IBM failed to crystallize the image, and it seems to have been left to an Australian partnership to get as near to it as anyone has so far. Here, 1, the neat, undramatic and uninformative façades set in the mandatory parkland strike the correct note of grey-flannel power; remote, restrained, relentless. No doubt the men inside lead the same sort of sweating, pushing, ulcerated lives of toil as men anywhere else, but in this Isotopes and Technical Physics building for the Australian Atomic Energy Commission, the Sydney architects Max Collard and Guy Clarke have given the correct Science-Fiction image for the unflappable headquarters of Galactic Polymaths Incorporated.

The tone of technocratic rectitude is maintained in the little interior courtyard that forms the hub of the plan, 2, one of those austere cloisters adorned with severely beautiful natural objects that are supposed (on a phoney analogy between science and mysticism) to lead to the thinking of atom-piercing thoughts. It is very much to be doubted that any such propositions were entertained by Collard and Clarke while they designed these buildings, since the ancillary structures, such as the isotope handling plant, 3, reveal no intentions more dramatic than an intelligently phrased functionalism in which restraint paces imagination to a dead-heat—the purpose of that courtyard is to provide a separation of the operationally different functions in the building, while providing access to common services such as lavatories. Yet there could have been a dozen *other* ways of affording the right mix of separation and accessibility: to have picked this particular solution reveals some turn of the imagination or sympathetic response to the functional programme that gives these simple structures an impact that their designers may never have intended.

2





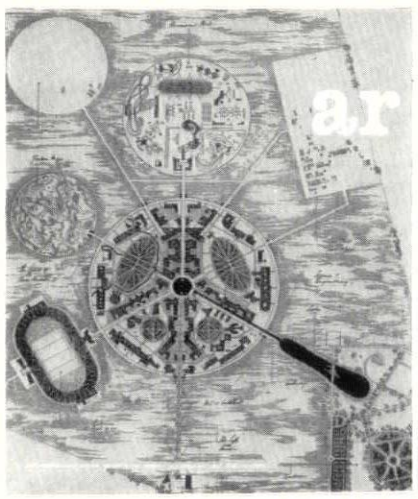
3

MOST ANCIENT SHIPS

The object of a museum, as Michael Brawne defined it in AR, November, 1959, is to put objects on view, but he raised even there the problem of the object which is itself the size of a building, and instanced ancient ships. The discovery of what appear to be the two most ancient ships in the world, at the foot of the great pyramid at Gizeh, has posed the problem again,

ACKNOWLEDGMENTS

WORLD, pages 79–82: 1–3, David Moore; 9, *Costruire*; 12, 13, *Arkitektur*; 16, 17, *Architektur und Wohnform*; 18–21, *Deutsche Bauzeitung*. VIEWS AND REVIEWS, pages 83–85: 3, Greaves; 4, Trianon Press (Photo Grivot). FRONTIS, page 86: Toshio Taira. THE NEW NOTTING HILL GATE, pages 89–96: 1, 3, 4, 24–27, Galwey Arphot; 2, Eric de Maré; 5, 9, 11, 18, 19, 20, 23, 28–37, Kenneth Browne. STUDIOS AT HERTINGFORDBURY AND ROWFANT, pages 100–103, Galwey Arphot. STUDIO AT LONGPONT-SUR-ORGE, pages 104–105: Jaqueline Hyde. CRITICISM, pages 106–114: 1, Y. Futagawa; 7, 8, 11, Ch. Hirayama; 9, T. Taira. INTERIOR DESIGN, pages 115–118: Behr Photography. DESIGN REVIEW, pages 119–120: James Mortimer. ESTANCIA HOUSES, pages 121–126: 2, 5, 7, 10, 13, 14, Gustavo Thorlichen; 17, Nelson. TERRITORIAL ARMY OFFICES, LEICESTER, and FACTORY AT WOKINGHAM, pages 127–130: Galwey Arphot. BRANCH BANK AT WOODFORD, pages 130–131: Colin Westwood. MISCELLANY, pages 132–142: Exhibitions, 1, 4, 5, Sydney W. Newberry; 7–11, John Mills. Credit, Galwey Arphot; Lettering, Ridley Scott; Townscape, Eric de Maré; Plants, 1, Gerti Deutsch; 2, Donald McCullin; 3, Toomey Arphot; 5, Tania Stanham. Counter-Attack, Nairn Arphot. SKILL, pages 143–150: 4, Burwoods; 11, BIPS Picture Service; 12, 14, 15, J. W. Mellish.



The Cover *is based on a drawing by Rodney Thomas showing a plan by Misha Black for an exhibition at Newcastle-upon-Tyne. It forms part of a report he was asked to prepare on the feasibility of holding a major exhibition in* 1964 *or* 1965 *on the development possibilities of the north-east region. The site is* 900 *acres of the Town Moor, with a central core of* 30 *acres linked by canal to an existing lake. Radiating from the core are an amusement park, a garden maze, a stadium and a helicopter landing-ground. The centre is divided into four sectors dealing with science and industry, art and intellect, the home and the north-east region. It is surrounded by a stockade of masts ejecting plumes of vapour, and at its pivotal point is a* 1,000 *ft. radio mast rising from a pool.*

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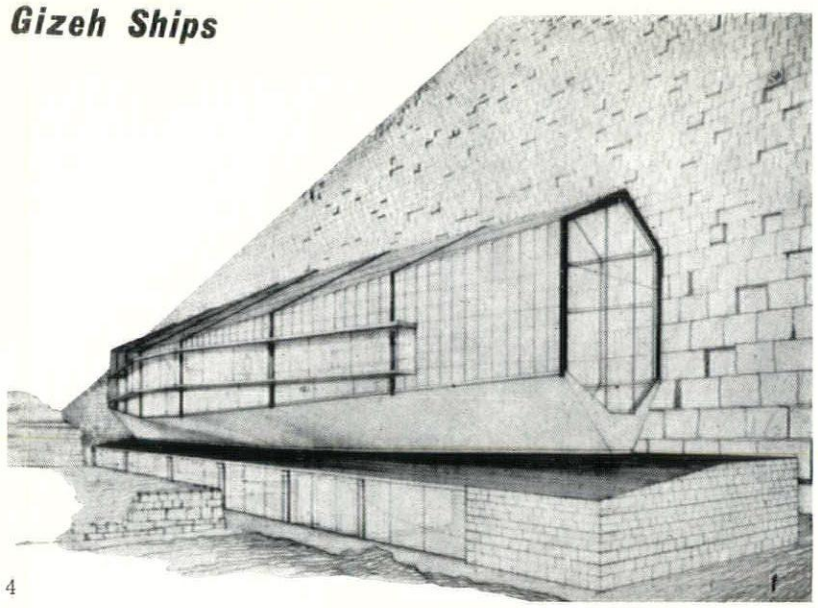
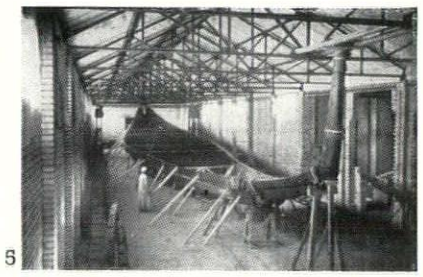
Gizeh Ships



4

and evoked a remarkable solution, 4. The two boats of Cheops were buried in deep slots cut in the ground, symmetrically disposed on either side of the axis of the pyramid and exactly parallel to its side. One has been excavated and transferred to temporary (ex-WD?) accommodation, 5, but the other still remains in its permanent dry-dock, roofed in with slabs of stone which the ancient Egyptians had so contrived that their positions were fixed until a key block at the end had been freed. In view of the interest of this burial technique, the holes in the ground are almost as important as their contents, and the museum has to display both, which it does by means of complex but functional section typified in 7, which also shows the walkways at various heights through which the visitors are to circulate while viewing the ships, while the manner of part-glazing the roof, 6, ensures that the visitor will be constantly aware of the bulk of the pyramid above him, 8. The whole project is the work of Franco Minissi, and is another example of the impact being made—as by Professor Morandi's scheme to raise the temples at Abu Simbel—on Egyptology by an adventurous generation of Italian architects and engineers. One can only wish that the cunning and know-how, as well as the visual boldness displayed by them in Egypt, were occasionally reflected at home in the treatment of the antiquities of Italy.



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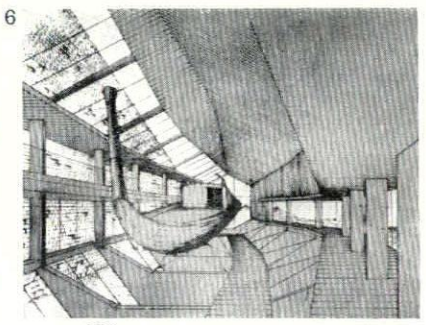

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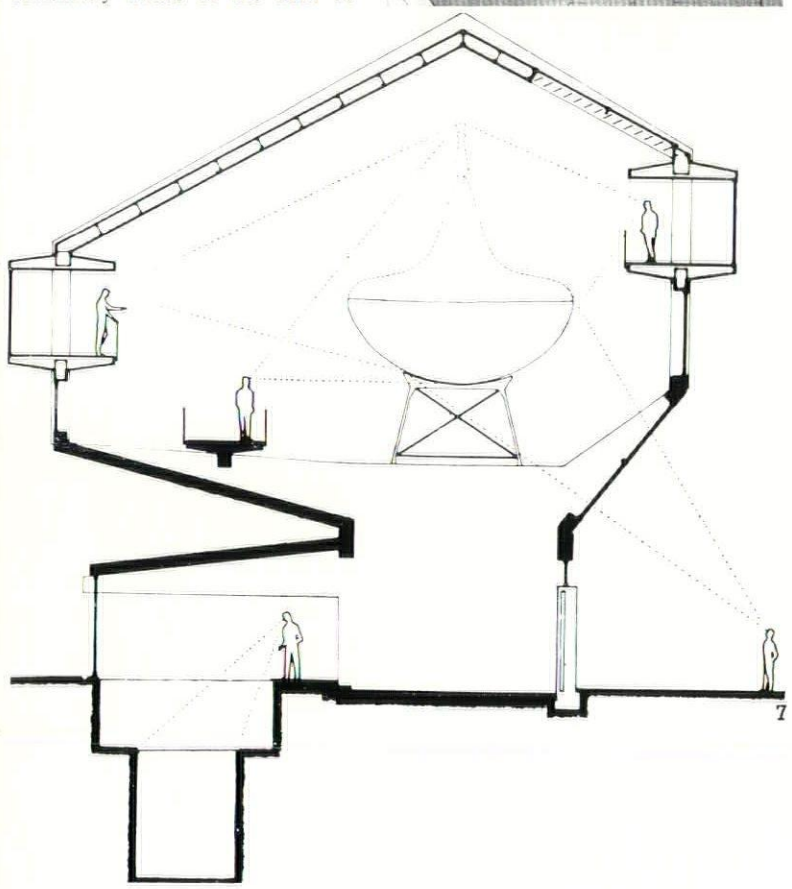

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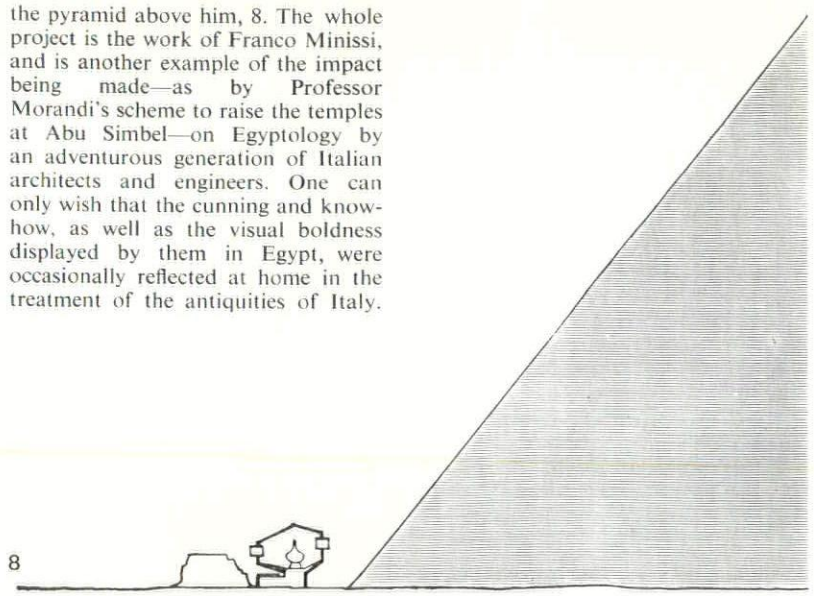

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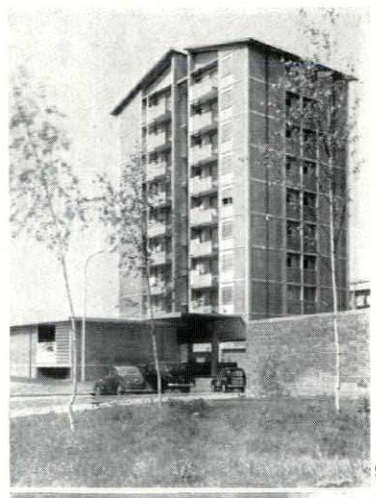
CENSORS and AGITATORS

Schools, Magazines and the Mind of Italian Architecture

Every now and again, a fact comes to light that seems to explain or sum up an aspect of architecture as nothing else can. Massimo Teodori, secretary of the Italian Architectural Students Union, clearly put his finger on something significant when he pointed out that *two-thirds of the architects in Italy have qualified since the war*. In other words (as he implied in a speech reported in *l'Architettura*, 73, 1961) the present state of architecture in Italy is probably as much the fault of the schools as of anything else, since the bulk of the profession have barely had time to hang up their diplomas. Teodori's demands for reform of the teaching process will strike a familiar ring to anyone in touch with architectural students anywhere, in so far as they deal with the inadequacies of technical teaching, but his insistence on the failure to 'furnish the culture necessary to the exercise of the profession' is something specifically Italian. Many outsiders would probably propose that what Italian architecture needs is less culture and more technique, but to achieve this sort of redistribution of intellectual forces would require, precisely, a cultural revolution in a profession brought up on *artigianato* and *civiltà storiografica*.

Since the censors and agitators of Italian architecture seem to be in the same dilemma it is safe enough to assume that they are also of the post-war breed, and this seems to be true. The discussion around *Casabella* has shifted away from the alleged crimes of Ernesto Rogers himself, towards the group of young men who 'have contrived to make him act as their figure-head.' There is conspicuously a lack of the middle generation between the pre-war heroes like Rogers (or Albini, Bottoni *et al.*) and the post-war graduates, and this is clear throughout the periodicals that serve the profession. Exceptions are, obviously, *l'Architettura* itself with its general air of professionalism, the Italian equivalent of the Peter Blake generation in US journalism, and *Costruire*, also based on Rome, edited by Mario Cantelli and Franco Valerio d'Ambris, which seems moderately dedicated to architecture of the middle way, e.g. Vittorio Gandolfi's flats at Ca Grande Nord, Milan, 9, or Hilda Selem and



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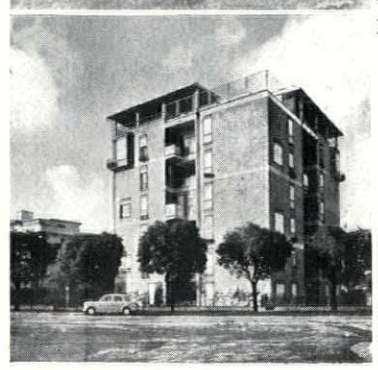


10

Michele Valori's block at EUR, 10. Significantly (though probably because it has the obvious backing of the Laterizi brick company) *Costruire* bothers about the mechanics of building, the effect of planning regulations and practical matters of this kind.

Normally, Italian magazines seem completely unaware of the operational problems of day-to-day architectural

Censors

practice, so this is something of a sensational development—were it not that its thunder has been stolen by the far more sensational *Superfici*. Trailered with an experimental issue to coincide with the last Triennale, *Superfici* is remarkable for any number of reasons, not the least of them being that it has subsequently produced three more issues, right against the run of the betting in Milan at the time of its first appearance. Like Teodori it clearly feels the cultural/technical gap in Italian architecture and contrives to bridge it by leaving out architecture. Under the editorship of Leonardo Fiori and a team of young *nouvelle vague* radicals normally headed by Roberto Orefice, *Superfici* has managed to sidestep the Italian preoccupation with buildings as art objects, by not actually illustrating any buildings for their own sakes, or as works of architecture.

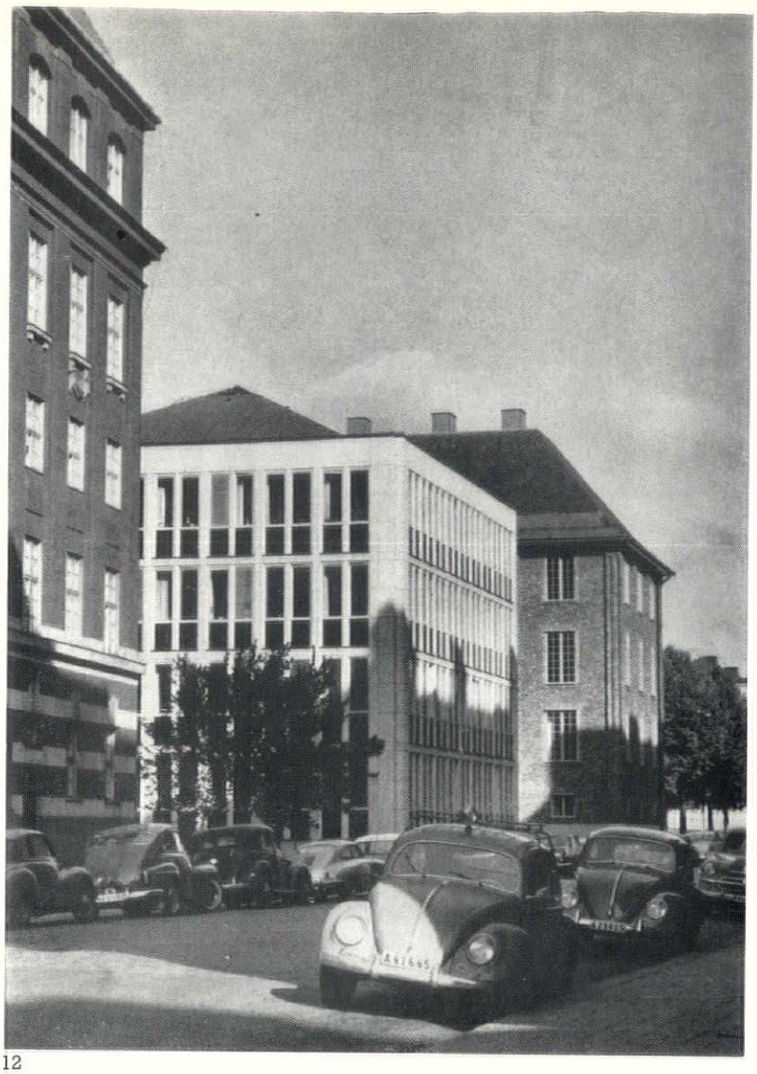
Instead *Superfici*, as its cover shows, 11, is about culture, and—as its title



11

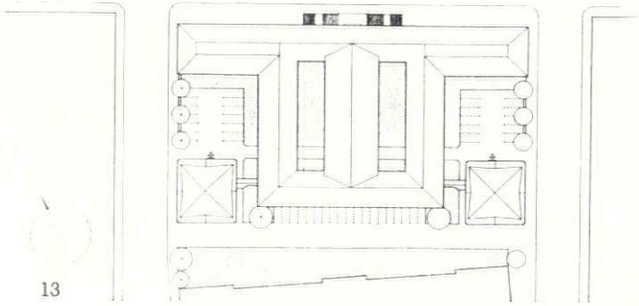
implies—about the technology of surfaces and cladding (which presumably is an attempt to get advertising support). If buildings appear in its packed and bustling pages, it is usually to illustrate theses or prove points about either culture or techniques, but chiefly *Superfici* is a magazine *to read*. It prints good, solid reading matter culled from every conceivable source—readers will observe in 11 the familiar names of Pevsner and Banham, in other issues they could find Wachsmann and Adorno, C. Wright Mills, J. K. Galbraith, Cesare Brandi, Gropius and others, plus extensive contributions from the editorial team—for anyone who can stand four-column setting on yellow paper, *Superfici* is a perpetual feast and its censorious tone, often exercised, is backed up by massive documentation.

The tough tone, the combative attitude, the know-it-all stance are something that Italy urgently needs. For all that *Superfici* is embarrassingly ready to embroil itself in the profitless polemic over minutiae of philological analysis that is increasingly the favourite sport of the *Casabella* connection, Fiori and Orefice are voices of responsibility. Next to the schools, the magazines must carry the biggest share of responsibility for what has happened to Italian architecture, and *Superfici* (if it lasts) will be something of an atonement.


12

BETTER THAN THEY DESERVED

Because the muse of architecture cannot afford to be spiteful, clients who ask too much are often rewarded with a better building than they deserve. The authoritative calm of the small white block in 12 is the quite undeserved reward of the Swedish Patent Office, when their just deserts ought to have been a sub-biedermeyer botch with floor-slabs cutting across casement windows. The architects, Bengt Romaré and Georg Scherman were asked to design two new wings to the old Patent Office building, in line with the southern façade, in the same style, *but with one additional storey fitted in under the same cornice height*. It was only at the sketch stage that the architects were able to prove the impossibility of this condition, and the alternative solution of two free-standing pavilions (see plan, 13) giving four storeys in their own style and on their own terms was adopted. One cannot help wondering whether these vital sketches were prepared with scrupulous accuracy, or whether a degree of justifiable exaggeration in a good cause was allowed to creep into them, but the architects, who prepared their own report for *Arkitektur* (11-1961) have refrained from told-you-so or any form of self-justification, and have contented themselves with reporting the final version straight.


13


14

A GAP FILLED

Hong Kong City Hall

It seems as if a whole generation of East Asian students in British Schools have devoted their theses to designs for one of the most attractive sites in the world, earmarked for Hong Kong City Hall. The gap has now been filled, the city hall now exists and dominates the view towards the water from Statue Square, 14, a plain rectangular slab designed by the Hong Kong PWD under J. C. Charter, the chief architect. The actual form of the slab, 15, may not be as adventurous as some of the student projects for this prime site, but there is something to be said, in such a setting, for a building that makes a matter-of-fact statement of its intentions—on such a site as this there is no need to shout, and some of the smaller buildings around the square might have suffered had it been over-assertive.

15

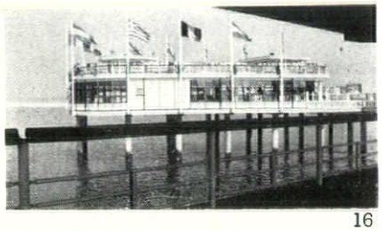


SCHEVENINGEN COMPLETED

The project for a pier at Scheveningen was one of the first items to be illustrated in *World* (AR Feb. 1960), and it is with a degree of proprietorial pride that we record its completion, which was fully recorded in *Architektur und Wohnform* (7, 1961). In practice, the concrete-pile substruc-

Pier

ture looks less attractive than the traditional cross-braced iron frames of the last century, but what goes on above this is reassuringly busy and gay, 16, and is couched in a straightforward functionalist idiom that has proven very durable, as modern styles go, for this kind of work. Although some of *A und W's* twilight-zone photography is not altogether successful, the air of evening gaiety does come over in some views, 17, and makes it clear that the architect, Hugh Masskant, has produced a piece of architecture for pleasure that is more convincing than most.



16

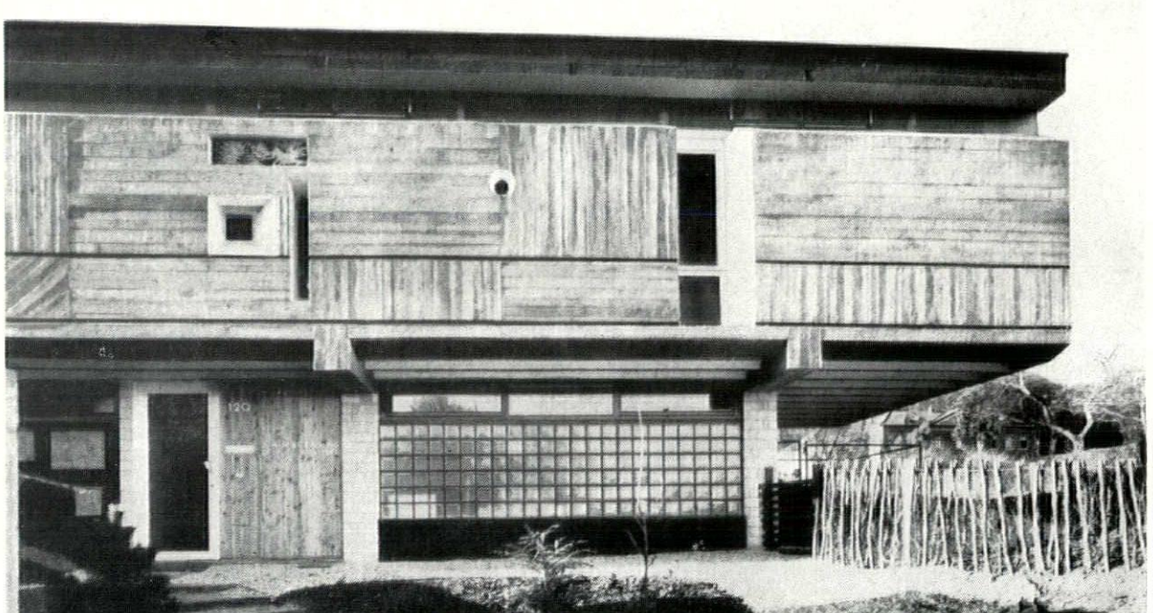


17

18

EVERLING'S WALL

Take two overwhelming influences and stir well: what do you get? In the case of the Everling house (*Deutsche Bauzeitung*, 11-1961) at Aachen you get what looks, 18, at first sight like a straight cocktail of Tange and Corb —shutter-patterns, artfully distributed holes, a crushing roof-slab—and all carried on three massive bracket-beams that would not disgrace a cultural centre or town hall in greater Tokyo. But the other façade tells a different story; here, where the treatment is lighter and the projections less, 19, neither the roof-slab nor the floor-slab have the aggressive power they do on the front, for all that their dimensions are identical all round the block. In the light of this discovery, the street front will stand a second look: perhaps that is *not* a fortified wall eighteen inches thick, and the section confirms that it is not, 20. It is only ten centimetres of concrete and the rest is books—at least in the studio end of the living-space, elsewhere it is wardrobes and cupboards. It may be assumed that an architect knows what he is doing when he designs a house for himself, and Johannes Everling has presumably stacked his storage spaces on the street front of his house, 21, for good reasons, and what looked like a piece of fashionable formalism is to be accounted a functional device which happens (for reasons to which none of us is immune) to be realized in a fashionable idiom.



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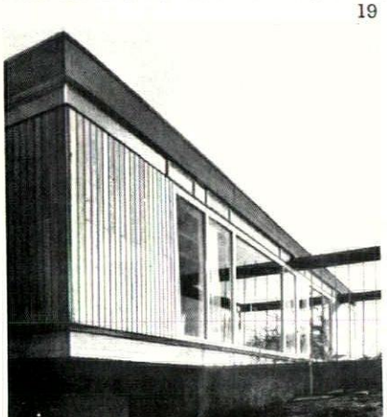

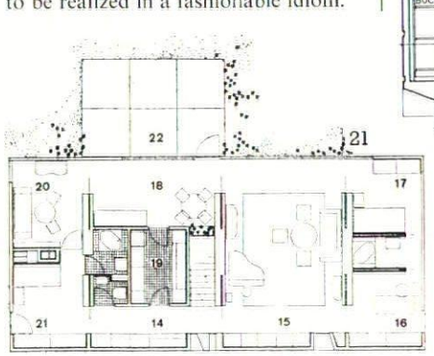

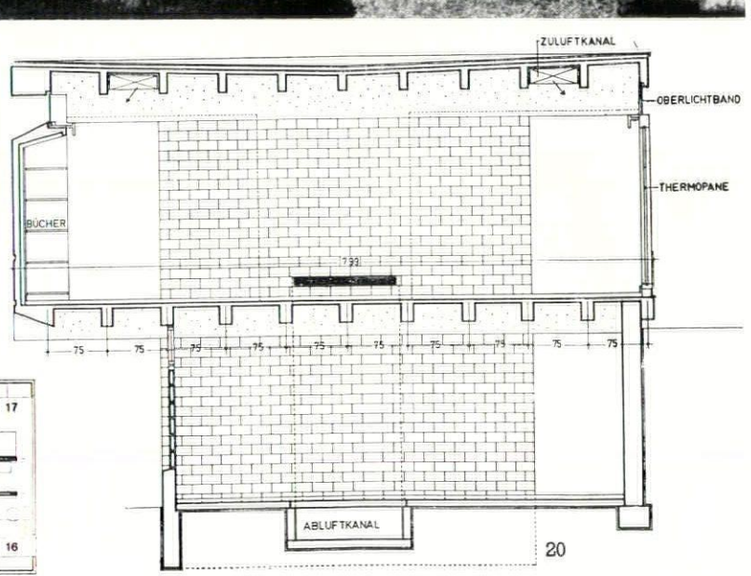

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views and reviews

MARGINALIA

THE TERRACES REPRIEVED

It now appears that any attempt to redevelop Carlton House Terrace as Government offices or for any related purpose has been abandoned. In 1963 the terrace (in fact, there are two terraces, one on either side of the Duke of York Steps) will revert from the Ministry of Works to the Crown Estate Commissioners, who will undertake any necessary making good, which will be largely restricted to floors and roofing since the main structure is in good order, and the elevations will be retained in the form in which John Nash designed them. They will then be let to private tenants, many of whom may well be London clubs, at present under heavy pressure from developers in St. James's, which has become a fashionable area for offices. This decision not to redevelop or convert brings a closure at last to the three-handed battle over the future of the terraces that has been raging for some thirty years between the Government, commercial interests, and the friends of good architecture—the latter including the AR which played a leading part in the campaign to save the terraces when they were first threatened with demolition (and rebuilding by Sir Reginald Blomfield) in the 1920s. The stature of the terraces as part of the processional route along the Mall is now officially accepted, and the only major alteration of use that is proposed is the entirely sensible one of forming concealed underground car parking under the podium on the Mall side.

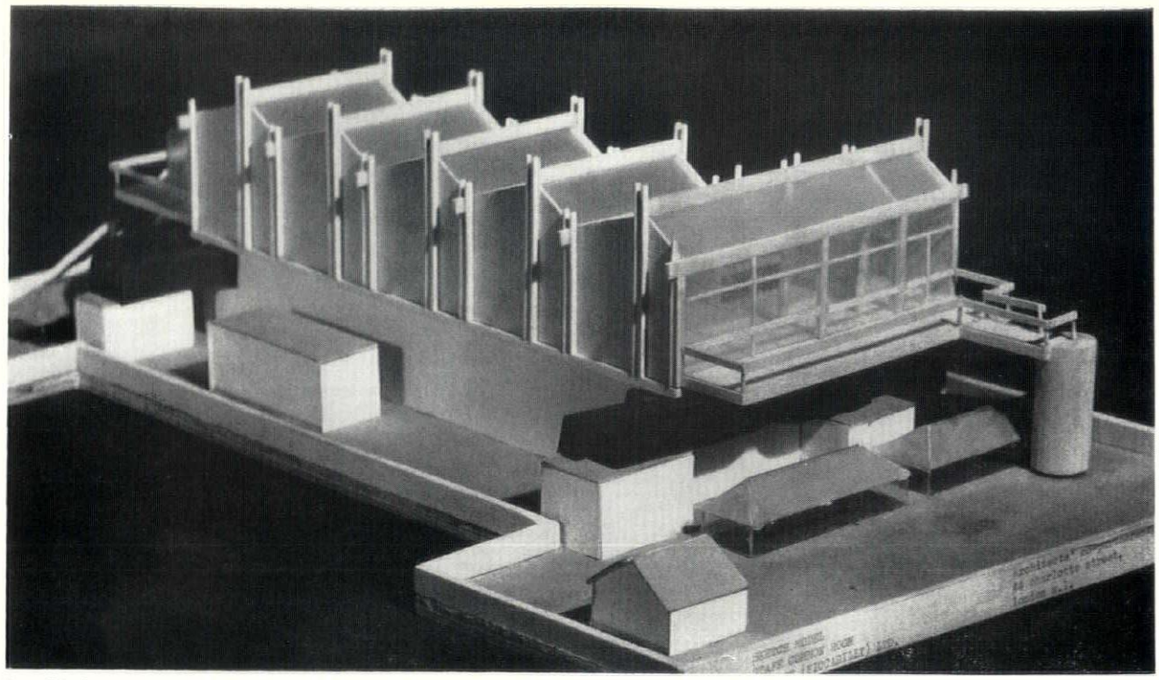
DIA YEAR BOOK

The new editorial regime at the Year-book of the *Design and Industries Association* is now in its third year, and the current issue (1961–62) continues the now established trend to punchier typography and punchier articles on topical themes—in the present case: the ten-year-aftermath of the Festival; the character of the industrial designer; the improvement of graphics; the improvement, also, of TV commercials and ship design; the present state of the stone and fireclay industries; plus some two-edged humour by Gordon Cullen and Oliver Amrole. This stirring of activity has been marked by some parallel stirrings in the DIA itself (it has had a year of variously off-beat meetings) and are now followed by a new regime in the Association as well, Michael Farr, late of the CoID, succeeding the redoubtable Mary Harvey as secretary.

EYES ON THE LOCAL SCENE

Two interesting examples of the way in which an amenity society or other interested body can maintain watch and ward over its local scene are provided by recent publications by non-official bodies. The Annual Report of the Kensington Society for 1960-61, covers the kind of activities with which an amenity society in a cultured borough might be expected to concern itself, but in two cases these are *causes célèbres*, with an importance that extends beyond the borough boundaries. One of these was Borough Council's programme of street-lamp replacement, which involved (as always) the installation of new standards that were out of scale and out of character with small scale residential streets: the result of the Society's protest was a not entirely satisfactory list of streets where existing standards were to be converted. The other important case concerned the cluster of grandiose artists' houses in the Melbury Road/Holland Park Road area, which was the subject of a public enquiry after the LCC had applied for a preservation order covering Leighton House in Holland Park Road and six other houses in Melbury Road, the work of such architects as F. P. Cockerell, George Aitchison, William Burges and Halsey Ricardo. The report gives the evidence in favour of preservation *ni extenso*, and also the Minister's letter declining to make such an order for the whole group, until such time as actual proposals to demolish or alter them are made by developers or the borough council—a sorry outcome for those who try to act on the dictum that prevention is better than cure.

The other society publication of note is a remarkable survey of modern architecture in Oxford by Members of the Oxford University Design Society. Under the title of *New Oxford*, the editors, while protesting their lay status, list all the significant post war developments in the University and most of those in the City, plus a number of projects and proposals, including the present state of the



1, *model of a staff recreation room which is to be constructed on the roof of Simpson's store in Piccadilly. Designed by the Architects' Co-Partnership, it is o light, prefabricated fireproof construction with panel walls of steel sheet with a fused-on stone-dust surface. The original building, finished in* 1936, *was by the late Joseph Emberton.*



2, *William Whitfield's design for the new government offices and conference centre on the old Westminster Hospital site (seen in the perspective, from the entrance to Victoria Street, with Westminster Abbey on the right) is the prize-winning outcome of the Ministry of Works' competition for the development of the north side of Broad Sanctuary, described in Marginalia, May,* 1961. *Although slightly differently aligned, the facade of Whitfield's design toward the Sanctuary stands in approximately the same position as that proposed in the AR's development study* Westminster Regained (*November,* 1947) *and would offer substantially the same advantages if the area were replanned precinctually.*

Meadow Road controversy. The more important new buildings in any sort of live architecture are illustrated, and practically nothing is allowed to go uncommented. Whatever the compilers of the survey may claim about lay status, observations like 'some contemporary gimmicks have been successfully employed' suggest that their approach is as sophisticated as it is stylistically catholic. Indeed, this looks so much like that 'informed lay opinion' that architects are always looking for, that one can only wonder what happens to students of this calibre later in life when they go on to become our rulers, and the rulers of our Universities. However, it is possible that we may not have to ask this particular question about this generation of undergraduates, for their attitude is probably as revolutionary in Oxford as the buildings—like Powell and Moya's Brasenose extension (AR November 1961)—that they single out for detailed discussion and praise. By the time some of them come to positions of power in the University, they may be riding on a sustained tradition of better university architecture that will enable them to fulfil the promise of *New Oxford*. For those who wish to gamble half-a-crown on what may (and deserves to) be the fundamental document in an Oxford revolution, copies of *New Oxford* may be obtained from Robin Aplin at Pembroke College, or John Chapman at Magdalen.

THE INSALL REPORT

A most valuable addition to the scanty literature of intelligent preservation is Donald Insall's report (effectively a development plan) for the historic and famous Suffolk town of Lavenham. Development, in the case of Lavenham, is very properly seen as the enhancement of its unique medieval townscape, quite as much as the improvement of its mechanical services and living-accommodation, and the great virtue of the Insall Report is that it sees the two things as part of an organic whole. Having considered the history of the town and its present townscape structure, it then proceeds, by way of general observations on the repair and maintenance of half timbered buildings to detailed house-by-house reports on the state of individual structures and equally detailed individual proposals for their rehabilitation or making good.

The general observations are of a value that goes far beyond the report in question: they are a complete statement of the present state of the geriatrics of timber structures and, with modifications for local practices, could become a general purpose restorer's guide. But against this must be balanced the patient and detailed care with which the case of every individual building is assessed on its merits, and recommendations made, not 'by the book', but on the basis of its condition, use, possible future use and its place in the total life and townscape of Lavenham. As the introduction says, it is a pioneer study, but it is also an exemplar, and sets a standard by which all future plans for historic areas will have to be judged. Significantly enough, it was local interest, not pressure from a central authority such as the Civic Trust, that set the scheme in motion, and it was the support of an enlightened local planning office (West Suffolk: Planning Officer, James E. Gorst) that ensured its successful completion. There is reason to believe that its execution, if not particularly rapid, will fully justify the hopes raised by the Report.

TECHNO-HISTORICAL

The news that the Imperial College of Science and Technology is to establish a chair of the history of science and technology is doubly welcome. Not only is this a field where the application of more academic talent is necessary, but it also promises an enrichment of the mental life of students working in the sciences and technologies by providing them with the kind of historical and cultural perspective on their own disciplines that students in arts subjects are expected to possess as a matter of course.

A BETTER BY-PASS

Spanning a deep ravine in the process of taking the A1 trunk road clear of the village of Wentbridge, north of Doncaster, the Wentbridge viaduct, shown in 3 on the point of completion, is a striking example of the kind of contribution that well-designed road-works can make to a landscape—see also AR October, 1961. It is only now that our road-building activities are beginning to move out of the pusillanimous, or pre-heroic, phase that we begin to see that they can contribute to the English scene, in their sophisticated way, the same sort of qualities that railway architecture contributed in terms of post-Classical functional tradition. The Wentbridge viaduct, designed by the West Riding County Engineer and Surveyor's department, represents an advanced bridge-building concept (the 470-foot-span road deck was completed before the two supporting legs underneath were built—the scaffolding is in process of removal in this picture) carried out with the directness and visual simplicity that one likes to think is implicit in any new concept, and the result is a real contribution to the architecture of better by-passes.

PARK HILL PUBS

The name of Mr. John Whisson should be added to those of the architects responsible for the Parkway public house in the Park Hill housing development at Sheffield (AR, December, 1961, page 433). Mr. Whisson was then working with the firm of Hadfield, Cawkwell and Davidson.

BOOK REVIEWS

GLASS BIBLE

GLASS IN ARCHITECTURE AND DECORATION. *By Raymond McGrath and A. C. Frost. London: The Architectural Press.* £6 6s.

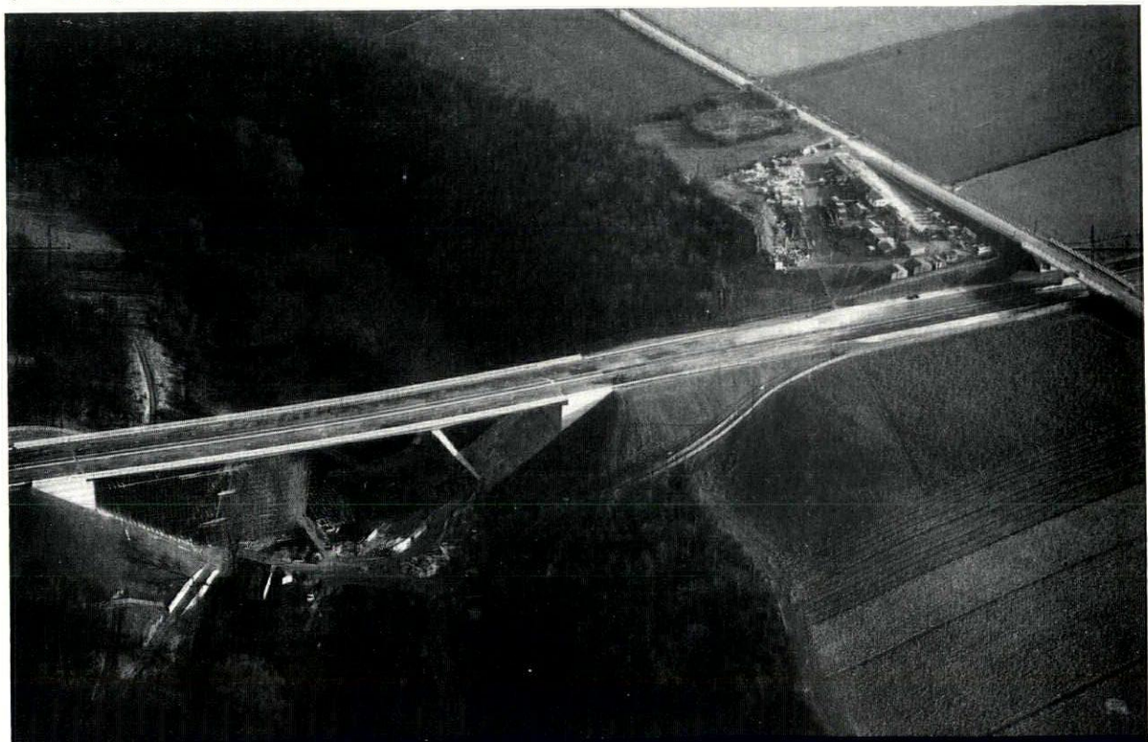
When this work was first published in 1937, nothing so authoritative and comprehensive had previously appeared about glass; and, apart from Nathaniel Lloyd's *History of English Brickwork*, no material used in building had been treated with such imaginative thoroughness. Now, after twenty-four years, a new edition has been issued, amplified and brought up to date, with many additional illustrations.

The original plan of the book has been changed slightly, and there are now five main sections instead of four, dealing respectively with the making of glass, the architectural uses, the decorative uses, the nature and properties of the material, and working, glazing and fixing. Following the last section are a 64-page appendix, describing and illustrating British building glasses, an 8-page glossary of terms, a bibliography, and an exemplary index.

So much for the structure and contents of a book that attests the scholarly powers of the author, his ability to deploy an enormous array of facts without wearying or confusing the reader, and his very special gift for lucid writing. Nearly a quarter of a century of progress in glass manufacture, glazing techniques, and structural development had to be recorded and their significance related to architectural design; for when the book appeared in the late thirties, the valiant champions of the modern movement (of whom the author was one) were battling for recognition, not only for their own work but, far transcending such personal motives, battling to get a completely new approach to architecture accepted. This book, about the potentialities of a material that was so closely and visibly associated with the modern movement, helped to discredit the deplorable alliance of tradition with reaction which then controlled the thinking of what we now call the Establishment, and still inspires the senescent prejudices of a few ageing obscurantists. It also performed an equally important function by giving unobtrusive guidance concerning the appropriate use of a material whose architectural significance had diminished since the early sixteenth century, whose extensive use had been penalized by the Establishment nearly two hundred years later when the window tax was imposed in 1697, and circumscribed after that tax was repealed in 1851 by thousands of Ruskin's disciples, who restricted the admission of daylight through the fine plate glass which was then available by cluttering up windows with mock-Gothic tracery. Today we have progressed to what McGrath calls 'the contemplative use of the window; "open sesame" between the house and the outdoor world; the expression of civilized elbow room.'

Any contemporary discussion of fenestration has a significance wholly different from the old, academic understanding of the term, for now 'the only limitations of the window are technical and practical—prevention of excessive heat loss or gain; shading against glare; provision for cleaning, maintenance and manipulation of the glass units; above all propriety and adequate privacy.' Here is covert reproof for the indiscreet enthusiasts whose intem-

3, *the Wentbridge viaduct on the* A1 *trunk road.*



perate use of enormous expanses of glass is not always in accordance with the needs of an interior, or with ordinary common sense either. Section 2 of the book should prompt many people to give more serious thought to the effect that large glazed areas have on those who spend most of their working lives behind them. Glare in summer, even in our northern latitudes, can be as detrimental to work and debilitating to the temper as bad lighting or an excessive dependence upon artificial lighting. The extravagant dimensions of some windows in a few school and office buildings may well have represented an immediate post-war reaction to restrictions, for the black-out was still a subconscious shadow. Most valuable perhaps of all the sections is 4, on the nature and properties of glass. Here, in compact and lucid form, are so many facts about strength, maintenance, properties, durability, flaws, fatigue, possibility of manipulation, in relation to various uses, and much information, too, about glasses with special properties.

Two of the most interesting of the coloured plates depict the new church of Le Pouzin, Ardèche, by Maurice Biny, with windows designed by François Chapuis and executed in 'dalle de verre' by Balayn; and the east window of the chapel at Vence by Henri Matisse. Of the latter Sir Basil Spence said: 'When I visit the building I feel that I have stepped into the centre of a pearl. The glass here is part of the architecture.' McGrath's book shows how glass as a building material has again become an integral part of architecture, as it was when architects in the fifteenth century at last achieved the conquest of voids over solids, creating what Lethaby called 'a cage of stone,' a stupendous lantern of slender members clasping brilliant and burning compositions of coloured glass. Plate after plate of the book shows how contemporary architecture has repeated this late mediaeval victory over solids; how once again the void has triumphed, in Britain, Europe, North and South America, in the new Asian and African cities, wherever the new Western architecture that evolved from the modern movement of the twenties and thirties has spread. These tall, commanding structures, exhibiting regional variations of form and treatment, all show how glass in the hands of an imaginative architect can restore the grace, elegance and honesty that, before the emergence of the modern movement here and elsewhere, had been forgotten, buried beneath a plethora of nostalgic revivals.

John Gloag

CATHEDRAL SCULPTOR

GISLEBERTUS: SCULPTOR OF AUTUN. *By Denis Gruist and George Zarrecki. Trianon Press, Paris; Collins, London. 70s.*

It was in 1936 that John Piper published an article in THE ARCHITECTURAL REVIEW illustrated by his own photographs and for the first time conveyed to laymen in England the thrills of Romanesque sculpture. The pieces he presented were all English and not all of them were of the highest quality. But their expressionism—a quality rediscovered by artists of the twentieth century—struck, their directness of gesture, their violence of action or petrified inactivity, the elementary block-shapes or the agitated linework representing the folds of the mantles of their figures.

Gislebertus, the sculptor of the west portal and the many capitals of nave and choir of the cathedral of Autun, was one of the greatest of the French Romanesque expressionists. The book which the Trianon Press has just published in association with Collins leaves no doubt about that. The illustrations are large and many and they are mostly from the superb photographs of M. Franceschi. The layout is restless and such matters as pagination and the numbering of the plates make THE ARCHITECTURAL REVIEW appear a timid learner in the art of confusing readers. The plates are numbered as follows: a-m, A-S, Ⓐ to Ⓐ 10, Ⓑ 1-Ⓑ 6, Figs. 1-4, Plates 1-66, Plans IV-VIII, Plates I-VIII, Plates Ⓒ 7-Ⓒ 17. The author happily refers to them without telling the reader that he must look to page 6 to find where to locate them. But page 6 of course has no page number (nor have pages 5, 7, 8, 9, 10). And so you struggle on. But don't give up and sit back to enjoy only the pictures. The text by Dr. Zarnecki is highly worthwhile.

It deals largely with iconography, that is the *what* rather than the *how*, of Gislebertus's carvings. Nor is this approach ever extraneous to medieval art. Ever since the *tituli* of Carolingian wall paintings have the artists themselves and their clients insisted on explanatory captions, as a rule in verse. On the tympanum of Autun, where the Last Judgment is represented more majestically and at the same time more forcefully than anywhere else, the church authorities yet found it necessary to put on Christ's huge almond-shaped halo: 'Omnia dispono—Solus meritosque corono.' And 'Quos scelus exercet—Me judice poena coercet.' And so on the left the redeemed rise and on the right souls are weighed and hideous devils grip the damned.

Carved inscriptions appeared indeed early too. The earliest known to me are on capitals at San Pedro de Nave in northern Spain, capitals of no later date it seems than *c.* 900. There are more of them in the Royal Pantheon at León about 1060, and then they start in France, in the Moissac Cloister in 1100, and in the preserved capitals of Cluny Abbey of about the same time. Cluny, the most powerful monastic church of Europe at the time, is only less than forty miles from Autun and was, as Dr. Zarnecki convincingly writes, the source for both Autun and Vézelay, the other principal Burgundian sculptural workshop. Moreover, Dr. Zarnecki succeeds in making it more than probable that Gislebertus worked at Vézelay himself about 1120; i.e. before the master of the Vézelay tympanum appeared. Dr. Zarnecki dates Autun *c.* 1125-35, the Vézelay tympanum to the same years and the porch of Moissac too.

Dr. Zarnecki writes with warmth and learning. His reconstruction of the north portal is ingenious, and some of his new identifications of the scenes that take place on the capitals are convincing; e.g. that of the Disciples at Emaus and that of God addressing Cain. Adam and Eve for capital 46 however remains better than Dr. Zarnecki's Ball-Players. That the same scene would not be carved twice in the same church, is no argument, as this occurs more than once at Vézelay and is indeed referred to by Dr. Zarnecki.

In any case the programmes of sculpture in twelfth-century churches are never consistent, and when one studies the plan annotated with the scenes on the capitals inside Autun, one is again and again puzzled by the haphazard arrangement of the scenes, Old Testament, New Testament, Saints, allegories—and no sequence. The two Simon Magus stories duly face one another, and the other scenes of St. Peter and St. Paul are more or less opposite, though not quite. One story of Cain faces the Death of Judas, but the death of Cain, which is the real typological counterpart to the death of Judas, is only more or less opposite, across the nave, and not quite. And St. Stephen and St. Vincent, who might be regarded as belonging together, are far distant, and so are the two Temptations of Christ. It is the same situation as is met by those who spend their energies on finding consistent sets of proportions in Romanesque churches. The standard of consistency which we presuppose just did not exist.

But while it would be useless to try and measure the programme of Autun in terms of later categories, the



4, *an illustration from* Gislebertus: Sculptor of Autun, *reviewed on this page.*

sculptural qualities of Autun are supreme under any category. The photographs speak for themselves, and they reveal a union of vehemence and tenderness, of stylization and realism hardly matched at the time anywhere. The sustained excitement with which one wanders from capital to capital and examines the great tympanum is largely due to the linear systems by which the folds of the garments are expressed. They are turbulent, whatever the mood of the representation and even where facial expressions are calm, and we, today, wonder whether that quality of linear rhythms would not be weakened, if the sculpture at Autun and everywhere else in Romanesque churches were still as boldly coloured as originally it was. Do we want eye-balls of dark blue paste and red, blue and yellow pigments for the costumes? Would we find the result as obtrusive as at Madame Tussaud's or as powerful as in such illuminated manuscripts as the Lambeth Bible? These questions bring up a whole host of others concerning our ability or inability to see art of the past 'right' and concerning the necessity or otherwise of doing so.

N.Pevsner

CHRISTIAN AND IMPERIAL

THE CATHEDRAL OF GRANADA: *A Study in the Spanish Renaissance. By Earl E. Rosenthal, Princeton University Press; London: Oxford University Press. £8.*

The Alhambra overwhelms Granada, and the cathedral's aesthetic defects relegate its fainter appeal to an academic plane which few have hitherto wished to explore. The present work is the first serious monograph in any language. The book is not an architectural history, but an art-historian's thesis, suffering from the usual defects. Labour has been spent on recondite bibliographical research rather than upon direct study. Though richly illustrated, the book contains no large-scale plans, and the few measured details are second-hand.

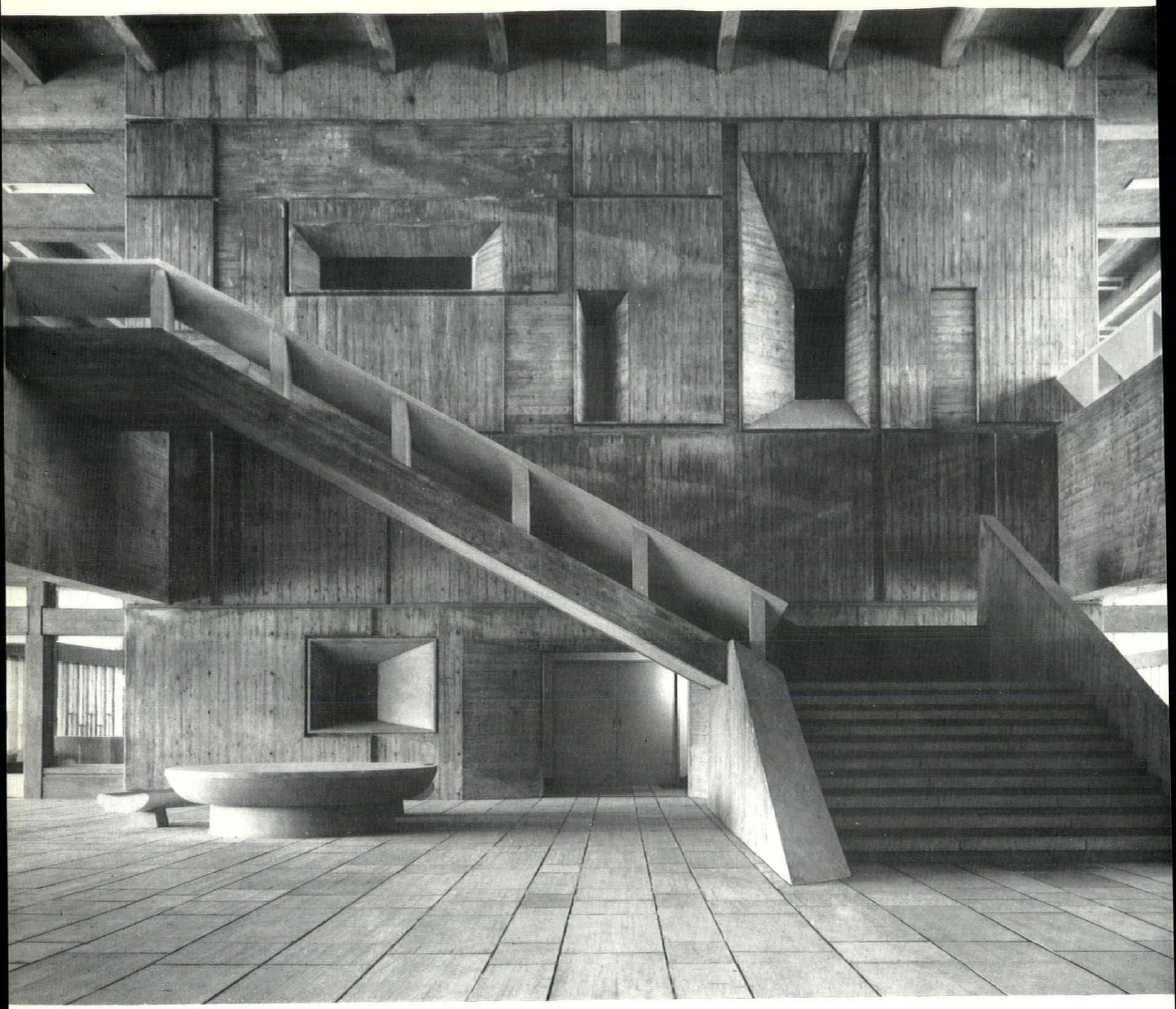
Mr. Rosenthal's method is undermined by inaccuracies and misprints: 'Loja (Granada)' is substantiated by a document plainly referring to 'Lojar cerca de Plazençia'—probably Losar de la Vera (Cáceres); the famous architect Juan de Alava appears as 'Alva'; 'Capers' for Cáparra; 'Bowel Collection, Bernard Castle' for Bowes and Barnard; 'Anagnani' for Anagni (p. 229) and at least half a dozen others.

The author holds that the design is based on the Church of the Holy Sepulchre, as (1) a memorial of the Christian Reconquest; (2) an imperial mausoleum; (3) a revival of Roman architectural form and Early Christian liturgy. A good case is somewhat diffusely made out, but complicated by unduly exalting the architectural quality of the result, and attributing all its virtues, but none of its defects, to Diego de Siloe.

Egas' Gothic foundations are minimised by tendentious hypothesis (p. 15), and the hypothesis treated as established fact (pp. 18, 53-5, 82-3). Little is made of the really startling feature of the Granada sanctuary: its great proportional height, which clearly did not originate in measurements of the Anastasis at Jerusalem. The parallel here with the rotunda at Aachen, where Charles V had been crowned *as Roman Emperor* in 1520, is not made, while the Renaissance architectural comparisons should have included the Madonna dell' Umiltà at Pistoia, begun in 1494.

Mr. Rosenthal's understanding of the psychology of Renaissance Spain improves upon his feeling for architecture, and his historical conclusions have greater validity than his art criticism. Students will be grateful for his valuable appendix of 263 documents from the archives, and for the 137 illustrations in line and collotype.

John H. Harvey



This photograph sums up much of what is visually fresh and exciting, as well as what is typical, about recent Japanese architecture: its bare and somewhat brutal geometry; its structural expressiveness; its vigorous use of reinforced concrete in a manner reminiscent of timber. It shows the main ground-floor lobby or 'citizens' hall' in one of Kenzo Tange's latest buildings, the city hall at Kurashiki. This building is the subject of one of the Review's series of critical appraisals of important new buildings, beginning on page 106 of this issue. The author is Philip Thiel, American architect and town-planning expert who has just returned from some months' residence in Japan and is now an assistant professor at the University of Washington, Seattle. In his article Mr. Thiel describes this 'citizens' hall' as 'a dark, high and narrow space formed on all six sides in unfinished concrete, and full of menacing sharp darting forms . . . not a space that invites lingering. The space has a remarkably Piranesian prison-like quality in its monochromatic gloom, massive scale and upward accent.' The photograph is taken from beneath the deep girder that partially separates the hall from the foyer.

THE NEGATION OF PLANNING

When can a planning authority succeed in living up to its name? The answer is: only when it can take decisions and co-ordinate policy on the whole range of subjects that planners have to deal with; otherwise its development plans are repeatedly outdated by events.

Traffic is one of the most important of these subjects, yet the London County Council, officially the planning authority for London, is being put in an impossible position by a Government that takes its own independent traffic decisions. London is at present being made the subject of several traffic experiments in the form of large-scale one-way systems —experiments that are needed, but as part of the gradual reshaping of the structure of the city as a whole. If they contradict this reshaping process they are the negation of planning.

These one-way traffic experiments are being decided upon jointly by the police and the Ministry of Transport. The first the town-planning officers and committees at the LCC heard of the recent decision to make the greater part of Piccadilly a one-way street was when they read about it in the newspapers. Yet this and similar decisions conflict directly with the wider planning policies the LCC is trying to operate—for example the system that allows north-bound traffic only up Tottenham Court Road and brings the south-bound traffic down Gower Street. This means bringing it through Bloomsbury— along, among other places, the eastern side of Bedford Square. Now Bloomsbury was earmarked in the County of London Plan as a university precinct, and the LCC's long-term intentions are gradually, by road improvement elsewhere, to eliminate through traffic streets from the Bloomsbury area, leaving it free for pedestrians and a limited amount of service traffic. This was also the basis of Sir Leslie Martin's master-plan commissioned by London University.

But how can such a university precinct be achieved if the Ministry of Transport, without reference to the LCC, creates a new main traffic route right through the same area?

Similarly the Ministry's one-way working in Piccadilly means making Pall Mall, which has to take most of the west-bound traffic, into a main artery and a bus-route. This again conflicts with the County of London Plan in which the Pall Mall area is regarded as another precinct, to be bypassed as far as possible. Again, the new system by which Baker Street becomes one way and traffic going the other way uses Gloucester Place, brings through traffic along a residential street. Other one-way systems under discussion threaten to do the same.

Another example of the failure to consult occurs in Piccadilly Circus itself. Decisions about traffic have been the chief reason for the delay in finalizing the master-plan for the area of the Circus which the LCC was told to prepare after the ministerial enquiry two years ago. The Ministry of Transport and the police have been fighting a rearguard action to maintain fast traffic movement as the dominating element in the plan—contrary to the whole spirit of Sir William Holford's proposals and of all accepted civic planning ideas—but apart from this an accurate traffic count and analysis of origin and destinations was an essential preliminary to proper planning, and this was undertaken. But the figures so painstakingly obtained have now been invalidated by the Minister's arbitrary decision to make Piccadilly one way and redirect traffic along other streets in the area. Once again this is the negation of planning.

It is not to be denied that at least some of these new one-way systems greatly help the flow of traffic and as such are to be welcomed. What is to be deplored is one authority planning against another. By imposing his one-way systems on the London plan in the way he is now doing, the Minister of Transport is going against Sir Patrick Abercrombie's whole conception of a future London composed of traffic-free precincts each with its separate purpose and character—a conception on which the London development plan is still theoretically based.

The sabotage by the Government of the long-term London plan—for the arbitrary decisions about one-way working amount to nothing less—is typical of the Government's habit of regarding itself as exempt from its own rules. It requires local authorities to prepare development plans and then makes them unworkable in the manner just described. It sets up a National Parks Commission and then permits power stations inside the areas it has itself designated. It approves of the LCC discouraging the growth of office space in central London, and then—in order to help finance railway modernization—allows the British Transport Commission to bring in a property developer to build office blocks along the street frontage of the new Euston station.

The proposed reorganization of the government of London may improve the situation as regards traffic (although it will destroy the whole basis of the present high standard of LCC architecture—but that is another story) because traffic planning is said to be one of the responsibilities of the Greater London Council that is to be set up. But this Council will not come into operation for more than four years, and in any case we have had enough experience of the activities of traffic engineers to mistrust their ability to co-operate with town planners. The new set-up proposed gives no guarantee that faster traffic movement will not continue to be regarded as an end to be pursued quite independently of the human structure of a city and the damage that may be done to it.

A LONDON SHOPPING STREET REDEVELOPED

High Street, Notting Hill Gate, at the north-west corner of Kensington Gardens, serves as a shopping centre for a large residential area. It has been almost wholly rebuilt by a property company at the instance of the LCC, who have, however, retained the anomaly of a main traffic route flowing between parallel rows of shops. The new buildings are illustrated here, with an appraisal of the result in terms of townscape by Kenneth Browne, who made a study of the area's townscape possibilities in the May 1958 Review.

The New Notting Hill Gate

ARCHITECTS: COTTON, BALLARD AND BLOW

1 looking east under the 19-storey block.



2, looking east along Notting Hill Gate, which is the A.40 trunk road from the west into London, with Ladbroke Terrace and the six-storey block of flats in the foreground and the 19-storey block of maisonettes (B in aerial view below) behind. 3, the 19-storey block and the four-storey block of offices over shops at the corner of Pembridge Road. 4, close-up of the 12-storey office block (A in aerial view) showing the staircase giving access to the offices on the first floor. 5, the 12-storey block with another four-storey block of offices over shops (C in aerial view) seen from the Devonshire Arms at the corner of Pembridge Road. 6, the architects' model of the scheme, which was submitted to the LCC in 1957. 7, aerial view of the completed scheme, looking west over Notting Hill Gate. Note the delicacy of the proposed design, compared with the solid result.



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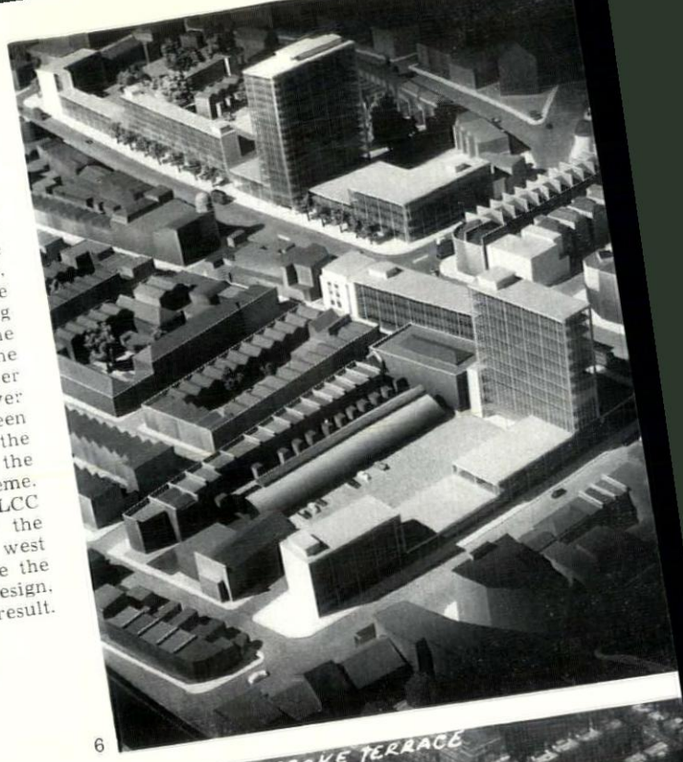

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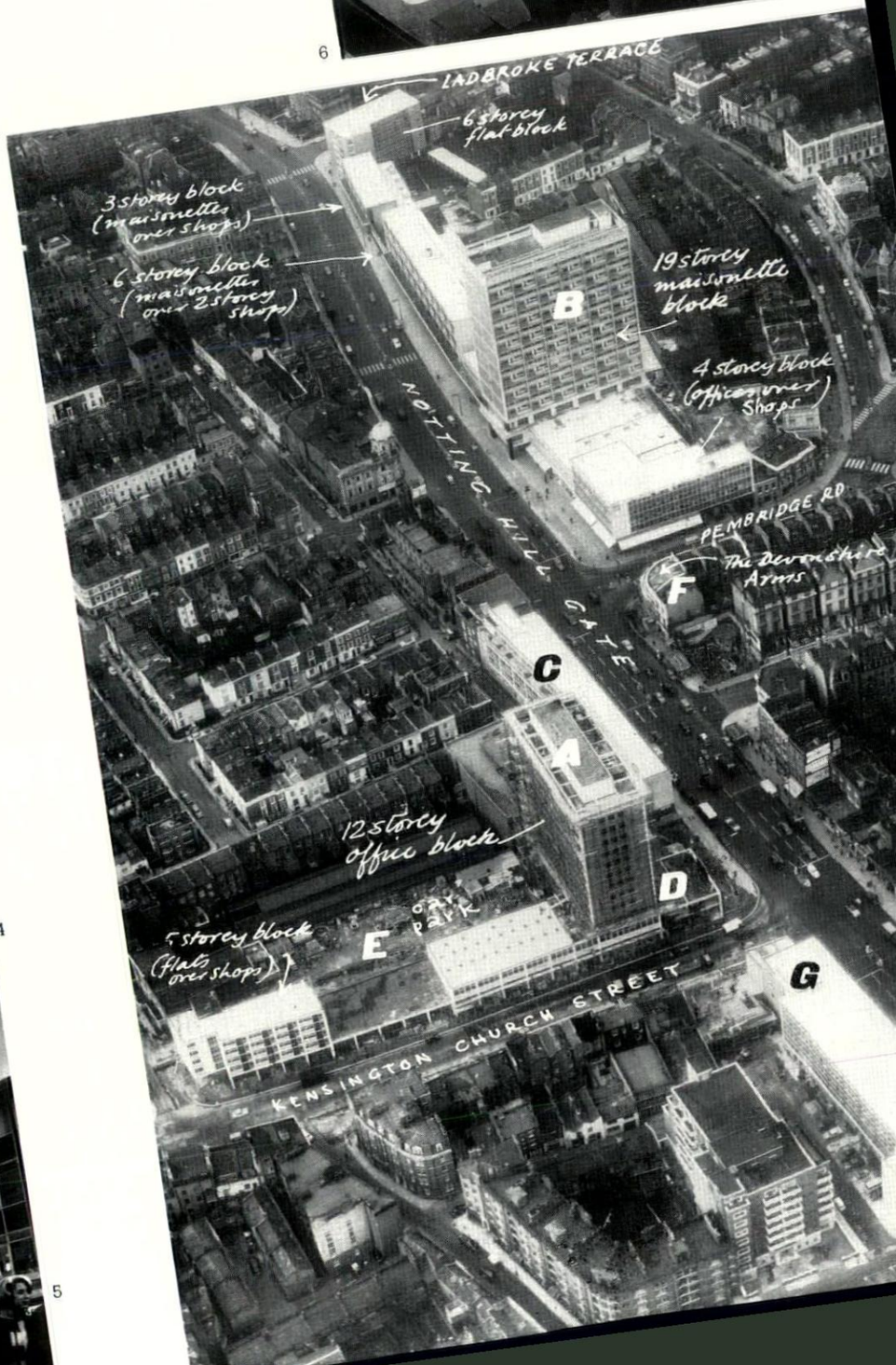
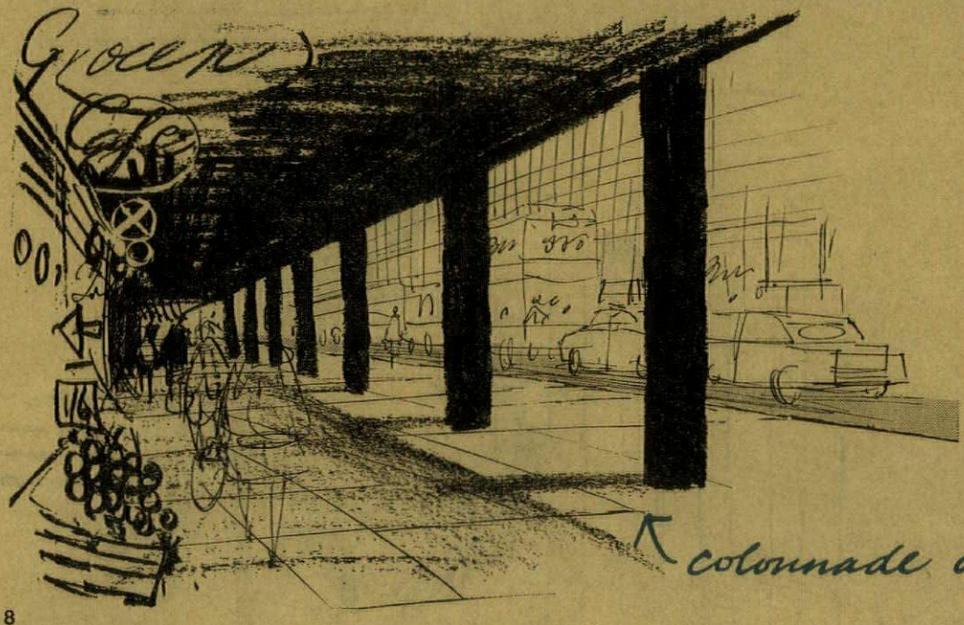


7

townscape report

Since the art of townscape lies in the successful relationship of this to that, of one building to another, of space to space, it follows that with one building only to design, the opportunities are strictly limited. You cannot control what will happen on either side or opposite; there is little room for manoeuvre. When, however, as at Notting Hill Gate, a whole shopping street is designed by one firm of architects, then the opportunities are great; the pieces can be moved about and made to work in relation to each other. Here, though, the designers were handicapped in that the rebuilding only came about as the result of a fifty-year-old LCC road widening scheme, and in consequence compulsory purchase was limited to a narrow strip on either side of the roads affected.* This prevented development in depth and forced the retention of a multi-purpose corridor shopping street, mixing A40 through traffic and shoppers as before. There has been no real solution to the traffic problem; inevitably any existing intimacy due to smaller scale has been lost, and shops now line either side of a broad traffic race. Worst of all, to get from anywhere west of Pembridge Road to the remainder of the area, pedestrians still have to cross at traffic level. These things were beyond the control of the architects, but they prevent what is surely the first requirement of a shopping centre—safe and easy access.

*See AR May 1958, page 315.



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9

In & Out

The second requirement is protection, but not isolation from the traffic. This is as much a visual as a physical thing. South of Notting Hill Gate, by the exit from the Underground subway, there is an instance of it. For a short run of about 100 ft. the shops are set back under a colonnade, 8, which gives protection from the weather and also, visually, from the traffic. In addition, the run of columns serves to tie in the street views. What a pity the device is only used this once, for by contrast the rest of the street, where a canopy only is provided, feels bleak and wide open, 9. Unfortunate, too, that the subway exit comes up outside the colonnade. If it had been inside there would be a transition from the total enclosure of the subway, through partial enclosure of the colonnade to the completely open street. In addition, the views out from the colonnade are confused by a proliferation of street signs (photo 31, page 96).

At the junction of Church Street and Notting Hill Gate, 10, there was the chance to provide effective pedestrian space, and here some of the possibilities have been realized. A 12-storey office slab ***A*** is set back from the street line and raised on columns so that you can pass beneath it, while the space in front has been jacked up to form a platform. However, the chance to link through to the colonnade below block ***C*** already mentioned has not been taken and you find yourself shouldered out to the traffic stream, 11, instead of passing under the colonnade as could have happened, 12. By contrast there is a first rate example of real townscape below the 19-storey housing block ***B*** (photo 1, page 89) where an excellent effect is achieved by letting the front columns stride over the pavement, allowing the shopper to pass beneath. The street beyond is framed and a civic scale achieved by exposing the columns up to the

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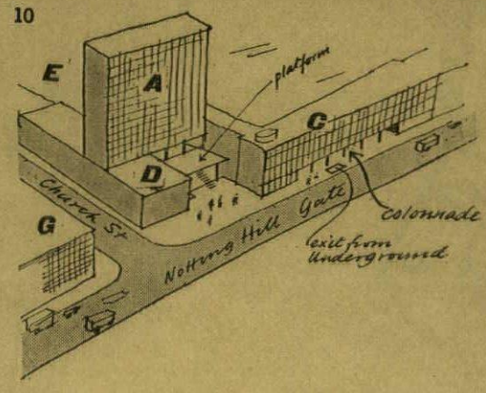



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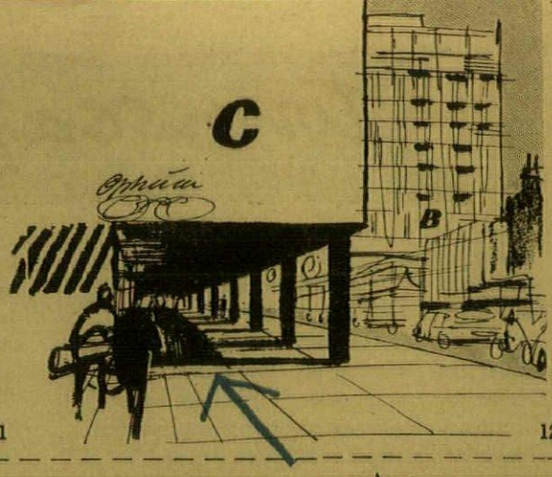
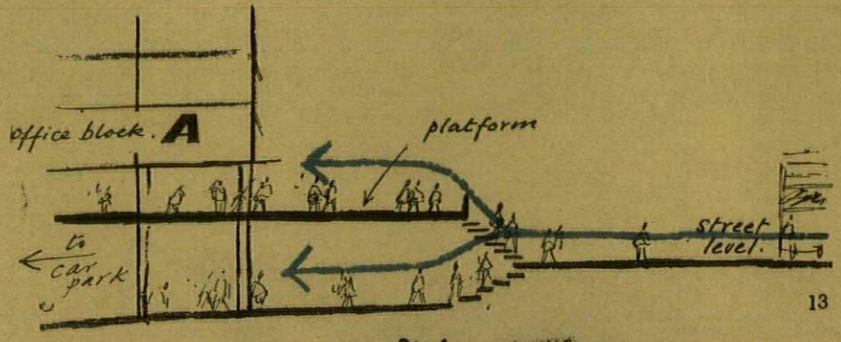


12

balcony projection at second floor level. Narrow footpaths cut through the street wall in a few places (photos 32, 33, page 96), but their necessity as refuges from the mad rush of the main thoroughfare and the need, having provided them, to bring them to life has been insufficiently realized.

Up & down

The treatment at the base of office block ***A*** is imaginative and starts to make the whole thing tick. By really using and manipulating the change of levels, 13, buildings and people begin to work together. The people articulate the building and spaces—this is townscape at work. They penetrate beneath block ***A*** to reach the car park, ***E***, at a lower level behind it and also use this as a short cut to Kensington Place. Access to the raised platform is by a turned flight of free-standing steps and a constant procession of people climbing and turning makes the space come alive (photos 28–30, page 96).



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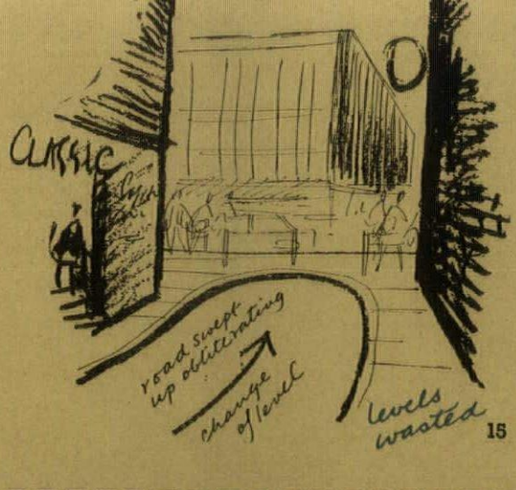

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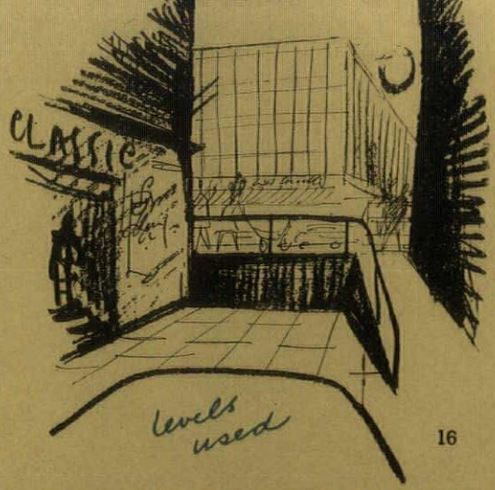

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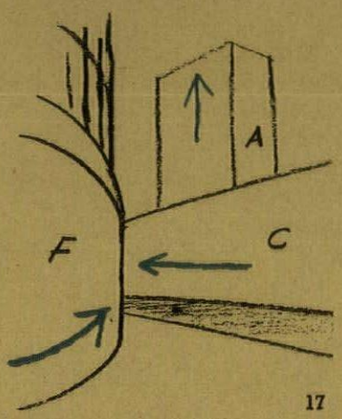
Up and Down (continued)

The only criticism here, apart from a rather insensitive handling of the stair itself, is that it is a good idea not carried far enough. At present the terrace is sterilized by being merely the approach to the office block beyond. It should be real public space as it would be if a coffee bar or pub gave access to it, 14. This is a fine vantage place to view the street.

Farther west where the alleyway by the Classic cinema has been stopped short an opportunity to exploit the levels is wasted, 15. They could have been expressed, 16.

Street Wall

Sometimes well handled, as at the junction of Pembridge Road and Notting Hill Gate where the curved front of the old Devonshire Arms has been repeated in rebuilding, making a good lead in to the straight line of curtain wall opposite, 17 (photo 5, page 90) and the high block beyond. By contrast the street corner, ***G***, at the junction of Church Street and Notting Hill Gate could hardly be more clumsy in its complication of ill-fitting masses, 18, while the street wall along Church Street has a chunk out of it for no apparent reason which breaks the line of the building in a most disturbing way, 19. On the credit side, the even run of curtain wall to the offices ***C*** (as seen in 4) is good streetscape with the two tall blocks ***A*** and ***B*** facing at right angles to each other and really holding the street. However, anyone who remembers the gossamer lightness of these high blocks on the original model (photo 6, page 90) is in for a rude shock when he sees how they have turned out. This particularly applies to the crude end wall of block ***A*** which overpowers Church Street and shows how misleading a slick perspex model can be. Only the curtain walls to the main facades of block ***A*** are as light and airy as the model suggested.



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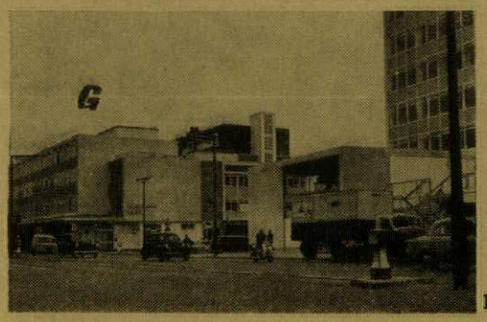

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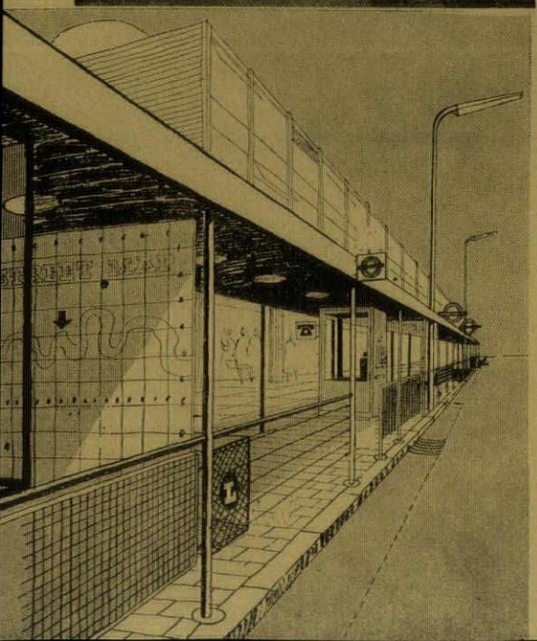

21

Detail

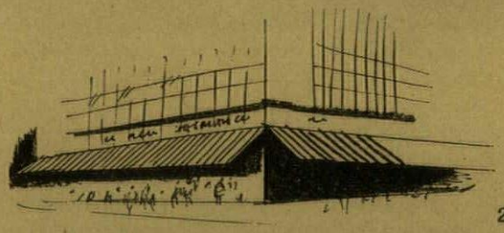
In the case of street furniture there has been an attempt to cut down on the number of objects and no guard rails disfigure the street corners as originally threatened. However, the concrete lamp standards are far too obtrusive and obstruct nearly every view while there is insufficient co-ordination of the other objects, 20. This could have been achieved, 21.

Floorscape consists of nothing more than regulation paving, lacking in interest, while seating is limited to two wooden benches, rustic style, between the legs of block ***B***, in as draughty a spot as could be found. The wide pavement between block ***B*** and Pembridge Road is completely wasted and there is no sign of the trees which in the model served to enclose this area.

Shop blinds, 22, are very well used here in an unbroken line and most effectively carried round the street corner.

Fascia lettering (see also page 136) is neat but generally rather dull, while the use of italic Egyptian caps, placed *vertically* on The Hoop public house, is a minor disaster, 23. Incidentally the poor design of the exterior of this pub is in marked contrast to the interiors which are excellent (see page 134).

KENNETH BROWNE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23

THE NEW NOTTING HILL GATE

This scheme is a private enterprise redevelopment, by Raventop (London) Ltd., on land which became vacant owing to the road-widening and straightening-out of the Notting Hill Gate thoroughfare, and was both a competitive design and also a tender for the leaseholds of these sites. The superior landlords are London County Council, and development has been carried out on either side of the existing High Street, which is one of the main traffic routes out of central London to the west.

The site is divided into three distinct blocks. On the north side, between Pembridge Road and Ladbroke Terrace, there is predominantly shop and maisonette development, with 24 shops on the ground and first floors and 150 flats over. The majority of the flats are in a 19-storey 200ft. block which dominates the centre of the scheme. They consist basically of maisonettes with a living-room, two bedrooms, kitchen and bathroom, and are designed to give the maximum protection in case of fire by means of a secondary staircase escaping upwards from the bedrooms to the corridor above.

On the south side of Notting Hill Gate there is the majority of the office accommodation. One block runs for 300 feet on the south side of Notting Hill Gate, returning down Kensington Church Street another 500 feet, and on the corner is a 12-storey office-block with a patio approach from street level. To the east of Kensington Church Street, running some 300 feet to Palace Gardens Terrace, is a block of single-storey shops with offices over. At the corner of this block with Kensington Church Street a new public-house, the Old Swan, has been built.

The building on the north side has a reinforced concrete structure on piled foundations with solid concrete floors. The in-filling to the residential accommodation is vitreous enamel steel panelled walls backed with asbestos panels fixed to 9in. thermolite panel walls. The windows to the residential accommodation are predominantly aluminium sliding windows in timber frame for easy access to cleaning and to combat wind resistance. The flats are finished with woodblock flooring throughout the ground floor and landings, and having linotiles in kitchens, w.c.s and bathrooms. The whole of the living-room and bedrooms have underfloor heating. Refuse is taken away from the kitchens by refuse chutes and storerooms are provided outside the flats for all tenants. Bathrooms, halls, landings and corridors are all mechanically ventilated.

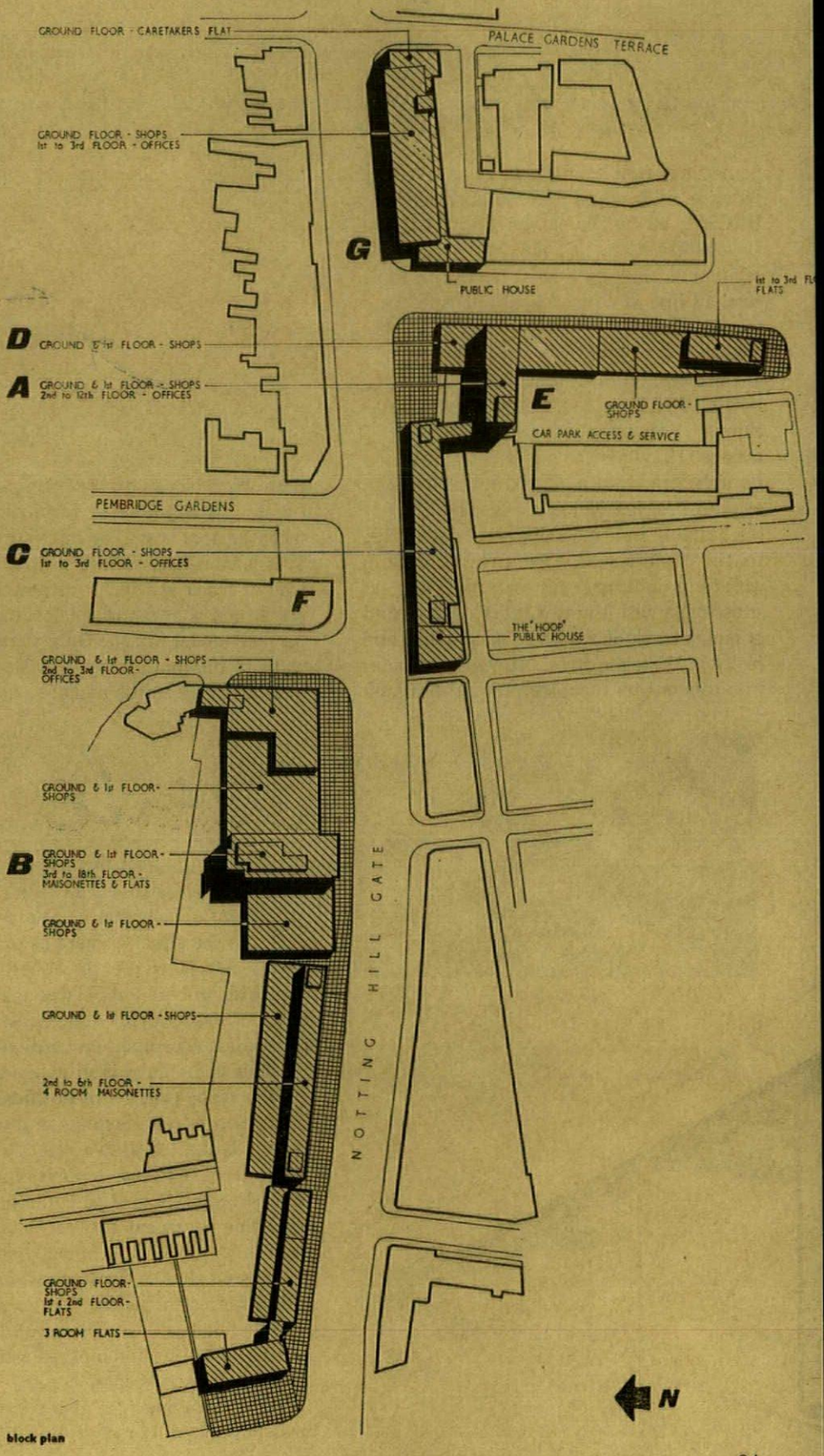
The offices on the south side of the site are again reinforced concrete structures with flat plate floors. The window walling which encloses the offices is of steel with vertical pivot-hung windows. The in-filling to the spandrills of the windows is armour-clad glass backed with a concrete perimeter upstand beam. All offices are heated with cill line heating incorporating the services in the skirting.

At the south end of this site are 20 bed-sitting room flats with kitchen and bathroom. All are centrally heated with under-floor heating and having lifts to all floors. All sites cater for car parking at the rear with service roads connecting all properties.

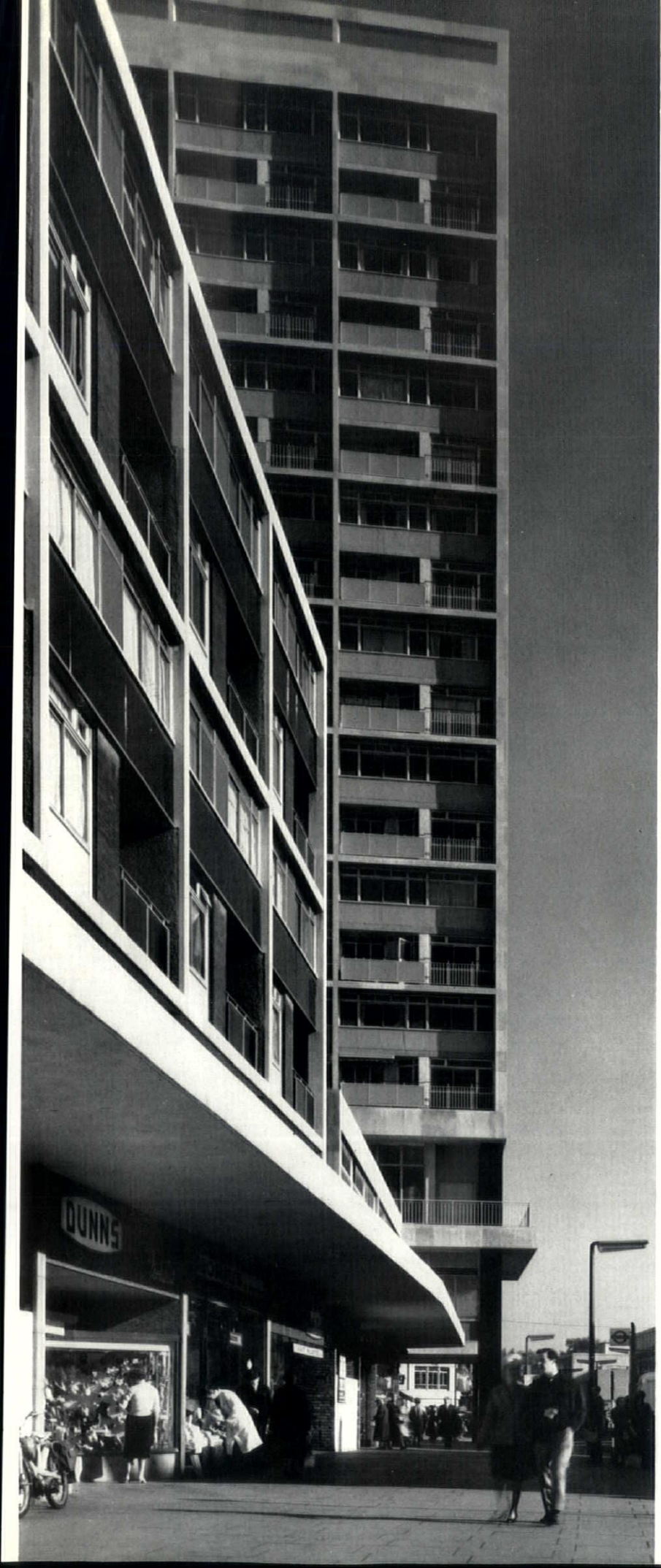
Quantity surveyors, Gardiner and Theobald.

Structural engineers, W. V. Zinn and Associates.

Facing page: 24, looking east along Notting Hill Gate towards the nineteen-storey block of maisonettes (B on block plan below). 25, the return wall of the nineteen-storey block. 26, the six-storey block of shops and maisonettes on the north side of Notting Hill Gate. 27, looking west towards the nineteen-storey block.



block plan



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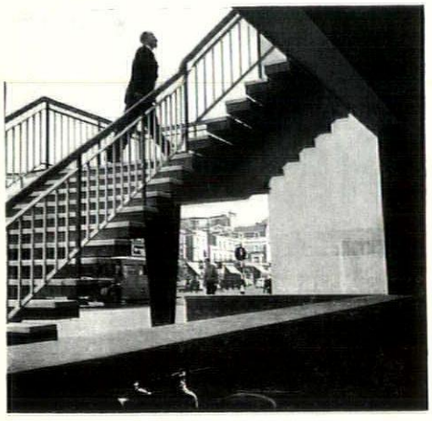

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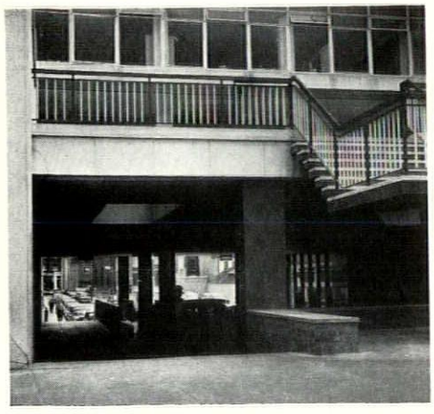
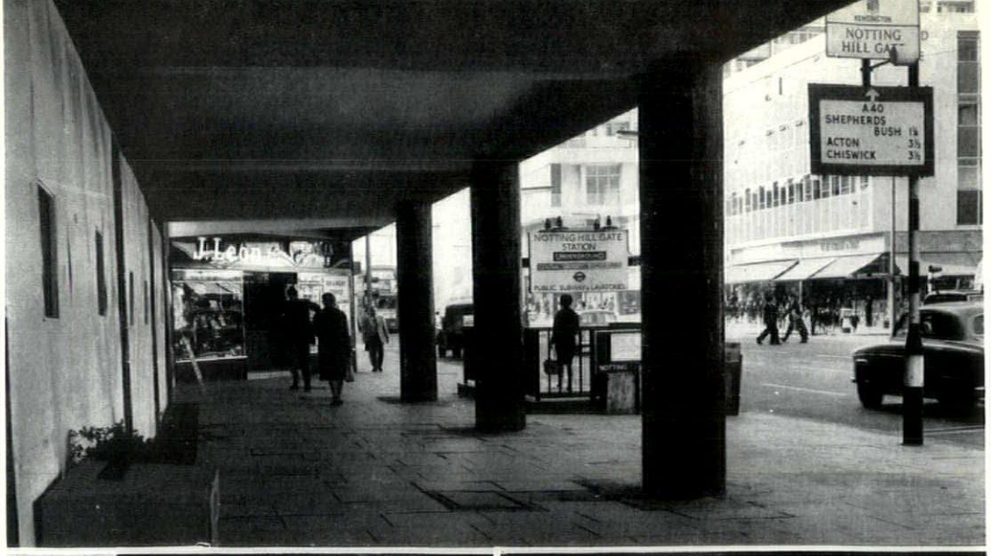


30

28, 29, two views of the free-standing staircase leading to the first floor platform in front of the 12-storey office block. Entrance to the offices is from this upper level. 30, passage beneath the 12-storey block leading from street to car park.

THE NEW NOTTING HILL GATE

31, colonnade under tthe three-storey office block (shops are unfinished) showing the entrance to the underground. 32, 33, short cuts through the street wall. 34, the approach to Notting Hill Gate from the car park behind the 12-storey block. 35, the broad pavement and shops carry through beneath the 19-storey block. 36, the approach to Pembridge Road from the car park behind the four-storey block. 37, Kensington Place netted by columns supporting the five-storey block in Kensington Church Street.



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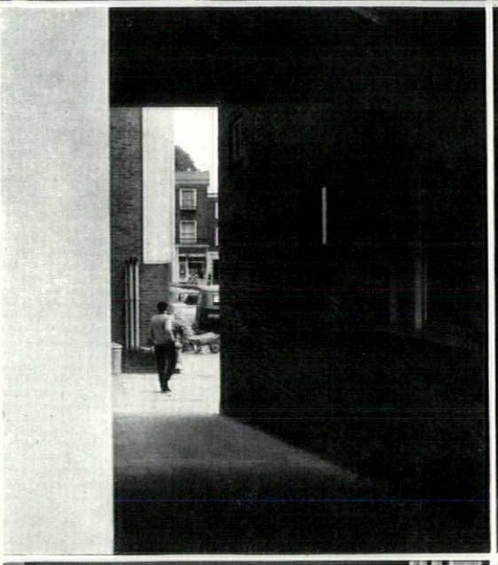

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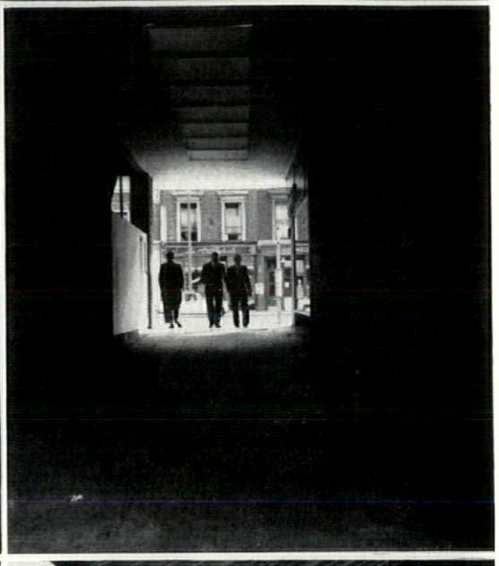

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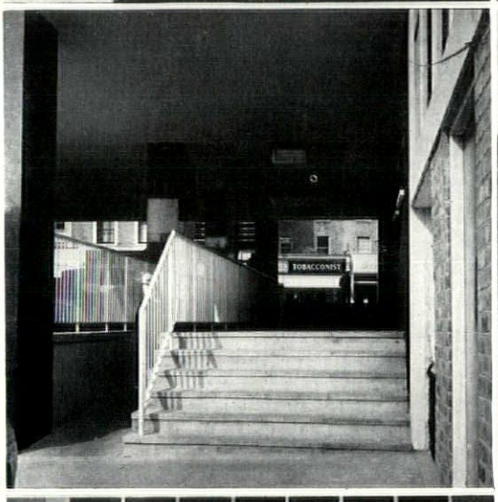

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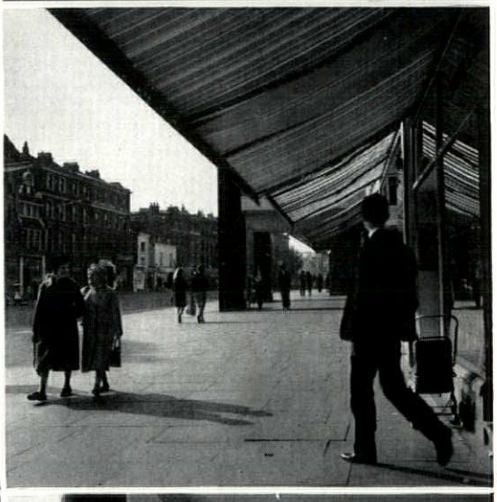

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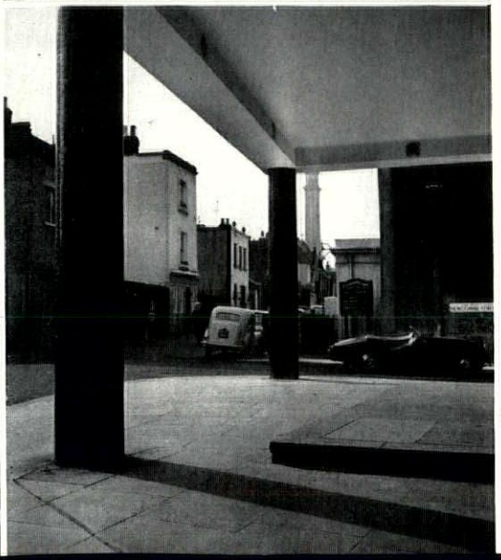


37



1: THE SITUATION

ON TRIAL

what architecture of technology?

REYNER BANHAM *introduces a series of investigations into current problems of architectural design*

The theme of the Sixth Congress of the IUA in London last year produced an abundance of high-sounding pronouncements on the relationship of architecture and technology. Many of these statements were heroically naïve—when viewed from the technologists' standpoint—and remarkably little of what was said by architects present went significantly beyond what had already been said by the pioneers of Modern Architecture before 1914. Most disturbing, after some two hundred years of architecture variously influenced by the rise of industrial technology, was a statement by Peter Smithson, in the catalogue of the Congress exhibition that 'We are really at the very beginning of the architecture of technology.'

what architecture of technology?

This is the kind of nonsense that could only be written by one architect for other architects to read, and is bound to provoke the question 'What architecture of technology is only beginning?' for it is as plain as an oilwell in a desert that architectures of various technologies have flourished in even the two centuries of modern technology. The architecture of cast-iron has risen and died away, so has a whole architecture based on mill-cut timber, both of them dependent directly on their own industrial technologies of production, and a steam technology of power and railway transportation. We are also in at the death, at this very moment, of the architecture of primitive concrete technology, and a little beyond the birth of a more sophisticated concrete architecture. What has happened is that the architecture of Technology with a capital T has shifted its ground and its emphasis as different technologies have spurted ahead, then fallen back. Architects have found it easier to involve themselves with some of these technologies than others, and some have been more sympathetic to the professional mythology of architecture than others. The mystique, or lore, of the operation has not had to be stretched very far to accommodate new methods of assembly, and success and failure in the field of prefabrication have been extensively discussed in the classic literature of the Modern Movement, as well as at the Congress. But other fields, such as those of mechanical services, lie so far outside the traditional lore that they have never been convincingly incorporated in the mystique. Yet the domestication of electrical illumination is a revolution of far greater consequence for architecture at large. You will not find it in the books, yet it appears to have been largely the work of architects, and something that they have taken in their stride. But whereas Auguste Perret is one of the heroes of the Movement for his limited, but assimilable, pioneering in reinforced concrete, no one is yet sufficiently *au fait* with the historical facts to know whether or not Thomas Harris's great hall at Stokesay Court is the first major interior consciously designed in terms of electric lighting. It is the work of such unconscious pioneers as Harris, or the (as yet) unnamed inventors of the wooden post-and-panel systems of Nineteenth-century wayside stations, that really show up the meaninglessness of any propositions that we are at the beginnings of an architecture of technology.

warning: unconscious pioneers at work!

Yet architectural nonsense has a habit of containing veins of perverse truth, and it may be that something is happening, something which architects, if nobody else, believe to be of consequence, in the no-man's land between technology and architecture. There are, indeed, signs to be read, even if their interpretation is

obscure: signs of cautious and methodical approaches toward better accommodations between the two disciplines or, contrariwise, of wild swipes of genius which may reveal, when the dust settles, breaches in the paper curtain of incomprehension. Certain clear trends have emerged since the AR tried to assess the position of architecture in 1960, and are worth identifying here.

mad scientists go home!

Firstly, a decline in mad-scientist type ideologies. There has been a notable cooling in the idolatry of certain celebrated engineers (Wachsmann, Candela, etc.) partly because greater acquaintance has shown how alien are their modes of thinking (even Wachsmann's) to those which architects can accept, partly because subterranean scandals about 'superboloid' structures (the impracticability of Utzon's Sydney Opera vaults) have undermined faith in the ability of engineers to build absolutely *anything* that architects care to dream up. Universal geometrical systems continue to proliferate, but at the lunatic fringes, not in central positions.

tombs of the computers

Secondly, a growing suspicion of skin-deep machine aesthetics. Much of this is mere callow reaction against preceding idolatries, such as patent-glazing. In the decade since the completion of the United Nations Building, the fashion for the 'computer look' has died of exhaustion: its tombstones—the Seagram Building with its artificial sun-tan, and the CBS project with its even greater air of simulated weightiness.

crumbling as a fine art

Thirdly, that 'more crumbly aesthetic' prophesied at the turn of the decade has established itself as a dogma, and Louis Kahn as its Messiah. Partly, this is an aspect of the anti-fake-machine-aesthetic described above, but the unequivocal success of Kahn's laboratories in Philadelphia as the first smash-hit building of the 'sixties shows that there is something very positive about the trend as well.

methodology men

Fourthly, the rise of institutional approaches to architectural technology, as epitomized by the Development Groups in Britain and the Bureaux d'Etudes Techniques in France. These have forced themselves on the attention of architects in a quite unexpected way. Not unexpected in form or substance, but in terms of quantity, success and prestige—the CLASP school at the Triennale was the first wild outsider of the 'sixties.

snob/anti-snob syndrome

And fifthly, a hurried re-grouping of attitudes to the increasing sophistication of public taste. Though this was extensively canvassed in the nineteen-fifties, its irruption into the field of mass-production architecture has been more rapid than could have been anticipated. As a result, those who were violently pro-Pop are now reining in somewhat, if only to make time to study what is actually happening, while those who previously professed no interest are now forced to admit that all creative designers are involved in the Pop-art field willy-nilly, and must adjust their ideas, if not their art, to this fact. Independently, a growing sense of architects as the *corps d'élite* of designers (a reaction against the view of architects as 'just master builders') has produced a growing fastidiousness about involvement in the Pop media, and a suspicion of anything, like curtain-walling, that becomes a popular success.

In so far as these trends represent a loosening of dogmatic attitudes, they offer some scope for a more flexible approach to the technology of architecture. But do they? The collapse of a dogmatic preference for curtain-walling and framed structures will not open the way for a more flexible approach to the design of building envelopes if it is immediately replaced by an equally dogmatic preference for rude brick-work and archery-slit windows. It is no use verbally praising the research and development work of CLASP or OTH if the results of that work are excluded from your own buildings because they might interfere with your own originality as a designer. The general tendency of the new developments in architectural thought (if that is not too strong a word) is for them to cancel one another out, or else, like the Pop syndrome, to be self-cancelled by internal contradictions.

If these contradictions can be left unresolved, all well and good, but the profession's passion for emotive certainties, rather than operational facts, will create a massive pressure towards solution, in order to establish a usable style. Or rather, one should say a *discussable* style, capable of being argued over, publicized (as the work of the Philadelphia school is now being publicized), recognized by competition assessors, and imparted to students. But it will not necessarily be the *usable* style because that will be dictated by the factual pressures of available technologies, client needs and the economics of the building market.

This brings us to one of the basic difficulties in the way of any real accommodation between architecture and technology—the difference between the styles (in the widest sense) that architects are prepared to discuss, and those that they are going to have to use. Architects are prepared to talk big about the big, knock-down impacts of technology, and to try and dream up a style from them, but not the creeping effects of technology which are usually of more consequence in the end. The much-publicized revolutions in twentieth-century architecture tend to deal only with the former, and thus prove to be pretty fallible. The great upheaval between the years 1911 and 1923 found a profession that used mud-type materials to make square box buildings, and after the excitement had died down it left behind an architecture of square box buildings built of mud-type materials. Concrete may be a better type of mud than bricks, but the consequences of this most widely discussed revolution in the history of architecture are miserably incommensurate with the claims made by its propagandists. The architecture of concrete got away to a false start, and in the present phase of distrust of mad (or any other kind of) scientists, may never get under way at all, while the engineering of concrete, outside architectural control, may flourish as never before.

squares love mud

What it comes to is this—that architects, having waited for technology to work a miracle without any effort on their own side, feel let down by the non-fulfilment of promises that were never made. Reinforced concrete, geodesic domes, irradiated plastics will not, of themselves, revolutionize architecture. Two things will, however. One is a general mental accommodation towards technology and its mental disciplines (one of the main themes of the ***1960*** series). The other is what Le Corbusier calls *Recherche patiente* (without actually doing any himself), the incorporation of the products and usages of technology into architecture, making architecture out of them.

There are two ways in which this last can happen. One is the slow preparation of the ground by propaganda, paper projects and wishful thinking, so that when

the revolution finally strikes from outside, the profession knows how to handle it. The prime example of this of course is the long preparation, and lightning acceptance, of curtain walling, the nearest thing in this century to the kind of external technological revolution that naïve functionalists expected from concrete or geodesy. Nearest, but still separated from that Functionalist dream by three decades of conscious mental preparation, through which the curtain wall was established in architectural mythology as a goal to be attained.

the fine tilth of revolution

The other way, which is more intimately connected with the problem of the usable style, involves no sudden revolution, and never becomes part of the mythology of the movement. The most striking example, the most striking for having passed almost without comment in the two decades or so that have elapsed while it has been establishing itself, is what we most inadequately term 'the suspended ceiling.' The reasons for its non-appearance in the mythology are obvious enough, given the way in which modern architectural writing and discussion has been obsessed with exteriors and natural lighting (forms assembled in sunlight, and all that jazz) and tends to treat of interiors in more or less the same way, failing almost completely to observe that *apparent* form and space inside the building are subject to (sometimes unavoidable) manipulative techniques that are impossible outside. In addition, exterior elements enjoy an unjustifiable prestige —they are classified at (1) in the SfB system—presumably derived from traditions that go back to mass-construction, and they are also liable to have an immediate effect on the gross appearance of the building, as with curtain walling. Exterior treatments therefore become the subject of heated debate, and people take sides, as with curtain walling again. But no one is for or against suspended ceilings, and yet they constitute one of the most sophisticated elements in the technology of architecture. They have long since achieved a degree of industrialization and interchangeability of parts that is not remotely rivalled by exterior panelling systems. With a flexibility the more remarkable for going unremarked, they accommodate a greater variety of services than any other membrane (heating, lighting, ventilating, sound, fire-extinguishing, acoustic control) and in the process they dispense a level of power output (expressed in wattage per square foot) that puts them in a class of mechanical environment controls that are commonly supposed to be a Utopian or Dymaxion dream. Taken *grosso modo*, one-offs, off-the-pegs, standardized and specialized, all together, suspended ceilings represent probably the greatest achievement to date in accommodating technology to architecture, and without once ever stepping outside what have passed, in the material period, for architectural usages—as often as not, the result still bears the pattern of a concept of coffering that goes back to the architecture of Antiquity. It is also the most convincing set-back suffered by mad-scientist-type architecture, as represented by ceilings of exposed services, such as that in the Trusteeship Council Chamber of the UN Building.

the power membrane

Good, bad or indifferent, the suspended ceiling is still architecture, and it sets a standard, a very hot standard, by which other attempts to tame technology can be assayed, especially other attempts in which the element of patient stealth and unconscious pioneering have played a part. It might be argued that to drag these subjects out into the open and put them on trial would be to render self-conscious something whose strength lies in its lack of self-consciousness, its remoteness from the fields of debate. Yet the themes selected for trial in the series of articles here introduced are on the table already, albeit disguised as gossip about personalities. Reversing this trend, ON TRIAL intends to raise the questions behind the men in five studies that arraign symptomatic individuals or organizations, thus:

1. *Louis Kahn and the problem of services.* It has been rudely observed that Kahn's talk of 'servant spaces' makes him sound as if he is talking about butlers' pantries and sewing rooms. Superficially his tendency to bundle duct-runs into unspecific box-work gives this criticism a show of validity. In terms of architecture the criticism may cut deeper than that into the whole problem of monumental symbolism.

the buttery-hatch aesthetic

2. *Jean Prouvé's production-line components.* In terms of subjection to the current passions of architecture, Jean Prouvé represents French technical prowess in its most assiduous service to architects. But are his production-oriented details, based on industrial routines for the manipulation of metals, visually adequate to architectural needs?

the thin, bent detail

3. *CLASP and the multi-component assemblage.* The greatness of CLASP as an organizational solution to the problem of procuring economic quantities of components, delivering them to the site as part of a comprehensible kit of parts, and there getting them assembled into functionally cogent buildings, is beyond question. But when the products of different production technologies meet on the site, and clip together, do they also mate architecturally, or remain as unassimilable strangers?

ill-met by clip-joint

4. *Wates and the architecture of the mass market.* While SPAN was the only organization in the field, well-designed speculative housing was too special a case to be anything but praised. Now that major commercial operators are in the business, the problem can be discussed: How far is the service of keen Pop taste, as sophisticated as that of the élite who bought SPAN, compatible with the aims of architecture as they are normally understood?

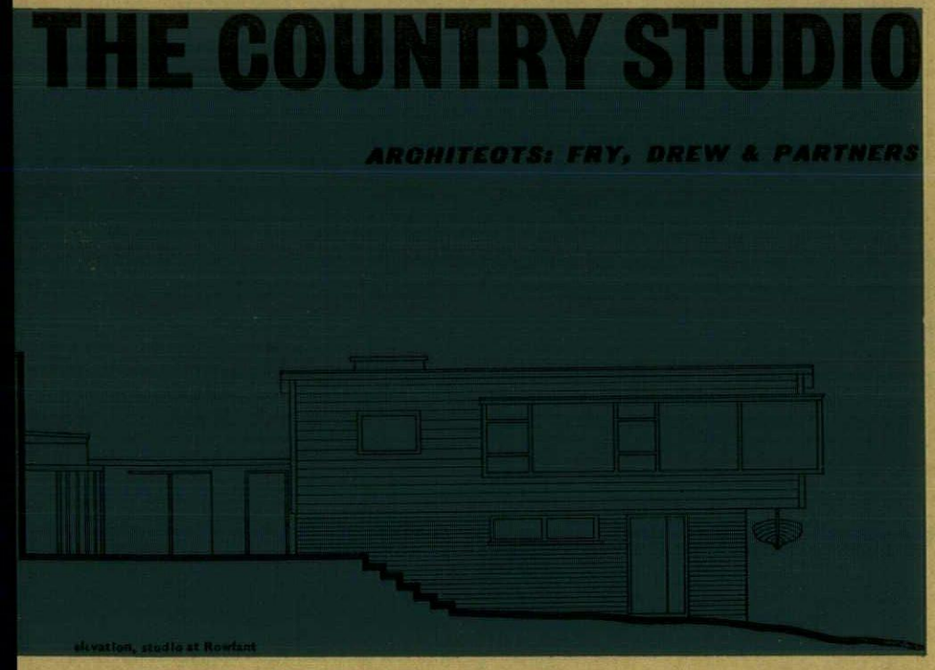
towards a pop architecture

5. *Mies van der Rohe and the ruin of the Machine Aesthetic.* The current dissatisfaction with the curtain wall conceals a hidden disaffection from the ideals of the man who made it architecture. Yet no one would dare question the probity of his proposition that 'Architecture can be made only from the elements of construction'; why, therefore, has the application of this dictum in practice become so repugnant?

almost nothing is too much

There are any number of themes on which current architecture could be tried for its success, or otherwise, in disciplining technology; these five have a certain compulsive power because they reveal the hindside of current trends and arguments, and in some cases ask questions that, by tacit agreement, are never raised. It is not likely that any of the questions will be answered conclusively, and if any of them can be, it will simply reveal that the subject has ceased to be a live issue. A live architectural question is like a live moral question; it has more than one answer, all of them wrong, and it is this ambiguity that justifies putting the profession on trial.





Studio at Hertingfordbury, Herts

The studio is an addition to a farmhouse occupied by Mr. Ashley Havinden, the designer. It was designed to provide additional and more suitable space on the ground floor for Mr. Havinden's work and to add to an existing bedroom a bathroom, a dressing-room for Mr. Havinden and a writing and work-place for Mrs. Havinden, forming together a complete suite. It was decided to make no attempt to continue the style of the existing house, which is an amalgam of early Georgian and Victorian additions, and the new studio establishes its own scale and proportions based in three dimensions on an approximation to the golden section. The section relationship is established on the single steel column that carries the open gallery and the enclosed suite on the first floor. The remaining structure is in timber framing and strutting covered externally with weather-boarding in a colour scheme of white, grey and black. The large plate-glass windows have full-length venetian blinds and curtains.

The assistant architect was Derek Preston.

Studio at Rowfant, Sussex

This addition to the Lake House, Rowfant, which is occupied by Mr. Maxwell Fry and Mrs. Fry (Miss Jane Drew), was originally designed to provide garage and oil-fired heating plant on the ground floor with housekeeper's quarters over. It was later continued on the first floor as a self-contained studio flat. A fall of several feet from the existing house to the lake-side enabled headroom to be created for a double garage and the studio to be entered up a short flight of steps under cover from the house.

The connecting screen contains a store-room and space for dustbins, is the link between the old work and the new, and forms one side of a paved courtyard. The simple construction consists of a light steel framework resting for the most part on the brick walls of the garage and heating chamber, and over-sailing on two sides. The walls are of timber strutting, insulated and covered externally with white-painted weather-boarding. The timber roof is covered with sheet copper. The brick walls of the lower storey are in cheap bricks painted black.

The assistant architect was Duncan Horne.

Studio at Longpont-sur-Orge, near Paris

This studio, built for Mr. William Copley, the painter, in the grounds of his house, is completely equipped as a self-contained studio with bathroom, canvas store and a model's rest-room over. It is built of local stone over an existing vault that was formerly a store for roots. Its curved roof carries a large north-light that descends to cill level. The heavy stone walls are in random rubble and the curved roof covered in sheet copper. A cylindrical flue from the heating plant in the vault below is carried up independently of the building at the house end of the studio, while at the other end a very large vertically pivoted door opens on to a small terrace.

1

STUDIO AT HERTINGFORDBURY

1, from the south, with the old farmhouse on the left. 2, the south-west elevation. 3, interior with gallery on the right.



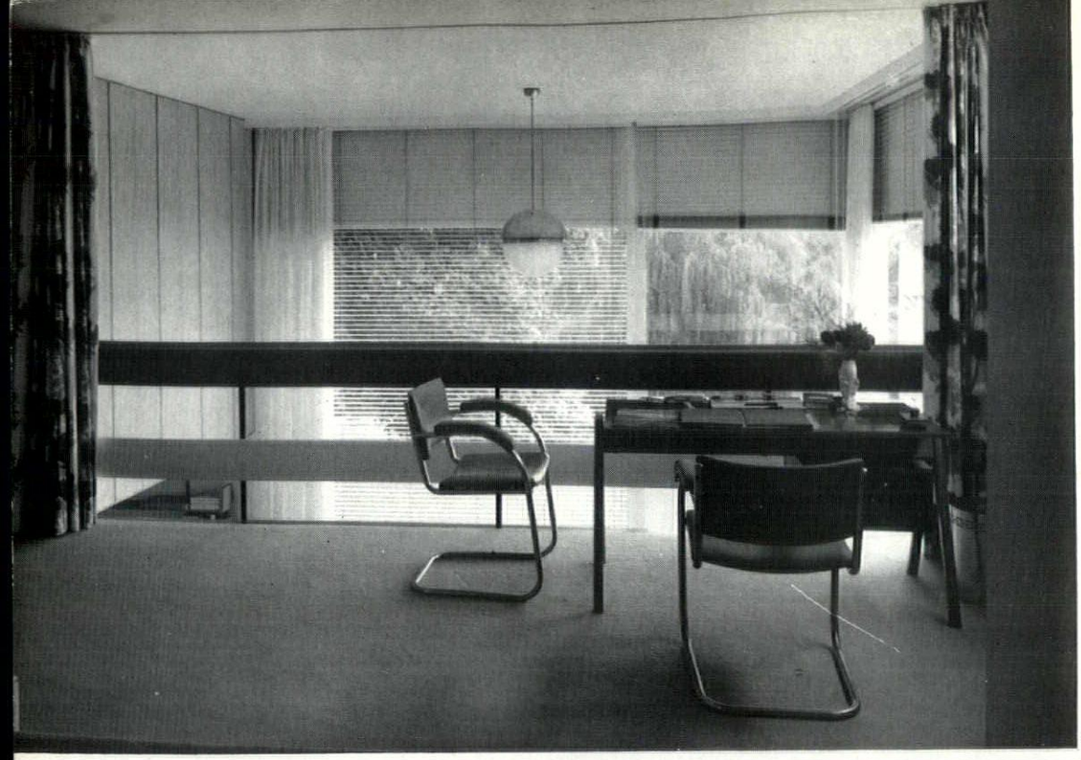
2



3

STUDIO AT HERTINGFORDBURY

4, the first floor gallery. 5, the ground floor studio. 6, looking through from the ground floor of the farmhouse to the studio.



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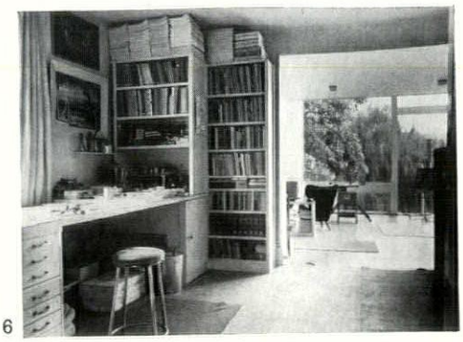

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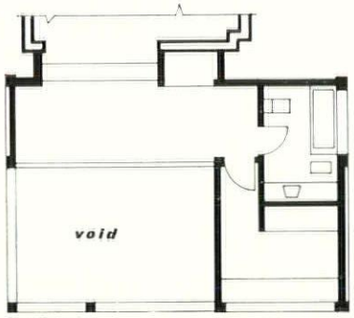
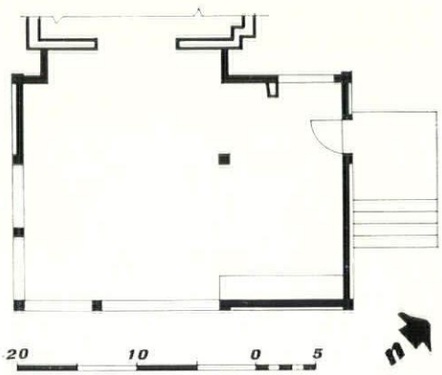
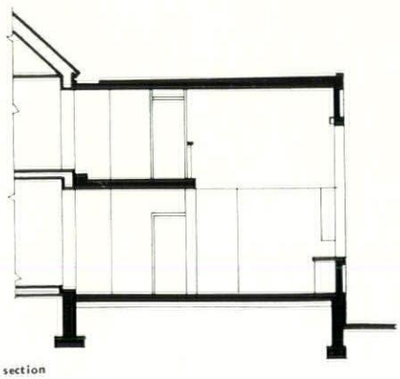


first floor plan



ground floor plan

photographs by H. de Burgh Galwey

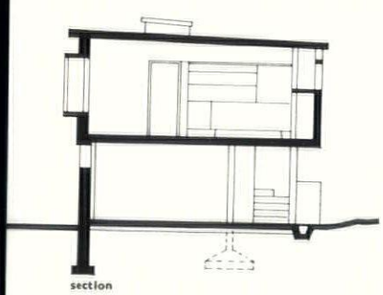


section

7

STUDIO AT ROWFANT

7, from the south. 8, from the west with original house on the right. 9, the living room (for description see page 100).



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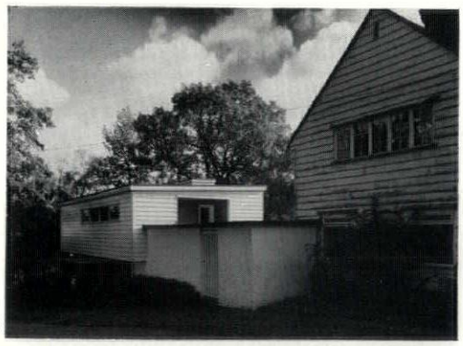

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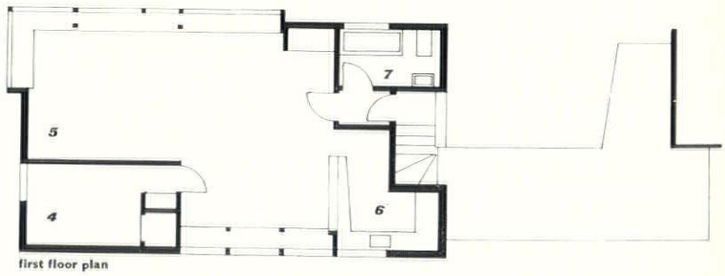
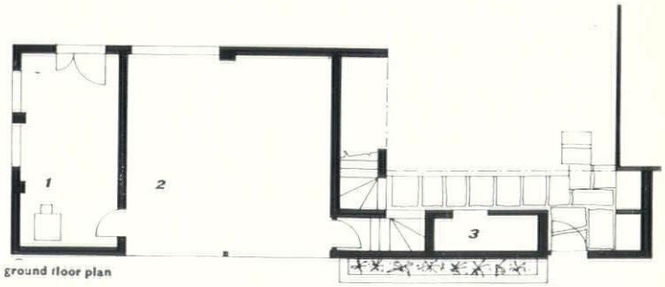


first floor plan



ground floor plan

key
1, boiler room
2, garage
3, coal store
4, bedroom
5, living room
6, kitchen
7, bathroom

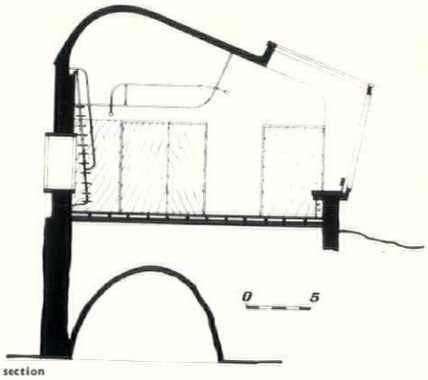
20 10 0 5

STUDIO AT LONGPONT-SUR-ORGE





11



section

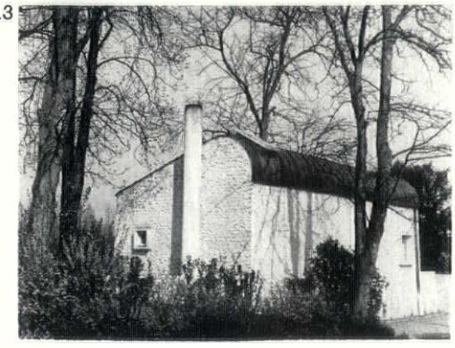
photographs by Jacqueline Hyde

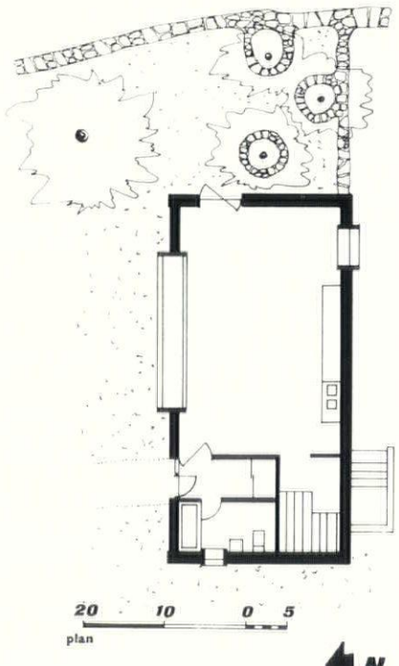
10 (facing page), interior looking towards the vertically pivoted door. 11, the gallery at the west end. 12, from the north. 13, from the south-west (for description see page 100).

12



13





plan

N



Philip Thiel

Architect, Kenzo Tange

City Hall at Kurashiki, Japan

Japan is a sort of accordion of history; a long compressed concertina where the past lies very close to the present. The sight of thatched roofs surmounted by television antennas in both urban and rural areas, and of labourers using shoulder poles and basket panniers to build the new Tokaido railway on which will run the fastest trains in the world, remind us that this phenomenon of architectural creativity newly discovered by the West must be appreciated in the context of its own culture and tradition.

'On and off the tatami,' as one observer put it, the Japanese exhibit radically different standards of responsibility and attitude. Private conduct in the company of family and friends reflects the traditional orientation to the clan or occupational groups, and explains the tendency for beauty and grace to be a hidden and secluded thing: profound and unforgettable, but reserved from the public gaze. The consequences of this attitude on city life and the cityscape, on the other hand, are indeed shocking to a European accustomed to a certain public standard of behaviour and aesthetic responsibility (even if the latter exists mostly in fragments from the past). The ramshackle unpainted wood and painted sheet-metal signs that comprise the majority of Japanese townscapes antedate the war and suggest 'slum' rather than 'city' to the overseas visitor. The fact is that Japanese cities have seldom been thought of as ends in themselves; they are merely public work places inhabited mostly by strangers, and as such have no need or use for civic beauty. Although this attitude produces at best the same qualities of vitality and unbuttoned intimacy of street life that one enjoys in the cities of Italy, the setting and background of this urban theatre are thus diametrically opposite to those of the Italian scene.

Although democracy in Japan is older than the public there generally realizes, it and its corollary of public responsibility are a relatively new force in a still authoritarian culture which traditionally dates its origin from 660 B.C. Public affairs were formerly administered either by a local feudal lord from his castle seat, or by the 'bugyō' (or 'daikan' in rural areas), who was a governor appointed by the shogun. This official combined the functions of both judge and administrator. His place of office was his residence as well, and could hardly be called a place of casual public assembly. Public gatherings in fact were discouraged, and meetings for business, pleasure or the discussion of common problems were 'well-head meetings,' or were held in teahouses, geisha houses or private residences. (The geisha house is still used to-day as a meeting place by businessmen and politicians.) Lately a type of building called a 'kaikan' has developed, comprising meeting halls, auditoria and restaurants, and available for both public and private events. But there is no tradition of city halls in the western sense, and no public open squares in Japan. Such open pedestrian spaces as did exist were and

Facing page: 1, *looking down on the city hall at Kurashiki, in western central Japan, occupying a cleared space in what Philip Thiel, in his critical appraisal of Tange's latest civic building beginning on this page, calls the 'basic medieval street-pattern in the wood, plaster and sheet-iron vernacular.' The photograph shows the amphitheatre on the roof and illustrates also the building's quality of detachment from its surroundings.*

still are generally limited to shrine and temple courtyards.

Thus the nexus of the ideas which animate post-war Japanese architecture is most clearly seen in the public buildings that have come into being in the course of the reconstruction of the war-damaged cities. The resolution of this new force of democracy with the old force of tradition is expressed in these buildings, and particularly in the many new city halls and prefectural office buildings which are the chief symbols of the new corporate life.

Kenzo Tange's new city hall for old Kurashiki can thus be examined as a vector of change in a culture now challenged with the need for new common symbols. As an expressive work of art consciously made impressive to underline the importance of the democratic processes and public services therein housed, it and the evolving plans for its urban context merit attention. Kurashiki lies about midway between Kobe and Hiroshima, on the Okayama Plain fronting the Inland Sea. Originally a seaport on the Takahashi river, the town derived its name (which means 'store-house place') from the numerous warehouses in which were stored the rice collected from the surrounding areas for transhipment to Edo during the seventeenth century. Subsequently the river was diverted to the west, and centuries of silting and of land reclamation pushed the shoreline five miles to the south. Textiles became the chief industry, and from the profits of this the Ohara family of Kurashiki have attempted, as part of their philanthropic activities, to preserve in amber a bit of the old town: a group of the handsome black tile and white plaster warehouses, 3, clustered about a tree-lined canal, in association with archæological and folkcraft museums, and the recently extended Ohara Art Museum with its collection of works by Cézanne, Picasso, El Greco, Rodin and others.*

To-day the city has regained its status as a port with the establishment of the Mizushima district on 5,000 acres of the new waterfront property, blessed with a 52 ft. channel capable of docking the largest ocean-going oil tankers. Here synthetic textiles will be supplemented with petroleum, chemical, iron and steel (the world's second largest steel mill) and automotive industries. Mizushima is being developed by Kurashiki and the Okayama Prefectural Government as a distinct workers' town. Its present population of 20,000 is expected to increase to 200,000 in the next fifteen years. Kurashiki itself now numbers 45,000 people in the old city plus 60,000 in the surrounding area; and this in turn is expected to grow to 150,000 in the same period.

Mizushima will thus become a paradigm of modern industrial Japan: a more-or-less Cartesian pattern of up-to-date heavy industry, new concrete company dormitories and recreation centres, and workers' prefab housing and super-neon-chrome shopping and entertainment districts. The tentative plans also include a twenty-storey apartment building 550 metres wide by 900 metres long. Kurashiki, the older and smaller parent, on the other hand, will retain its basic medieval street-pattern, 4, in the wood, plaster and sheet-iron vernacular, serving its light industries, merchants, white-collar workers and the tourists visiting the cultural enclave. The road connecting the two runs through a narrow valley formed by two 300-ft. high former islands; and as if to emphasize the separation, this valley will be planted with trees.

The new city hall is located on the edge of the historic-cultural area of Kurashiki, and will subsequently relate directly to it, along with a new 'citizens' square' and a public auditorium, by means of an associated area redevelopment, all of which are now being planned by Tange's office. The site was originally city-owned land, in a poor part of the city, and was occupied by a dilapidated public school scheduled for demolition. The site borders the proposed south ring road around the city, and an adjacent radial road to connect it with the national railway station, bus centre and national highway is under consideration. A consequent upgrading of local use and property value is expected for this area. The air-view, 2, shows the city hall in its present setting.

The overall development plan was prepared by local officials in Kurashiki and Okayama; guided by Professors Hideto Kishida and Eika Takayama, of Tokyo University, and supported (enthusiastically) by Soichiro Ohara, President of the Kurashiki Rayon Company. And at this point one might raise a demurrer. Although there is a certain basis of logic in these reasons for the selection of this site for the city hall and civic centre, yet if Kurashiki is to be considered as an entity comprising both the new part of Mizushima and the old part of Kurashiki proper, one is left with a feeling that the site decision was rather biased in favour of the old order and the upper class. The 200,000 future residents of Mizushima will no doubt establish their own popular culture centre, four miles away from this civic 'centre'; and one wonders how many of these people will ever see the official centre, and if they do what will be the inferences drawn from its obvious association with the remnants of the past and the benevolent representations of private wealth. There is much to be said for the principle of concentrating similar functional elements in the same precincts of a city, to clarify the image and thus make the city more legible, but when the resulting image adds up to a snub to the majority, one wonders what happened to democracy.

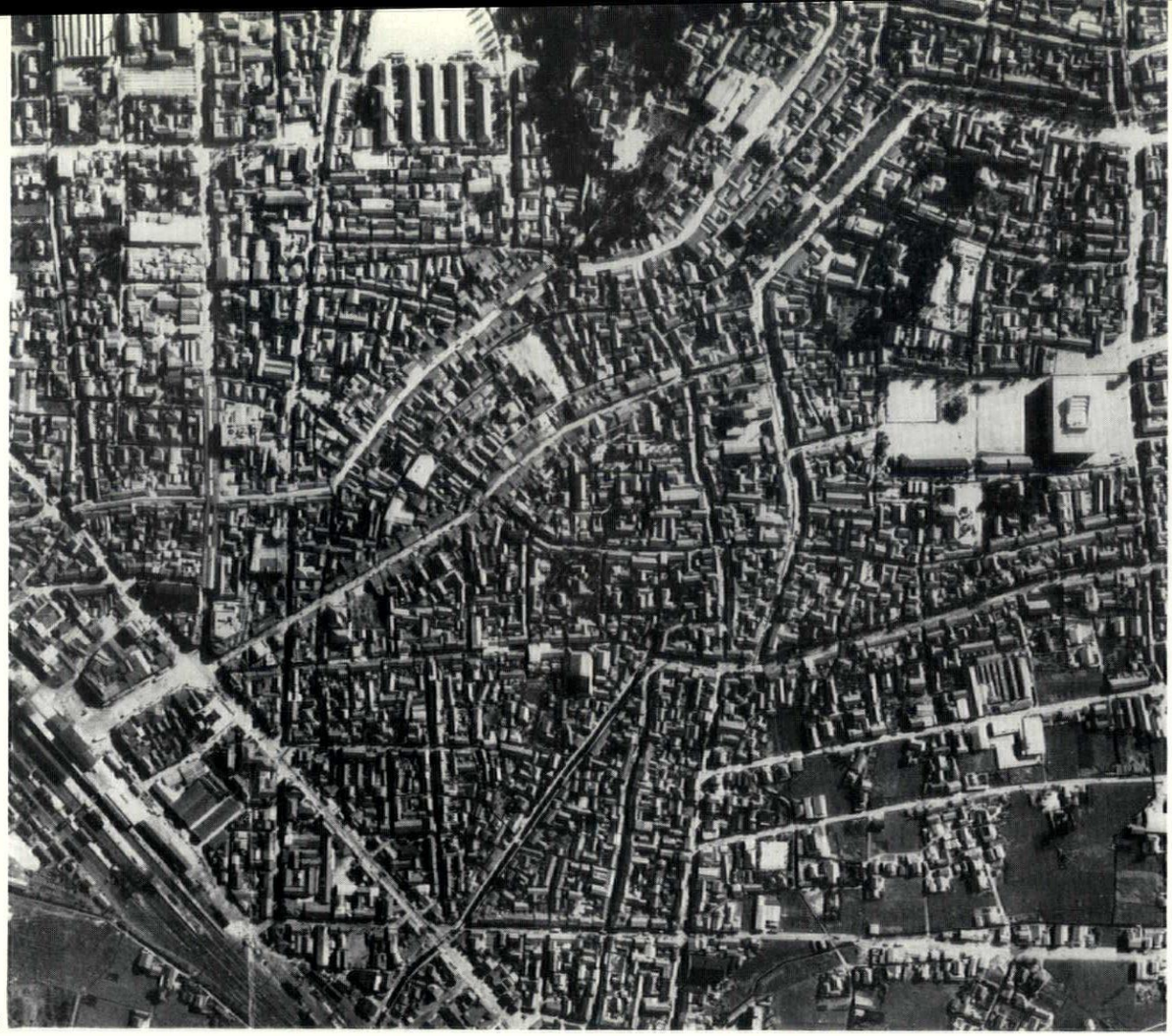
If the location-as-symbol of the city hall is open to challenge, what of the building itself? At present the building stands foursquare, free and clear, in a surprising openness of space—see 1 on page 106. Surprising for a Japanese city; and very welcome after the experience of the narrow, pinched and congested ways of its immediate environment, 5. This feeling will probably remain even after the adjacent streets are widened and opened up, due to the presence of the projected 'citizens' square' on the north. Both this building and the future public auditorium will thus be able to be appreciated in the round, and so help implement Tange's intention of establishing what he calls a 'mass-human scale,' based on an organized hierarchy of spatial sequences from the town, to the plaza, and into the city hall itself.

Unfortunately it is not possible at this time to judge the effectiveness of this intention: some of the contrast due to the juxtaposition of plebeian dwellings and shops—such as 6—with civic dignity will be lost, and much will depend on the handling of the flow and storage of the increasing volume of motor vehicles. In this connection one hopes that enlightened reconsideration will be given to the proposed radial road extending from the transportation centre to this site. This road will cut a wide swath through the heart of the old town, and separate the city hall-public auditorium group from the museum and historic building area; and thus eliminate the possibility of the creation of a traffic-free pedestrian precinct.

The location of the building directly on the common grade, detached from its surroundings, makes it accessible from all directions. The ground-floor walls on the long north and south sides, 7 and 8, are recessed from the plane of the walls above, and being thus always in shadow, suggest shelter under the building. These aspects welcome and invite approach. But the bulk of the building above does something to countervene this. The fenestration is arranged in a somewhat threatening pattern of narrow horizontal slits interspersed with chunky concrete blocks, which suggest the gun embrasures of a fortress: a likeness which is reinforced by the batter of the squat concrete pilotis, 11, which in turn recall the massive sloping stone walls of Japanese castles. The window pattern is

[continued on page 113

*Japan Interior Design and Decoration for June, 1961, contained some good photographs and a plan of a typical merchant's home and shop in the Kurashiki style of the 1800s.



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3



4



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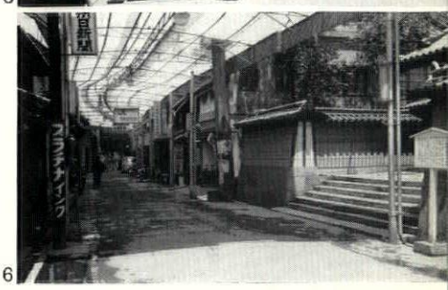
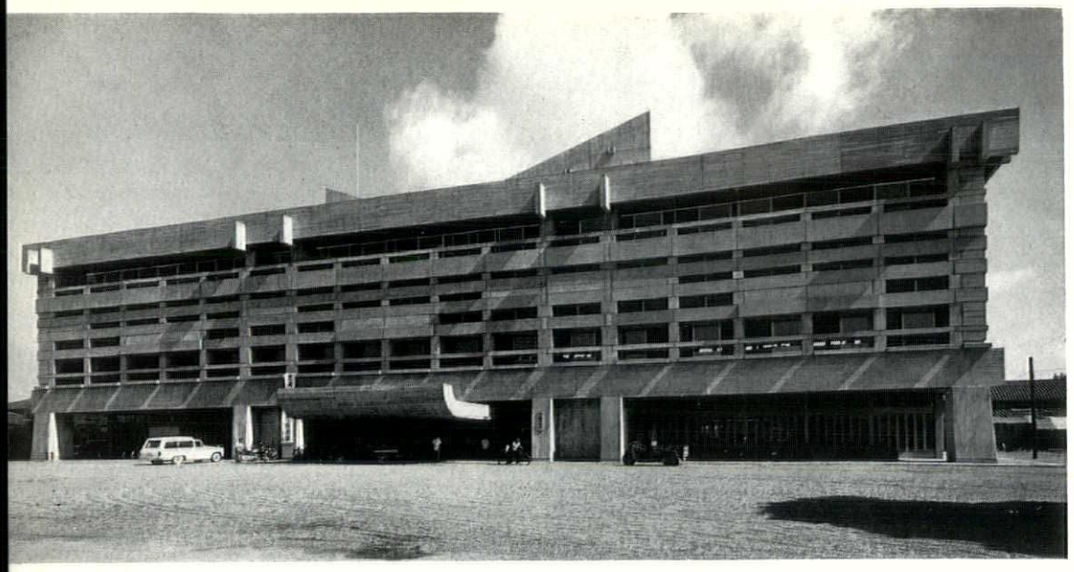


6

2, the medieval street-pattern and closeness of grain of the old town of Kurashiki, with Kenzo Tange's new city hall occupying a clearing—right-hand side of photograph—later to be further opened up. 3, old warehouses on a canal. 4, traditional street-pattern. 5, typical narrow street leading to the city hall. 6, a nearby covered shopping street. 7, the north front of the new building.

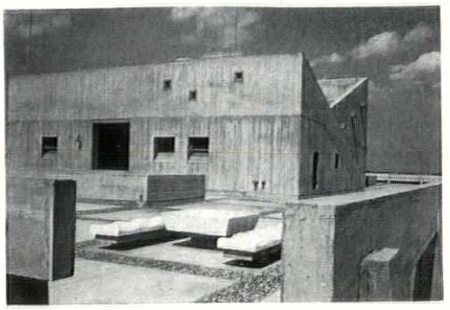
7





8

City Hall, Kurashiki



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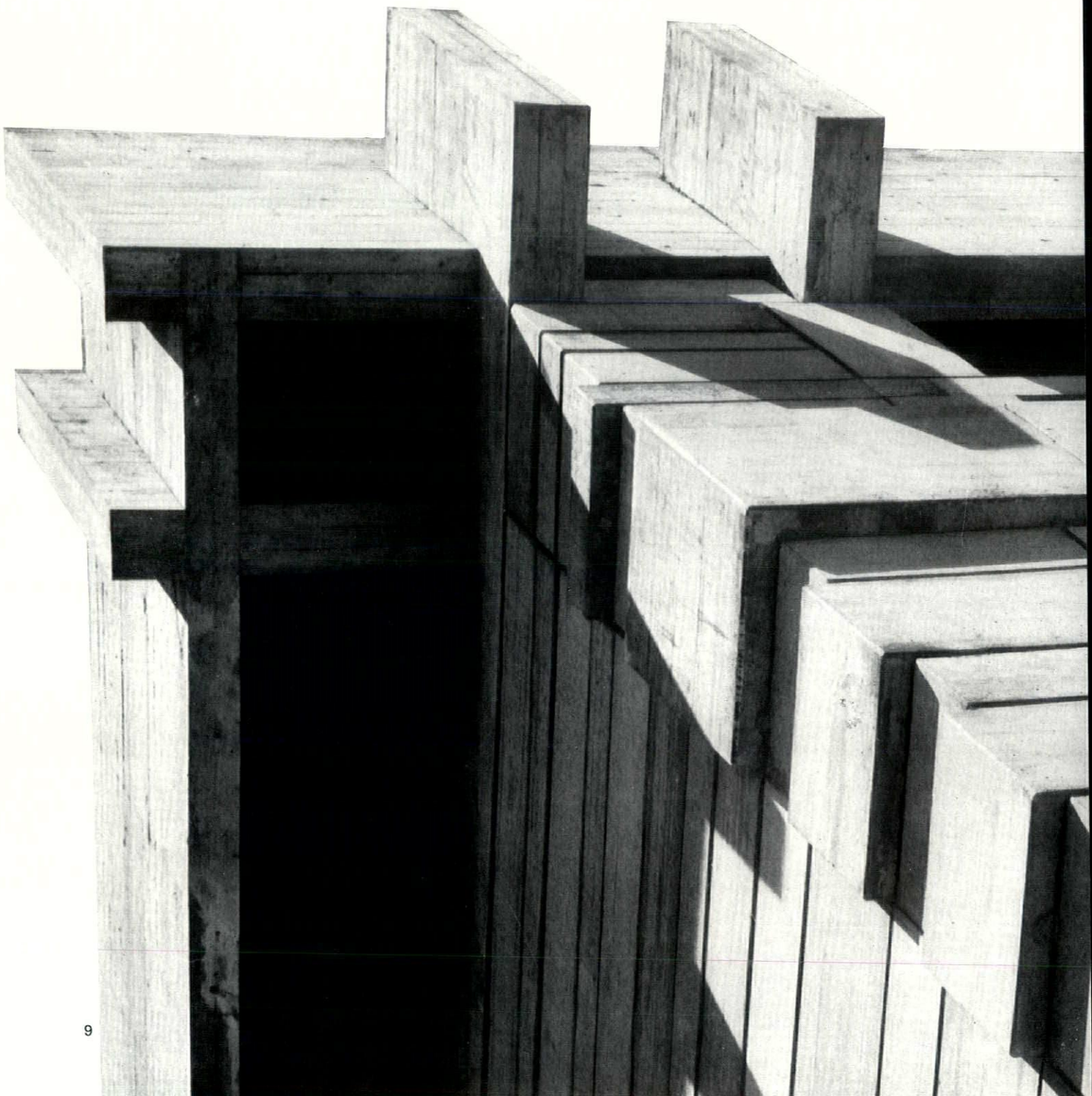
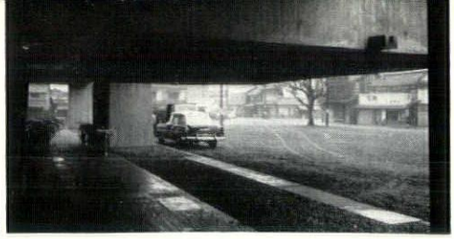


9

8 (*facing page*), *the south front of the building, with the curved hood protecting the main entrance, also intended, as Philip Thiel explains in the accompanying article, 'to heighten the effect of the encounter with the two-storey citizens' hall or lobby in the centre of the building.'* 9, *eave detail looking up: 'interlocking members reminiscent of Japanese heavy timber construction . . . explaining the structural plan and introducing enlivening foils of highlights on the exterior.'* 10, *roof-top promenade and amphitheatre.*
11 (*right*), *the south-east corner of the building, showing the 'battering of the squat concrete pilotis which recall the massive sloping stone walls of Japanese castles.'*





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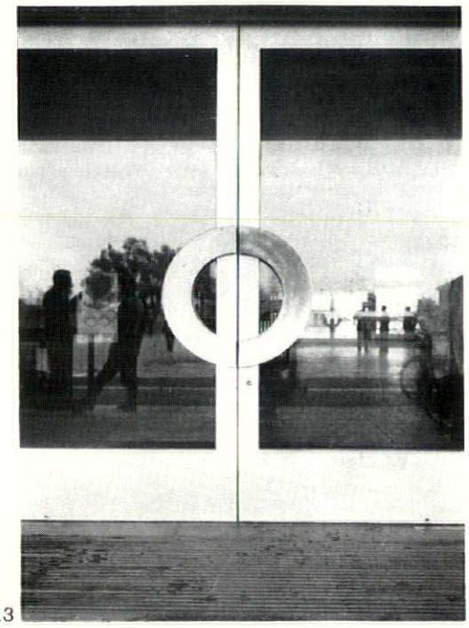

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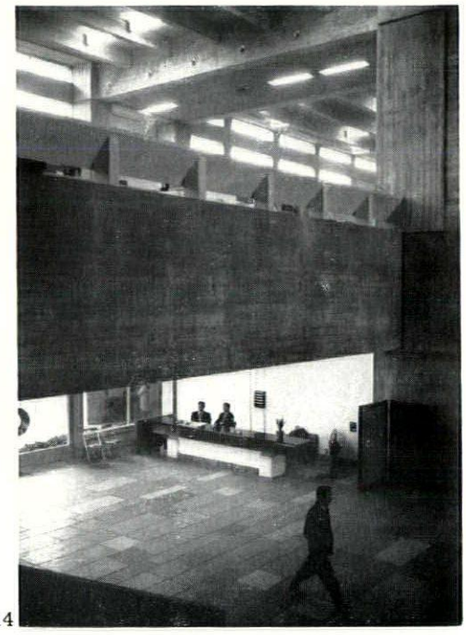


14

Above, the sequence of spatial experiences obtained as one enters the building: 12, *passing beneath the low cantilevered hood:* 13, *confronted by the double swing doors:* 14, *into the foyer, partially separated from the citizens' hall by a deep girder—for the hall itself, see frontispiece, page* 86.

City Hall, Kurashiki

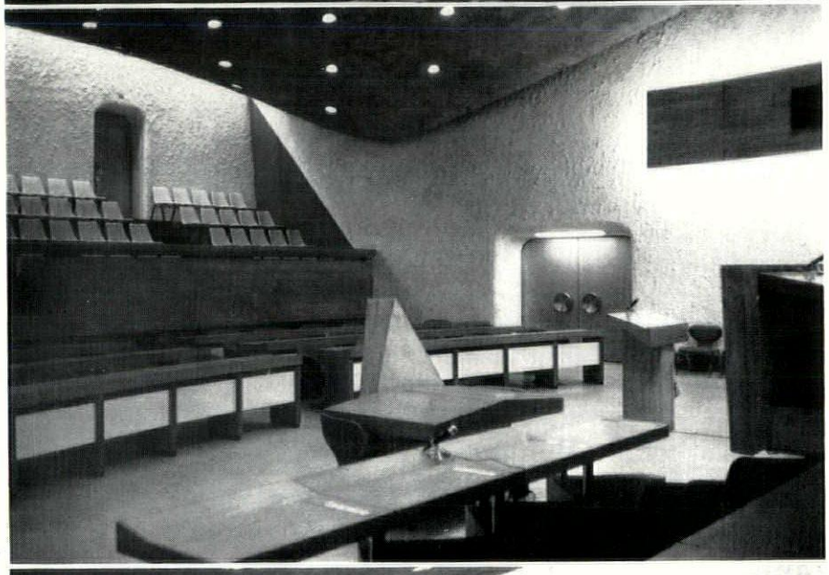
Right: 15, *ground-floor dining-room:* 16, *office-space on the second floor:* 17 *and* 18, *the assembly room, described by Philip Thiel as a 'startlingly plastic enclosed volume,' giving the effect of being 'inside a sort of white-textured cocoon suspended within the structure of the building.' In* 18 *it is seen from the public balcony.*



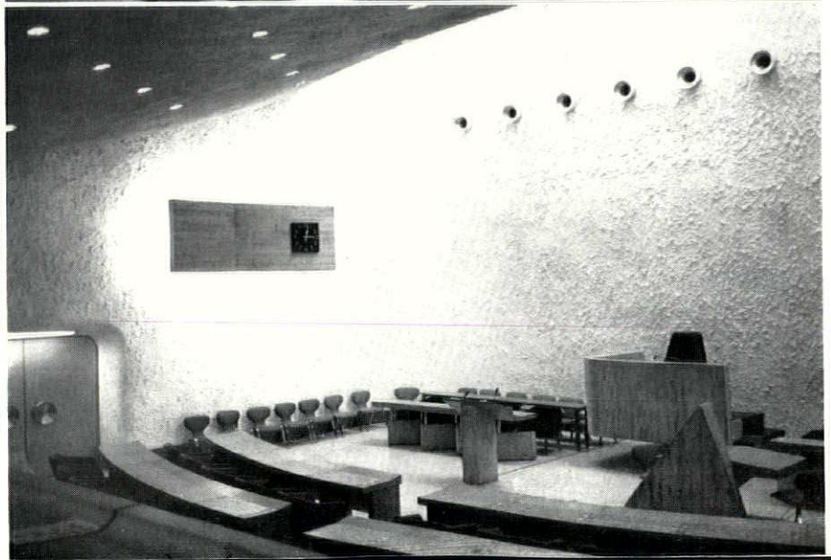
15



16



17



18

continued from page 108]

not too clearly related to floor levels, and this, coupled with the building's isolation in space, produces an ambiguity of scale. But this is resolved somewhat by the presence of an entrance marquee on the north side, and a projecting balcony on the south, the former being the more effective for this purpose.

This tension between opposites (which is soon appreciated as the theme of the building) is also embodied on a formal level, in the struggle between the asymmetrical (and arbitrary) patterning of the facade with the bisymmetrical plan of the building; and in the contrasts between the horizontal and vertical trabeation of the building proper with the dynamics of the diagonals of the roof forms. However, one is completely won over by the vitality of the play in proportions. Here Tange's mastery of form is demonstrated in the rhythmic visual structure of patterned interval between solid and void. It will perhaps come as no surprise to learn that he uses a variation of Le Corbusier's Modulor, adapted to the Japanese *shaku* measure, in all his work.

On an intellectual level one may have certain doubts over the expression of the ends of the long concrete girders on the exterior, 9, as interlocking members reminiscent of Japanese heavy timber construction.* Visually there is no question as to the value of these paired stub ends in explaining the structural plan (if not the structural system), and in introducing enlivening foils of highlights on the exterior. On the other hand, the logic of the expression of the concrete block curtain walls is completely satisfying. These hollow elements were precast on the site, and are grouted to each other and to the concrete columns behind. Their use may partially explain the low cost of the building.

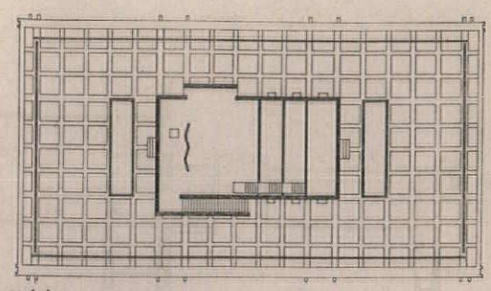
In essence the building is a simple rectangular three-storey concrete structure, organized about two symmetrical service and vertical circulation cores. The upper floors are carried on very thin and deep wide-span beams; the building above the first floor being supported on massive pilotis at each external corner, and by paired pilotis on each side in way of the service cores. The ground or first floor is allocated to a 'citizens' hall' lobby, dining room, office space and a garage. After a document-storage mezzanine there is a floor of completely open public office space, reached by stairs in the central open well of the citizens' hall. The third floor contains smaller private offices, conference and commitee rooms, and an assembly hall with a balcony for the public. The roof is arranged as a promenade, and features an open-air amphitheatre, 10. Below the ground floor, between the service cores, there is a basement for utility services.

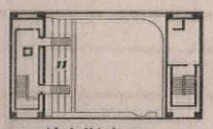
This plan reflects certain inheritances from Japanese tradition: a 'creative inheritance,' in Tange's words, in distinction from the stagnation of a passive attitude toward design found throughout Japanese tradition (and responsible for the propensity to imitate a 'master,' with only subtle personal variations). The chief beneficial inheritance in Tange's terms is found in what he calls the 'typification of space,' or the classification of functions into similar groups on the basis of the essence of their developing tendency (in contrast to a planning analysis based on 'static abstraction' or a lowest common denominator). In certain cases the resulting space may take the form of a clear, undifferentiated volume, not a Miesian universal space; of space for its own sake, but one more closely adapted to an evolving function. This is seen in the open office space on the second floor, a post-war innovation in Japanese public buildings which is now becoming common practice. On the other hand, Tange is at pains to point out that there is no tradition for the use of pilotis, 'a contemporary method of realizing the adaptation of architectural space to society,' which should not be confused with the raised floors of the Japanese house (an adaptation to a damp climate).

Entering the building from the south, 12 and 13, one passes under the massive cantilevered hood with an upward-curled outer edge. Besides signalizing the entrance, this plane only eight feet above the ground is intended to heighten the effect of the encounter with the two-storey citizens' hall or lobby, in the centre of the building. Unfortunately the intervening foyer interrupts this, particularly because of the deep girder, 14, that hangs like a portcullis between it and the lobby. Here again the castle motif reoccurs, and one begins to wonder if Tange, despite his statements on the better use of tradition as a catalyst *to* rather than as an ingredient *in* design, is perhaps not more in the clutch of tradition than he realizes.

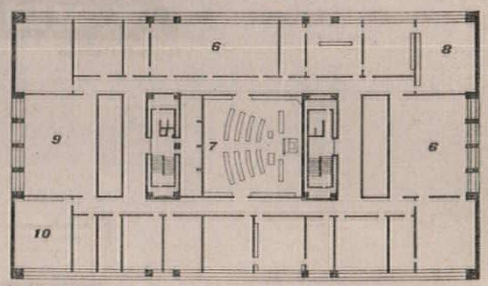
Here it might also be mentioned that some Japanese criticism has been directed at similar tendencies found today in other Japanese work, against what might be called the massification of form. In this point of view this tendency is associated with the authoritative feudal structures of the great castles and religious buildings. One can perhaps appreciate the sensi-

*The question of the propriety of the use of a new material in forms suggesting a previous one was probably first raised concurrently with the Parthenon, if not earlier; and its persistence probably reflects an inevitable cultural inertia. At any rate one may perhaps distinguish between a blatant reconstruction in concrete of the identical form of a previous wooden structure; and this case, where it may be excused as a gentle gesture of continuity with the past.

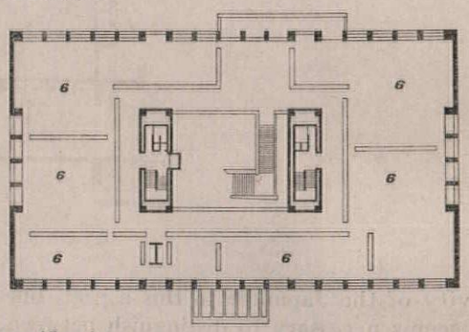

roof plan



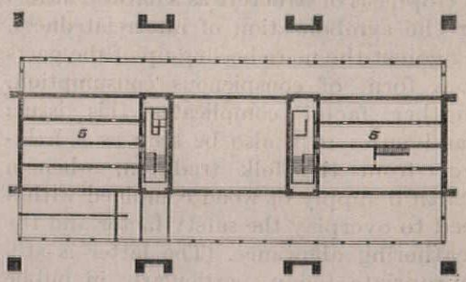
assembly hall balcony



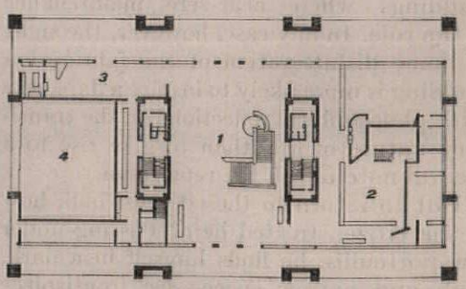
third floor plan



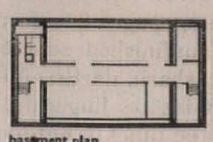
second floor plan



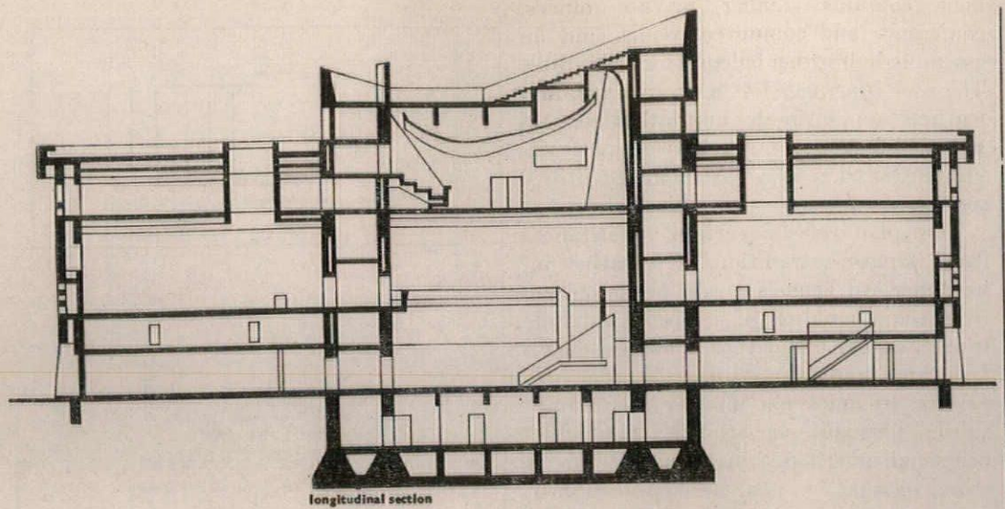
mezzanine plan



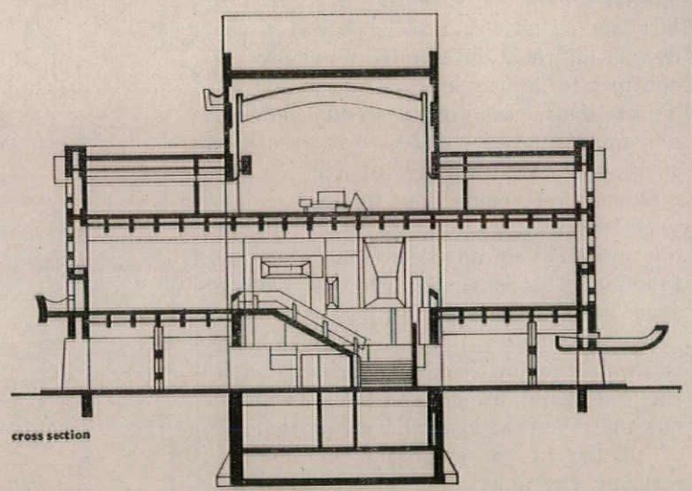
ground floor plan


basement plan

key
1. citizens' hall
2. office
3. dining room
4. garage
5. files
6. office space
7. assembly hall
8. mayor's office
9. conference room
10. committee room
11. public balcony



longitudinal section



cross section

tivity of the Japanese to this aspect, but it seems necessary to distinguish between an emphasis of structure as a natural means for the symbolization of interrelatedness, as against the mere beefing-up of the parts as a form of conspicuous consumption. Another factor complicates this issue: massiveness may also be seen as a hold-over from the folk tradition, when a plentiful supply of wood combined with a need to overplay the safety factor and the weathering allowance. (The latter is still appropriate today, particularly in public buildings where near-zero maintenance is the rule. In any case, however, the sight of some disintegration of the fabric of a building is more likely to inspire a Japanese with philosophical reflections on the transitory nature of life, than to give rise to a mental note to call the repairman.)

But to return to the citizens' hall: how is the citizen treated here? Passing under the portcullis, he finds himself in a dark, high and narrow space—see frontispiece to this issue, page 86—formed on all six sides in unfinished concrete, and full of menacing, sharp, darting forms. It is not a space that invites lingering, and he will want to escape quickly outdoors again, or up the massive staircase that seems to lead to better things. The space has a remarkably Piranesian prison-like quality in its monochromatic gloom, massive scale and upward accent; and the poor citizen will look in vain for a single touch of elegance, the slight gesture of politeness that would say 'welcome, citizen.' And yet one feels that a coat of light paint on the two end walls would transform the space completely.

This lobby is almost the inverse of that in the prefectural office building at Takamatsu in Shikoku, also by Tange. In this building the lobby is light and airy, wrapped around a central core of services, and open on three sides—on the south to a sunny garden. The walls of the service core are finished in a bold-scale glazed tile mural, mostly in clear blue, red, black and white, and the deep-coffered ceiling is fitted either with a white ceiling finish or wood planks in association with fluorescent fixtures. All these materials seem to have a happy affinity for the remaining exposed concrete. Something of this character is also found in Tange's Tokyo city hall, and in both these places one feels very much welcome: not to a civic palace, certainly, but to a sort of good, robust, rolled-up-shirtsleeves office work-place.

In the Kurashiki city hall one is more likely to feel like a person on probation until he leaves the lobby and enters the ground-floor office or dining room, 15; or moves upstairs to the open office space above. In these office spaces one encounters the first material elegance of the building: white marble counters separating the public and work space. This material is also used as a 'hand rail' on the upper flight of the broad stairs from the lobby, but this rail is so ill-adapted to any human hand that it almost becomes a hazard.

But the openness of the upper public floor and the implied accessibility to the staff there heartens one, and suggests an open democratic spirit of common experience. To western eyes the work space, 16, seems overcrowded (in fact, since the opening of the building some of the staff had to be relocated to another building for this reason) and underlit. Although Japanese practice tolerates very low levels of illumination, the sparse light fixtures high overhead, and the bands of bright narrow windows alternating with those of dark wall seem to produce a really excessive amount of brightness-contrast and glare.

The theme of the building has its final re-statement in the contrast between this broad open rectilinear space and the startlingly plastic enclosed volume of the assembly-room, 17 and 18, on the floor above. Entered through a double doorway whose rounded form recalls certain temple gates of Chinese influence (one example of which may be seen on the hill adjacent to this building) one seems to be inside a sort of white-textured cocoon suspended within the structure of the building, evoking feelings of delight in the lively qualities of the space and its furnishings. It is a clean, fresh and human-scaled room with an implicit upward movement, and one hopes it will thus appropriately condition the deliberations carried on within it. The specific forms employed are not as derivative as they might seem, for they have a long native precedent in the common use of geometric forms in asymmetric contrast with an irregular organic pattern. These form-relationships are seen throughout the range of Japanese traditional design, and in their symbolization are a source of spiritual truth to the Japanese.

One leaves the building tremendously impressed with its formal qualities: relationships of a rich complementary character interacting on a time scale which is sometimes drawn breathlessly taut, as in the flute-and-drum combinations of the *gagaku* ancient court music. This is perhaps the essence of the Japanese genius for the natural form, which Tange, along with some of his contemporaries, are now bringing forth in the steel and concrete of our own age, to serve a society in transition.

Steak House in Kensington

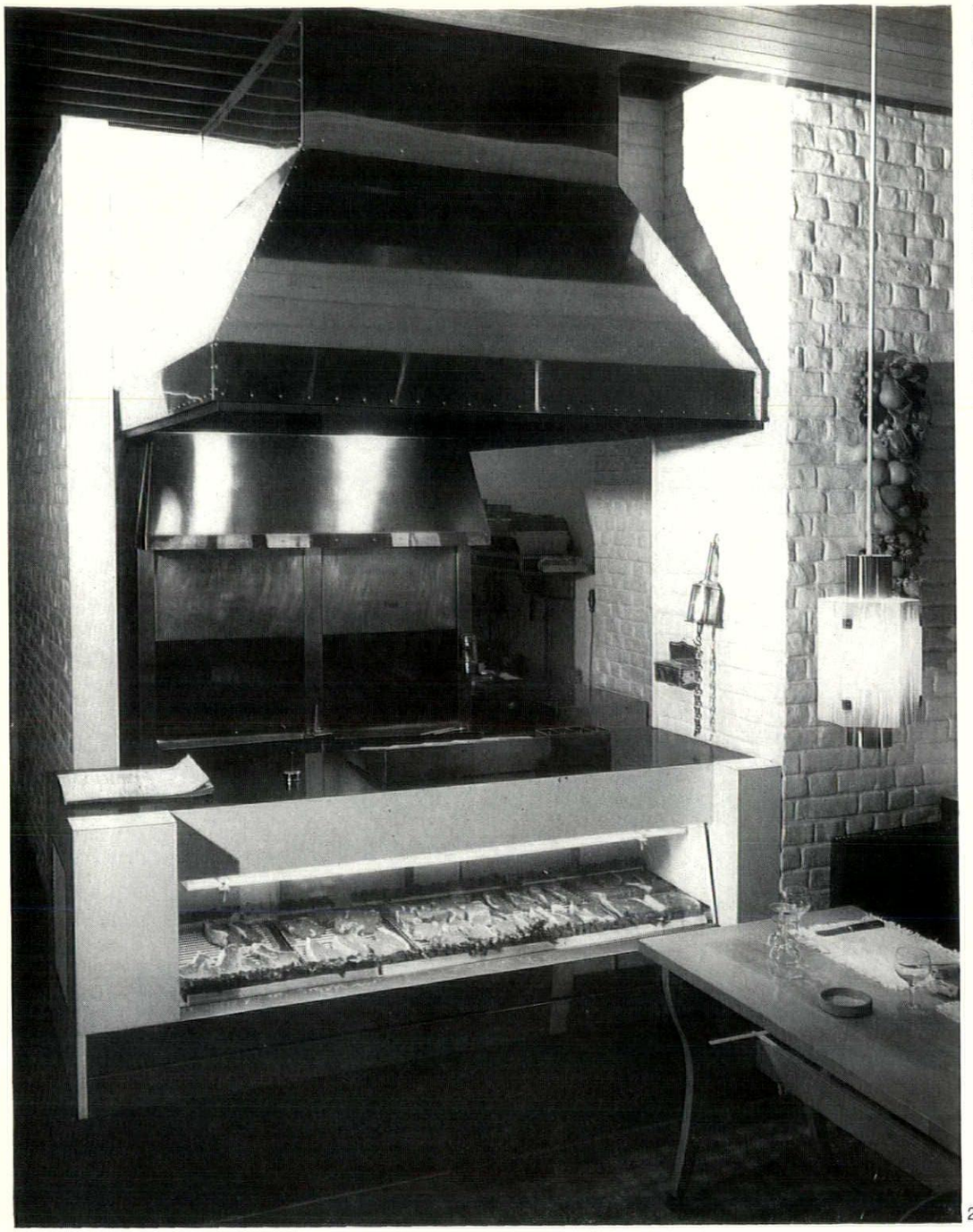
architect: Dennis Lennon

ID

a monthly review of interior design



For description of chairs see 7, page 118.



The second of a pair of steak houses (the first, at Wimbledon, is illustrated at the foot of the page) designed by Dennis Lennon for the well-known catering house of J. Lyons and Company. It is a new venture both in the type of fare offered, and in terms of interior design—a new type of affluent clientèle is received in an atmosphere of *grand luxe* which has been created, not by the accumulation of expensive details and accessories, but by relatively simple means—chiefly light, texture and colour—under close architectural control. The result is a welcome break both with the earlier decorative tradition of the caterers and with the current overwrought *espresso* style of pot plants and exotic gimmickry.

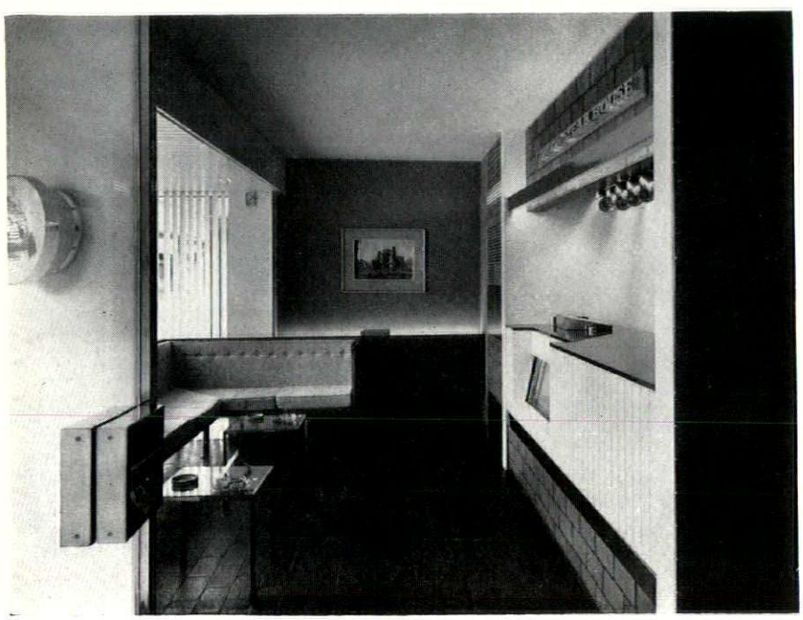
2, the grill, with its polished brass extract-hood, and the display counter for meat, form the visual focus of the first dining area, and very properly put the emphasis on food and its preparation.

3 (opposite), view of the first dining area, with the bar at the right and the grill just visible behind the lampshade at left. Photographed by available lighting only, this view gives a fair picture of the quality and distribution of illumination.

4, the rearmost dining area (see also 1, page 115), walled in natural pinoleum with black and white flooring, has a quite different atmosphere to the rest of the house, from which it is also differentiated by a change of level, and can be used for large private parties.

ID

Wimbledon prototype



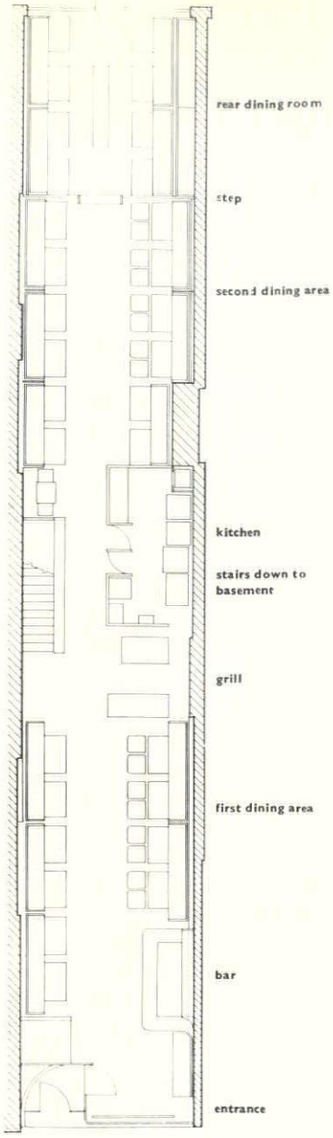
a



b

a, the waiting area of the Wimbledon Steak House.

b, general view of the main restaurant area—the basic furniture and equipment is the same as for Kensington, though modifications were introduced in the light of Wimbledon experience.



Steak House in Kensington

3



4





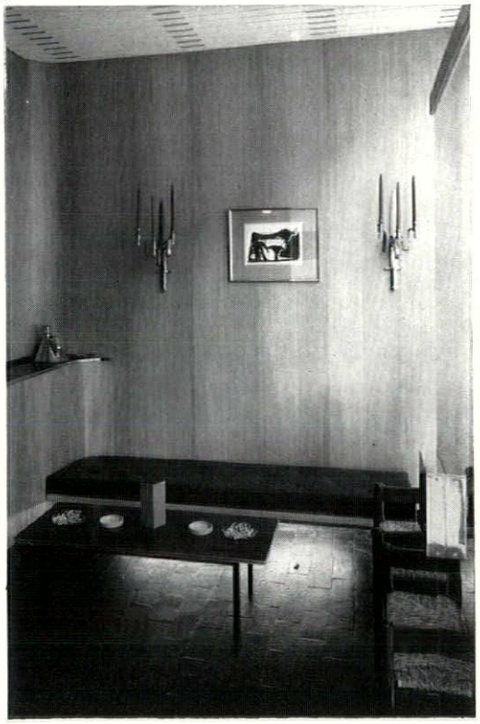
5

ID ***Steak House in Kensington***

5, the entrance lobby; a curved wall of white fibreglass steers incoming patrons from the outer to the inner door, both of armour-plate glass. Lettering in brass on a natural hide panel.

6, the waiting area, seen from the lobby (door-pull visible on right). The floor is of dark brick, the walls panelled in light pine. 7, the first dining area, looking toward the bar and entrance. Behind the bar, suspended bottle-racks can be closed off by a roller-grille. In this area, which sets the tone for the whole operation, the walls are covered with red fabric backed by a sound-deadening quilt of glass wool, the carpet is also red, in a 'gingham' pattern designed by the architect, and practically all movable equipment is also architect-designed, or architect-selected — tableware, glasses,

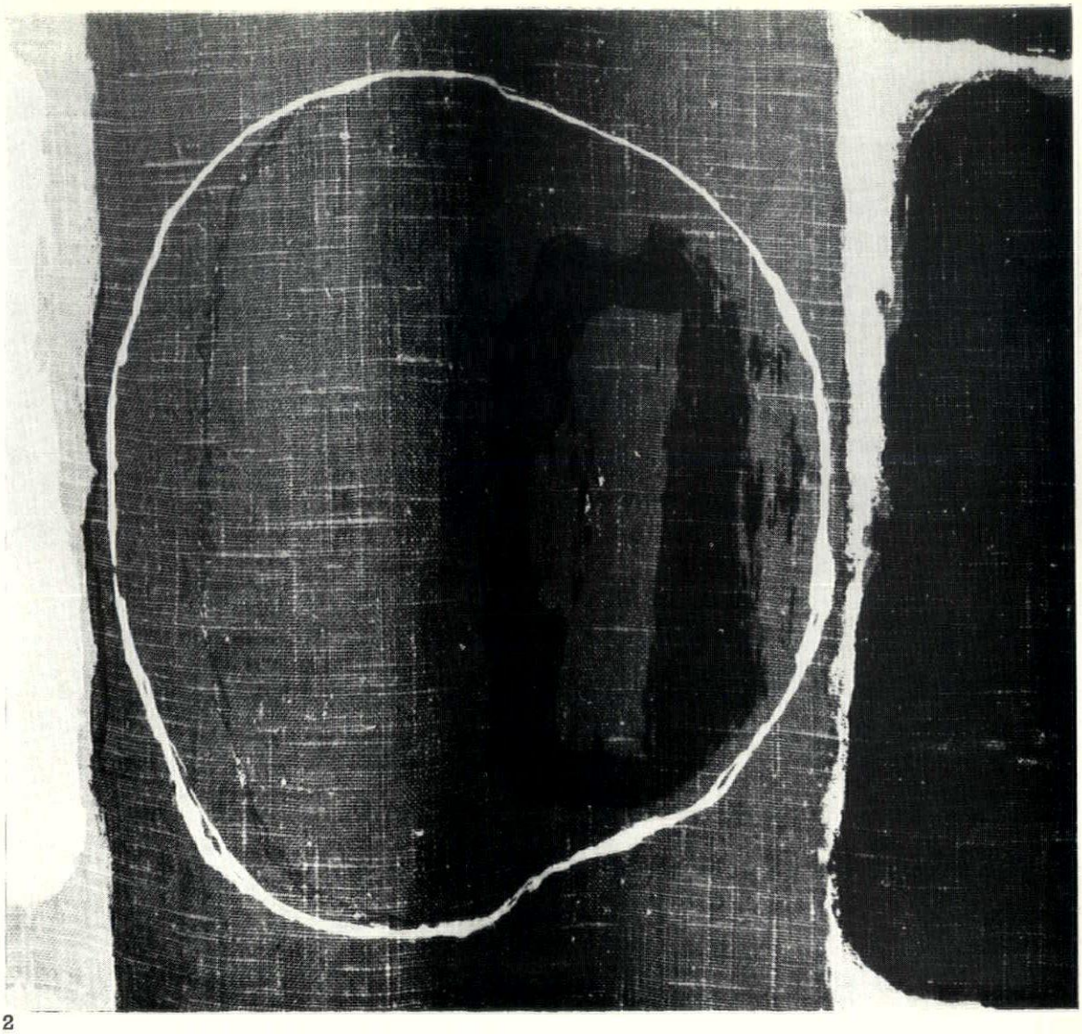
6



cutlery, lampshades, tables and chairs. Deceptively traditional in appearance, the chairs require close examination (see 1, page 115); executed in light pine and black leather-cloth with brass studs, they are simple and inexpensive to make by modern wood-bending and machining techniques, yet provide a degree of comfort and, above all, formality, that is proper to a quality restaurant.

7

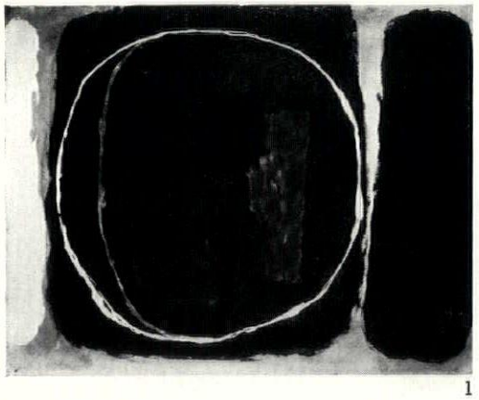




2

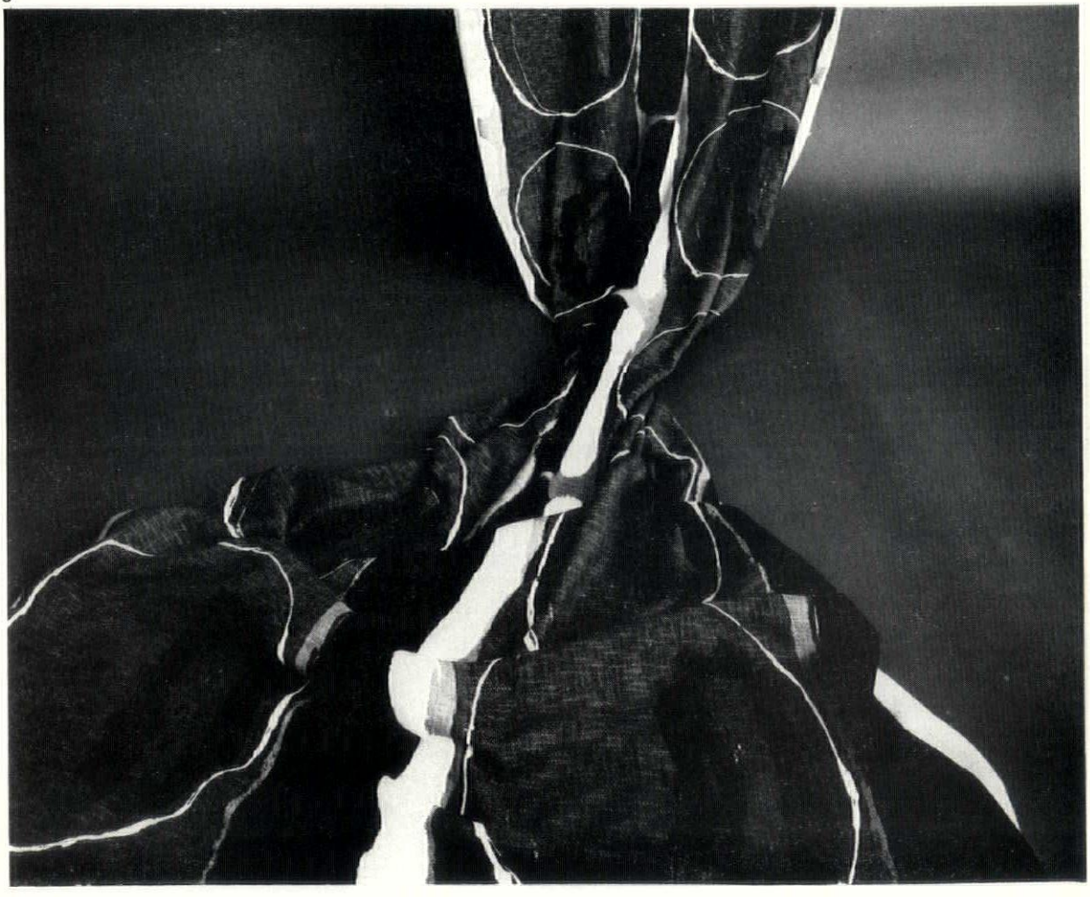
art into fabric

Justifiable nineteenth-century objections to pictorial patterns on fabrics have left us with a collection of unrevised dogma about textile design that makes us, still, uneasy in the presence of patterns not actually woven into the substance of the cloth, and suspicious of any designs not specifically conceived with a particular textile in mind. Yet the basic visual requirements of a print (questions of taste excepted) are that the pattern unit should read satisfactorily even when draped, and that its repeat should be of a scale suitable for the use and setting for which the material is intended. It so happens that a great number of contemporary abstract paintings provide such motifs with the very minimum of adjustment, and have, in addition, surface qualities that transfer naturally to fabric textures. The two striking fabrics shown on this and the next page are owed to the visual astuteness of Isabel Tisdall, of Edinburgh Weavers, in recognizing that particular works of art in recent exhibitions had the necessary qualities to become successful pattern-repeats.



1

3



1, Gouache by William Scott which forms the basis of the pattern *Whithorn*, illustrated on this page.
2, one basic repeat of *Whithorn* as it appears printed on linen (shown here at about half full-size). The similarity in the quality of edges, etc., in the original and the print does not involve any feeling of forced reproductive accuracy, but is quite at home on a material with linen's surface qualities.
3, a length of *Whithorn*, draped, showing how the original design has been modified (by the artist himself) to unite the main area of colour into a continuous vertical band.



4

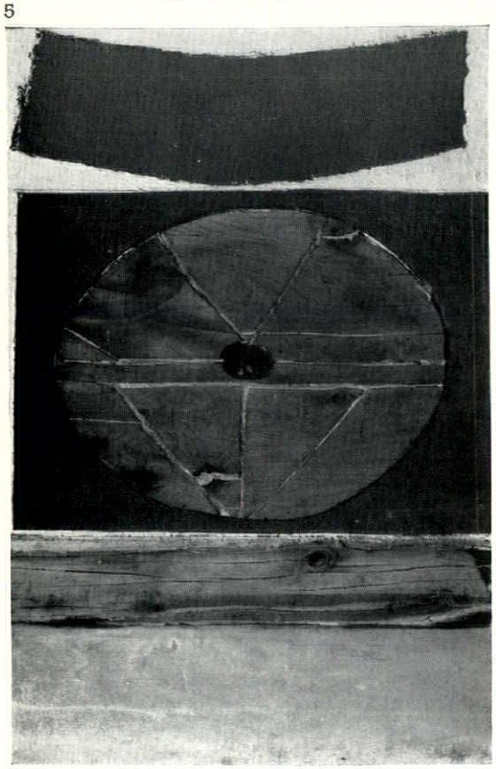
DR ***art into fabric***

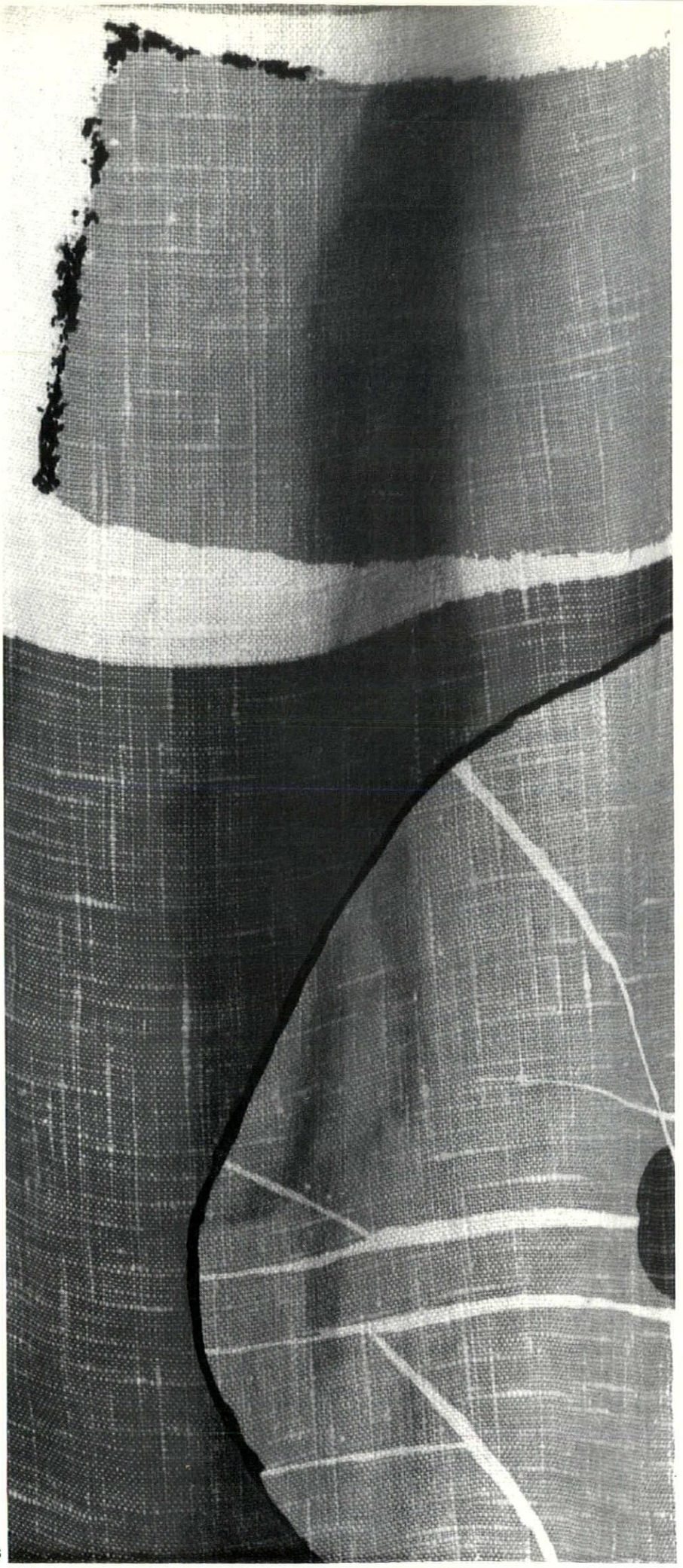
4, a length of *Bocca*, draped; comparison with the original work of art, 5 (below) shows how the repeat units have been joined edge-to-edge to give pronounced horizontal bands.

5, the original, in a mixture of wooden relief and painted canvas, by Joe Tilson.

6, close detail of a part of the pattern *Bocca*, about life size. The quality of the paint surface carries over naturally to the linen (e.g., top left) but the *brut* surface, grain and irregularity of the wood is less transmissible, and becomes something different, and elegant in another way, in the process. Nevertheless, it is, obviously, the implications of three-dimensionality in the original wood-work which should not be permitted to appear in the final print, because they would argue with the real three-dimensionality of the draping (which, in large measure, compensates for the original qualities' disappearance).

5

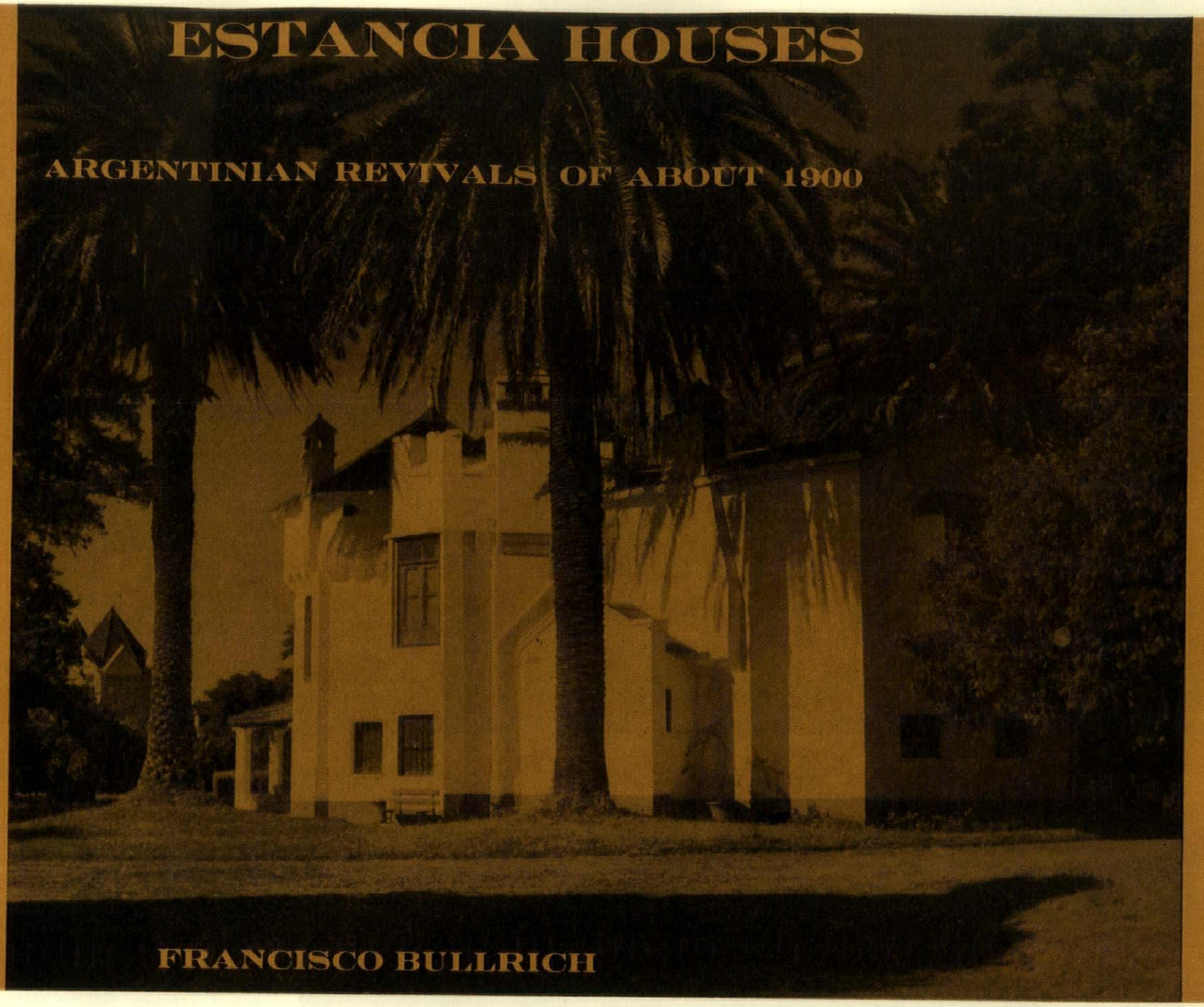




6

ESTANCIA HOUSES

ARGENTINIAN REVIVALS OF ABOUT 1900



FRANCISCO BULLRICH

1, *estancia house at El Retiro.*

The second half of the nineteenth century in Argentina saw the end of the undisputed rule of the *caudillos* and *montoneras* and with it the end of thirty years of civil wars and anarchy and of disrupted economy and endangered national identity. A more stable, more liberal regime followed inspired by European and North American patterns, and a centralized political organization subdued provincial autonomies though a federal regime was verbally accepted. With these transformations, social and economic conditions also changed and in the end the whole of Argentinian culture. The key movements and events are European immigration, growing foreign investments—especially English and French—railways spreading from Buenos Aires into the hinterland, the conquest of the desert, the defeat and nearly complete elimination of the Indian tribes, and the establishment of freezing plants.

The centre and the south of the country could now be developed. The traditional agropecuarian system which only produced a limited tonnage of *tasajo*—jerked meat—and of tanned leather from *cimarrones** was abandoned and with it disappeared that traditional character of the pampas, the *gaucho*. The landscape of the 'purple land' changed radically and the balance between the north and central interior and the littoral was upset in favour of the latter. A national economy replaced the closed provincial economies. The winners were the big landowners, especially of the province of Buenos Aires, and the *portena* bourgeoisie. Vast fortunes grew directly or indirectly out of the large *estancias* with their cattle and their agriculture. The last fifteen years of the nineteenth century were decisive. Industrial revolution, however, was still far away, and the only industries developed were those directly connected with the chief exports.

The new ruling class was emphatically European-minded. It abandoned the traditional Argentinian way of life, which appeared to it raw and also inefficient. Anti-Spanish and anti-clerical feelings ran high. Argentinians, of course, had looked to Europe before. Furniture and other personal belongings had been imported ever since independence, and art in the River Plate area owed nearly everything to Europe. But before the later nineteenth century attempts had always been made at a synthesis of indigenous and imported ideas and taste. Now the tendency was almost a self-annihilation.

These conditions must be known for an understanding of the estancia houses of the early twentieth century and the transformation of taste and manners which they express. Throughout the nineteenth century estancia houses followed a Spanish tradition modified in an Argentinian way, not without grace and character. They were one-storey buildings grouped round one or several patios and surrounded on all or some sides by a veranda of free-standing columns or pillars, figures 2, 4 and 5, or of wooden posts. The patios, 3, were with or without their own colonnades. When the houses had to be protected against Indian raids—and in the provinces of Buenos Aires, Córdoba and San Luis that remained a necessity until 1878—

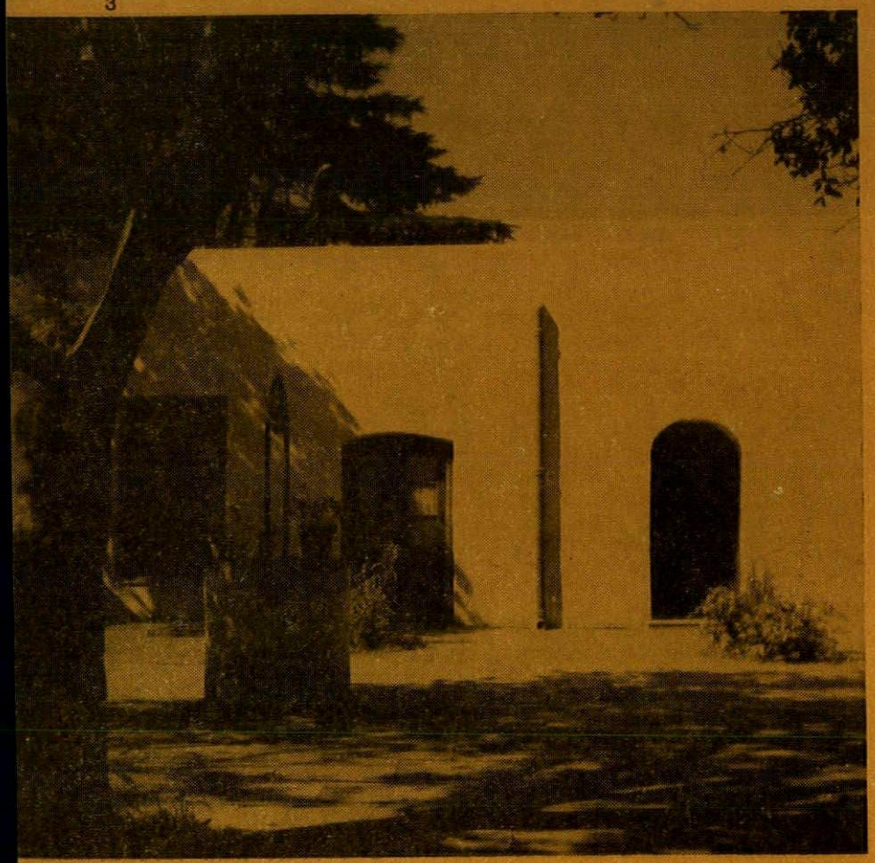
**Cimarrones* are the wild cattle introduced in the sixteenth century by the Spanish conquerors and afterwards abandoned to themselves in the pampas. Since few were killed they numbered millions at the beginning of the nineteenth century.

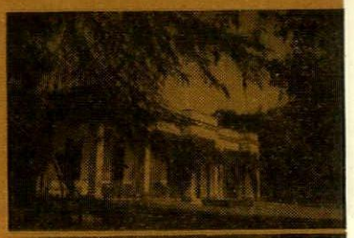


2

2, Quinta Pueyrredon at San Isidro, Buenos Aires Province. 3, patio of Quinta Pueyrredon. 4, 5, La Rabona at Manuel Ocampo, Buenos Aires Province. 6, La Rica at Chivilcoy, Buenos Aires Province, showing defensive parapet.

3





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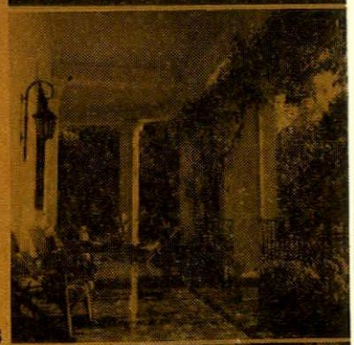


5



6

the outer colonnade was given up and a defensible parapet introduced, 6. Sometimes also a *mirador* was added, a kind of belvedere on the roof, which served the purpose of an observation post. Floors were mostly of brick, roofs of timber and tiled. Window surrounds were unmoulded (but protected by grilles) and walls whitewashed or pink-washed. The houses expressed a simple life, not without dignity.

The house itself was between 400 and 2,000 square feet in size and the centre of a self-sufficient agrarian entity, including the store, the depot, the blacksmith's shop, the wash-house and the living quarters of the *peonada*. Cow-sheds were in the Argentinian climate unnecessary.

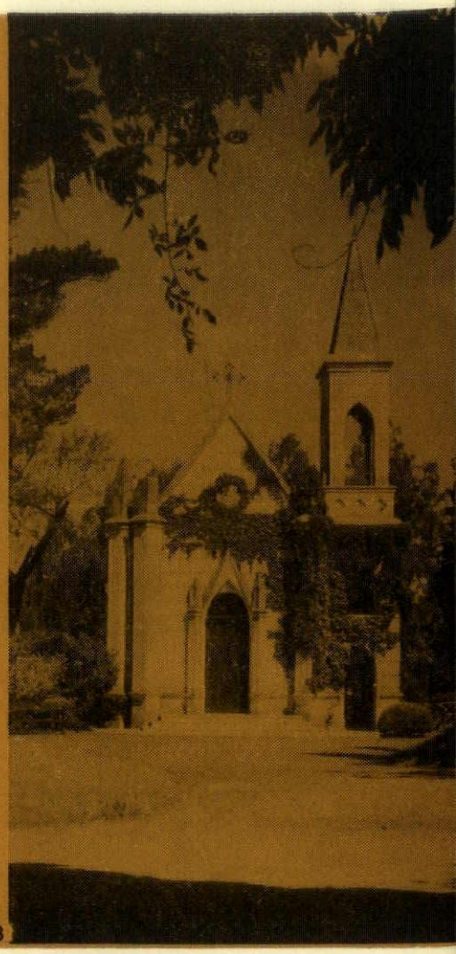
In the eighteen-seventies the traditional forms of the exteriors were brought a little more up to date by more correctly classical details and the introduction of porticoes, entablatures and the like. Also two-storeyed houses began to be built. Further and more radical changes came with the 'eighties and 'nineties. In Buenos Aires itself in 1882-94 the Avenida de Mayo was cut through, a Haussmannian enterprise, and the old town hall, the Cabildo, was partly demolished and partly given an Italian face-lift. The Plaza de Mayo in front of the Cabildo was completely remodelled and lost its old graceful and orderly form. Colonial churches were restored without any regard for their authentic character, and many buildings of value were destroyed without qualms. In 1889 the first stage of the new docks was completed, and big liners could at last call at Buenos Aires. Wealthy families travelled more and more to Europe, and came home with Salon pictures or Barbizon pictures and *objets d'art*. In the gardens of Palermo, the *Bois* of Buenos Aires, fiacres crowded the avenues, and the great Sarah, the inimitable Duse, Tamagno and Caruso played and sang to enthusiastic audiences. For the centenary celebrations Anatole France, Clémenceau, Jean Jaurès visited Buenos Aires. An industrial proletariat did not yet exist but socialism had begun to show its intentions.

Even for the rich, holidays by the sea were only just beginning. When Buenos Aires grew too hot, you went out to your *quinta*; i.e. your villa *extra muros*, or to your estancia farther away. Summers are long in Argentina, and so stays at the estancias were long too. This is no doubt what made owners everywhere consider new buildings. It was the same in town too. Here also more lavish residences were demanded. In the past masons had built them, in town as well as country. Now, as there were no schools of architecture in Argentina, Beaux-Arts-trained foreigners found Argentina a lucrative place. Gradually a few Argentinians also appeared among them.

The palaces of the early

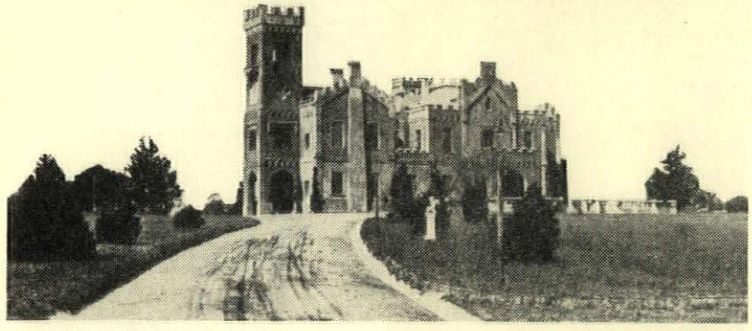


7



8

7, another estancia house at El Retiro (see also 1 on page 121). 8, the Gothic chapel at El Retiro. 9, Maryland, Tandil, in the Buenos Aires Province. 10, Chapadmalal house and park. 11, Indiana, near Tandil. 12, Villa María, near Máximo Paz.



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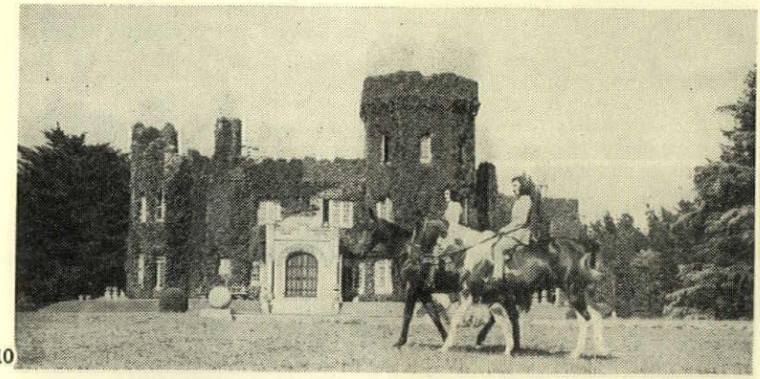

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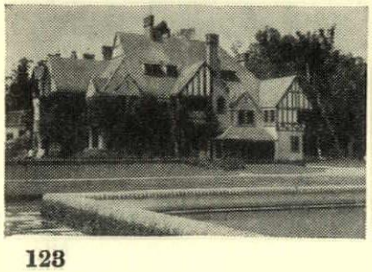


11



12

twentieth century in Argentinian cities must be seen to be believed. In size, in luxury, and sometimes in style they emulated those of Paris herself. In Buenos Aires they are the Anchorena, Paz and Errázuriz Palaces; in Córdoba the Ferreyra Palace is in every respect their match. The estancia houses were even larger, though rarely so accomplished. Their style wavered between French and English. There are vistas down radiating avenues and there is the Picturesque element. European plants were imported and mixed with eucalyptus. Parks of 200 to 600 acres were planted in the wild pampas. In some cases long underground pipe-lines supplied water from elevated tanks. A complete contrast was aimed at between the parks and the surrounding pampas.

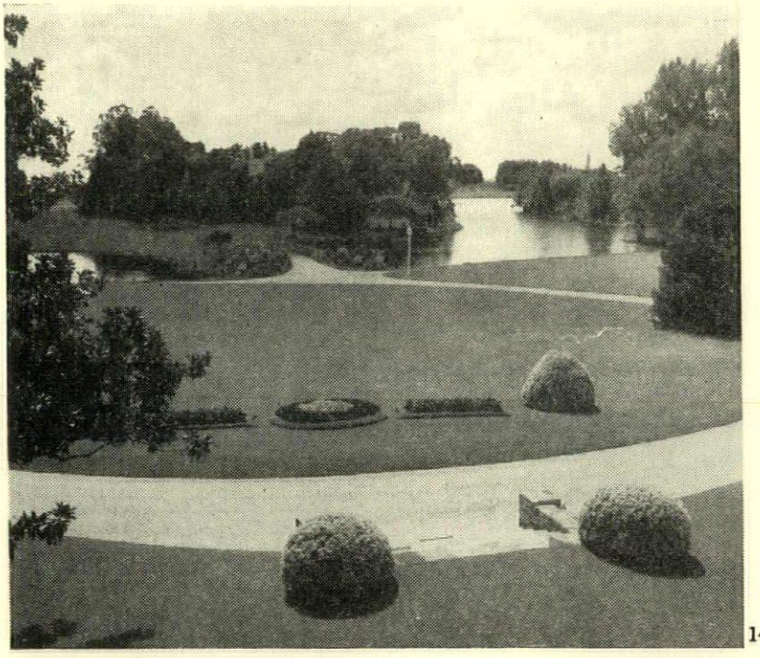
Whatever one may think of this nostalgic attitude of the *estancieros*, the magnitude of their enterprise cannot be overestimated. It would be unfair to demand the immediate emergence of a national school of planning and building. After all, when the School of Chicago established itself about 1890 as a truly national school independent and ahead of Europe, it was not the traditional ruling classes that fostered it. Frank Lloyd Wright's early clients are another illustration of this. The Argentinian landowners imitated established modes and did not patronize new trends. *Art Nouveau* came to Buenos Aires in the early years of the century, but it was considered low-brow. What was accepted as socially desirable will be patent enough from the illustrations of estancia houses of about 1895-1914 which must now be looked at. The Retiro House, 7, can hardly be stylistically defined, with its traditional verandas of the *criolla* house and its bits of medievalizing detail. The other Retiro House, 1, is even more irregular. The picturesque grouping, originating in English romantic precedent, breaks all ties with the Argentinian past. A chapel usually belonged to the estate, and the ill-defined Gothic of the chapel at El Retiro, 8, reproduces memories of France rather than England.

When we come to Ramón Santamarina's Maryland House, 9, we are on safer ground. This is purely English in its origins. It was perhaps the earliest example of the really large, loose Revival house; its date, 1894, is inscribed in large figures on the balustrade of the terrace, followed by 'Welcome to Maryland' in black-letter. Its architectural history is not quite clear. It underwent



13

13, *Armonia House, near Mar del Plata.*
14, *the grounds.*



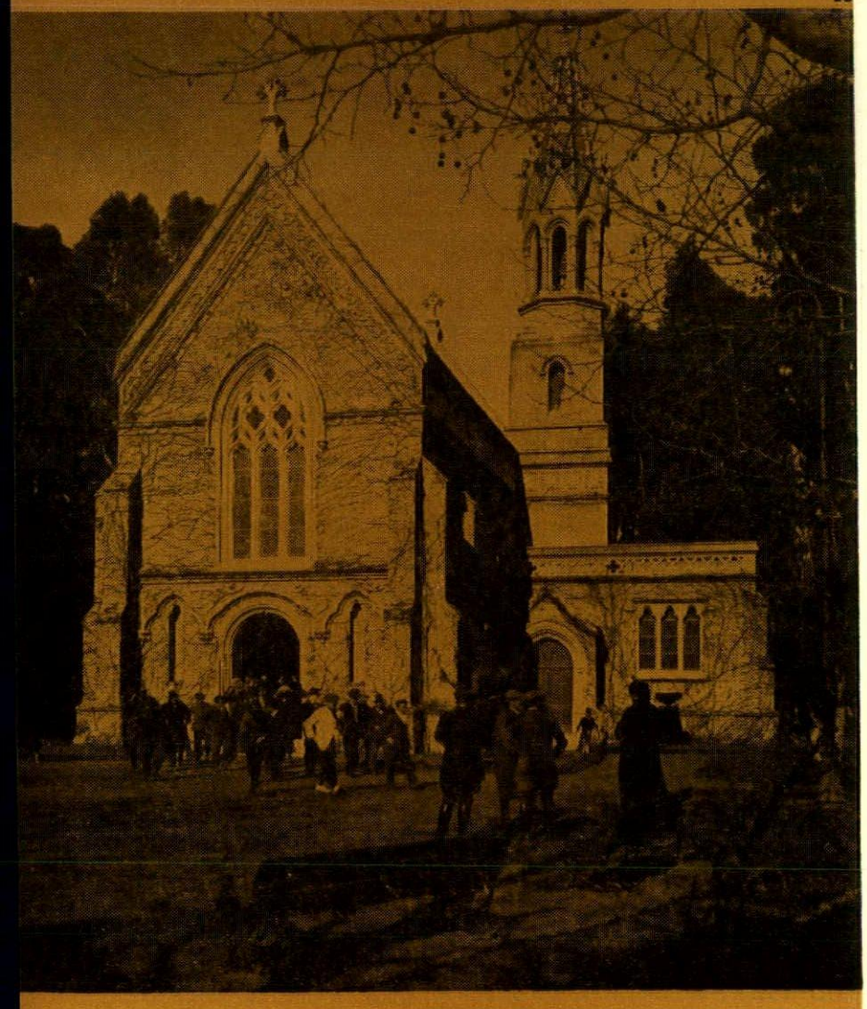
14

several changes and now looks French *Dixhuitième.* The photograph here illustrated is of about 1918. Less fanciful and more restrained than Maryland is the Chapadmalal House, 10, of 1907. This is also one hundred per cent English, and here there is indeed the best justification. The house was designed by W. B. Bassett Smith, who was probably the son of William Bassett Smith who worked in England in the last quarter of the nineteenth century. W.B. was in partnership from 1911 to 1924 with B. H. Collcutt, architect to the Buenos Aires-Pacific Railway and the River Plate Telephone Company.*

Even though the tower of the

*This information was kindly provided by the RIBA Library.

15, *the Chapel of El Huetel.* 16, *part of the house of El Huetel and,* 17, *the park.*



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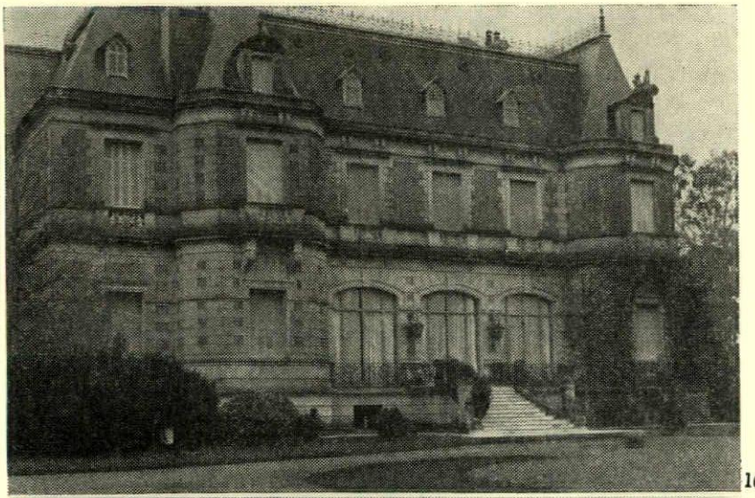

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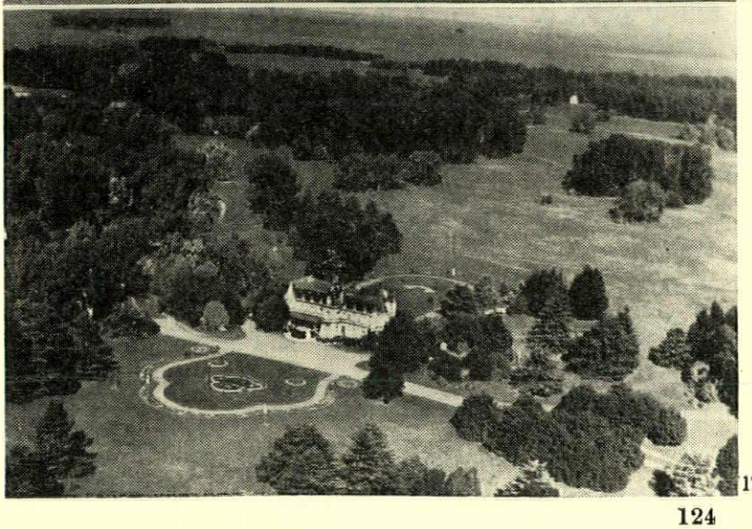
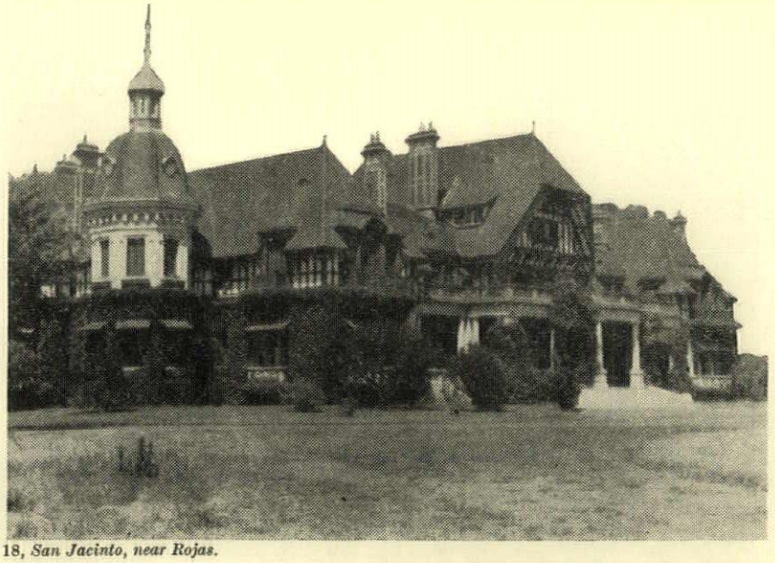


17

Chapadmalal House has lost its top and wings have been added, the general character, called locally Scottish Baronial but really universally English, is preserved. So is that of the extensive grounds, designed by Carlos Thais in collaboration with Mrs. Julia Martínez de Hoz. Only on the west side is a formal terraced garden, and that also was of course in the English mode. Also by Bassett Smith, but later and rather chaotic in their forced picturesqueness, are Indiana near Tandil, 11, and Villa María near Máximo Paz, 12, both in the province of Buenos Aires, and both of 1923. The Armonía House, 13, on the other hand, built near Mar del Plata in 1907, before the town became the monster seaside resort which it now is, is a kind of *fin de siècle* Deauville villa. The house is not so big, but it has extensive and quite graceful grounds, 14.

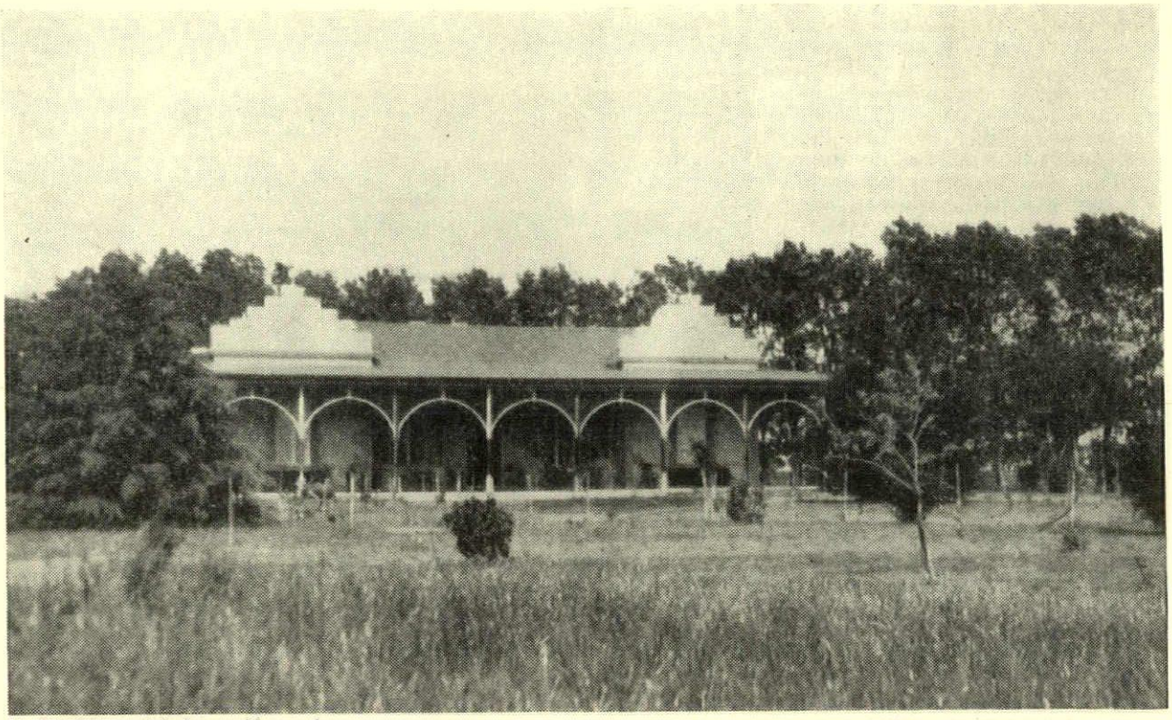
We stay in France, but the France of the seventeenth-century chateaux, or rather their Second-Empire imitations, with El Huetel, 16, one of the most imposing estancia houses. It has a huge park, 17, with subsidiary buildings ranging from Dutch milking-sheds and equally utilitarian Renaissance structures, to a Gothic chapel, 15. San Jacinto near Rojas, also in the province of Buenos Aires, is another estancia with a sweeping French garden. This house, 18, displays a mixture of Normandy, François Premier and traditional neo-classical features.

El Acelain near Tandil, 19, marks the end of an epoch and the beginning of a new, equally remote from the architectural movements which mattered. The house was built in 1922 and is the document of a universal revulsion from dependence on French and English precedent. Spain fifty years before had meant nothing but unjustified pride and obscurantism. Now a Spanish Revival was created, and the owner of El Acelain, Enrique Larreta, was its leader in literature (*La Gloria de Don Ramiro*).



18, *San Jacinto, near Rojas.*

19, *El Acelain, near Tandil.*



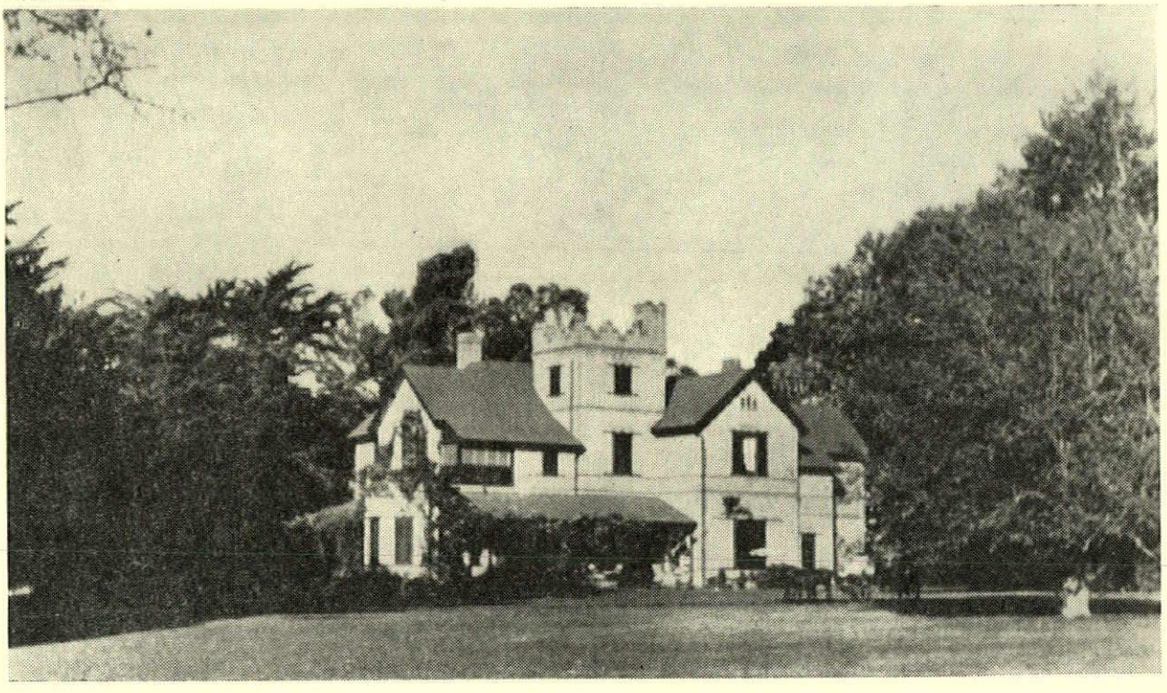
20, *Drysdale, a* criolla *house with veranda.*

The architect was an Argentinian, Martín Noel, and the gardens were treated in a Moorish fashion. This Spanish Revival, paralleled in the United States by the so-called Spanish Mission Style, was only the start of a return to the Argentinian tradition. This return started even before 1920, a movement similar to that of the Slavophiles in Russia. If this is not so often demonstrated by estancia houses, the reason is that the heyday of the estancia house was over by the 1920s. The depression of 1930 killed what had still been stirring. The whole system of agrarian economy was shaken, and the new generation of landowners had not the means or the wish to continue building on such an absurd scale.

One word must nevertheless be added. It is a strange fact that, with perhaps a couple of exceptions, on the English-owned estancias none of the French—or indeed the English—looking houses appeared. There are reasons to explain this anomaly. The British who owned large estancias did not usually live on them but formed companies and controlled them from London. Their employees lived on the estate of course, but for them no more was needed than comfortable houses without external display. So the *criolla* house with a veranda was all that was provided, and the only English touch sometimes introduced is that the veranda, 20, has decided railway overtones—the railways were at least in certain parts of the country entirely built by the English.

The exceptions just mentioned are the first Charles Felton's estancia house at Killik Aiki, Río Gallegos, in the province of Santa Cruz—perhaps the most southerly loose-styled estancia house in the world—and a house built by Charles Krabbe in 1910 in the province of Buenos Aires. This house, La Colina, 21, was probably designed by Krabbe himself who was an amateur draughtsman. He worked for the Southern Railway and later became an estanciero in association with R. Shennan, one of the more typical and representative Irish *porteno.*

21, *La Colina.*



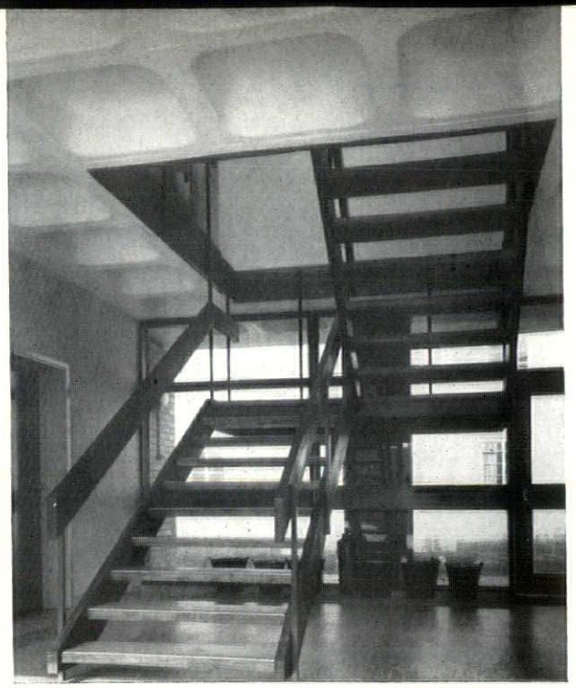
Territorial Army Offices, Leicester

ARCHITECTS: EDWARDS, BRANSON AND EDWARDS

The building accommodates the offices and stores of 147 Infantry Brigade, Territorial Army, and is situated in the Territorial Army Centre at Blackbird Road, Leicester. The site is in an open court formed by the main drill-hall building. A third storey is planned for the future. The building is of load-bearing brick in cross-wall construction, the load-bearing and non-load-bearing

1, *the entrance from the south.*



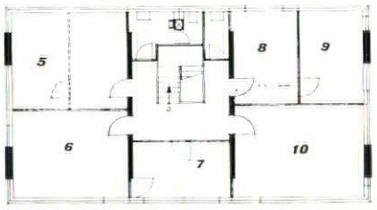


2, *the staircase in the entrance hall.*

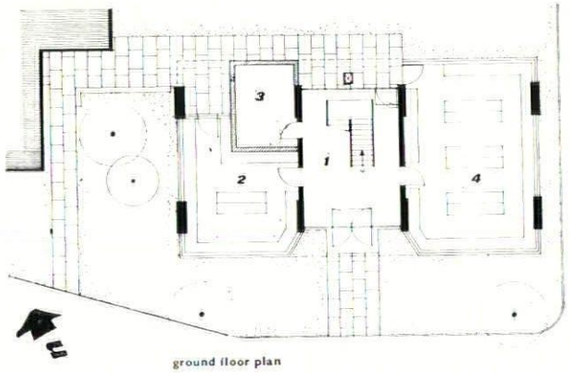
sections of the structure being distinguished by the use of differing types of brick: rustic facings for the former areas and smooth sand-lime bricks for the latter. It was originally intended to expose the load-bearing brickwork internally but this could not be done owing to certain fixed requirements for internal finishes.

The first floor and roof (the future second floor) are of reinforced concrete on the hollow mould system without projecting beams. The intention was to expose the coffered ceiling in the stores but to underline it in the offices and circulation areas with deal boarding. In the event, the finish of the concrete after removal of the fibreglass moulds was such that it was decided to expose the concrete in all areas. The floors are cantilevered out from the ends of the load-bearing walls in all cases and internally the glazing is returned between all offices so that there is always a glazed area between the top of the non-load-bearing walling and the ceiling over. This treatment has been continued in the design of the internal partitioning. The fuel store at the side of the building is to be removed and the internal court will be landscaped.

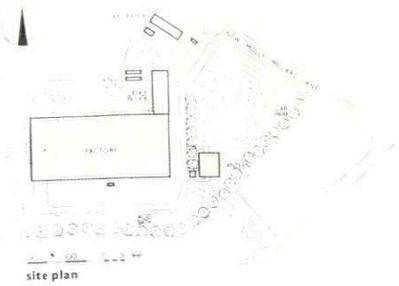
Key
1. hall
2. general store
3. armoury
4. technical store
5. lecture room
6. brigade commander
7. brigade major
8, 9. squadron offices
10. brigade clerks



first floor plan



ground floor plan



site plan

Factory at Wokingham

ARCHITECTS: YORKE, ROSENBERG AND MARDALL

1, *the office block from the west with the factory on the right.* 2, *interior of the factory.* 3-6 (*facing page*), *details of the cladding of the office block.*



1

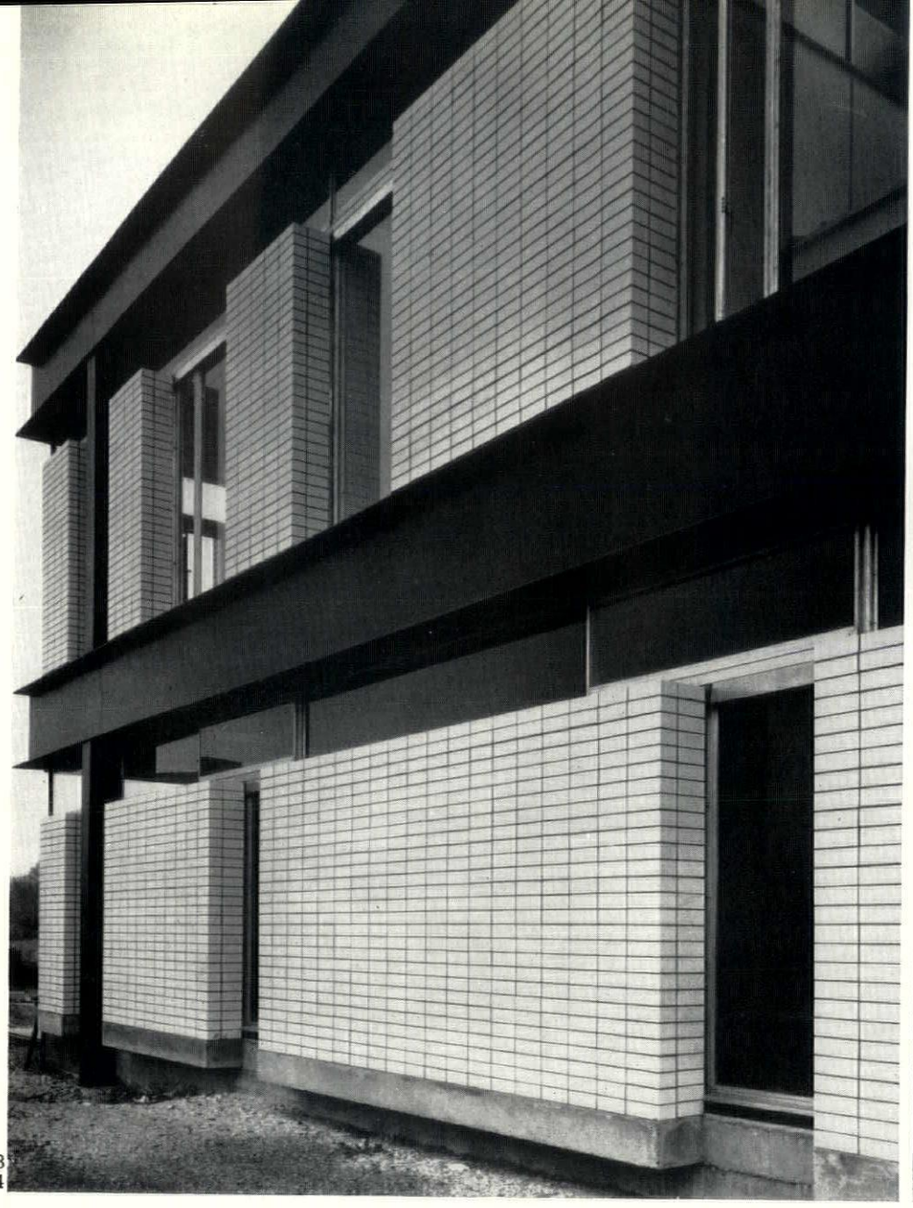


2

This is a building for A. Johnson & Co., who make stainless steel pressure-vessels, vats and processing equipment mainly for the food and drink industry. It replaces the firm's old factory at Acton which had become too small and had no room to expand. Eighty per cent of the employees decided to move to Wokingham with the factory.

The building consists, in its first stage now completed, of three factory bays, each of 55 ft. span with a central assembly bay 33 ft. high, together with a two-storey office block attached to the north-east corner nearest the access road. This block has over half the ground floor given over to locker-rooms, wash-rooms, etc.

The amount of natural light in the factory had to be



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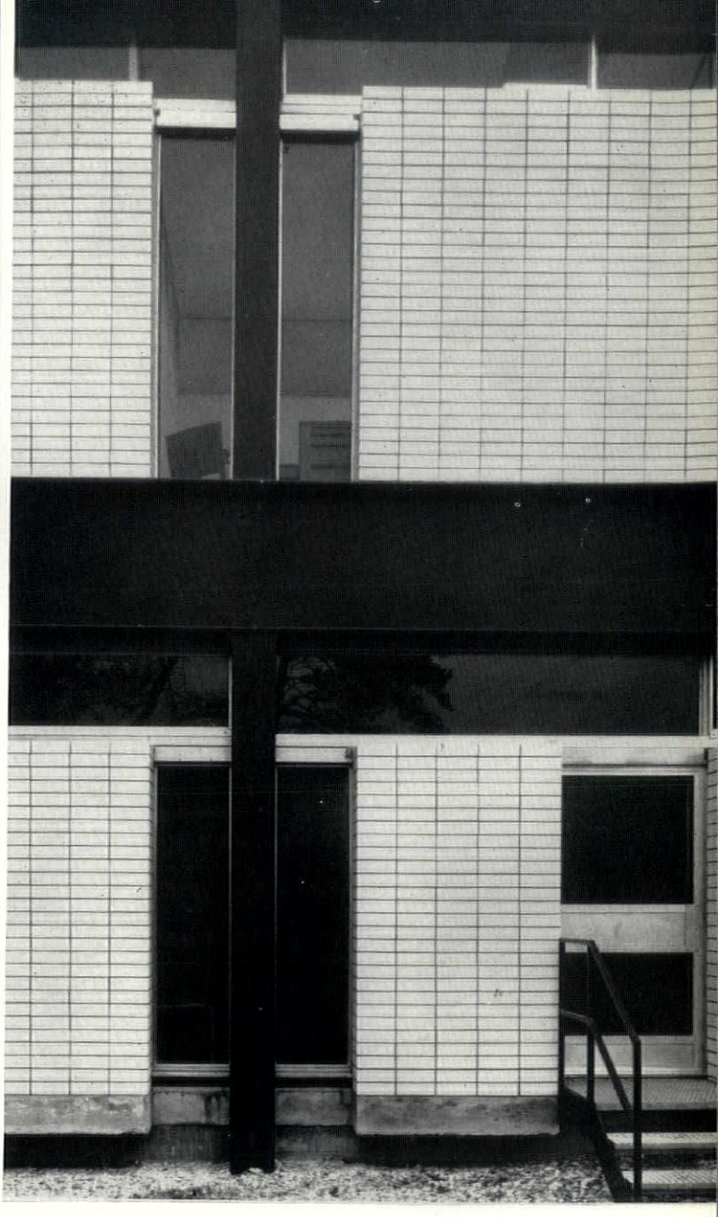

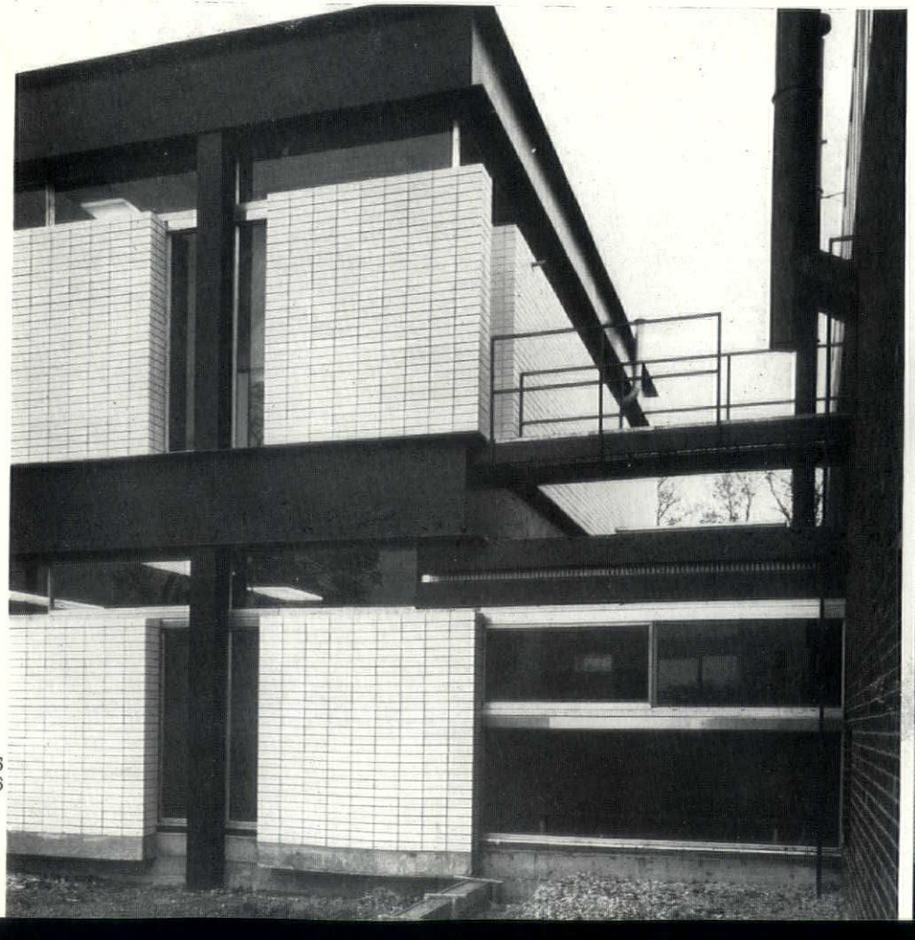

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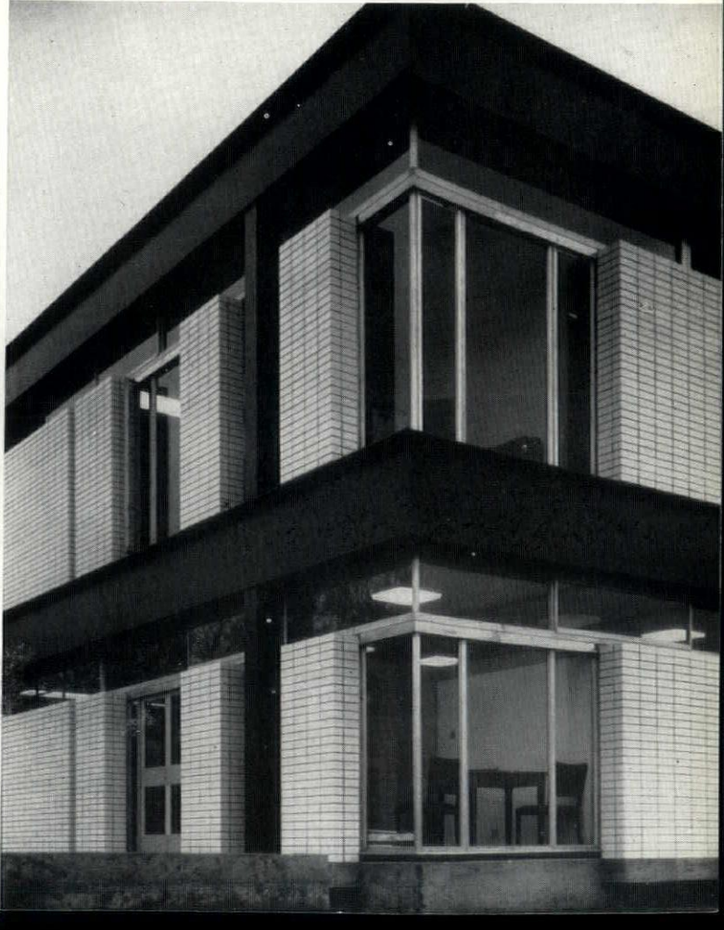
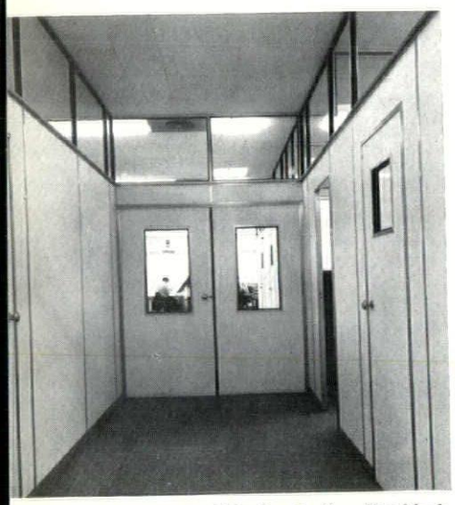
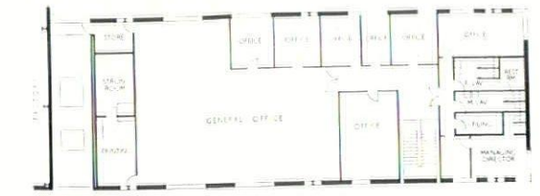


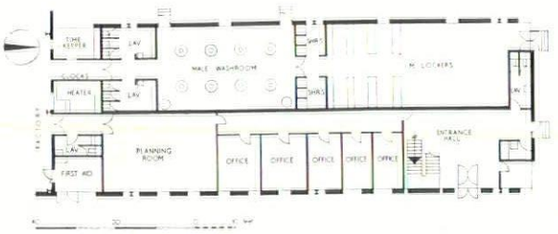
Factory at Wokingham



7, *partitioning in the office block.*



first floor plan



ground floor plan, office block

restricted to prevent glare on the working surface of bright stainless steel. Its structure is steel frame, with stanchions at 20 ft. centres and lattice trusses 3 ft. deep. External walls are of blue brick backed with precast concrete blocks. The roof is covered with wood-wool slabs, screed and felt. The factory is heated by six large oil-fired space-heaters. The office block has a steel frame with stanchions at 40 ft. centres and beams 3 ft. deep on the perimeter, with lattice beams giving a wholly uninterrupted floor-space and allowing services to be run above the suspended acoustic tile ceilings. External wall panels are of matt glazed white bricks and concrete blocks. Windows are aluminium. Heating is by warm air from an oil-fired burner, ducted to outlets in the ceilings.

Assistant architect in charge, P. Rickman. Consulting engineers for the structure, Clarke, Nicholls and Marcel. Quantity surveyors, Rider Hunt and Partners.

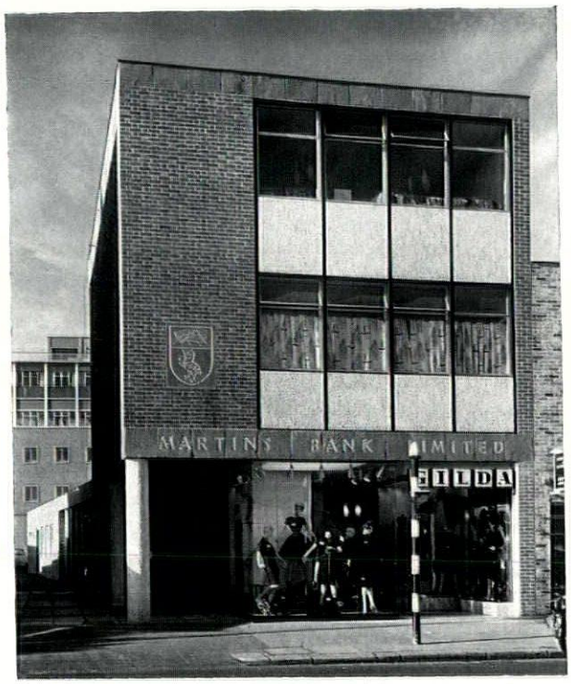
Branch Bank at Watford

ARCHITECTS: BRYAN AND NORMAN WESTWOOD & PARTNERS
ASSOCIATE PARTNER: H. SMART

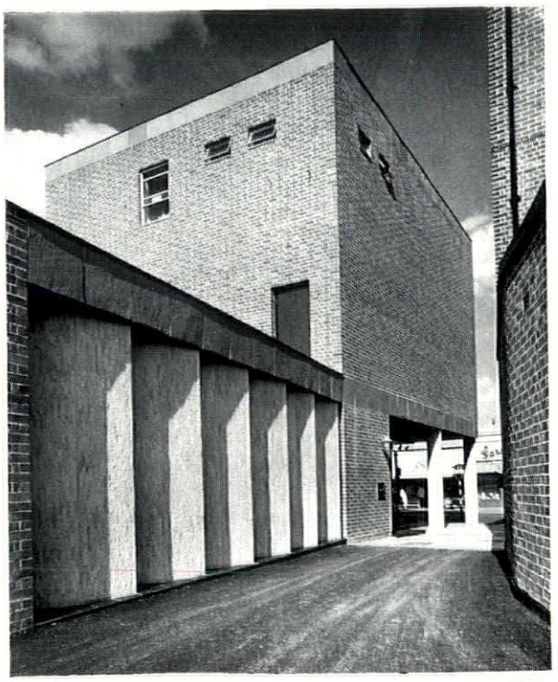
The site for this branch of Martin's Bank was exceptionally expensive because of the value of frontages in this congested suburban shopping centre. The bank therefore decided that, if possible, the frontage should be let as a shop and the rear part of the site developed for the bank with an entrance which could readily be seen from the road. This has been achieved by exploiting a narrow lane at the side and obtaining permission to pave it over, thus forming a small courtyard off the main street, which also serves the purpose of widening the crowded pavement.

The materials used for the exterior are silver-grey facing bricks with riven Westmorland slate fascia and other enrichments, and polished slate on the wall-lining of the entrance vestibule. The light-coloured panels on the main façade are surfaced with rustic marble strip, which also covers the free-standing columns. The gilt lettering was

1, *from the street with the entrance on the left.*



2, *looking down the alley at the side.*



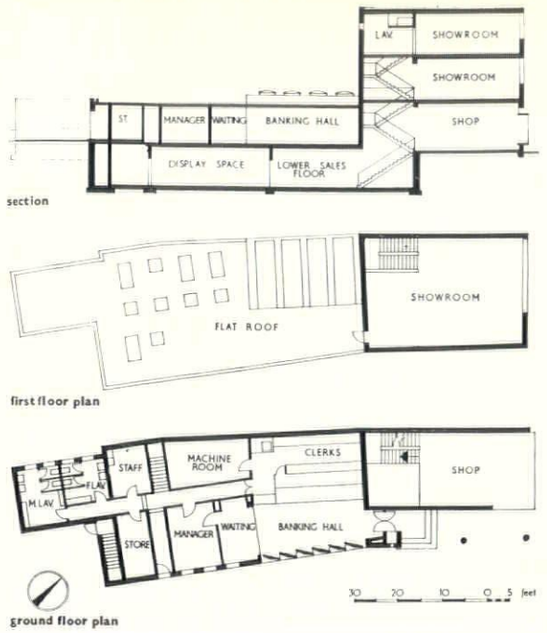
engraved by Eric Peskett. The windows are permanently finished in anodized black and satin silver aluminium.

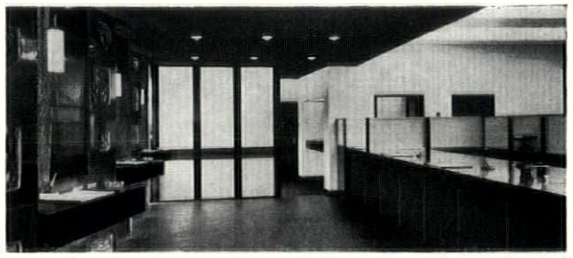
The design of the banking hall itself is based on contrast of light and shade. The public space is comparatively dimly lit, with a black ceiling, slate floor with an external wall formed of dark-coloured sculptural panels by Eric Peskett. These are placed in echelon so that on entering the wall appears solid, but on leaving the street is seen through the windows (see plan). The space over the counter and for the clerks behind is brightly lit from a laylight which also incorporates artificial lighting. The writing tables on the sculptured wall are individually illuminated.

The front of the counter is covered with olive green plastic fabric, with a padded backing, edged in aluminium. The counter top is afrormosia. The sculptured slabs between the writing desks have partly a very smooth shining surface cast against a glass mould and partly the rough and dark moulded texture of the insets. These were cast in rubber moulds. Behind the main counter the clerks' desks, nests of drawers, etc., were all specially designed, and are finished in black bean. The under-bench fittings are movable. The lighted working area has on the back wall dark brown and black bean panelling in random lengths.

Behind the banking hall are a waiting room and a manager's office with secondary exit; also a staff recreation room, lavatories, etc. The strong-room is in the basement.

Assistant, John Trelawny-Ross.





3

3, the banking hall. 4, detail of the sculptural panels and writing desks on the external wall.

4



EXHIBITIONS

PAINTING

The loan exhibition of Victorian paintings held at Agnews to raise funds for the Victorian Society was a neutral miscellany of aggressively bad and unassumingly good paintings. But the essay by Graham Reynolds was diplomatic rather than neutral and included the terms of reference for a better exhibition than the one it introduced. He holds the view that Victorian painting is 'the quiet and undemanding summing up of three centuries of genre painting, firmly rooted in the Dutch cabinet pictures of the seventeenth century,' and if the selectors had made a serious attempt to confirm his contention, the exhibition would have been a tribute to the few Victorians who maintained decent standards of paintings, instead of being merely a tardy and indiscriminate acknowledgment of a revival of interest in the Victorian period that has now been with us for several years.

The fact is that Reynolds's generalization applies only to a very small part of the Victorian output. Most of it isn't really genre painting at all, but sermonizing and story-telling in which the make-believe action takes place in realistic settings, and it seems to have been ground out to serve a middle-class demand for talismans against poverty and sexual passion in women.

The glorification of the moderate pleasures of family life was relentless and immoderate. (The light shining on the new baby in Boyd Houghton's 'The Family' reduces the art of the tenebrists to farce.) There was an insatiable appetite for the 'affecting subject,' for the farewells that permitted a moderate demonstrativeness, for the respectable tendernesses of courting couples, for the 'pathos' of little girls. (R. W. Chapman screws pathos out of an innocuous subject like posting a letter by giving the girl the 'bereft' look of an orphan.) It is the emotional tinkering with simple subjects of this kind that I find particularly repulsive; yet it's mainly in the treatment of such subjects that the best Victorian painting is to be found—paintings to which Reynolds rightly ascribes painterly qualities as well as descriptive merit—and it is this small body of work which constitutes a new if minor contribution to genre.

Mrs. Frank's basement gallery in St. James's Street has been the temporary home of some of the most delightful of these paintings, and I have been a regular caller there long enough to know that it would not have been difficult to find a sufficient number of works with painterly qualities to fill Agnews' first-floor gallery. It would have been less representative of Victorian painting than the one provided, but we all know that a representative show is bound to include many more bad paintings than good ones, and I can't imagine what purpose is served by continuing to ram it home.

Fortunately, a few examples of the genuine small contribution which the Victorians made to painting crept into the exhibition. They were works of a modest size. They were sensitively painted, and this seems to have much to do with the fact that they were free from calculated tear-jerking and overt moralism. Two Tissots—a scene of parting and a girl resting in a tree—were among them, also a child asleep in a cornfield, by G. E. Hicks, a back view of a young couple on a bench, by Eyre Crowe—a daylight picture which had a touch of the magic of Caspar David Friedrich's back views of moongazers—a



1

brilliant studio interior by Charles Keene, an 8 in. by 6 in. panel of a woman at a looking-glass, by Augustus Egg, and the four paintings which illustrate this note.

William Gale, in 'The Convalescent,' 1, doesn't hide his sentimental regard for family life, but there's nothing mawkish about it, and since the woman would appear to be recovering rather than going into a decline, one's suspicion that Victorian husbands were preoccupied with daydreams about what sort of woman the second wife would be is not aroused. In any case, there is a quiet exhilaration



2

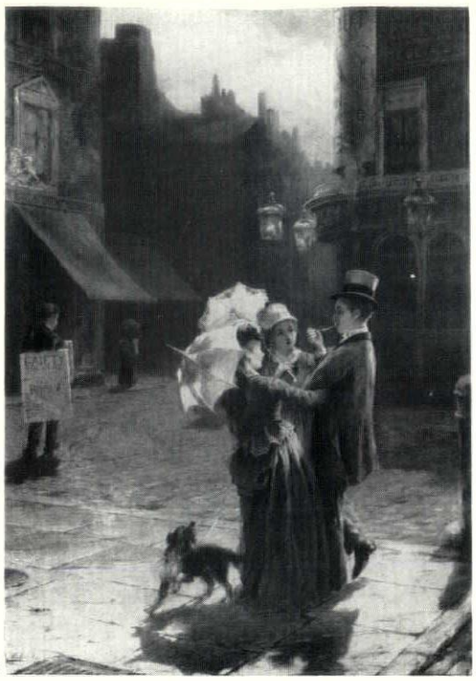
in the colour of Gale's painting which accords with the ostensible subject.

J. R. Reid's 'The Young Artist,' 2, could easily have gone wrong if he had been more intent on exploiting the 'affecting' possibilities of his subject than depicting the scene before him. As it is, he achieves as happy a correspondence between a charming subject and its treatment as William Gale.

Abraham Solomon's 'Brighton Front,' 3, is one of the best paintings that came out of the Victorians' discovery of the pleasures of the seaside. The two tall women in black contribute an unusual note of elegance, and the composition, with its empty foreground, produces the pleasantly dream-like impression that the front rank of promenaders has been brought to a halt by an invisible obstacle and that the crowd continues to surge forward without, so to speak, coming on.



3



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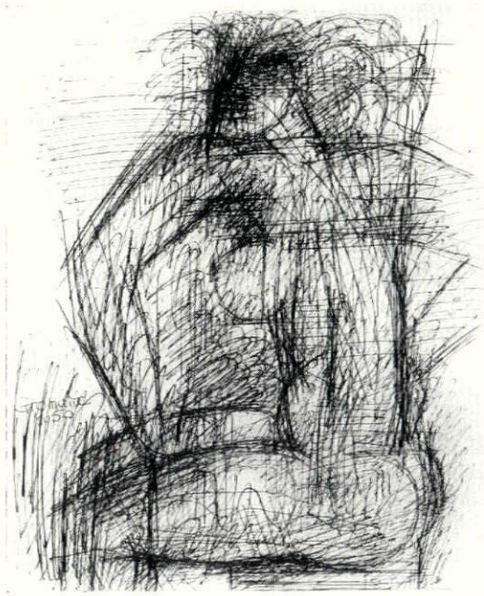
A. E. Mulready's 'A Sunny Day,' 4, is a remarkably sprightly and sparkling work, for he was a specialist in paintings of pale, slim, destitute children calculated to give an added warmth to cosy Victorian parlours.

The Victorians approached the subject of sexual passion in ways that were so devious that young people probably had no idea what paintings like Augustus Egg's 'Past and Present' or Holman Hunt's 'The Awakening Conscience' were about, and even Hunt's 'The Hireling Shepherd' could well have seemed to them just another of those pictures about the more respectable tendernesses of courting couples, although the teen-agers of today would be under no such delusion. But 'The Hireling Shepherd' is probably the only picture by an eminent Victorian which comes near to greatness, and this would seem to be due in large measure to the fact that he achieved the opposite of what he consciously intended. The small version of this famous picture was borrowed from a private collection for the Agnew show, 5, and all visitors must have been duly grateful. It seems to be generally agreed that Hunt strongly disapproved of both characters in the picture, condemning the girl for waywardness and the shepherd for neglecting his flock, which is beginning to stray. The dog in the left-hand corner is considered to be a symbol of the attention to duty on which the shepherd has turned his back, and the large moth in his hand is supposed to emblemize the girl's lack of moral fibre. The bitten apple in her lap needs no comment. But the painter creates a Palmeresque 'ripeness is all' setting for the lovers that turns his symbols against his intentions. The landscape details become laudatory symbols of the girl's physical attributes, in the manner of the Song of Solomon, though it must be admitted that the significance of the dark avenue and the idea that the moth is a winged phallus might not have occurred to all and sundry in another time. But what really matters is that no symbolical reading is necessary in order to perceive that Hunt created an atmosphere and a situation which gives a poetic lead to the act of love. As far as I know, this is a unique situation in English painting, and it's nice to think that the most high-minded of the Victorians intended to blast erring woman with a sermon and achieved instead a hymn of praise to sexual love.

One picture in the show—a bold, pink, brassily idealized female nude by Etty—should not have been there. For me, it was something of a relief, although it was not a good Etty; but it would have made Victorian women hide their faces in shame. Nothing could have been less Victorian than his belief that the naked human figure was 'God's most glorious work.' Actually, his best paintings, which were his oil studies of the male nude, didn't bear out his belief. They were painted in silvery greys and olive greens that sometimes bring Géricault to mind, and they were pervaded by a sense of the melancholy and ennui of the human situation. This was undoubtedly due in part to the fact that they were studies and that the postures were detached from situations and events; but he inclined to pose his models on their backs with their legs in the air, which gives them the alienated look of some of Bacon's nudes.

A fine show of drawings by Marcel Gromaire, whose work is insufficiently known here, was recently held at the Mayor Gallery. It included a group of nude



6

studies which look as if they were all made from the same model on the same day although they cover a period of several years. They are as brassily idealized as Etty's female nudes, but they have a more raffish air because the idealizing isn't brought about by noble sentiments but by a sensitively calculated application of cubism which doesn't, so to speak, purify them, 6. It was a somewhat baffling experience to realize that these girls were no better than they ought to be yet existed only as an ideal.

The main prizes in the first of the John Moores Open Competitions went to the 'Kitchen sink' school, which is now defunct. The second competition was a resounding success for the Cornish abstractionists, who seem at present to be waiting for something new to happen in the States, having missed out on the hard-edge wave. A new group of young men, most of whom made their first public appearance at the last Young



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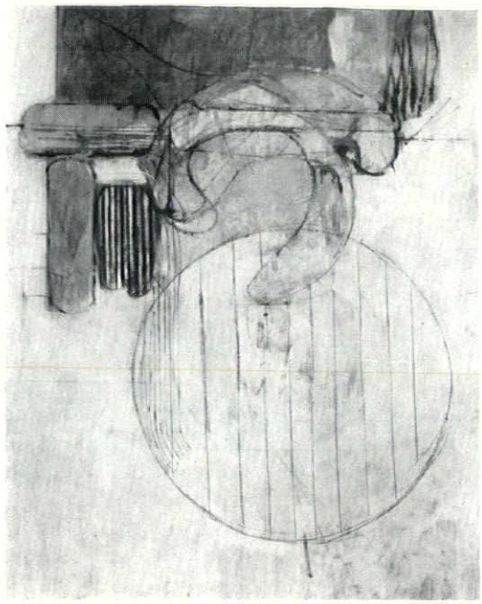

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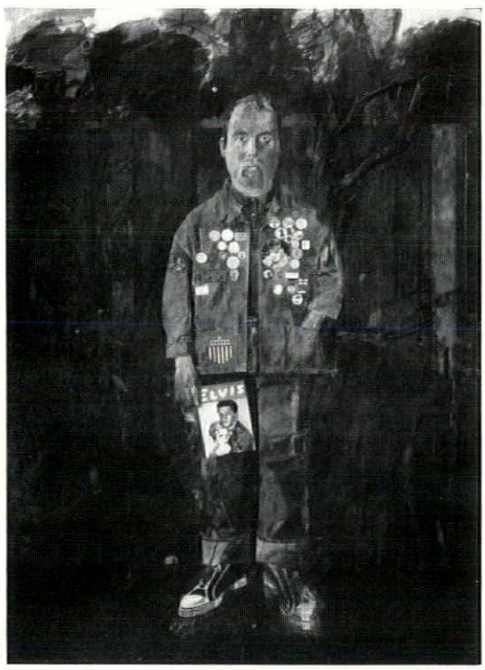

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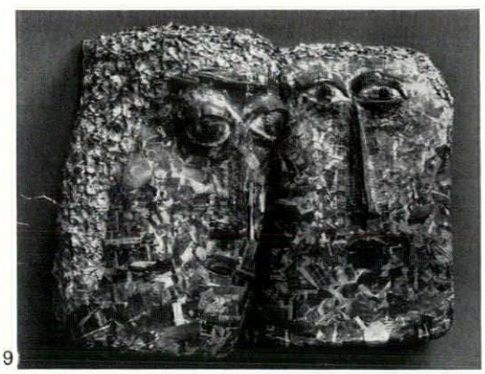
Contemporaries show, now seem to be taking the lead in what up to now has been a somewhat disastrous march of progress. Their 'solution' of whatever it is that turns one direction after another into a cul-de-sac is a figurative one. The main prize went to Henry Mundy for his large and elegantly economical 'Cluster,' 7, and the fact that this painter could easily bestow upon his forms a greater degree of representational import gave the picture something of an emblematical significance, as if it were standing at the cross-roads, with sedate-looking abstracts on one side and crazy-looking figures on the other.

Of the younger figurative artists, Peter Blake and Evelyn Williams appear to me to be the most solidly based. There is a hectic brilliance about the work of Ron Kitaj and a hectic gaiety in the work of David Hockney that is very stirring, but may not remain characteristic of their work as it develops. Blake's 'Self Portrait,' 8, was badly placed in the exhibition at Liverpool. It should have been hung alongside the works by Kitaj, Hockney, Peter Phillips and Geoffrey Reeve, for which his salvage operations among the cheaper paper and plastic expendables, and his remarkable ability to build a reflective art out of an environment of commercialized eroticism, helped to pave the way.

Evelyn Williams's relief in papier-maché made of newsprint, 9, is another way of coming to poetic terms with a low-grade but potent element of our environment. There is an ironic attitude to the notion of communication in the interplay be-



9

tween the material used and the image of lovers it projects.

'The Red Banquet,' 10, by Kitaj invests a Corbusier interior with the cartoon-like phantoms of famous nineteenth-century revolutionaries. He makes use of the collage technique to disseminate confusing intellectual and political ideas whose evasiveness is reflected not only in the seemingly explanatory note gummed on to the front of the canvas but in the composition. But the pictorial evasiveness brilliantly achieves the effect of an inexplicable but potentially dangerous fracture in time and space. It seems probable that he has been influenced by Bacon, but if so he has made remarkably original use of him. Hockney, in his painting 'The cha-cha that was danced in the early hours

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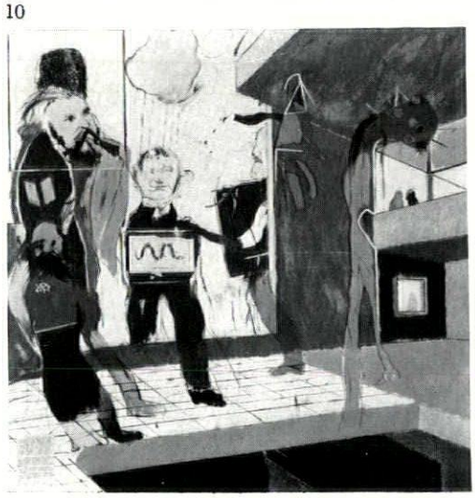
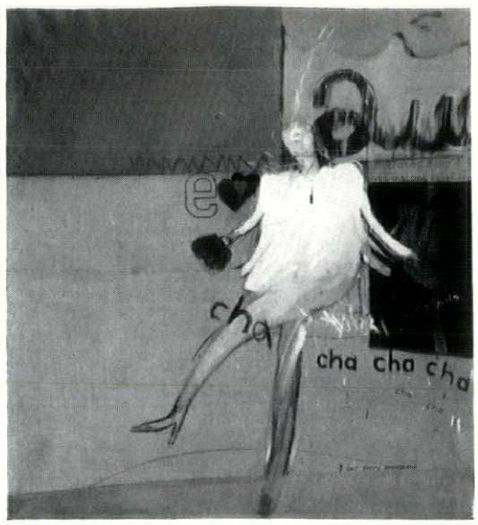




11

of the twenty-fourth of March,' 11, owes an obvious debt to Bacon, but he has replaced the *angst* with a casual gaiety and verve that made an outstandingly vivid impression in the exhibition. The phrase printed in small letters at the foot of the canvas, 'I love every movement,' is perhaps not only a response to the cha-cha girl but a reflection of his insouciant attitude to the solemn solutions of pictorial problems which so swiftly come and even more swiftly go.

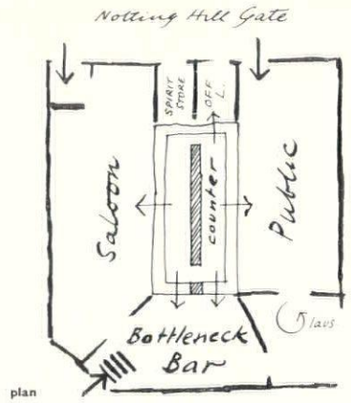
Robert Melville

CREDIT

THE HOOP AT THE GATE

Thirsty visitors to Notting Hill Gate (*see pages* 89–96) *have another pleasant surprise in store.* If they go into *The Hoop*, on the south side of the Gate, they will find what is probably the best modern pub in London. As far as I am concerned, as a disillusioned consumer, it is almost the only modern pub in London. Elsewhere, though the superficial parts of the REVIEW's campaign for restoring the pub tradition may have succeeded, it is applied without real understanding—from the head or the organ of fashion-consciousness, not from the heart and certainly not from the stomach and guts. Which, after all, is where the beer goes.

The great lesson of *The Hoop* is that it is common-sense and can be seen to be. No fuss, no fancy tricks: the perennial moral of the functional tradition. (This proposition includes eccentricity rather than denying it, because the truly eccentric always seems functional and natural in its context. But try and be false-eccentric, and you're in trouble.) Pubs, like churches, are bound to separate True Art from False Art, in Blake's sense. And today in both English pubs and English churches, there



plan

is at the moment much more false than true.

But not in *The Hoop*. The outside is a disappointment, an irrelevant jumble, but go inside. The overall space is approximately square. This is defined by the ceiling, floating above all the bars, 1, with deep concrete beams reflecting the structural needs of the building above, not the bar divisions, and hence re-establishing the outside world, but in terms of 'up there,' not 'out there.' Below this, the pub space itself grows and flowers, dark and deep against the white and grey remoteness. But the flowering is classically coherent, as everything must be coherent in its own language.

It all depends on the bar, double-sided, with a slatted wooden canopy supported on polished brass tubes. This defines the 'down here,' opposed to the ceiling. It runs back from the street and generates the plan inevitably. Public on one side, Saloon on the other. Tiny Off Licence and a spirit store on the street, wedge-shaped Bottleneck Bar, 2, as the kernel of the whole pub, at the back. The surfaces and colours in all bars are big scale and harmonious—not the synthetic harmony of pastel shades but something rich and dark that you can sink into. Everything is crisp and modern, yet spatially everything is floating between one bar and another, between pub space and other space, 'up there' and 'out there'. Like the best of the gin palaces, it is a cathedral—and like the best cathedrals it raises the viewer to one-man's-path between rational and irra-



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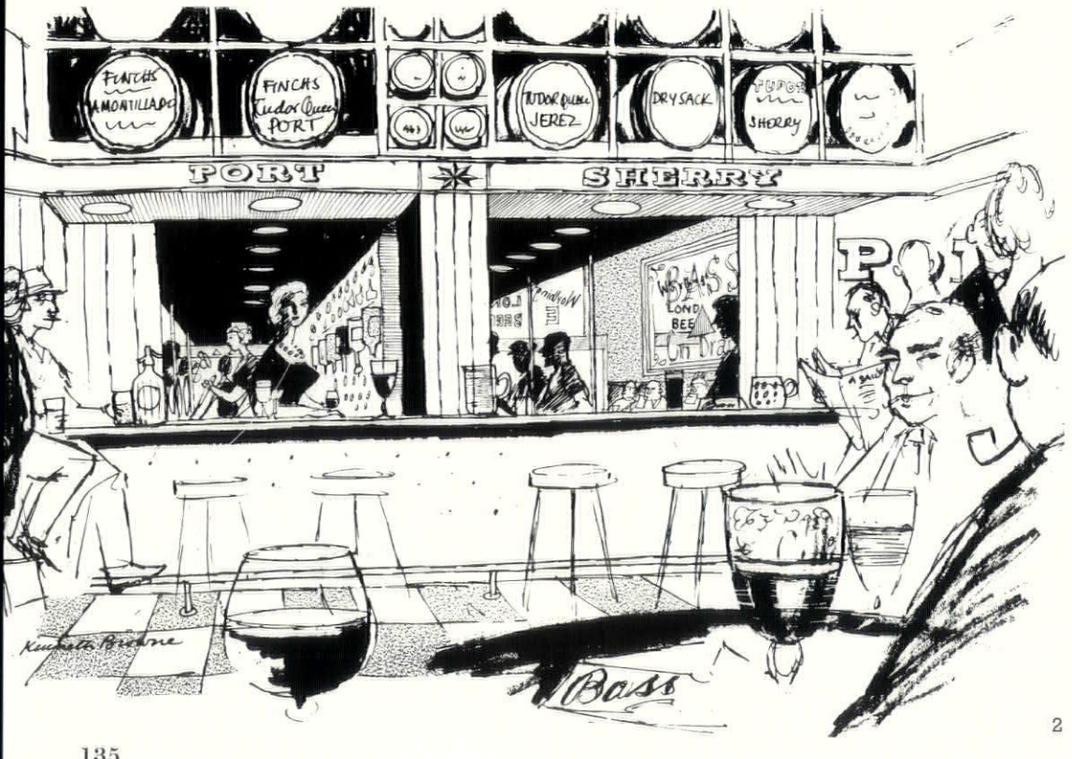

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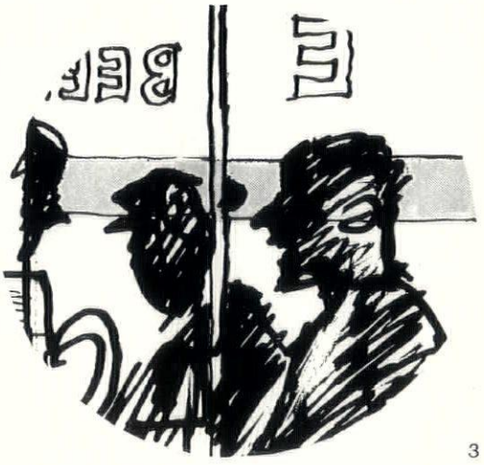

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1, the structural ceiling floating above the bar canopy. 2, the Bottleneck Bar looking through to the Public, left, and Saloon, right. 3, an enlargement of a part of 2 to suggest both the sense of 'out there' obtainable from the Bottleneck Bar and the way in which such sensations are actually felt by the drinker—i.e. much more than life-size. The aggregate space of a bar is often made up of half a dozen of these vignettes, small in size and big in effect.

tional, yet does so without discomfort and without difficulty.

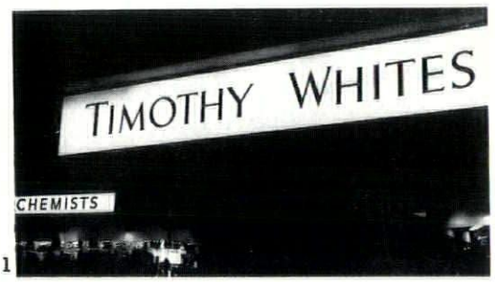
After this, the details are bound to be right, the lettering understood not applied, the Public and Saloon differentiated precisely by their seats. Precisely, but not austerely: this is inner design, not outer application, and if the designer did not enjoy a pint himself—he need not—he was completely inside the needs of those who do. His name is D. J. A. Lock, and this is the only pub he has designed. Rather sadly, the owners (H. H. Finch Ltd.) have embarked on a series of redecorations of their London pubs by another firm which although well above the average, do not come anywhere near *The Hoop's* understanding of the real needs of imbibers.

Ian Nairn

LETTERING

LETTERING AT NOTTING HILL

The new development at Notting Hill Gate (described on pages 89–96) is better than average as commercial architecture: can the same be said of the shop lettering there? The honest response is: not very much. There are too many dreary old friends like Timothy White's debased Trajanic, 1, and unconsidered standard logotypes, 2, applied



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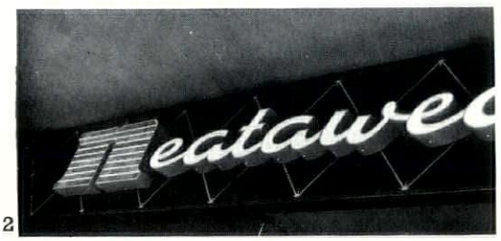
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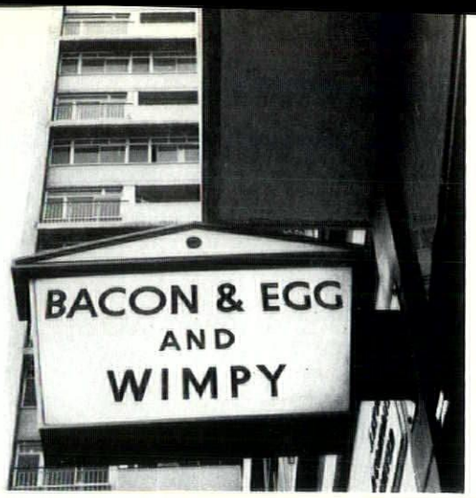
with no visible relationship to their backgrounds and surroundings. There is much too much defeatist 'good taste' epitomized in the graceless display of what appears to be de-seriffed Albertus, 3, the more depressing because it serves a lively newcomer to the field of mass catering who is usually identified by a roly-poly Cooper that shares the superfatted pop-art convictions of the product. Even this, however, is not Notting Hill's rock bottom—



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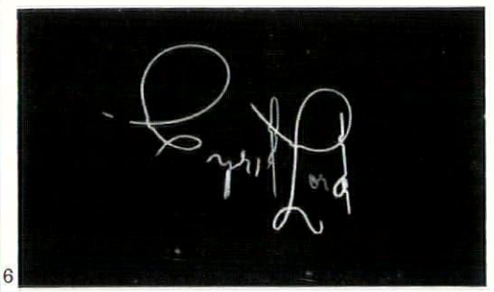
5

for that we must turn to the ignoble Roman of Hadrian Paints, 4, or the matchstick Modernistick of 5.

The fascias of Notting Hill are a graveyard of lost opportunities, epitomized in the contrast of two cold-cathode signs—one of them exploiting the medium in a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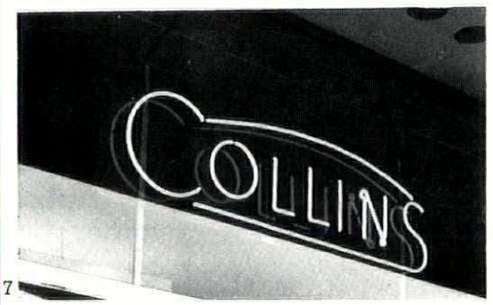

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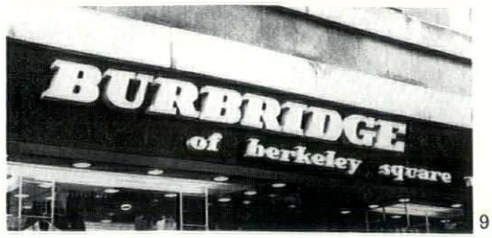
wild (well, fairly wild) flourish of calligraphy, 6, like a Mathieu painting; the other, 7, so square and timid as to suggest that its designer was not quite sure that tubes could, in fact, be bent. But the greatest loss of opportunities occurs among the quasi-Egyptians and grocers' Clarendons. They are much in evidence (a tribute to the Festival of Britain) and most of them are Rockwell derivatives, some so pure, 8, as to show every fault of this



8



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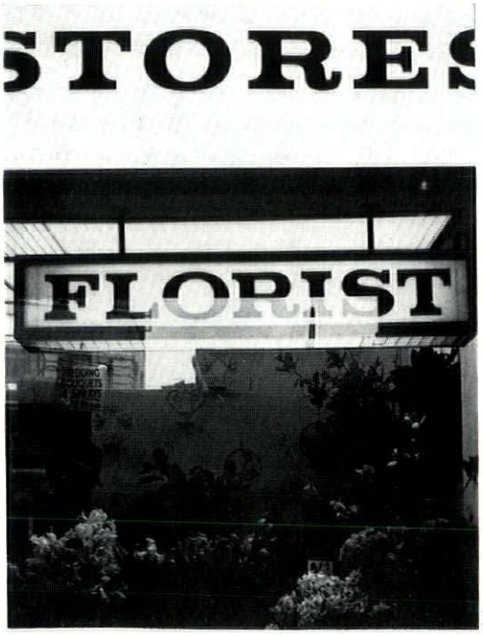
awkward letter. Sometimes sub-Rockwell can be found brutalized on one side of a fascia, 9, and nastily genteelized on the other, 10, in an attempt at snob, he-man status symbolism that never gets off the ground.

Yet some of the Rockwell derivatives are among the best things to be seen at Notting Hill Gate, and do a decent blunt job, 11, that is no disgrace, even if it has nothing to say that is new, while in one case, 12, a bracketed Egyptian has been



11



12

used with an aplomb, and a sense of spacing (and space-filling) that suggests that someone, somewhere, has understood what the revival of early nineteenth-century display faces is all about. One can even forgive a slightly uncertain *R*, conspicuous in both words, for the sake of a general command of the art and function of lettering that deserves to be praised, in the hope that it will spread through emulation.

C. Forehoe

TOWNSCAPE

LONDON ROOFLINES

The new Notting Hill Gate, illustrated on pages 89–96 *of this issue, is only one among many London examples of high buildings suddenly transforming the character of a familiar locality.* Those pages are concerned with the buildings themselves and with the townscapes they create at street level by means of street furniture and the planning of pavements and roadways. But because of their height such new developments also have an impact far outside their own locality, and the photographs by Eric de Maré on this and the next page show some of the unexpected ways in which London's new high buildings intrude themselves into familiar skylines, and the contrasts of scale, character and silhouette for which they are ubiquitously responsible.

Some of these intrusions are happy accidents, adding to the picturesqueness of the London townscape through the medium of contrast and surprise; others are disastrously the reverse. They present the planning authorities with unusually difficult problems: those of visualizing the effect of projects submitted to them from all possible viewpoints near and far, of deciding in which cases a changed skyline is an improvement and in which it is not, of balancing the interruption of a familiar or well-composed skyline against other advantages a tall building may offer. 1 shows how forcibly new commercial buildings are beginning to dominate the old skylines. It was taken looking eastwards from the roof of the new Imperial College building in Prince Consort Road.

Perhaps the most important as well as the most difficult of all these problems confronting the planning authority is, however, that of guiding development in advance so that the effect of new buildings on the skyline is foreseen. At present London has simply to make the best of each change of silhouette as it comes along. 2 is a dramatic case in point: the still uncompleted Vickers tower in Millbank—London's tallest office building—rising behind St. James's Palace in the view down St. James's Street from Piccadilly and creating a violent contrast of scale. Whether this is regarded as an affront to a familiar prospect or as an intriguing new townscape effect, it remains a juxtaposi-



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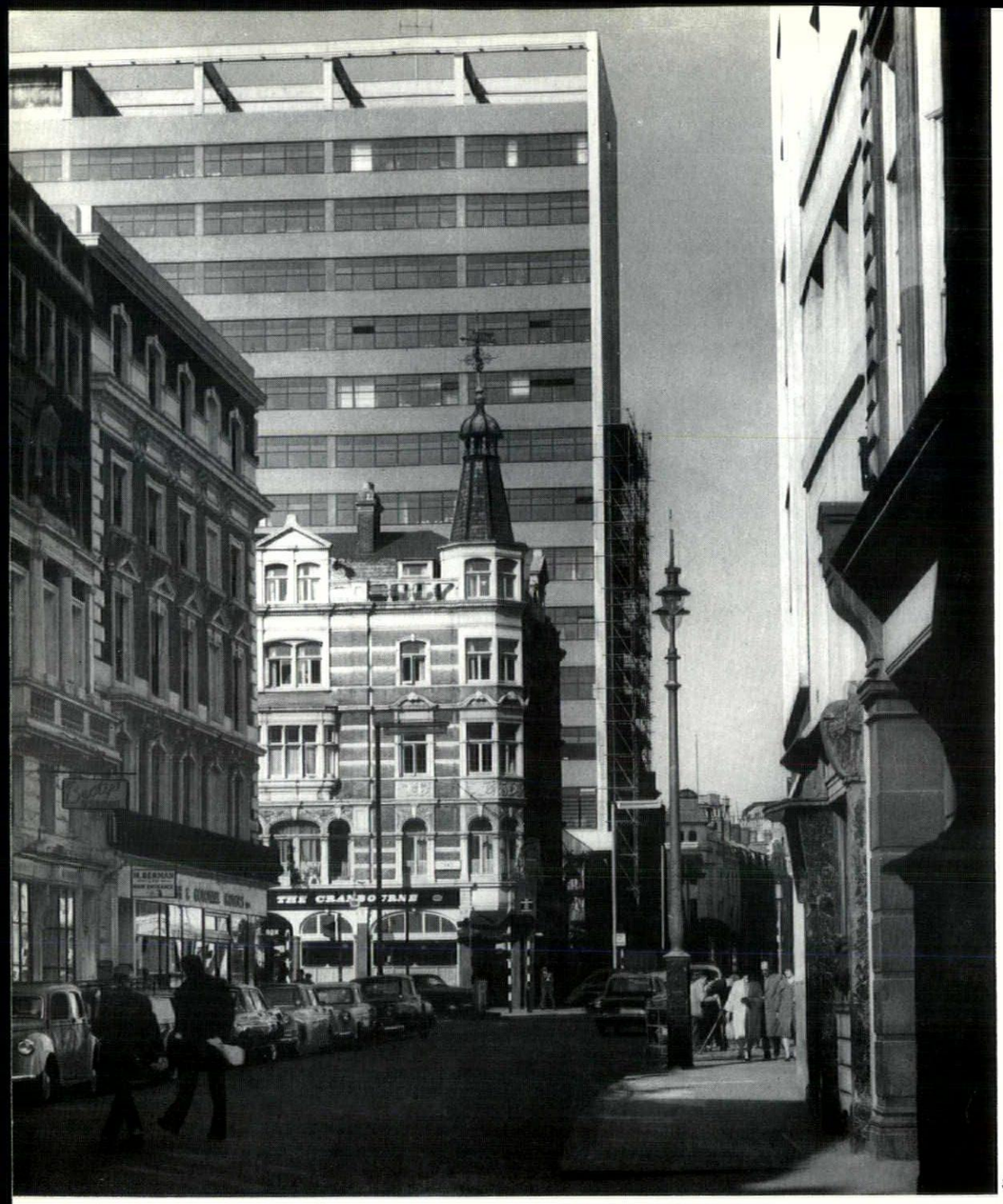

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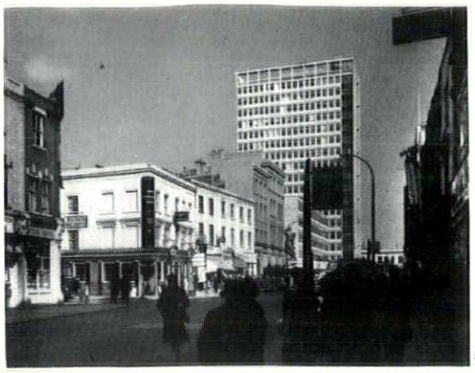

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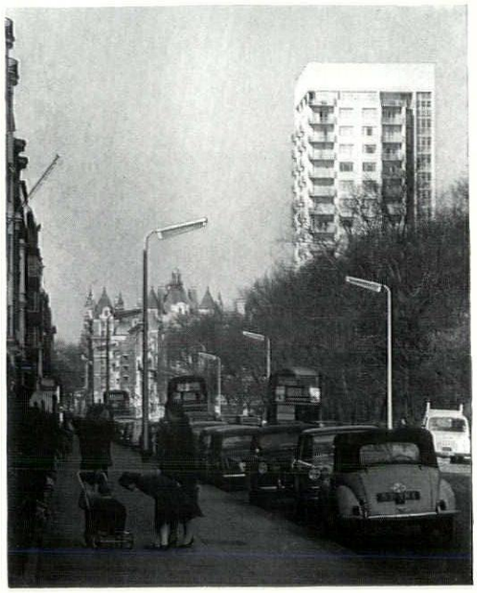


6

tion better achieved deliberately than accidentally.

3 no one can deny is a happy accident. Thorn House, St. Martin's Lane, is not only well placed in itself but shows how new buildings and old can serve as foils to each other, even adding to the value of old buildings with little intrinsic architectural merit but possessing picturesqueness of form and outline, because of the element of contrast. If the street scene were to consist eventually of nothing but buildings like Thorn House how much of character would be lost.

4 shows a similar contrast: the rectilinear outline of the Daily Mirror building and the spiky roofs of the Prudential; also the way the Mirror and other new buildings in the area rise clear above the previous uniform roofline. 5 shows the same thing happening in the Edgware Road area—a contrast in scale and height between the new Marks and Spencer building and the older London that surrounds it. This photograph was taken looking north-east from the end of Praed Street.

Finally the Carlton Tower Hotel, 6, the first high building in the Sloane Street area, shown here rising somewhat crudely above the trees in Cadogan Gardens and contrasting with the older romantic Hyde



7 Park Hotel. The Carlton Tower is sited where it appears unexpectedly in a number of distant London views, including the westerly view down Piccadilly, 7.

J.M.R.

HISTORY

THOMAS HARDY'S ST. JULIOT DRAWINGS

The following are the relevant words of a memorial tablet, which can be seen in St. Juliot Church, north Cornwall, and which Thomas Hardy composed and designed before his death:

Thomas . Hardy . . . . . in . early . life Architect . Made . drawings . in March . 1870 . of . this . Church . in . its ancient . state . and . later . for . the Alterations . and . repairs . executed 1871-2 . which . he . assisted . to supervise: . . . .

The interest of the accompanying illustrations lies in the fact that they almost certainly represent some of the drawings referred to in the memorial tablet. They were thought not to exist until I was fortunate enough to unearth them in the offices of Messrs. Crickmay & Sons,* architects of Weymouth, in September 1958.

The first drawing, 1, signed Hicks and dated 1867, should be compared with the drawing, 2, signed Crickmay 1870. Hicks was to have restored the church but died in 1869 before the work could begin. Whereupon

> . . . at the end of April Hardy received a request from Mr. G. R. Crickmay . . . who had purchased Mr. Hicks's practice, to aid him in carrying out the church-restorations that Hicks had begun . . . Hardy called on Mr. Crickmay, *who appeared not to have studied Gothic architecture specially, if at all* . . . and Hardy assented to help him finish the churches.† [My italics.]
>
> (*The Early Life of Thomas Hardy*, by Florence E. Hardy, Macmillan, 1928, p. 83.)

It is interesting to speculate how far Hardy was himself responsible for the Crickmay design, which seems superior to that proposed by Hicks. The Hicks tower is completely out of character with the old St. Juliot (see drawing, 3, by Crickmay) and with other churches in the Boscastle area, and its numerous crockets would not have long withstood the Atlantic gales. The interior of Crickmay's church is also much lighter. Pencilled notes in Hardy's hand for additional windows on the north side can be seen on the Hicks plan in the original and these windows were in fact incorporated in the Crickmay design. Moreover, in the final restoration the tower was rebuilt in its original position, 3, and *not* moved south as shown in 2. Hardy much regretted the destruction of the north transept and the north wall with its little door 'much like a Saxon one' (*The Early Life*, p. 105), but having regard both to the very dilapidated condition of the structure‡ and to the encroachment of the churchyard on the north side, it is difficult to see how the church could have been preserved without drastic alterations on that side. (See *The Early Life*, pp. 104-5).

I have visited all the churches in and around Boscastle and feel that I can say with reasonable objectivity that St. Juliot was not badly served by its restorers in 1871-2. St. Juliot was not only the site of Hardy's last work of any importance in Gothic architecture and the setting of *A Pair of Blue Eyes* (1873), but was also the place where he met his first wife, Emma Lavinia Gifford, the rector's sister-in-law.

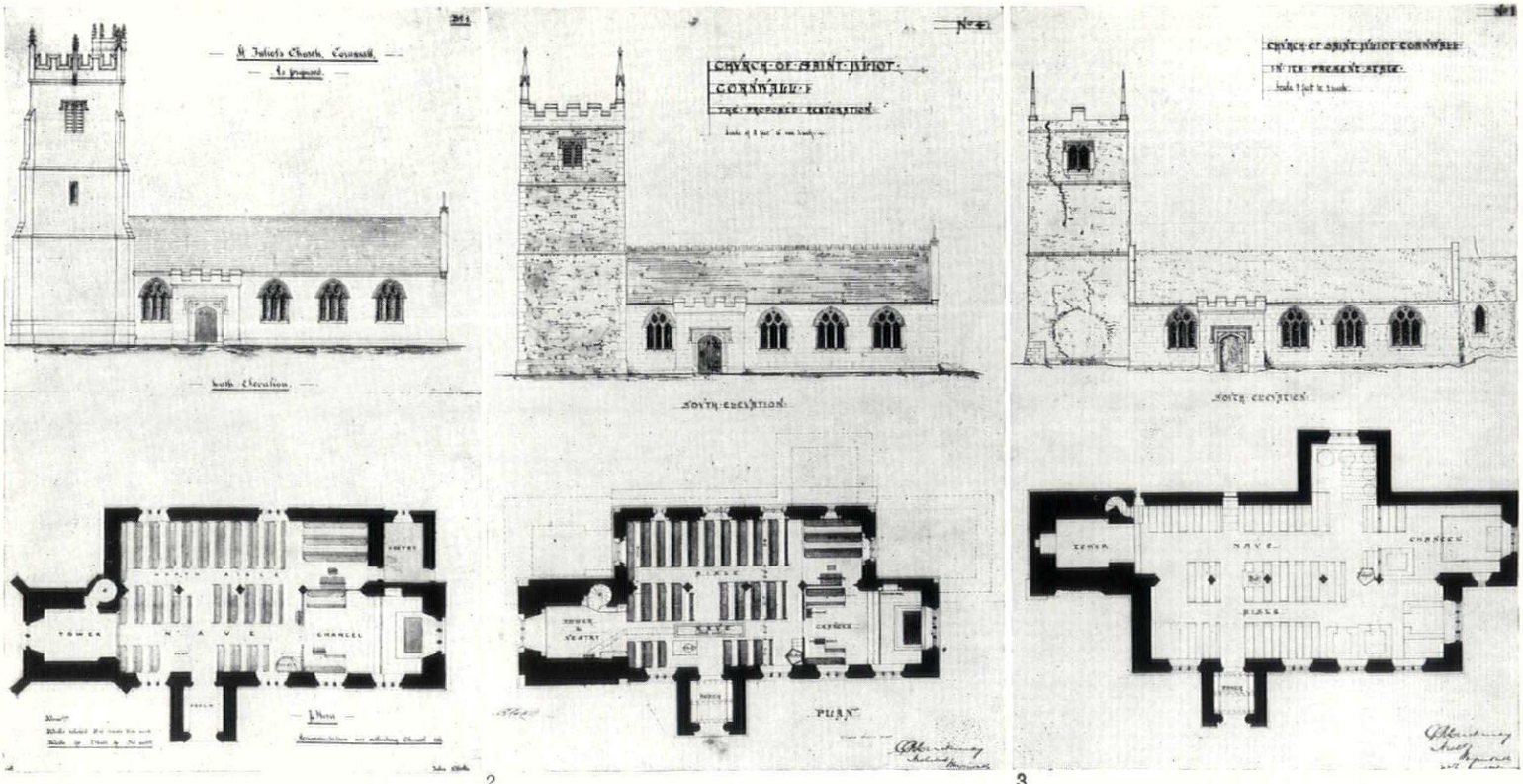
C. J. P. Beatty

* The twenty St. Juliot drawings were sold at Sotheby's by Messrs. Crickmay on May 29, 1961.

† Hardy had been Hicks's pupil from 1856 to 1862 and had been assisting him shortly before his death.

‡ The then patron of St. Juliot Church, Bishop Rawle, whose signature appears on plan No. 4, wrote about the dilapidation of the building in a letter dated 1854:

> It is so thoroughly time-worn and done up by old age that no partial restoration will avail. The Tower bulges out dropsically, the pillars lean, the mortar in the works has perished, the churchyard on the North side nearly buries the poor building.
>
> (*A Rambler's Guide to Boscastle together with St. Juliot, Lesnewth & Trevalga*, by W. J. C. Armstrong, Rector of Boscastle, p.35.)



1 2 3

PLANTS

UNCOMMON PERFORMERS

The main idea behind this series of articles is that the severities of modern architecture demand a heightened sense of scale, form and texture in the deployment of plant material (only plants in the limited range of herbaceous perennials and climbers are being discussed, with some annual and biennial deviations).

Because some of the material illustrated grows in National Trust type gardens some architects imagine that I am recommending an old world romantic approach. Far from it. I'm showing the selected material and its *established* performance, drawbacks and requirements. It is up to them to make use of it in the knowledge that worth-while perennials take time to develop their true characteristics and most of them need some kind of maintenance.

One plant, however, makes a very grand and almost immediate effect (i.e. planted in autumn it flowers superbly in the following May): *Crambe cordifolia*. Member of the cabbage family, it has a coarse tap root which stands up to heavy clay as well as thriving in ordinary garden soil. It produces a dense mound of deep spinach-coloured coarse-grained leaves (4 ft. spread) topped by a broad-based pyramidal spire (4 ft. 6 in. high) peppered with minute white flowers in May. When these drop, the skeleton pyramidal structure remains as an admirable object until cut down in autumn. In the Oxford Botanic Garden this was still one of the finest manifestations in mid-August. The specimen shown in 1 was planted in raw Hampstead clay left by building operations. This is its first-year performance.

Another cabbage member, common seakale, *Crambe maritima*, dark, glaucous, large shiny crinkle-lobed leaves with juicy stems, does well in sandy soils and can be used to rich vegetable effect in ordinary well-drained soil in low planting schemes. Plant at 1 ft. 6 in. centres; height to 2 ft. A really dark leaf tone in foreground planting is an uncommon asset. It could be used with a feathery background of fennel or asparagus, with clumps of rue, or with groups of *Sedum spectabile*. Silvia Crowe has pronounced a rule for plant association, which is that *they should always share one common element of form, tone or texture.* (In this case fennel, asparagus and seakale approximate in dark tone, but contrast in form and texture. *Sedum spectabile* shares a common succulent quality, but contrasts violently in form and tone. All these plants would thrive in similar conditions.)



1

In pursuit of this dark green tone I want to draw attention to a native plant, a water Plantain, *Sagitaria*, remarkable for its arrowhead form which I saw in summer in a shallow basin on an Oxford waterway. These glossy arrowheads rose above a feathery bed of watercress, a perfect piece of natural planting. Hillier's catalogue of Aquatic plants lists three varieties, *Sagittaria sagittifolia*, 2, *S. latifolia* (broader



2



3

leaved) and *S. flore pleno* (Japanese). The tubers need to be planted in mud under 8 to 12 in. of water which, judging from this location, should be slightly flowing. But I caught sight of this plant and its inconspicuous white flowers in September in deeper water in the Brenta close to Villa Malcontenta.

There is a group of very hardy plants relegated last century to the wild garden, *Cimicifuga* (Bugbane), over-neglected now



4



5

(perhaps because the 'flowers,' which are spiky racemes, have a peculiar smell). This one, *C. cordifolia*, 3, flourishing in an exposed position though it should have moister conditions and semi-shade, has good formal qualities. Its domes of spinach-coloured leaves (3 ft. spread) and rising spikes (4 ft. 6 in.) are at their best in July. Hillier's offer four varieties besides this: *C. racemosa* (Black Snakeroot), *C. dahurica* and *C. foetida intermedia*. All tolerate shade, woodland margins, prefer deep soil, moist conditions.

I want to pin-point *Veratrum*, whose sensational leaf development in April-May beats the Hosta to whose Liliaceæ family it belongs. Later on it produces an extraordinary velvety purplish black flower spike in *V. nigrum*, 4, and pale greenish-white one in *V. album*. Exposed in a common flowerbed in the Oxford Botanic Garden, the leaf-tips scorch by late summer. Given good deep soil and moist sunny position it is one of the most outstanding garden plants for architectural form. (Leaf whorls 1 ft. high; 1 ft. 8 in. spread; spike, 3 ft. 6 in.).

Two plants of the Liliaceæ family, of a more common nature but with somewhat analogous architectural leaf quality, are both indispensable 'shade' plants: *Smilacina racemosa*, 5, and the well-known Solomon's Seal, *Polyganatum multiflorum* (*P. commutatum* has larger flowers). Both should be planted in shade where they can spread and show off the rhythm of their leaves. Both attain 2 ft. to 3 ft., their elegant sprays appearing early in spring; flowers greenish-white. Plant 1 ft. apart in moist soil and hope they will naturalize. Hostas and large ferns associate well with them. Sunningdale Nurseries, Windlesham, Surrey, stock them.

Patience Gray

PEOPLE

A GREAT TASK COMPLETED

The tenth and last volume of Professor Erik Lundberg's Arkitekturens Formsprak *has recently come out.* The Swedish title may be translated as *A History of Form in Architecture* in the sense of Foçillon's *La Vie des Formes.* Professor Lundberg brought out his first volume in 1945. Over sixteen years, then, he has written single-handed these ten voluminous volumes, fully illustrated (even, it seems, from his own photographs), but also with long texts for consecutive reading. Only a Scandinavian (and perhaps a Dutchman) can combine such international knowledge with such fairness in allocating their positions to the various countries at the various periods and with such a live interest in problems of style. The last volume deals with 1850–1950, and the British contributions to the first half of that period are very fully considered. If only one could read these books properly. To hope for a translation is probably hoping for too much.

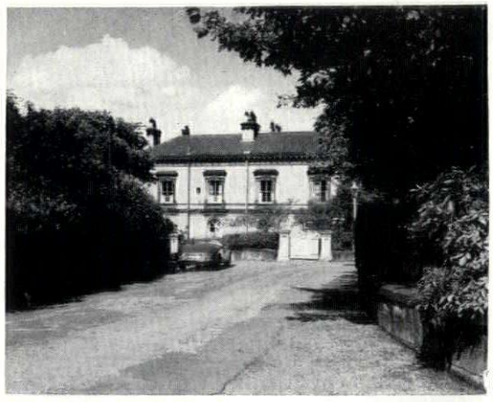
Professor Lundberg is an architect by training. He spent most of his earlier life restoring historic buildings. He has also been connected closely with the Swedish Ancient Monuments Department. In 1946 he was appointed to a chair at the Stockholm College of Technology. He is sixty-six now and evidently still going strong.

N.P.

COUNTER-ATTACK

ROCK PARK

Although as a nation we invented the suburb, we have not got so many good examples that we can afford to be prodigal with them. Rock Park, near Birkenhead, is one of these; it was laid out in 1837 and has not only the familiar and delightful blend of trees and buildings, 1–3, but also a very unusual site. It is on the banks of the Mersey, so that between the villas there are sudden dramatic views of the Liverpool skyline, 4. Along the riverside the original owners laid out a public esplanade, 5, which is almost the only place on the Cheshire side which gives public access to the foreshore. Like all good suburbs, it also has its literary association, for Nathaniel Hawthorne lived here when



1



2



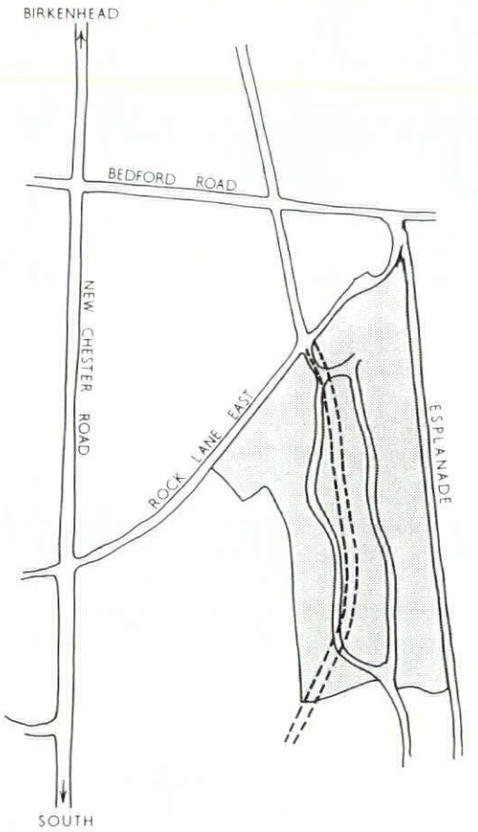
3

he was in England and wrote about Rock Park. His description could stand for the whole of early arcadia: 'At the gates there is a little Gothic structure where the collection of tolls precludes all unnecessary passage of carriages, and never were there more noiseless streets than those which gave access to these pretty residences. On either side there is a thick shrubbery with glimpses through of ornamental portals or into trim gardens and smooth shaven lawns. The whole place is shadowy with shrubs; the golden tassels of laburnum are abundant, and after a shower the fragrance of the hawthorn is delightful.'

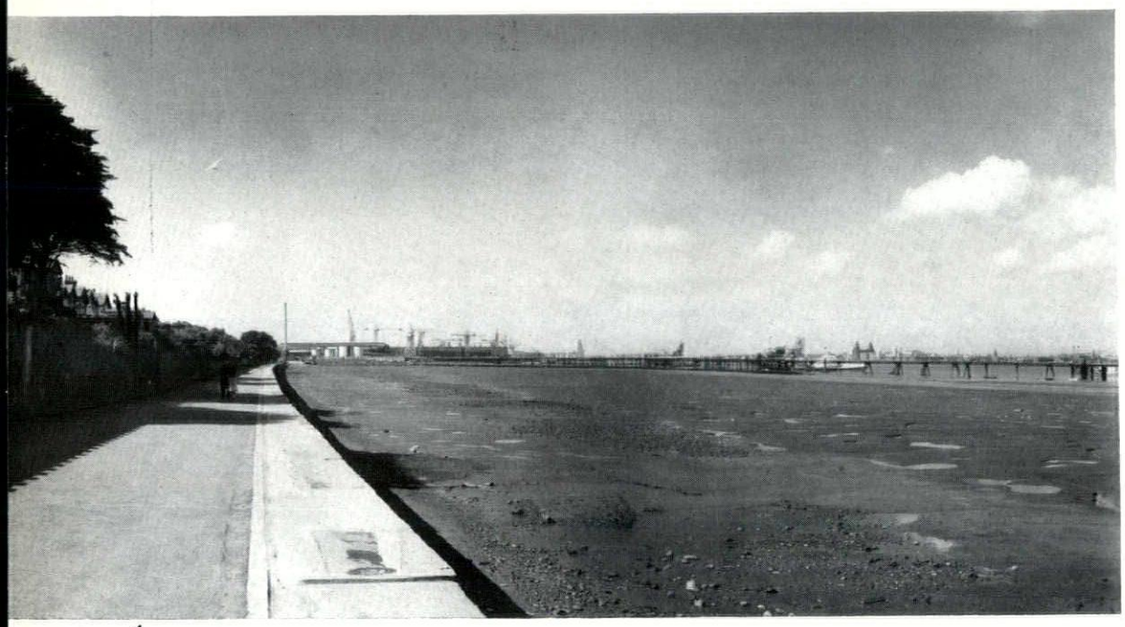
All that is still quite true to-day, and Rock Park is a place whose pattern is worth preserving entire, though of course the individual buildings in it could and should be replaced as they wear out. The threat to it is quite simple and as total as a nuclear bomb: a trunk road straight through the middle, demolishing Hawthorne's house among others. What would remain after this would look rather like the fag-end of Nash's Park Village East that was left by the railway. The map shows all.

The trunk road is the A41 which takes traffic from Birkenhead (and Liverpool, via the Mersey Tunnel) to the south. Rock Park is not a specific bottleneck—the road is built up and of approximately the same width for about five miles south of Birkenhead—and its usefulness depends on the capacity of the Mersey Tunnel. In other words, this loopway would only be a piecemeal solution and would in any case be of the sort that would shift the congestion to an insuperable bottleneck a mile up the road. This does not seem to be sufficient reason for annihilating one of the few really individual places in the whole Wirral peninsula.

The alternatives are widening of the existing road (more costly, but miles of it will have to be done further south if the Ministry is thinking seriously) or widening Mersey Road and Rock Lane East. This could be done without destroying the pattern of Rock Park and is surely the best alternative—that is, if there is any point in altering that bit of the A41 at all.

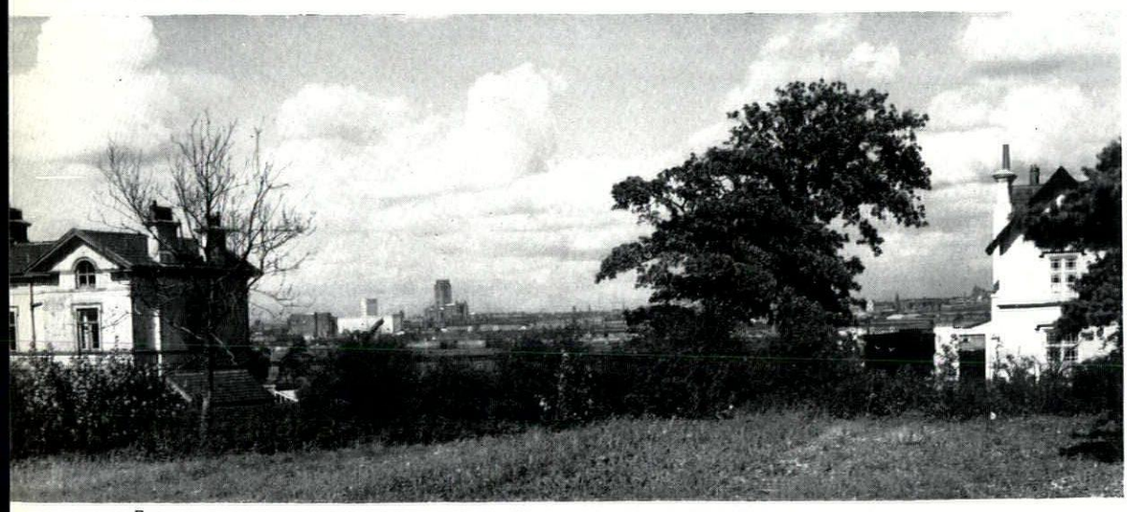


Map with the Rock Park area shaded, and the proposed trunk road indicated by the dotted line.



4

The spectacular situation of Rock Park, near Birkenhead: 4, *view across the Mersey to the Liverpool skyline from the esplanade bounding the suburb and,* 5, *from among the houses. These and their leafy setting are shown in* 3 *above and in* 1 *and* 2 *on the preceding page.*



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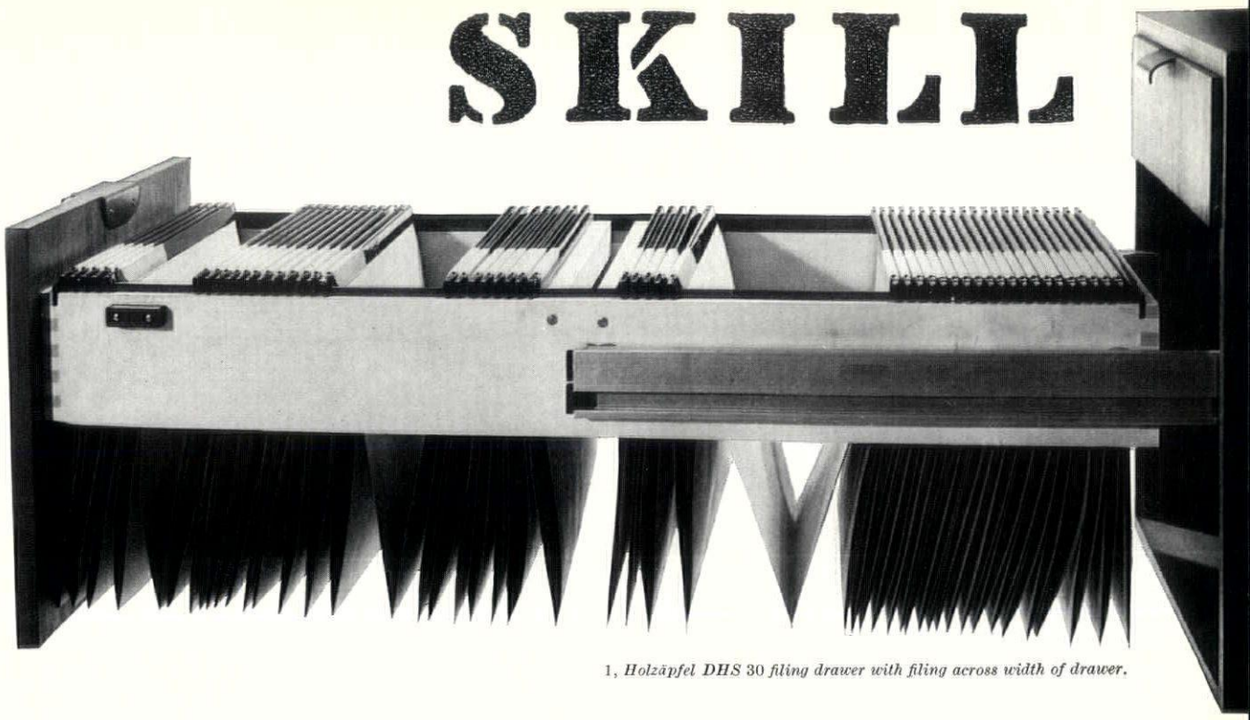
There is a general point here which is really at the heart of all these cases of road versus place. Trunk roads are not bad in themselves: if they can be used to define the boundaries of areas instead of cutting across them they can be an aid to character and differentiation. The Cromwell Road extension has done this, accidentally, by forcing Hammersmith's riverside on to itself. It would require a feeling for the organic pattern of places (social as well as topographical) and it would mean a willingness to go round rather than through, but the gain to the community as a whole—and everyone's trunk road traffic is a community somewhere else—would be worth it.

It might even be possible to start by defining the boundaries of places and patterns in areas like the Wirral or outer London, and then making the traffic pattern run round them, the sense of place determining the road layout. At the moment the reverse is true, almost always. And it would certainly reduce the depressing frequency with which cases like Rock Park crop up. Every example like this means a breakdown in human feeling: somewhere in some office a bloke is seeing his road, only his road and nothing but his road. Through compulsory purchase, he can in the end impose his perspective—but what a sad abdication from the business of being a real person trying to respect all the parts of life, not just the part he is paid for. And, in the end, what other worthwhile business is there?

Ian Nairn

SKILL



1, *Holzäpfel DHS 30 filing drawer with filing across width of drawer.*

STORAGE FOR ARCHITECTS

1. FILING CABINETS AND COMPOSITE UNITS

The shake-up in classification and the general adoption of the A sizes for trade literature have led to a re-investigation by architects of the problem of office furniture. This month we publish the first of two articles by Anthony Wylson on office storage equipment. Concerned with what is available at the moment, he begins by considering filing cabinets and composite units. His next article will deal with shelving and plan-chests.

In addition to correspondence, architects have the problem of storing contract documents, trade and technical literature, drawings and samples of building materials—a task synonymous with the rise of 'organization man.' The object of these articles is to consider units which provide organized, accessible storage, arranged in such a way to form an efficient element in office organization.

The basic stationery sizes (quarto, foolscap, jumbo size, the BS 'A' sizes) and common office needs have caused extensive office furniture standardization from simple shelving systems to composite filing cabinets. Metal furniture, in particular, has acquired apparent uniformity and appears to rely on details for individuality. Timber furniture has been released from a heavy weight of convention by some enlightened designers, and consideration has been given to the flexibility of component arrangement, construction and appearance.

The day-to-day running of an architect's office is concerned with the following:

1. Stationery and drawing equipment which require small shallow drawers.
2. Correspondence, contract documents both in standard dimension of quarto and foolscap, and trade literature. The SfB system has been adopted by *The Architects' Journal* to systematize trade and technical literature (*AJ*, September 17, 1959, and September 27, 1961).
3. Drawings and cut tracing paper up to antiquarian size.
4. Photographs, slides, films.
5. Building material samples.

Against this range the common storage units on the market can be grouped into:

(*a*) shallow drawer units

(*b*) filing cabinets incorporating drawers, filing units for lateral filing, and shelf filing

(*c*) drawings — horizontal filing, vertical filing and rolled storage

(*d*) composite units and manufacturers' specialities which aim to group particular needs.

Thus, in selecting office furniture it is important to assess the size and quantity of material to be stored and the amount of space available. Small quantities of filing and stationery can be incorporated in desks and low wall cabinets whereas large quantities of materials to be stored would require groups of specialized units. Accessibility, organization and ease of reference, stability, security, protection, and smooth operation of the unit will govern the final choice.

Stationery units and multi-drawer index card cabinets

Shallow drawer units are mainly designed for stationery storage. Card cabinets are designed for index systems. Both would be also suitable for storing photographs and samples of building materials. Stor Products Ltd., of Maidenhead, manufacture a wide range of metal shallow drawer units, and Sheer Metalcraft Ltd. make a range of Sheer-Pride multi-drawer cabinets. Eastlight nests of drawers are constructed of timber and covered in crocodile grained leatherite in quarto and foolscap sizes. These are light-weight units and are not self-supporting. Vickers-Armstrongs manufacture three ranges of 1- to 4-drawer units for card index, and Art Metal produce small drawer storage in combination with filing units and a comprehensive range of card index units. Art Metal also produce a special unit for micro-films of 16 mm. and 35 mm., in which the drawers are specially ventilated. 'Rollindex' forms an interesting card index unit in which a rotary system maintains the work level for reference. Roneo produce small drawer units in the '3,000 Series,' 'A' Series and 'B' Series.

Filing cabinets

The dimensions of filing cabinets are based on quarto and foolscap standards and thus have reached fairly standardized appearance. The plan size is 24 in. by 18½ in. for foolscap and 24 in. by 15¼ in. for quarto. The units range from one drawer to five drawers approximately 15 in., 28 in., 40 in., 52 in. and 59 in. high respectively. The five-drawer unit omits the plinth base to make the top drawer more accessible. Drawer units are operated on progressive slides on ball-bearings or roller bearings that telescope out to give support to the extended drawer. The movement of the drawer is controlled with a check action to stop rebound. A safety-trip lever at the end of the progressive slide makes it possible to remove the drawers bodily if required. The majority are constructed of a heavy gauge welded steel frame with a sheet metal casing, stove enamelled in standard colours. Handles are mainly chromium plated but the design of this and the label holder distinguishes the individual manufacturers. Handle position is similar for all drawers in the same unit, regardless of the position of the drawer. A low handle position for top drawer and high position for bottom drawer would facilitate operation. The units are available with or without locking mechanism. The filing systems within the drawers are recommended by the manufacturers and the files are arranged together either with the compressor plate support or they are suspended from side suspension rails. The latter gives two positions; one for flat topped and one for tabbed filing pockets.

A filing cabinet will occupy an area up to 48 in. by 18 in. when in operation. Its stability depends upon the weight of the main chassis withstanding the overturning movement created by an open drawer. Some units are made fire-resisting with particular security precautions. The colour range gives some variety. Whereas grey and olive green are standard, Remington offer a 'grey-rite' finish, Leabank and Vickers produce duo-tones using neutral shades. If extensive colour is used in the filing index system, a neutral background colour is important.

There are many specialized units incorporating filing drawers. Jetleys manufacture the 'Jetalat' revolving unit consisting of one to four revolving sections each having a capacity of 120-140 files. The files are uncovered and therefore prone to collecting dust, but the unit does provide accessibility to an extensive number of files. Fire resistant and extra strong filing cabinets are made by Chubb, Vickers and Libraco. The 'Vetro' Minor and Major Trolley made by Twinlock Systems and constructed of sheet steel and square tube are mobile units 12 in. and 25¼ in. long respectively. The units allow for suspended filing.

Both metal and timber units can be selected as part of an office furniture range. There is a limited range of timber filing cabinets available.

The four-drawer unit manufactured by Holzäpfel Furniture (Germany) is of particular merit. This is part of the DHS range of office furniture marketed in this country by Ryman Furnishing Contracts Ltd. The cabi-

TABLE 1: FILING CABINETS

Manufacturer	Name	Construction, Colour and Finish	Size and Price
Abbott Bros. (Southall) Ltd., Abbess Works, Southall, Middlesex	Abbess Executive Suite	Timber	4 drawer unit 52¼ in. high by 15 in. wide by 22½ in. deep, in oak £48 15s. 9d. Mahogany £48 0s. 3d. Walnut £51 17s. 8d.
Art Metal, Buckingham Palace Road, London, S.W.1	Art Metal	Steel. Olive green or plain grey. Other colours to order	1, 2, 3 or 4 drawer units in quarto and foolscap size. 5 drawer units with 10 in. by 8 in. drawer £23 14s. 0d. approx. Also 3 drawer oversize foolscap unit and 3 drawer jumbo size. 2 drawer foolscap, 30½ in. high £11 8s. 3d. approx. 4 drawer foolscap, 51 13/16 in. high £17 7s. 7d. approx. 3 drawer oversize foolscap £26 8s. 1d. approx. 3 drawer jumbo size £23 4s. 3d. approx.
G. A. Harvey & Co., Villiers House, Strand, London, W.C.2	Thanet Range	Steel, welded vertical supporting channels with sheet metal panels. Stove enamelled, standard colour Scarborough grey	1, 2, 3 or 5 drawer units foolscap and quarto size, 28 in. and 24 in. deep. 5 drawer unit 59 in. high. 2 drawer foolscap with lock £14 15s. 8d. (24 in. deep). 4 drawer foolscap with lock £18 19s. 9d. (24 in. deep). 5 drawer foolscap with lock £28 1s. 3d. (28 in. deep).
Christian Holzäpfel Ltd., Ebhansen, Wurttenburg. General agents in England Ryman Furnishing Contracts Ltd., 39, Dover Street, London, W.1	DHS 30 Suspension filing cabinet	Teak exterior and grey lacquer metal frame base. Drawers extend on telescopic rails. No base or sides to drawers	4 drawer unit, height with base 35⅞ in. Drawers to A 4 sizes £52 13s. 0d.
Leabank Offices Equipment Ltd., Clifton House, 91, Euston Road, London, N.W.1	Series 5000 Admin. range	Metal with non-metallic drawer pulls. Eggshell glass synthetic enamel stoved on in mauve brown, olive green, warm grey, mauve, brown/warm grey duotone or two tone grey	2 drawer foolscap £18 1s. 7d. 4 drawer foolscap £22 6s. 8d.
	Series 8000 General office range	As for above	4 drawer quarto and foolscap and 2 and 5 drawer foolscap all with or without lock. 2 drawer foolscap with lock £13 18s. 4d. 4 drawer foolscap with lock £17 19s. 9d.
Libraco Ltd., Lombard Wall, Woolwich Road, Charlton, S.E.7	'Armaplate'	Steel unit stove enamelled in olive grey or Scarborough grey	4 drawer foolscap with lock £18 19s. 9d. Also 3 and 4 drawer quarto.
Norwood Steel Equipment Ltd., Howard Way, Harlow, Essex.	Suspendex NSE 200	Metal	2, 3 and 4 drawer units in foolscap. 4 drawer in quarto £16 1s. 11d. 2 drawer foolscap £11 14s. 8d. 4 drawer foolscap £16 12s. 4d.
Remington Rand Ltd., Remington House, 61-65, Holborn Viaduct, London, E.C.1	5 drawer Regal	Metal finished in grey rite and olive green	5 drawer quarto and foolscap. 5 drawer foolscap 39 1/16 in. high.
Roneo Ltd., 17, Southampton Row, London, W.C.1	4000 series	Metal stove enamelled in choice of colour including grey and olive green	2, 3 and 4 drawer units in foolscap and quarto. 4 drawer foolscap £17 7s. 3d. 2 drawer foolscap £11 7s. 0d.
Shannon Systems Ltd., Imperial House, 15–19, Kingsway, London, W.C.2	Shannon Filing Cabinet	Metal stove enamelled in olive green or grey	2, 3 and 4 drawer units in foolscap. 4 drawer units in quarto. 4 drawer foolscap £18 5s. 9d. approx. 2 drawer foolscap £11 13s. 6d. approx.
Sheer Metalcraft Ltd., Weybridge, Surrey	Sheer Pride	Metal	2, 3 and 4 drawer units in foolscap. 4 drawer unit. 2 drawer unit.
Stor Products Ltd., Purze Platt, Maidenhead, Berks.	Multi Drawer Cabinets	Steel	3 drawer quarto with or without lock. Unit with lock £18 2s. 1d.
Vickers-Armstrong (Engineers) Ltd., Dartford, Kent	VA 60 range	Metal finished in terracotta, moonstone grey, meteor grey	2, 3 and 4 drawer units in foolscap with lock. 4 drawer foolscap with lock £28 11s. 9d. 2 drawer foolscap with lock £19 10s. 1d.
	Standard range	Metal finished in olive green or grey with anodised aluminium hardware	1, 2 and 3 drawer units with lock. 4 drawer units in foolscap and quarto with or without locks. 4 drawer foolscap with lock £20 2s. 1d. 2 drawer foolscap with lock £12 11s. 8d.
	Interline	Metal finished in interline duotone. Portland grey/Cumberland grey, Portland grey/burgundy, honey beige/tabac	4 drawer foolscap with lock £21 13s. 2d. 2 drawer foolscap with lock £13 7s. 2d.

net is set on metal legs, with an overall height of 35¾ in. and costs £52 13s. The drawers incorporate telescopic runners and omit sides and base to avoid collecting dust. The width of the drawer is designed to accommodate A 4 (8¼ in. by 11¾ in.), the standard used in the SfB system.

Composite units

In many cases accommodation for filing is included in desk units or low level wall cabinets. The range of contemporary timber furniture is particularly interesting. Formation furniture designed by Brian Henderson, of Yorke, Rosenberg and Mardall, has a basic desk frame into which a variety of storage units and accessories can be fitted. These units include drawers, filing, stationery, etc., and cupboard units 18 in. by 18 in., either 18 in. or 12 in. deep.

[continued on page 146



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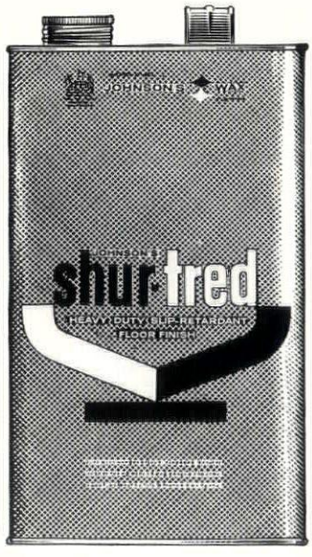



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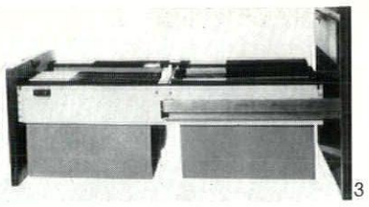

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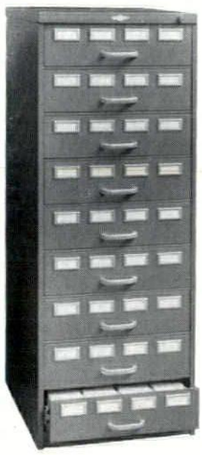

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2, *Holzäpfel PEN filing cabinet in afrormosia (price £54 12s. 6d.).* 3, *Holzäpfel DHS 30 filing drawer with two lots of filing running length of drawer.* 4, *filing cabinet for microfilm by Art Metal Inc.* 5, *Formation Furniture: F.135 desk with suspended filing drawer in extension and F.400 timber-fronted storage unit (right).* 6, *Magpie O1 typist's desk.* 7, *Conran one-pedestal desk with filing drawer type D11/M (approximate price £82 10s. 5d.).* 8, *Conran double-pedestal desk type D10/M1 (approximate price £48 13s. 8d.).* 9, *Holzäpfel DHS 30 double-pedestal desk in teak (price £87 4s. 2d.).* 10, *Holzäpfel DHS 300 American walnut and satin-chromed metal combination desk (price £136 8s. 6d.) with low cupboard (price £45 16s. 1d.).*



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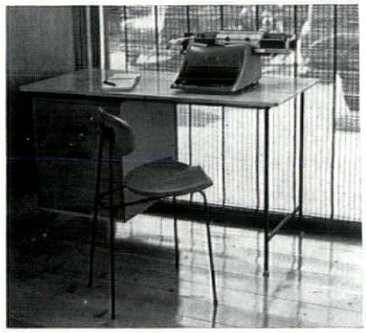

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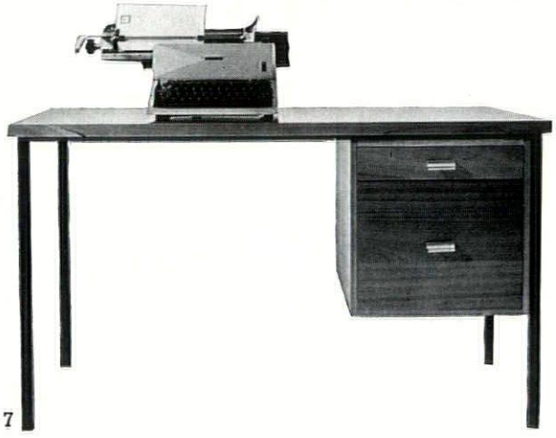

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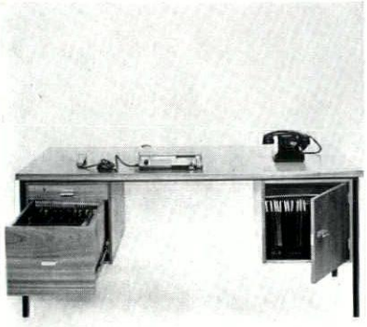

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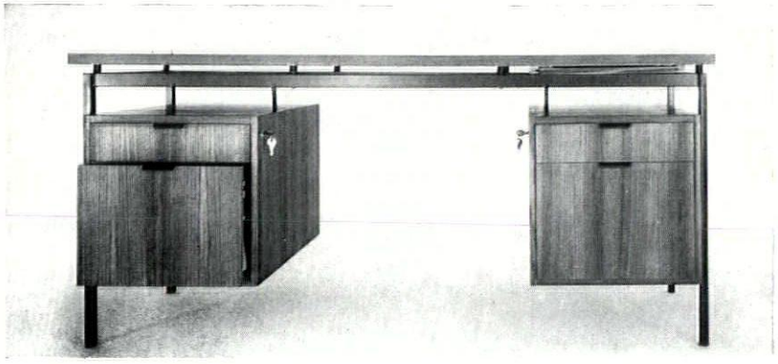

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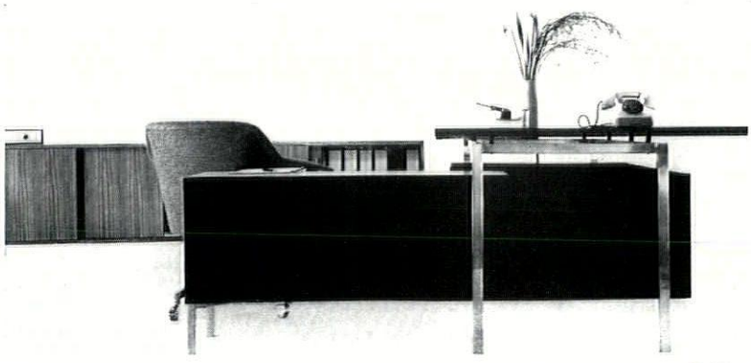

10

continued from page 144]

Abura timber is used with matt wax finish. The desk top is covered with black linoleum. Handles have satin chrome finish. The units have apron panels covered with pvc on both sides.

The Magpie 'O' range of office desks consist of timber storage units in tubular steel frames. The storage unit consists of a suspended drawer pedestal containing two drawers $2\frac{5}{8}$ in. deep and a filing drawer $10\frac{1}{4}$ in. deep. A 48 in. by 24 in. top permits one pedestal whereas the 60 in. by 27 in. permits two units either side of a leg space. The top is of clear polished birch ply. The metal frame is finished in matt black or grey gloss enamel, and the suspended drawer pedestal is enamelled red at sides and white at back. The drawer fronts are of Utile. It is designed to match in with the 'D' range drawing office furniture consisting of drawing tables, drawing storage and chairs.

Conran 'Modular' furniture consists of a basic range of desks, tables, cabinets and storage units, so designed that a number of simple components can be brought together in a variety of combinations. Square section steel frames are used. The storage units and table top are constructed of timber. Desk top is covered in grey linoleum and range from 5 ft. 3 in. / 2 ft. by 4 ft. Filing units are either lateral filing in a cupboard unit or suspended in a 12 in. filing drawer. Further, the Storage Unit N, which forms a low cabinet (or two units can be stacked to form a unit 4 ft. high) gives a 4 ft. run of lateral filing. The interior space only permits the depth for one line of filing for each cabinet. The 'O' storage unit also included in this range is on the same 4 ft. module and consists of a bookshelf unit with a central division, each side fitted with one adjustable shelf. Both N units and O units can be supplied alone or with a metal underframe.

The Hille Status Group of office furniture works on a similar system of basic components of work tops, pedestal cabinets, storage cabinets and steel frames. The cabinets are finished in mahogany, pacific walnut, teak or rosewood veneer, with silver or black anodized aluminium handles. The $1\frac{1}{4}$ in. tops have a heat and scratch resisting surface, or are finished in light melamine plastic, lipped with hardwood matching the pedestals. The 1 in. square section steel legs and frames may be either matt black stove enamelled or satin chrome plated. The pedestals include a three-drawer unit, a two-drawer unit (one of which is suitable for foolscap filing), and cupboards with adjustable shelving. The storage cabinets are manufactured at 3 ft., 4 ft. 6 in. and 6 ft. lengths, having sliding doors of the same veneers as the pedestal units. The cabinets are 1 ft. 6 in. deep. In addition, there is a range of bookcases in the Status

[*continued on page 148*

News from Hull



Some of the houses in Basildon New Town fitted with "Ideal-Standard" equipment.

500 new houses at Basildon New Town

"Ideal-Standard" bathroom and heating equipment

ARCHITECT:
Kenneth Boyd, A.R.I.B.A., A.A. Dip.
(Brett, Boyd & Bosanquet)
in association with
A. B. Davies, A.R.I.B.A., A.A. Dip.

BUILDING CONTRACTORS: *W. & C. French Ltd.*

PLUMBING SUB-CONTRACTORS: *Mathew Hall & Co.*



The Devonian wash basin and the Sanway water closet are attractive in appearance and will keep their good looks through a long life. Made from vitreous china they are extremely hygienic.

Five hundred new houses in Basildon New Town have been equipped with Ideal-Standard equipment. Each house has an "Ideal" Neofire supplying either one or two "Ideal" Neoline radiators and in each bathroom there is a "Standard" Devonian wash basin and Sanway water closet made from durable, hygienic vitreous china ware. Vitreous china has a high resistance to harsh treatment and fracture and is recognized by most Public Health Authorities to be more hygienic than other ware. This is because vitreous china is fired at a high temperature. As a result it is a dense and non-absorbent material which does not depend on its glaze to make it watertight. Being non-porous and non-absorbent it is impossible for germs to lodge and breed in it.

The "Ideal" Neofire is in the form of an open fire with a high output backboiler connected to an indirect cylinder. In addition to supplying an adequate supply of domestic hot water, it heats two "Ideal" Neoline radiators. The use of high quality equipment such as Ideal-Standard products is an investment which planners at Basildon New Town were quick to realize. The efficient long life of Ideal-Standard equipment, the ease of maintenance, and the low percentage of replacement pay big dividends over the years.

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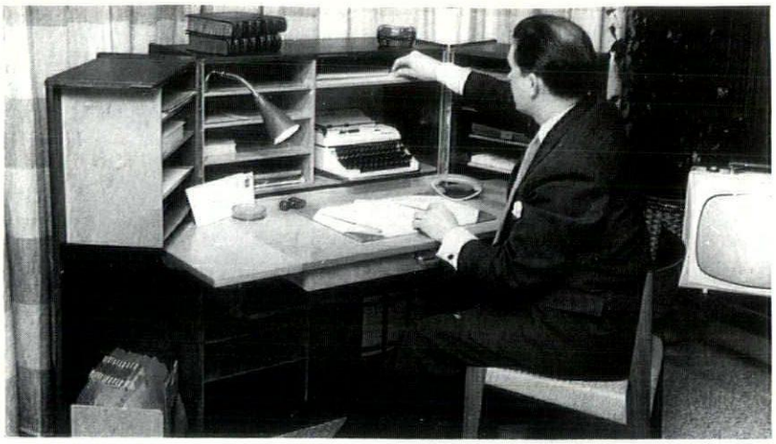

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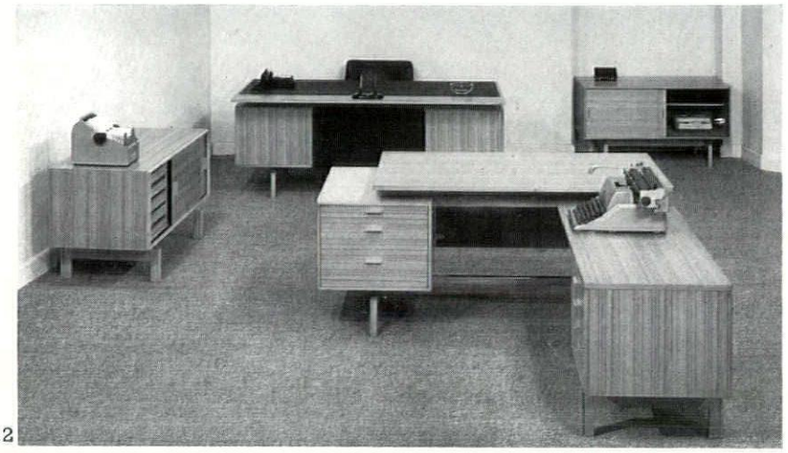

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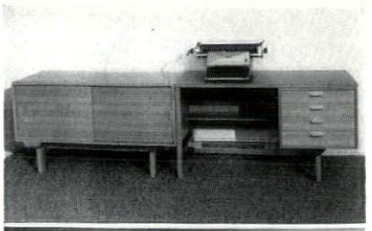

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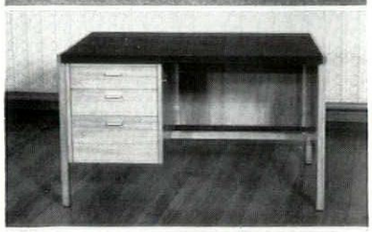

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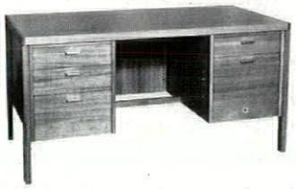


16

11, *the Norwegian-manufactured 'Miniature Office' marketed by Badenia Calculators Ltd.* 12–16, *office furniture by Lucas of London:* 13, *desk and cabinet;* 14, *Mahogany range desk with two pedestals (price,* £37 10*s. with polished top,* £40 *with ironside top);* 15, *one-pedestal desk;* 16, *double-pedestal desk with filing drawer.*

continued from page 146]
range, 1 ft. deep, with sliding glass doors.

Lucas of London manufacture a range of office furniture by Herbert Berry and Christopher Cattle. Both the 'Executive Range' and 'Mahogany Range' consist of a number of basic units that can either stand alone or they can be grouped in a variety of arrangements. The units include pedestal desks and storage cabinets which accommodate filing and smaller drawers. The PEN and DHS desks manufactured by Holzäpfel incorporate filing drawers that can be fully extended on telescopic rails. The filing drawer omits base and sides to avoid collecting dust and is designed for the international A 4 dimensions. The desks consist of timber components and square section steel frame. The units can be arranged to form various combinations.

The Miniature Office Cabinet is an interesting solution for office work at home, it is produced by Badenia Calculators Ltd. and provides for a variety of storage, filing space and a work area. When closed, it consists of a cabinet 45¼ in. high, 21¼ in. deep and 32¼ in. wide.

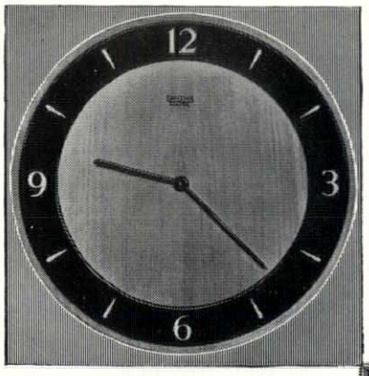
These timber units have definite design merit and some give consideration to providing a basic structure into which a variety of units can be fitted, a system that intercepts the monotony of mass production. Even though the basic frames and units are simple in form, and in great demand, the assembled articles are twice the price of the conventional range of office furniture as supplied by Abbott Bros.

The range of metal desks and low cabinets are well established. Some manufacturers introduce colour variations (Norwood Steel Equipment Ltd. and Vickers-Armstrongs) and the Sankey Sheldon Slimline unit is designed to form continuous desking.

TABLE 2; COMPOSITE UNITS

Manufacturer	Name	Construction, Colour and Finish	Storage and Filing Capacity	Size and Price
Abbott Bros. (Southall) Ltd., Abbess Works, Southall, Middlesex	Pre-Eminent series, Executive and Commercial ranges	In mahogany woods with brown satin furnishings	Including filing drawer (quarto)	Wide range including Model 7072/S1 86 in. by 36 in. with 1 pedestal—£58 7s. 9d. Model 6850 with 2 pedestals 60 in. by 33 in.—£46 9s. 3d. Model 6840 48 in. by 33 in. 1 pedestal—£28 13s. 0d. Commercial range model 5750D with 2 pedestals 60 in. by 33 in.—£26 15s. 11d. Model 5240 48 in. by 27 in. 1 pedestal—£13 12s. 7d.
	Linear series	Square section tubular frame, matt black. Pedestals, desk top and drawer finished in light mahogany. Desk top and drawer front also in melamine laminate available in three colours: lichen green, mist green and birch grey	Pedestal units including filing drawer	One pedestal unit wide range including Model SP9440/2 (all mahogany 48 in. by 30 in.) £27 2s. 1d. SP9540/3 with melamine £30 13s. 4d. 2 pedestal units wide range including Model DP9650 60 in. by 30 in. (all mahogany) £38 11s. 3d. DP 9750 60 in. by 30 in. with melamine £43 1s. 0d.
Badenia Calculators Ltd., Lion House, 72 Red Lion Street, London, W.C.1	The Miniature Office (made in Norway)	Timber construction. Cabinet appearance when closed	Two opening sections. Drawer also suitable for filing	45¼ in. high. 21¼ in. deep. 32¼ in. wide (closed). 64½ in. wide (open) £68 0s. 0d.
Conran & Co. Ltd., 5 Hanray Place, London, W.1	Modulor	Square section steel tubular frame with timber components. African walnut veneer tops in African walnut, black linoleum or grey linoleum, metal frame finished with two coats of black eggshell stove enamel	Interchangeable units in metal frame. Pedestal unit with filing drawer or cabinet for lateral filing	Wide range including double pedestal desk D10/M1. 63 in. by 30 in. (including drawer and lateral filing cupboard) lino top £48 13s. 8d. Single pedestal (1 filing drawer) D11/M 40 in. by 24 in. lino top £31 13s. 10d. Cabinet 'N' unit 48 in. by 17½ in. by 27 in. high (suitable for lateral filing) £24 5s. 4d.

[*table continued on page* 150

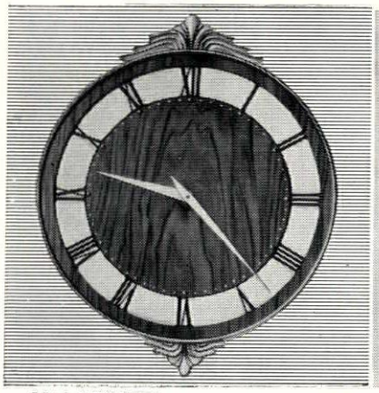


Model ECS/W2

DESIGNS OF DISTINCTION IN WOOD



Calendar Clock

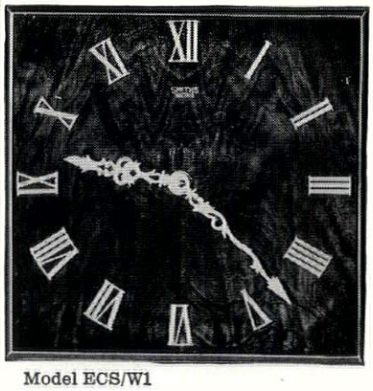


Model ECS/W4



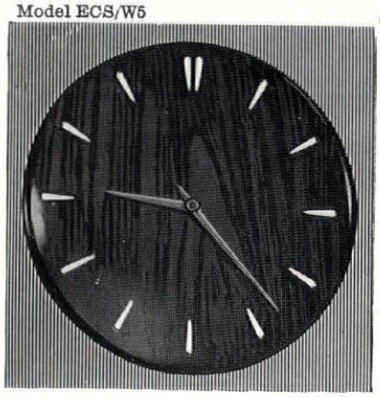
Model ECS/W3

E.C.S. manufacture a wide range of Wooden Clocks in distinctive and elegant styles. In addition to standard models, and the calendar clock, there are "specials"—clocks manufactured to your own individual requirements. With E.C.S. you can be sure of the highest standards of dependability and workmanship.



Model ECS/W1

Model ECS/W5



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LONDON W.1 LANgham 7226

A branch of the Clock and Watch Division of
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TABLE 2: COMPOSITE UNITS continued

Manufacturer	Name	Construction, Colour and Finish	Storage and Filing Capacity	Size and Price
Bath Cabinet Makers Ltd., marketed by Ryman Furnishing Contracts Ltd., 39, Dover Street, London, W.1	Formation Furniture	Timber construction. Abura finished matt wax polish. Desk tops in black linoleum, handles satin chrome finish. Apron panels white pvc both sides	Interchangeable units filing cabinets or pedestal desks. Filing drawer in pedestal unit	Pedestal unit with one filing drawer only £16 9s. 3d. Double pedestal desk unit 5 ft. 8 in. by 2 ft. 8 in. £43 16s. 4d. Single pedestal unit 4 ft. 4 in. by 2 ft. 8 in. £28 16s. 10d. Cabinet unit with 3 filing drawers 60 in. by 20 in. £69 12s. 9d.
Christian Holzäpfel Ltd., Ebhansen, Wurttemberg. General agents in England Ryman Furnishing Contracts Ltd., 39, Dover Street, London, W.1	PEN Also DHS 30, DHS 300 ranges	Matt-oiled afromosia wood and deep grey lacquered steel frames. Timber pedestals and desk top on steel frame	Various combinations. One or two pedestals with filing drawers. Drawers A 4 size. Totally extendable on telescopic rails	Extensive range including 63 in. by 31½ in. one pedestal £54 13s. 1d. and 63 in. by 31½ in. two pedestal £81 16s. 5d.
Hille of London, 39–40, Albemarle Street, London, W.1	Status Group	Square section steel frame stoved matt black or satin chrome plated, handles silver or black anodized aluminium. Cabinets veneered mahogany, pacific walnut, teak or rosewood. Tops veneered or in light grey or white melamine plastic	Pedestal units with filing drawer or cabinets incorporating filing	Wide range including double pedestal 84 in. by 36 in. with pedestals DB and DA £77 8s. 9d. Single pedestal 45 in. by 27 in. with pedestal DB £41 8s. 3d. 72 in. by 18 in. by 27¼ in. high. Cabinet with interior drawers and shelves £58 5s. 0d.
Jetleys, Huddersfield, Yorkshire	Jetalat Revolving Unit	Metal construction	With 1, 2, 3 or 4 wheels each holding 120/140 files	Full unit with 4 wheels £54 5s. 0d. One wheel £16 0s. 0d.
Lucas of London Ltd., Old Ford, London, E.3	Executive range	Timber construction. Honduras mahogany with tola veneer, matt finished to natural colour. Handles satin silver finished. Footrails sheathed in stainless steel. Linings in black colorado grain lionide	Partly interchangeable units	Wide range including executive cabinet (2 drawers, 1 for filing) £27 10s. 0d. Executive desk 72 in. by 36 in. (2 pedestal unit with 1 filing drawer) £72 0s. 0d. Storage cabinet 45 in. by 21 in. by 26 in. high £29 10s. 0d.
	Mahogany range	Mahogany combined with colorado grain lionide (black for tops and grey green for panels). Wood surface satin matt finished to natural colour. Footrails, hand rails and structural metal work brushed aluminium	Partly interchangeable units	Wide range including double pedestal 63 in. by 36 in. £45 0s. 0d. Double pedestal 56 in. by 28 in. £40 0s. 0d. Storage cabinet 46 in. by 18 in. by 28 in. high £24 0s. 0d.
Magpie Furniture Ltd., Station Approach, London, S.W.14	'O' Range	To match D range drawing office furniture. Clear polished birch wood, matt black or grey gloss enamelled frame with suspended drawer pedestal enamelled red at sides and white at back. Utile drawer fronts	Filing drawer in pedestal	(01) 1 pedestal unit 45 in. by 24 in. £32 10s. 0d. (02) Double pedestal 60 in. by 27 in. £50 0s. 0d.
Norwood Steel Equipment Ltd., Howard Way, Harlow, Essex	NSE	Metal construction. Two tone finish	Interchangeable pedestal unit with two filing drawers (DF) or 1 filing drawer (SF)	Wide range including double pedestal (2 filing drawers) 78 in. by 42 in. Single pedestal 1 filing drawer 42 in. by 27 in.
Sankey Sheldon Ltd., G.K.N. House, 22, Kingsway, London, W.C.2	Masterform	Metal construction. Stove enamelled dove grey, medium grey, dark green, mist green or desert sand. Linoleum top surface, black, dark green or grey. Fittings, satin-finished aluminium alloy	Double pedestal with one filing drawer	Height 30 ft. 2 in., 60 in. wide by 34 in. deep (72 in. and 84 in. tops available) £44 16s. 1d. approx.
	Slimline	Metal construction with anodized aluminium beading to edges and vinyl inset Single pedestal units can be made up into continuous desking	Double pedestal with one filing drawer Single pedestal with one filing drawer	84 in. by 30 in., 30½ in. high (72 in. and 60 in. tops available) £41 0s. 2d. approx. 48 in. wide, 30 in. deep and 30½ in. wide £29 10s. 10d.
	Commercial Desks	Metal construction. Tops covered in linoleum fitted with aluminium beading and flat vinyl inset	Double pedestal with one drawer for filing Single pedestal with one drawer for filing	60 in. by 30 in. by 30½ in. high £29 10s. 10d. 48 in. by 30 in. by 30½ in. high £20 8s. 3d.
Sheer Metal Craft Ltd., Weybridge, Surrey	Sheer Pride	Metal construction. Top covered with grey or black linoleum	Filing drawers in pedestal	Wide range including double pedestal model 130 60 in. by 30 in. £36 5s. 3d. Single pedestal model 137 42 in. by 30 in. £23 0s. 8d.
Vickers-Armstrongs (Engineers) Ltd., Dartford, Kent	Interline Desks also V-A 60 range	Metal construction. Two tone colours in Inter-line range Portland grey/Cumberland grey, Portland grey/Burgundy, Honey beige/Tobao	Interchangeable pedestal unit with 1 filing drawer and 1 other drawer. Also three drawer pedestal	Height adjustable 29 in. or 30 in. Wide range including Managerial 71½ in. by 37 in. £62 5s. 8d. Secretarial 60 in. by 34 in. £41 10s. 0d. Typist's 45 in. by 32¾ in. £27 2s. 1d.



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Hildick & Hildick

Association of Steel Conduit Manufacturers. 96 Hagley Road, Birmingham, 16.

THE INDUSTRY*

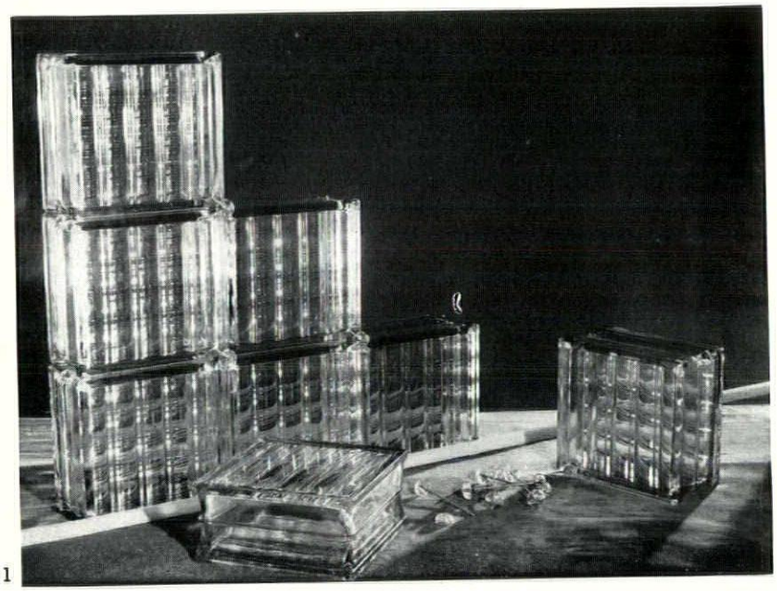
Internal glazed partitions

At this year's Building Exhibition Pilkingtons put forward a new method of constructing internal partitions using their 'Insulite' blocks. Though the main purpose of this development was to encourage householders to 'do it themselves,' it is of interest to architects as the resulting partition, being of dry construction, is more satisfactory than a corresponding partition fixed with mortar. One of the factors which has tended to spoil internal partitions of glass blocks is the view which you got through the glass of the mortar joint—a view which was not enhanced by unevennesses in workmanship. The method now proposed is to construct a timber frame for the partition, to line this with ½ in. resilient foam and a beading and to lay the blocks within it, bolting the blocks together by means of special 4 in. steel bolts capped with clear plastic nuts. Seven different types of 'Insulite' blocks can be used with this system.
Pilkington Brothers Ltd., St. Helens, Lancs.

New fluorescent range

In their new range of 'Slim Jim' fittings, 2, 3, first introduced last October, GEC have much reduced two of the long standing defects of fluorescent lighting. The first of these is the infuriating time lag between switching on and lighting up. This has been reduced by a new snap start control gear which is fixed to all 4 ft. and 5 ft. models in the range. The second defect is the relatively high maintenance cost incurred on large installations, due to the difficulty of relamping. This has been much reduced on 'Slim Jim' by a new kind of springload lampholder which does not require screwing and enables lamps to be fixed from either end. The range is available in 8 ft., 5 ft., 4 ft. and 2 ft. lengths, the rating being 125, 80, 40 and 21 watts respectively.
The General Electric Co. Ltd., Magnet House, Kingsway, W.C.2.

*Further information on the products, etc., referred to in these notes can be obtained by making use of the reply-paid Enquiry Service Form which is printed on coloured paper at the back of each copy of the AR.



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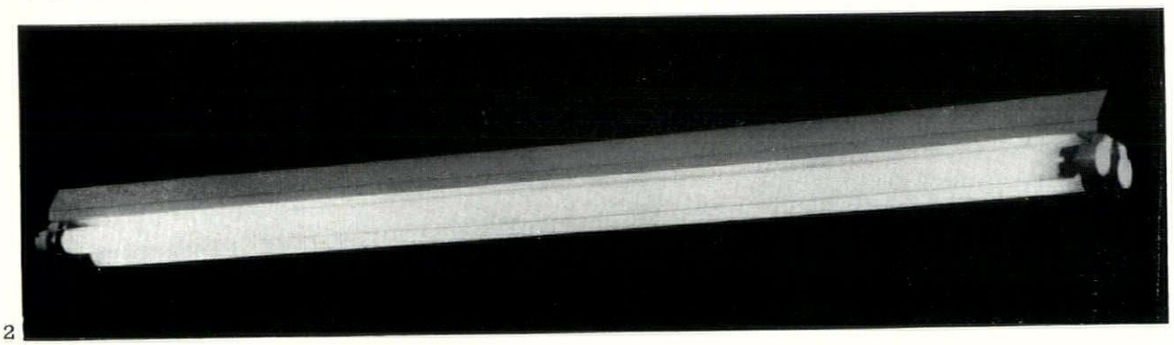
1, a selection of one of the seven different styles of 'Insulight' hollow glass blocks by Pilkington Brothers Ltd. The blocks are held together by the 4-in. plastic-topped steel bolts.
2, 3, the GEC 'Slim Jim' 5 ft. twin-tube fluorescent light fitting.



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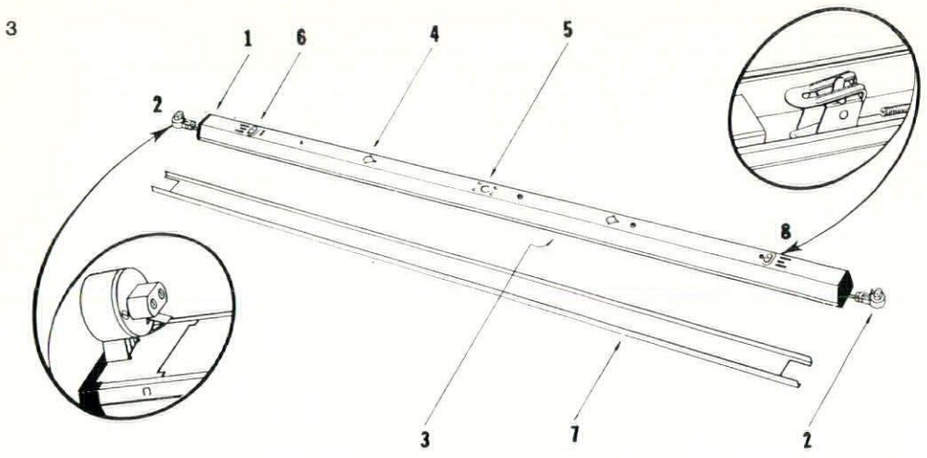

3

1 Black spring-loaded metal end caps
2 Retractable holders at both ends
3 Ample cable cleats for neat wiring
4 Keyhole fixings assist direct ceiling mounting
5 Masking plate supplied for central conduit box
6 Holes for conduit suspension
7 Cover plate
8 Reflector catch

CONTRACTORS etc

Notting Hill Gate Redevelopment. *Architects:* Cotton, Ballard & Blow. *General contractors:* Tersons Ltd. *Sub-contractors: Paving:* John Ellis & Sons Ltd. *Lightning conductors:* W. J. Furse & Co. *Slate:* The Bow Slate & Enamel Co. *Metal windows:* John Thompson (Beacon Windows). *Glazing:* Aygee Ltd. *Door glazing:* Steele's (Contractors) Ltd. *Refuse chutes:* Broads Manufacturing Co. *Semastic and linoleum floors:* Semtex Ltd. *Internal partitions:* Compactom Ltd. *Hose reels:* Mather & Platt Ltd. *Ferro-concrete roof lights:* Lenscrete Ltd. *Sliding door gear:* P. C. Henderson Ltd. *Dryriser boxes:* Charles Winn & Co. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Roof screeds:* Isocrete Co. *Suspended ceilings:* Petradene Ltd. *Window cleaning machine:* Mills Scaffold Co. *Granite and marble:* J. Whitehead & Sons Ltd., Frank England Ltd. *Kitchen fittings:* Wrighton & Sons Ltd. *Lifts:* Otis Elevator Co. *Internal partitions:* Tenon Contracts Ltd. *Natural stone:* South Western Stone Co. *Terrazzo:* W. B. Simpson & Sons Ltd. *Office entrances:* Ruddock & Co. (Shopfitters) Ltd. *Kitchen fittings:* Built-In Fixtures Ltd. *Cork flooring:* Cork Insulation & Asbestos Co. *Electrical:* Duncan Watson (Electrical Engineers) Ltd. *Natural stone:* Stone Firms Ltd. *Lifts:* Marryat & Scott Ltd. *Mosaic:* Malacarp Terrazzo Co. *Roller shutters:* Shutter Contractors Ltd. *Granitex rendering:* S. Towers & Son Ltd.

Studio at Hertingfordbury. *Architects:* Fry, Drew and Partners. *General contractor:* Elkins & Co.

Studio at Rowfant, Sussex. *Architects:* Fry, Drew and Partners. *General contractors:* Hoad & Taylor Ltd.

Territorial Army Offices, Leicester. *Architects:* Edwards, Branson and Edwards. *General contractor:* G. Duxbury & Sons Ltd. *Sub-contractors: Metal work:* Architectural Metalworks. *Thermoplastic flooring:* J. A. Hewetson & Co. *Metal windows:* James Gibbons Ltd. *Reinforced concrete design:* GKN Reinforcement Co.

Factory at Wokingham. *Architects:* Yorke, Rosenberg & Mardall. *General contractor:* E. C. Hughes Ltd. *Sub-contractors: Structural steel:* Fleming Brothers Ltd. *Heating:* Wanson & Co. *Roofing:* Ragusa Asphalt & Paving Co. *Sanitary fittings:* Stitson's Sanitary Fittings Ltd. *Metal windows:* Hills (West Bromwich) Ltd., Quicktho Engineering Ltd. *Ceilings:* Hall & Co. *Partitions:* Holoplast Ltd. *Glazed bricks:* Stourbridge Glazed Brick Co.

Branch Bank at Watford. *Architects:* Bryan and Norman Westwood and Partners. *General contractors:* Charles Brightman & Son Ltd. *Sub-contractors: Strongroom:* Chatwood Milner Ltd. *Rustic marble facing slabs:* Kendells Flooring Ltd. *Slate flooring and facing slabs:* Setchell & Sons Ltd. *Steel lockers:* Finch Engineering Ltd. *Mild steel reinforcement:* Square Grip Reinforcement Designs Ltd. *Sanitary fittings:* John Bolding & Sons Ltd. *Sculptured panels:* Hall Beddall & Co. *Reinforced concrete:* Broadmead Products Ltd. *Asphalt tanking and roofing:* Prater Asphalte Co. *Facing bricks:* Richard Parton (Builders Merchants) Ltd. *Suspended ceiling:* Pyrok Contracts Ltd. *Bank fitting:* Harris & Sheldon Ltd. *Windows and curtain walling, staircase balustrade:* Building Services (Catford) Ltd. *Roof lights:* T. & W. Ide Ltd. *Flush doors:* Jayanbee Joinery Ltd. *Book hoist:* Hammond & Champness Ltd. *Ironmongery:* Alfred G. Roberts Ltd. *Electrical installation:* Higgins & Cattle Ltd. *Night safe:* Chubb & Son's Lock & Safe Co.

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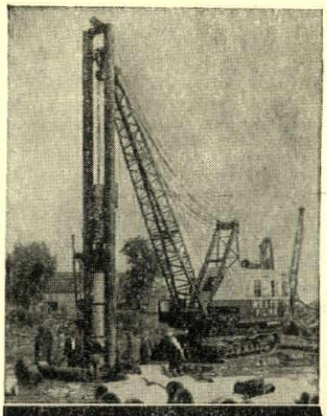
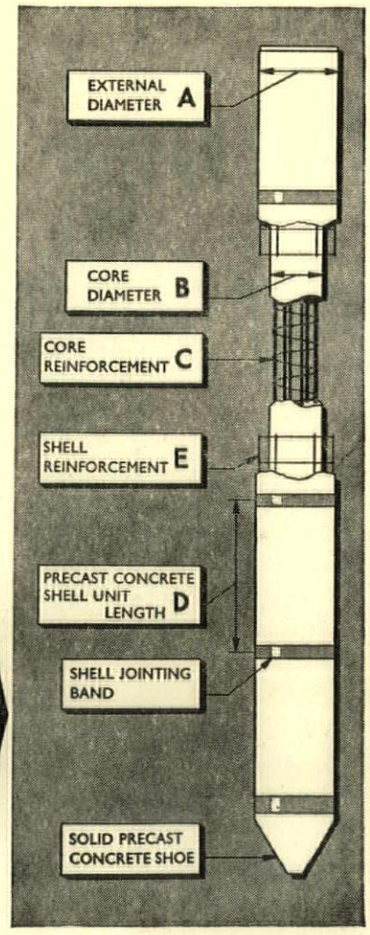


Large mobile piling machine



PILE DATA

To be read in conjunction with sectional drawing.

Ext. Dia. "A"	*Core Dia. "B"*	*Core Reinforcement "C"*	*Shell Length "D"*	*Shell Reinforcement "E"*	*Loading (Tons)*
24″	19″	In accordance with design requirements	3′ 0″	Mesh reinforcement	100-200
20″/21″	15″		3′ 0″		75-120
17½″	12″		3′ 0″		50-80
14½″	10⅞″		3′ 0″	6 vertical bars 7-12 rings	Up to 60

The core reinforcement "C" is varied to suit the load on the pile.

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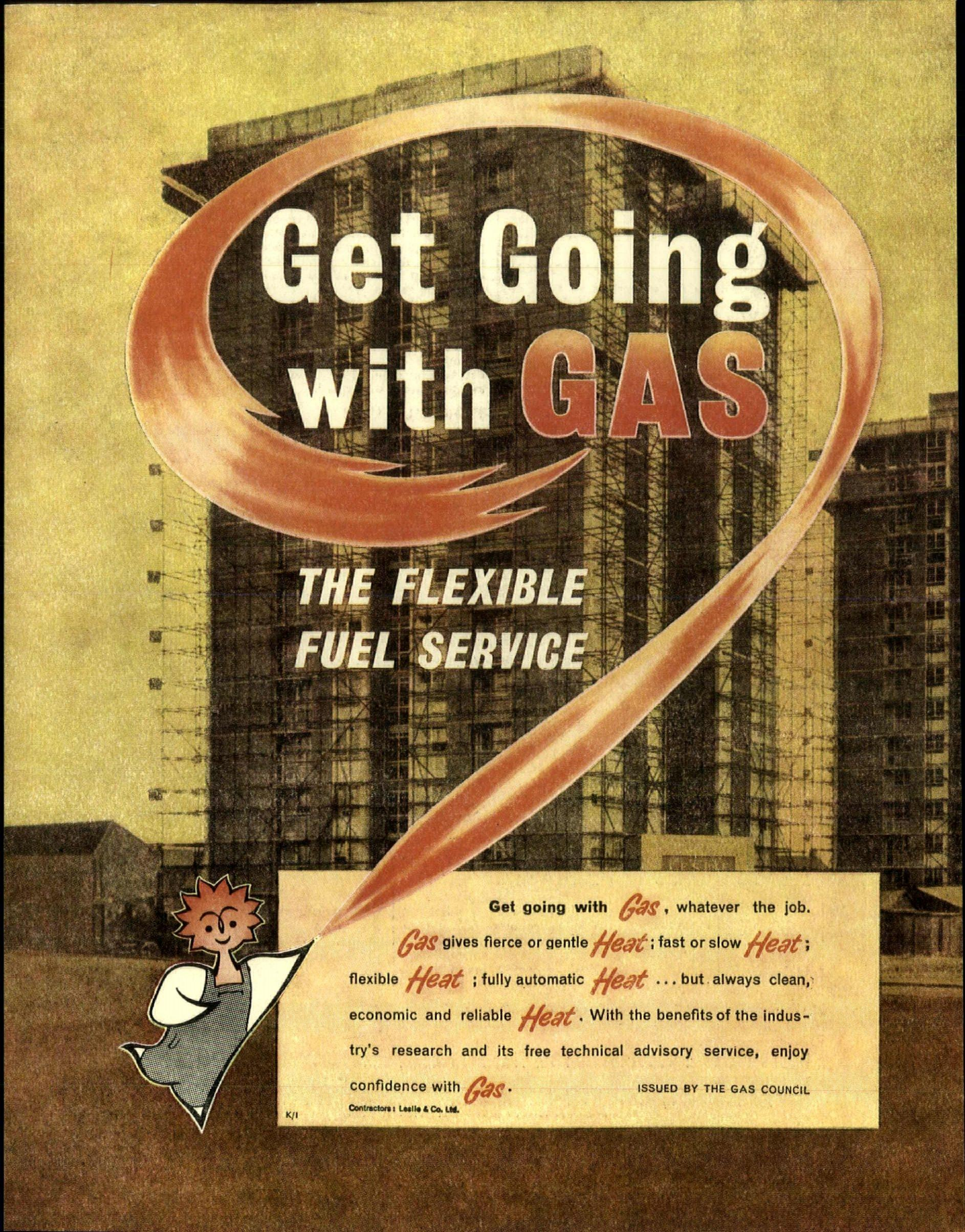
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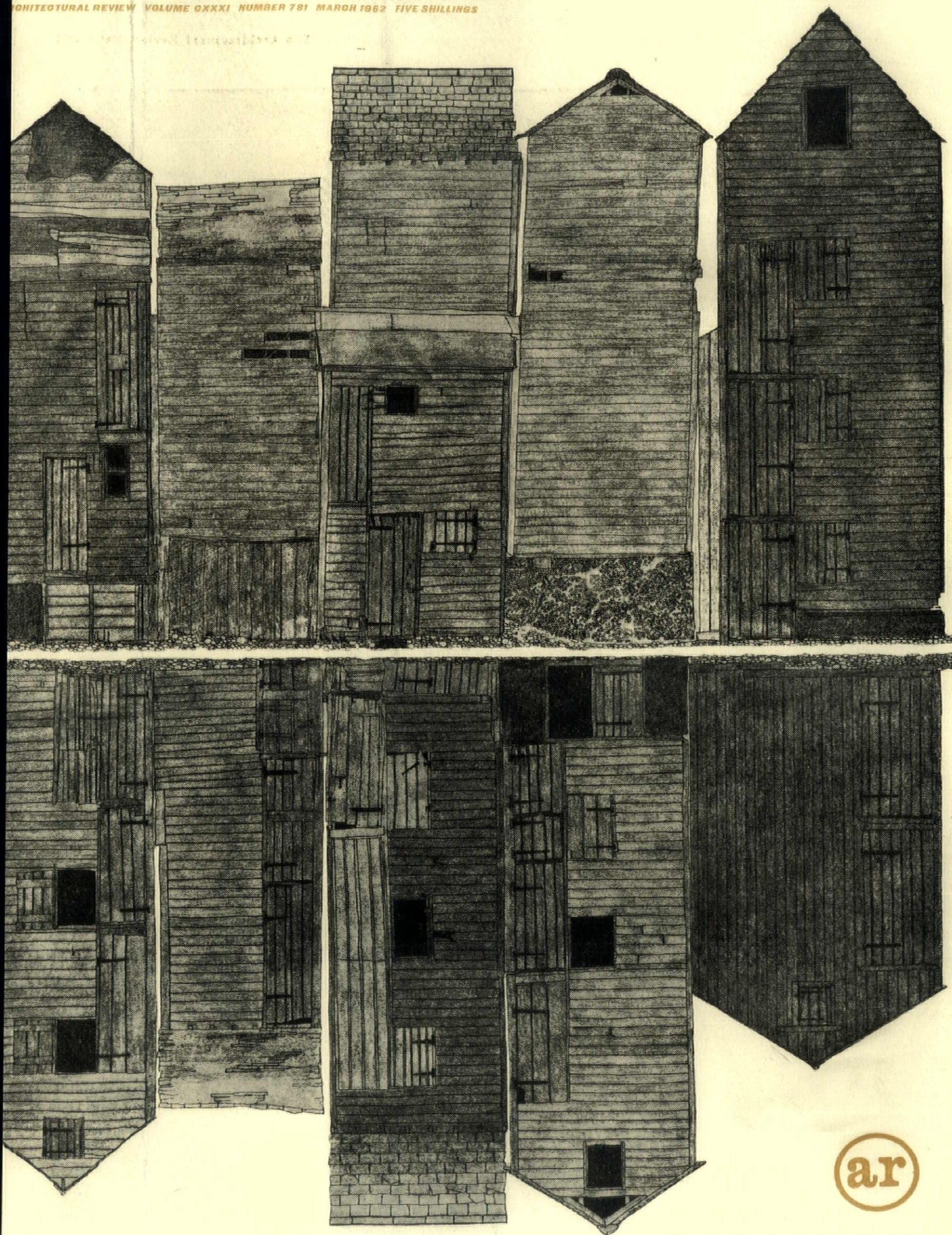

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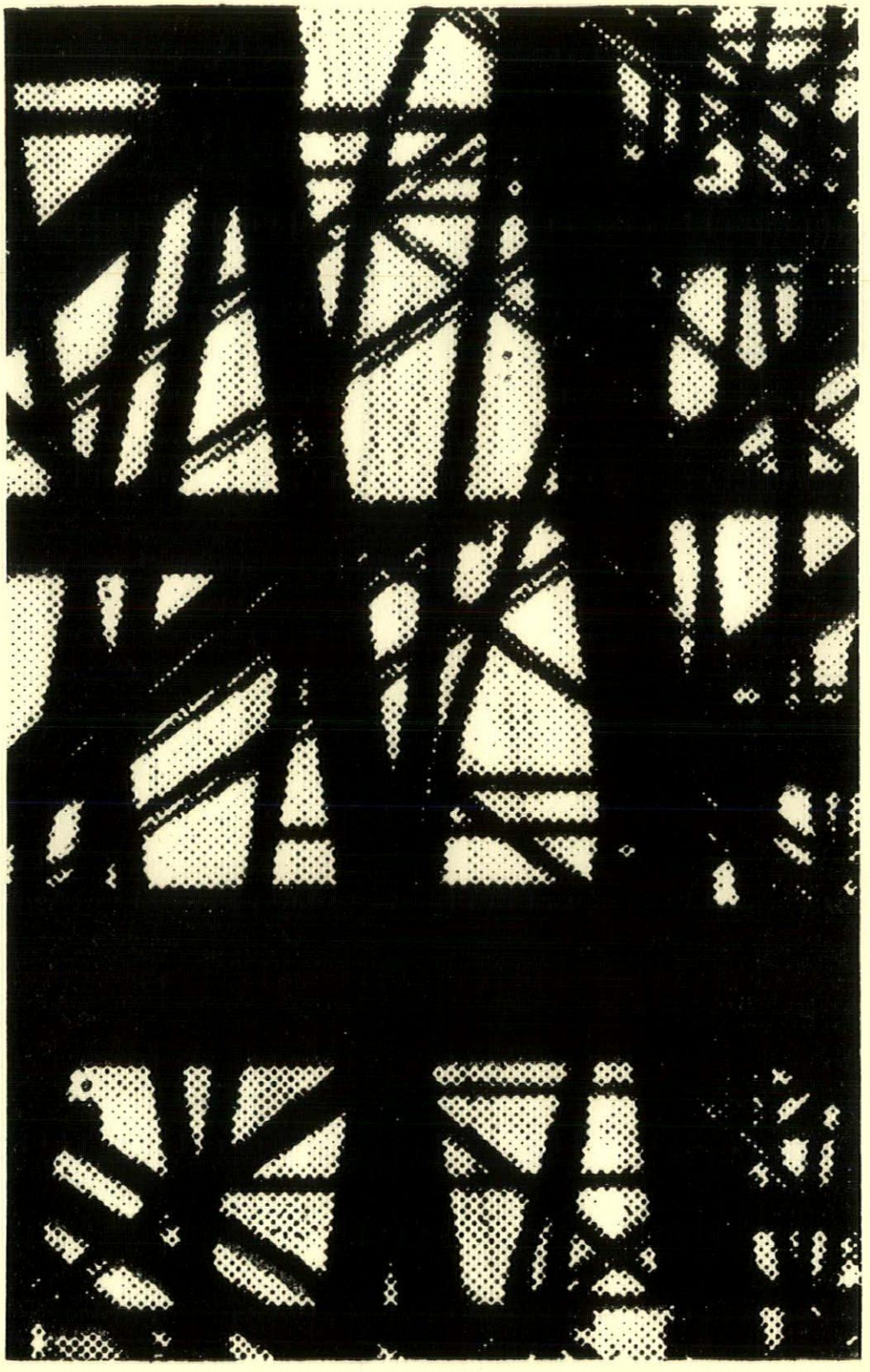

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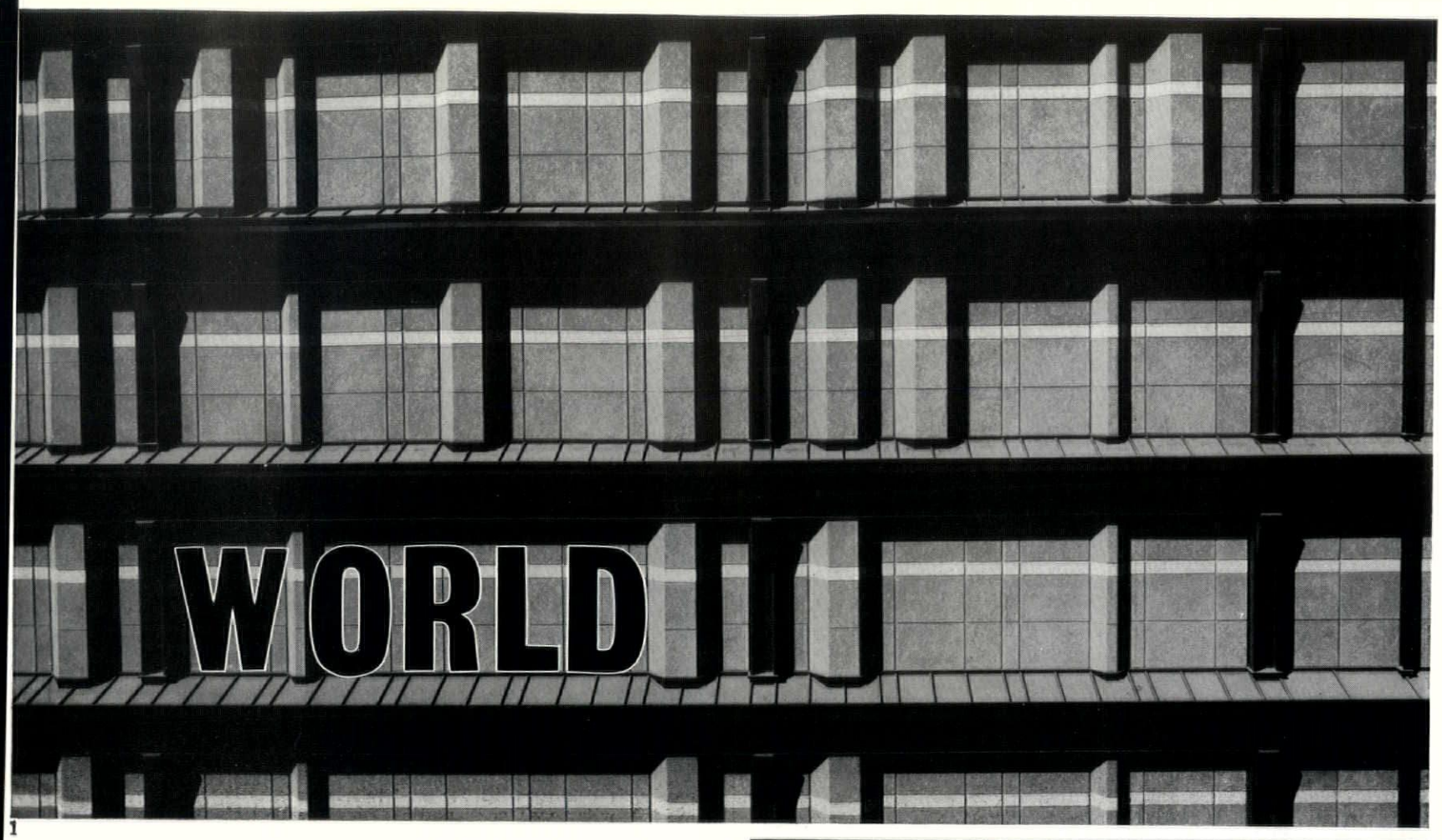


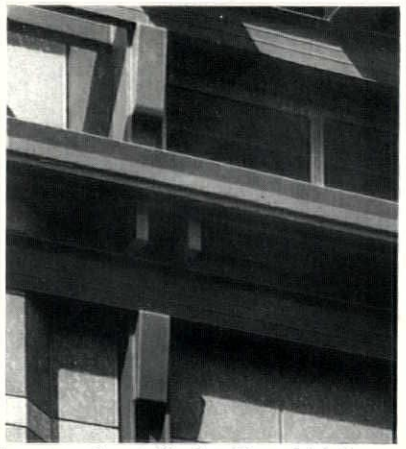
1

ACKNOWLEDGMENTS

WORLD, pages 153–156: 1–3, Oscar Savio; 4–7, *Architektura*; 8, Max Dupain; 21, 22, Cervin Robinson; 24, 25, Marcel Corbeau; 28–31, *L'Architecture Francaise*. VIEWS AND REVIEWS, pages 157–159: 1–3, Galwey Arphot. FRONTISPIECE, page 160: Christopher Hill. HOUSES ON THE BEAULIEU RIVER, pages 164–167: Galwey Arphot; pages 168–174: 1–5, 7–14, Galwey Arphot; 6, Sir Basil Spence. THE FIRST IRON FRAMES, pages 175–186: 7, 9, 12, West Midland Photo Service; 13, A. W. Skempton; 17–19, Birmingham Public Library. CRITICISM, pages 190–196: 1, 2, 4–12 Galwey Arphot; 3, Lennart Olson/Tio ID, pages 199–202: Galwey Arphot. HALL OF RESIDENCE, BATTERSEA, pages 207–208: Colin Westwood, *The Architect & Building News*. OLD PEOPLE'S HOME, HIGH WYCOMBE, page 209: Cecil H. Greville. MISCELLANY, pages 210–216: Exhibitions, 1, 2, Marlborough Fine Art; 4–6, Arts Council of Great Britain; 7, 8, Photo Studios; 9, New London Gallery. Functional Tradition, Eric de Maré. Townscape, 1, 2, 5, Ian Nairn. Credit, 4, 5, British Railways. SKILL, pages 217–226: 4, Dart & Bernard; 6, Morgan-Wells; 7, 12, LNA; 8, Sound Stills; 15, Maurice Broomfield; 17, Douglas H. Jeffery. THE INDUSTRY, page 226: 1. S. F. Scorey.

DUCT-WALL

The duct-wall has arrived, 1, and just in time to illustrate a point in Reyner Banham's study of the architecture of services (see page 204) where Albini's *Rinascente* building in Rome is cited as an example of external duct-work handled with greater subtlety than by Louis Kahn. Overlooking the Piazza Fiume, the Rome *Rinascente* is a regular and classicizing block, 2, more pure and more classicist than the architect's first version (World, September 1960) but still given tremendous distinction by the superlative quality, 3, of its external metallic detailing which introduces a conception of the handling of structural details that is as advanced in one way as it is stylistically archaizing in another. It is clearly a building of such quality as to demand far more extended treatment than can be given here (it is hoped to make it the subject of a criticism article in the near future) but the services, incorporated in the reconstructed-stone cladding panels that infill the walls, deserve to be pointed out for one other reason—they are cascaded; that is the air-conditioning plant is at the top of the block and therefore delivers downwards, and the diminution in the volume of trunking from floor to floor is made explicit by reducing the number of ducts at each storey. This solution and this kind of treatment has been proposed before by architects working in America, but always in terms of ductwork *outside* the frame, an approach that makes a satisfactory architectural solution far more difficult than Albini's.



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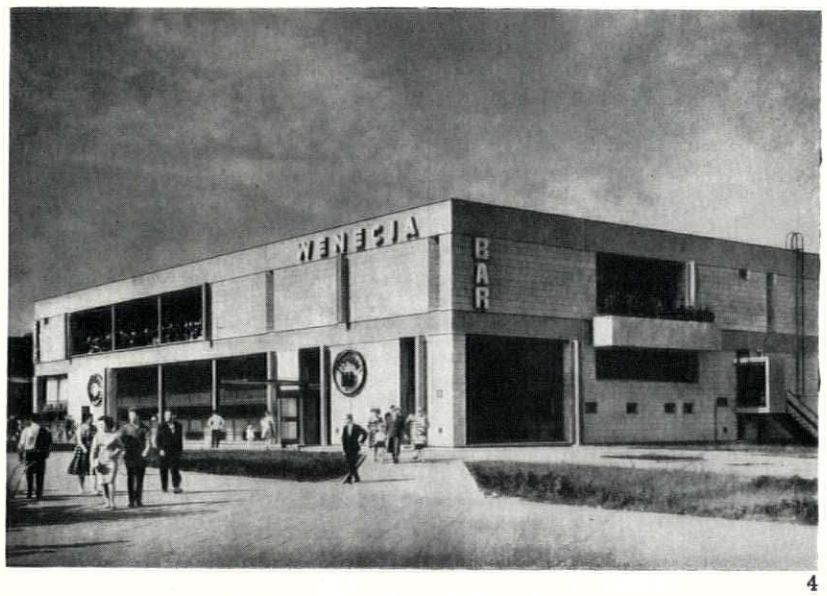
KOMBINAT



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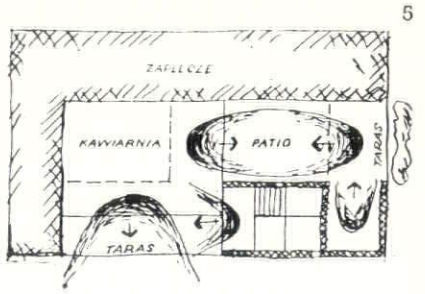
Readers who suspect that a *Kombinat Gastronomiczny* must be a sort of collectivized automat will not be very far from the truth—*architektura* (10, 1961) describes the Wenecja, 4, as a 'feeding centre' but this seems hardly fair to what is, in effect, the local equivalent of the kind of shop/snack-bar/restaurant complex that one finds at certain celebrated corners in London. It is also by far the most stimulating building to have been produced to date by the Polish Thaw, completely non-Zhdanov in its architectural approach to planning, 5,

Polish Corner House



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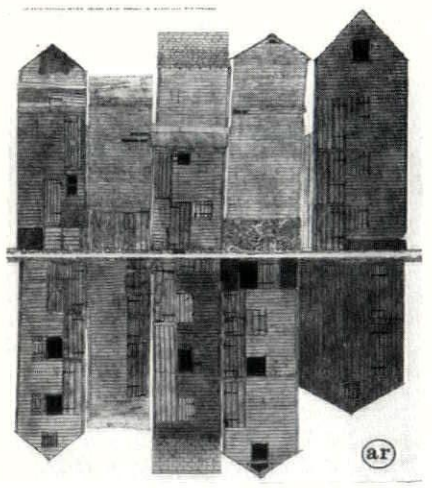

The Cover *shows two elevations—drawn by B. R. C. Tewson—of the close-packed group of fishermen's storehouses that stands on the beach at Hastings, an example of the Functional Tradition at its most appealing as well as its most elementary.* *See also pages* 197-198.

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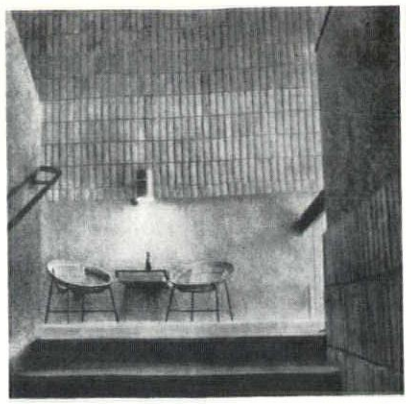
Wenecja

internal finishes, 6, or exterior treatment, 7. Much is doubtless explained by the appearance among the design team of Jerzy Soltan, the Polish architect who has most consistently maintained contact with progressive and responsible architectural thought abroad (CIAM Team-X), but all three of the partners —the others are Zbigniew Ihnatowicz and Adolf Szczepinski—are to be congratulated on producing a building that has fully justified Western hopes of the progress of Polish architecture when restraints had been removed.

6



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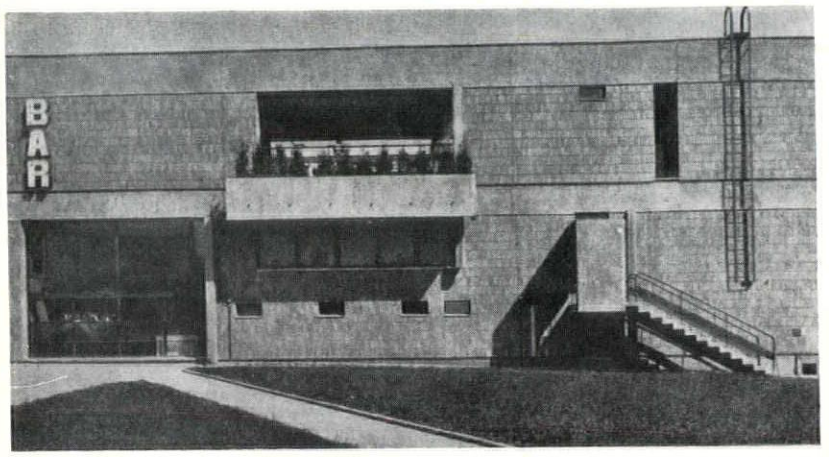

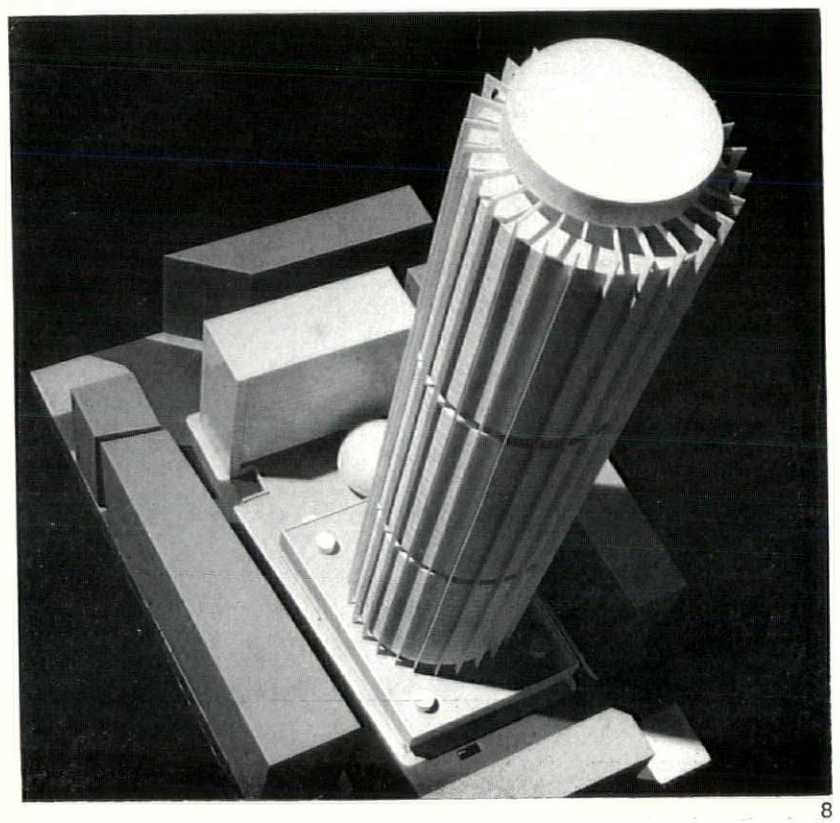

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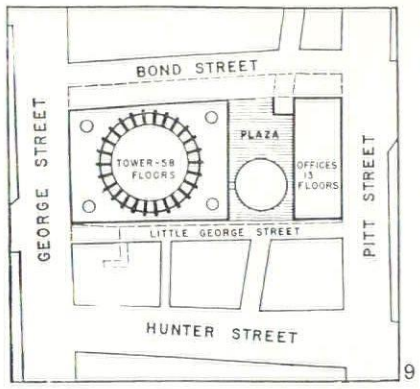
AUSTRALIA SQUARE

Central area development in Sydney

Projects for giant development schemes all over the Commonwealth continue to be announced; the most notable of the most recent batch being Harry Seidler's design for a fifty-eight storey circular tower, 8, and ancillary structures including a smaller office block and a planetarium in a piazza, all to be known as Australia Square and occupying a site, 9, between George, Bond, Pitt and Hunter Streets in Sydney. To judge from the *Sydney Morning Herald* (5 December 1961) the project has some chance of becoming the Australian equivalent of the Piccadilly Affair, especially since



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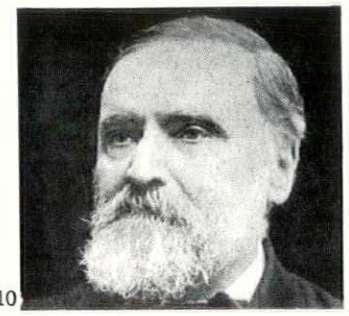
the promoting company calls itself City Centre Development (though it is not clear if this is in any way connected with Jack Cotton's organization). However, the grounds for dispute in this particular case do not appear to include the aesthetics of the proposed block, merely its height, site and the political implications of permitting a development of this size in a central area. One other difference from the Piccadilly situation is that a major motive influencing politicians to go ahead with the scheme is the desire to do Melbourne in the eye.

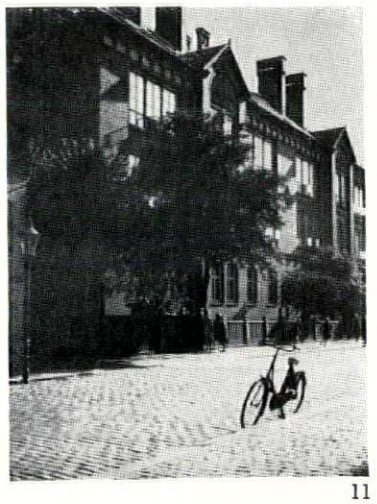
MUNICIPAL JUBILEE

75 years of the city architect's office in Copenhagen



10 *Ludwig Fenger, City Architect: 1886-1904*

The City Architect's Office of Copenhagen celebrated its seventy-fifth birthday last year, and issued a substantial commemorative booklet, putting on record a chronological record of their more notable works, from the time of Ludwig Fenger, 10, their first city architect, down to the present time. One need hardly say that the work is craftsmanly, obviously well-detailed and unsensationally functional, right from the well-windowed school, 11, which opens the



11

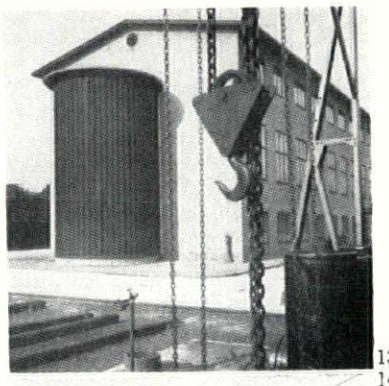
book and was completed in 1889. The fascination of the book lies, however, in its record of the progress of enlightened municipal taste and patronage, interrupted by such splendid aberrations as the Sforzescan fire-brigade headquarters, 12, also of the



12

Fenger period. For much of the way, it is a story of very large exercises in an extremely restrained Scandinavian Neo-Classical idiom that eventually attains a state of boring anonymity which neither detailing nor ivy can relieve.

Then, about 1928, comes the crack: enlightened Functional Traditionalism, 13, leading to concrete functional-



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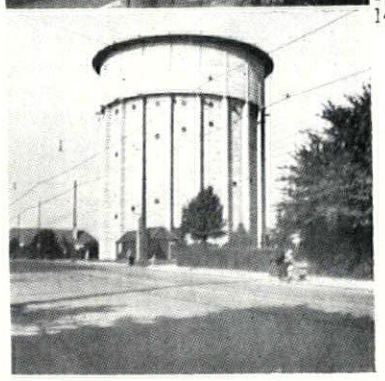

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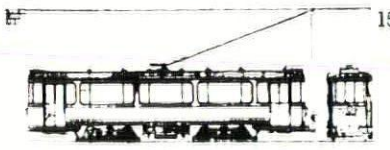
ism, 15, genuine machine aesthetic, and the first modern school of



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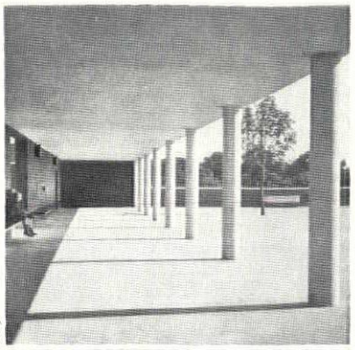
Jubilee

1932, 16. Now we settle down once more, this time to refined municipal modernism, relieved by occasional attacks of functional fantasy, 17, and



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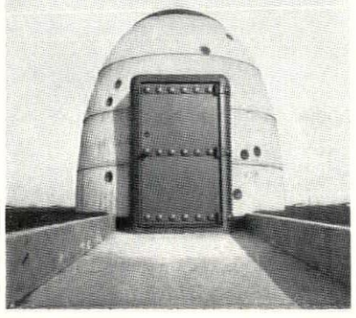


garden architecture which reverts too often to sentimental neo-classicism, but once in a while pulls off the kind of rustic functional tradition structure, 18, that eluded everybody else. Since



18

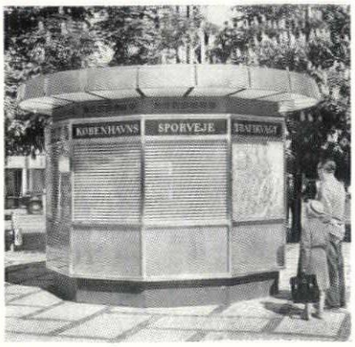
the war, the forward movement has continued, never fashiony, but never too far behind the times—19 is a work of 1961—and still at its best in



19

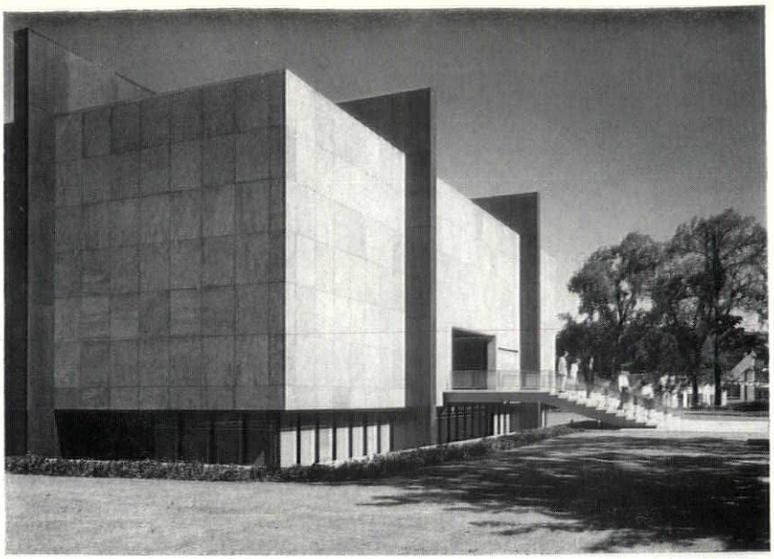
schools, and etceteras, such as the well-turned kiosk in 20. Nothing to frighten the rate-payers, but nothing of which anyone need be ashamed and—more important still—a total record that no other municipality can even hope to rival for consistently high quality over such a long period.

20



UTICA

Philip Johnson's design for the Munson-Williams-Proctor Institute in Utica, NY, has been watched with interest for some time as a text-book example of how to return to Palladio through Mies, but now that it is completed, 21, other aspects of the design begin to demand attention; among them, the success with which he has carried off the visual proposition that the interior is a single square volume, 22. It is not, of course, and the plan at ground floor level shows, 23, the usual ranges of miscellaneous service and administrative rooms that every art-gallery needs. Nevertheless, the ruthless packing of all ancillaries round the perimeter and in strict symmetry, leaves, under the central roof-light, a space which expands so suddenly around the axis on which the visitor enters that he is convinced (momentarily, at least) that he has entered a volume that occupies the full dimensions of the box that he saw from the outside. In other words, it is a Corbusian, not Miesian, proposition—this is how the celebrated *boite à miracles* will have to be done—if, indeed, anyone gets any nearer to it than this Johnson version.



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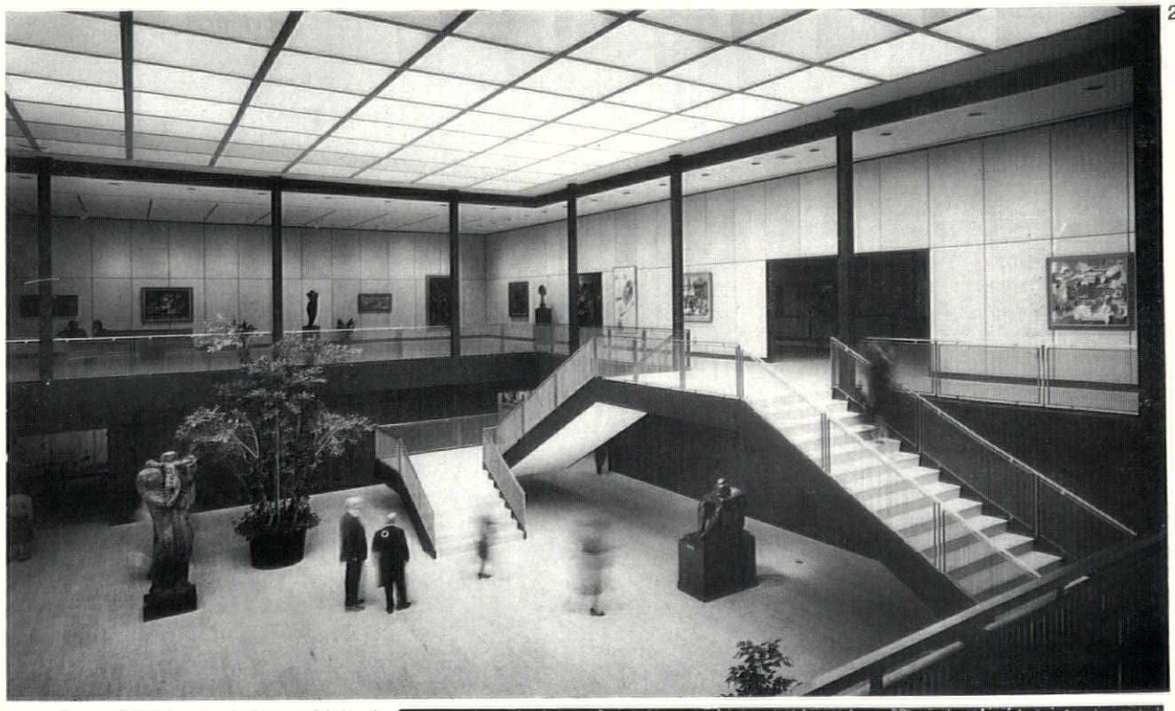

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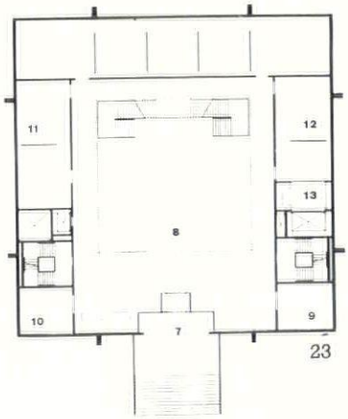

23

THE CHURCH SIGNIFICANT

Church architecture in North America looks as if it may be moving into a period not unlike that triggered by Peter Hammond's article *Liturgical Brief* in the AR six years ago. The trigger article in the American case could well be Peter Collins's *Form in Churches: What is Significant Form?* which appeared in *Progressive Architecture* for December 1961, and nominated four kinds of significance—structural expression, functional suggestion, religious symbolism and 'inviting attention from a select and initiated group' (OED, surprisingly)—only to scout all but the last, which he preferred to read in fashionable terms as meaning, merely, fashionable.

Yet, with due deference, it might be suggested that this is precisely the sort of group (select or chosen, and duly initiated) to whom a religious building *should* appear significant, and this dictionary formulation might prove to be as magical an open-sesame to church symbolism as was the word *liturgical* to church planning. It is too early yet to say whether anyone intends to read *significant* in this sense, but, in the meantime, North American architects continue to produce attention-inviting churches that exhibit the greatest variety, even when they have almost identical structural systems. Roger d'Astons is still ornamenting suburbia with wooden extravaganzas such as the new St. Edmund's, Beaconsfield, 24, outside

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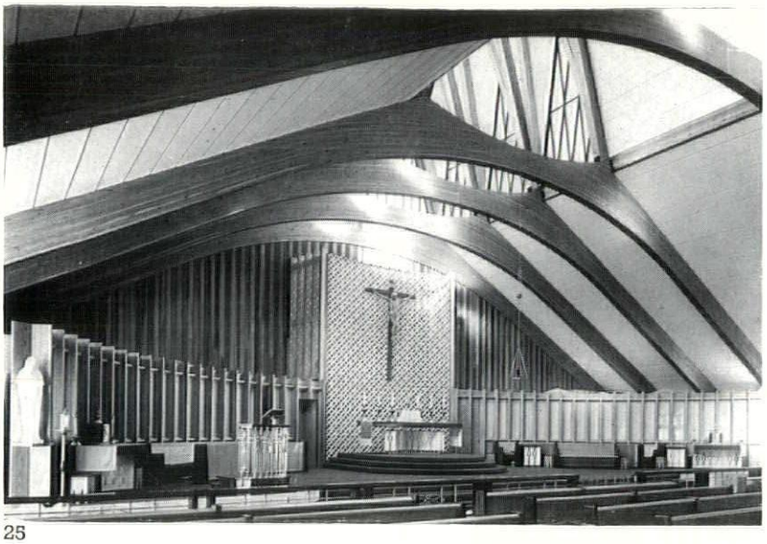


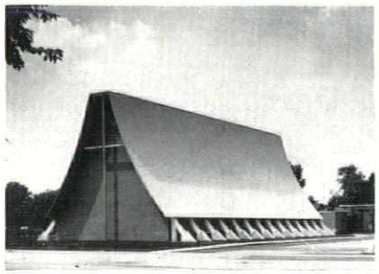
25

Significant Churches

Montreal, whose extraordinary forms derive from a perfectly straightforward manner of using (and loading) laminated wooden beams, 25, which are not only proving to be a structural system that is well adapted to the kind of imagination that goes into trans-atlantic church-design, but even better adapted to the problem of spanning a large congregation at a small cost.

They are seen again in another church, this time in the US and more likely to recommend itself to less exuberant European initiates and select men: Bethel Evangelical Lutheran, 26, in Evergreen Park, Illinois. The tent-like curve (Professor Collins doubtless has views about the structural expressiveness of apparent catenaries in non-catenary situations) seems likely to be meaningful to readers of the Old Testament, and its handling by Richard A. Johnson (of Cooley and Borre) seems to put a stiffening of common-sense into an idiom that presumably owes its origins to Victor Lundy. But whereas Lundy is apt to look merely fanciful even when he is being absolutely honest structurally, the Johnson version attains, internally, 27, an air of honest calm that many US architects working for Protestant sects have aimed at, and failed to achieve by very narrow margins. Here, everything is so manifestly simple that only an architect would be likely to have his attention diverted from the service by a gnawing curiosity to know just how those massive beams are held apart, or together, at the top, beyond the stained glass.

26



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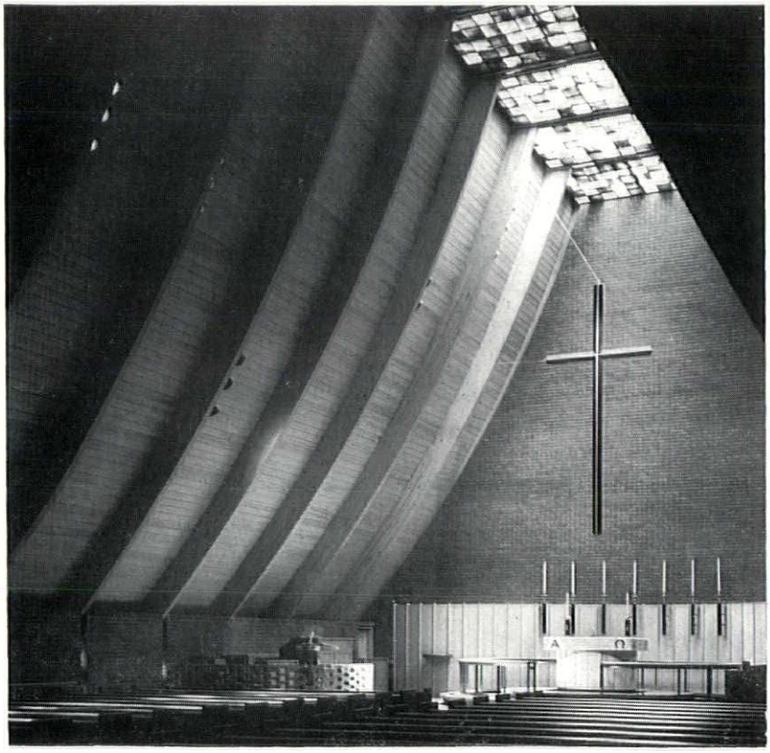
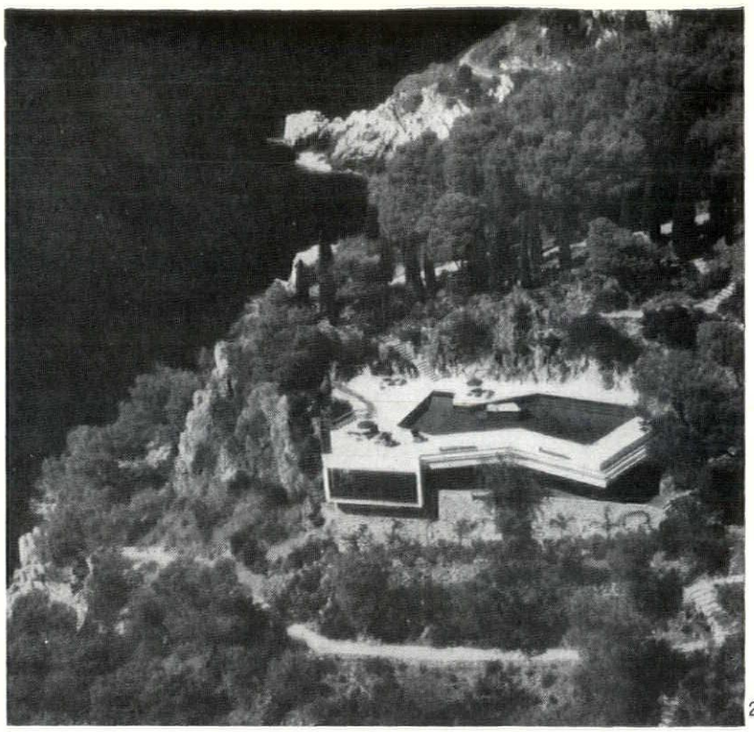


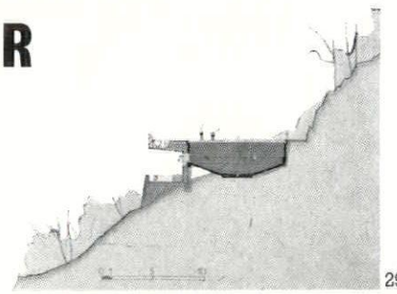


28

CLIFF-HANGER

Swimming Pool at Cap-Ferrat

If you are very rich, and own a cliff, it seems quite a good idea to hang a swimming pool on it, particularly if you command the services of an architect like Georges Goldberg who can carry it off with the panache that the genius of the place demands, 28. The site, as revealed by the section, 29, demands an inversion of the normal order of ancillary structures, and the placement of the terrace, dressing-rooms, and so forth, on the level below the pool itself, thus creating the noble indoor/outdoor room and sun-deck seen in 31, while from the landward side the pool itself holds the eye, 30, without extraneous clutter to confuse the image. However, it is clear from the account given in *l'Architecture Francaise* (227-228) that the site was not arbitrarily picked: the pool has been *inscrite dans un creux naturel* whose orientation and form made it a natural sun-trap.



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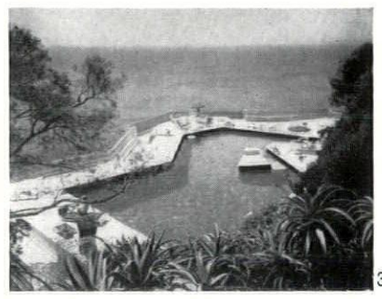

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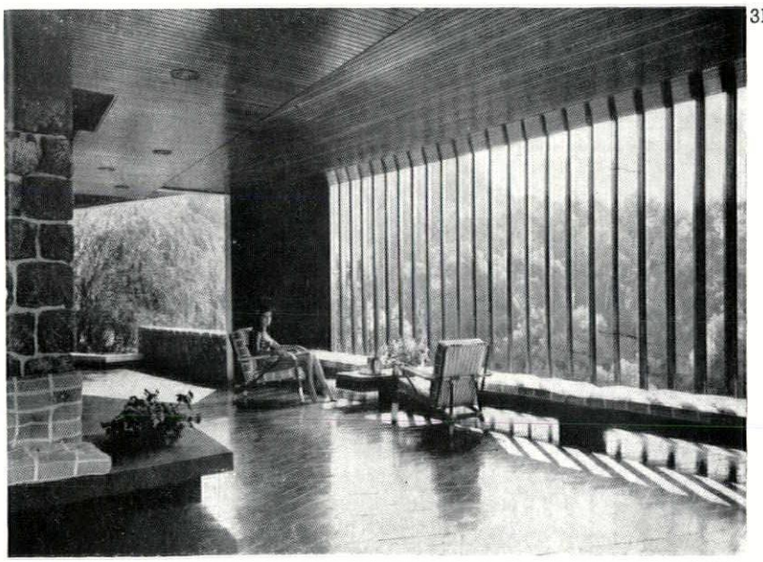


31

views and reviews

MARGINALIA

GOLDSMITHS' RELIGHTED

A redecoration of the Livery Hall in Philip Hardwick's Goldsmiths' Hall in the City of London (1835) has lately been completed by Mr. R. E. Enthoven. The Livery Hall is the main first-floor room at the rear of the building, and had been last redecorated by Aitchison in 1871 in dark colours, predominantly red and dark olive green, only the yellow of the scagliola columns and pilasters remaining of the original colour-scheme.

Apart from the removal of an accumulation of loudspeakers, spot-lights, blind-casings, etc., the restoration of clearer and lighter colours in the paintwork, curtains, etc., and the introduction of a plain band above the entablature in place of the elaborately stencilled band that had caused the cornice to become visually merged with the ceiling enrichment, the principal change by Mr. Enthoven is in the lighting.

The very successful new lighting is the outcome of lengthy experiment. Strip-lighting which had been placed round the frieze has been removed, making it necessary to increase the ceiling illumination. This has been done by introducing concealed indirect lighting in the chandeliers, which themselves have been given more subtle body-lighting to reinforce the light of the candles that are frequently used. Upward-throw reflectors have been recessed into the pedestals of the columns to more effectively illuminate columns, curtains and pictures. The dazzling bracket spot-lights previously used have been replaced by fittings inconspicuously inserted into the ceiling bosses.

1 is a general view of the livery hall looking north-east. 2 shows the effect of the upward lighting within the chandeliers, designed to give a soft illumination both to the crystal and to the coffered ceiling. 3, a close-up of ceiling and entablature, shows the effect of the upward lighting from the pedestals; also the plain band between cornice and ceiling-enrichment.

The main contractors for the redecoration were Trollope and Colls. Lighting consultants and contractors were Anthony Juer.

HOOK NEW TOWN

The fact that a project has been abandoned does not always mean that it will not have influence. This is certainly true of the London County Council's new town of Hook in Hampshire, the subject of a beautifully produced recent publication,* to which architects and planners will refer—and from which they should draw much enlightenment—for years to come.

Except for the Scottish new town of Cumbernauld, which should be given the credit for being the first in this particular field, Hook is the first British example of a town designed wholly and from the beginning in terms of the domination of motor traffic, and is a pioneer in other ways—especially in the close analysis given to population balance and growth, to family structure, employment and other social questions, before planning began.

The decision to abandon the project following strong local opposition was not taken until more than a year's work had been put into its design by a group of architects and planners at the LCC, led by Oliver Cox and Graeme Shankland; and this book not only illustrates their designs but elucidates the principles on which they were based and gives the results (in a useful series of appendices) of the concentrated social and economic research that accompanied them. Attached to the group of architects and planners were also economists and statisticians who investigated such varied subjects as industrial employment, changing housing needs, shopping requirements, the use of gardens and apportionment of costs.

Hook — like Cumbernauld —was conceived in more urban terms than the other new towns. Its designated area was 7,526 acres for a population of 100,000, and this included a generous area for playing-fields, allotments and public open space and even some 1,000 acres for agriculture, as well as 566 acres for industry. The housing layouts make it clear that, given intelligent planning, it is not necessary to build a high proportion of flats to achieve compactness. A wide variety of types of dwelling was provided, and the plans allowed over 70 per cent of the population to live in contact with the ground (i.e. in two- or three-storey houses or lower maisonettes), most of the remainder being in the upper

*The Planning of a New Town. London County Council, 1961. Price, 50s. Designed by Kenneth Briggs.



1



2



3

maisonettes of four- or six-storey blocks.

Circulation in the residential areas was by a system of pedestrian ways with primary schools and local shops grouped along them, but they differed from the earlier new towns in departing from the hitherto widely accepted neighbourhood planning system. Hook was designed to be surrounded by, rather than penetrated by, green space, with three outer residential areas (density 40 to the acre) but with 60 per cent of the population housed in a continuous system of inner residential areas (average density 70 to the acre) close to the main centre and integrated with it. As a result, two thirds of the population would have lived within ten minutes' walk of the central area.

The town centre, three-quarters of a mile long and a quarter wide, was planned with separate levels for pedestrians and vehicles. The central car-parking and service areas were to be built over, with shopping and other pedestrian streets at an upper level, which has the advantage of not isolating the town centre in a ring of car-parks, as has happened in Swedish new towns like Farsta. The residential areas at Hook were to have covered parking-space for one car per household, plus hardstanding for one visitor's car per two households.

DELL UNDER SCRUTINY

THE ARCHITECTURAL REVIEW has made two farewells to M. O. Dell; the first when he retired from active professional practice as the AR's photographer (with his inseparable partner H. L. Wainwright) in 1946, and the second at the time of his death in 1959. Such respect was fully justified for it is difficult to say whether the REVIEW made Dell famous, or he the REVIEW, for the kind of architectural photography that will for ever be labelled as the Dell-and-Wainwright style was a creation of both the photographer and the approach to architectural journalism that he was asked to illustrate.

Now, both the style and the man have come under critical analysis. The crisp, clear, contrasty style with the building sizzling white hot against a bottomless black sky has been attacked for its alleged pernicious influence on later British architecture, in a Third Programme talk by C. Fleetwood-Walker (who, however, singled out only Eric de Maré by name, as if unaware of the source of the style). M. O. Dell, and his career, as they appear to his fellow-professionals were also the subject of an extended study by T. I. Williams in the *Photographic Journal* for November, 1961. Some twenty-eight pages of text and illustrations allowed Mr. Williams to go into some depth in his account of Dell's career, from which it became apparent that—though a professional photographer for much of his life—Dell was far from being *just* and *only* a photographer, but shared many of the social and personal interests of the outstanding characters of his generation (which is the more typical, in retrospect: the Norfolk jacket or early involvement with the BBC?). At all events, the Williams study is an invaluable source for those who wish to understand the training and formation of one who (to put the Fleetwood-Walker estimate in its positive form) changed the vision of two generations of British architects.

THE SAYING OF THE MONTH

The Times Shipping Correspondent, 18th December, 1961, on the 'Transvaal Castle':

'The decorative treatment of different parts of the ship consists essentially of variations on one theme and that theme has British comfort and good taste. With its chintzes and wrought iron, its attractive shades of green, pink and beige, the result, without being daringly adventurous, is often imaginative and always pleasing.'

Readers are referred to the interior views of the 'Transvaal Castle' and her sister-ship, reproduced in Marginalia, November, 1961, where the saddening interior design standard maintained by the Union Castle Line and underlined by this quotation, was compared with more progressive standards recently set by Orient and P & O.

OBITUARY

HENRY MORRIS: 1888-1961

There is so much to describe—the beauty of his spoken and written word, his love of music, his love of colour, his intolerance of mediocrity, his scorn alike for the sterility of the British communists and for 'capitalists with faces like plates,' his high religious attitude to life with his scorn for the 'mumbo jumbo of orthodoxy,' his love for the singing in King's College Chapel, his love for the young family. 'My ambassadors for the future,' he said of my grandchildren not long before he died at the age of 73.

I first met him about 1920 shortly after his appointment as Secretary to the Cambridgeshire Education Committee—tall, handsome, gracious—he was already working out his ideas for the village college. His idea was to provide in one building a focal point for a community with an education centre for young and old serving a group of villages, offering facilities which no single village is big enough to provide. The Sunday walk with two or three friends and the pint of bitter in a village inn was usually the occasion for a monologue in which he developed his ideas. How magnificently they were expressed and how impossible it was to interrupt the flow to protest at some extravagance.

He had a remarkable ability to marshall his ideas and the arguments necessary to convince the various interests that his proposals were sound and practical commonsense. He was fond of pointing out the importance of drawing up full but concise memoranda. Later, as he began to put his ideas into practice, he came up against the status quo and narrow-minded commercial interests, and he became ruthless and exasperated. It was then that enemies began to appear.

I well remember shortly after I was married in 1924, Henry Morris was invited to meet Lord Eustace Percy, who was then President of the Board of Education. It was his opportunity to persuade the Minister to help and encourage the village college idea. He equipped himself with what he called an administrative collar, a stiff white one with wings, about which he complained bitterly. Our daily, Mrs. Curzon, had to help him tie his tie. That night he returned to our flat, furious and indignant that 'Lord Useless Percy' had not immediately recognized and accepted his plans. It was simply not good enough! Henry had that characteristic movement of his hand over his mouth as if to dismiss his enemy out of sight and out of mind as unworthy of further consideration.

At that time Henry Morris had shown little interest in modern art and architecture. His furniture was of the eighteenth century, with French impressionist pictures and Georgian silver candlesticks. Gay and powerful colours were beginning to be in evidence in his rooms in Trinity Street. I remember being rather surprised at the design for the first village college at Sawston. Though pleasant and competent, they could hardly be said to express a new and fresh point of view in rural education.

I do not remember the first time I heard him say that 'There must be no regrets for the past,' but it would have been around the late 'twenties and early 'thirties. He was then beginning to feel the need for an art expression, particularly for furniture and architecture, that was no longer dependent on a dead past, but a living present, looking to the future for its inspiration. Though he appreciated, more perhaps as an intellectual exercise, much of the best in the early modern architecture, he was, I think, puzzled at what he saw illustrated of the work of Walter Gropius and his colleagues at the Bauhaus. I don't think he really liked, for instance, the Lawn Road Flats as architecture, but he admired the logical solution of the problem of living that Wells Coates had expressed in the plan, and when he met Walter Gropius in these surroundings and again when they met in Cambridge, there rapidly developed a most powerful new influence.

'No regrets for the past' became a very definite and more frequent epithet. Meanwhile his own difficulties were increasing, and although he was anxious to have Gropius design the next village college at Impington and although he was more than ever insistent on the importance of the visual and the physical surroundings as a powerful civilizing influence, he seemed almost at a loss to find the way through. Opposition was growing in the county, and he finally came to the conclusion that the only way to persuade his Committee that they should take advantage of the presence in England of Walter Gropius was to find someone or some group to offer to pay his fees.

His Committee had probably never heard of Walter Gropius anyway, and if they had, few would either have understood or liked his work. Hesitation nearly lost the chance. We had just three weeks to find some £1,200 (a lot of money in those days), but within a fortnight we had together collected just over half. He then had no hesitation in sharing the final responsibility for guaranteeing the remainder, which incidentally took several years to complete. The decision once made, and his Committee having accepted the proposal, his delight was wonderful.

Impington solved through its great corridor many of Henry Morris's problems in seeking a building in which his educational theories could be realized. It was the centre and passageway through which young and old would meet and pass. It helped to make the whole significant. (Henry Morris was fond of saying it was important to 'significate.')

It was one of his great disappointments that Henry Moore's family group now in a school at Stevenage did not in fact find its way to Impington. I believe the first ideas for this group were worked out for Impington to express in visual terms the continuing importance of the family in the whole village college idea.

It is impossible to express in words the great debt we owe to this remarkable man. He has had an indelible influence on many and his loss is felt deeply.

J. C. Pritchard

JOSEF HAVLICEK: 1899-1961

Josef Havlicek, who died in Prague on December 30, was best known outside Czechoslovakia for the Pensions Building in Prague, 4, which he designed in partnership with Karel Honzik. Completed in 1934 and standing high up, dominating a central quarter of the city and faced with white glazed tiles, it was one of the first large office blocks to adopt the open cruciform plan.

It was a pioneer in its day, as



4

Havlicek was one of the pioneer Czech architects of the modern movement. His principal post-war work was a group of point-blocks in a large housing scheme at Rozdelov, near Kladno. He was one of the international group of architects who advised on the U.N. secretariat in New York and he produced one of the most interesting schemes in the Toronto city hall competition.

A. E. DOYLE: 1886-1962

The Editors of THE ARCHITECTURAL REVIEW regret to have to record the death of Albert Edward Doyle at the age of 76. He was assistant editor of the REVIEW in charge of production throughout the 1930s and was a patient, knowledgeable and meticulous craftsman from whom the present editors learnt much.

CORRESPONDENCE

GENTLE, NOT GENTEEL

To the Editors.

SIRS,—With reference to Mr. Ian Nairn's article in your December issue, I would like to correct the statement that the Queen's Head, Newark, is a new building. Your photograph shows the restored building which was originally built, as

far as can be ascertained, in the early seventeenth century, and nearly all the original timbers have been preserved; the roof timbers are in fact the original timbers.

The small building at the rear of the yard is almost in its original form, and is probably sixteenth century.

Yours, etc.,
JAMES A. TADMAN.
Newark.

Ian Nairn writes:

To be pedantic about this, which I don't enjoy, I said that Queen's Head *Court* was a rebuilding. I have seen too many schemes like it not to believe that the two buildings Mr. Tadman illustrates have their pickled bones left over from the sixteenth or seventeenth centuries. I should have said this in the article and I apologize.

But, alas, the fact thus reiterated makes the matter worse, not better. This kind of thing is exactly what happened to churches in the nineteenth century, with results that we all now deplore. It is a case of preserving the letter—and throwing away the spirit. The comparison of before and after



5



6

5, the original Queen's Head, Newark, and, 6, after restoration. See the letter from Mr. James A. Tadman.

shows just those tiny touches by which a genuine half-timbered building has been made genteel. Tiles instead of pantiles, over-cosy leaded windows, over-cosy ground floor. The 'before' was an honest working pub in an honest working town: the 'after' is a bit of Disneyland.

I have just had an identical argument with an architect who is going to do the same sort of thing with the oldest pub in Southampton. Both he and Mr. Tadman are killing with kindness more surely than if they got hold of dynamite and blew the places sky-high. It is not the same with the Grasshopper at Westerham (also illustrated in my article), which was done by an amateur who likes old bits and pieces; architects have eaten of the tree of knowledge, and the innocence has gone. It is as though Blake had become an archaeologist and found out the dry facts about his semi-Celtic mythologies.

Surely, the architect's elementary responsibility is for sympathy and understanding of the essences of things—social, functional, aesthetic. And that is why my disagreement with what Mr. Tadman has done in Newark is so vehement and fundamental.

EXETER ROOD SCREEN

To the Editors.

SIRS,—May I suggest an addition to Dr. Bock's net-vault typology in his article in your November issue. The pointed tunnel-vault formed by two-bay diagonal ribs occurs, earlier than in Exeter rood-screen, in the aisle vaults of Bristol cathedral, which are a series of transverse tunnels built on this pattern in its simplest form. The Bristol example reinforces, of course, Dr. Bock's west-country argument.

Yours, etc.,
ELIZABETH GREAVES.
Chingford.

BOOK REVIEWS

CAPITAL OF BYZANTIUM

THE ART OF CONSTANTINOPLE. *By John Beckwith. London: Phaidon Press. Price, 32s. 6d.*

One is not mistaken in anticipating from the title alone of Mr. Beckwith's little book that common sense once more prevails in Byzantine studies. In the heroic, or Strzygowskian, age it was an article of faith that the Capital was a taker all the time, and that its activity as a giver was confined to issuing orders and footing the bill. Impulses, experiments, ideas, motifs, themes, and techniques came from Armenia, Persia, Mesopotamia; from the desert monasteries of Syria and Egypt, from distant Tartary and the even remoter fastnesses of the Varangian North: hardly ever from such obvious places as Antioch or Alexandria; and never, never from Rome or Milan or Ravenna or Thessalonica. In short, speculation raged about the ultimate ancestors and curiosity remained silent about the immediate parents.

To the temptations of such genealogizings Mr. Beckwith remains admirably indifferent. Constantinople was the capital of the Empire for a thousand years; and to this prodigiously impressive fact he constantly directs our attention. But he has no illusions about the preponderant position of Constantinople during these ten long lurid centuries: in this splendid story of continuity chance has an important share. As he succinctly observes: 'The victories of the Goths and Vandals in the West, the calamities produced by an earthquake (i.e. at Antioch in AD 525) and by the Persian and Arab invasions, the switch of Islamic power from Syria to Mesopotamia, the creation of an Islamic style relying upon calligraphy and vegetable and geometric arabesque, all combined to isolate Constantinople as the preserver of the traditions of the Greeks and the Romans. Moreover, when the city was besieged by the Arabs in 717, the victory of the Emperor Leo III, which decimated the Muslim army and destroyed the fleet, should be seen as one of the crucial events in medieval history. From this moment the city was to be more than the eastern bulwark of Christianity; it was to become the heart and conscience of an orthodoxy which was aware of the need for a balance of power in the Middle East. This awareness, increasingly harassed by the advent of the Seljuk Turks and constantly under pressure from the Slav peoples on the northern and western frontiers, was never understood by the West, and when they destroyed it, spurred on by envy and cupidity, it was only a matter of time for Islam in one form or another to overrun the Eastern Empire.'

The essentially conservative, even preservative, nature of Byzantine civilization has never been more concisely summarized. But the application of this principle to the history of Byzantine art is not quite so simple or self-evident as Mr. Beckwith makes it out to be. In recent times at least, it is not the Hellenizing elements in Byzantine art that have attracted most attention or excited most admiration, but rather those elements which are precisely new, or non-antique, in the strict sense. Any book on Byzantine art written from the point of view of the connoisseur, or man of taste (such as the two volumes which Hayford Pierce and Royall Tyler compiled from their great photographic archives at Antigny) tends to dwell upon the oriental character of the enamels, the gold ornaments, the crystal vessels, the silk textiles, the porphyry and the serpentine in which their visual and tactile sense delighted, and to brush aside those ivories and those miniatures in which the survival of Greek form is most conspicuous. 'A complacent, facile manner has been greatly admired because of its claims to relationship to the antique . . . a passe-partout formula standardized into types and grown fairly tedious:' such are the disparaging terms in which Pierce and Tyler refer to objects such as the Vatican MS. gr. 699 or the Harbaville triptych which for Mr. Beckwith are among the masterpieces of the Macedonian 'renaissance' *just because* they preserve such important elements of antique style.

No doubt a reaction against the 'Magian' fashions of thirty years ago was only to be expected; but has Mr. Beckwith really added to our understanding of what Byzantine conservatism really implies? For example, his treatment of the crucial Paris Psalter MS. gr. 139 has a certain glibness which may entirely mislead the innocent beginner in Byzantine studies, for whom, after all, this book is intended. Mr. Beckwith writes: 'The miniature showing David playing the harp . . . *would seem to be an almost direct copy from a late antique model.* The original *presumably* represented Orpheus charming the beasts but *there seems every reason to believe* that there were *intermediate stages* during which Orpheus *changed into* David. . . . More than one scholar has argued that this beautiful miniature is an *original* of the Macedonian Renaissance built up from a combination of different elements, but the opposing view that a pre-iconoclastic model has been directly copied *seems more acceptable*.' The critical reader can only ask why: what is a 'pre-iconoclastic model'—a work of the sixth century, or of the fifth, or of the fourth? And what of those 'intermediate stages' during which the 'presumable' Orpheus changed into David? Really Mr. Beckwith cannot have it both ways: either this tenth century miniature is an *almost direct copy* of a *late antique model* (and then Mr. Beckwith must decide of what period); or there have been *intermediate stages* during which a major iconographical change is assumed to have occurred, and if so, then why not at least a comparable stylistic change as well? The critical reader is entitled to a straight answer in such matters. This attempt to skate over the central problem of all so-called 'renaissances' will not do in this day and age. We have reached a point of art history at which we are compelled to face the ultimate question: 'What did the "renaissance" artist see, or think he saw, in any given "antique model," and why?' And if we cannot decide, we must admit it. Mr. Beckwith does not face this question, and hopes to cover the fact by all his 'would seems' and 'presumablies.'

None the less, the book is good and useful: its bibliographical apparatus is thorough and up to date; its characterizations of individual works are often vivid and memorable; and its presentation is agreeable. And, once more we may repeat it, a book which makes a virtue of the preservatism of Byzantine culture is a wholesome antidote to the literature of the last generation, which sought to represent it as valuable only in so far as it paid tribute to the fashions inspired by Persia, Armenia, or Mesopotamia, Ctesiphon or Damascus or Baghdad or Cairo.

Roger Hinks

A4 SPECIFICATION

SPECIFICATION 1962. *Editor, F. R. S. Yorke. Assistant Editor, Penelope Whiting. The Architectural Press. Price, 35s.*

In accordance with custom, the volume has had its annual revision and the process of keeping abreast of modern development shows first in the page size. This has been reduced to conform with A4. The article on Sound Insulation has been thoroughly revised and rewritten by Stanley Meyrick. This new item is both readable and informative, information being related to, and directly aimed at, the architect's needs. The section on Footpaths has been revised and transferred from Roads to Landscaping. This section also includes information on playing-fields and running-tracks obtained from the National Playing Fields Association. In general revisions have been made with a view to keeping text, clauses and information up to date, adding all the newest data available and making the task of reference easier and logical. The task is of mammoth proportions and the editors are to be congratulated on their diligence and on having kept this book in its place as an essential tool for the busy architect.


ONE WAY
MERKIN
Paints
THE CHOICE OF
GOOD PAINTERS!
W.45 ST

Building as sky—Christopher Hill's dramatic photograph, opposite  , *of an older, small-scale New York roof-line silhouetted not against the sky but against the regular, gridded facade of the* Time-Life *building, Rockefeller Centre, typifies a townscape effect that is becoming increasingly common as giant slabs invade the skyline of cities all over the world. The effect of such newcomers to the London scene was considered in last month's AR with reference to Notting Hill Gate, and this issue also, pages* 190–196, *in Graeme Shankland's appraisal of the South Barbican office towers.*

Nikolaus Pevsner

MENDELSOHN BY HIMSELF

A volume of the late Erich Mendelsohn's letters, mostly to his wife, has just been published in Germany. On these pages Professor Pevsner discusses the new light they throw on the man and his work and includes extracts from the letters in his own English translation. The article coincides with an exhibition at the Royal Institute of British Architects—open until March 16—of about a hundred Mendelsohn drawings illustrating his career in Germany, Britain, Israel and the USA.

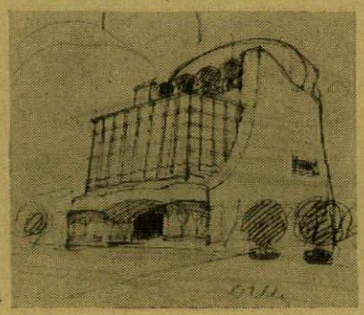
Erich Mendelsohn married in 1915. His wife was a musician; their most enduring passion was Bach. They were happy together, and he still wrote to her in a letter in 1953: 'To think of you, your understanding and your confidence, to know that you are there, is support and reward.' He wrote this in German of course, and Luise Mendelsohn has now sanctioned the publication in German of his letters, mostly written to her.* They range from 1910 to the end, and they reveal Mendelsohn as a man and artist largely through his reaction to others.

As for himself, here is the very first sentence (my translation) of the very first letter, written when he was twenty-three from Allenstein in East Prussia, where he was born: 'You will be aware of the fact that every work of art is the outcome of a personal sense of rhythm,' and this comes again, when he lived in Munich early in 1914: 'It is the will of the artist that gives its personal character, its spirit and charm to a work, i.e. the form in which the tension between the soul of the individual and the universe takes place, between man and god, between the concrete and the abstract, the physical and the metaphysical.' No wonder he could appreciate Kandinsky and Picasso as early as 1913.

Mendelsohn's 'personal rhythm' animates the extraordinary sketches of buildings designed for no specific function which he, like Sant'Elia, made in his early years. The collection of letters has several which one had not seen before, in spite of Mr. Whittick's and Dr. Banham's books. The letters tell us nothing of any inspiration from Sant'Elia, and so that problem is left where Dr. Banham had left it. Dr. Banham refers to Olbrich in this context, and his portal of the Darmstadt Exhibition hall of 1908. He proves right with Olbrich, but is not as right with 1908. In one of the letters which will be fully quoted presently Mendelsohn, at the end of long passages of praise of Frank Lloyd Wright, calls Wright 'father of the new forms suited for modern life' and adds: 'Olbrich and

* Erich Mendelsohn: *Briefe eines Architekten*. Edited by Oscar Beyer. Prestel-Verlag, Munich, 1961 DM. 12. 80.

he. Early Olbrich with his vision of trusses, Wright with the spatial structure of our time. But Olbrich was soon to be broken by life at a court and his own facility.' Sketches for the Sezession of 1898 and the exhibition pavilion at Darmstadt of 1901 are



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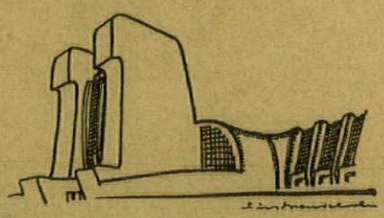


2

1, *Preliminary sketch for the* Sezession—*drawing by Olbrich.* 2, *a drawing by Mendelsohn.*

indeed fully convincing as a source for Mendelsohn.

One has always been instinctively led back to Art Nouveau to explain his expressionism. Indeed he acknowledges Obrist whom he visits in 1914 and finds 'entirely lonely, deserted and misunderstood by all his contemporaries' as one of the pioneers of his own *Formwille*, and in his criticism of the celebrated Werkbund Exhibition of 1914 he writes: 'Behrens is a complete failure. This retrograde step after his Turbine House proves almost that this had been an accident, perhaps born only out of the constructive genius of the engineers. . . . My master, Theodor Fischer also a complete failure. . . . Hoffmann, in spite of rhythmical impetus, remains transfixed by the Greek temple . . . Gropius with his factory seeks the new. . . . A seeker for new forms also van de Velde with his theatre. Concrete in terms of Art Nouveau, yet strong in idea and formal expression.'

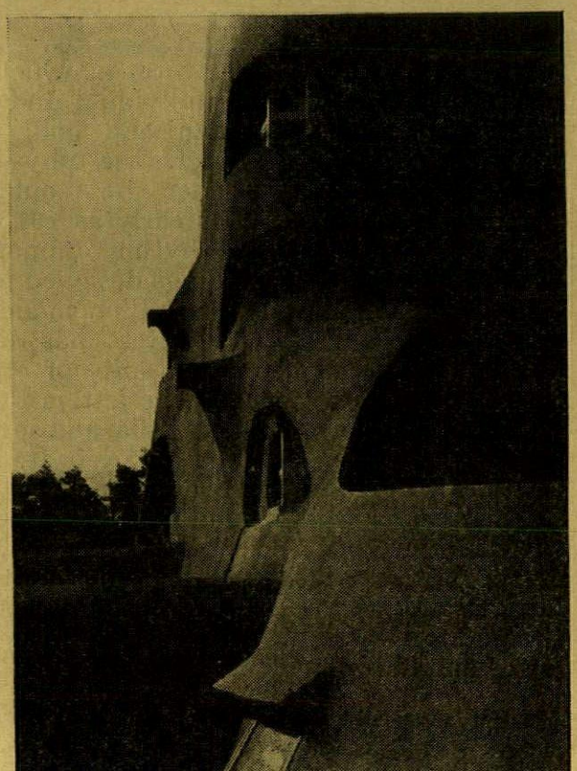
On Hoffmann Mendelsohn had said even earlier, *à propos* his future wife's sensitive remark that the Palais Stoclet seemed to her like a piece of furniture: 'It must have that effect, because it has been thought out by a strongly *kunstgewerblicher* (i.e. arts-and-crafts) spirit, a decorative spirit.' Young Mendelsohn is as worth while on Tessenow ('natural simplicity' but no grip of the 'decisive premisses'), on Poelzig's Great Theatre ('fantastic spatial effects . . . only occasionally a weak curve . . . the circular foyer very beautiful and nearly everywhere big in its details. . . . The whole interior felt concrete, while the exterior can't get away from pilaster strips and S. Maria della Grazie in Milan'), and on Berg's *Jahrhunderthalle* ('This hall is wonderfully conceived and has all the qualities to overwhelm. . . .' 'These rocking steps of pillars and windows, this transparent unity (has) a greatness as it had been only achieved by Greek temples. In both the same unity in transparence. . . . Here is the vision of our time. . . . This hall is a witness that we are on the right way to a new art, a new culture').

Berg and van de Velde and Olbrich together may well be sufficient explanation of Mendelsohn's visionary style as it took shape in the sketches of the war years—he calls them tellingly 'fixed outlines of visions'—and found just once a full realization in the Einstein Tower. The letters show that this was already conceived in 1918 (letter of July) and that a visit to the Zeiss factory in 1920 proved the coincidence of his 'optic vision' with the 'technical premisses' of the engineers' job.

Mendelsohn came first into the open thanks to that fabulously sharp-eyed publisher and art dealer Paul Cassirer who gave him an exhibition in 1919 called Architecture in Iron and Concrete. In concrete Mendelsohn found his natural material, and this is what he writes about it already in 1914: 'Every material, as all matter, has fixed conditions beyond which it cannot be strained. As a material demands a form which makes full use of its technical potentialities, so an architect, creating consciously or intuitively, will choose the material in which he can realise best his will to form. This is truer today than ever, because we are no longer tied to local materials, but can obtain any at relatively low cost. Nothing betrays dilettantism more than to replace forms determined by ideas inherent in certain materials by others contradicting them. That is cheating, and art and truth is the supreme law. Only times of low civilization kept away from simple truth and preferred to show off and deceive . . . see the Hall of Concrete by Kreis at the Leipzig Building Exhibition, a Roman Pantheon. . . . Iron in conjunction with concrete is the material of our new style. Its static potentiality of being responsive to both tension and compression is going to lead to a new logic of static laws. . . . The relations between load and support will have to be re-interpreted, as now that which had to be supported, supports itself.'

'Style has the goal,' another letter states, 'of achieving an absolute unity between utilitarian form and aesthetic form.' In the light of this conviction put down already in 1915, Mendelsohn judged Oud and the School of Amsterdam in a particularly interesting letter of 1923: 'I just arrived in time to hear in Oud's lecture his attitude to Berlage. The historical importance of this leader, acknowledged by both sides, I only now fully recognize. Berlage broke consciously with classical eclecticism. End of romantic-

3, *Mendelsohn's Einstein Tower.*



ism, re-recognition of the true elements of building. He was the first in Holland and apparently in Europe. I don't know his decisive buildings. His Exchange is a great *tour de force*, even if in the details not yet entirely free from historicist ballast. His office building in London marks, according to Oud, Berlage's return to his own original purity. Berlage must therefore have misjudged himself in the years between. I don't find the building sufficiently Dutch, sufficiently Berlage. It is no more than a variation on a theme meanwhile invented and often varied (Wertheim). . . .'

'Amsterdam (here Mendelsohn reports Oud's lecture) is faithless . . . loses itself in a manyfold modern playfulness. Only the simple can be understood collectively, the individual in the end remains insignificant.' Here I see an understandable political error of Oud. Oud is, to use Gropius's words, functional, Amsterdam . . . is dynamic. A unison between the two is conceivable, but not recognized in Holland. The first presupposes *ratio*—understanding by analysis, the second *irratio*—understanding by vision. The analytic Rotterdam brain denies vision, the visionary Amsterdam does not comprehend cool *Sachlichkeit*. . . . Both are necessary; they must find one another . . . or else Rotterdam will construct itself out of all life into cold death, Amsterdam dynamize itself until it burns itself out glamorously. The decorative talents of Amsterdam are certainly a danger. Wijdeveld never gets beyond them, but de Klerk has a genuine spatial talent.'

These comments were made at one of those meetings of architects and artists which mark the agitated years after the war in Germany, and of which Dr. Banham has told us so much. It was in these years that Mendelsohn became a successful architect, whereas Gropius, only four years older, had made his name before the war and already then established a rational style to which he could return after the intoxication of expressionism. Mendelsohn was only twenty-seven when the war broke out. When it came, he called it 'madness' (August 1 1914), its prolongation beyond mid-1917 he called 'madness' again, and already in 1914 he was aware of a contrast between the Jewish race and the German, the one he calls in architectural terms 'broadly spreading, with much fatalism, the other—he calls it 'Aryo-Germanic'—'vertical, Gothic, hopeful, invincible.' 'Contrasts of race can never be wholly blurred over. Every contrast carries the causes of hatred . . . I don't believe in a fraternization which is against nature.' He had hoped that defeat would lead to a *Verinnerlichung* in Germany and was disappointed. He was equally disappointed in 'the Russian fiasco' after having believed in the revolution of 1918.

He visited Russia in 1926, as Gropius did in 1932, and Gropius also, Mendelsohn writes, came back 'greying and shaken by what he had seen and experienced. The great idea crushed in bureaucracy, the great *élan* led into wrong channels, Bolshevism as fulfilment and destroyer of socialism.' The journey that thrilled Mendelsohn most was that to America. His familiar book of photographs is witness of that, but now we know more from the letters. The most interesting pages are those referring to Frank Lloyd Wright. He first saw the Larkin Building at Buffalo. 'It is not large, but it is a peculiar thing about monumental buildings that their effect exceeds their real dimensions. Built eighteen years ago, it is a very great achievement. For us now the exterior may still be or already be a little melodramatic . . . (but) the severe discipline of the building receives the ornament readily which is completely static, i.e. structurally felt. . . . No secrets, no loss of clarity . . . all stone and iron down to tables, chairs, lamps and cupboards.'

Then he went to Taliesin, and reports that Wright called him 'the only European visitor who went to see him and really found him.' Mendelsohn recognized the *acteur* in him, but says that in spite of his attitudes he can be entirely simple and genuine. Mendelsohn also recognized Wright's development—four stages, he writes, even the first already of houses 'sharply pulled together,' the second still with visible roofs, but with window strips, horizontal movement, counterpoint, and with plans some axial, some free. The third stage, that of the Larkin Building, he calls the way to the conquest of space, the fourth the conquest achieved. 'Proportions go human, details flower wonderfully richly, space, relations to nature, materials, colours, all in masterly discipline. This is genius.'

He was in America in 1924. The next years saw Mendelsohn's own most masterly stage: the Schocken stores and the Columbus House.

No letters from England have survived at all or have been judged necessary or advisable of publication. His partner's, Serge Chermayeff's, name recurs nowhere. Mendelsohn stayed for less than five years. In 1941 he went to the United States and spent the rest of his life there—less successful, as the letters imply. He saw Wright again, now aged seventy-eight, 'with the splendour of eternal youth. . . . Every word genuine, no empty gesture, no acting. . . . His most recent things—I say it in all humility—come close to my first designs. This is a challenge to which I must respond in the next twenty years of my life.' He wrote this only about five years before he died.

In the year of his death, Mendelsohn laid down in the *Forum* his credo: 'the static principle of elastic homogeneity derived immediately from nature' and 'unity of form made possible by the elastic qualities of steel and reinforced concrete,' and he added that Wright's Johnson Wax Factory, Nervi's exhibition halls, Niemeyer's double theatre for Rio, Torroja's grandstand at Madrid, Candela's Institute for Radiation Research 'show in structure and form the conception of elastic coherence which is that of my early sketches.'

So he knew before he died that he had come back, and that he could count on acclaim, when he wrote this of Mies van der Rohe: 'He has found his formula and seems to intend to remain faithful to it to the end . . . a rigid system of principles which will quickly and painlessly kill the new hope of a free humanity . . . Prussian severity without Schinkel's charm, a clear sky without the sun, and as dead as Julius Caesar.' Did he not here make the same mistake that he had blamed Oud for?

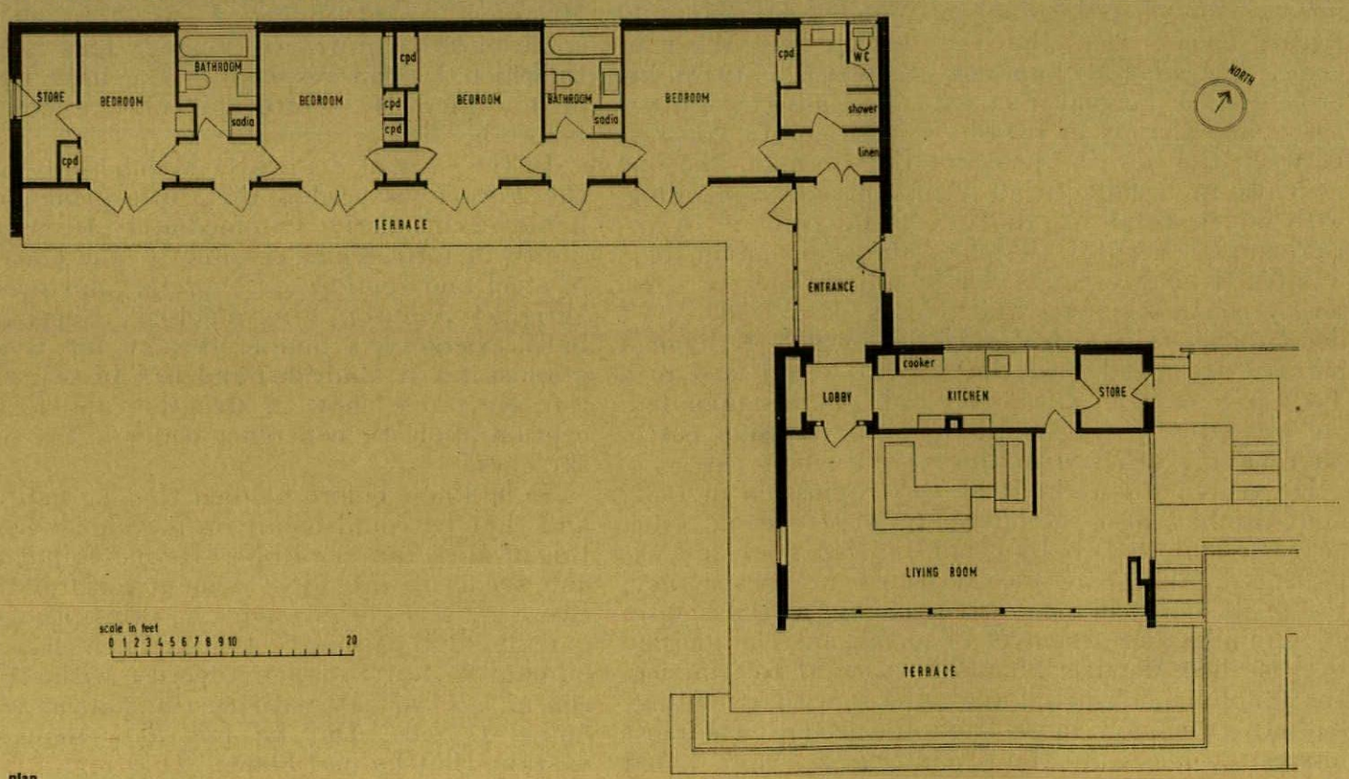
HOUSES ON THE BEAULIEU RIVER

1 ARCHITECT MICHAEL PATTRICK

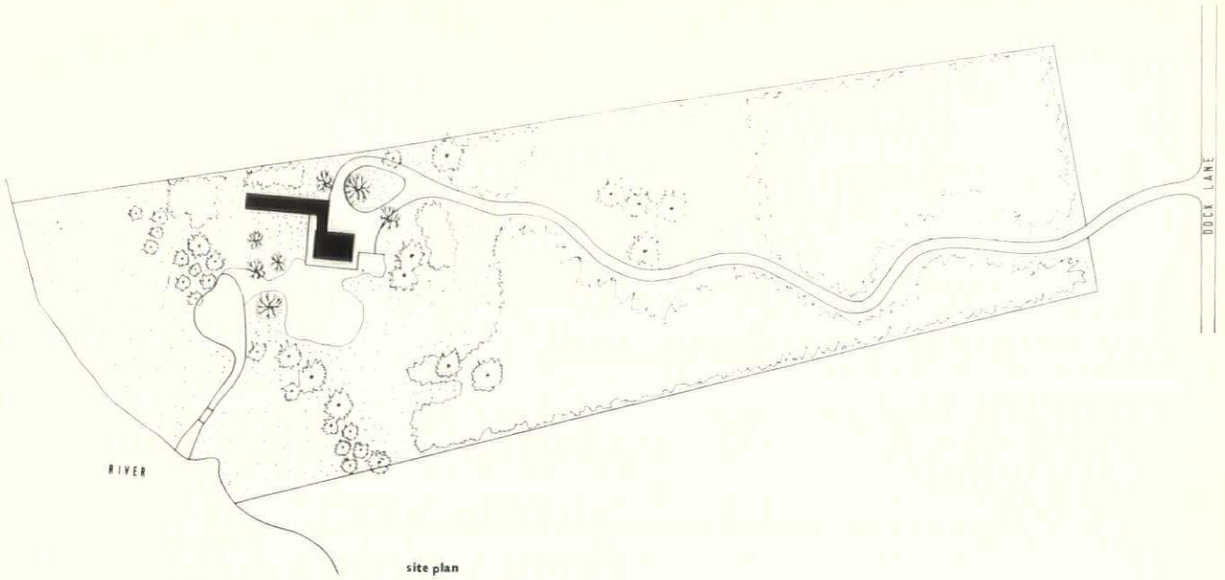
The site, of about five acres, is very densely wooded and slopes down towards the Beaulieu River. A minimum number of trees was felled to provide a view of the river, and the low-lying part of the site was excavated to form an artificial lake, fed by a short canal that joins it to a river inlet. A sluice provides for draining and changing the water in the lake. Part of it has been further excavated to a depth of 7ft. to create a swimming pool.

The house has been designed for weekend and summer use only, and the cost had to be kept to the minimum. It is all on one floor, with a single large living-room, having a sunken area round the fireplace. The fully glazed south wall of the living-room opens on to a terrace fronting the lake and the view towards the river. On the other side of the living-room is the kitchen, etc., and the entrance lobby, which has the form of a glazed link connecting the living-room with the separate bedroom wing. Here the bedrooms are planned in pairs, each pair having a bathroom and a lobby from which there is direct access to the living area by means of a covered verandah.

Construction is brick cavity walls and timber roofs, the walls being rendered outside and in. The doors and window frames are varnished Parana Pine and the ceiling is in grooved acoustic fibreboard. The main beam over the living-room window is a composite plywood construction with steel intermediate supports. All services are electric and the lighting over the sunken part of the living-room is of the low voltage type concealed above the suspended ceiling. The external paved areas are gravel or natural York stone.



plan

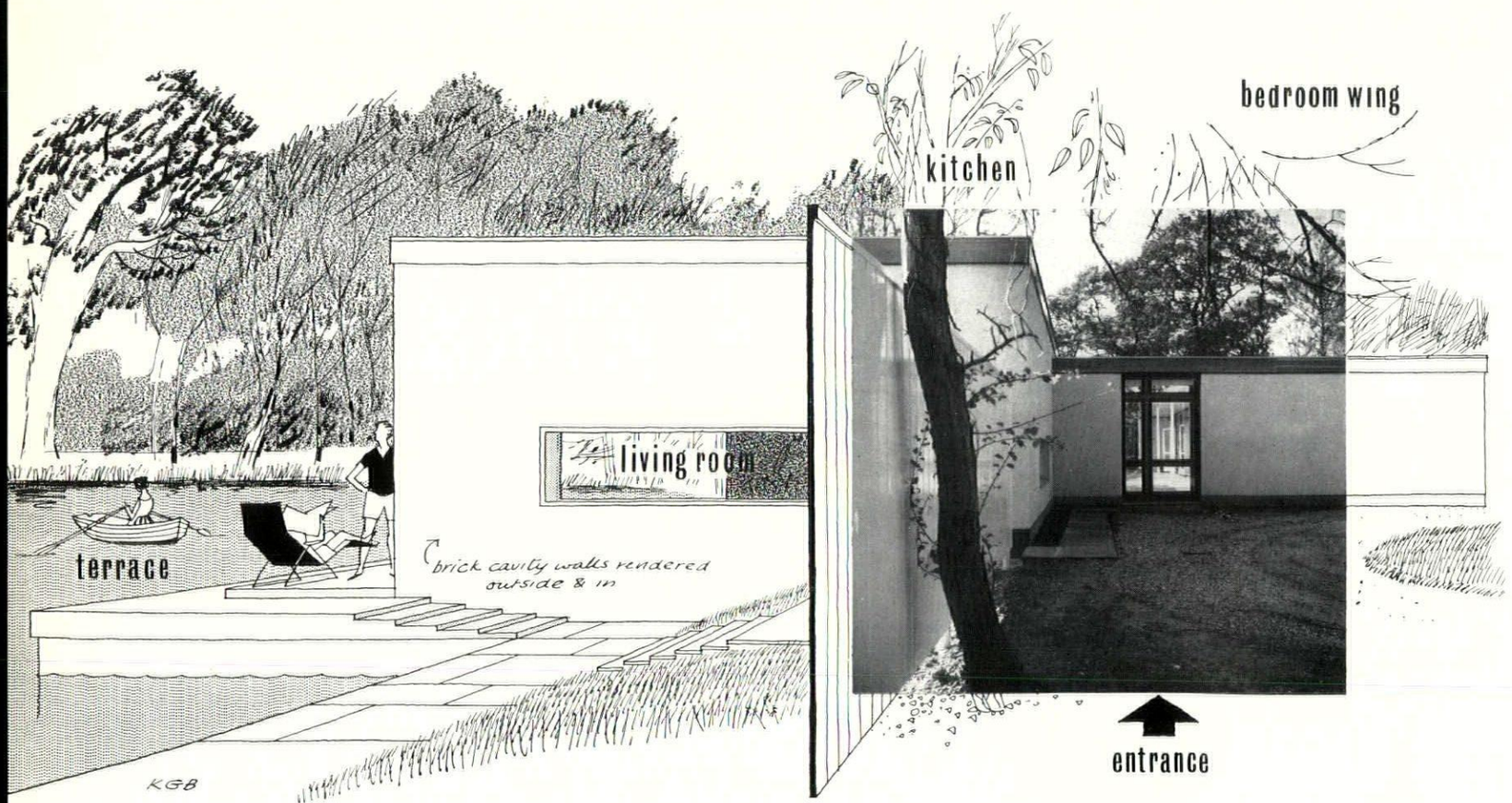


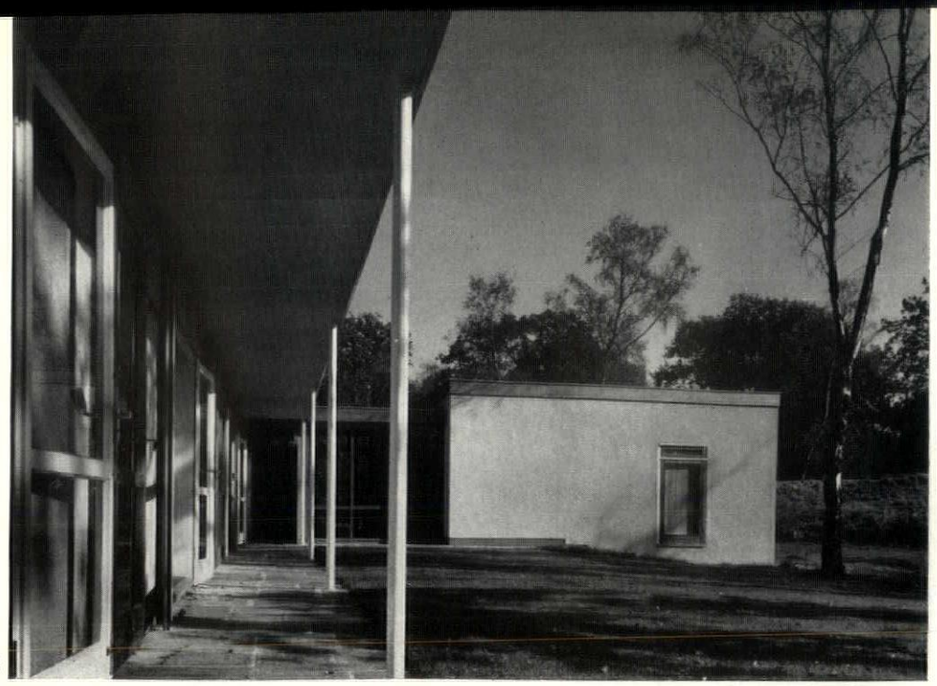
site plan

1, from the south, with the bedroom wing on the left.

HOUSE ON THE BEAULIEU RIVER

2. from the east. The drawing below is from the north-east, looking towards the entrance link.





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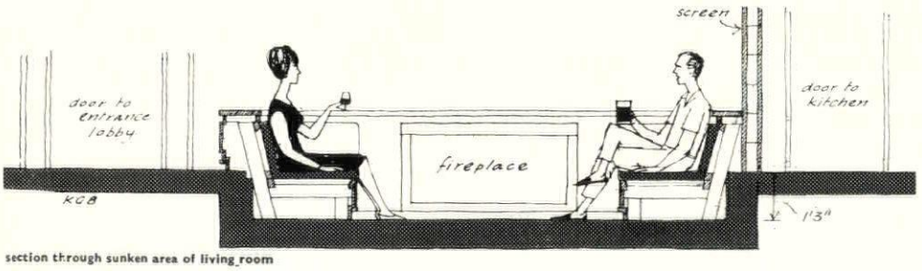
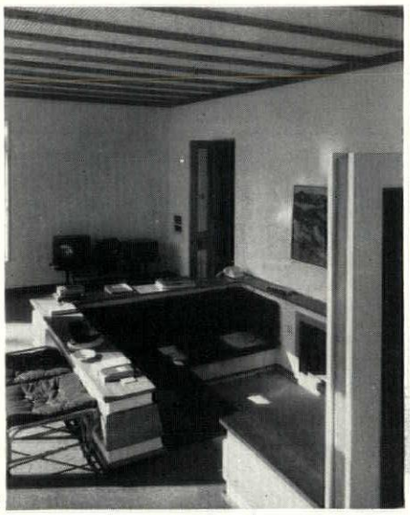


section through sunken area of living room



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4

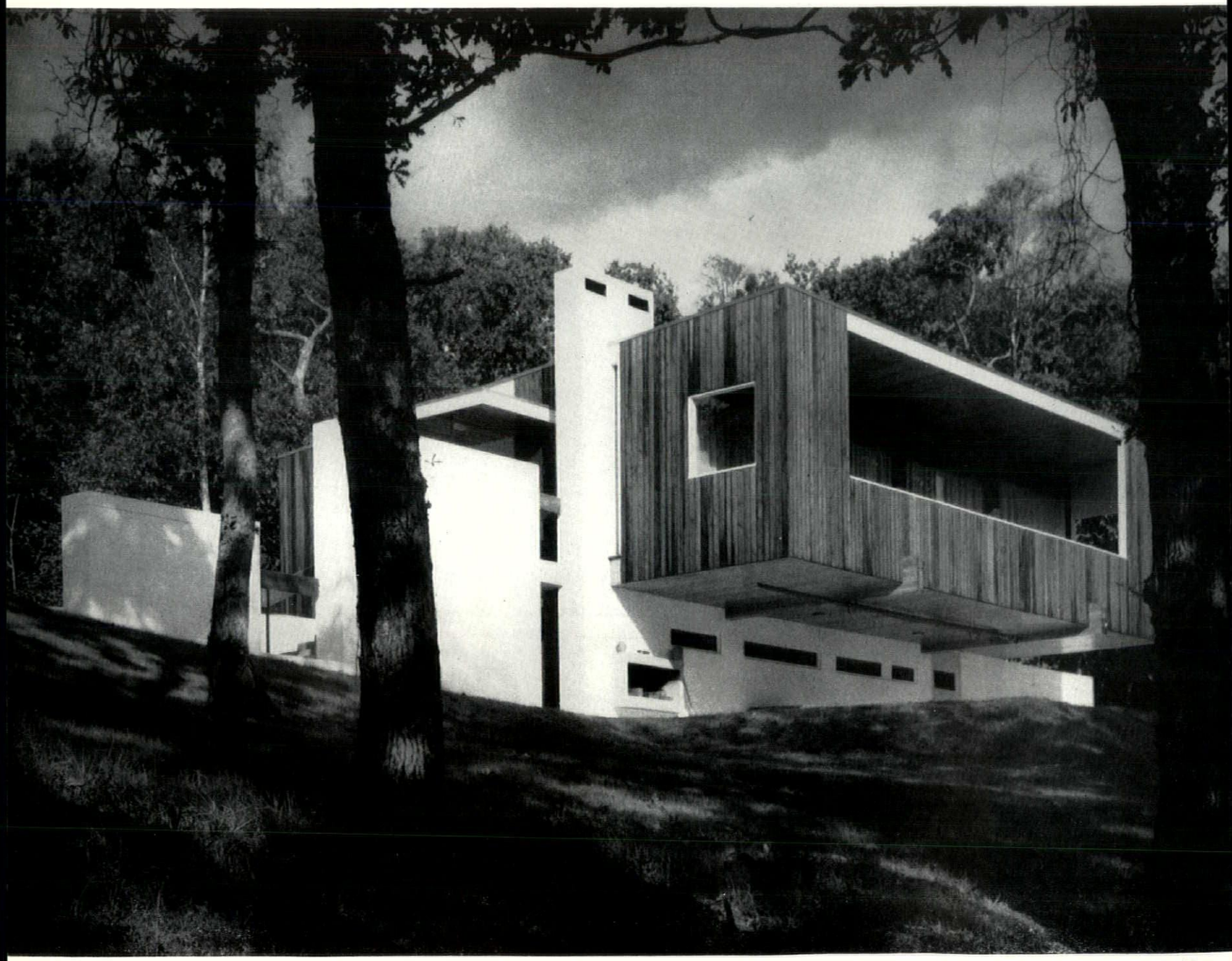
3, looking along the terrace outside the bedroom wing. 4, inside the glazed entrance link, looking through the living roof towards the river. 5, the sunken seating area in the living room (see also section above left).

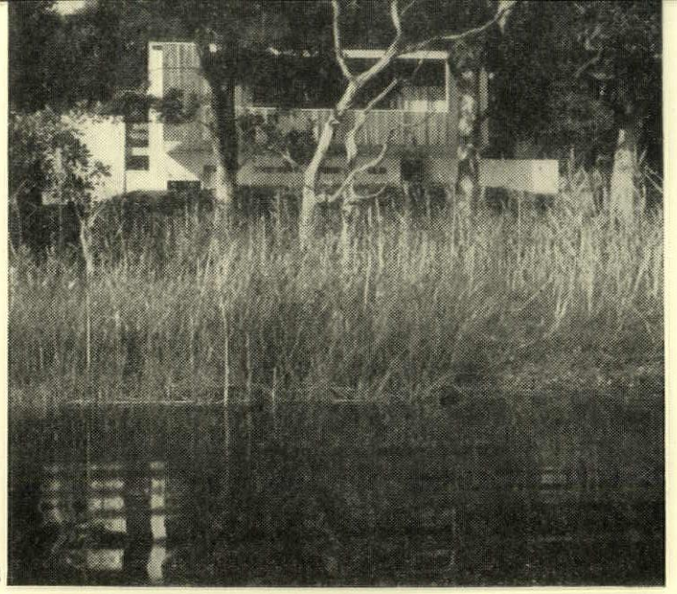
photographs by H. de Burgh Galwey

HOUSES ON THE BEAULIEU RIVER

2 ARCHITECT SIR BASIL SPENCE

1, from the south-west. The entrance is on the left.





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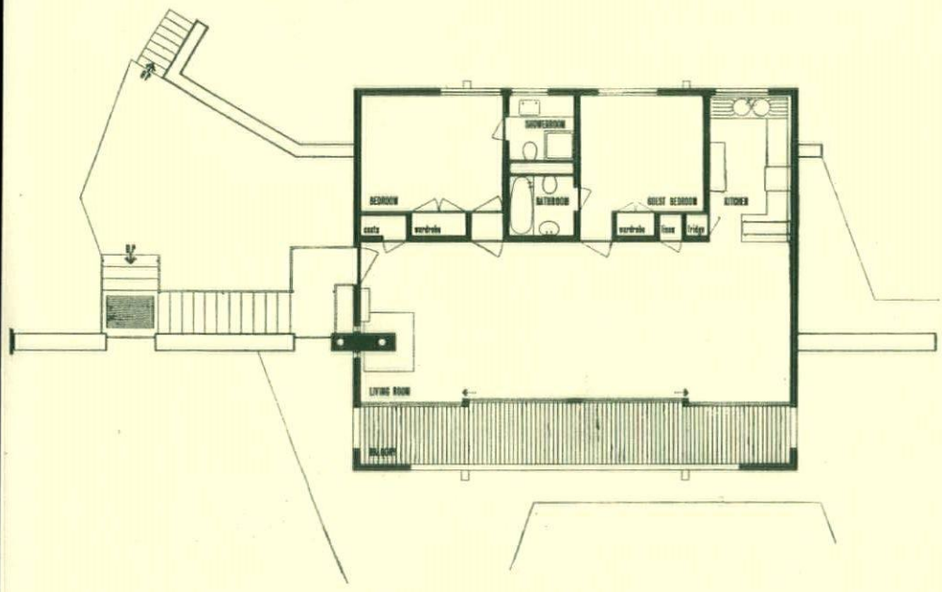
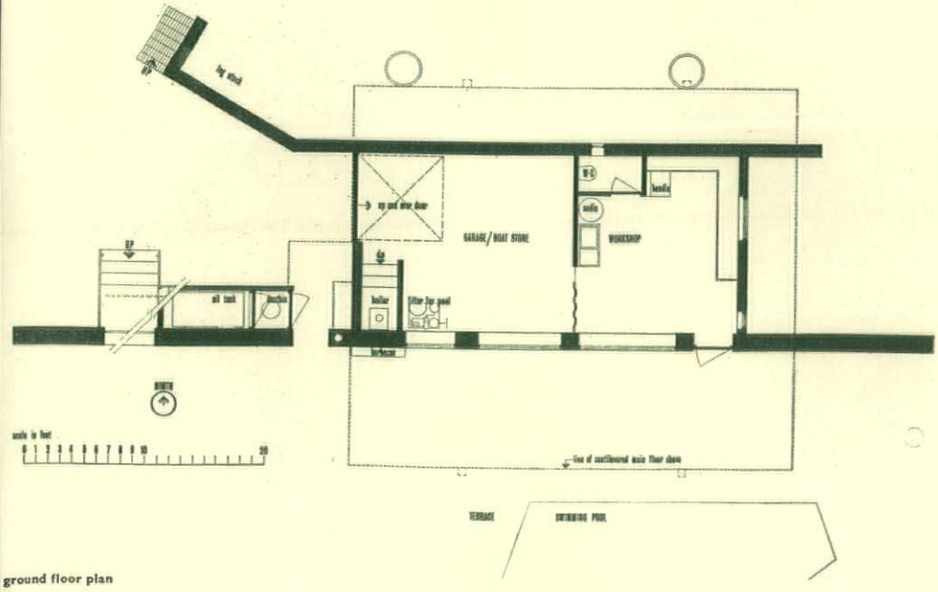


first floor plan



ground floor plan

The house, for the architect's own use, is sited on a three-acre plot of dense woodland, mostly oak, on the banks of the Beaulieu River, sloping gently to the south with a view of the river as it winds towards Bucklers Hard. Though all fully grown trees were preserved, some large trees had been felled before the site was bought. This formed a suitable clearing for the house, as at this point the ground slopes more steeply to the water's edge. By having this natural elevation and by placing the living-rooms on an upper floor, it was possible to see several bends of the river through the trees. The ground floor is devoted to the working part of the house—heating plant, laundry, workshop/changing room and filtration plant for the pool, switches and a boat-store-cum-garage.

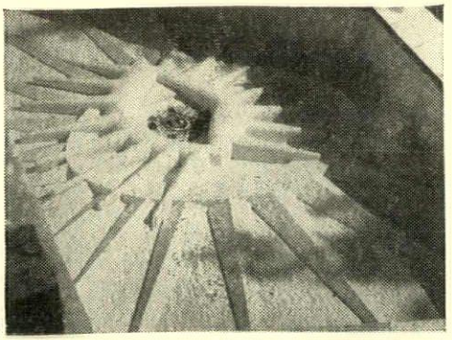
The object was to design a house that would be easy to run, as domestic help is not available during odd weekends and there was no set pattern of occupying the house. The main floor consists of a large living-room, 37ft. by 13ft. 6in., with a 5ft. balcony running the full length. The division between the living-room and balcony consists of four sheets of glass, two of which can slide on a track to throw the room open. The balcony can be used as an outdoor dining-room. The small kitchen is part of the main room and is divided by a storage fitment which is also a bar.

The remainder of this floor consists of two bedrooms, each with a very small bathroom. These rooms contrast with the 'openness' of the main room and are designed for rest and coolness. The windows are at eye level when lying in bed. There is a battery of cupboards between the main room and the sleeping quarters. The owner's bedroom has double doors which completely insulate this room from noise.

Construction consists of two walls of brick laid parallel to the contours, supporting two laminated timber beams which cantilever out and themselves support the structure above, which is entirely of timber. Externally, the cedar boarding is treated with pigmented silicone liquid giving a dark grey colour but showing board differences and grain. Internally, all walls are painted white, the ceiling matt varnished and the afzelia floor wax polished. All window openings, doors, internally and

externally are multiples of the four-inch board width. The range of doors from the living-room to bedrooms and cupboards are boarded to match the walls. Only handles indicate the position of the doors. All kitchen fitments are also boarded in this way. All doors are painted a bright cadmium yellow with areas of ultramarine on some slabs of brickwork. The remainder of the brickwork is white. The fireplace, designed for wood fuel and as a visual focus, consists of two cantilevered slabs of concrete bush hammered.

Heating is by a blown air system which can heat the whole house from cold in 15 minutes. The fuel is oil. The swimming pool is narrow at the deep end and wider at the shallow, thus giving a smaller volume of water. The floor was designed by John Spence and modelled by him, assisted by the bricklayer and his mate. It is rendered in cement and painted with a chlorinated rubber paint.



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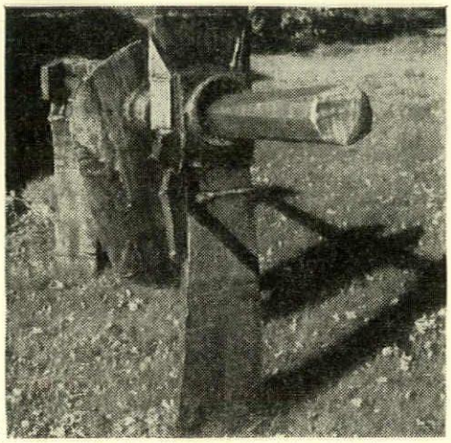


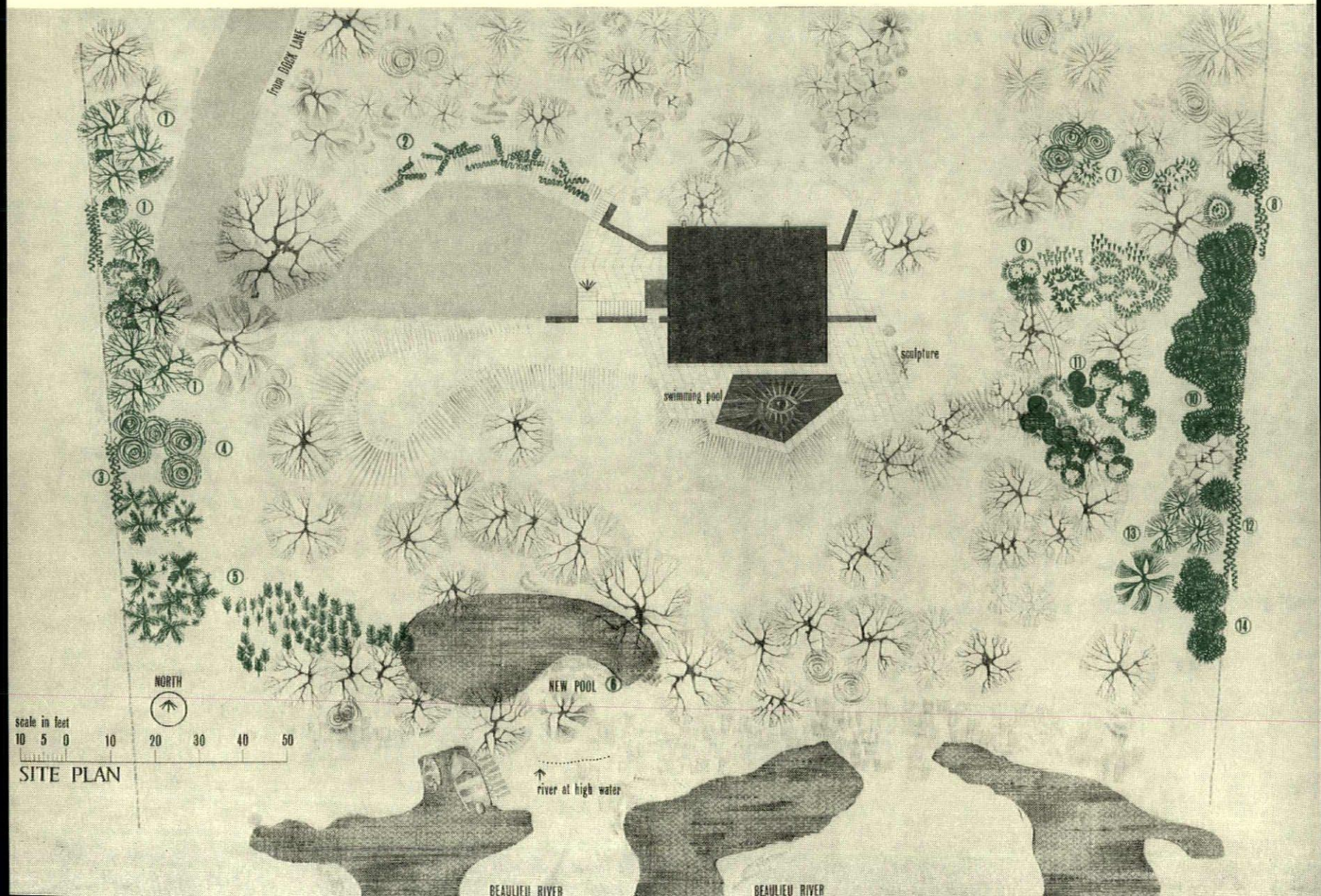
4

3, sculptured floor of the swimming pool, designed by John Spence. 4, cast-aluminium sculpture by Geoffrey Clarke at the eastern end of the terrace.

HOUSE ON THE BEAULIEU RIVER

key to new planting

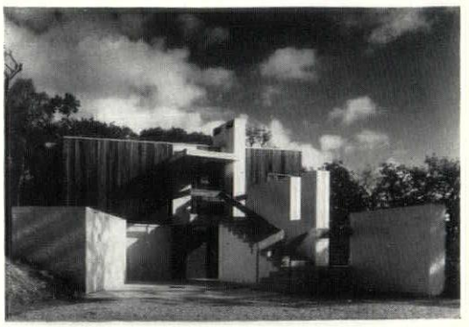
1, a drift of holly and evergreen cotoneaster conceals boundary fencing near drive.
2, local ivy from wood used as ground cover to retain bank.
3, evergreen lonicera japonica to hide existing wire fence.
4, hamamelis mollis for early spring colour.
5, osmunda regalis and bamboos to give lush water-side effect in damp patches under trees.
6, a new pool to bring the water of the estuary further into garden.
7, a sculptural group of horizontally branched viburnum mariesii forms the corner between two woodland paths. Drifts of shrub roses and low ground cover plants merge into existing woodland.
8, lonicera japonica halliana.
9, a strong group of evergreen camellias against background of mixed philadelphus for summer scent, underplanted with drifts of geraniums and pulmonarias as ground cover. A clump of foliage plants (hosta glauca, clematis armandii, rosmarinus officinalis and daphne somerset) provides a stop to the curved wall.
10, solid sweeps of rhododendron ponticum concea boundary fence and merge into woodland behind.
11, cotoneaster rothschildiana with low groups of cotoneaster hybrida pendula and viburnum davidii as evergreen ground cover to bank, interspersed with a contrasting drift of iris white city.
12, lonicera serotina and lonicera japonica halliana grown over fencing.
13, parrotia persica and amelanchier canadensis to give autumn cover against evergreen background.
14, rhododendron ponticum.



SITE PLAN



5



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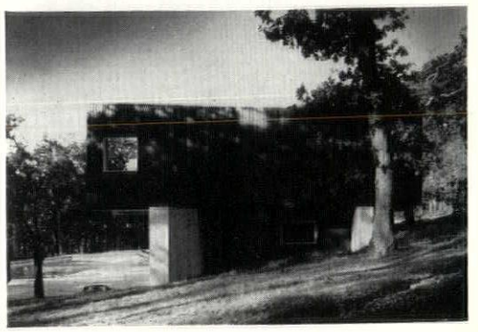
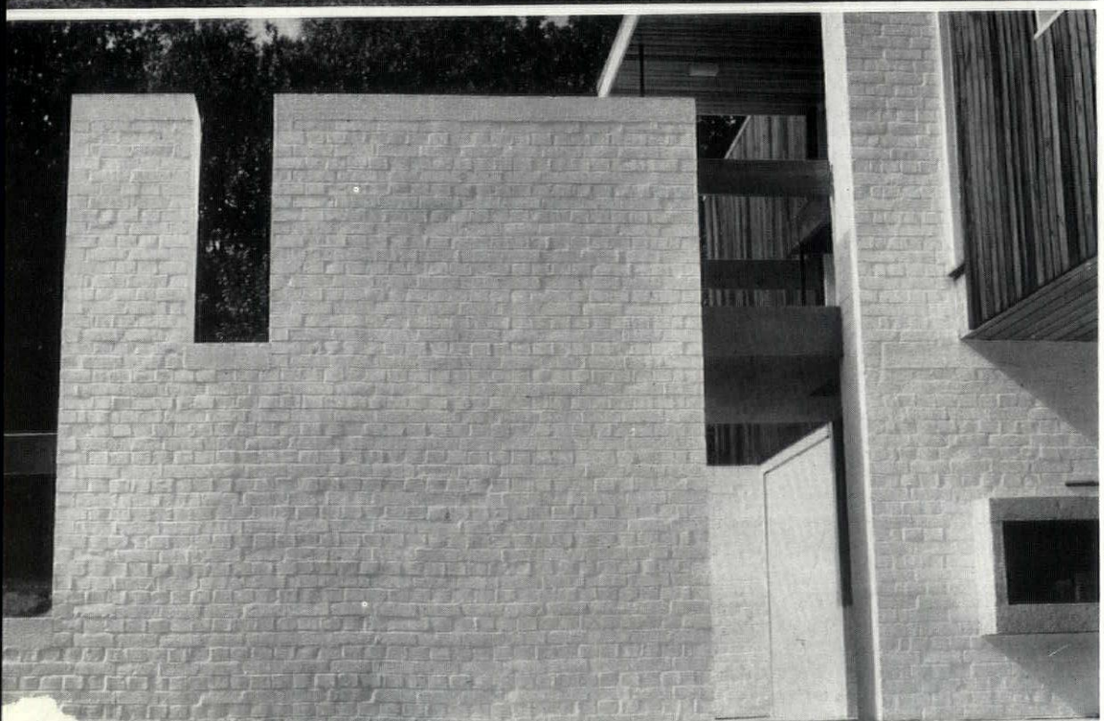


8

5, 6. close-up views of the main entrance on the west side. The vertical cedar boarding is treated with dark-grey silicone and the brickwork is painted white (6 is a photograph by the architect). 7, distant view from the west. 8. from the east. 9. the balcony at night, with Geoffrey Clarke's sculpture in the foreground.

photographs by H. de Burgh Galwey



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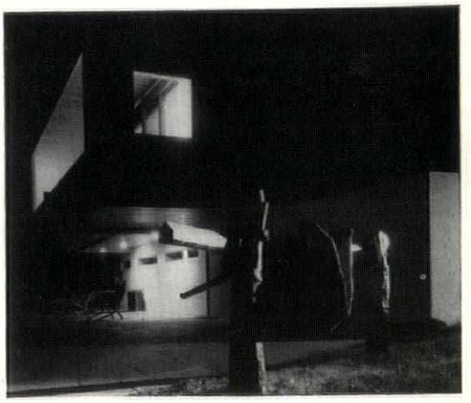


9

painted timber fascia

bituminous felt roofing on boarding, spar chippings finish

insulating quilt

glass

9"x 2" joists

CEILING in Swedish Redwood boarding clear varnished & twice rebated to show square sunk joints at 4" centres

sliding door track

curtain track recessed in underside

dense woodland mostly oak



extract duct

white painted softwood boarding to all WALLS and DOORS

FLOOR in Afzelia hardwood strip flooring. 4" boards laid on 1" insulating quilt

heating outlet

balcony

open joints on balcony

living

dining

recessed light fitting

9"x 2" joists

timber boarded underside to balcony

laminated timber main beam resting on brick cross walls **A, B** (on concrete padstones)

fixed light

A

pool

terrace

18" brick

diagrammatic SECTION

With the exception of the flues, the upper part of the house is an entirely timber construction.

The two walls **A** & **B** on which this timber frame sits extend beyond the house, the one on the river side

all living rooms on 1st floor

timber frame

garage & wk/shop

A

B

pool

fill

cut

RIVER

to receive the staircase at one end & conceal the drying area at the other. The one on the land side acts as a retaining wall, for the ground slopes up steeply



10

aluminium lined gutter

external boarding in cedar treated with pigmented silicone liquid giving a dark grey finish

hopper opening inwards with flyscreen on outside

centre pivoted windows

stud partition consisting of 4"x2" studs, ½" plasterboard 2 skins, & 1" boarding on each side

storage spine

bedroom

laminated timber main beam

B

workshop changing room

13½" brick

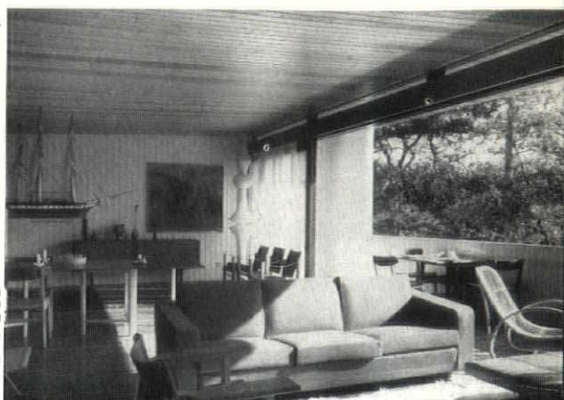
ground level

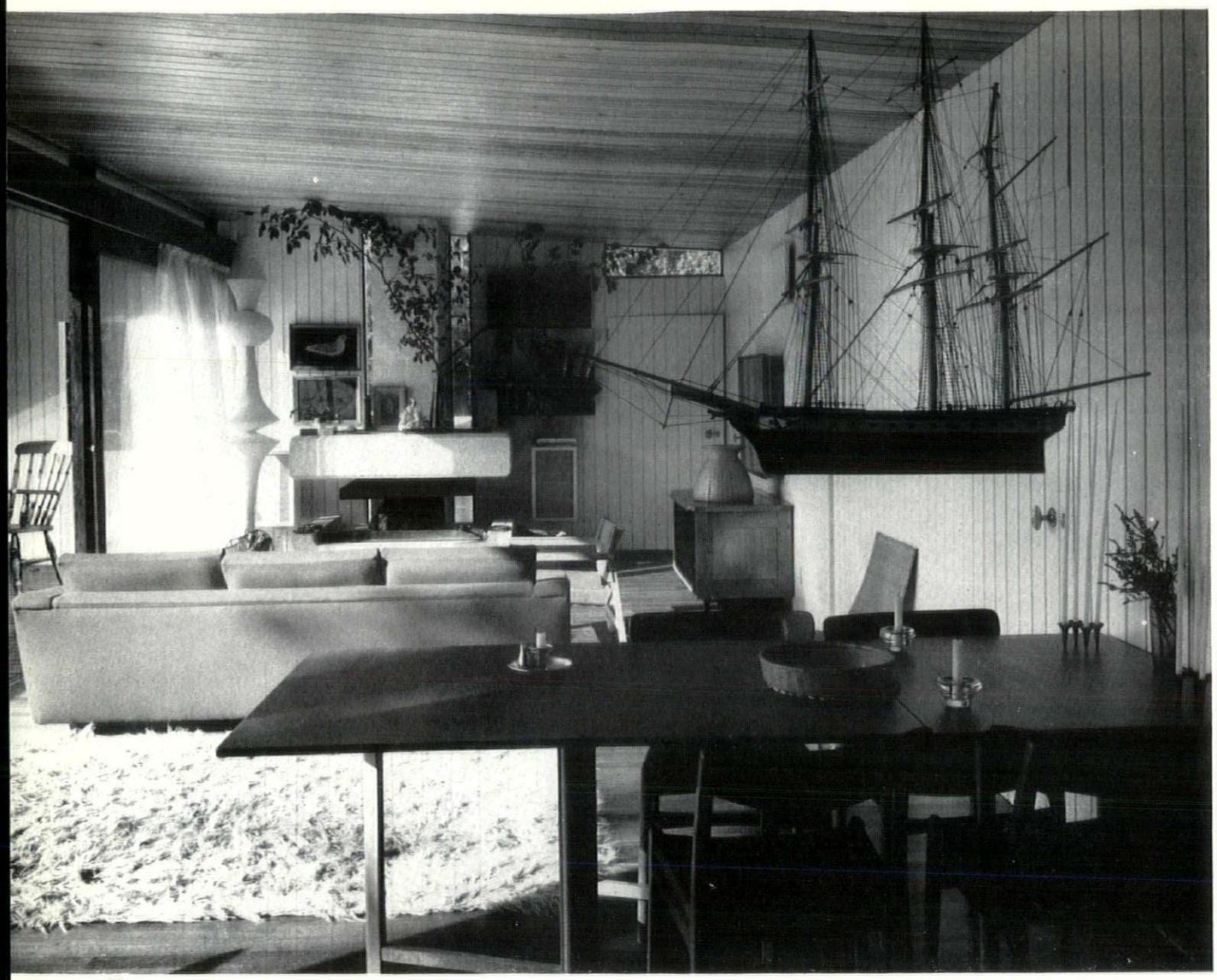
work bench

Kenneth Browne

10 (top of page), looking into the guest bedroom from the living room. 11, the living room seen from the fireplace.

11

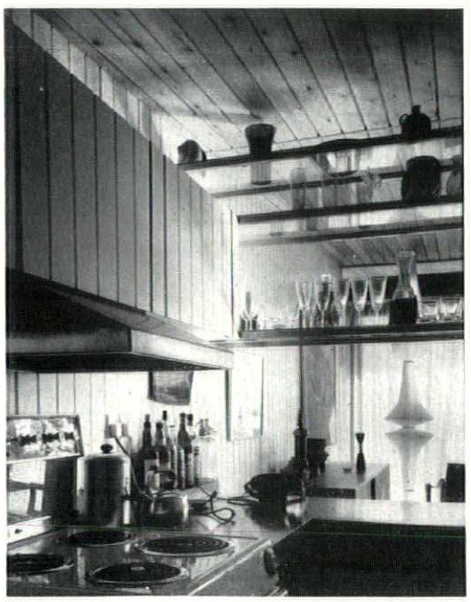




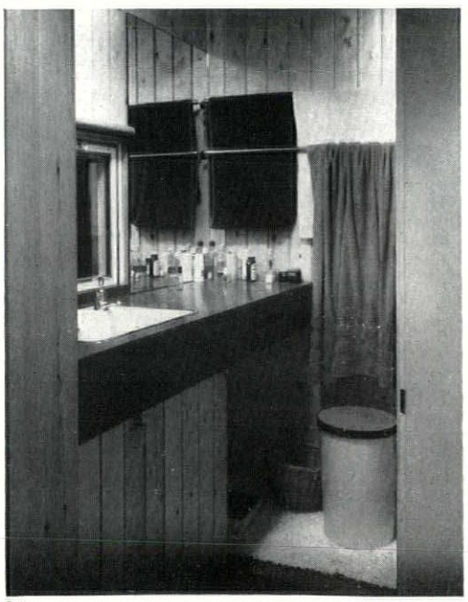
12

HOUSE ON THE BEAULIEU RIVER

12. the living room looking towards the fireplace. The furniture is by the Danish architects Morgensen. Kjarholm and Wegner. The walls are painted white and the only real colour is the sofa which is bright vermilion. 13. the kitchen. looking through the storage fitment and bar which is also a servery with hot plates. 14. the shower room.

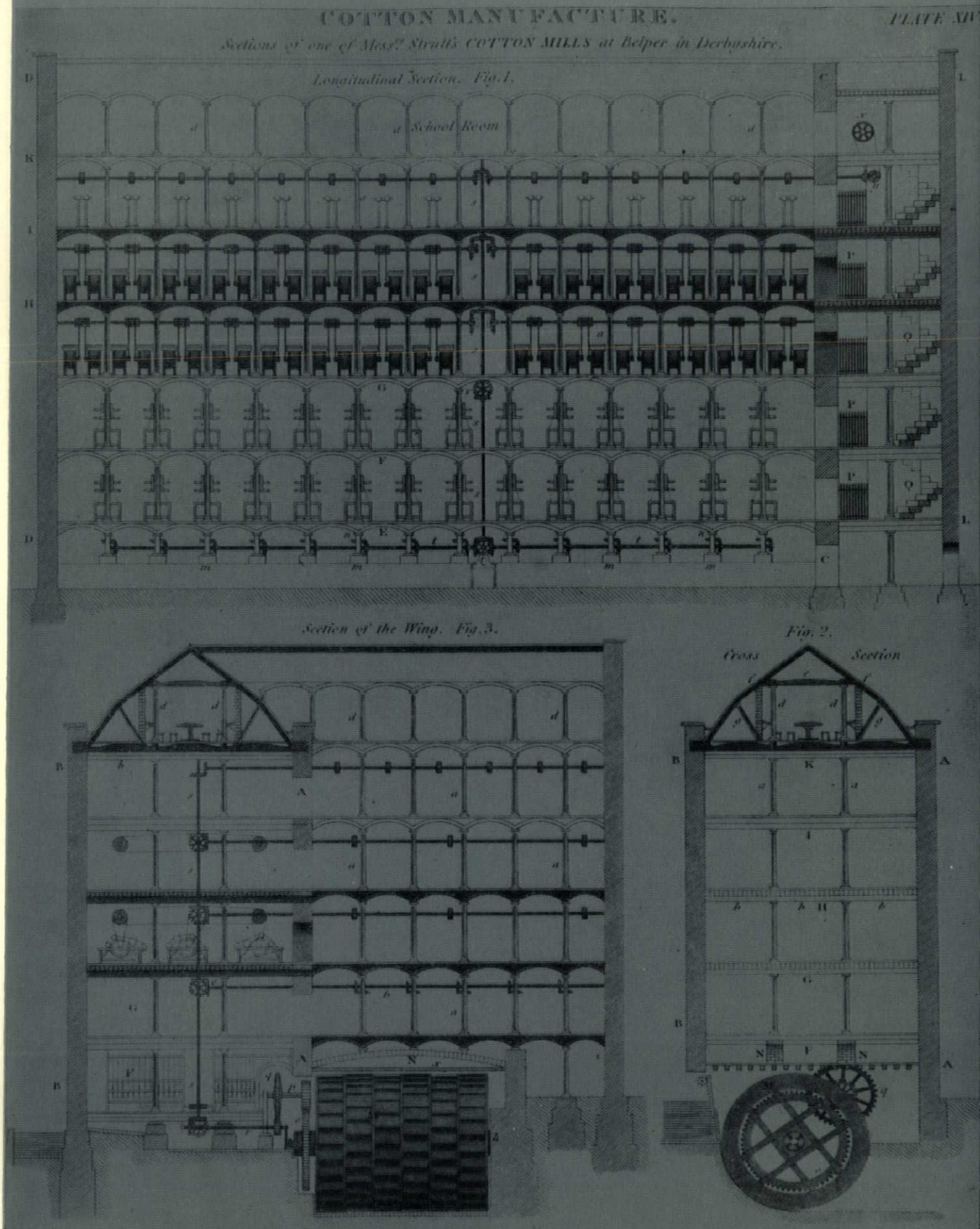


13



14

THE FIRST IRON FRAMES



1, *drawings by John Farey in* 1812 *of Strutt's North Mill at Belper, built* 1803–4. *This building incorporated all the advances made in the early iron-framed mills and is the culmination of the new type of structure evolved since the completion of his mill at Derby. It is described on page* 186.

A. W. SKEMPTON AND H. R. JOHNSON

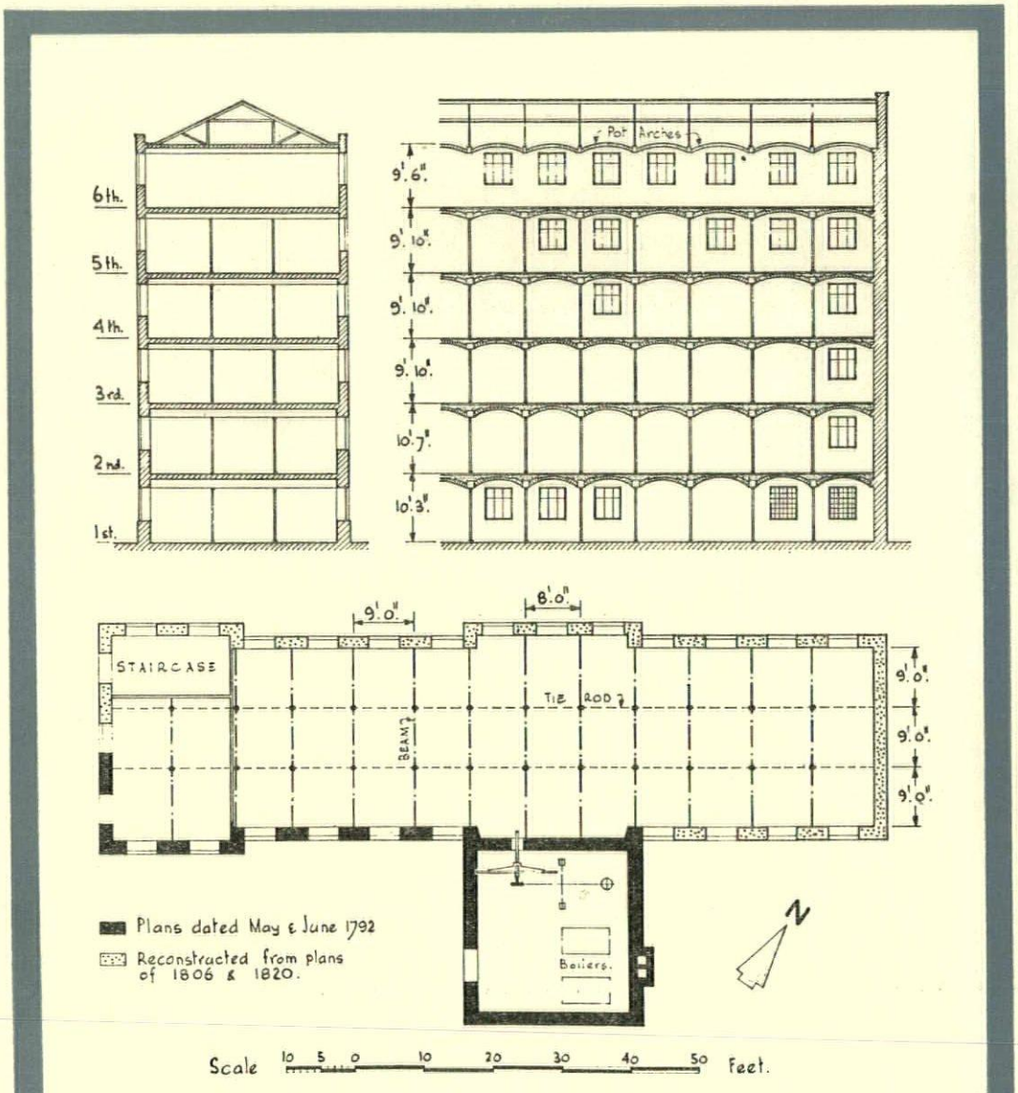
The origins of the steel-frame building can be traced back to a six-storey cotton-mill in Derby, designed by William Strutt and erected in 1792–93. *At that time the number of disastrous mill fires was increasing at an alarming rate and a relatively fire-proof construction, suitable for multi-storey buildings, was needed. Various expedients had been tried on a small scale, but the first successful solution was achieved in the*

Derby mill by using floors of segmental brick arches strengthened by wrought iron tie-rods and springing from heavy timber beams. These beams were protected by plaster, and they were supported by the external walls as well as by two rows of cast-iron columns.

Another mill, the West Mill at Belper, with the same type of construction, was completed in 1795; but in the following year Charles Bage designed a large five-storey flax-mill outside Shrewsbury which retained all the features of Strutt's fireproof construction, except that the beams were of cast iron. Thus was created the first multi-storey iron frame. From this a continuous line of structural development reaches forward to the early masterpieces of the Chicago school in the eighteen-nineties.

In the following article, after a brief account of the mills at Derby and Belper, Professor Skempton and Mr. Johnson give a full report of their recent research on the Shrewsbury mill and outline the salient features of the next two iron framed buildings, at Salford and Leeds. The Leeds mill, also designed by Bage and completed in 1803, marks the end of the experimental period: a decade of the highest importance in the history of structure. Also described are several later buildings of this type, including Strutt's North Mill at Belper and the eight-storey Sedgwick Mill in Manchester.

The typical eighteenth-century textile-mill was five or six storeys high with brick or masonry walls and wooden floors. The internal width rarely exceeded 28 ft. and the floor-boards and joists were carried on timber beams, usually about 12 in. square, spanning from wall to wall between the windows. Many of these old buildings survive, especially in Derbyshire (where the cotton industry was founded by Arkwright and Jedediah Strutt at Cromford in 1771), but most of their floors have been strengthened by the addition of iron pillars. These are always later than the original construction, however, and no iron pillars have so far been discovered in any mill or warehouse earlier than 1792, when they were used at Derby. Before that date timber posts were introduced if the spans were too great, and although an interior framework was thus brought into existence the small joists and wooden floor-boards, which constituted a terrible fire risk, were still an essential part of the design. Lighting was by candles, oil dripped from the machinery, methods of dust extraction were rudimentary or non-existent and fire-fighting methods were ineffective. As more cotton mills were built so more were burnt down, and by the early 1790's the problem was becoming extremely serious.



2, the six-storey cotton mill designed by William Strutt and erected in Derby, 1792–93, was the first multi-storey fireproof building. The floors consisted of brick arches springing from heavy timber beams supported by two rows of solid cast-iron pillars. It was the starting point of a structural revolution which leads to the skyscrapers of Chicago a century later.

Derby Mill, 1792-93

At this period Jedediah Strutt, who had separated from Arkwright many years earlier, owned two cotton-mills at Belper (completed 1778 and 1786), one at Milford (1780) and another at Derby (c. 1785) as well as a silk-mill which was probably the oldest of his buildings[1]. These were all of the traditional pattern. But when the decision was made to erect a new cotton-mill at Derby in 1792, Strutt's eldest son William personally undertook its design with the object of achieving a fireproof structure.

William Strutt, FRS (1756–1830) was an engineer of originality and versatile talent. He had been associated with Thomas Harrison in the construction of St. Mary's Bridge (1788–93) and he was chiefly responsible for the designs of the Derby Infirmary (1805–10), the most advanced hospital of its day. He made significant contributions to the theory and construction of water-wheels, and his system of hot-air central heating became well known. The mills built under his direction, and the machines in them, were rightly considered to be among the finest in England and, by the standards of the period, he was a model employer of labour. From the extensive collection of letters written to him by Charles Bage (the replies are unfortunately lost) it is clear that he was constantly engaged with experiments and improvements in everything connected with the textile industry, from the strength of arches to the chemistry of bleaching; whilst in his domestic life he was a generous and a sociable person, the friend of Erasmus Darwin, R. L. Edgeworth, Tom Moore and the Benthams[2].

Strutt's first experience of a mill fire was probably the burning of his brother-in-law's cotton-mill at Darley Abbey, just outside Derby, in 1788[3], and he must have been impressed by the total destruction of the celebrated Albion Mills in London in March, 1791. Then, during the next twelve months, no fewer than five mills were ravaged by fire within 50 miles of Derby, in some cases with losses amounting to £45,000. To a man of Strutt's intellect the challenge was great indeed, and his solution as expressed in the Derby mill was characteristically logical, practical and eminently suitable for its purpose.

What was the point of weakness in the traditional buildings? The wooden floors and joists. What could take their place? Bricks

(1) R. S. Fitton and A. P. Wadsworth: *The Strutts and the Arkwrights*, 1758-1830. Manchester, 1958.

(2) See the excellent biography by Miss C. L. Hacker, 'William Strutt of Derby,' *Journ. Derbysh. Archaeology & Nat. Hist. Soc.*, New Series Vol. 80 (1960), pp. 49–70.

(3) In 1785 Strutt's sister Elizabeth married Walter Evans, who managed Darley Abbey mill for his father, and Strutt himself married Barbara Evans in 1793. After the fire the mill was immediately rebuilt in the same manner, as was customary at the time. (*Derby Mercury*, December 3, 1788)

or possibly hollow pots, which had recently been used in Paris and London[1]; and, except for small spans, the bricks would have to be used in the form of shallow arches. How to support these arches? The French were beginning to employ open-web wrought iron girders[2] in some of their more important buildings, but these would have been very expensive, and surely the great timber beams, already a standard part of mill construction, and cut from trees grown on his father's estates, would answer admirably; for their fire resistance was considerable, especially if protected by plaster, and timber has an excellent strength in bending. Even so, would these beams be strong enough to carry the brick arches unaided? Obviously not. What extra support could be provided? Nothing better than cast iron pillars[3]. These were already used for architectural reasons to support the galleries in churches, and had the great technical advantages of being incombustible, immensely strong in compression, readily made to the exact shape required and not too costly. What about the unbalanced horizontal thrusts necessarily present before a complete floor of arches had been built? Wrought iron tie rods provided the only reasonable answer.

Work on the mill began in the summer of 1792 and was finished before the end of 1793, at a site 150 yards south-east of the Market Place in Derby. The mill continued to spin cotton until 1815 and was soon afterwards leased to a Mr. Taylor as a silk-mill. Later purchased by Joseph Davenport, it was demolished in the 1860's and the obscurity into which it had already fallen became total; until suddenly, in 1950, Professor Bannister claimed it to be 'the first incombustible, completely iron-framed building,' although he noted that the evidence for iron beams was circumstantial[4]. By a curious coincidence Mr. Shepherd also rediscovered the Derby mill in the same year, but he was led to the view that it probably had timber beams[5]. Subsequent research has confirmed this, and it is now certain that Strutt's type of construction represents a stage of development before complete interior iron framing[6].

The actual structure of the Derby mill cannot be examined, but a part plan of June, 1792, still exists, together with a set of measured drawings made by William Murdoch in 1806 when gas lighting was being installed. A brief description published in 1802 gives the leading dimensions and states that the floors were of brick, laid on brick arches; whilst a newspaper report of 1853, describing an accident which occurred when the roof was burnt (the timber roof trusses were the one real weakness in Strutt's design) mentions hollow pot arches, evidently in the ceiling of the top storey. This report adds the important information that the floor beams were of Baltic Fir; and from the 1806 drawings they are seen to be about 12 in. wide. Drawings also exist of the Boulton & Watt engine and of the engine house and boilers, dated May, 1792.

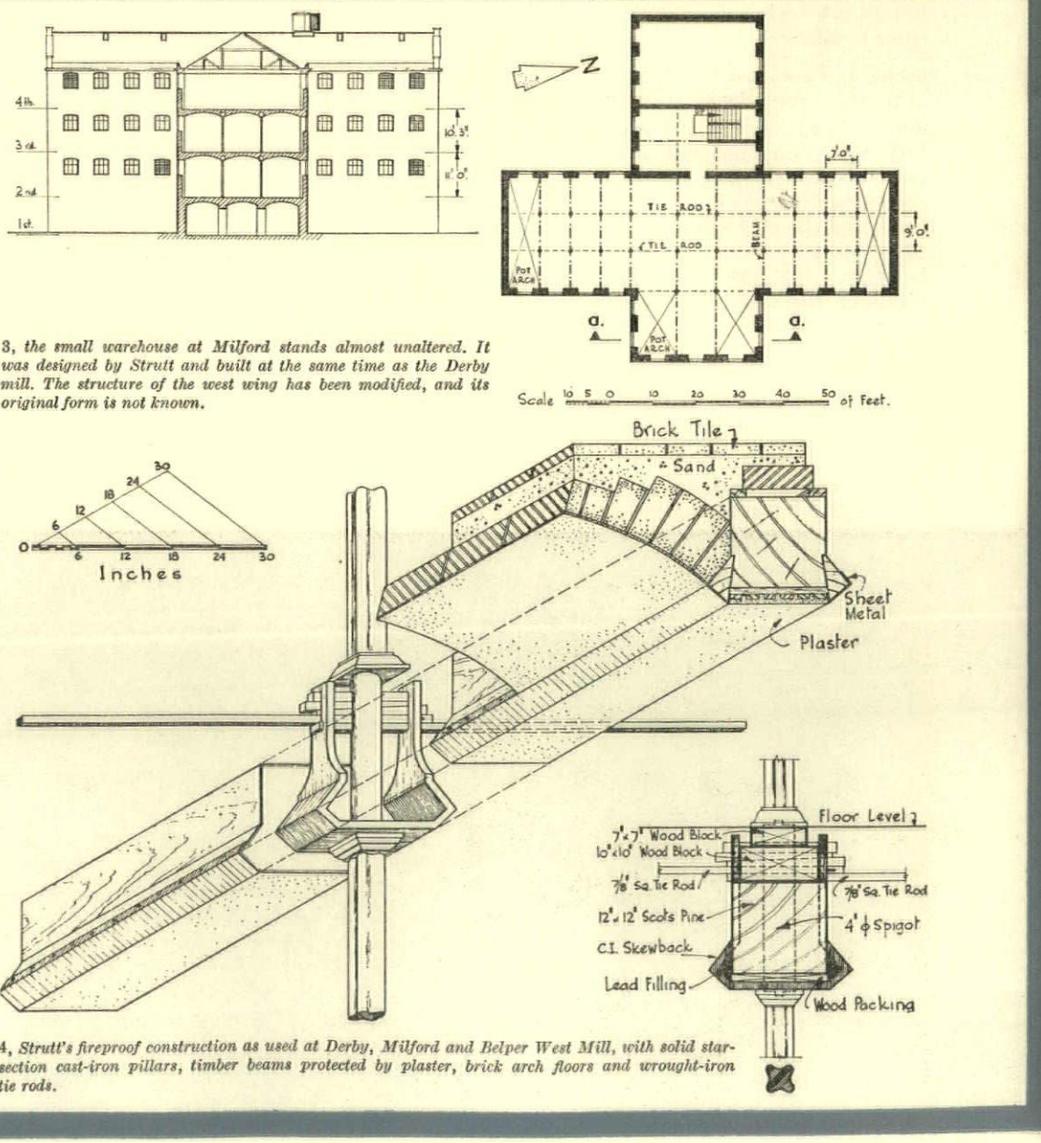
The general structural arrangement is therefore known very exactly, 2. The mill was six storeys high, 115 ft. long and 31 ft. wide overall, with an internal width of 27 ft. and a total floor area of about 20,000 sq. ft. There were five central bays 8 ft. wide and three bays on either side, having arch spans of 9 ft. A two-bay wing was built at the west end, and the engine house, with three floors above it, projected to the south. The walls were of brick, 24 in. thick in the first two storeys, diminishing to 13 in. in the upper storeys. The beams supporting the brick arches rested on two rows of cast-iron pillars dividing the internal width into three spans of 9 ft., but the ceiling of the top storey was formed of hollow earthenware pots (of a simpler design than those used in France and adopted in London by Henry Holland[1] and John Soane), and the resulting lightness of construction dispensed with the need for columns in this storey. The floor to floor heights of the first and second storeys were 10 ft. 3 in. and 10 ft. 7 in. respectively, and 9 ft. 10 in. in the upper storeys; but the free-standing column height was 8 ft. 2 in. throughout, the rise of the arches being greater in the lower floors where the loading was heavier.

It is satisfactory that so much is known, but in addition one wishes to have some idea of the external appearance of the mill and, especially, to have details of the pillars, tie-rods, and the connections between these components and the beams. No drawings of the exterior have so far been found. But we have, in effect, been able to obtain complete information concerning the details of construction. For, simultaneously with his work at Derby, Strutt was building a small warehouse at Milford, which is still standing, and there can be no doubt that the structural system was virtually identical in both buildings[1].

The bays of the Milford warehouse, 3, are 7 ft. wide in the wings, 9 ft. and 10 ft. 6 in. in the central portion, and the internal width is 27 ft. The semi-basement has brick piers, but in the second and third storeys there are two rows of slender star-section cast-iron pillars, supporting 12 in. square Scots Pine

(1) At Dover House, Whitehall, in 1788 (personal comm. from John Charlton). This is the first certain date for the use of hollow pots in London.

(1) The roof of the Milford warehouse was slated in April 1793 (Johnson and Skempton *loc. cit.*). Allowing a normal period of construction, work would have begun late in 1792 and reached completion in about the autumn of 1793.



3, the small warehouse at Milford stands almost unaltered. It was designed by Strutt and built at the same time as the Derby mill. The structure of the west wing has been modified, and its original form is not known.

4, Strutt's fireproof construction as used at Derby, Milford and Belper West Mill, with solid star-section cast-iron pillars, timber beams protected by plaster, brick arch floors and wrought-iron tie rods.

(1) Although well known in classical times, hollow pots were virtually reinvented by the engineer-architect Eustashe de Saint-Far in 1785. They attracted considerable attention in Paris and, from 1788, in London.

(2) Invented by Ango in 1782 and used notably in the Théâtre Français (1787–90).

(3) 'Columns' in present nomenclature, but invariably 'pillars' in contemporary writings.

(4) T. Bannister 'The First Iron-framed Buildings,' THE ARCHITECTURAL REVIEW, Vol. 107 (1950), pp. 231-46.

(5) W. D. Shepherd: *Early Industrial Buildings*, 1700-1850. Thesis submitted in 1950 for final examination RIBA.

(6) H. R. Johnson and A. W. Skempton: 'William Strutt's cotton mills 1793-1812.' *Trans. Newcomen Soc.*, Vol. 30 (1956), pp. 179-205. This paper contains full references to original sources of data concerning the buildings at Derby, Milford and Belper.

(Baltic Fir) beams at 9 ft. intervals. Brick arches spring from wooden skewbacks, fixed to the beam and covered with sheet metal, and the soffit of the beam is plastered, 4. The arches in the end bays are built of hollow pots, in order to reduce the thrust on the walls, and possibly a pot arch ceiling originally covered the top storey, although this has been subsequently altered and comparatively modern pillars have been inserted. The connection between the beams, pillars and tie-rods is most carefully designed, and Strutt had evidently conceived a fully integrated structural scheme. Only two serious criticisms can be raised, namely that the roof trusses were of timber and that the tie-rods were visible beneath the arches. They would therefore be exposed to fire, although it must be admitted that their function was chiefly to provide stability during construction, and their failure during a fire might not be catastrophic. The solid cast-iron pillars were also exposed; but their fire resistance would be reasonably good. The modern practice of protecting structural steel arises from higher standards of safety and from the thinner sections used.

Taking everything into account there can be no question that Strutt had achieved an outstanding improvement, and that he must be credited with the first multi-storey fire-proof frame construction: a starting point of modern structure, and one of the most important technical innovations in building since mediaeval times.

Belper West Mill, 1793-95

In May, 1793, when the buildings at Derby and Milford were well advanced, work had just started on a new mill at Belper. Construction proceeded rather slowly, perhaps on account of a crisis in the cotton trade at that time, and the roof was not slated until August, 1794. Most of the iron pillars were purchased between June, 1794, and January, 1795, and although the exact date of completion is not known, the building was substantially finished before the end of that year[1]. Extensive engineering works were also required, however, in the form of a water-wheel, cuts from the River Derwent, sluices and bridges, and it seems that the mill was not in full operation until about May, 1797.

The West Mill, as this building is called, still stands practically in its original state: an impressive six-storey structure 200 ft. long and 30 ft. wide, on the right of the road leading to Derby, just after one crosses the bridge into Belper. A view of the mill, and of the North Mill, built in 1804, on the other side of the road, was engraved by H. Moore, of Derby, and published in 1811. This is shown in 5, but it hardly does full justice to these dignified examples of industrial architecture.

Apart from its greater length the West Mill is very similar to the Derby prototype: brick-arch floors, cast-iron pillars (but only one row instead of two), protected timber beams 13 in. square, exposed wrought-iron tie-rods, a pot arch ceiling in the sixth storey and timber roof frames. The walls are stone in the two lower storeys and a mellow red brick above. The floor area amounts to 32,000 sq. ft. and the cost was about 3s. 2d. per foot super.

It is greatly to be hoped that the West Mill, or at least the Milford warehouse, can be preserved. There is in these days perhaps too much talk of preservation but, with the disappearance of the Derby mill long ago, the Belper mill is surely a building of outstanding historical importance. It stands beside the Derwent, a monument to its designer; and the oldest surviving major building from which the development of modern structure can be traced in this country.

Shrewsbury Mill, Castle Foregate, 1796-97

In 1854 Sir William Fairbairn described a large seven-storey cotton-mill erected in 1801 for Philips & Lee, of Manchester, and stated that this was 'the first instance on record of the successful application of cast-iron beams to the purposes of building'[1]. For nearly a century this statement remained unchallenged, and it has frequently been quoted. The first hint, in modern times, of an earlier iron-framed mill was given by Dr. Pevsner in 1936 following a note written by Telford in 1801 concerning Benyon, Marshall and Bage's flax mill at Shrewsbury[1]. At Professor Bannister's request Mr. E. J. James, of Shrewsbury Public Library, identified this mill, in 1944, as the building now known as the Maltings and erected in 1796. During the war it was being used as a Light Infantry barracks and photography was not allowed, but in 1946, when the Maltings returned to its owners, Mr. J. L. Hobbs, who had then succeeded Mr. James, arranged for photographs to be taken. One of these was published by Pevsner[2] together with the date of 1796. In the following year Bannister gave a brief description of the mill, and suggested that Charles Bage was probably its designer, but he also put forward claims for the Derby mill as the first iron-framed building[3].

By 1956, however, we had elucidated the structure of the Derby mill and proved that the Shrewsbury mill was the earliest to have iron beams as well as iron columns; in addition, a letter from Bage was discovered which established that he had in fact prepared the designs.

For a full account of the history of the Shrewsbury building we must first turn to Leeds, and the year 1788, when John Marshall started his flax-spinning firm at a water-mill on Meanwood Beck about four miles from that city[4]. In the beginning John Kendrew's recently invented machines were used, but next year Marshall was fortunate in obtaining the services of Matthew Murray, a mechanic of genius who soon greatly improved the machinery; and in 1791 the firm moved to a site at Water Lane near Holbeck in Leeds where a steam-powered four-storey mill was erected ('Mill A' in the Marshall records).

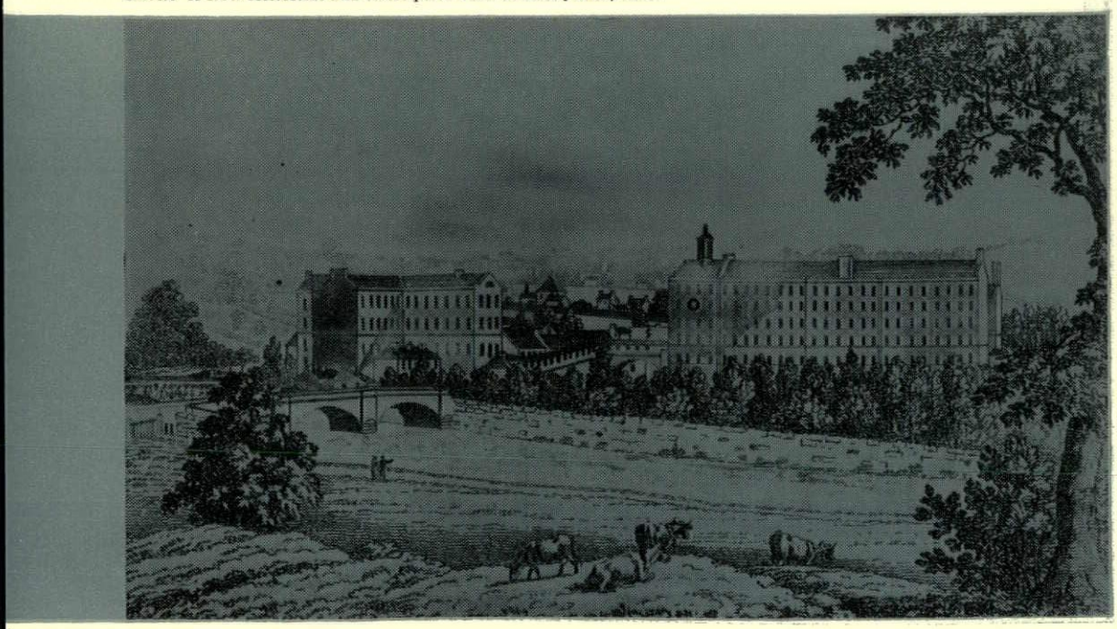
In December, 1793, Marshall was in financial difficulties, following a general decline in trade, but he foresaw greater possibilities in the future and, in order not merely to rescue the business but also to expand it, he took into partnership the brothers Thomas and Benjamin Benyon, of Shrewsbury, who were already well established as textile merchants. Marshall's optimism was justified, and in June, 1794, work began on a considerably larger mill at Water Lane (Mill B) which started spinning in September, 1795, using a 28 h.p. Boulton & Watt engine.

With a height of five storeys and a total floor area of about 23,000 sq. ft., this building had timber floors, like the earlier mill, and cost 2s. 6d. per foot super. This, it will be noted, is 8d. less than Belper West Mill (a figure which can be confirmed in detail from prices given in the Strutt account-books) but, although the fire-proof construction cost about 25 per cent more, the false economy of the traditional floors was amply demonstrated when Mill B was totally destroyed in February, 1796, only five months after its completion. The fire was described in the *Leeds Intelligencer* as 'The most dreadful we ever remember to have happened in the county' and Marshall records that it 'began in the dry house or stove, burnt down the larger of our mills and

(1) Many facts concerning the construction and costs of the West Mill are contained in a set of account-books in possession of the English Sewing Cotton Co., the present owners of the Belper and Milford works. Extracts from these account-books have been published, together with drawings of the mill, by Johnson and Skempton (*loc. cit.*).

(1) W. Fairbairn: *On the Application of Cast and Wrought Iron to Building Purposes.* London 1854, p. 3.

5, *Strutt's West Mill*, 1793–95 (*right*), *and North Mill*, 1803–4 (*left*), *at Belper. Engraving by H. Moore, of Derby, published in Davies'* A New Historical and Descriptive View of Derbyshire, 1811.



(1) N. Pevsner: *Pioneers of the Modern Movement.* London 1936, p. 132.

(2) *ibid.* 2nd edition. New York 1949, p. 68.

(3) Professor Bannister's very important paper (*loc. cit.*) contained the first references to Strutt and Bage in any twentieth century publication on architecture or engineering.

(4) Information on Marshall's mills is taken from MSS in the Brotherton Library, Leeds; especially Marshall's autobiography and account books and Stephen Marshall's history. For a general history of the firm see W. G. Rimmer: *Marshalls of Leeds, Flax Spinners* 1788-1886. Cambridge 1960.

the hackling shops, and by the falling of a wall ten men were killed.'

But he goes on to say 'We got the whole rebuilt before the end of the year, and in the meantime, to employ the hands we worked the other Mill day and night.' And in a letter to Boulton & Watt (October 7, 1796) concerning an allowance of premium on the engine for the period whilst it was out of commission, he writes more specifically that 'our Mill was burnt down 13 February, and was set to work again 11 July last, which makes a stoppage of about 5 months.'

The speed of reconstruction indicates that the mill was again provided with wooden floors, and this is made certain by the valuation of the building in January, 1797, for a sum inappreciably greater than the original cost in 1795. Historically, this is a point of very real significance, for Simon Goodrich, an Admiralty engineer working under Sir Samuel Bentham, visited Leeds in 1804 and, describing Bage's mill at Meadow Lane, notes in his diary[1] that this is 'upon the same plan as Mr. Marshall's.' Now Bage's mill was definitely iron-framed, as we shall see, and Goodrich might therefore be implying that Marshall's mill had the same form of construction. If so, then it would be the first iron-framed building. The Water Lane mill was demolished in 1853 and no drawings exist. Fortunately, however, the valuation mentioned above is itself conclusive and, in addition, Stephen Marshall (John's grandson) in his unpublished history of the firm, having mentioned the fire and the rebuilding of Mill B, goes on to give the dimensions of 'A mill built at Shrewsbury in 1797, five stories high' and notes that the 'Shrewsbury mill and *subsequent* buildings were fire-proof.' Thus Mill B at Water Lane, even as rebuilt, is clearly excluded from this category, and Goodrich must have been referring to the similarity of the general mode of working the mills; not to their structural systems[2].

After this necessary digression we come at last to the Shrewsbury mill itself; for it was early in 1796 that the Benyons persuaded Marshall to build a third mill, this time in their own town, and the site they chose is shown as the 'Old Factory' in the map reproduced in 6. With local labour skilled in weaving, and with a trade in linens, as well as a canal then nearing completion which would provide cheap transport of coal, Shrewsbury offered an attractive location for the new industry.

This venture was to lead to the erection of one of the most remarkable buildings in England. The first available document concerning the Shrewsbury mill is a letter from Marshall & Benyons to Boulton & Watt[3], asking for the price of a 20 h.p. engine which:

'we expect we shall want about Feb. next, but shall be obliged to you to send us plans for the Engine house soon as you can as we shall begin of the building immediately.'

On May 13 they accepted Boulton & Watt's terms and added that:

'All the plans we wish you to send are of the openings in the wall & their height and strength & opening of the lever wall. The situation of the Engine house and boilers we can determine ourselves. The Mill we propose building will be at Shrewsbury.'

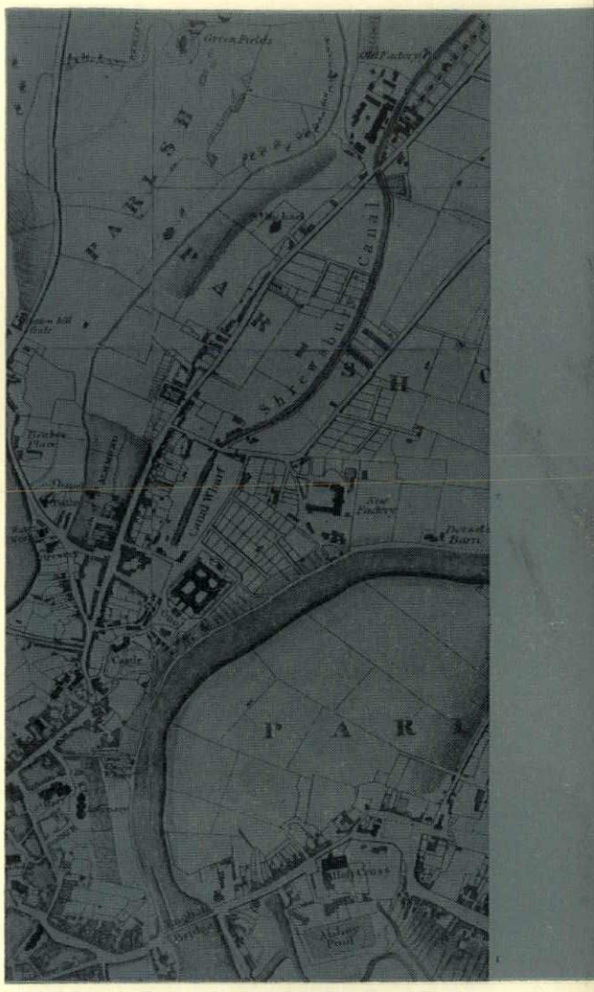
These details were duly sent from Birmingham on May 20, and on June 10 Boulton & Watt were requested to draw up the legal agreement for the engine in the names of 'Thos. Benyon, Benj. Benyon, John Mashall all of Leeds and Charles Bage of Shrewsbury.'

It had been decided that, whilst Thomas Benyon would remain at Leeds, Benjamin would return to Shrewsbury and direct the business there. But just as Marshall had depended upon the engineering skill of Murray so it was necessary to have a technical man at Shrewsbury, and the choice fell upon Charles Bage (1752–1822); the son of Robert Bage, a Derby man who established a paper manufactory at Elford near Lichfield and later became well known as a novelist. Charles moved to Shrewsbury in about 1780, where he became a wine merchant. He took a moderately active part in the town's affairs[1], but it is obvious that his real interest lay in engineering, and his appointment to a minor partnership with Marshall and Benyons, with an eighth share in the Shrewsbury business, seems at once to have unleashed an extraordinary spate of creative activity.

Already by September, 1796, he had designed the mill, and had outlined (in a letter to Strutt) the earliest known practical theory for the strength of cast-iron columns. In 1801 he was chosen among a distinguished gathering, to give evidence before the Parliamentary Select Committee on Telford's proposal for a single-arch iron bridge over the Thames. In the following year he carried out tests on flanged iron beams. By that time he had derived the first theory for their strength: a theory subsequently found to be extremely useful and which is, in fact, practically identical with the formula published (no doubt quite independently) by Eaton Hodgkinson in 1831 and long acclaimed as the first solution to the problem[2]. Also, in 1803, Bage was making the first full-scale loading tests on iron roof frames and what were probably the earliest tests on the torsional strength of iron. In the same year he completed the third iron-frame mill, at Leeds, in which his discoveries concerning flanged beams were put into effect, and in 1804 a further iron-framed mill, the second at Shrewsbury, in Castle Fields, was finished to his designs.

Marshall's condescending opinion is expressed in the words: 'Mr. Bage was possessed of talent, and had a cultivated understanding, but was not a man of business.' The latter comment may well have been true, yet today we can see that he was one of the true pioneers in structural engineering, and it is significant that William Strutt carefully kept Bage's letters, the majority of which are fortunately still available for study[3].

Nevertheless the questions remain as to why he should have been chosen by the Benyons to manage the technical side of their business and why, almost immediately, he decided to design an iron-frame structure. The answers must be conjectural, but it is evident, in the first place, that no one living in Shrewsbury who was interested in building could help being aware of the exciting developments then taking place in the use of iron as a structural material. The celebrated Ironbridge had been erected by Abraham Darby in 1779 only 12 miles away, from castings made at Coalbrookdale; and Coalbrookdale itself, of course, had been the focus of almost every significant advance in iron smelting and casting for the past half century. Ten years later George Steuart used iron columns to support the gallery and roof in All Saints Church, Wellington, and in 1792 his magnificent St. Chad's Church at Shrewsbury was completed also with two tiers of spectacular iron columns rising 38 ft. to the ceiling[1]. Shortly afterwards William Hazeldine (1763–1840), who became one of the great iron masters, started his foundry in the town and,



6, *detail from A. Hitchcock's* Map of the Borough of Shrewsbury, 1832, *showing the flax mills designed by Charles Bage: the Old Factory* (*Castle Foregate*), 1796–97, *and the New Factory* (*Castle Fields*), 1803–4.

(1) The Goodrich diaries and note-books are in the Science Museum, South Kensington. They have been summarized in several papers published in *Trans. Newcomen Soc.*

(2) The first iron framed building at Water Lane was, in fact, a warehouse (1808) followed by mills in 1817, 1826 and 1830. The extraordinary 'Egyptian' Temple Mill dates from 1841.

(3) All letters and drawings relating to Boulton & Watt are in the Birmingham Reference Library. Miss W. R. N. Payne, who is in charge of this extremely important collection, has been most helpful and we are indebted to her for discovering several documents of great interest.

(1) Bage became a Director of the House of Industry in 1784, an institution for the maintenance of the poor; he was elected Mayor in 1807 and was chiefly responsible for the establishment of the Lancastrian school in 1812. He married Margaret Boteryle of Shrewsbury in 1781 and two years after her death in 1806, he married Ann Harding. Bage was buried in St. Chad's. He retired from his partnership with the Benyons in 1815.

(2) Bage's theory is considered in detail by A. W. Skempton, 'The origin of iron beams.' *Actes du 8 Cong. Int. Hist. des Sciences.* Florence 1956, vol. 3, pp. 1029-39.

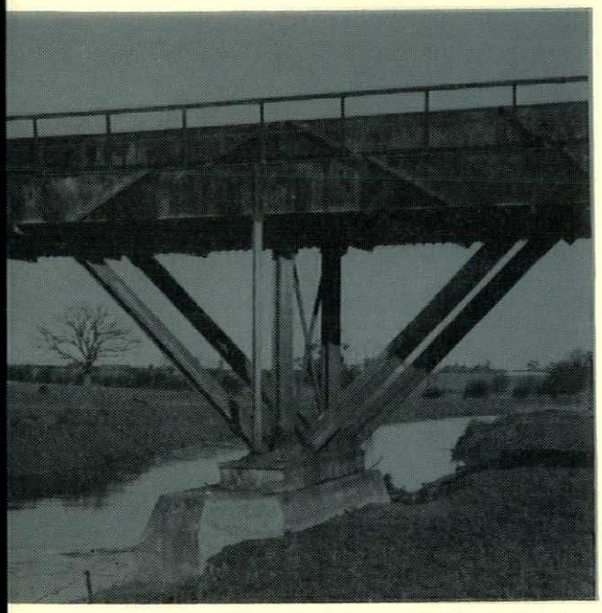
(3) In Shrewsbury Public Library. We are most grateful to Mr. J. L. Hobbs and Mr. R. E. James of that library for their help in many matters of local history.

(1) During the consecration of the new church at Wellington, the Bishop of Lichfield and Coventry 'particularly noticed the Cast-Iron Pillars by which the Galleries and Roof are supported, which he said gave a superior Lightness to any thing of the kind he had ever seen' (*Shrewsbury Chronicle*, July 23, 1790). Quatre-foil section iron columns, not unlike those used by Strutt, in St. James, Liverpool, are probably original and if so can be dated from 1775. But they support the gallery only, as did those of circular section in the Houses of Parliament, introduced by Wren in 1706 and almost certainly of iron (John Harris, THE ARCHITECTURAL REVIEW, July 1961, pp. 60-61). No less than four tiers of iron columns were used in Drury Lane theatre, completed 1794 (Dorothy Stroud, *Henry Holland*. London 1950, p. 140).

as will be seen, the castings for Bage's mill were made there. Then in 1795 work began almost simultaneously, under Telford's direction, on two very important iron structures: Buildwas Bridge over the Severn, a few miles upstream from Ironbridge, and a canal aqueduct at Longdon near Wellington.

Telford had arrived at Shrewsbury as County Surveyor in 1788 and when the old masonry bridge at Buildwas was swept away by a flood in February, 1795, he at once seized the opportunity of building an iron arch, directly inspired by Ironbridge but showing a marked advance in design. In the previous year he had also been appointed engineer for the Shrewsbury Canal. At Longdon the canal had to pass over the River Tern, and Thomas Eyton, chairman of the Canal Committee, suggested that this might be effected by a cast-iron aqueduct. The idea was approved and Telford, with the advice of William Reynolds, of the Ketley ironworks (one of the Coalbrookdale group), produced a design which, in a letter of March 18, 1795, he describes as being 'upon a principle entirely new.' The aqueduct consisted of a cast-iron trough (for the canal) forming an open box-girder 4 ft. 6 in. deep supported by cruciform iron columns 9 ft. 2 in. high, and raking struts of the same section, the webs of the columns and struts being 1 in. thick and 12 in. deep overall, 7. It was completed in March, 1796, about six months before construction started on the mill.

No other region in England, or in the world, could show so much work in structural iron, and there cannot be the slightest doubt that Bage was aware of this activity. It is also



7, a portion of Telford's cast-iron aqueduct for the Shrewsbury canal at Longdon, 1795–96. *Tests on iron for this structure, made at the Ketley Ironworks in March,* 1795, *were used by Bage in his theory for the strength of cast-iron pillars, on which he based the designs for the Shrewsbury Mill in* 1796.

extremely probable that he knew Telford and Hazeldine personally, and there is positive evidence that he was in possession of the results of some tests on the strength of cast-iron in compression, made at Ketley in March, 1795, in connection with the design of the aqueduct. Taking into account his later achievements, the distinct possibility may be suggested that already before 1796 Bage had shown far more than a casual interest in these developments, even if still only as an amateur, and in this way his latent abilities became appreciated.

If the Shrewsbury environment was a vital factor, there was another source of inspiration of equal importance; for Bage was acquainted with Strutt's work on fireproof construction. With his Derby connections and a mutual family friend in Erasmus Darwin, he may have met Strutt as a young man, and they were certainly in correspondence very shortly after Bage became involved with the Shrewsbury mill. His first letter to Strutt and the reply are lost, but in the second letter he acknowledges advice which 'will be decisive' in favour of inverted arch foundations and asks various questions about the thermal expansion of iron, quoting Smeaton's experiments and applying these results to 'an Iron Beam 37 ft. 6 in. (our length).'

This dimension agrees with the width of the existing mill. Still discussing expansion he goes on to say: 'I think your pillars are near 50 ft. long'—the total height of the Derby mill columns—and then asks for Strutt's opinion on a simple but effective theory for the strength of iron pillars based on the Ketley tests of 1795. 'Our lower ones might have near 40 tons each to support, 10 feet long.' Taking a pillar of this length, with a cruciform section 4 in. deep and 1 in. thick, he calculates that the maximum load before yielding would be 28½ tons. This is merely an example, and Bage used stronger pillars in his design. But it is interesting to note that the limiting stress in this instance is 4 ton/sq. in., whereas according to the well-known formula of Rankine (1862) the stress would be 3 ton/sq. in. and Rankine was conservative in so far as he allowed for average quality iron.

This letter is undated, but it was written after June, 1796, when Bage entered the partnership, and from the reference to foundations it cannot be later than about October, 1796, when work had started on the mill[1]. The probable date is therefore around July or August, and we see that Bage was already showing a very clear grasp of the technical problems involved.

Turning now to the evidence concerning the dates of construction, the first available papers are the Articles of Purchase of the site at Castle Foregate in Ditherington, a northern suburb of Shrewsbury, alongside the canal and near the road to Whitchurch, 8. These Articles[2], dated September 20, 1796, refer to the:

'piece of land now in the occupation of John Marshall, Thomas Benyon, Benjamin Benyon and Charles Bage . . . which Land is . . . purchased by them with the view and intention of erecting proper buildings thereon for carrying on a large and extensive Manufactory.'

Work must have started very shortly afterwards, for in the Conveyance of the land from the owner, John Mytton, to Benyons, Marshall and Bage, dated February 2, 1797, mention is made of:

'the several Buildings which after the Contract for the purchase . . . and previous to the conveyance thereof . . . have been erected and which are now standing on the said piece of Land.'

Then on February 16 Marshall and Benyons wrote from Leeds to Boulton & Watt:

'We request you will inform us how soon you can deliver the 20 horse Engine that we ordered for Shrewsbury. From the late favourable weather we have been enabled to get forward the building much better than we expected & have now nearly completed it.'

This was an over-statement, but at least we may suppose that the work was well advanced. James Watt, Jnr., replied (February 22, 1797):

'We fear it will not be in our power to deliver your Engine before the latter end of June, as in consequence of your suspension of the order for six months, we have formed engagements which will prevent its being executed sooner. We shall however do everything in our power to accelerate it.'

Now the agreement for the engine was actually signed by the partners in Leeds at the end of August, but they did not send it to Shrewsbury for Bage's signature until November. We can thus visualize Bage coming into the firm in June, insisting on fireproof construction, consulting Strutt, preparing his designs, ordering the iron beams and columns from Hazeldine, and finally getting construction under way in October, instead of June as the Benyons had originally intended.

Watt evidently did manage 'to accelerate it' a little, and various drawings were sent on March 16. Bage answered on March 22 with a dimensioned plan of the engine-house and the 'intended Boiler House.' The complete set of details for the engine are dated April 29, 1797, and by June 12 it was ready for dispatch.

On June 16 Bage pointed out that:

'The wetness of the season keeps the river navigable, and there seems no possibility of much delay by water carriage; besides that Teams will be difficult to procure in the Hay harvest. We will therefore thank you to forward the Engine altogether by Stourport.'

The first consignment of parts arrived on July 2, and on September 11 Bage wrote that 'Joseph Varley has put up our Engine and conducted himself much to our satisfaction and his own credit.'

The mill itself had been completed about two weeks earlier, for on September 1, 1797, the *Shrewsbury Chronicle* reported that:

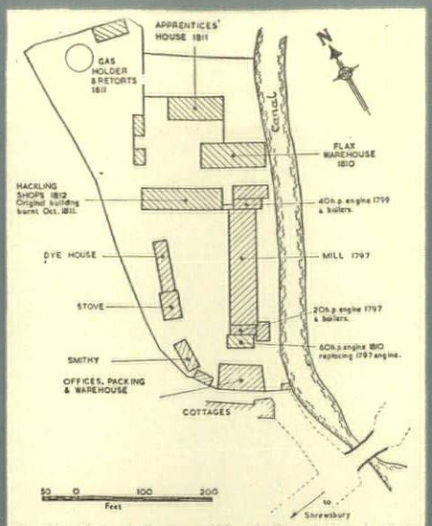
'A very important improvement has just been made in the building of manufactories liable to danger from fire, by Messrs. Benyon and Bage, of this Town. These gentlemen have just finished a spacious Flax-spinning Mill, which is *fire-proof*. The materials consist wholly of brick and iron; the floors being arched, and the beams and pillars being formed of cast iron.'

Construction therefore occupied rather less than twleve months.

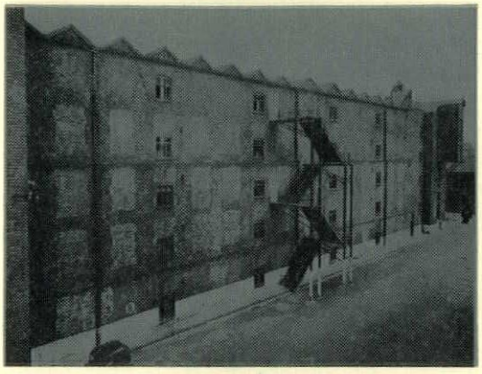
The 20 h.p. engine presumably drove machinery only in the southern part of the mill, the remainder being devoted to hand-process operations. Even on this limited scale it is doubtful if production began until well into 1798, and several of the ancillary buildings such as the stove and dye house, 8, were probably not completed before then. The first trading account, for the period July, 1798–July, 1799, records a loss, but the next year saw a nominal profit, followed in 1800–1 by a profit of £3,780. Already by the spring of 1799, however, a 40 h.p. engine was being ordered from Fenton, Murray & Wood, of Leeds. This was installed at the north end of

(1) The postal markings only prove that the letter was written at any date during several years before January 4, 1797. Personal communication from E. C. Baker, Archivist, G.P.O.

(2) Legal documents relating to the property, in possession of the present owners, William Jones & Son (Maltsters) Ltd. We are grateful to Mr. D. R. Tamplin of that Company for permission to study these papers, which have now been transferred to Shrewsbury Public Library, and also for permission to examine the building on several occasions.



8, *site plan of Benyons Marshall and Bage's flax mill at Shrewsbury, Castle Foregate (the Old Factory, as it was in* 1812).



9, *west elevation of the Shrewsbury mill. Since its completion in* 1797 *an engine house has been built at the south end in* 1810, *now with a malt hoist added, and most of the windows have been bricked in. The external iron stair is also a modern addition.*

the mill and came into operation not later than July, 1800, when George Lee, at Salford, mentioned in a letter to Watt that 'Marshalls at Shrewsbury . . . use two Engines of sixty horse power.'

Apart from the brief but very valuable note in the *Shrewsbury Chronicle*, which has just been quoted, the first published description of the mill appears in the 4th edition of the *Salopian Guide*[1], printed in February, 1803:

'You are now arrived at the northern suburbs of the town . . . (at) Castle Foregate . . . a little way out of which stands one of the greatest *Linen-yarn Factories* in the kingdom; the erecting of which strongly evinces the patriotic and public spirit of the proprietors, Messrs. MARSHALL, BENYON'S and BAGE. It is not only an honor but is (and will be more so in the process of time) of great benefit to the town of Shrewsbury. The building is of brick, upwards of two hundred feet in length, and five stories high; the floors of each story are of brick, arched, thro' which is perforated,

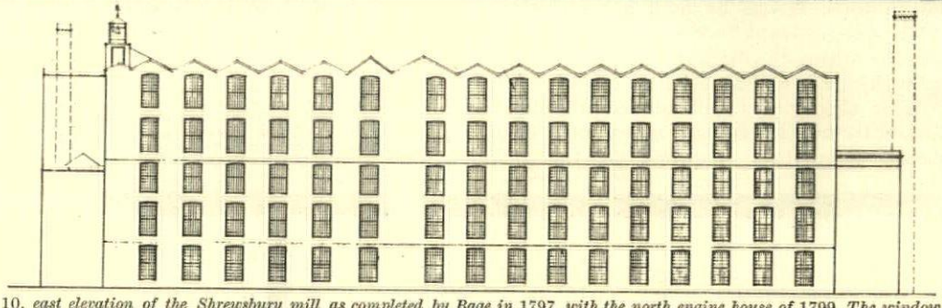
Full many an iron friend, whose massive strength
Seems to defy old time's long threatening stroke!

These were cast at Mr. HAZELDINE'S foundry in this town; and, as well as supporting this extensive fabric, serve as principal instruments, thro' which the multiplicity of machinery, in this vast undertaking performs. From the power of two large steam engines, one at each end of the building, the whole is kept in motion; and as one instance of the very great expense, the persevering proprietors are at, the consumption of coal, only, is upwards of *two thousand* tons annually! Besides other buildings adjoining, there is one forming an angle with the *Factory*, where the flax etc. is dressed and prepared for the spinning department. The fields in the neighbourhood generally are covered with the yarn from the bleaching vats, and have a pretty appearance. Nothing can be more conveniently situated, it being close to the canal, that brings the coal to the town, and which article is loaded at the very mouth of each steam engine.'

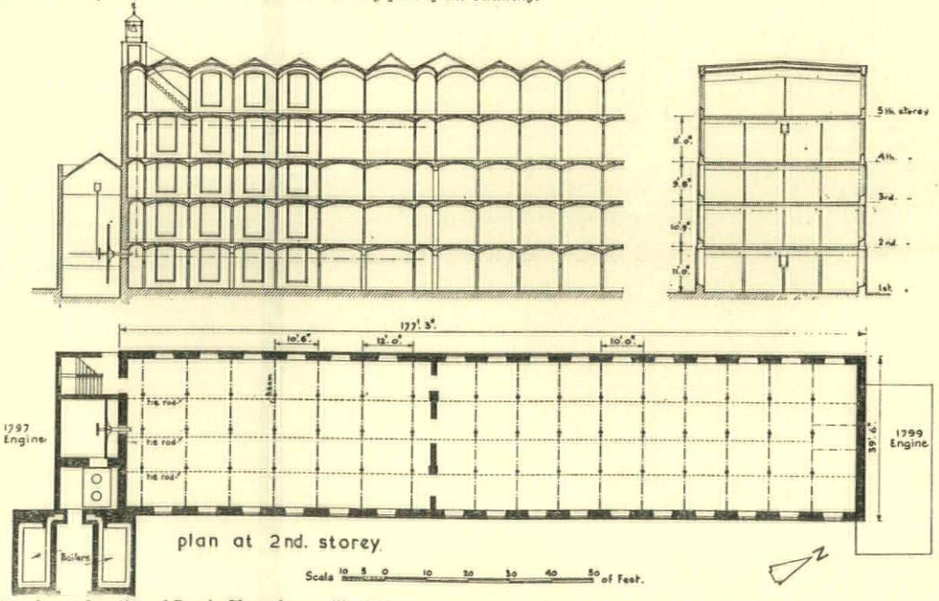
The mill stands today, 9, in an excellent state of repair, with hardly any structural changes except for the addition of an engine house at the south end (built in 1810) and a large lean-to shed along the east side. The building is now used as a malt store and most of the windows have been bricked in. This greatly alters the external appearance, but the shape of the windows can be seen and part of one of the original iron window-frames is still in position. We have therefore been able to draw an elevation, 10, which gives some impression of Bage's building.

The engine-house of 1797 can readily be found, with precisely the dimensions shown on the contemporary drawings. Alongside it are the stairs built of brick and stone; and the staircase terminates in a small bell-tower—the bell being dated 1797. The mill itself is 177 ft. long and 39 ft. 6 in. wide, with an internal width of 36 ft. and a working floor area of 31,000 sq. ft., 11. The walls are of brick 23 in. thick in the lower two storeys, diminishing symmetrically to 13 in. thick in the top storey. Originally a cross-wall rose through the first three floors and probably served as a fireproof partition between two portions of the building in which different operations were carried out. South of this wall the bays generally are 10 ft. 6 in. wide, although there is one of 12 ft. and the two end bays are narrow; whilst to the north of the cross-wall the bays all have a span of 10 ft. exactly. At one time we thought these curious differences might imply two stages of construction but the balance of evidence strongly suggests that the entire mill was completed in 1797, that the north engine-house was added in 1799, and the bay widths were controlled by details of shafting and machinery.

The floors are supported on brick arches with a rise of 13 in., the total depth of construction being about 9 in. at the crown. Wrought-iron tie-rods 1 in. square can be seen beneath the arches running along the mill just off the lines of pillars, 12. The soffits of the beams are clearly visible, with a width of 5 in., and it is evident that the beams were cast in two pieces bolted together in a large cross-flange on the centre line of the building. The body of the beams is normally hidden by the arches, but in one bay in the floor of the top storey an arch has been removed for the installation of a water-tank and there we found a beam of what might be called a 'trapezoidal' section, 14. The maximum depth is 11 in., the upper 7 in. consisting of a web 1 in. thick at the top increasing to 1½ in. at the base where it joins the lower portion, the width of which increases to 5 in. at the bottom. This section is, of course, simply an adaptation in cast iron of Strutt's timber beams with their skewbacks, 15—an extraordinarily interesting example of structural evolution. The depth of the beam is 7 in. where

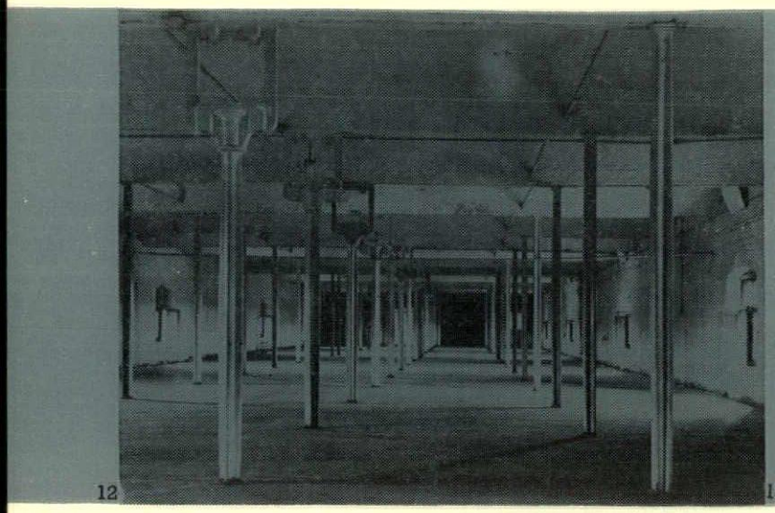


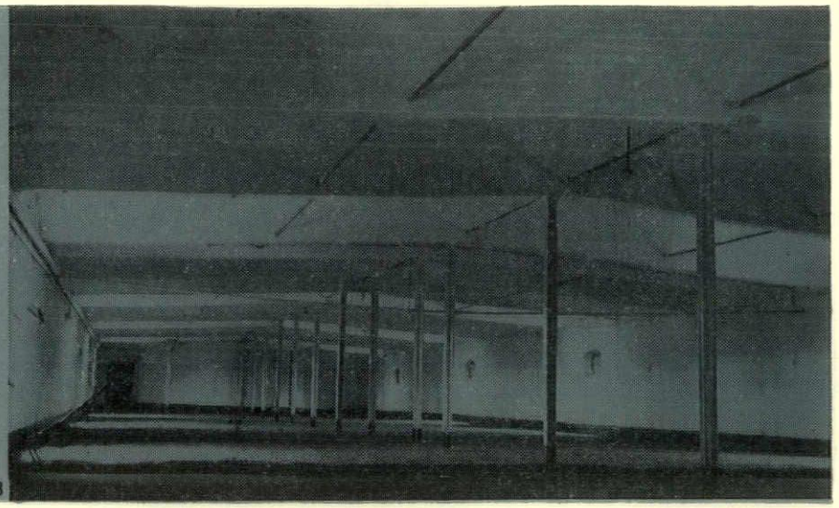
10, *east elevation of the Shrewsbury mill as completed by Bage in* 1797, *with the north engine house of* 1799. *The window frames were of iron and no timber was used in any part of the building.*



11, *plan and section of Bage's Shrewsbury mill,* 1796–97. *It was the first multi-storey building with an interior iron framework. The walls are of brick.*

(1) T. Minshill: *The Shrewsbury Visitor's Pocket Companion or Salopian Guide and Directory.* Shrewsbury 1803, pp. 47-48.





12, *the fourth storey of the Shrewsbury mill. Note the entasis of the solid cast-iron star-section pillars. The brackets in the centre row supported shafting for the flax-spinning machinery. The 5-in. wide soffit of the beams can be seen and the wrought-iron tie rods strengthening the brick arch floors.* 13, *the top storey. Only the centre row of iron pillars projects up into this storey. They support 18 ft. span iron beams carrying the brick arch ceiling on which the roof slates are laid.*

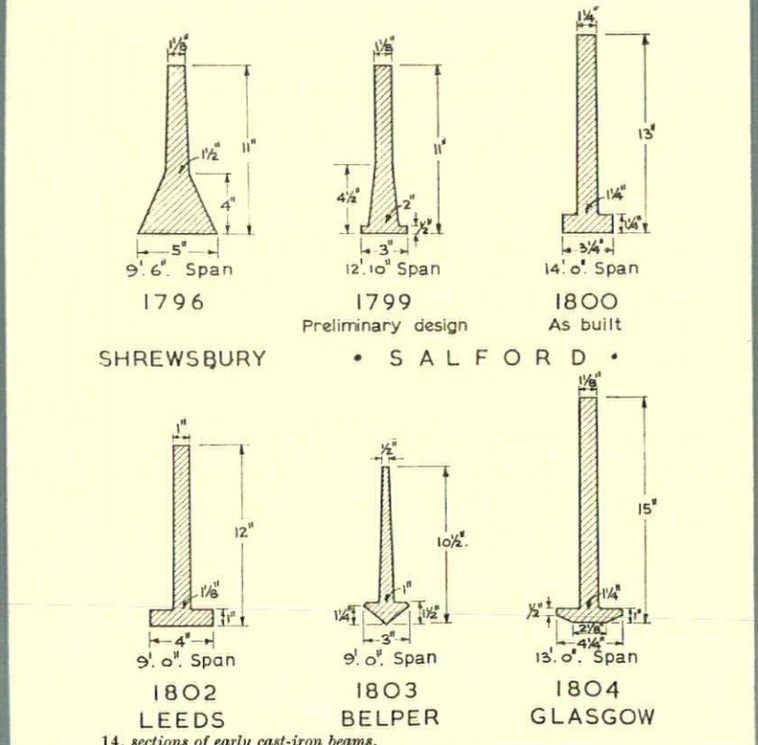
it bears on the external wall, 11 in. at mid-span and 10 in. where it passes over the pillar; and Bage seems therefore to have had at least an approximate intuitive understanding of the bending moments in 'continuous beams.'

The pillars have a star section and display a decided entasis, the maximum depth of section being situated at mid-height where the tendency for bending is greatest. In the lowest storey the outer rows of pillars are 6 in. deep at the maximum section, with an area of 13 sq. in., and a free-standing height of 9 ft. 2 in. They originally carried a load of about 32 tons (including a reasonable estimate for live loading on the floors) and according to Bage's theory their ultimate strength would be 78 tons. Hence he used a load-factor of 2.5 in design. Rankine's formula gives 70 tons for the ultimate strength, and consequently even by the mid-nineteenth century, when column theory was well understood and confirmed by numerous tests, no essential change would have been required in the pillars except, perhaps, to make them slightly heavier. Thus we see that, contrary to accepted views in the history of structural design, cast-iron columns could be designed in a rational manner before the end of the eighteenth century. Moreover, Bage reduced the section in the upper storeys, whilst the central row of pillars, which have to carry part of the roof as well as the shafting, were made more sturdy than those in the outer rows[1]. The centre pillars in the lowest storey, for instance, are 6¾ in. deep with an ultimate strength of about 100 tons, obviously corresponding to the working load mentioned by Bage as 'near 40 tons.'

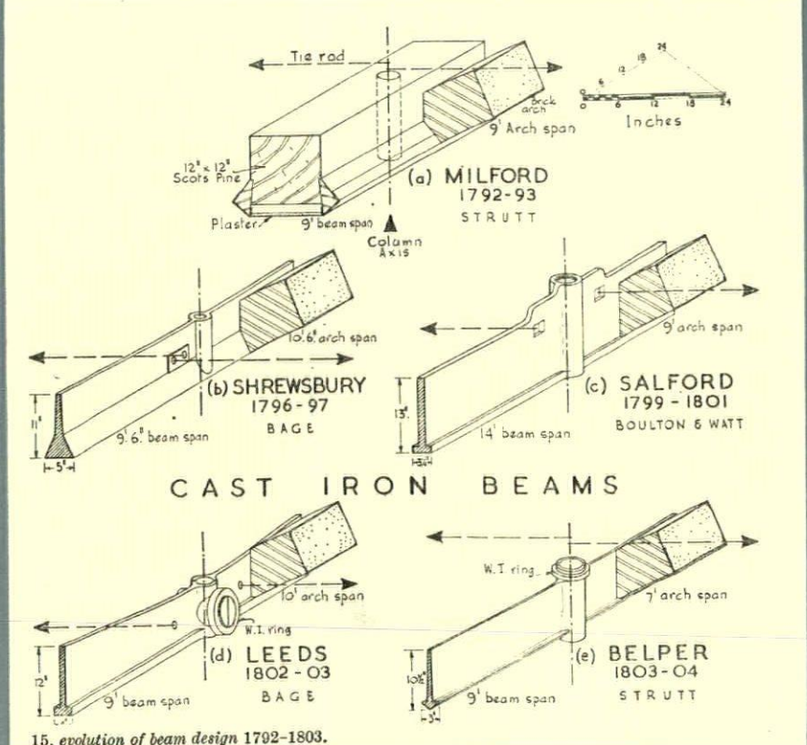
(1) The columns at Milford and Belper are equally sophisticated, but we have been unable to discover how they were designed. In fact, as they were cast before the tests at Ketley in 1795, it is doubtful if calculations could have been made. Strutt may have depended upon intuition confirmed, and if necessary modified, by proof loading.

The roof construction is unusual. As will be mentioned later, Bage was experimenting with cast-iron roof frames in 1803 and possibly used them in his mill at Leeds, completed in that year; and they were certainly used by Strutt in the North Mill at Belper in 1804. But these are the first known examples. Nevertheless, determined not to have a timber roof at Shrewsbury, Bage adopted a system of brick arches carried on iron beams spanning 18 ft. from the walls to a central pillar, 13, with the slating almost immediately above these arches[1]. In this way he was unable to avoid the saw-tooth profile of the roof, which is a conspicuous and aesthetically not altogether satisfactory feature of the elevations.

(1) The roof frames shown in Fig. 8 of Professor Bannister's paper (*loc. cit.*) are those of the Cross Building of 1812, not of the 1797 mill.



14, *sections of early cast-iron beams.*



15, *evolution of beam design* 1792–1803.

The Shrewsbury mill was, in fact, a strictly utilitarian structure with no concession even to the simple elegance attained in many industrial buildings of the period. The visual effect of the interior must have been remarkable, however, with the three rows of pillars in the high and immensely long rooms, flooded with light from the great windows which reached right up to the soffit of the floor arches. And as a technical achievement the mill was altogether outstanding. That it was modelled on Derby there can be no question, and Bage freely acknowledged his debt to Strutt, but for the bold decision to use iron throughout the interior framing and for the ability with which this decision was carried into effect, Bage was wholly responsible[1].

For those who visit the 'Old Factory' at Castle Foregate the following notes concerning its later history may be of interest[2]. After the second engine came into operation the hackling shops[3] soon required a building of their own, and before 1803 a five-storey timber floor structure (the Cross Building) had been erected for the purpose, at right angles to the mill at the north end, 8.

This was 124 ft. long with a width of 26 ft. 9 in. overall, and it is shown on plans of April, 1811, for gas lighting. After the construction of the Cross Building few changes were made until 1810 when Marshall, who had taken over the factory from Benyons and Bage in 1804, embarked on a considerable expansion. A spacious warehouse was built, followed by the gas plant and a house for the apprentices. More important was the replacement of the old 20 h.p. engine by one of 60 h.p. which, situated at the south end, although in a new engine-house, now drove the entire mill and thereby released the 40 h.p. engine at the north end for hackling machinery which was just being installed in the Cross Building. But these machines had been in operation for less than a year when a fire broke out on October 24, 1811. Great exertions were made to prevent the fire spreading into the mill, where the spinning machinery and handlooms were situated, and the workpeople in the Cross Building were able to escape from the upper rooms across a small suspension bridge, which had been erected by Hazeldine only the previous summer, to the new warehouse. But the Cross Building could not be saved and, during the night, the walls collapsed[4].

It is on Bage's own authority, in a letter to Strutt written four days after the accident, that we know this building was not of fireproof construction. Why this should have been the case is not clear, but perhaps when this structure was erected Bage's partners were not willing to let him have quite such a free hand as in 1796 and, on grounds of economy, and also because at the time no power-driven machinery was envisaged in the building, they insisted on traditional construction. John Marshall learnt the lesson, however, and he at once started rebuilding the hackling shops with the iron beams and pillars and brick arch floors which can be seen today. The new building, with a length of 118 ft. and a width of 33 ft. and only four storeys high, was completed by May, 1812, six months after the fire.

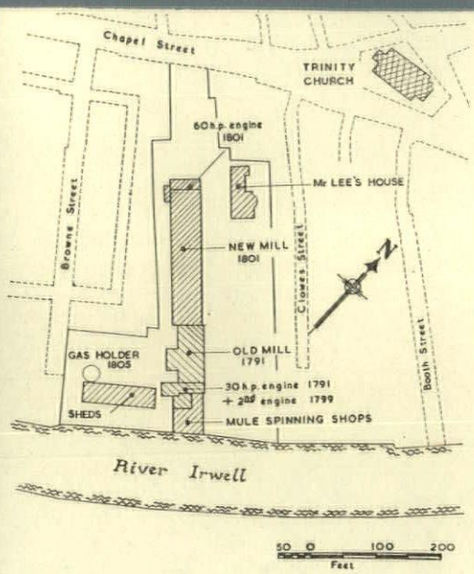
Subsequent changes were not very significant. In 1820 the 40 h.p. engine was replaced by one of 56 h.p., in the same engine-house, to drive additional hackling machines. The dye house was rebuilt in 1839 and later extended, but little other building work was carried out for over forty years, and the factory ceased operations in 1886. The present owners take a pride in the old mill, and it now serves admirably as a malt store. There can be no question of its extraordinary historical importance, yet it is scheduled only in Grade II by the Ministry of Housing and Local Government.

Salford Mill, 1799-1801

Boulton & Watt, of all engineering firms, were in a unique position to know details of the new fireproof construction, as they installed the engine at Shrewsbury whilst building work was actually in progress. It is therefore not altogether surprising that they designed the next iron-framed mill; the second of its kind and the fourth important fireproof building. This was the famous seven-storey cotton mill at Salford[1], erected during the years 1799–1801 for the Salford Twist Co. or, as the firm was known after 1801, Philips Wood & Lee (and, after 1804, Philips & Lee). George Lee (1761–1826), the active partner, was a man of great initiative, and there can be little doubt that the suggestion for adopting iron-frame construction came from him. He had been in active correspondence with Boulton & Watt since 1797 concerning an additional engine for the existing mill at Salford (built in 1791, see 16), and this engine was being erected between March and August, 1799. It would therefore be perfectly natural for Lee to ask them to make the designs for the structure of the new mill, as well as its engine. Moreover Lee was obviously determined that his building and its equipment should exhibit every possible improvement. Not only was the great 60 h.p. engine the most advanced of its day, but the mill was the first to have steam central heating, and it was the first building to be permanently lit by gas, the plant being installed by Murdock late in 1805.

In a drawing by Boulton & Watt[2], which can be dated to July or August, 1799, details are given of the iron beams and hollow cylindrical columns (in which steam was to be circulated for heating). The beams in this drawing are of 12 ft. 10 in. span and their section, 14, is obviously derived from Bage's at Shrewsbury. The trapezoidal 'skewbacks' are still in evidence, though reduced in size, but there are small lips to provide a seating for the brick arches; a new feature in which we can see the embryo of the flanged beam.

One, if not more, of the external walls had been brought above ground level before the end of 1799, but it seems that an appreciable



16, *site plan of Philips Wood and Lee's cotton mills at Salford near Manchester. The famous iron-framed structure is the 'New Mill,' completed in* 1801. *Work started in* 1799 *but did not really get under way until* 1800 *when important changes were made in the design.*

delay then occurred and construction did not begin in earnest until the summer of 1800. The iron framing was completed early in 1801 when at Lee's request William Creighton, one of Watt's draughtsmen, made a remarkable perspective drawing of the columns and beams before the brick arches were in position, 17. The first-floor arches were built in March and, after a serious failure of the foundation of a column in July, the mill was finished by the end of 1801. Steam was admitted to the central heating system in January, 1802, and the cotton machinery was mostly in position by April[1].

Now Creighton made a measured cross section, 18, as a basis for his perspective, and this shows that the beams as built had spans of 14 ft. and a maximum depth of 13 in.; whereas in the 1799 drawing their span was 12 ft. 10 in. and their depth 11 in. Thus at some later date, but undoubtedly before the summer of 1800, the plans of the building itself were changed and, consequently, the structural frame also had to be redesigned. The revised leading dimensions of the beams are actually noted on the 1799 drawing; but none of the other changes, including a slightly different profile for the beams and larger diameter columns. Hence a further drawing of the ironwork must have been produced, but this cannot be traced, and unfortunately the precise cross section of the beam is not known. Fairbairn[2] gives a section, it is true, and without more positive evidence this must be accepted, but as he makes an error in the number of bays, and in his drawing of the horizontal profile of the beams, his evidence is not necessarily reliable.

Fairbairn's section, 14, shows a marked difference from the 1799 design, for the trapezoidal element has been eliminated and flanges have appeared. Thus if Fairbairn is correct, the first flanged beams were used at Salford. On the other hand, since cast iron is

(1) Bage wrote to Strutt in October, 1811, saying: 'How much we are obliged to you for teaching us how to make buildings Fire proof.' But not until 1803 was Strutt convinced that cast iron was suitable for beams.

(2) W. G. Rimmer: 'Castle Foregate Flax Mill, Shrewsbury 1797-1886,' *Trans. Shrop. Archaeolog. Soc.*, Vol. 56 (1958), pp. 49-68, gives much information on the economic history of the factory.

(3) Flax-dressing, or hackling, remained a hand operation until about 1808.

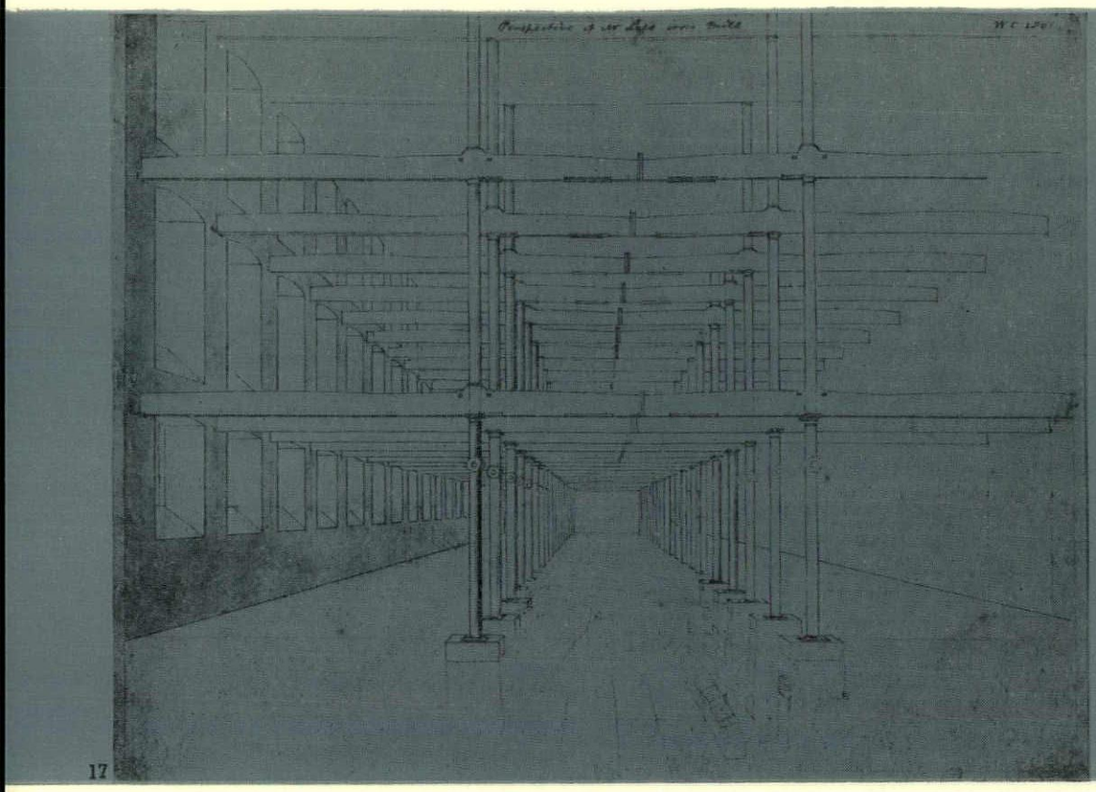
(4) *The Salopian Journal*, printed by William Eddowes, October 30, 1811.

(1) The mill is in Salford, on the west bank of the River Irwell (Fig. 16) but, in fact, less than a mile from the centre of Manchester on the other side of the river. Several contemporary authors refer to the mill as being in Manchester.

(2) This drawing strongly supports the statement by Fairbairn (*op. cit.*) that 'the iron beams and columns were designed by Messrs. Boulton and Watt.' Strictly speaking, however, there is no absolutely conclusive evidence on this point, since the drawing may have been made from sketches by Lee, for example, and Fairbairn was writing many years after the event.

(1) These dates are given in letters from Lee to James Watt, jnr. (in the Birmingham collection).

(2) Fairbairn *op. cit.*



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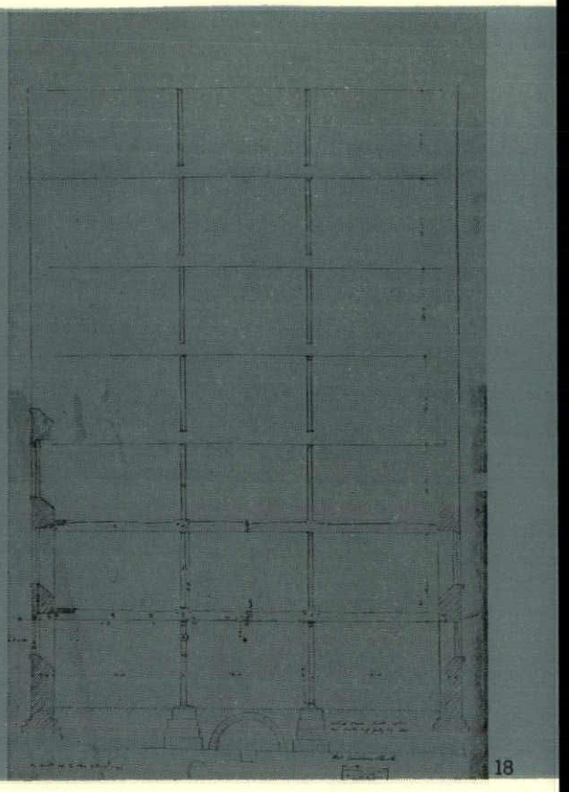


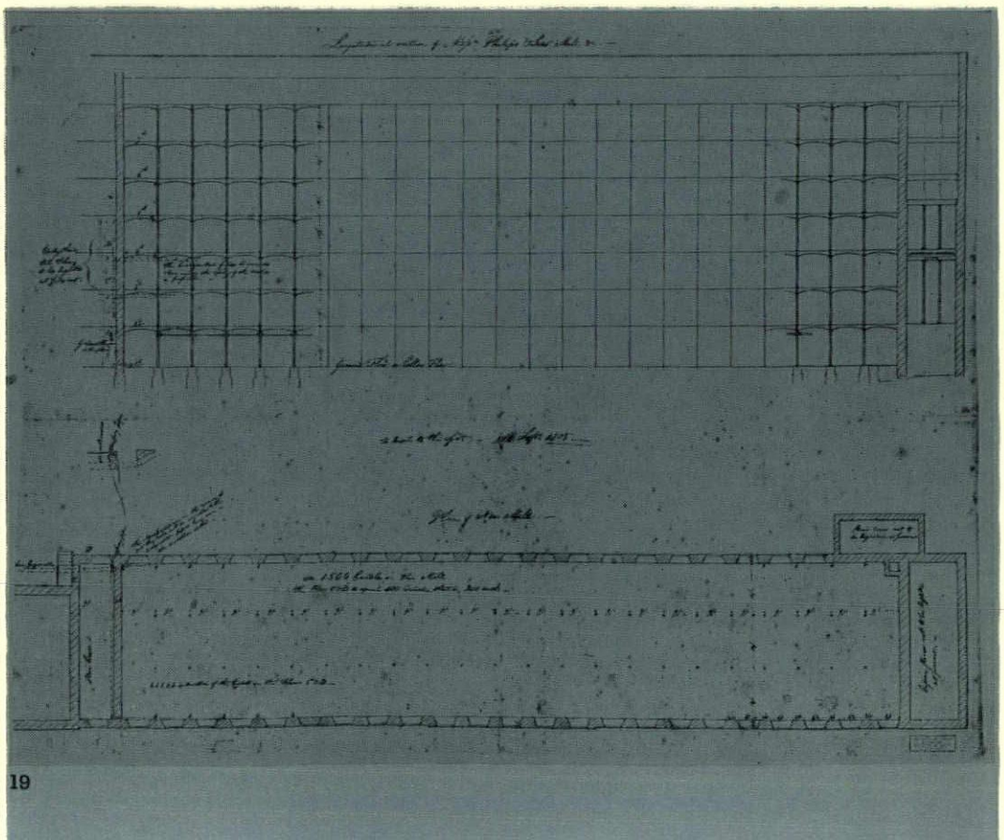
18

17, *drawing of the Salford mill, made by William Creighton early in* 1801 *when the iron framing was complete, but before the brick arch floors had been built. Note that Creighton entitles this drawing 'Perspective of Mr. Lee's iron Mill.'* 18, *cross section of the Salford mill drawn by Creighton as a basis for his perspective,* 17. *A note at the bottom referring to a failure of one of the footings was added a few months later.*

much weaker in tension than in compression, the essential function of a flange is to provide more metal on the tension side of the beam, where it is most needed. In a simply supported beam the correct position for the flanges is therefore along the bottom edge. But at Salford the beams were very decidedly continuous over the columns. Indeed with a join at the middle of the centre bay (see 18) the beams in this span were acting almost as cantilevers and there would be tensile stresses at the *top* of the beam near the columns. The longitudinal profile of the beams shows that the designer was aware of this, and he has given them a depth of 13 in. at the columns[1] and at mid-span in the outer bays, but a depth of 11 in. at the central joint and at the points of contraflexure and where they bear on the walls. This is perfectly logical for a beam of rectangular section, and we are of the opinion therefore that the flanges were considered rather as supports for the brick arches than as tension flanges.

(1) Actually at the columns the beams were 16 in. deep, but this was to provide a seating for the column above and an extra depth of metal to compensate for the tie bar holes. The 13 in. depth occurs 1 ft. away from the centre lines of the columns.

19, *plan and section of the Salford mill, drawn by Murdock in September,* 1805, *in connection with the installation of gas lighting.*



19

Comparing the Salford design generally with Shrewsbury, the most outstanding improvement is the more economical beam section. The tie-rods were wholly concealed in the brick arches, and therefore protected from fire, and the hollow cylindrical columns are theoretically stronger for the same weight of iron than the star section used at Shrewsbury. But with a lighter section and the liability for uneven thickness, if the core was not strictly central during casting, cylindrical columns were perhaps less safe against fire. The ceiling of the top storey consisted of iron beams and brick arches but, even so, it is rather surprising that Lee was content with timber roof frames.

The Salford factory was converted to a bonded warehouse in 1840 and continued to serve that purpose until December 21, 1940. That night incendiary bombs started an uncontrollable blaze in the 1791 mill, which still had its wooden floors, and the fire spread into the 1801 mill. The contents were destroyed, but the structure survived—only to be struck down by high explosive bombs a few hours later.

Having identified the site from maps and early nineteenth-century directories, we visited Salford in 1956 and were able to trace the foundations. We also found a fragment of one of the columns lying on a scrap-heap in the yard. In 1960 a new building was erected, and fragments of several beams were encountered during excavation through the rubble. But these were sold for scrap before we had heard of their existence, and the exact section of the beams remains uncertain. In most other particulars, however, the structural arrangement is known very com-

pletely from drawings in the Boulton & Watt collection. Two by Creighton have been mentioned (17 and 18), and a plan and longitudinal section drawn by Murdock in 1805 when he was installing the gas lighting are shown in 19. There are in addition several others made in connection with the engine and boilers.

The mill had seven storeys and was 238 ft. long by 47 ft. wide overall, with a working floor area of 61,000 sq. ft. The floor arches spanned 9 ft., being 9 in. thick at the springing and 4½ in. at the crown. The beams formed three equal spans of 14 ft. across the internal width of 42 ft. The free-standing height of the columns in the first storey was 9 ft. 2 in., their external diameter was 6½ in. and the iron was ¾ in. thick. The stress in these columns would have been about 5 ton/sq. in., corresponding to a load factor of 3 on Rankine's formula.

The remarkable scale of the building, and its situation in the heart of the rapidly expanding Lancashire cotton industry, provide at least a partial explanation for the repute of the Salford mill even when its predecessor at Shrewsbury had been forgotten.

Leeds Mill, Meadow Lane, 1802-3

The partnership between Marshall and Benyons legally terminated in 1804, but they had agreed to separate in 1802, and Marshall then bought the land on which the mills stood. With the resulting capital the Benyons immediately planned a flax-mill at Meadow Lane in Leeds, 20, about three-quarters of a mile south-east of the Water Lane factory, and in the following year work commenced on another mill at Castle Fields near the Canal Wharf in Shrewsbury. Bage remained with the Benyons, and it was he, of course, who designed the new mills.

Building operations began at Meadow Lane late in 1802 and were completed by the end of 1803, the mill coming into production in July, 1804. Bage was at Leeds for the first three months of 1803 and took the opportunity, during his return journey to Shrewsbury, to spend a few days with Strutt at Derby. Strutt himself was very busy at that time designing the Belper North Mill, for the old structure on this site had been burnt out in January. He was still undecided as to the advisability of using cast iron beams, and in a letter of thanks for Mrs. Strutt's hospitality Bage writes (May 19, 1803):

'If on a balance of advantages and disadvantages you should at length prefer Iron beams, I should be glad to submit my reasoning on the strength & shape of them to your examination.'

In his next letter, of August 29, after apologizing for the delay—with 'the care of building two Mills and the ordinary business of the present Mill (i.e. Castle Foregate) . . . I really find but little leisure'—he sets out his theory, which includes the case where the beam has a tension flange. This theory, to which reference has already been made, is very reliable in practice, and we may suppose that it was instrumental in deciding Strutt to employ iron beams in the North Mill. At least there can be no doubt that Bage used it in his designs at Leeds and, with a clear understanding of the function of the flange, he took care to make the beams simply-supported at the columns by providing a flexible joint, 15.

Details of this construction were sketched by Simon Goodrich when he visited the mill on August 4, 1804, soon after it came into commission, and he also sketched the cross-section of the beam, stating that its maximum depth was 12 in. and that the flanges projected 1½ in. As for the thickness of the metal, this would not have been more than 1¼ in., as used at Salford with considerably greater spans (14 ft. instead of 9 ft. at Leeds), and was very probably 1 in. For this was the thickness used by Bage in the hackling shops built at the same time as the mill, also with iron-framing, and we were able to find a piece of one of those beams in part of the north wall still standing when we visited the site. The section of the Leeds beam can thus be determined with fair accuracy, 14, and on Bage's theory its ultimate strength under a uniformly distributed load would be 25 tons. With reasonable assumptions for the weight of the floor and its live loading, the factor of safety is about 3.

The Meadow Lane mill is thus of importance as the first building in which cast-iron beams were designed in a rational manner. With a flexible connection at each end, the beam was in simple bending with tension in the lower portion only. A flange was therefore provided at the bottom (serving, in addition, to support the arches). The bending moments increased uniformly to a maximum at mid-span and the depth of the beam (which, with a constant area of flange, controls the moment of resistance) was consequently also greatest at mid-span. The size of the flange and the depths were calculated to give an adequate, but by no means excessive, load factor. Thus Bage obtained a solution entirely suited to the new material, and moved decisively away from the continuous beams which, although satisfactory in timber, as used by Strutt at Derby, were not well adapted to cast iron. And the Salford type of beam, which itself had been substantially copied from Shrewsbury, was never used subsequently.

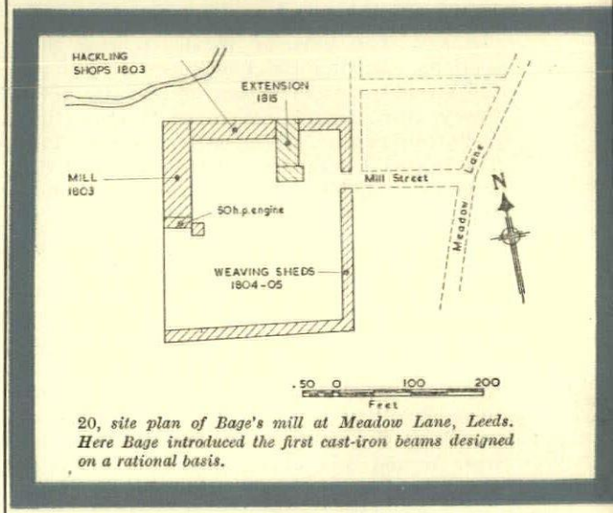
The mill at Meadow Lane no longer exists, except for the foundations (which were of the inverted arch type) and portions of some of the walls. From these remains, however, and from Goodrich's descriptions, we know that the mill was 157 ft. long, excluding the engine house, with an internal width of 36 ft. and had three rows of star-section pillars supporting brick arches of 10 ft. span. The ironwork was supplied by Fenton, Murray and Wood, who also installed a 50 h.p. engine at the south end of the building. The mill itself would have been five storeys high, and the hackling shops, running for a length of 120 ft. at right angles to the mill, had four storeys.

It is possible that this mill had the first cast-iron frame roof. In the letter to Strutt giving his beam theory, Bage also described full-scale load tests on two somewhat primitive triangulated cast-iron trusses of 38 ft. span, and says that these experiments 'on our plan were essentially necessary to be ascertained.' He adds that the frames would be spaced 10 ft. apart. These dimensions agree exactly with the Leeds mill, and the suggestion that iron roof-trusses may have been used is not at variance with a description of the factory published in 1806[1].

'A very large and elegant range of buildings has recently been erected by Messrs. Benyons and Bage in Meadow Lane, for the manufacture of linen, and which are completely fireproof, *no timber whatever being used in the building*, its place being supplied by cast iron; the floors are arches, raised upon cast iron beams supported by iron pillars, the whole of which are firmly bound together.'

Moreover, at about this time, Bage sent a sketch of an iron-frame roof to Strutt, evidently as part of the discussion on the Belper North Mill, and the actual roof at Belper bears a distinct resemblance to this sketch.

It has been asserted that a small four-storey building at the east end of the hackling shops, 20, was the original mill. But this was an addition, erected in 1815, and considerably modified at later dates. Its structural details, which have been recorded[1], are therefore of little interest and, incidentally, bear no resemblance to the sketches made by Goodrich in 1804.



20, site plan of Bage's mill at Meadow Lane, Leeds. Here Bage introduced the first cast-iron beams designed on a rational basis.

Shrewsbury, Castle Fields, 1803-4

The second of the two mills which Bage was building when he wrote to Strutt on August 29, 1803, was the 'New Factory,' for Benyons, at Castle Fields in Shrewsbury, 6. The plans had been prepared by June 9, and Bage then requested details of the engine-house from Boulton & Watt. Construction started about July, 1803, the engine was erected in November, 1804, and the mill must have been in operation before the end of that year[2], since in the Shrewsbury parish registers the Castle Foregate mill is already the 'Old Factory' on January 3, 1805.

The mill in Castle Fields had a length of 208 ft. and Bage's standard internal width of 36 ft. It was five storeys high with a pitched roof, as we know from drawings made in 1811 for gas lighting, and this roof may have been supported by iron trusses. As in the older mill at Shrewsbury, there was a brick cross-wall about 70 ft. from the south end, with a 20 h.p. engine, later supplemented by a 55 h.p. engine of Murray's situated at the north end[3]. The hackling shops also extended at right angles to the mill but, in this case, from the cross-wall.

These buildings were demolished before the end of the last century, and no records of the structural details have been preserved. It is

(1) *The Leeds Guide Printed by Edmund Baines, for the Author.* Leeds 1806, p. 103.

(1) H. B. Hamilton: 'The use of cast iron in building.' *Trans. Newcomen Soc.*, Vol. 21, 1941, pp. 139-55. In this paper the date is correctly given as about 1816. Subsequent writers have confused the issue.

(2) This is confirmed by *The Shrewsbury Guide* (1809) and by T. J. Howell: *The Stranger in Shrewsbury* (1816, p. 141).

(3) This engine is shown in the plans of 1811, and Howell (*op. cit.*) refers to 'the solemn and stupendous action of a steam engine of 55 horse power, which keeps in continual motion upwards of 3,000 spindles.'

unlikely, however, that they differed in any significant manner from those at Leeds.

Belper North Mill, 1803-4

The original North Mill at Belper, completed (with wooden floors) in 1786, was totally destroyed by fire on January 12, 1803. Shortly afterwards Strutt started designing a new structure, and the mill came into full operation at the end of 1804. His decision to use iron beams must have been made after Bage's visit to Derby in May, 1803, and probably after August of that year, but the foundations and works associated with the great water-wheel may have begun by this time; and certainly not later than the autumn.

The North Mill still exists with no essential changes. The exterior is shown in 5, and sections, showing the machinery as well as the structure, were drawn in 1812 by John Farey, Jnr., for his article on 'Manufacture of Cotton' in Rees' *Cyclopaedia*, 1 on page 175. The beams and pillars and the concealed tie-rods were sketched by Goodrich in August, 1804, and we have confirmed the accuracy of these sketches by investigations in the mill itself[1], 14 and 15. The cast-iron roof truss should be noted, 1, as it is the earliest in England of which we have certain knowledge[2].

In this building Strutt lavished great care on every detail, and the whole structure is beyond criticism. It is a fitting culmination to a decade of experiment and development in which the multi-storey fireproof building was created and attained its first stage of perfection.

Mills built after 1804

It remains only to record briefly some mills built after 1804; for the problems of interior iron framing had then been mastered, and little further advance took place during the next quarter of a century.

Houldsworth's Mill, Glasgow (1804–6). This cotton-mill is usually dated 1802, which would place it immediately after Salford and before Bage's mill at Leeds. That date, however, refers only to the conveyance of land, and in May, 1804, Creighton was writing from Glasgow to Boulton & Watt that Henry Houldsworth would not require the engine 'before next Spring,' that the mill was to be incombustible and 'they intend to begin building shortly.' Most of the working drawings seem to have been ready by August, although the exact height of the first storey was not yet certain, and construction began probably in the autumn of 1804. The flywheel was shipped from Liverpool in January, 1806, and the engine (45 h.p.) was erected soon afterwards.

The mill was almost as large as the one at Salford, 224 ft. long with an internal width of 39 ft., and seven storeys high. The columns were cylindrical, for steam heating, and the brick arch floors spanned 8 ft. 6 in. The building still exists[3], with much of the original ironwork, and we were able to prove that the beams (14 ft. span) are simply supported, the connections at the columns being similar to those at Belper North Mill, and we were also able to measure the cross-section of the beams, 14. The roof is supported by a remarkable iron truss which presumably dates from 1805.

Kennedy's Mill, Manchester (1805–7). Strutt added a wing to the old mill at Milford in 1805–6, but this was a minor example of iron framing, and the next important structure of this type was a cotton-mill built in Great Ancoats Street, Manchester, for James Kennedy. This is the seventh known iron-frame mill, completed almost exactly ten years after the pioneer effort at Shrewsbury. Of immense size, 370 ft. long with an internal width of 40 ft. 8 in. and six storeys high, little now remains of it except the external walls and engine house. Fortunately, however, the invaluable collection at Birmingham contains drawings which show the beams to be simply supported, with a section similar to that used by Bage at Leeds, the dimensions being: span 10 ft. 2 in., maximum depth 13 in., web 1 in. thick, flange 3 in. wide by $\frac{3}{4}$ in. thick, and the arch floors spanning 8 ft. 4 in. Construction began towards the end of 1805, or possibly early in 1806, and Boulton & Watt sent the engine parts to Manchester in October, 1807, by which time the building would have been practically complete. The mill came into operation in the spring of 1808.

Belper South Mill (1811–12). It would be an almost impossible task to continue the strict chronological sequence of iron-framed mills after 1807, but four examples built in the following decade are of sufficient interest to merit a short description. Of these, the South Mill at Belper is of considerable technical importance. The old mill at this site, erected 1776–78, was demolished in 1810, and Strutt then designed the present building. Construction began in 1811, and the first wages of the cotton-spinners in the mill were paid in the week ending December 19, 1812. The beams span 12 ft. in the principal rooms, but in the east wing the spans increase to 17 ft., the floor arches being 9 ft. 6 in. wide throughout[1]. The 17 ft. beams are the largest of any we have found in this period[2], and on Bage's theory they have a load factor of $2\frac{1}{2}$. In several recent publications the date of the South Mill has been incorrectly assigned to the year 1797. The building is now scheduled for demolition, but portions of the structural ironwork will be preserved at the Science Museum, South Kensington.

Stanley Mill (*c.* 1812–13). One of the first buildings in the south of England with internal iron framing was Stanley Mill, a woollen-mill at Stonehouse, in the Stroud valley. This has become well known through the photographs of Mr. Eric de Maré[3], and measured drawings were made in 1959 by Mr. Bentley-Jordan and Mr. Wheatley, of Manchester University. The ironwork is far more elaborate than anything to be seen in the Midlands or the North, and the exterior is exceptionally fine, with its Venetian windows, stone quoins and string courses. The designer remains unknown, but on parts of the iron occur the words 'LEVEL NEAR DUDLEY.' The Level Ironworks and Foundry, situated between Stourbridge and Dudley in Staffordshire, were well known in the early nineteenth century, under Benjamin Gibbons[1], and the castings were brought down the Severn and up the Stroudwater Canal to Stonehouse. The mill was completed in 1813, as proved by plaques over two doors in the building and by a map of that year showing the 'new mill' in position. Construction probably started in 1812.

Chatham Saw Mills (1813–14). It might be expected that fireproof construction would have made an early appearance in warehouses at the docks. But this seems not to be the case, and in a report of May, 1807, John Rennie was advising the Navy to build new warehouses at Northfleet 'upon the plan of some of the cotton and flax mills lately erected at Derby, Leeds, Manchester (i.e. Salford) and Glasgow.' No move was made by the Admiralty in this direction, however, until 1813 when Marc Brunel designed the Saw Mills at Chatham, with iron columns and beams supporting stone slab floors[2]; an interesting variant on the brick arch floors and one used on a vast scale by Edward Holl in the Quadrangular Storehouse at Sheerness (1824–29)[3].

Sedgwick Mill, Manchester (1818). This cotton-mill was built for the firm of James McConnel and John Kennedy, in Union Street, Manchester, alongside the Rochdale Canal. It is of interest as the beam-column connections are almost identical with those used by Bage at Leeds fifteen years earlier, and also for its height of eight storeys. A casting over a doorway in the eighth storey is dated 1818 and construction probably started in the previous year. The name of another of McConnel and Kennedy's buildings, hitherto known as the 'New Mill,' was changed to the 'Long Mill' in 1819[4], an event which presumably indicates that the Sedgwick Mill was in production.

Thus, in summary, we have seen that the great 'break-through' was made by William Strutt in 1792 with his design for the first multi-storey fireproof building, at Derby. Four years later Charles Bage started work at Shrewsbury on the first building with a complete internal iron frame, and wrote down the earliest known rational theory for the strength of iron columns. In 1802 he began construction of a five-storey mill at Leeds with the first logically designed cast-iron flanged beams. One year later Strutt's North Mill at Belper was begun; perhaps the most perfect of all the early iron-framed buildings and with the first certain example of an iron roof-truss in England. By 1807 at least seven important mills had been completed with interior iron-framing, and by 1818 this mode of construction was being used to heights of eight storeys.

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(1) See Johnson and Skempton *loc. cit.* for a full description of the structure, and J. Farey: *Rees' Cyclopaedia of Arts, Sciences and Literature* (London 1819, vol. 22) for an account of the machinery, heating and ventilating system and other features.

(2) Possibly the first in *cast* iron, anywhere. But *wrought* iron roof trusses had been used in 1789 over the Salon Carré at the Louvre and, perhaps a year earlier, over the Théâtre Français in Paris.

(3) Houldsworth's mill, now belonging to the Distillers Company Ltd. (to whom we are grateful for permission to investigate the structural details), was opposite to the building in Cheapside Street, Anderston, destroyed by the terrible fire of March 28, 1960, in which nineteen firemen lost their lives.

(1) For details and plans, see Johnson and Skempton (*loc. cit.*).

(2) Even in 1824, when designing the first of Gott's iron-framed buildings in Leeds, Fairbairn considered it necessary to carry out full-scale tests on a 16-ft. span beam. This had a section of the type used by Bage at Leeds, with a flange 6 in. by $1\frac{5}{8}$ in., a web $1\frac{1}{4}$ in. thick and a total depth of 15 in. (Fairbairn *op. cit.*, pp. 6-8). In the following year, however, he tested a beam of 20 ft. 9 in. span for a mill in Bradford.

(3) J. M. Richards: *The Functional Tradition in Early Industrial Building*, London 1958, pp. 83-86.

(1) T. M. Hoskinson: 'The Earl of Dudley's Level New Furnaces,' *Trans. Newcomen Soc.*, Vol. 28, 1952, pp. 153-61.

(2) Brunel's drawings are still at Chatham, dated June 4, 1813. The Saw Mills were completed in the following year.

(3) Plans and sections of this great warehouse are given by Sir John Rennie: *The Theory, Formation and Construction of Harbours*, London 1854, Vol. I, Pl. 19. He also quotes his father's report of May 1807, to which reference is made above (*ibid.* p. 59).

(4) D. McConnel: *Facts and Traditions Collected for a Family Record*. Edinburgh 1861, p. 144.

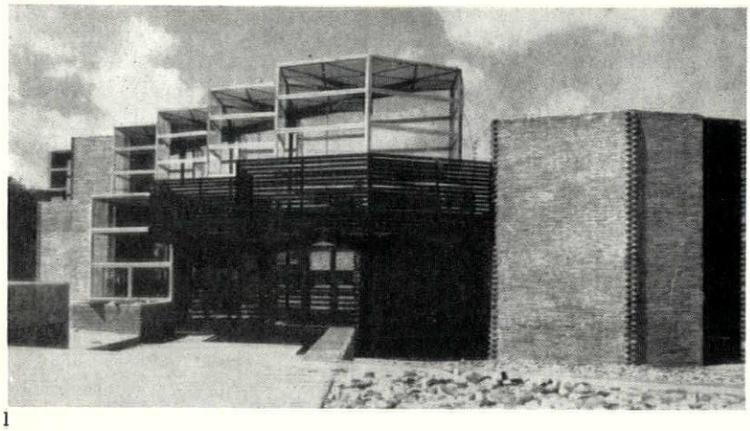
NEWSLETTER

THE SPAIN OF CARLOS FLORES

How many of those who were introduced to modern Spanish architecture by the Spanish pavilion at the Brussels International Exhibition of 1958, know that the pavilion was taken down, like the Crystal Palace, and re-erected elsewhere, 1, in a drastically modified form (but by the same architects, Corrales and Molezún) for an exhibition in Madrid? Our failure to know such things about a building of such merit is yet another aspect of our quite extraordinary ignorance of the present state of Spanish architecture. In spite of the fact that Spain is much visited nowadays, no one seems to see anything beyond Gaudì, and a flourishing regional school of architects goes by default in the world's estimation.

But, thanks to Carlos Flores, such ignorance is inexcusable now. In his massive book *Arquitectura Española Contemporanea*, published by Aguilar last year, Flores (a young Spanish architect working in Madrid) has done for the architecture of Spain what Goodwin and Kidder-Smith did for Brazil. Here in 620 pages, most of them excellent illustrations, is the whole story of Spanish modern from contemporaries of Gaudì, like Berenguer, 2, through the heroic Twenties and Thirties with GATEPAC and Sert, whose houses of the middle Thirties, 3, will stand up, still, to international comparison, through the Falangist doldrum of the Civil War and World War II, to the first signs of a reawakened architectural sensibility, which Flores dates from the 1947 house, 4, at Sitges, by Coderch and Valls—two names that have resounded through the post-war period that is Flores's real concern in the book.

What his study of the last ten years reveals is a national architecture as lively as it is diverse. Practically every discussible trend of the last decade is represented (except Neo-liberty, though it has some Spanish sympathizers): even diagrammatic Miesian has its local variant, represented with great aplomb and purity by the SEAT garage in Barcelona, 5, by Rafael Echaide and César Ortiz-Echague (whose earlier factory canteen for SEAT won the first



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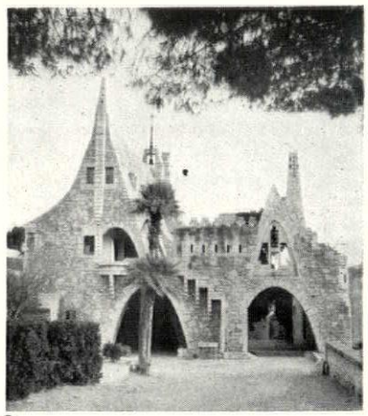

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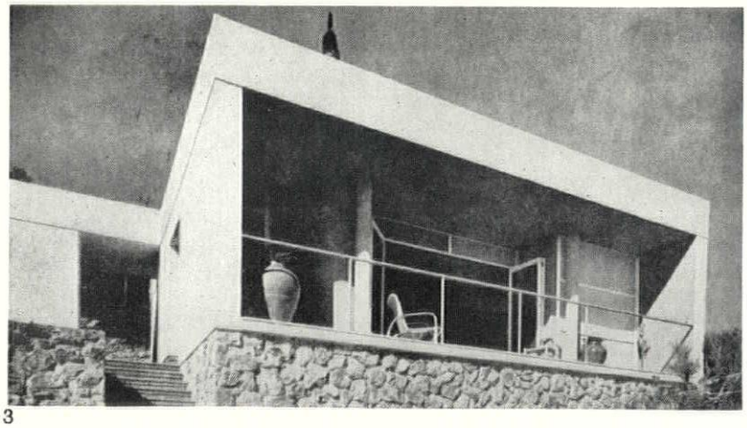

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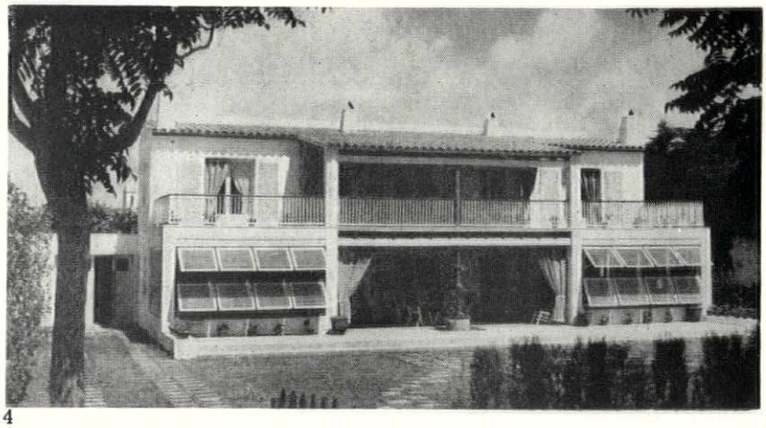

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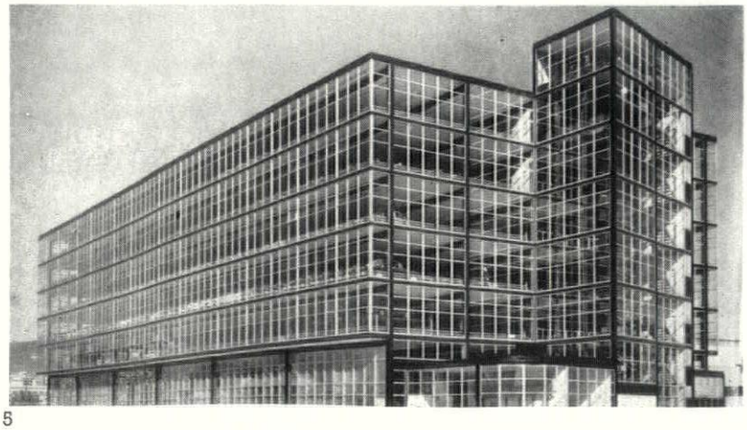

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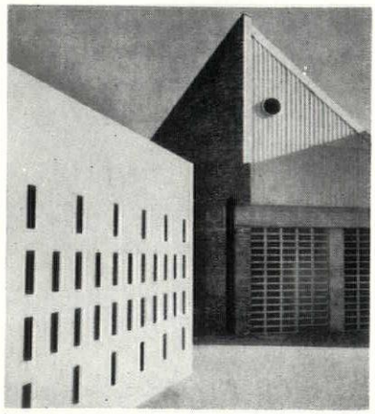


6

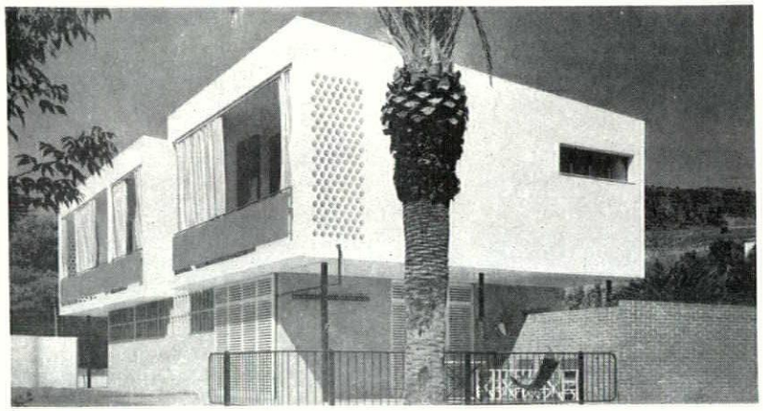
Reynolds Metals prize). But such regularity is rare among the works represented in Flores's book—the real Spanish machine aesthetic seems to be more fundamentally revealed in an electronics plant of 1959 by the inexhaustible partnership of Oriol Bohigas and José Martorell, 6.

The inexhaustibility and resourcefulness of Bohigas and Martorell make them not only a sort of Spanish Skidmore, Owings and Merrill, but also two of the heroes of the book. Always among the most internationally oriented of Spanish offices, as their Guardiola house, 7, at Argentona shows, they have also produced designs, such as the workers' institute in Sabiñánigo, 8, in collaboration with Bassó and Gili, that have exactly the air of Mediterranean peasant urbanity that northern architects admire so much, and try so unsuccessfully to emulate.

But this particular quality comes out with even greater force in the remarkable resettlement projects by the incomparable Jose Luiz Fernando del Amo. In the Pueblo de Villalba de Calatrava, where he works practically at the level of *trulli*, or the larger settlement at Vegevania, justifiably a prize winner at Sao Paulo, where he is almost a mass-production functional-traditionalist, 9, he keeps an intense aestheticism and enormous architectural sophistication firmly under control and subservient to the business in hand. Only in the two-towered façades to his churches —10 is the *parroquial* of Villalba de Calatrava—is even a whisper of this sophistication allowed to show.

Del Amo is one of the great individual personalities discovered for the world by Flores. The other is Miguel Fisac in his work for various religious bodies. Understandably, work for the church does not figure largely in the book, but when it does, and from the drawing board of Fisac, we are in the presence of an original, whose external influences, when visible, are most unexpected. The colonnades, 11, of the cloisters and covered walks of Fisac's college (not specifically religious) at Puerta de Hierro outside Madrid, reveal a man who can exploit Candelesque vaulting techniques without being enslaved by them—but the exterior of the college, 12, suddenly has us in the world of Frank Lloyd Wright's industrial architecture. Later work by Fisac, such as the Dominican Theological Seminary in Alcobendas, while it includes churches of ever more plastic form, 13, is much simpler in its more workaday parts, 14.

Younger men to watch? Flores does not give even potted biographies, but one can recognize a young man's



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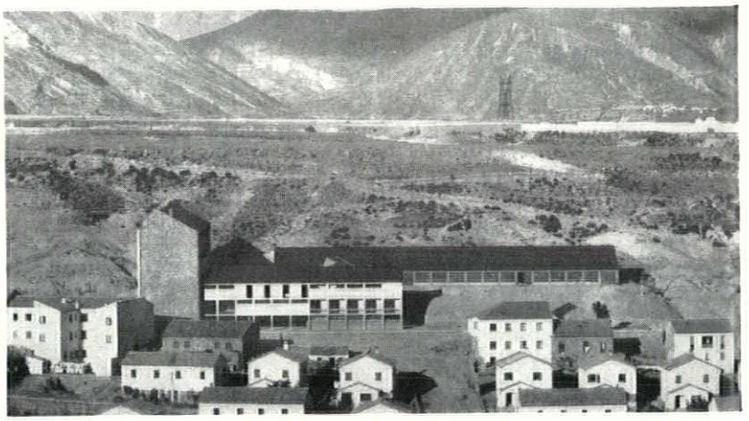

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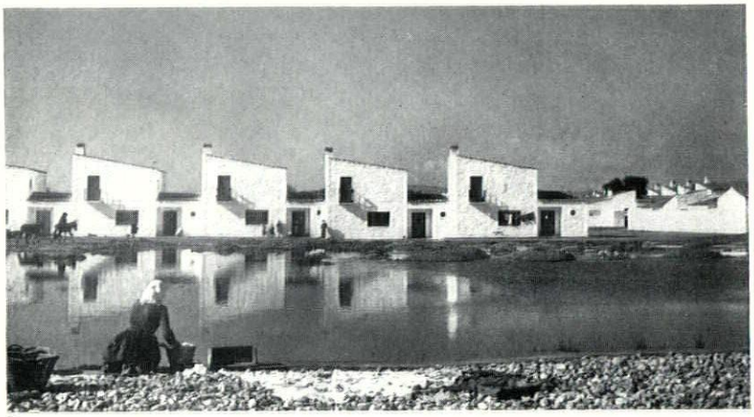

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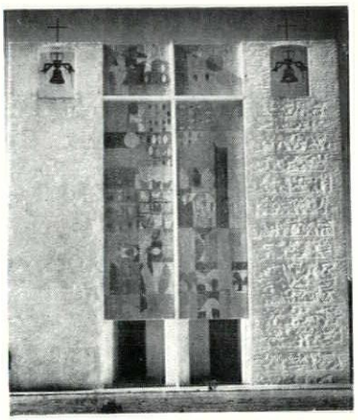

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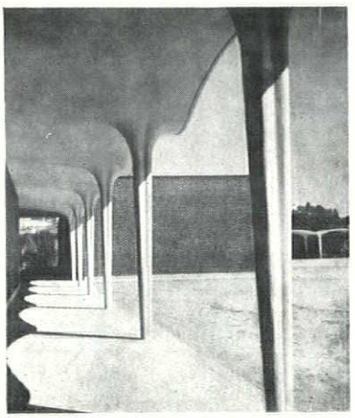

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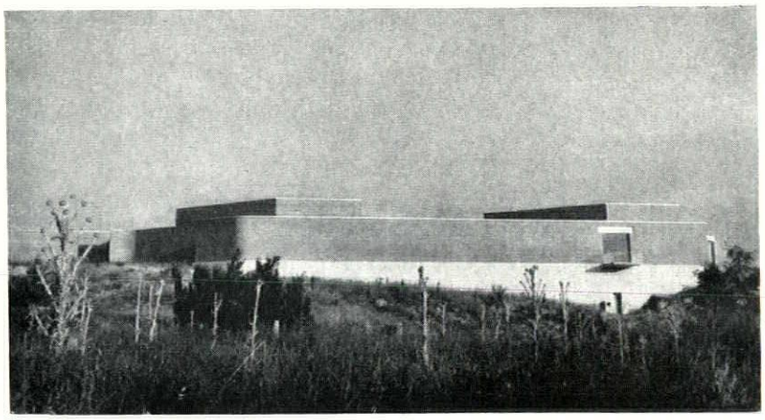

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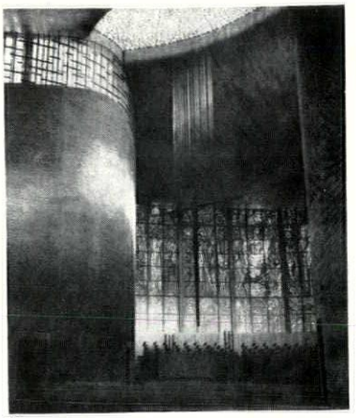


13

hand in the design of some of the smaller buildings toward the end of the book, such as the house at Pozuela de Alarcon, unmistakably of the generation after Brutalism, 15, designed by Fernando Ramon, the Madrid architect whose translation of part of the AR's **1960** series created something of a furor when published in *Arquitectura*. But much of the more devoted younger talent is visibly being absorbed in housing design. Like most Mediterranean countries, Spain is in the grip of a cruel crisis of habitation, whose solution has recently begun to exercise some of the best minds among her contemporary architects. The results, considering the desperate budgets on which they have to be financed in most cases, are remarkably fresh and relaxed. The best that can be hoped for, in many instances, is to do a simple job simply, to make decent inexpensive details, and group the blocks in decently urbane plans. For the details it would be hard to beat the elegantly composed simplicities of the housing at Cañorroto, Madrid, 16, by José Luis Iñiguez de Onzoño and Antonio Vázquez de Castro, while for plan-wise grouping at almost stifling high density, the palm must go to the Batán neighbourhood scheme, 17, again in Madrid, by Romany, de Oiza and Sierra, where a mixture of intelligent contour-chasing, pedestrian access and serpentine roads gives a diversified interior townscape in spite of a rather regular orientation of the blocks.

But there are simplicities and simplicities, and much of the modesty of current Spanish architecture conspicuously derives from abstinent affluence. The development towards an increasingly rustic style in the recent villas by Coderch and Valls, culminating in the house in Camprodón, 18, is one aspect of this aristocratic refinement, and it shows even more strongly in holiday buildings from the tourist belt—the little hotel at Puigcerda, 19, by José Sostres almost recovers that unaffected gaiety that Kidder-Smith reported so accurately in his early photographs of Italy, and Antonio Lamela exhibits a different kind of equally functional simplicity in his motels, 20, around Valdepeñas.

And there is also the grave simplicity of monumental form: these apartments, 21, in the calle de Pallars, Barcelona, have all the Team-X quality of a warehouse aesthetic that any brutalist could ever want. They are buildings of the hour as surely as any work of Tange or Kahn. Their architects? The inexhaustible and resourceful partnership of Bohigas and Martorell once more—one of the most encouraging aspects of the new Spanish architecture, as Flores reveals it to us, is that no one seems type-cast into a particular style, everybody is experimenting furiously.

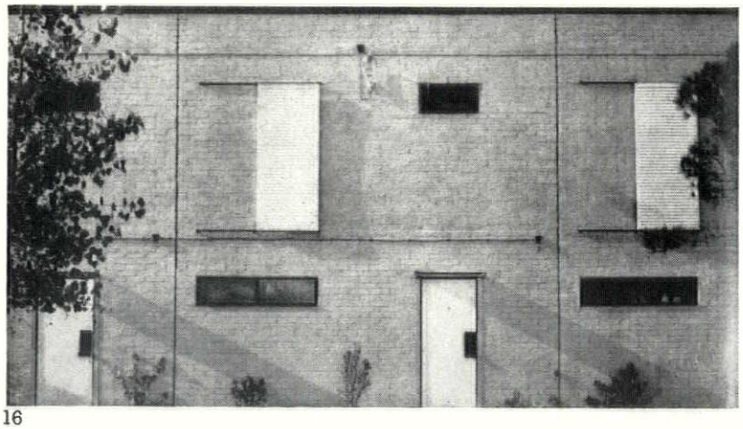
Michel Santiago



14



15



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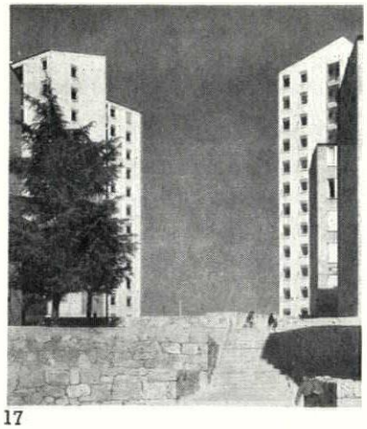

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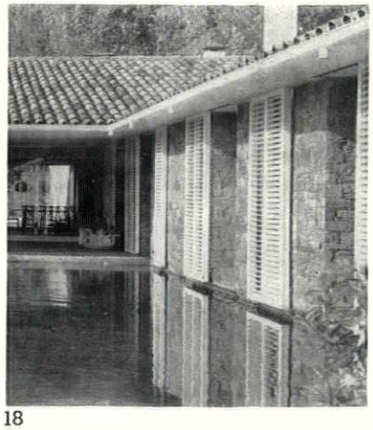

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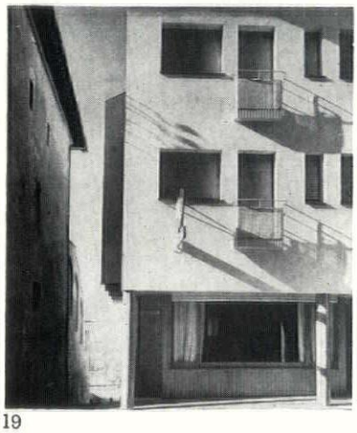

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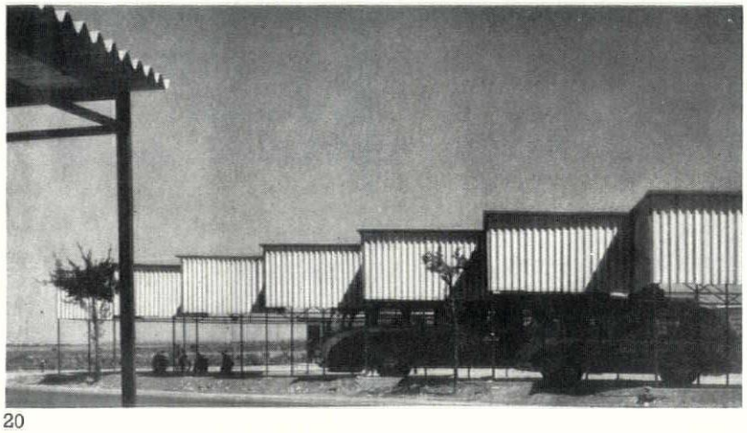


20



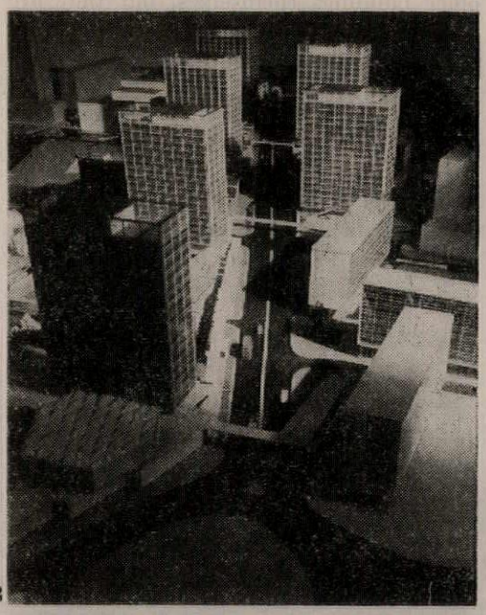
21



Graeme Shankland

Architects: Lewis Solomon, Kaye and Partners; Maurice Sanders Associates.
Planners: City Corporation; London County Council

South Barbican office towers, London



2

The subject of this month's critical analysis is the series of tower office blocks, linked at the base by a two-storey podium on the upper level of which pedestrians will circulate, that are now going up in the City of London. Two are already complete—the first, Moor House, is shown in 1 *on the facing page —and others are under way. Their special interest is that, although designed by different architects, they are given unity by the strict three-dimensional control exercised by the local authority town-planners. The tower blocks are spaced along either side of London Wall, the new traffic artery created since the war on the south side of the bomb-devastated Barbican area.* 2, *above, is a model of the eventual scheme, looking east along London Wall and showing the pedestrian bridges connecting the podia on either side. Moor House (see also site-plan on the next page) is at the far end on the left.*

If to-morrow it were reported that a public authority was about to impose aesthetic control by prescribing in detail the height, shape, width, depth, silhouette, floor-heights and elevational design of buildings, one would also expect to hear prompt protests. Defenders of the professional integrity of architects and the rights of building owners would warn us against evil precedents and fill the air with libertarian adjectives.

Yet this has been going on, under everyone's nose, in the heart of the City of London without a harsh word being said, at least in public. Two buildings, conceived in this way, are now complete, and can be seen to the north of the City Engineer's new main road, now known as London Wall*, which runs through the southern part of the large devastated area called the Barbican. These two, 'Moor House,' 1, and 'St. Alphege House' will be joined by two others sited parallel to them, one of which is nearly finished. South of London Wall two more have already been designed and have received planning consent. In some three or four years' time this group of six towers with their podia, all produced in this way under the same strict conditions, but designed by different architects, should be complete.†

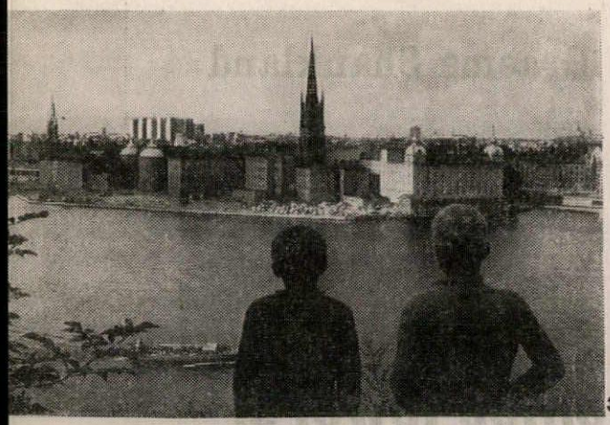
This rigorous architectural control is unknown in town design on this scale in Britain since Georgian times. So far from frustrating architecture as it is usually claimed to do, this control has served to produce the best two office buildings yet built in the City. How has this apparent paradox come about? Back in 1954, a private venture, the 'New Barbican Committee,' sickened by the piecemeal and architecturally inept character of almost all central London rebuilding to date, and with one eye on the main chance and the other on the vast, still vacant Barbican site, sponsored Kadleigh and Horsbrugh's 'New Barbican' scheme. This demonstrated, in a brave vision of hexagonal towers and podia, that a new twentieth-century city quarter could arise here on London's biggest blitzed area. Over-developing the site it was, however, rightly rejected.*

The considerable publicity the scheme attracted had several results. It focused public criticism, long simmering, on the dismal showing of city redevelopment and architecture; something new and better was seen to be possible. In this new climate it became easier for the official planners to win acceptance for bold schemes of comprehensive development and strong measures to achieve it. Taken together with LCC pressure it stimulated the City's reappraisal; it secured the reversal of the City Corporation's policy of letting off the sites it owned for piecemeal unco-ordinated development.

* Formerly known as Route 11.

† The architects concerned are as follows: Moor House, Lewis Solomon, Kaye & Partners; St. Alphege House, Maurice Sanders Associates; the three others so far commissioned are Bernard Cohn, Burnet, Tait, Wilson & Partners and R. Seifert & Partners.

* It was also claimed that the great depth of its vast submerged warehouses would interfere with the underground watercourses which sustain the subsoil under St. Paul's.



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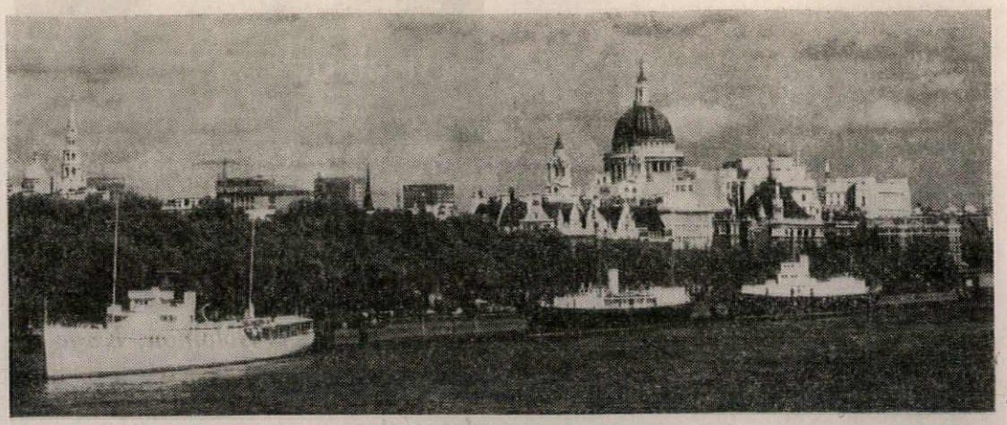

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The Barbican towers, shown distantly in 4, are compared in this article with the group of parallel office towers in Stockholm's new commercial centre, Hötorget, shown in 3. They do not, Mr. Shankland says, 'disrupt the city skyline as do those in Stockholm, and they have been surprisingly easily absorbed into the City's closely built-up medieval pattern.'

The LCC architect-planners, in association with their City colleagues, instituted the next stage with a plan for the area, produced as a counter-proposal at the public enquiry on Kadleigh's project, which became known as the 'Martin-Mealand'* scheme, 2. This was the first to propose a group of six identical towers, standing on a common twenty-foot high podium, and grouped parallel and angled in echelon both sides of the new London Wall. This scheme also proposed what was at that time a novelty, that part of this valuable site should be redeveloped for housing.

In broad essentials, this plan was accepted by both the LCC and the City, who are jointly responsible for planning the area. The City, as both ground landlord and building owner, commissioned Chamberlin, Powell and Bon to design the northern residential part of the Barbican, which had to dovetail in with the southern commercial Barbican, sited both sides of London Wall. At last the way was clear for Britain's largest single essay in central city reconstruction, extending over sixty-two acres.

In working out the design for the commercial area, the LCC planners and their committee were above all concerned to break new ground in layout and architectural expression. Most city rebuilding to date had been perimeter development and they did not wish to father, however indirectly, another Shell tower. Following quickly on the Shell fiasco, the idea of making certain of light, curtain-walled tall buildings had obvious attractions. Though they originated in this way, the credit for steering the detailed architectural negotiations and for the necessary toughness to back these by a refusal, if need be, to lease the land, goes to the City Corporation. Subsequently, the architect-planners of both bodies, working closely together, have jointly approved each building.

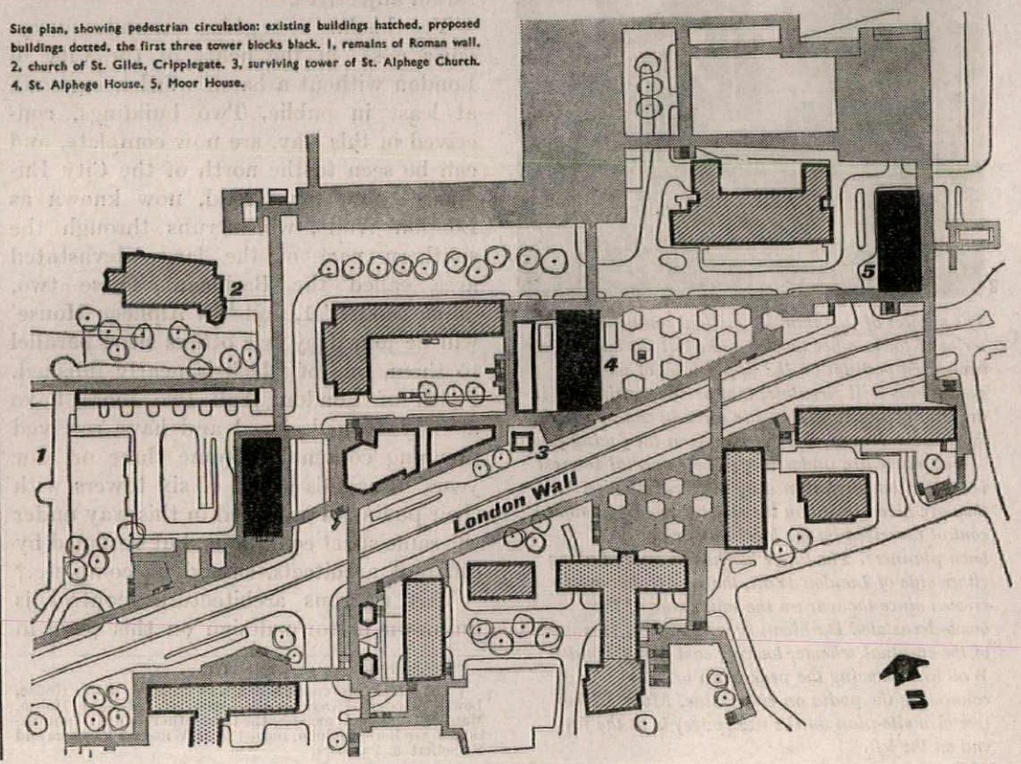
The City is now the freeholder of virtually the whole area. Each developer is required not only to conform to the normal town-planning rules for plot-ratio, car-parking and daylighting, but is presented with a precise, three-dimensional envelope as a pre-condition of his building lease. Developers' architects are also required to build a portion of podium some twenty feet above road level, to form a new pedestrian circulation level over the whole area. Complementary to the towers and podia are some lower buildings, generally of eight storeys, on the south side of London Wall. This new pedestrian level will extend over a much larger area, crossing London Wall, and linking through to the residential Barbican to the north, and eventually it is hoped westwards to the precincts of St. Paul's and St. Bartholomew's Hospital.

As town design, the pedestrian landscape, based on a new ground level of private roofs open to the public, is the most original part of the whole scheme. It is the first in Britain where the effect of a sunken road has been achieved by raising the pavements to a new main pedestrian level twenty feet above the carriageway and omitting them on the ground level. This upper deck is where the main office entrances are sited. When completed it will be alive with shops, restaurants and advertisements. This concept is one of the most difficult things to achieve in planning, needing faith, much persistence in negotiation and ingenuity in design.

Originality cannot be claimed for the office buildings themselves, but they are none the worse for that. One of the signs that an architectural language has emerged is that a number of different architects should be able to speak it together. Here the scale of development and the overall design required that these towers should be, as near as makes no difference, identical. Their merits must be shared if the qualities of the total design were not to be lost.

[*continued on page* 195

Site plan, showing pedestrian circulation: existing buildings hatched, proposed buildings dotted, the first three tower blocks black. 1, remains of Roman wall. 2, church of St. Giles, Cripplegate. 3, surviving tower of St. Alphege Church. 4, St. Alphege House. 5, Moor House.



* Sir Leslie Martin was then architect to the LCC, and Mr. Mealand the City Corporation's planning officer.

'Though thicker and lower, the Barbican towers look more slender' than those in Stockholm. In 5 *they are seen from the south, over the City roofs.* 6, *the towers and the podium on which they stand—Moor House in the foreground. 'Their relationship to this new ground level is crucial, and here the master concept is less successful. The one-storey set-back required looks mean in relation to the seventeen storeys above it and a two-storey set-back, more boldly modelled, would have been better.' See also* 7, *page* 194.



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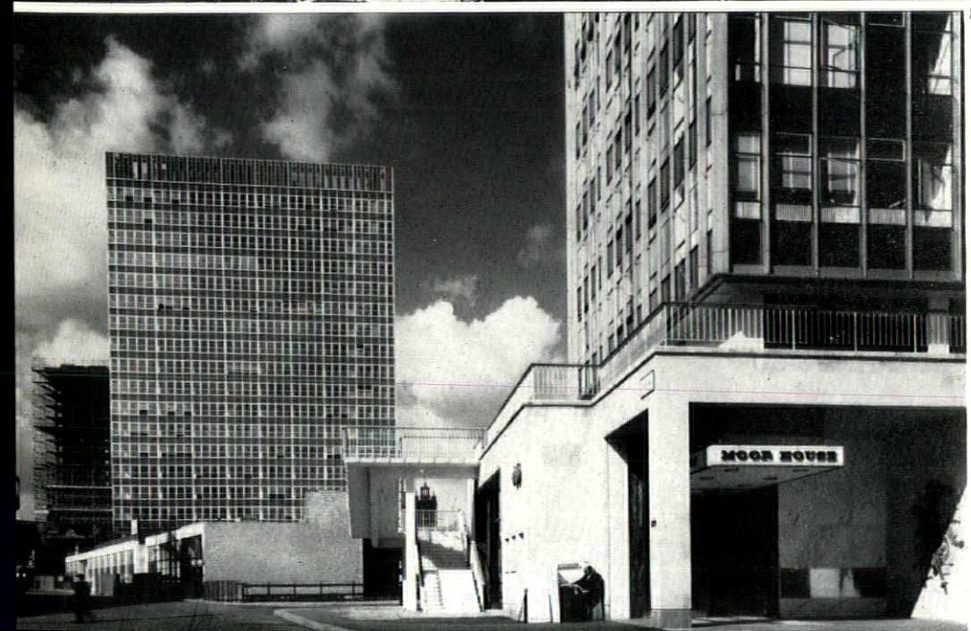

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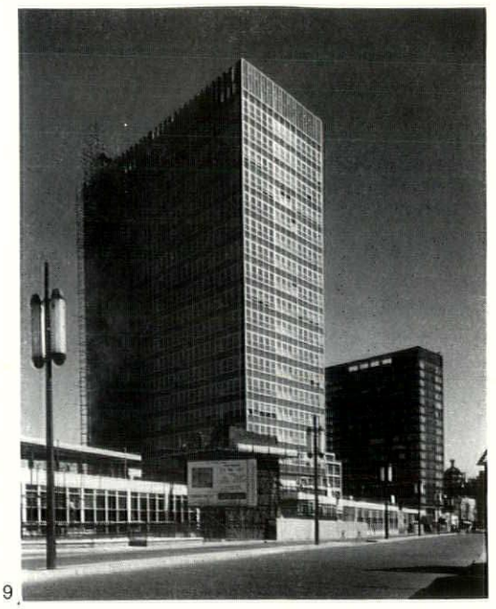

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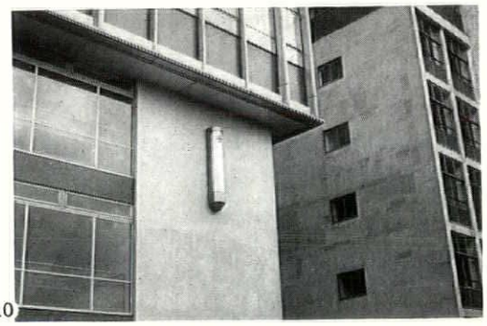

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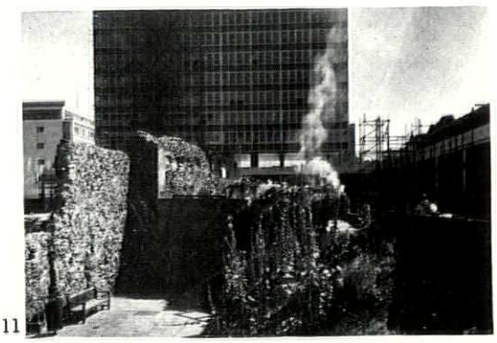
7, *St. Alphege House: 'Its architects' treatment of the cladding of the top two floors with a screen of tall panels, alternately opaque and translucent, of half the width of the standard module, is effective and ingenious.'* 8, *St. Alphege House with the lower part of Moor House in the foreground and the connected podia.* 9, *the two towers from London Wall.* 10, *what Mr. Shankland describes as the 'clumsy unresolved detailing (of Moor House) . . . where the main curtain wall meets the set-back lower three floors.'* 11, *St. Alphege House from the west, seen from the low-level gardens alongside the Roman Wall, rises straight from the ground.*



11

photographs by H. de Burgh Galwey

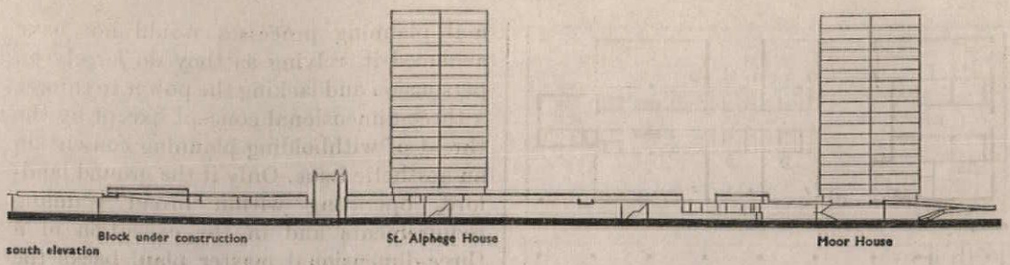
continued from page 102]

The requirements of the City Corporation and the LCC were specific. In height the towers rise through sixteen office floors above the podium, spaced at 11 ft. floor to floor. Here the lifts must stop. In plan the blocks have not to exceed a length of 140 ft. and a thickness of 58 ft. 8 in. on a column grid of 16 ft. 8 in. centres set to fit basement car parking. A continuous skin of curtain walling, without interruption, is wrapped round this rectangle and carried for two further floors above the offices, masking a variety of penthouse objects, and trimmed to finish with an even upturned brim. The lowest floor of the towers is inset 3 ft. 4 in. on podium level for one storey. Within the grid, a uniform mullion spacing of 4 ft. 2 in. was finally agreed, with every fourth mullion emphasized. Spandrel colours have been selected by the architects from a predetermined neutral range of 12 colours.

The podium, common to all these towers, has been conceived not as a heavy base, but as a space between street and pedestrian level, visible, inaccessible, and clad lightly with a screen of black and white alternating panels. It spreads over most of the site area, leaving only spaces for access to the storage and other uses it contains. These access points, and the positioning of the upper pedestrian bridges, are also prefixed. All these elements the six buildings have in common. Their architects had to work within them; taken together they constitute all the essential elements of the town design and most of the important individual architectural decisions.

As town design, the scheme, though still incomplete, is an undoubted success. It is better than Stockholm's central reconstruction* on several counts. The six towers themselves are of a height and silhouette which do not disrupt the City skyline as do those in Stockholm, 3, and they have been surprisingly easily absorbed into the City's closely built up, mediæval pattern, 4. The same cannot, however, be said of the present proposals for BP House, a long, glass-clad slab, proposed to rise more than twice as high (395 ft.) and sited in the north-east corner of the Barbican area.

It is not only the general idea of a closely-spaced group of parallel tower-slabs of similar design that South Barbican shares with Stockholm, but also the proportions of the chief buildings. The towers of Hötorget are, in fact, a fraction taller (two more storeys), slimmer (between 49 ft. and 50 ft. instead of 58 ft. 8 in.), but some 10 ft. longer. These differences in basic proportions might not, by themselves, be architecturally noticeable. None the less, the Stockholm towers appear more slab-like than those in the Barbican. This result has been achieved by the very architectural device the Swedish architects have used, one suspects, to give extra interest and lightness to the mass of the building. They have deliberately split them into a sandwich of two slabs, one shorter and lower than the other, 12. The result is that, though thicker and lower, the Barbican towers, 5, look more slender. Something similar has happened, incidentally, with the main Shell tower on the South Bank where the recessing of bays, inserted presumably to lighten the elevation, has the opposite effect of buttressing it. It is also interesting that the most effective new office tower to rise in London, the Vickers tower at Millbank, achieves a shaft-like appearance with a squarish plan by the baroque device of alternating concave and convex forms on adjacent elevations, thus softening the rectangular corners and emphasizing its upward movement.



Visually, but not of course structurally, the South Barbican towers sit on the podium. Their relationship to this new ground level is crucial, and here the master concept is less successful. The one-storey set-back required looks mean in relation to the seventeen storeys above it and a two-storey set-back, more boldly modelled, would have been better. The elevational handling of the podium is also indecisive. If the podium is intended in its traditional role to appear as a base, it should have been heavier and modelled more boldly. Alternatively, the new pedestrian level with its bridges could have been expressed as a strong horizontal plane, linear in character and intersecting with the bases of the towers.* As it is, the town design adopted a kind of flat colonnade with vertical emphasis in alternating panels and all on the same plane. This is not wholly successful, and has a somewhat timid air.

Despite the closely-tailored uniform prescribed for them, these first two towers display distinctive and interesting differences. On comparison, the second to be built, St. Alphege House, 7–9, comes off best. Its architects' treatment of the cladding of the top two floors with a screen of tall panels, alternately opaque and transparent, of half the width of the standard module, is effective and ingenious. This screen masks an imaginative use of these upper storeys which contain not just lift and tank rooms, but some of the most magnificently sited apartments in London.

St. Alphege House has also adopted a vertically sliding double-glazed sash window which more effectively maintains the membrane-like quality of the elevational skin than the side hung casements and the hoppers of Moor House. At Moor House, 1 and 6, a galvanized pressed steel mullion has been used, curtain walling being estimated at £100,000 cheaper than aluminium. Its neighbour, mullioned in aluminium, is lighter in tone, and achieves a resulting extra brilliance and elegance.

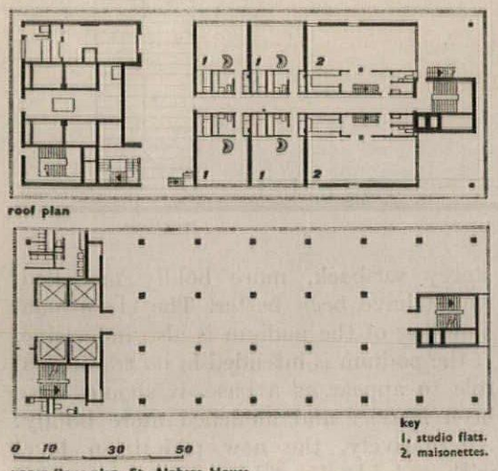
Moor House, on its western elevation rises straight from the ground. Here, with the structural columns plainly visible, the building needs a bold void and the simplest detailing of entrances. Instead, the void has been filled in for the top upper two of these three floors, leaving the lowest to be filled by shop backs. Though lacking the shops that will occupy the space this already appears as an architectural solecism which will damage the whole idea of the building from this side. There is also some clumsy, unresolved detailing on the admittedly tricky point where the main curtain wall meets the set-back lower three floors, 10. Moor House may have been penalized

12, *tower blocks at Hötorget, Stockholm, compared in this article with the Barbican towers, showing how the Swedish architects have 'deliberately split them into a sandwich of two slabs.'*



* See THE ARCHITECTURAL REVIEW, August 1961.

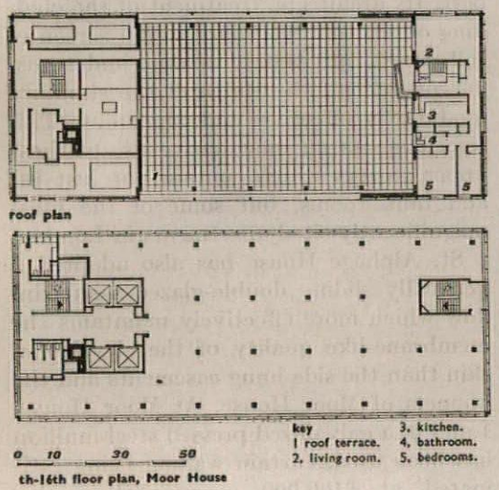
* See *The Architects' Journal, June* 9, 1960.



upper floor plan, St. Alphege House

by the circumstance of being the pioneer among these six towers, and by the reluctance of a client to 'throw away' valuable lettable shopping space on the ground floor. The fact remains that this kind of space is the one architectural luxury, which, by its absence or presence, according to circumstances, can make or mar an entire building.

These two buildings, breaking new ground in the City, have been designed with care and achieve a level still unique



th-16th floor plan, Moor House

in the City. They cannot stand comparison with the very best Milanese examples, though there is no reason why their successors cannot learn from the highly sophisticated simplicity of the Galfa or Galbani towers. Essentially this is the architecture of the highest common factor; the architects have achieved what they are asked to do within the framework laid down. At a time when architectural individualism, regardless of context, is more often praised than competence and civic good manners, this result is not to be despised.

South Barbican promises also to be a success in the exercise of positive planning control and, taken with the residential Barbican to the north, to be a large slice of a new kind of city. There is plenty of evidence in the City itself of what would have happened without this control. Normal planning processes would not have achieved it, relying as they do largely on persuasion and lacking the power to enforce a three-dimensional concept except by the threat of withholding planning consent on an aesthetic issue. Only if the ground landlord, operating within broad planning requirements and in the execution of a three-dimensional master plan, backs the plan with the final sanction of withholding the lease, can this kind of enterprise succeed. It is to the credit of the City, whatever mistakes it has made in the past, that this has now been understood.

The paradoxical success of the whole experiment opens up another area of discussion and reveals another set of paradoxes. This levelling-up operation in City architecture has worked because the LCC and the City were negotiating with developers and their architects round an acceptable architectural concept. The image of the rectangular glass tower office, neat and business-like, had to be commonly acceptable for it to have become an anonymous standard unit of town design. How has this come about?

At one level it is easily explained. Like the city gridiron block, it is the direct product of a simple and handy surveyor's calculation that lends itself to standardization and repetition. It is a product in three dimensions of an accountant's calculation, the simplest projection of so much floor space into the air. But rational as this explanation may appear, it is not logical. In fact the modern office is one of the most flexible and adaptable uses ever put at the disposal of architects on a large scale. It has been fitted loosely and comfortably into Georgian town houses in Mayfair, and Victorian country mansions in the home counties. Its very adaptability is, with its profitability, the secret of pervasiveness. So there is nothing inevitable about modern offices being in rectangular towers. It is simply that in a modern western city it is the most easily lettable and vertically stackable unit that, therefore, yields the most ground-rent from a valuable central site. Neither is vertical circulation best for office efficiency and sociability, as Lewis Mumford has pointed out, and clients like the Connecticut General Life Insurance Company, prepared to leave the city to secure a horizontal office building and plenty of space around it, have been quick to understand.

Neither is curtain walling an inevitable companion of cubical towers. A curtain wall can, in fact, be wrapped around almost any shape. The sanction of architectural precedent has something to do with it; the visions of Mies and Corbusier, transmuted in the process, have taken root and substance in London and many large cities. But this only raises the question in a new way: what kind of spirit has blown life into these images and has secured their acceptance so widely?

Is this spirit an expression of a contemporary will-to-form of the kind Worringer has used to explain the characteristics of Gothic architecture? If so, the different architecture that has resulted suggests a quite different artistic purpose from that of Gothic, which Worringer explains as 'an excess of constructive subtlety (which) serves no object but that of creating an endless activity, continuously intensified, in which the spirit loses itself as if in ecstasy.'*

The rise of the modern office is a result of the steadily increasing importance of administrative and clerical processes. Is modern man, liberating himself from the factory floor, now to be immunized in the glass tomb, whose architectural expression, caught exactly by Steinberg, is that of a sheet of graph-paper? It is just the impersonality of this architectural expression, the calligraphy of whose windows seem a visual echo of the calculating machine, which is disquieting. There is nothing wrong, inherently inhuman, or inappropriate about towers, glass cladding, or indeed any of the elements which are employed to make up this architecture. It is just that the result seems to reflect Wright Mills's description of the modern office worker and his environment in *White Collar* too closely for comfort.

'Each office within the skyscraper is a segment of the enormous file, a part of the symbol factory that produces the billion slips of paper that gear modern society into its daily shape. From the executive's suite to the factory yard, the paper webwork is spun; a thousand rules you never made and don't know about are applied to you by a thousand people you have never met and never will. The office is the Unseen Hand become visible as a row of clerks and a set of IBM equipment, a pool of dictaphone transcribers, and sixty receptionists confronting the elevators, one above the other, on each floor. . . .'

Efficient, diagrammatic and depersonalized, this architecture is produced on the open market and suits well the streamlined irresponsibility of the big corporations. In South Barbican it is acceptable as a necessary part of the rich texture of a varied and imaginative scheme, which embodies many other and socially more inspired forms of life. What remains almost comic is the fact that to-day's City business men, no longer trusted to exercise archaic tastes, have had to be presented with their smart architectural uniform by the public, as represented by the LCC and the City Corporation, and firmly told to wear it without complaint.

* Wilhelm Worringer, *Form in Gothic.*

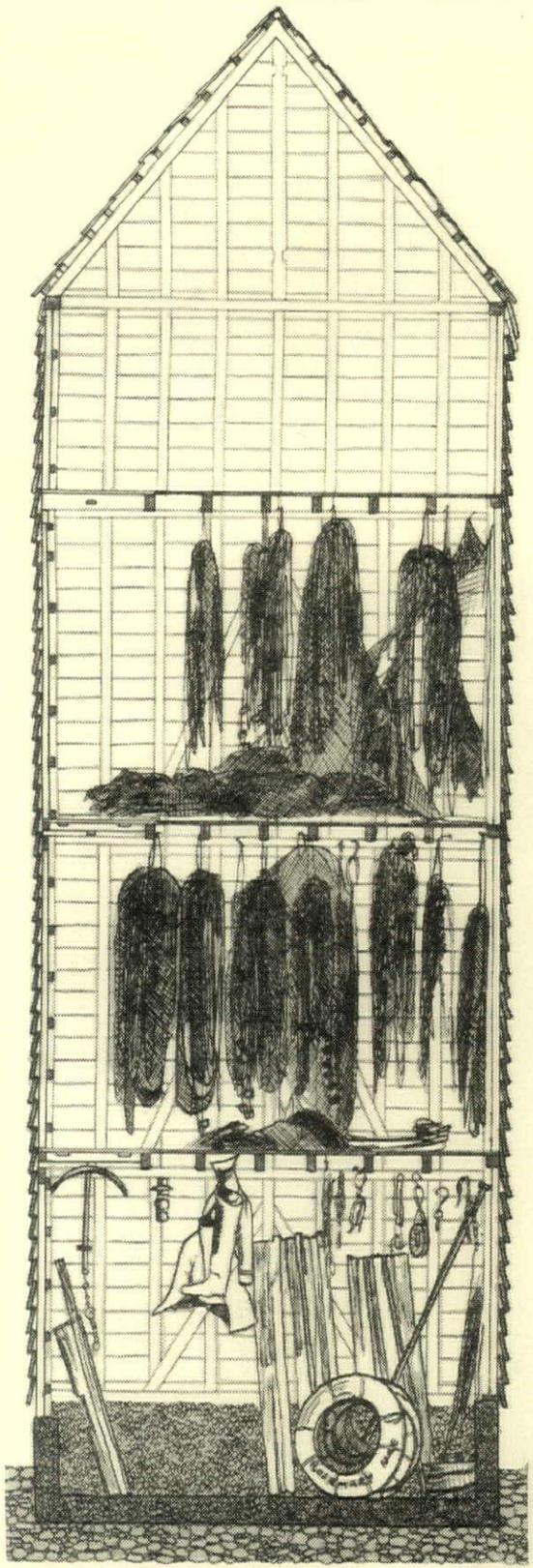
FISHERMEN'S NET SHEDS, HASTINGS

The tall wooden sheds to be seen on the shingle beach at Hastings have already been noted in the REVIEW* *as an example of the Functional Tradition—the dateless style of architecture that derives its character from its immediate and expressive response to the challenge of function. This remarkable group of buildings has now been more fully recorded in measured drawings by B. R. C. Tewson, some of which are reproduced here and others on the cover of this issue.*

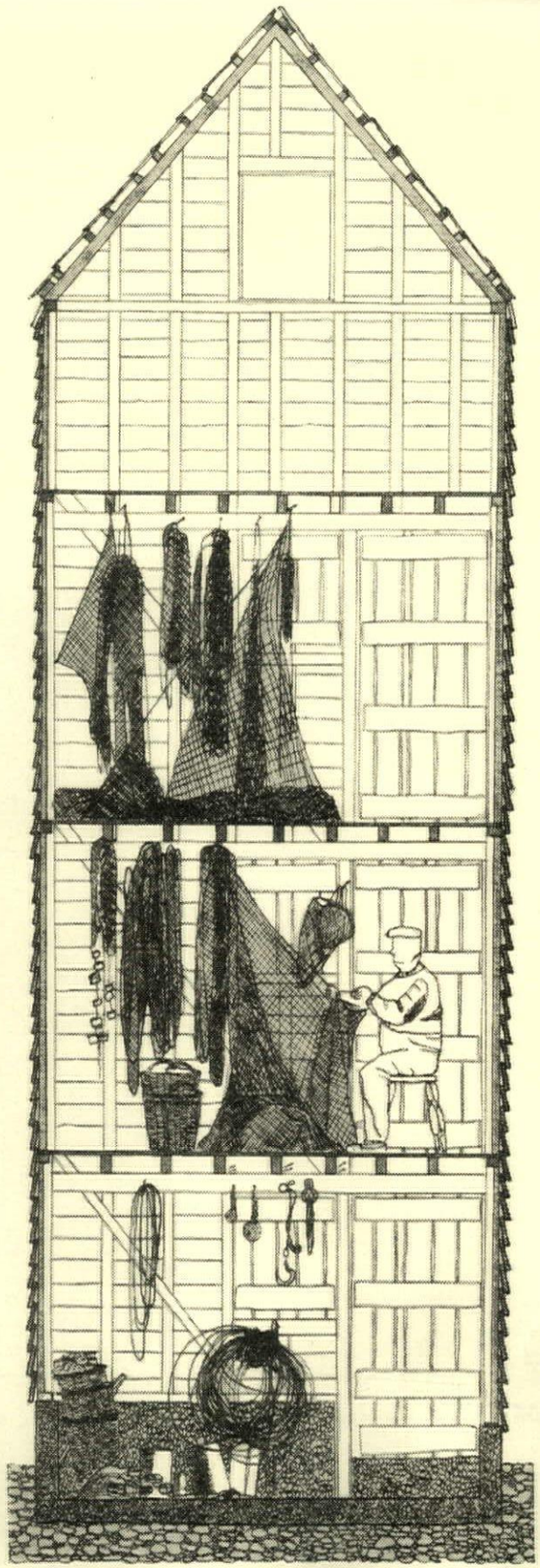
Constructed of timber framing and weatherboarding, tarred all over, they are used by fishermen to store their gear and mend their nets, the height being of course necessary so that a good length of netting can be hung from roof to floor.

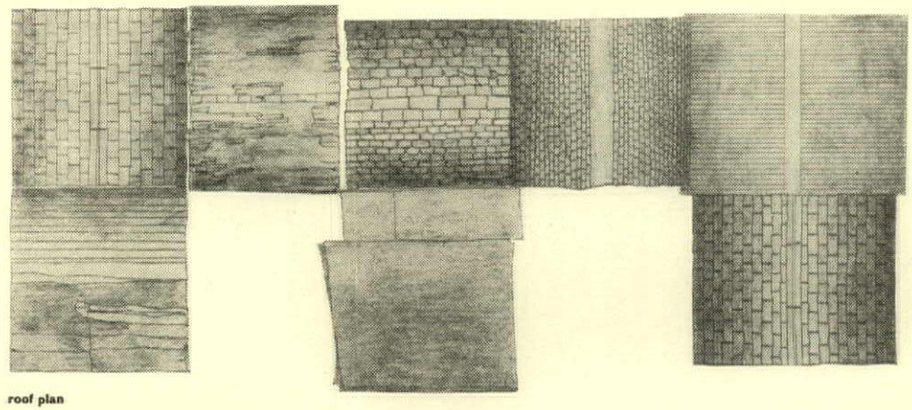
Apart from the drama given them by their unusual proportions and the picturesqueness of their wall textures and irregular apertures, they are also given interest by the slightly comic allusions they may be thought to make—however unintentionally—to quite unrelated architectural subjects: to the recently approved fashion of siting high city buildings in clusters, to the accidental dramas of the New York water-front, to the grouping of the medieval towers of San Gimignano. Because the

* September, 1957—with photographs by Eric de Maré.

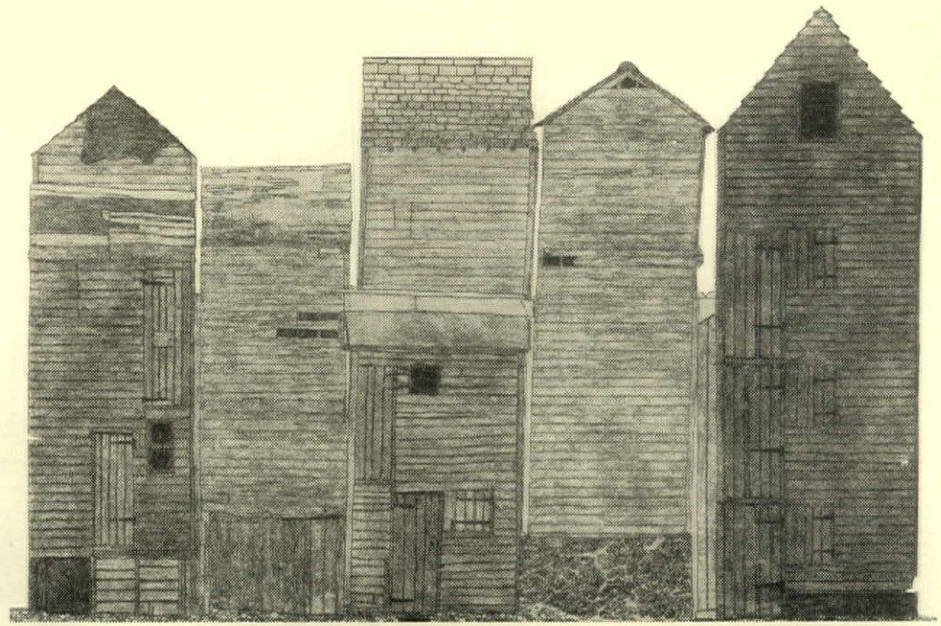


sections through single shop

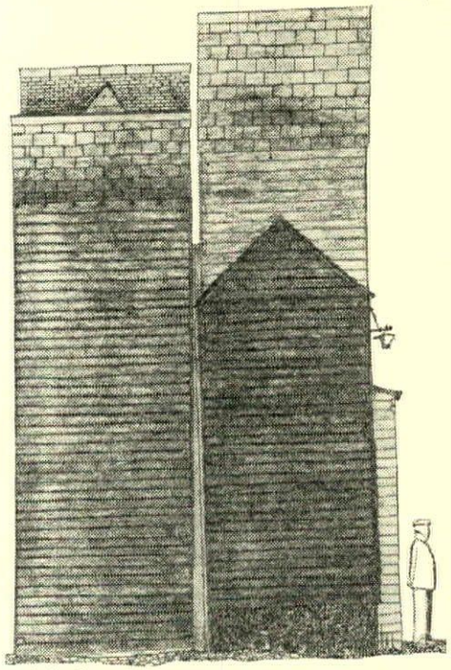




roof plan

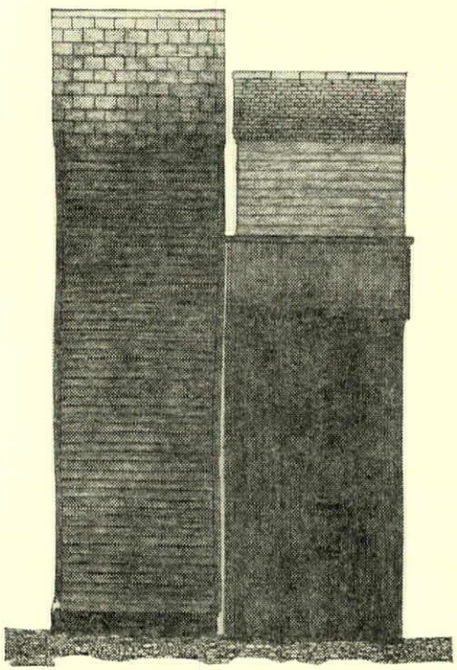


west elevation

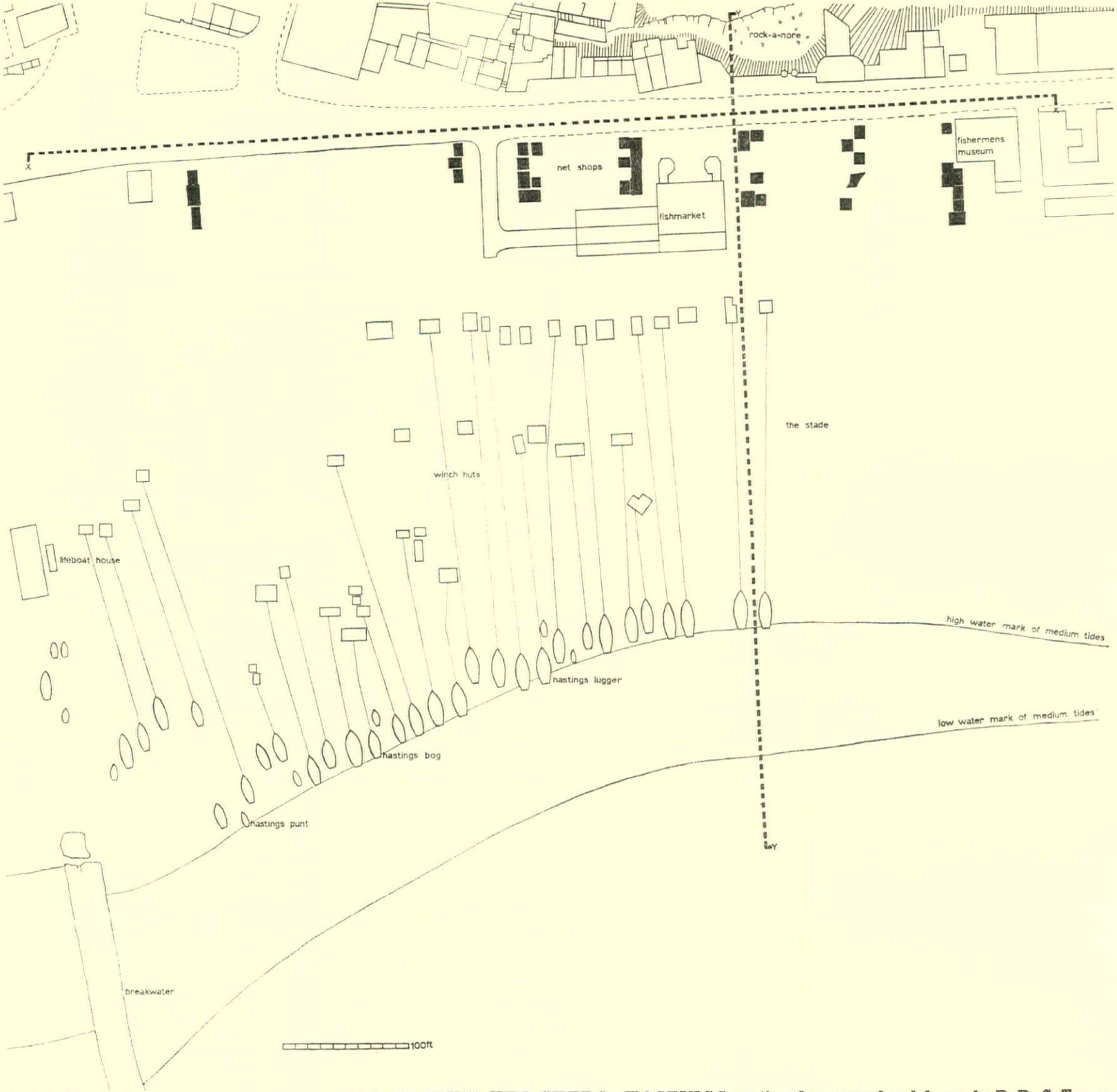


north elevation

sheds are of old, combustible materials they are susceptible to fire, and one of them has in fact recently been burnt down. Showing commendable good sense, the local council is to replace it with a new one in similar style and using the same structure and materials.



south elevation



site plan(north is to the top)

FISHERMEN'S NET SHEDS, HASTINGS continued: measured and drawn by B. R. C. Tewson

Two Shops in Knightsbridge

ID
a monthly review of interior design



1, *interior of the Ferragamo shoe shop, by Leonard Manasseh and Partners, described over page ; the mural is an enlarged print of the Palazzo Feroni Spini, Florence, Ferragamo's head office.*

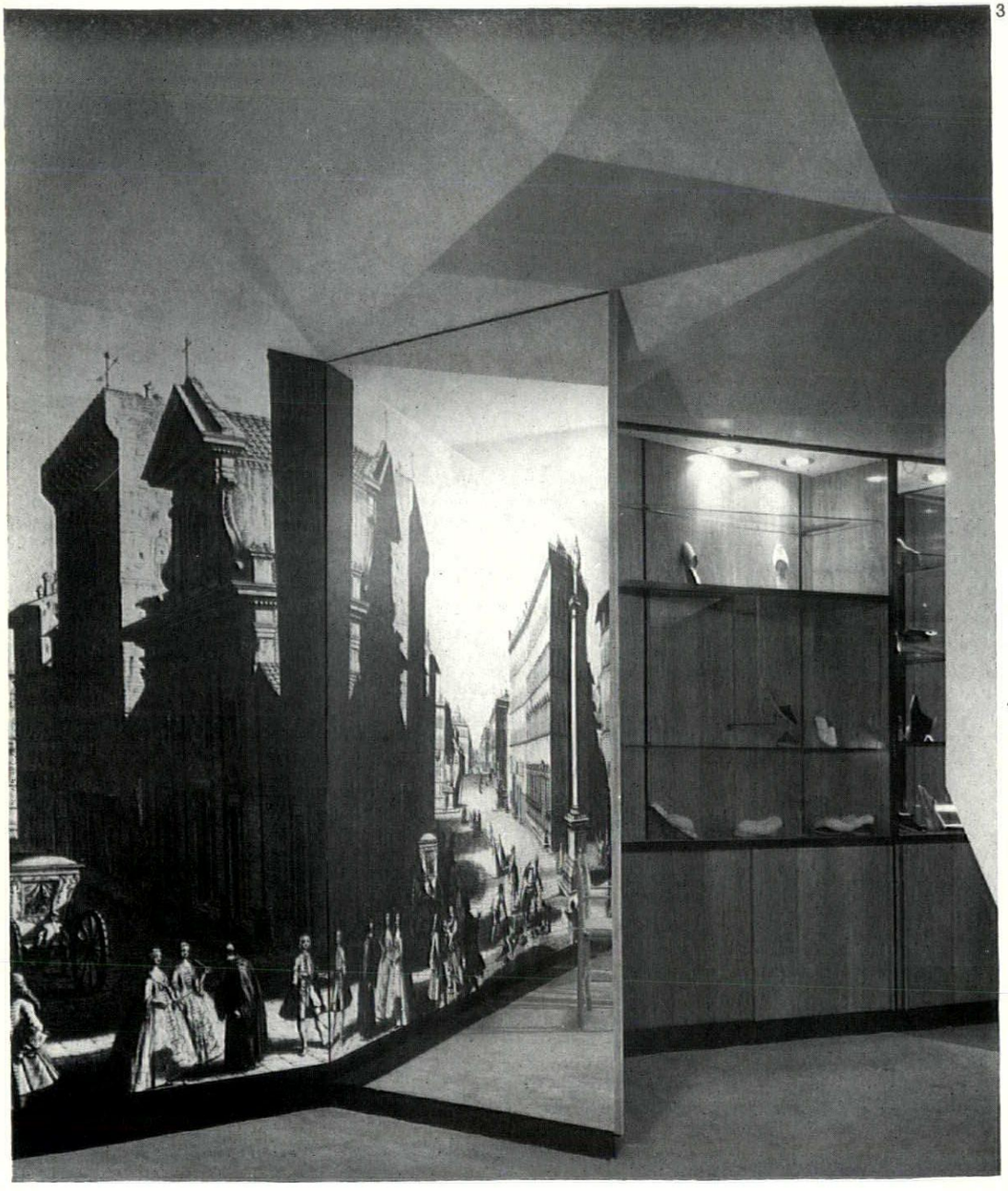
Ferragamo

architects: Leonard Manasseh and Partners

The word 'Knightsbridge' is used to describe the general area; both shops are, in fact, in the Brompton Road, flanking the entrance of an undistinguished new office block. Ferragamo, which is on the side nearer Knightsbridge proper, occupies one standard deep bay of the structure, shop in front, stock-room at rear. In the display areas, the aim has been to show the shoes against simple, faceted plane surfaces so that nothing shall compete with their shapes.



2



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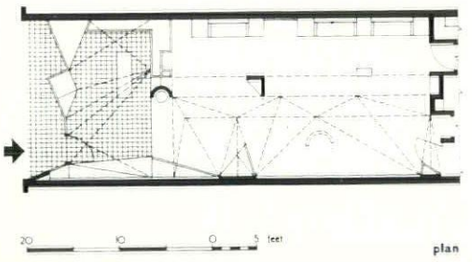


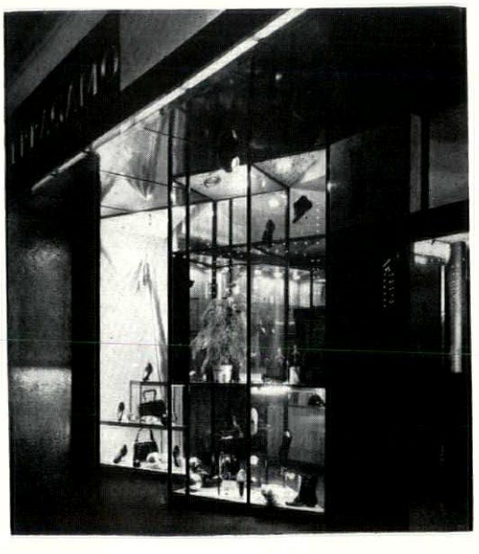
plan

2, general view into the shop from the reception area; the faceted ceiling (see plan above) covers only the circulating and more public fitting zone, the main fitting area is under a flat ceiling.

3, mirror used to enhance and extend the spatial effects of the enlarged print, and to 'lose' the back of the display case seen in 2. The mirror also serves the normal shoe-shop fitting purposes, with the aid of concealed spot lamps to illuminate customers' feet.

4, night view of the exterior; the display cases are recessed three to five feet from the building line, but the tiling of the reception area floor is brought through to the edge of the public pavement.

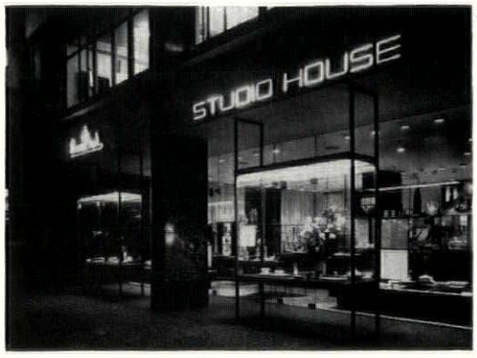
4



Studio House

designers: Rosenthal Studio B
executive architect: Raymond Cecil

Unlike the Ferragamo shop (opposite), Studio House, designed for the display of glass and porcelain, occupies two bays of the building, and the retail sales area is therefore almost square in plan, with wholesale and storage behind. One of a number of specialized retail outlets concentrating on Rosenthal's contemporary lines in leading cities all over the world, Studio House is an unusual exercise in design-organization, with an English architect responsible for the installation of a basic display scheme designed and built in Germany.



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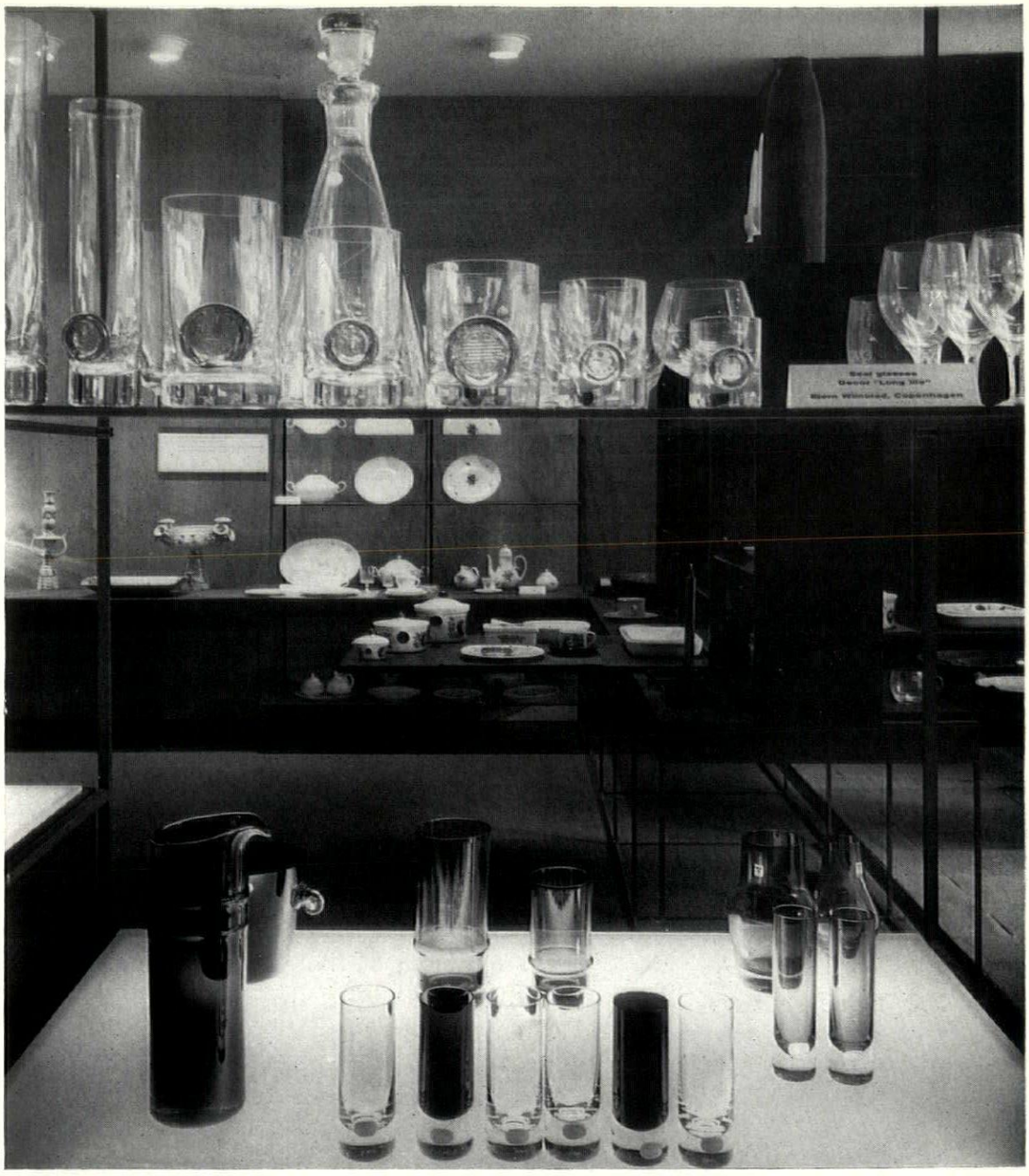
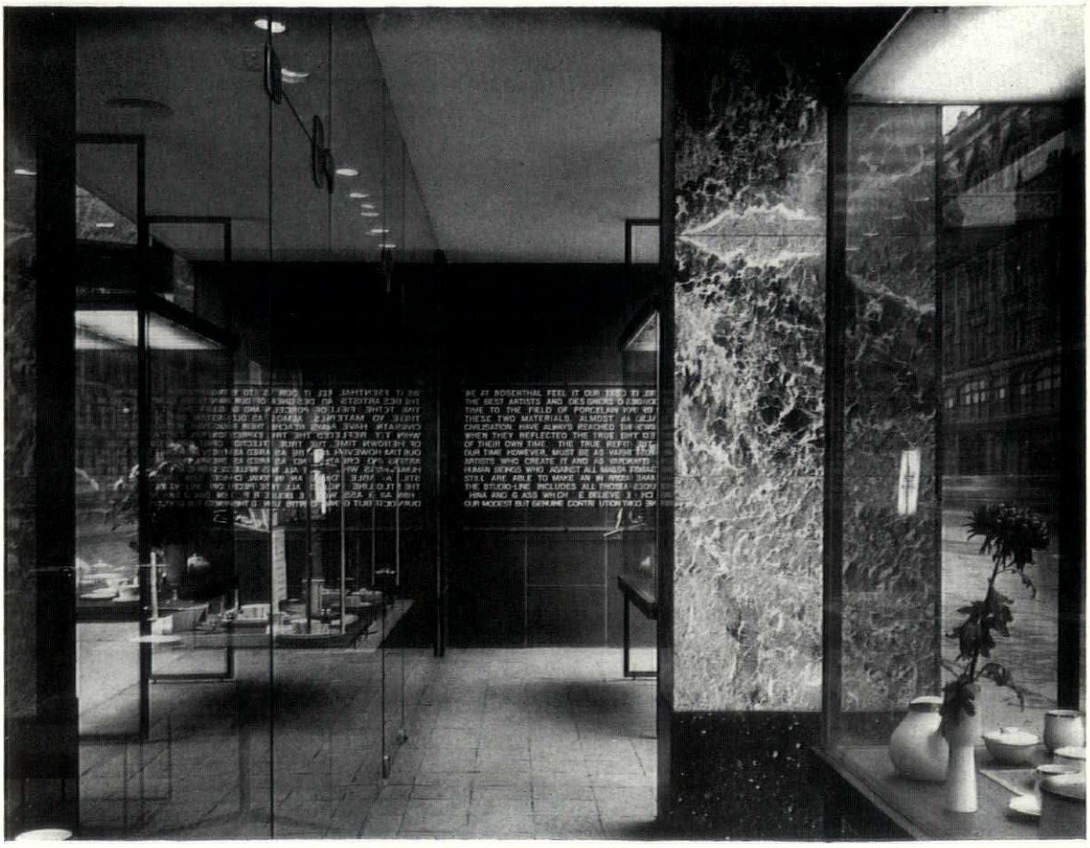


7

5, night exterior, showing the free-standing display cases in front of the recessed façade.
6, general view of the interior, looking toward the street.
7, the interior is conceived simply as a display medium for Rosenthal products, which everywhere take precedence over the medium. The structural parts of the display have been reduced to simple rectangular boxes, shelves, and a fine-drawn space grid of dark grey, stove-enamelled square steel bars. Not only does this geometry emphasize forms of the glass and porcelain, but the surfaces of the products are set off by the relatively neutral finishes of the fittings—teak, bleached bog-oak, bamboo-paper, plain curtains.
8, the exterior lobby, with the Rosenthal 'creed' partly visible on the end wall.



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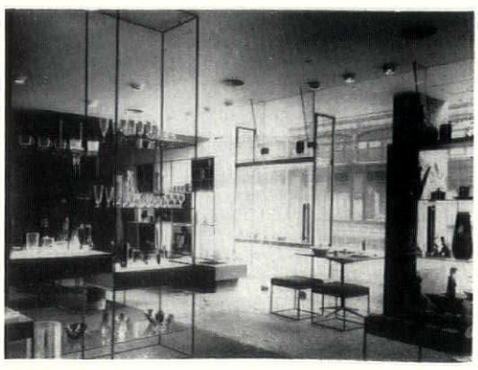
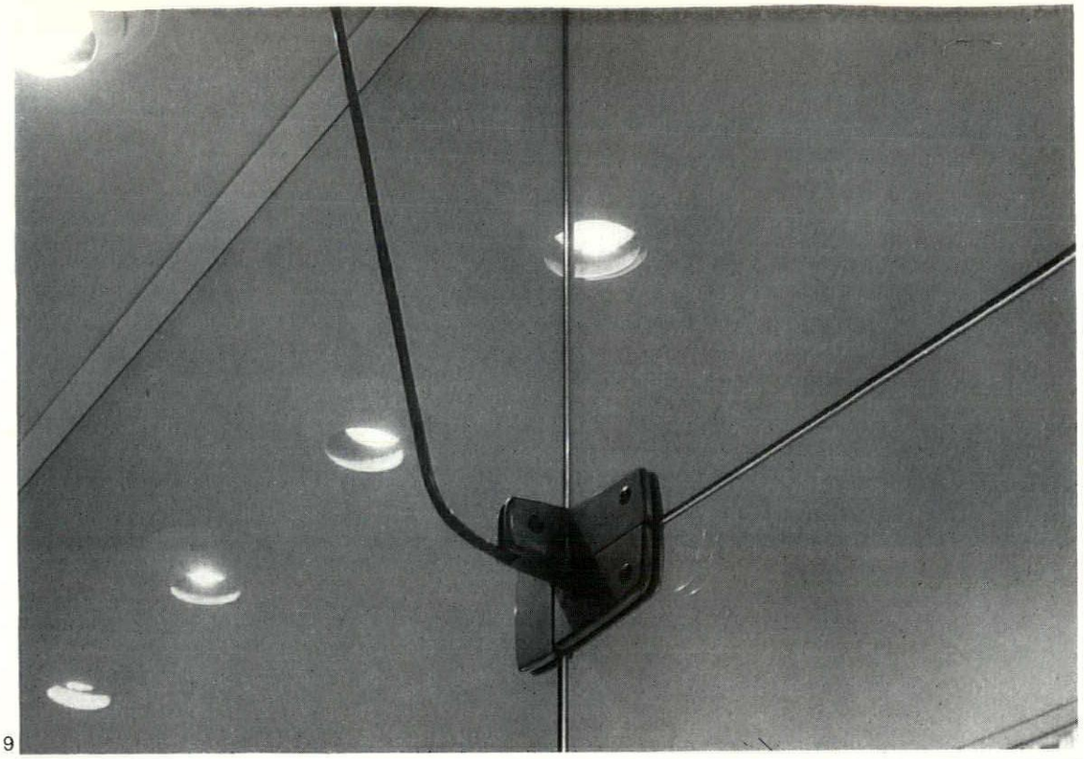


6

Studio House

9, as may be seen in the illustrations on the previous page, the glass wall of the shop-front is completely without structural interruptions in spite of the fact that two doors of toughened glass are hung from it. The structural basis of the design is the use of glass stiffening brackets, such as the one shown here, to brace the transom over the door and carry the upper hinge.

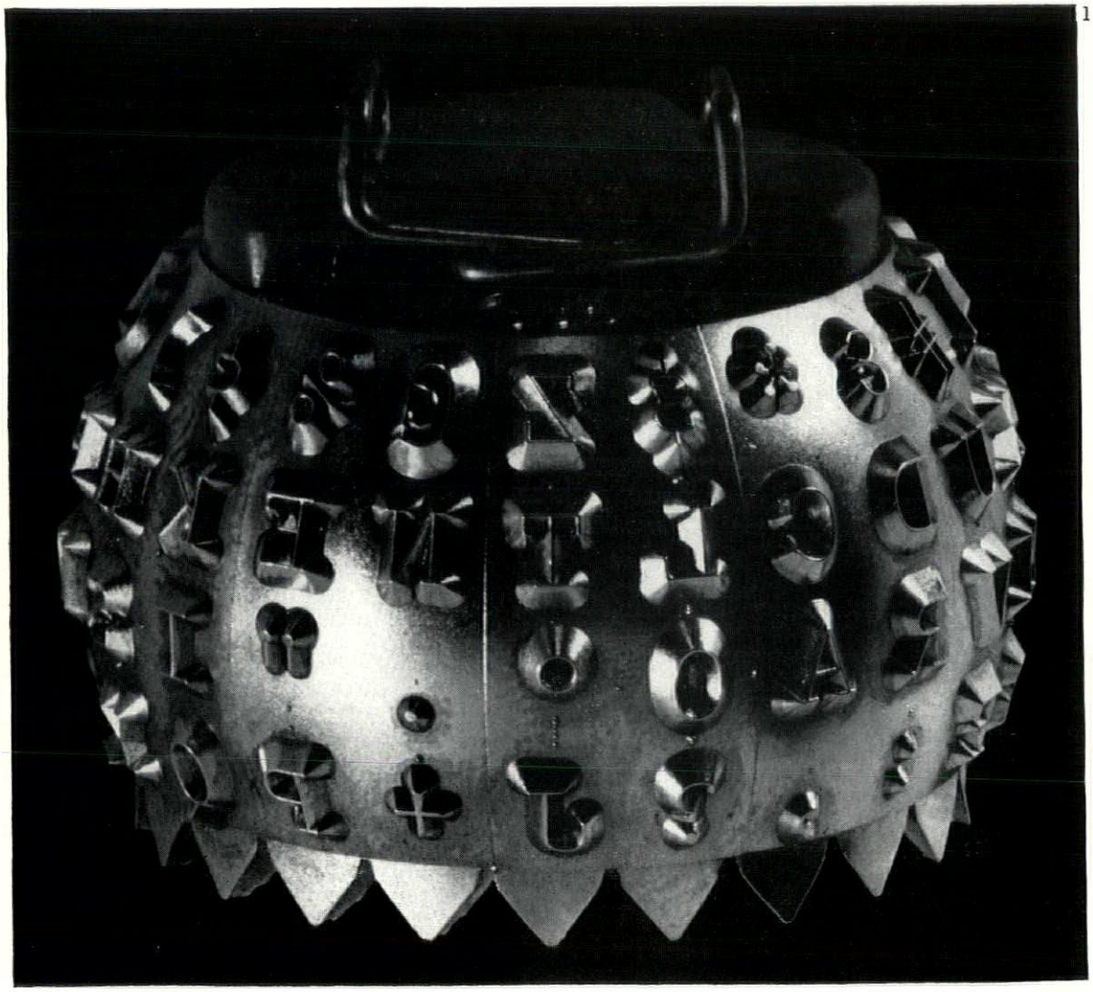


9

DR
design review

IBM 72 Typewriter

In view of the amount of attention lavished on the superficial re-styling of the products of other typewriter companies, disappointingly small notice has been taken of IBM's new 72, which re-introduces one old technical innovation, and introduces one new one.



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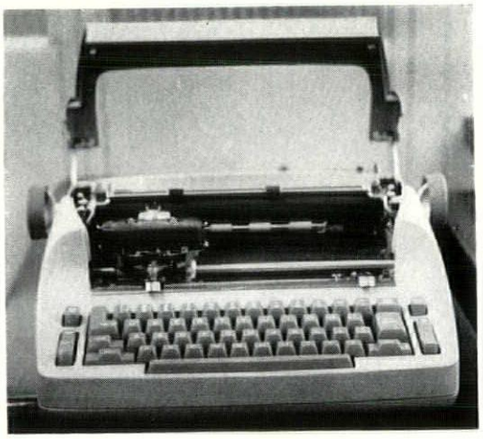
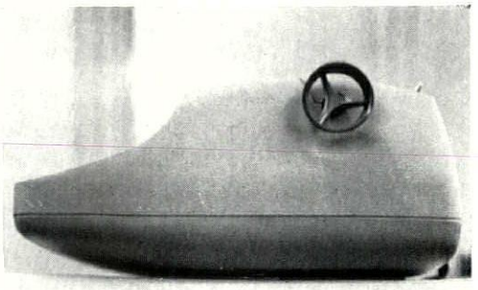


2

1, the rotating type-head, which went out 40 years ago with the Blickensderfer portable, is revived by the 72 in a more sophisticated form, suitable for electrical operation.

2, the complete machine, opened to show the type-head at the extreme left-hand end of its travel. The carrier remains stationary while the type-head traverses the paper.

3, the end elevation: with a carrier that does not travel, the need for a hole in the end of the casing disappears, and Eliot Noyes, IBM's design consultant, has been able to devise a much neater casing as a consequence.



3



ON TRIAL

2: LOUIS KAHN

the buttery-hatch aesthetic

REYNER BANHAM examines the paradoxical position of mechanical services, in the second article of this series.

After all that has been so enthusiastically said and written, it is sobering to find that mature reflection shows nothing in the conception of Louis Kahn's Richards Medical Research Building in Philadelphia that marks any useful advance on the position reached by Le Corbusier thirty years earlier. The point is worth raising, not only as an estimate of Kahn, but because it will be found to bear upon the general problem of the architectural status of mechanical services. If the discussion that follows is devoted largely to one building by Kahn, and to reflections inspired by it, this is because his work typifies the attitude implicit in a whole tradition of modern architectural thinking, and because its picturesquely heroic visual format has already assured it a widespread influence on the immediate future of architecture. But what ensues is intended only as a discussion of one particular (and highly praised) aspect of his work, and for a complete critical examination of the Richards Medical Research Building, readers are still referred to Professor Jordy's essay which appeared in the REVIEW for March last year. Services, and the architecture that can be made out of them, are the subject under consideration, and it is this aspect of Kahn's work that refers us back most forcefully to Le Corbusier and the design of the Pavillon Suisse.

the tools of academe

Among the academic kit of tools that every French architect (including Le Corbusier) and most American architects of Kahn's generation (he is sixty, one should remember) have inherited from the Beaux Arts tradition is the idea of design as the assembly of so many 'Elements of Composition' as Guadet called them. Each of these elements was, ideally, a volume or room devoted to a single function 'telles que les salles, les vestibules, les porches, les portiques, les escaliers, les cours . . .' Under the traditional Beaux Arts regime, of course, these given volumes are juggled around until they make an elegant symmetrical pattern in plan, and the left-spaces between them are filled up with period detailing. In the Corb version, as exemplified in the Pavillon Suisse, the functional volumes are so disposed as to make a picturesque three-dimensional composition (whose fundamental discipline, of course, is circulation) and the left-spaces are not filled in with anything. Indeed, as in the celebrated case of the air gap between the roof of the porter's lodge and the underside of the chassis of the dormitory block, the residual nature of these spaces is emphasized, in order to encourage the eye of the beholder to distinguish immediately between the three main functional volumes—the dormitory block, the stair-tower, and the community spaces at ground level.

Even Le Corbusier has rarely pursued this method of design with such determined clarity, though its opposite—the subdivision of a given volume into functional zones—is seen in one of its extreme forms every time Mies van der Rohe designs a building. It is perfectly clear, also, to which attitude Kahn adheres, and in the Richards building he leaves the attitude approximately where he found it: the standardized laboratory floors appear in each tower as one homogeneous volume (as with the dormitory block of the Pavillon Suisse), and the volumes serving other, less standardized, functions are applied to their perimeters in various packages of a different form and construction to that of the work towers. This, of course, is the expression of Kahn's concept of the served spaces and the servant spaces, but it should be noted that (quibbles over the meanings of *serve* excepted) this is a simpler, not to say cruder, concept than that of Guadet or Corb. With them, there is some sense of hierarchy between the various elementary volumes, but with Kahn there is not: a space is either ser-

vant or served, and all servants are visually equal. It is the uniformity of the towers that attracts attention, and their visual dominance over the rest of the design that gives the building its characteristic and fashionable silhouette, and it is precisely the dominance of the servants over the served, the impression that these blind towers were the real object of the design, not the laboratories, that has earned them the affectionately derisive name of 'Duct Henge.'

duct-henge

The one thing that everybody knows about this building is that Kahn has moved his services to the perimeter of the floor area, thus making it possible to put them into these large ducts where they can be altered, replaced or increased. As usual, everybody has got it half wrong: a considerable number of services remain in the centre of the building, most notably the input air-distribution shafts. As rather fewer people also now know, the functional gain of putting the services on the perimeter of a laboratory block is reckoned to be about zero by laboratory people. Its attractiveness during the early life of the plant, when the need for services is apt to grow unmanageably, is offset by the difficulties in the plant's later life, when the main need may be to add floor-area. Kahn, having made linear expansion impossible, has to envisage the fairly desperate expedient of hiving off complete new towers.

It may be accepted then that—to use the appropriate academic word—the basic *parti* of Richards Research Building at Philadelphia is functionally neutral. Critical discussion of its value as an exemplary structure therefore turns around two fundamentally interlocked problems—the detailed handling of functional processes, and the detailed handling of architectural form—and in both cases this means primarily the duct towers. The primacy of these seemingly subordinate elements is clearly brought out by the way they have dominated discussion and appreciation of the building—students are quick to quote Kahn's (probably apocryphal) remark 'The towers were in my mind right from the start,' and equally quick to quote the towers themselves in their own designs, even when they lack Kahn's functional justifications. It is not only their bulk that gives them this authority, but equally the fact that they appear to be the main load-bearing elements of the structure as a whole, taking visual precedence over the reinforced concrete stanchions that, in fact, do the work. This ambiguity has a double source: firstly, we are unfamiliar with solutions of this kind, and still expect a bigger member to be doing more real work, and real work, to us, still means carrying weight—one of the factors bedevilling an uninhibited approach to the architecture of services is our ingrained cultural inability to accept services as 'real' in the sense that structure is real, and Kahn's overplaying of the bulk of his service ducts is probably a form of compensation for this difficulty. But the other source of ambiguity is the way in which Kahn has confronted his served and servant spaces. Where Le Corbusier would have made their distinction perfectly clear, with an apparent air-gap or similar negative detail, Kahn has not—on the intake side, brick structure is mated straight up to brick structure; on the exhaust, or laboratory side, the brick structure of the ducts comes hard up against the perimeters of the floors, and far from any visual distinction being inserted, the point of junction is masked in most views by the structural stanchions on either side.

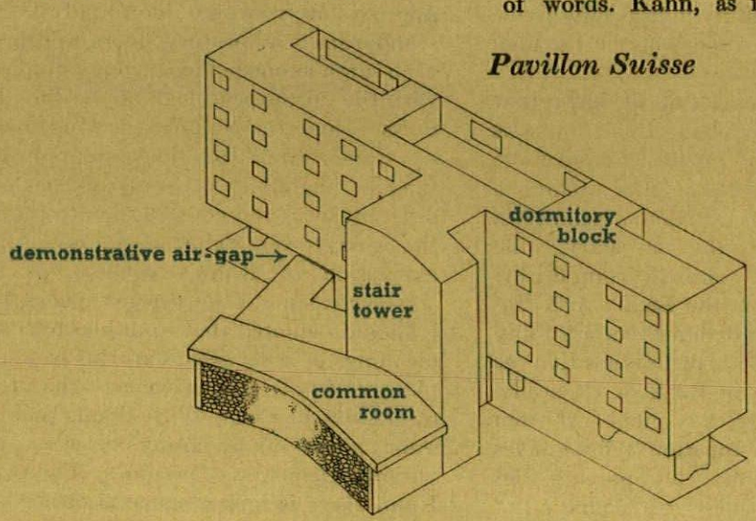
It may well be that this visual confusion arises from his tacit abandonment of Form-Follows-Function, which is disguised as something else by his highly personal use of words. Kahn, as in his well-known parable of the spoon, uses 'form' to mean 'Function' and 'design' to mean what the architect does in arriving at what most people would call 'form.' In the famous 'wanting to be' passage from his Voice of America broadcast, Kahn says 'Form has no shape or dimension . . . *spoon* characterizes a form having two inseparable parts, the handle and the bowl. *A* spoon implies a specific design made of silver or wood, big or little, shallow or deep. Form is "what." Design is "how."' This wilful obscurantism, in which 'Form' is made to mean 'formless' and 'design' is made to mean 'form' should prepare us for a degree of wilfulness, or obscurity, in Kahn's functional solutions, even if one refrains from using the word 'formalism' for fear of being double-talked right round the bend. Whatever words are used, however, the basic proposition sheds an interesting light on any building where Kahn is concerned with mechanical services. The basic functional and topological relationship, as he sees it, is between served and servant spaces, but the form he has seen fit to impose (or 'design') upon it obscures the fact that the servants are merely accessories or clip-ons, and raises them to elements of a monumental scale and effect. It is as if he had designed a coffee spoon with a soup-ladle handle.

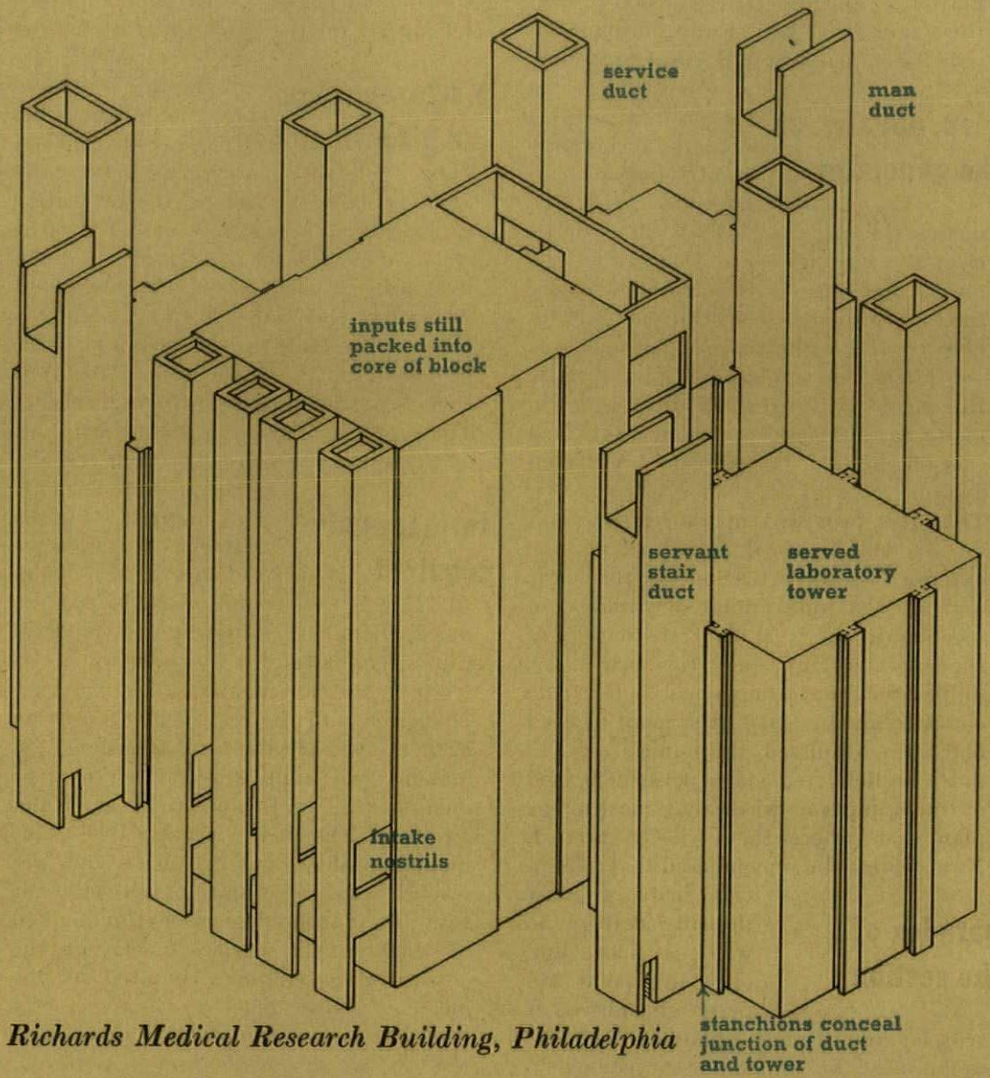
parable of the spoon

Now, it should be pointed out that this monumental scale that Kahn has imposed on his service ducts is not necessarily inherent in the nature of the operation. Kahn neither invented nor re-discovered peripheral services. They are as old as skyscrapers in the US, and though the advent of curtain-walling threatened to drive them back into the core of the structure, they were still in the exterior skin of 455 Park Avenue (AR, April, 1953) at the beginning of the fifties, and there have been a fair number of recent examples that spring to mind, such as Anshen and Allen's International building in San Francisco, with its modest duct-runs tucked into the corners of the plan, or Franco Albini's *Rinascente* department store, Rome (see page 153), with the duct-work in the thickness of the external walls. One begins to wonder why Kahn had to go to such lengths to deal with a fairly simple problem, and why his supporters should find his solution worthy of such sustained praise.

It will be counter-argued that these big brick schnorkels have an extremely important job to do, in that they have to exhaust contaminated and possibly isotope-laden air from the laboratory spaces, and dispose of it in such a way that it does not re-enter through the fresh-air intake. It seems unlikely, assuming that the state of Pennsylvania takes normal care of its citizens, that the laboratories would be

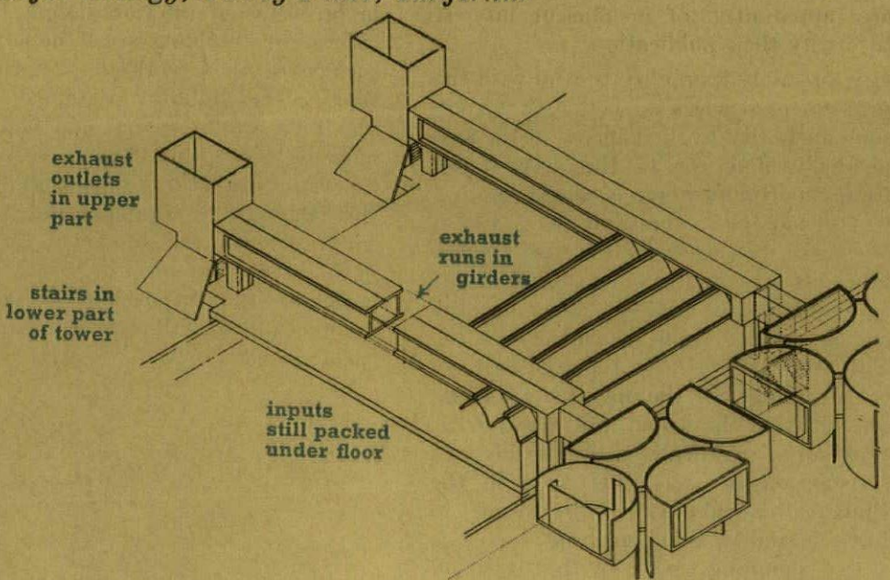
Pavillon Suisse





Richards Medical Research Building, Philadelphia

Institute for Biology, Torrey Pines, California



allowed to exhaust directly to air if the degree of contamination or radioactive pollution were high enough to warrant special measures, and even if these particular laboratories had perforce to maintain unusually high standards of atmospheric cleanliness (as may well be the case) this would involve filtering in-coming air to remove other impurities, in any case, since the intakes are not far enough above ground level to avoid the entry of windborne dusts, pollens, etc. It may even be doubted whether the low-intake, high exhaust arrangement will, in certain wind conditions, do what is claimed for it, since a north wind might bring contaminated air curling down and round the building to the intakes.

What it comes to is this: Kahn has dramatized the fact that his building is mechanically serviced, but he seems to be pretty insensitive to the nature and functions of those services. This is nowhere more apparent than in the fact that men and services are channelled through ducts of the same size and form, for it is only by the treatment of the tops that one can distinguish which brick tower is for services and which for escape stairs (and even this is more in the nature of a code symbol, rather than a naturally legible sign such as a window). It is odd to find an architect, whose work is widely regarded as an antidote to unthinking machine aesthetics, offering his humans this kind of mechanistic insult direct, just as it is equally surprising to find a man who has criticized Mies van der Rohe for not exhibiting, the wind-bracing of the Seagram building, creating designs which are so obscure about their own functioning.

Kahn's more recent project for the Salk Laboratories (Institute for Biology, Torrey Pines, California) continues this curious mixture of the obscure and the over-explicit, but there may be signs here of a development towards a more integrated type of design, because the mixture of services and structure is now real. The massive concrete box-girders that support the roofs of the work-spaces also accommodate some of the duct-work (exhausts again), so that the apparent mixture of functions of the Philadelphia towers is legitimized. But the bulk of the services, it should be observed, still have to fight their way in through the corridor-floor, much as they do in any other laboratory building. And the resolution of these girders at their ends still raises the same questions as at Philadelphia. At the inner ends they just stop, and the stairs to the studies are simply backed up against them—a direct confrontation, but without risk of visual confusion. At the outer ends, however, they arrive at a terminal structure of

considerable obscurity. Standing on a spread base, this structure appears to support the end of the girder, but does not—this function is performed by a column a little further back. Above this pyramid base, the terminal structure expands into a hollow box, which contains the upturned ends of the extract ducts from the girders. This box is all that the base *supports*, but the base also *contains* stairs serving the main work spaces, and it looks as if Kahn may have to deploy all his architectural talent if he wishes to make it perfectly clear that these stairs do not merely lead up into the exhaust box or the girder work. One awaits the final solution of these problems in the completed building, because the margin between clarity and obscurity depends, as the Philadelphia laboratories show, on quite small matters of detail handling, and the Philadelphia version may turn out in the end to be simply a botched first try at a basically rewarding architectural proposition.

For the proposition is—or could be—a rewarding one. While Kahn may be said to have overdone his services and given them a monumental dignity they barely deserve, the profession at large has persistently underdone them, and failed to find them a natural place in architectural practice—or architectural art, for that matter. The reasons for the overdoing or underdoing are probably the same: the fact that services, as such, lie right outside the traditional habits of architectural procedure and form no part of 'the lore of the operation.' Le Corbusier put the matter as succinctly as anyone in a remark that has not (to my knowledge) found its deserved place in the literature—Pour Ledoux, c'était facile; pas de tubes (It was easy for Ledoux; no pipe-work). In so far as lucky old Ledoux's buildings were serviced at all, it was by erect bipeds, who emerged from holes in the *sous-sol* and carried water, food, fire, information, medical attention and specialized equipment to wherever they were needed, and Ledoux's servant spaces were storage facilities where the component parts of this concept of service could be put away when not visibly in use. In the century and a half since piped coal gas began to come in, astonishingly little of this conception of service has been abandoned.

lucky old Ledoux!

This is most clearly seen in the negative sense that the disappearance of human servants has been recognized chiefly in a tendency not to provide consciously for services at all—chases are still cut in plastered walls after they have been plastered and in concrete floors after they have been laid. Kahn, at Philadelphia, has fallen over in the other direction, and has oversolved the problem in plan by providing a substantial butler's pantry into which the dirties (in this case, dirty air) can be cleared away after use. This is, in the most exact sense, a Beaux Arts solution, since it provides a specialized unit on plan to deal with this problem, much as one might find a plan unit in a Prix de Rome entry labelled *Pas Perdus* (which in many cases is simply a room into which cast-off human beings can be cleared away).

plan, not always the generator

That this provision in plan registers as an oversize vertical structure on the exterior, draws attention to the basic and as yet unassimilated paradox of mechanical services: since the outlets of such services are fixed (or nearly so), unlike the pre-technological butler who could be summoned to the point of need and then dismissed, mechanical services must be delivered via a permanent grid of ducts, pipes or wires, over most of the plan area where they will be needed. Now, it must be remembered that *plan* in this instance must include ceiling as well as floor, and once this point has been remembered it will be immediately apparent that services must be, in the first instance, a problem of the section of the building. The Salk laboratory project immediately makes this clear, since the distribution of services is obtrusively evident in the sections, and it is this highly developed sectional design that inspires one to think that these laboratories are a real advance on Philadelphia (where the sections are, apparently, of insufficient interest to justify their publication).

paradox of the section

It is precisely its ability to deal with the problem of services in section that gives such authority to the concept of the suspended ceiling—or to the deep space-frame floor-truss which is simply another way of looking at the same thing. Kahn, of course, has used such a truss system twice already, and in both cases with the equivocation of *wanting* to omit the ceiling surface from beneath it: in the Yale Art Gallery he is reported to have opted, finally, for the open truss because he felt that he could not resolve the problem of overhead services to his own satisfaction in any other way: in the Philadelphia laboratories he seems to have intended an open truss from the very beginning, but in the teeth of scientific advice. Thus, with Kahn, the section/plan paradox becomes manifest: internally, for the horizontal distribution of services, he favours the frank exposition of the tubes that Ledoux did not have, but externally and vertically he abhors the exposition of the tubing to such an extent that he feels impelled to clothe them in pseudo-monoliths of positively Ledolcian monumentality. But this schizoid tendency is not a private aberration of Kahn's; the profession as a whole suffers from it, though not necessarily in these terms.

a schizophrenia not his own alone

The problem of making architecture out of the vertical services, without making them into elements of composition in the Beaux-Arts sense remains to be solved. Because services, more than any other single physical cause, have removed the need for architecture to be monumental, massive, ponderous and the rest of it, there is an element of architectural falsehood in making the expression of services as monumental and ponderous as Kahn has done. The theme is not a fit one for monumentality, but we have not yet reached a sufficient state of self-confident ease in our technological environment to be able to take services quietly on the outside of a building. Haunted by the image of a filthy black stove-pipe emerging through the stained glass of a church window, we shy away from the external exposition of service runs (rainwater down-pipes mysteriously excepted) or overcompensate when they appear to be unavoidable. The problem of internal distribution of services has been more or less sorted out with the development of the suspended ceiling because architectural emotions are not heavily engaged in problems of interior design. But the exterior of a building is still the sacrosanct surface of that work of sculptural art that every building designed by an architect 'wants to be' and emotion is more heavily engaged than reason. Further study is still required to exorcize this Parthenon complex and its concomitant snobbish tendency to try to push services back through the buttery hatch into that inconsidered limbo where, for five millenia, they were hidden from the architect's view.

further study required

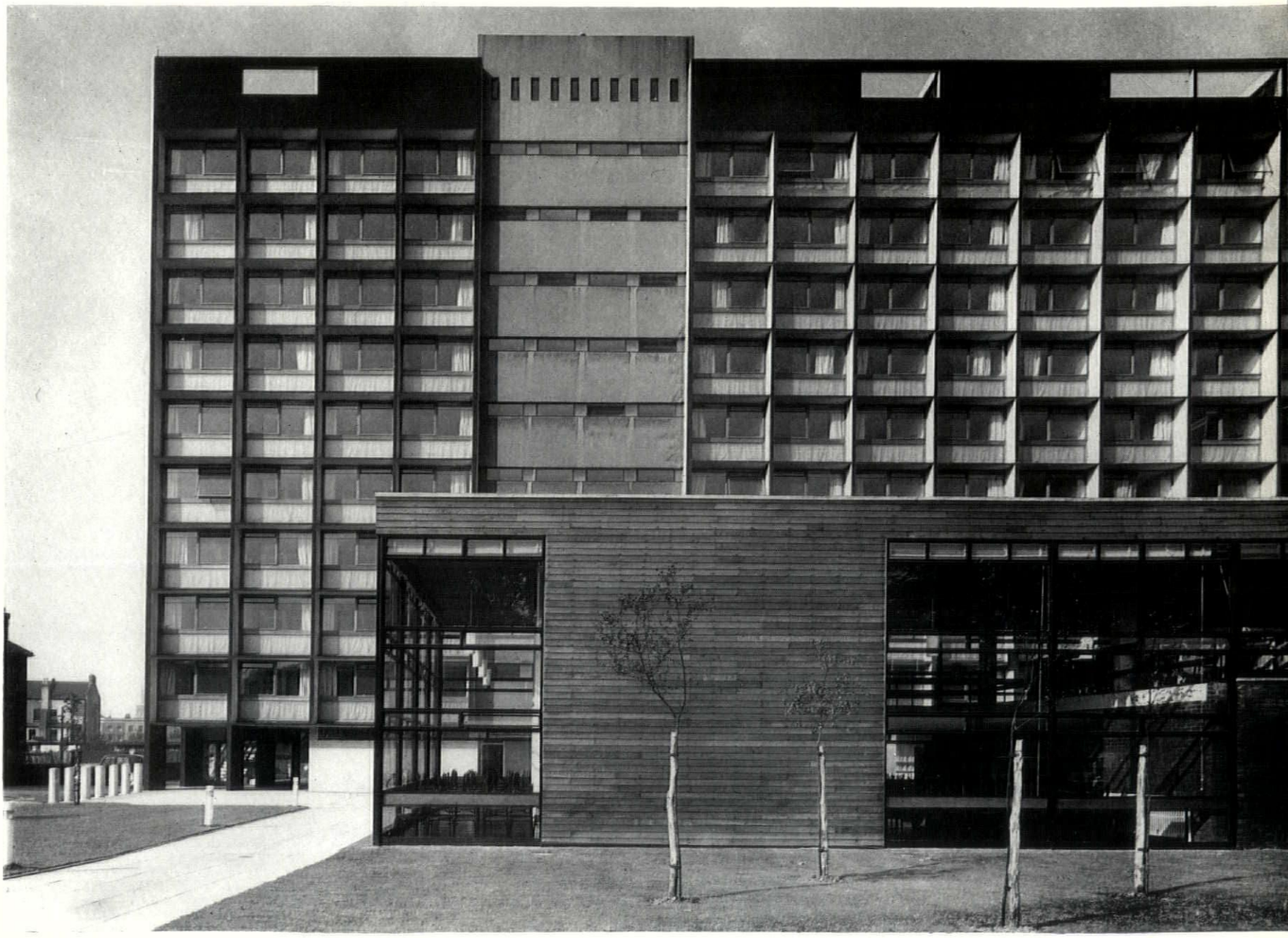


Hall of Residence, Battersea

**LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
(Architect, Hubert Bennett;
executive architects, H. M. Hurley
and M. A. Horsman)**

To provide living accommodation for students at Battersea College of Technology (formerly Battersea Polytechnic). The building, in Albert Bridge Road, contains study-bedrooms for 196 students and is the first hall of residence in Britain to be specially designed for a college of advanced technology. With existing accommodation, residential

1, *from the east, with the eleven-storey block behind the two-storey dining-hall block.*





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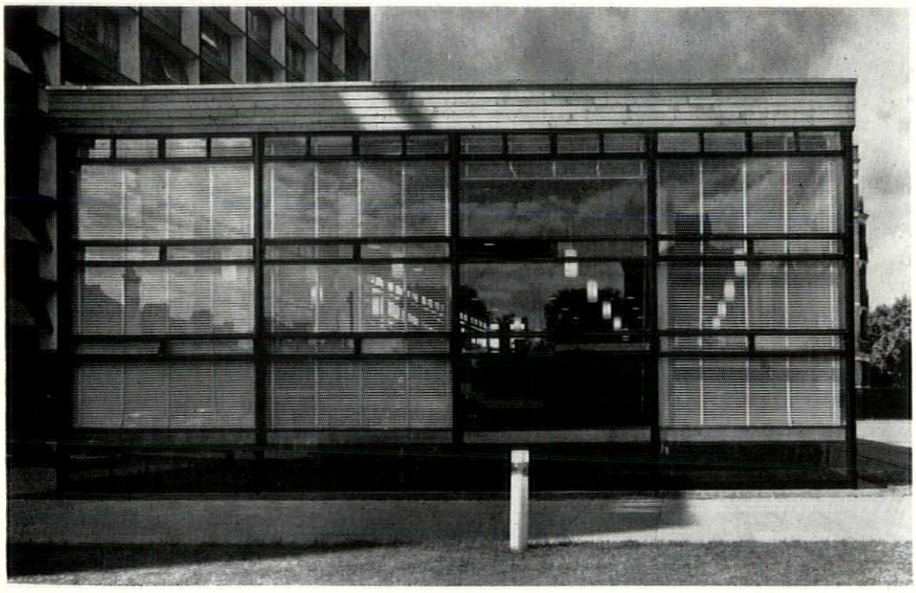

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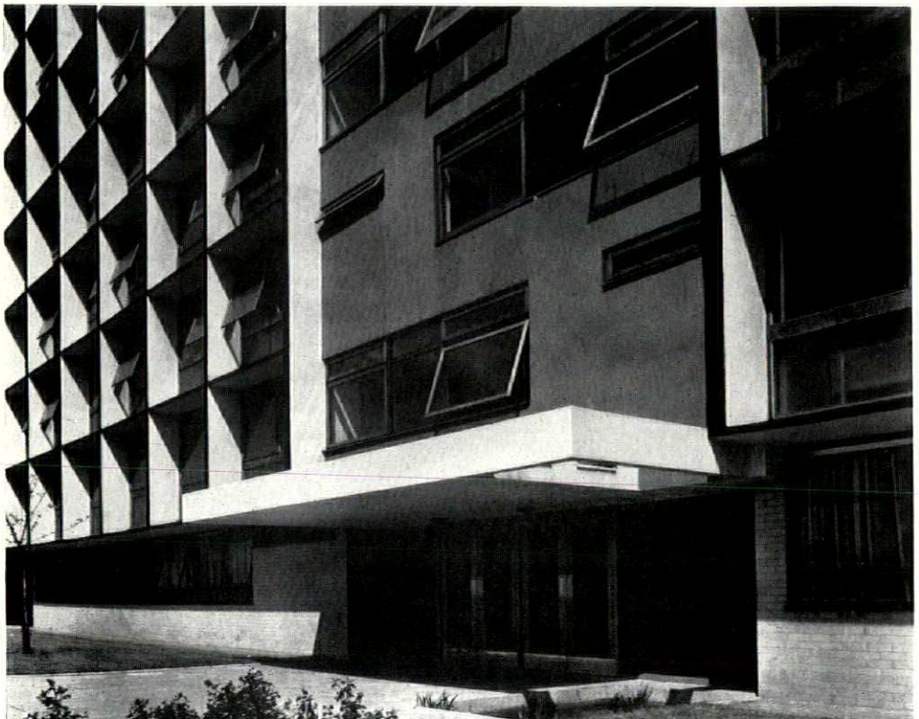

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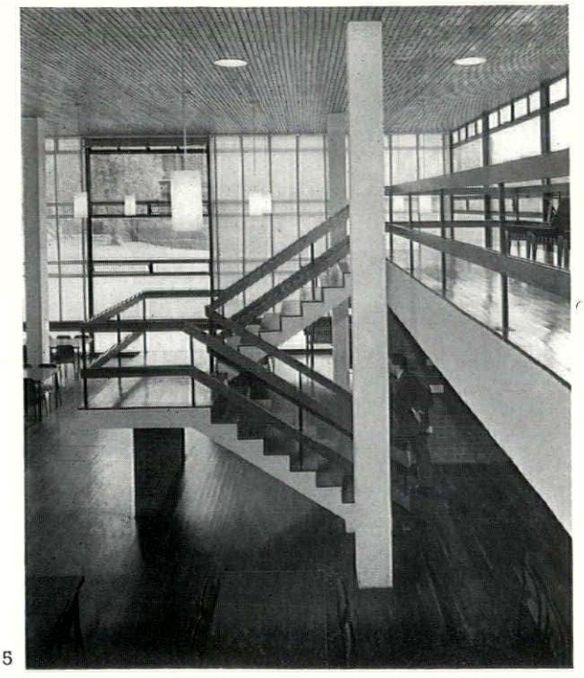
places can now be provided for about a quarter of the college's full-time students.

The eleven-storey building has rooms on the ground floor for the bursar and two assistants; also a sick-bay and an interview room. The upper floors each have 22 study-bedrooms, together with a centrally placed sitting-area, kitchen, bathrooms, etc. On the top floor is a students' common-room and staff quarters. A separate two-storey block contains the dining-room, main kitchen and common-room, the latter in the form of a balcony overlooking the dining-room.

The structure of the main block is an in-situ reinforced concrete box-frame with the timber window-unit, which is double-glazed below cill level, set back 2 ft. from the outside of the frame to provide the required fire-break between floors. The dining-hall block is also concrete framed with fully glazed external walls.

Hall of Residence, Battersea

2, from the south-east. 3, south elevation of the dining-hall block. 4, entrance to the eleven-storey block on the west side. 5, interior of the dining-hall block, showing staircase to gallery.



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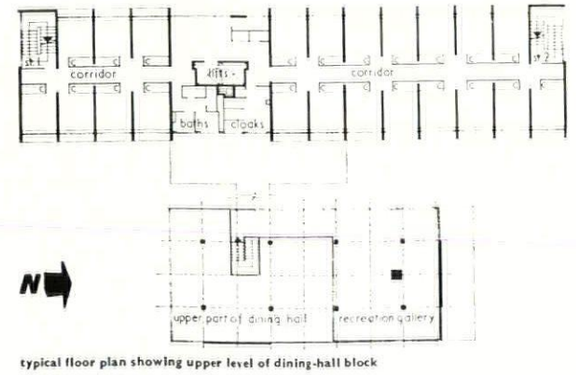


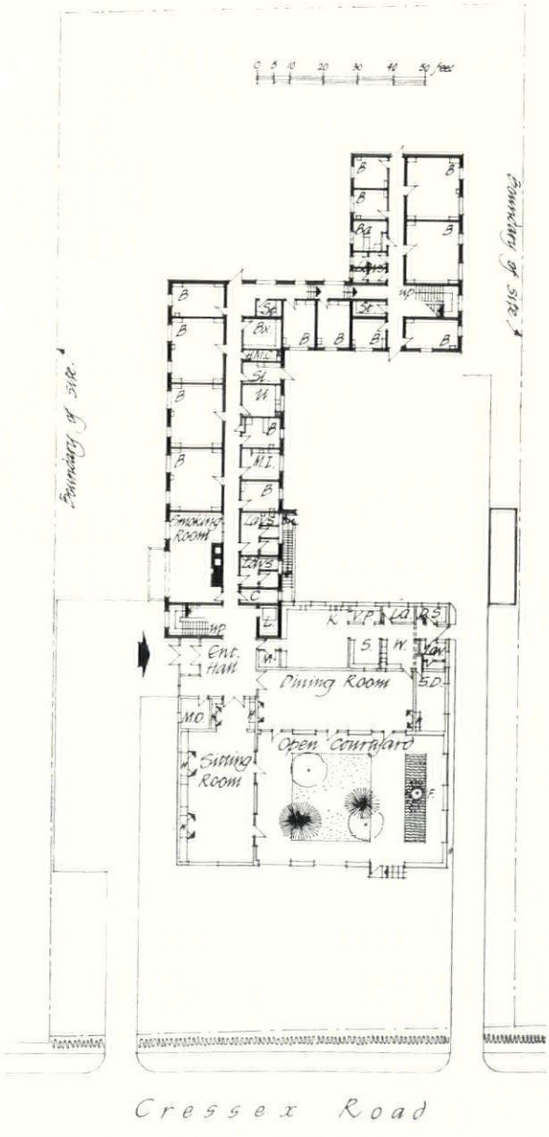
typical floor plan showing upper level of dining-hall block

Old People's Home, High Wycombe

ARCHITECT: F. B. POOLEY (Buckinghamshire County Architect)

The building accommodates 60 old people and was designed to fit a very narrow and restricted site in a built-up area of the town. The common rooms in the building are grouped round a courtyard, one side of which is open and faces on to the adjoining road. In this way the old people are able, either from the lounge or dining room, or when sitting within the sheltered courtyard, to take an interest in what is happening in the street. This part of the building is single-storeyed. The sleeping accommodation, which includes a mixture of single, double and four-bedded rooms, is contained in a two-storey block, placed at the rear of the site. There is an electric lift for those who are unable to use the stairs.

The building is of traditional construction, using London yellow stock bricks. The whole of the building is centrally heated from an automatic oil-fired heating plant.

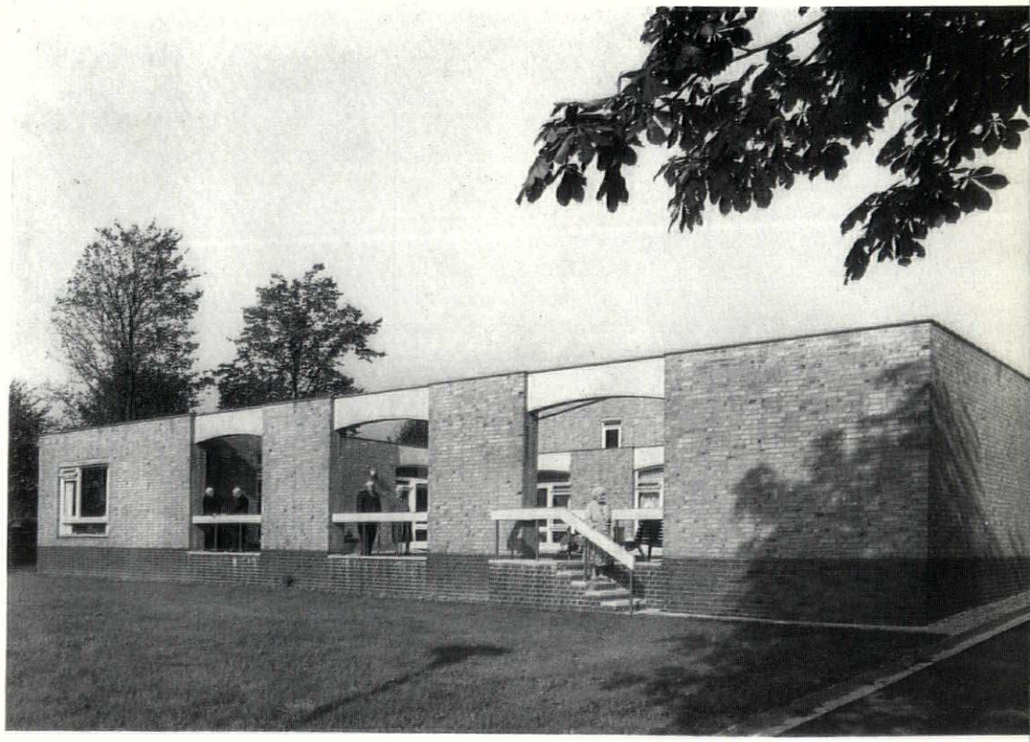


ground floor plan

key: B, bedroom. Ba, bathroom. St, store. Sl, sluice. U, utility. Ml, medical inspection. C, cloaks. Bx, boxroom. HMC, house matron's cupboard. L, lift. K, kitchen. VP, vegetable preparation. S, servery. W, wash-up. DS, dry store. La, larder. SD, staff dining. MO, matron's office.



6



7

6, from the south. 7, the open courtyard at the south end.

EXHIBITIONS

PAINTING

I suppose there are still a few ageing officials in every Department of Cultural Relations throughout the Western world whose stomachs involuntarily turn over when they catch sight of the samples of International Abstraction which they send abroad to represent the Restless Vitality of a Great People and the Continuity of the Nation's Genius. In some countries, there must be ageing officials who can even remember the time when *avant garde* stuff could get a painter arrested.

The *avant garde* has of course lost its old vicious associations with free thought and non-conformism. It is now the most highly valued of cultural exports. Indeed, it has become so much of an asset that when a country finds itself in the unfortunate position of having suppressed its *avant garde* too thoroughly the Government has to start one.

In this respect, Spain has been more fortunate than, say, Poland. Some young Spanish painters were so eager in the post-war years to be in the international movement that they left the country—and one of them really was a remarkably fine painter and made a contribution to Informalism that put him beside Dubuffet and brought him so much fame in Paris, London and New York that Spain was particularly well placed to launch a national school of international abstraction. However, I think it's worth mentioning that whereas the Spanish authorities are only interested in the export value of the young Spanish Informalists, the Polish Government, having given its Social Realists the word to go Informalist, exhibited their work in their own country and bought it for public galleries before embarking on an export drive.

The massive demonstration on behalf of the Spanish *avant garde* recently staged at the Tate Gallery, Marlborough Fine Art and Arthur Tooth and Sons had nothing to do with the fact that it's a quarter of a century since the start of the Civil War. The exhibition at the Tate Gallery was an official one, organized by the Directorate General of Cultural Relations, Ministry of Foreign Affairs, Madrid, in collaboration with the Arts Council, and it carried an Introduction by the Director General himself.

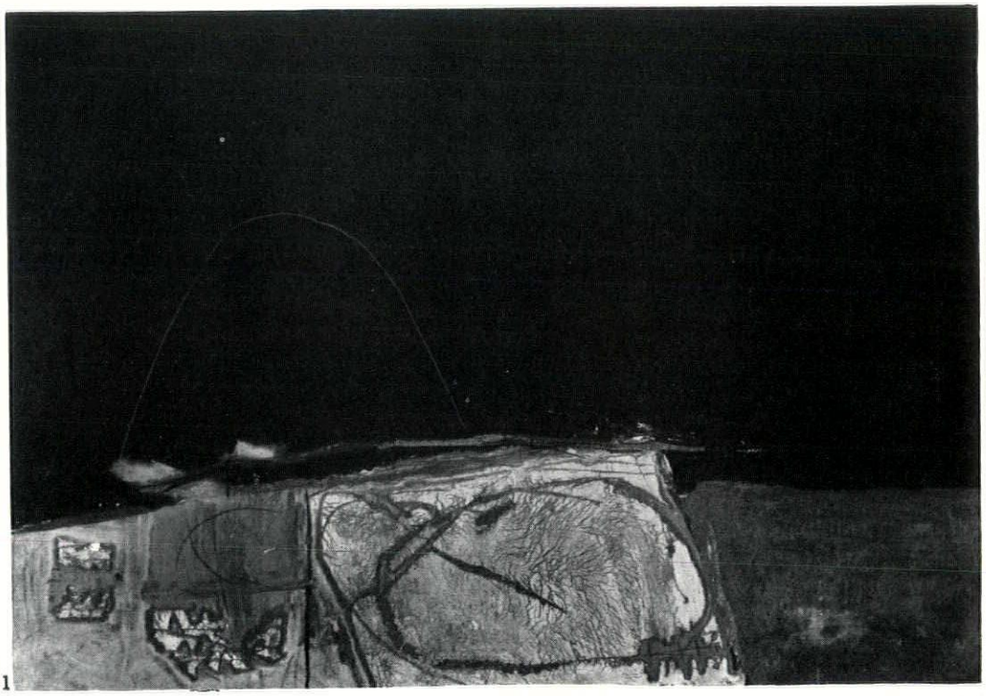
Absurdly enough, the official show included the work of a minor painter named Isidro Nonell, who died in 1911. The excuse given is that he was 'the forerunner of Spanish contemporary painting,' whatever that may mean. His ordinary little realist picture of a fish and some onions was dated 1910. It simply reminded one that at that time Picasso was evolving analytical cubism, and as far as I can see Nonell was put into the show only to enable the Director General to quote the title of a show held some time ago at the Guggenheim Museum—'Before Picasso. After Miro.' Why would the D.G. want to draw attention to the absence of Picasso and Miro without actually saying anything against them? Well, for one thing they took sides in 1936, and it's too late and too early to make official use of them. For another, their absence and Nonell's presence is probably a hint to the British friends of the present regime that the new *avant garde* is politically innocuous.

But Vicente Aguilera Cerni handles the tricky subject of the Civil War much more cleverly than the D.G. In the brilliant essay he contributed to the Marlborough catalogue he shows himself to be a master of patriotic art criticism, and leaves a faintly leftish ring in words of censure like 'officialdom,' 'conformism,' 'reaction' and even 'Fascism' in order to achieve emotional effects. He boldly calls the new painters 'the Sons of 1936' and says that they had 'to struggle against paralysing or even openly retrograde forces, with the result that the first distinctive sign of the *avant garde* movement was non-conformism.' But he quickly adds that this was really 'the old conflict between *casticismo* (Spanish isolationism) and *Europeanismo*.' And I gather that the Spanish contribution to Informalism finally resolved this particular conflict, for he continues: 'Modern Spanish art—a universal art—does not want to lose its essence, its contact with its ancient earth. , . . Thus the Spanish theme returns, but now it reflects a more fundamental conflict than that of Spain and Europe. That is, the antagonism, expressed in a new visual language, between the Spanish agony and the void of a world without direction.'

The meaning of the last sentence is not altogether clear to me, but I assume that Cerni is saying that whereas the Spaniards use the new visual language to express 'the Spanish agony,' the rest of the world just pours it out meaninglessly.

If Spain is hoping to expose the spiritual bankruptcy of the rest of the world by sending out official exhibitions of its *avant garde* paintings it will have to organize the exhibitions more carefully. The Tate show was a tactical blunder of the first magnitude. In the first place officials should recognize that only one indisputably great Spanish painter—Antonio Tapies—has so far emerged from the post-war international movement, and that their exhibitions are not likely to look strikingly different from exhibitions sent out by other countries unless they are built round a strong group of works by Tapies. At the Tate show he was very poorly represented, and the effect was disastrous.

When Tapies is at his best, his work has a way of pervading a mixed show to such an extent that it makes the other things look more serious than they are. (I am thinking of shows in which the other



1

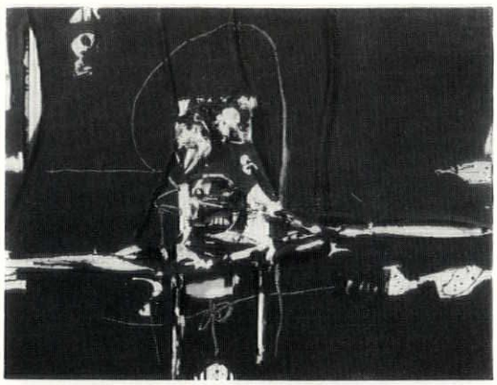
work is by painters of the same generation, wherever they come from.) This certainly happened at the Marlborough's Spanish show, where there were eight fine works by Tapies, including the strange and frightening torso reproduced in a recent number of the AR, and a beautiful and mysterious work which operates as a ground and sky picture, 1, with a ground of raised greenish paste and a dark brown, oil on canvas sky. The other painters in the show also had works either at the Tate or Tooth's, but in every case looked more serious at the Marlborough. It's possible that Marlborough made a better choice of their pictures, but some of them work to a pretty monotonous formula and make it almost impossible to say one thing is better than another. One thing is certain; the sombre vision of Tapies filled the gallery and put a kind of veil over the gimmicks and novelties.

Tapies wasn't represented at all at Tooth's, for the excellent reason that he is going to have a one-man show there in 1963, but his absence made the exhibition look spineless and sloppy. The Tate show was too big, but didn't include Lucio Muñoz, who is one of the best of the younger men, and was well represented at the two dealers' shows. He gouges and scrapes his images out of dark wooden panels and rubs a mottle of colours into the cuts. Cerni tries to confuse a technical effect with the Spanish agony by calling his work 'the most ravaged part of Spanish art.' Keith Sutton, in Tooth's catalogue, calls it, more amusingly and effectively, 'open-cast painting.' Muñoz appears to want to keep back the image and use it as a half-seen disturbance in the wood. But he knows too much about the image he's trying to hide, and by the time one's eye has traced out the mannered figuration one understands why he wants to keep it dark. His seated figure called 'Abimalech,' 2, was in the Marlborough show.

The work of Manolo Millares is considered to represent the Spanish agony at its most frenzied, and when his pictures appeared in Tooth's first Spanish show with parts of the canvas slashed and other parts all screwed up they caused quite a stir. The slashing and screwing-up still go on, but the frenzy has died down leaving a pleasant enough residue of pure aestheticism. He was in two of the shows. This one from Tooth's is typical, 3. If they were brought together they would look pretty monotonous. The fact that, like Kline and Elsworth Kelly, he works almost exclusively in black and white is considered to be as Spanish as his frenzy.



2



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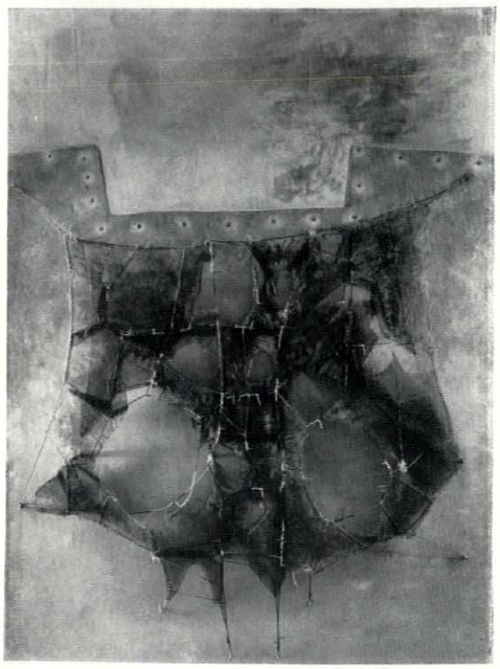

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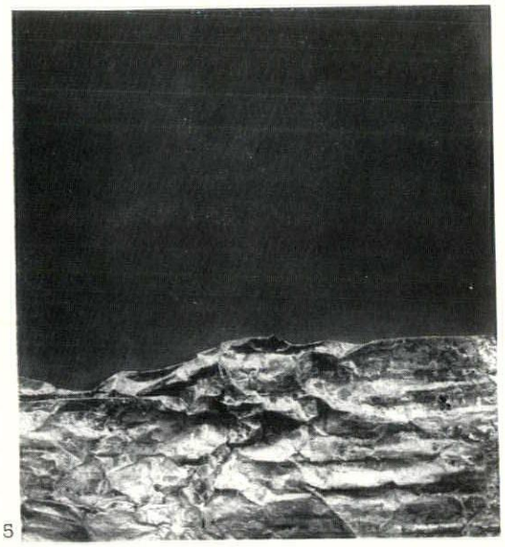
Most of the artists at the Tate contributed run of the mill Euro-American gestural or assemblage paintings. One of the best of the assemblage painters was Manuel Rivera who does charmingly decorative things with metal tissues over paint that are sometimes faintly erotic, 4.

And what does this desire on the part of the young painters of Spain not to 'lose contact with its ancient earth' amount to in practice? It seems to be a matter of using earthy colours and dry textures, supplemented in some cases by a horizontal division of the canvas to suggest a landscape. Tapies uses this simple landscape schema marvellously in the painting from the Marlborough show, but others use it as if they were conducting a 'Come to Austere Spain' campaign. Gustavo Tormer's 'Composition,' 5, for instance, is one of three such works which comprised his contribution to the Tate show, in which a piece of old, crinkled metal sheeting is fixed to the lower part of a darkly stained canvas.

The painter Modesto Cuixart was in Tooth's first Spanish show, but for some reason was dropped from the recent one. This is curious, for he seems to me to be the one painter who, in the absence of Tapies, might have held their show to-



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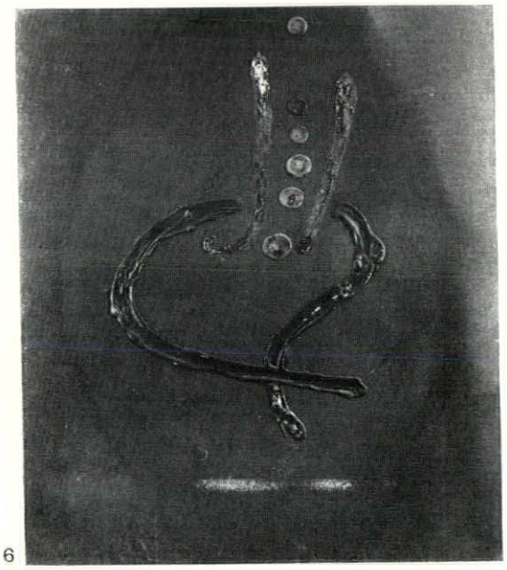

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gether. He was certainly the outstanding exhibitor at the Tate, although I found him a bit disappointing. His Tate pictures were larger, more handsome and in a way more assured than his earlier things. Two of them looked rather like Miros that had been dipped in brown stain, 6, but the most impressive of all (unfortunately not photographed) was a very large ground and sky abstract. I think it has been directly influenced by the Tapies, for the ground is made of a greenish raised paste. But he has so to speak tidied up the conception and moved it over into the picturesque. The green paste is embossed with somewhat *art nouveau* plant forms, the sky is a sumptuous matt black, and he adds a big white moon that takes it into Max Ernst country. It would make a 'perfectly heavenly' decoration for the drawing room of a flat in Eaton Square or Park Avenue. It is what I would call best quality picture making, and Cuixart seems at present to be making his way rapidly and with tremendous aplomb deep into Cerni's 'world without direction.'

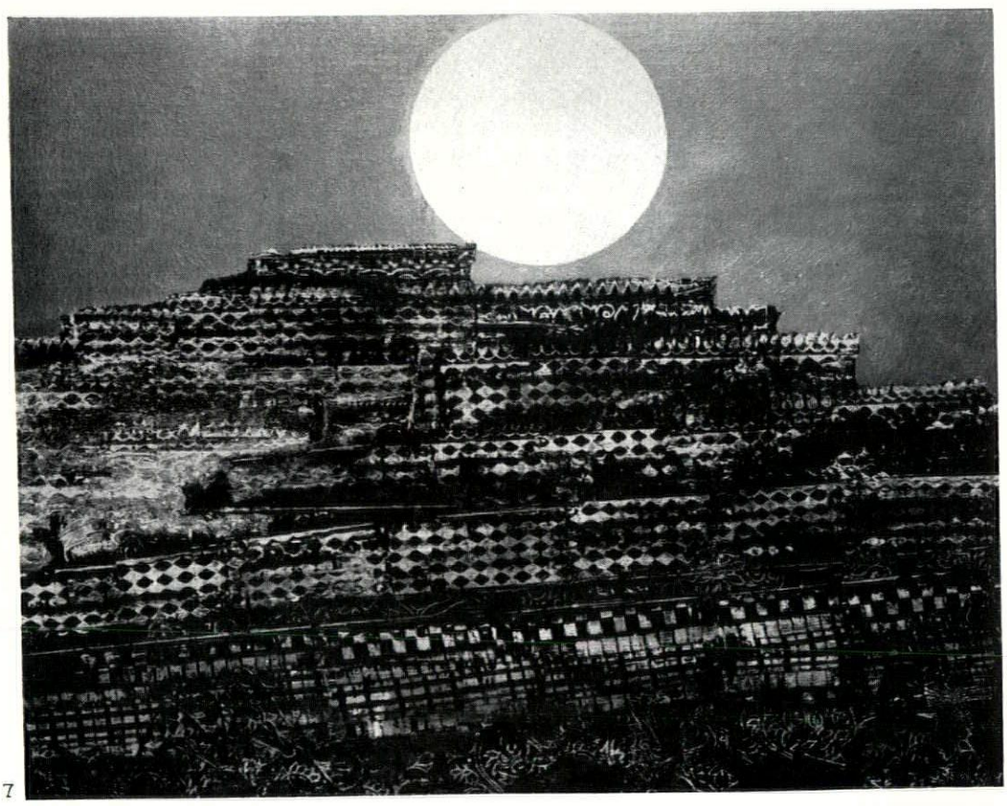
The kind of Ernst I have in mind is 'The Petrified City,' 7, lent by Manchester City Art Gallery to the Academy's Winter Show, 'Primitives to Picasso,' composed of loans from municipal and university collections outside London. It was intended to draw attention to what a lot of treasures there are in the provinces, but a great deal of it was very boring indeed. It might have been a better exhibition if the institutions involved had been allowed to send the best things they have, regardless of the gaps left in the plan behind the flashy title. Gaps would have been a lot better than some of the things intended to fill them. I can't believe, for instance, that there is not a large and important Sutherland in at least one of our provincial galleries and, on the other hand, what a nice test it would have been for contemporary sculpture if Brighton could have lent one of the Oceanic carvings that are its chief claim to glory. The best room in the exhibition was the first, devoted chiefly to early Italian schools, and including two Simone Martinis and a Sassetta. This was partly due to the fact that they were small,



8

neat works, with sharply defined forms and clear, clean colours, so that even mediocre examples looked infinitely more presentable than large mediocre seventeenth-century pictures of which there seemed to be a depressing abundance. The 'St. John the Baptist Retiring to the Wilderness,' attributed to Andrea di Bartolo, 8, and lent by Leicester Museums and Art Gallery, is not a masterpiece, but it gathers its story-telling charm from intense conviction, and is clumsily prophetic of Giovanni di Paolo's magical treatment of the same theme.

Joe Tilson has been holding his first one-man show of wood reliefs and collage-paintings at the New London Gallery. His use of wood is in striking contrast to that of his Spanish contempories. The Spaniards like their wood to look very old and stained. He likes it to look brand new,



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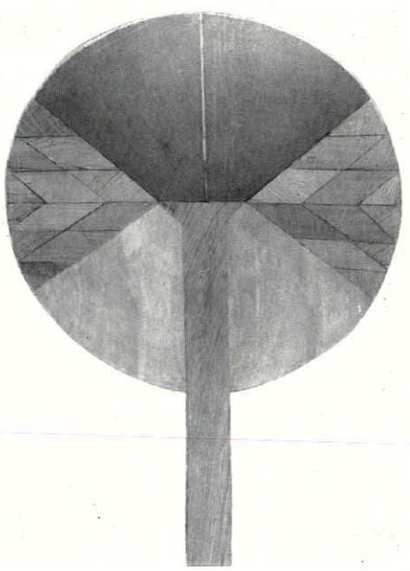

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and one wouldn't have been surprised to find a few shavings on the floor of the gallery. He adds carefully cut pieces of veneer and raw canvas to painted surfaces very tastefully, but his designs tend to be too symmetrical and to lack tension. He calls this example 'Elvin,' 9, and my guess is that it's supposed to remind us of Elvis Presley and Alvin the Chipmunk. If so, it would be better if he got a bit of this neo-Dada squibbiness into the work itself.

Robert Melville



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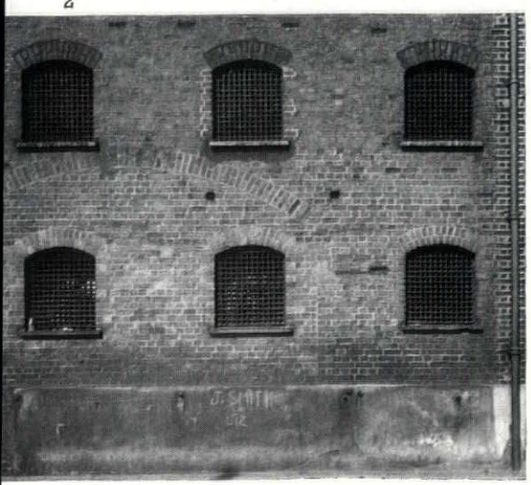


2

FUNCTIONAL TRADITION

LONDON POSTSCRIPT

Hidden away in undeveloped areas of London there are still unnoticed examples of the Functional Tradition, in the form of unselfconscious buildings, mostly for some near-industrial purpose, that achieve architectural quality of an austere but satisfying kind as a result of their concern with simply meeting the challenge of function.

The accompanying photographs, by Eric de Maré, might have been taken in Wakefield or Bristol or deep in the London Docks. In fact they were taken in the heart of London's residential West End, on the fringe of Belgravia. They show, in a general view, 1, and in close-up, 2, the back of the Pantechnicon in Kinnerton Street, a monumental removal warehouse whose front, with its array of Doric columns in cream-painted stucco, is itself a splendid example of nineteenth-century Greek Revival.

J.M.R.

PEOPLE

JOHN GLOAG

John Gloag announces that he has retired. Rubbish; he has given up his job—he has worked very hard in it for a number of years—in order to do the job he loves. He won't work any the less hard, but it won't seem like work. It will, I think, seem like emancipation to him. For he is a person of rumbustious enthusiasms, but they are always quite genuine, at least at the time. I never saw one side of him quite fitting into the advertising world of synthetic enthusiasms and ballyhoo, while the other side seemed to do so.

Ever since my wife and I have known Gloag and *his* wife—and that's getting on for forty years—several things have struck us about him which have remained remarkably consistent; for example, his extraordinary capacity for getting down to any job so long as it didn't involve physical effort or games, though he was always quite prepared for a long walk and gave every sign of enjoying it. But I think talking to his companion or thinking about his next book were the principal attractions even on a walk.

His optimism is infectious, yet once or twice in his life—an occasion was just before the last war—he has gone through a short period of unrestrained pessimism. He is essentially a friendly person, and nothing delights him more than to be the host at a small party, but he is not a clubbable man in the ordinary sense, though he loves the conversation at the Garrick. He will go to some lengths to avoid those large, impersonal cocktail parties which so greatly afflict our age. His reliance on Mim—his wife—is a marked characteristic; he himself won't spend any time on people who don't interest him, but Mim is most interested in people of all sorts and conditions. She is an acute observer, who studies and remembers hands as well as handwriting and she has found John Gloag a remarkable specimen of the human race to observe at close quarters. Not one

of his foibles escapes her, and her sound commonsense and practical sympathy have been of immense value to him.

Gloag's optimism is well attested by the fact that when, as a young man, he was assistant editor of *The Cabinet Maker*, he even believed that he could interest the furniture trade in design! I remember with gratitude the help and encouragement he gave me without stint when I started designing just after the first war. Indeed, that is how I came to meet him. In his books, more than fifty in number, in his numerous short stories, articles, broadcasts and lectures, he has never ceased throughout his life to stress the importance of higher standards of design in every sphere. There can be no doubt at all that his influence has been great, and it has been acknowledged by his appointment to the Councils of the Royal Society of Arts, Design and Industries Association and Council of Industrial Design and by Honorary Associateship of the Royal Institute of British Architects and Honorary Fellowship of the Society of Industrial Artists. Occasionally his enthusiasm has led him to over-state his case, but who would not forgive this at a time when so many of the intelligentsia sob out their hateful lives till death releases them?

It is perhaps in books of his like *Victorian Comfort* and *A Dictionary of Furniture*, which need careful research and a sense of fun and malice in the choice of illustrations, that John Gloag is at his best. His interest in architecture appears in many of his books and his critical articles have been welcomed not only by architects but by those laymen who believe that architecture would become far more healthy if subjected to the same principles of criticism as literature and drama.

With all his fusillades and his tilting at windmills, Gloag has never lacked the ability to laugh at himself. Indeed, he loves to tell stories which make him out to be a figure of fun. I like the way he boasts that he has refused to learn to drive a car—which simply means that his wife has to take him about or he goes in some vast hired affair! I think one of the nicest stories of him is that of his getting worried about his health—and he can get incredibly fussed and worried, and splutter with rage over headlines—so off he went to see Lord Horder, who said to him, after he had recounted his tale of woe: 'You go back and cut the hedge. And ask your wife to come and see me tomorrow at 11.' In a dumbfounded way John repeated this astonishing summing-up to Mim. She is a most competent gardener and was dizzy at the idea of what any hedge cut by John would look like. So she duly appeared next morning and was asked: 'Why are you always shielding your husband? Why, for instance, do you try to save him from anxiety by hiding *The Times* every morning?' 'Shield my husband,' she gasped, 'I do that to shield myself!'

All his friends—and they are many—will hope that Gloag will continue for many years to provide them with stimulation, entertainment and valuable information.

Gordon Russell

TOWNSCAPE

SIXTY-TWO MINUTES FROM WATERLOO

For Wokingham in Berkshire, the statistic in the title above is at the moment the most important fact about it. Sixty-two minutes from Waterloo means a town uneasily poised between the old country rhythms and the new influences from London which come from a group which is fairly small in numbers but influential indeed. If you add two more railway statistics (fifteen minutes by rail from Reading and six minutes from Bracknell New Town) and realize that it is still a country town, Wokingham's biology must be as complicated and equivocal as anywhere in England. But it is becoming the situation of very many towns, first in south-east England and then all over the country, so that what happens to Wokingham has much more relevance than might appear at first.

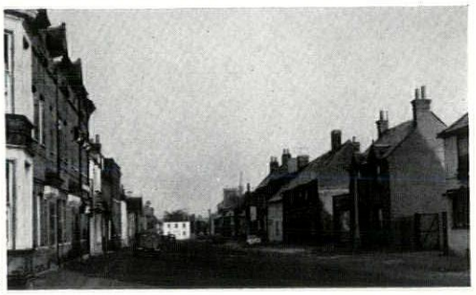
As might be expected, Wokingham has got the lot, all in a town of ten thousand people: every stage from needless decay to over-preservation. If the total climate of opinion in Wokingham were averaged out it might settle down in a healthy median position, and one which is needed very much in Britain today. But, perhaps because of the polarization between Country Wokingham and London Wokingham, the attitudes tend to polarize into tear-it-all-down and tart-it-all-up.

In fact, all this is happening in one street. Rose Street is a remarkable place, 1, and ought to be much better known, a quieter version of Abbey Street at Faversham (AR, July, 1956), with cottages of all dates and sizes making up a deeper harmony than the most elegant of repeated rhythms. It is a townscaper's dream, because it is visually closed at both ends, with the eastern end narrowing and leading to the church spire. It has no through traffic, which makes it a withdrawn oasis only a few yards from the centre of a bustling small town, and the road surface is slightly concave (as it is in Broad Street in Ludlow and a few other places) which ties the street together even more firmly. It is an identity, a biological unit like a finger or toe.

The finger or toe is about to be amputated: or to make a better parallel, to be used as a bridge-piece between totally dissimilar parts of the body. Put shortly, there is a plan to run one-way traffic through it, so that the confused flow around the market place can be sorted out—the congestion is partly local and partly due to the use of the A329 from Reading to Ascot and Staines as an impromptu edition of the Bath Road. The west end will consequently need to be widened and splayed, reducing the contrast between the narrow and broad parts of Rose Street, and at the east end the new route will veer off diagonally through a prefab estate, which has been put on a gap which ought to be built back up to the street line. Here a roundabout is proposed which would cut



map of the centre of Wokingham


1

off the church from the town and turn the eastern approach to Wokingham into a medley. So the 'spatial vessel,' to borrow a term from art history, will be pierced—and it is as real outside in the open at Rose Street as inside most cathedrals. Space will leak out, lines of functional force will leak out. As an identity it might as well go and pack its bags.

The immediate alternative is to make a one-way system of the roads which have already been provided with timorous route-signposting: Rectory Road and Wiltshire Road. This would certainly serve for the moment. An eventual internal by-pass could easily be built by prolonging Rectory Road, but it would have to run through the cemetery extension; the past and present citizens of Wokingham would have to sort that out between them. But a better bet is perhaps to develop the B3034, which runs a couple of miles to the north, as an alternative for the whole ten miles of road between Ascot and Wokingham.

With the road threat removed, Rose Street's struggle to stay intact would be only half over. Ten years ago it was entirely run down, a whole street about to fall to pieces for lack of a few kindly patching-up gestures, either private or public. One

Three views of the eastern end of Rose Street: as it is, as it is likely to end up if the roundabout is put there, and as it could be if its townscape value were recognized and realized. 2, today's view, decayed but still noble. 3, the effect of the proposed roundabout. The space will be exploded, the church and the remaining side of Rose Street will become mournful left-overs. 4, Rose Street reborn, and by a process of patching up and filling in, not wholesale rebuilding—keeping the piecemeal pattern that it has always had. On the left, in a narrow gap, a tall mildly outré house, three storeys high and one room wide. On the right, the old bow-front patched up, and a two storey house next to it which could well be a studio, as it faces north. Beyond, a low building to keep the counterpoint set up between the existing gable end and the white house returned into the street. Cross Street on the right, could well shrink to an alley, and the eastern exit of Rose Street, towards the church, be made undesirable for cars by cobbles or pavé of Belgian ferocity. The street lamp goes where it should have been all the time. Little subtle touches, but what an enormous difference to the scene as a whole.

or two of the houses fell down, leaving gaps that could now be well filled by the sixty-minute-men with straightforward designs by London architects (I am not being sarcastic. The only way out of this exurban jungle is mutual co-operation).

Then, about five years ago, a few of the old cottages smartened themselves up, soberly and quietly, a process which culminated in the restoration of what for Berkshire is a big group of timber-framed houses on the south side. And this immediately went to the other pole and became ridiculously cosy, 5, with all sorts of olde work where simple modern details would have done, exposed beams everywhere, the whole bag of tricks. A pity, when truly conservative techniques are now available (from the SPAB, for example) and there are plenty of young architects who would understand the true spirit of a job of reconditioning such as this one. Whilst this new killing-with-kindness flowers coyly, with pats on the back from everyone, the old only-a-lot-of-old-junk is still in charge elsewhere, with perhaps a third of the houses in Rose Street empty, and municipal signs and lamp standards popped down without thought that this is a peculiarly delicate masterpiece, as fugitive as the sunset bloom on those vermilion Berkshire bricks.

Six of one and half a dozen of the other. Either burnt cottage pie and watery veg, or a preposterous imitation of *haute cuisine*. Wokingham is just a particularly compact example of what is in store for hundreds of English towns, unless the two can be harmonized, unless the harrow and the bowler hat lie down together. As a first step, here, 4, is Kenneth Browne's illustration of how the dead and dying members of Rose Street might be replaced.

Ian Nairn



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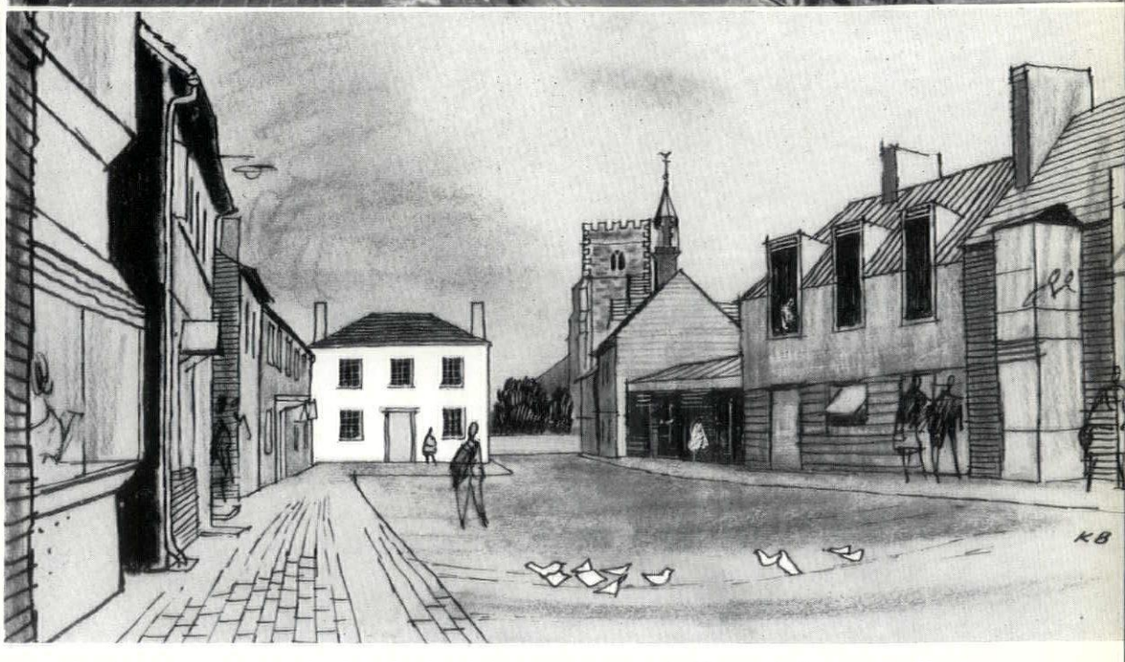

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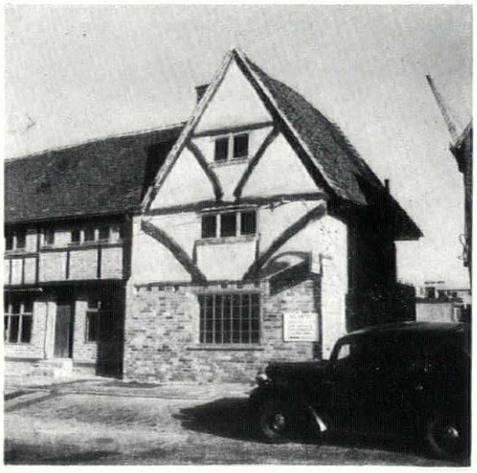

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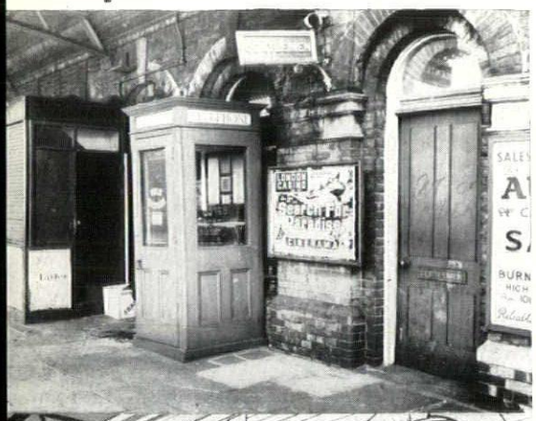

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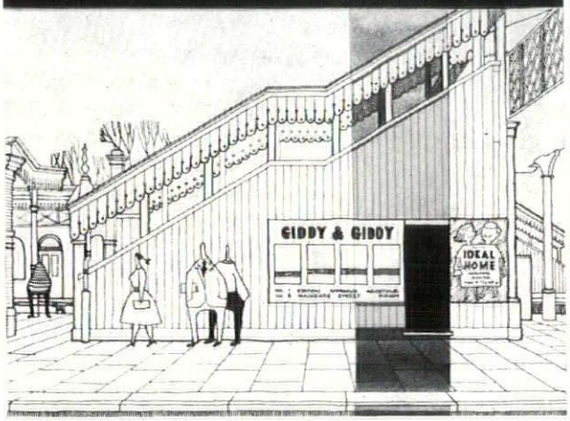
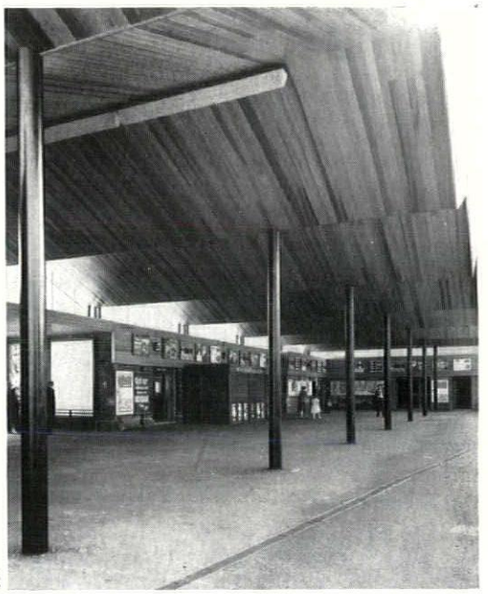


even make missing the train a worthwhile experience. Western Region have taken the hint from R. L. Moorcroft, their architect, and repainting should have begun at Taplow by the time this appears in print.

H. H. Powell's alternative approach to the job for Eastern Region at Cleethorpes is to rebuild in a modern idiom, 4, whilst retaining a local landmark—the brightened up clock tower, 5. This combination provides a suitably breezy seaside air of expectancy and demonstrates that modern architecture need not destroy the sense of place.

Raymond Spurrier



4

CREDIT

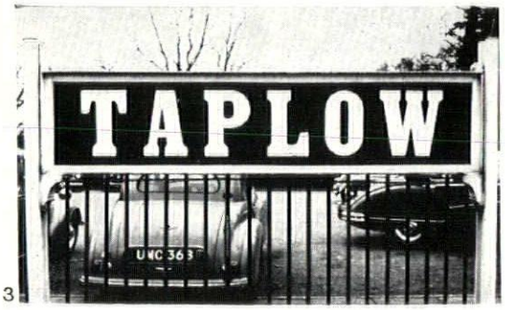
STATION APPROACHES

At the present rate of reconstruction it will be 50 years before all the stations in Western Region of British Railways can be rebuilt to modern standards, but a pilot 'face-lifting' study shows that for only a modest outlay over normal maintenance the whole region could be visually renovated by about 1967.

Taplow Station in Bucks has been used as an example to show what can be done to present the building in its original form by removing accretions, 1, reorganizing poster displays, 2, grouping signs, exchanging seats with Reading General to get a complete set, cleaning brickwork, and painting so that colour is used constructively—for instance to emphasize the structure of a bridge, or even to group small stations by a colour scheme that changes after each big station.

And although the Taplow type face, 3, is in character with its setting here its use could also be extended, with livery colours, to the large signs of new stations to maintain a regional flavour.

All this could have a much more widespread and beneficial effect upon the travelling public than the major renewal projects for a London terminal. It could



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5



SKILL

STORAGE FOR ARCHITECTS
2. SHELF FILING AND PLAN FILING

In this, the second and concluding article, Anthony Wylson reviews, first, shelving units available and the filing systems they will carry and, second, plan filing systems at present on the market. In conclusion he discusses the high cost of modern design in furniture ranges.

Steel cupboard filing and storage

Standard steel cupboard units can be adapted to shelf filing. The problem of supporting the files vertically is achieved by adjustable or fixed metal dividers along the line of the shelf. Shelf filing is more suitable for storage and the position of the files requires pockets of extra strong material. Jetleys' 'Jetalat Verti-Angle Tabbed Shelf Filing System' include units with folding doors, standard type doors, light alloy shutters or open cupboards 72 in. high and 36 in. wide, 18 in. deep for foolscap and 15 in. deep for quarto. The files are not suspended but rest on the shelves, grouped in spaces of 9 in. by metal dividers. The files are made of heavy green manilla. The 'Remington Rand Filing Shelves' incorporate shelves with adjustable dividers. These can be positioned at 1 in. centres. Adjustable shelving is also manufactured by Sankey Sheldon.

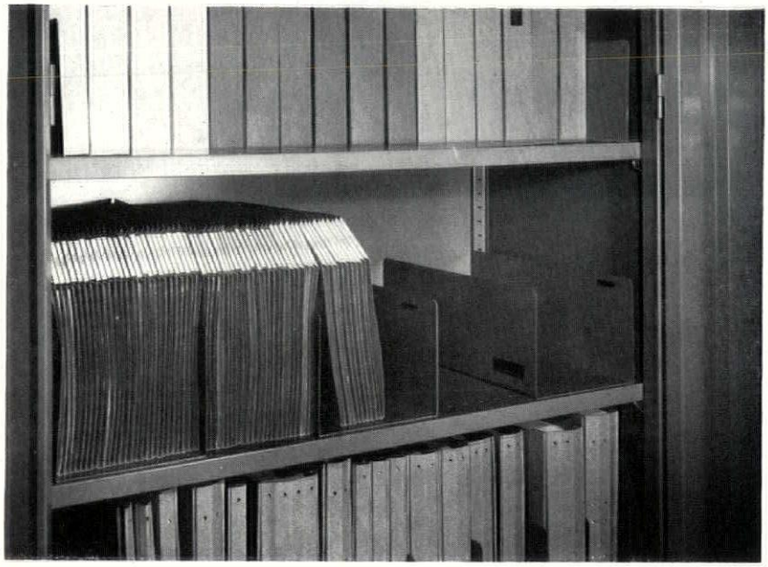
Lateral filing

The filing cabinet incorporating drawers has the advantage of security and small scale manipulation. However, for extensive filing, cabinets become wasteful of space and lateral filing forms a more economic solution. The principle of lateral filing consists of lines of suspended pockets with access from the side. This saves 50 per cent of the space used by operating drawers. It gives easy access and immediate visibility to a great number of files. The standard units are in the proportions of a 'wardrobe' cupboard 72 in. by 36 in. by 12 in., 15 in. or 18 in. deep. Units can be closed with either two doors, two folding doors that fold back flush with the sides, metal shutter or blind shutter. The 12 in. deep unit is permanently open.

The 'Kliptorail Continuous Lateral Filing System' is accommodated in a 5-rail unit 75 in. high by 36 in. wide, a 6-rail unit 87 in. high and 36 in. wide, and a 'Kwikfile' portable filing unit. The latter is desk height and provides 4 ft. of filing space. The larger units can be supplied with either open front, roller blind or roller aluminium shutter front. Correspondence folders lie inside continuous pockets suspended from a central rail. This permits a dual position for title holders and gives visibility above and below eye level to the index tabs.

The 'Leabank Lateral Filing' provides five rows in a unit 76 in. high and six rows in a unit 89 in. high. The end panel is detachable to enable bays to be added using original end panels.

'Roneo Flushline Lateral Filing' incorporates a concertina pocket into which files can be inserted. Titles, on



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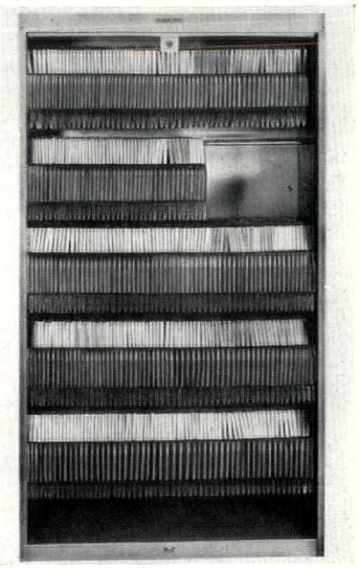

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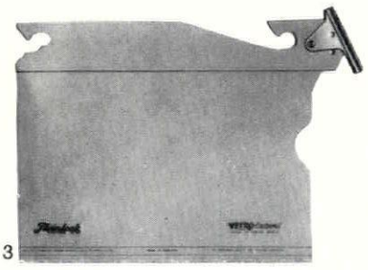
1, Jetley's 'Jetalat Verti-Angle' tabbed shelf filing system. 2, the Twinlock 'Vetro' lateral filing cupboard. 3, the 'Vetro' lateral suspension filing folder, which can be gripped at three different angles. 4, 'Vetro' lateral suspension filing on an open chassis.



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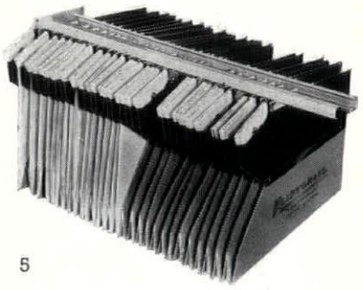
5, 'Kliptorail' continuous lateral filing. 6, Roneo 'Flushline' lateral filing.



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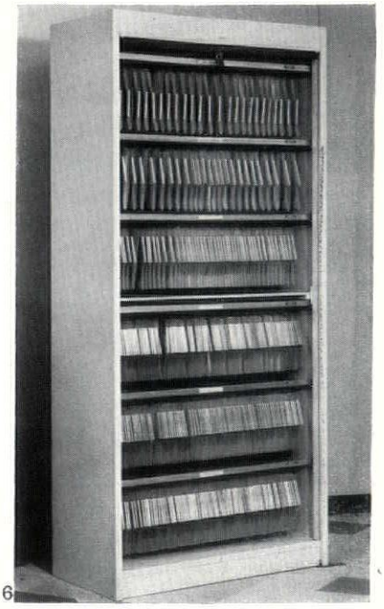

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TABLE 3: LATERAL FILING

Manufacturer	Name	Construction, Colour and Finish	Filing System	Size and Price
Frank Wilson & Co., City Wall House, 84-90 Chiswell Street, London, E.C.1	Railex 221 Linked Pocket filing	Metal cupboards in light grey, olive green or colour to order. With centre lock metal roller shutter (two shutters meet up at centre line), roller blind, light aluminium roller shutter or folding doors	Pockets linked together in Railex 221 linked pocket system	Railex centralock cabinets. 6 ft. high, 3 ft. wide, 1 ft. 7 in. deep. Other units 3 ft. wide, 18 in. deep and 6 ft. 2 in. or 7 ft. 3 in. high (5 or 6 rails).
Jetleys (Great Britain) Ltd., Huddersfield, Yorks.	Jetalat Verti-angle tabbed shelf filing system	Metal cabinet in office green or grey with metal shelves and dividers. Units with double hinge foldaway doors, standard double door, metal shutter or excluding doors	Jetalat Verti-angle filing on shelves. Files supported by adjustable steel divider plates	Wide range of units 72 in. by 36 in. by 18 in. for foolscap and 72 in. by 36 in. by 15 in. for quarto, with four shelves. Foolscap with double hinged foldaway doors £36 10s. 0d. With roller shutter foolscap £50 10s. 0d. Foolscap with standard doors £33 10s. 0d. Excluding doors £31 10s. 0d. Steel divider plates £2 8s. 6d. per doz.
Norwood Steel Equipment Ltd., Howard Way, Harlow, Essex	Suspendex NSE 450	Metal cabinet	Linked pockets suspended from two rails by top metal bar	Standard bay 7 ft. high, 3 ft. wide and 18 in. deep.
Remington Rand Ltd., 1-19 New Oxford Street, London, W.C.1	Remington Rand lateral and Remington Rand shelf filing	Metal cupboards finished in grey-rite and pearl grey	Lateral filing in continuous pocket suspended on side rails. Shelf filing on metal shelves with dividers	Units made up to 84 in. high and 45 in. wide.
Rockwell-Wabash Co. Ltd., 19-21 Farringdon St., London, E.C.4	Kliptorail continuous filing system Kwikfile portable unit	Metal cupboards fitted with dust blind or metal roller shutter Small portable unit giving 4 ft. of filing. Supplied with 80 Kliptorail pockets	Kliptorail lateral filing linked detachable pockets suspended from centre rail consisting of twin channels	5 rail unit 75 in. high, 36 in. wide, 15 in. or 18 in. deep or 6 rail unit 87 in. high, 36 in. wide, 15 in. or 18 in. deep.
Roneo Ltd., 17 Southampton Row, London, E.C.4	Roneo flushline lateral filing	Metal cupboards fitted with a steel roller curtain, Brifex roller blind, or standard doors	Roneo flushline filing consisting of linked pockets suspended from two rails	87 in. high, 36 in. wide, 18⅜ in. or 16⅜ in. deep.
Shannon Systems, Imperial House, 15-19 Kingsway, London, W.C.2	Shannoblic lateral filing or Shannolink lateral filing	Metal cupboard with retractable door and Shannon multiple units consisting of wall, base and canopy components to be made up to size required	Files suspended from centre 'T' rail or Two point suspension from two 'U' channels	
Twinlock Co., Chansitor House, Chancery Lane, London, W.C.2	Twinlock Vetro lateral	Units consist of metal components tubular chassis, plinth, canopy, made up to any arrangement	Vetro lateral filing, folder suspended from rails formed by chassis	Single chassis 31½ in. by 14 in. Plenton size 31½ in. by 19 in. Height of four chassis, 51⅛ in.
Sankey-Sheldon Ltd., GKN House, 22 Kingsway, London, W.C.2	Lateral Visible Filing	Filing operated on suspended frames. Cupboard with open-front, with blind or metal roller shutter. Stove enamel in dove grey, medium grey, dark mist, mist green or desert sand	Heavy duty suspended pockets to accommodate an inner folder	5 rail 75 in. high, 36 in. wide, 18 in. deep. 6 rail 89 in. high.
Leabank Office Equipment, Clifton House, 91 Euston Road, London, N.W.1	Leabank Lateral Filing Series L.F.C.	Finished in eggshell gloss, synthetic stove enamel in blended shades of olive green, warm grey, warm grey/mauve brown duotone, two-toned grey	Leabank lateral filing pockets	Units 76 in. by 89 in. high. Open front: empty 89 in. by 36 in. by 18 in. £19 3s. 11d. With roller shutters empty: 89 in. by 36 in. by 18 in. £40 9s. 3d. Lateral filing pockets, broad title strips £5 6s. 6d. per set 50.

4-in. strips, have multi-positioning to allow for placing above and below eye level. The transparent shield which magnifies the lettering can thus be angled for viewing. The 'Universal Filing Unit' houses a single row of Roneo Lateral Filing and is 17 in. high, 36½ in. wide and 16⅜ in. deep and has a slide away door. The unit is suitable for standing on a shelf or desk. They can also be stacked. The Flushline filing system can be installed in almost any type of shelving or cupboard.

An interesting system consisting of tubular steel components is the 'Twinlock Vetro Lateral Filing System.' The chassis are constructed of two bows of steel tubing chrome plated and polished, which are held together by a metal tie bar. This forms a light frame that can be stacked in any arrangement.

The system includes a timber plinth and a canopy. The manilla folders hang from the frames and can be removed without tilting. An insert folder can lie inside the manilla folder for quicker handling. The system can be fitted into a dust-proof steel container with a plastic roller shutter blind having overall dimensions of 31½ in. by 15½ in. by 16⅜ in. Each cabinet will hold 70 to 80 folders. The system can also be adapted to the standard metal cupboards or can be made up into an 'executive unit' with the plinth mounted on castors. Curtains or dust blinds can be installed immediately under the canopy. The area occupied by a single chassis is 31½ in. by 14 in. The plinth is 31½ in. by 19 in. Four chassis rise to 51⅛ in. in height or 57 in. with plinth and canopy. The 'Twinlock Vetro Lateral Cupboard,' 72 in. high and 18 in. deep, houses from 350 to 400 folders, and uses a three-position tab folder.

'Remington Rand Lateral Filing Units' standard unit is 84 in. high and 48 in. wide. The slide rails are of polythene and the pockets are held by pocket rods providing a substantial, simple system. Tabs have only one position, a disadvantage in relation to the height of the unit.

Railex filing equipment include the 'Railex Buro Cabinet Lateral Filing Unit' with 50 Railex pockets. The 'Railex 221 Linked Pocket' system is used in lateral filing units. All suspended pockets are linked together and each has a separate inner folder to contain correspondence. It is possible to insert a new pocket if required. The 'Railex Hook-On' system in which files can be easily removed include 12 different types of files which cover correspondence, printing plates, drawings up to 30 in. by 40 in. and stencils. The Railex Centralock Cabinet, 6 ft. high and 3 ft. wide, has an aluminium shutter that locks in the middle. When the top section is lifted up, the bottom section drops down automatically. There is also a Railex Desk Unit 12 in. long.

Shannon Systems manufacture two methods of lateral filing. The 'Shannoblic-Lateral files' are suspended by means of a single central 'T' rail which permits the files to be removed. The 'T' rails can be supplied separately to instal in existing cupboards, or in the Shannon storage units. On this system, three types of files are available: a general file for correspondence, a pocket file, and a box board file. The files have three

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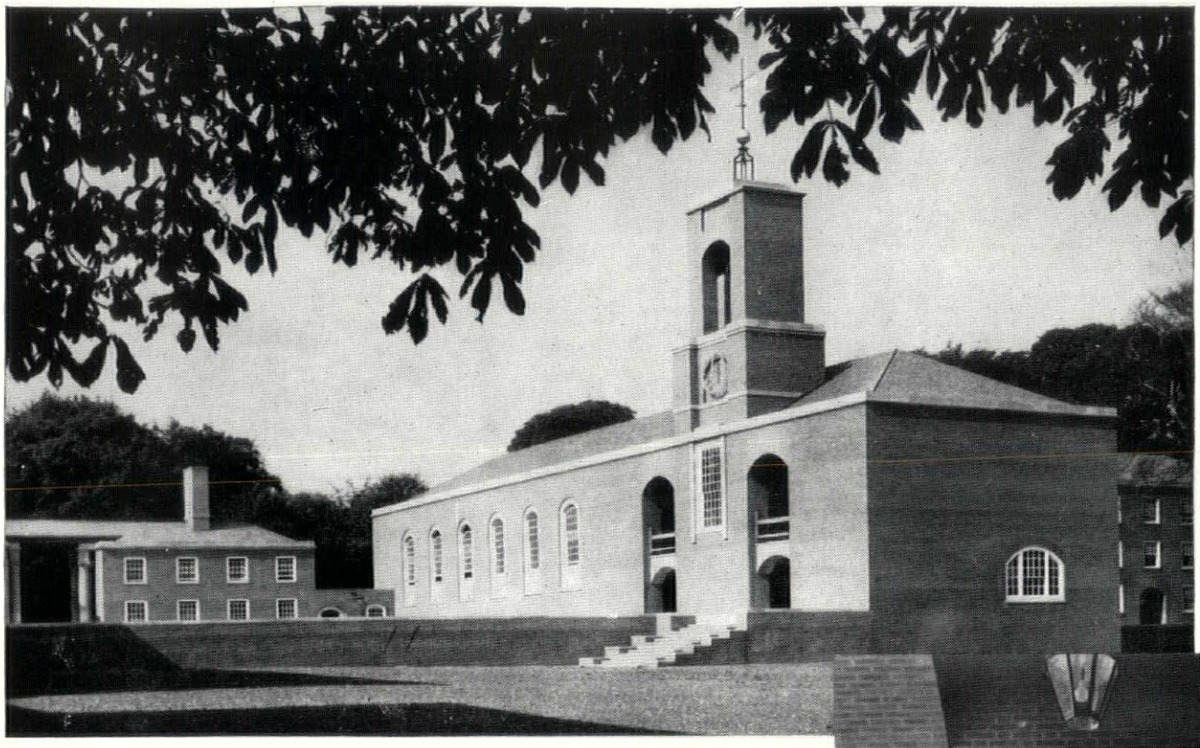

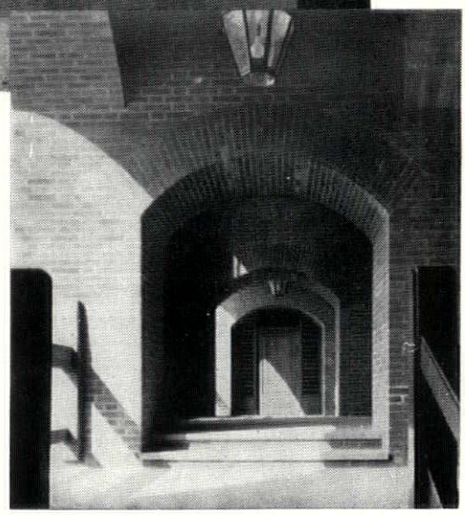

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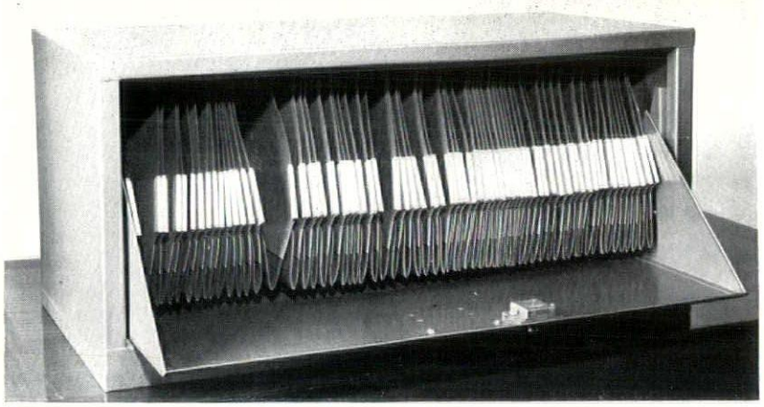
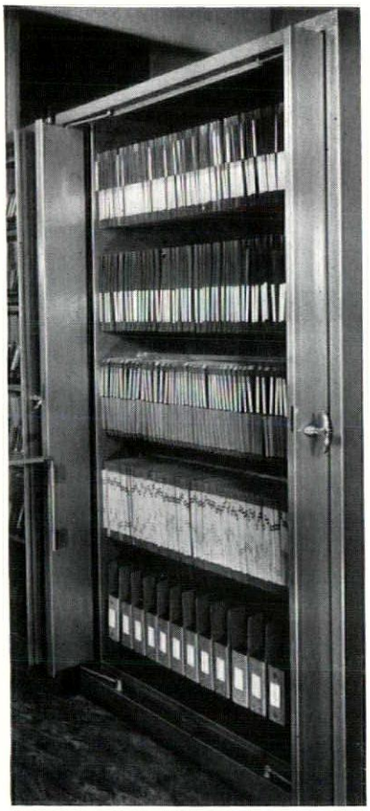


7, *'Railex' lateral filing desk unit.*

8, *'Shannoblic' lateral filing.*



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alternative positions for index tabs. The 'Shannonlink-Lateral' filing system consists of linked pockets suspended from two 'U' channels, to form a semi-permanent housing for separate insert folders.

The Shannon also manufacture a retractable-door cupboard, a desk top unit providing 17 in. of filing, and a range of multiple units consisting of a base, top and side panels that can be built up with a variety of arrangements to accommodate lateral filing.

Timber storage units for lateral filing have a different emphasis to the metal 'wardrobe' cupboard. The previous article discussed low-level cabinets and composite units than can accommodate lateral filing. Formation furniture and the German manufacturers Holzapfel Ltd. (both marketed by Ryman Furnishing Contracts Ltd.) and the Conran Modular Furniture include high cabinets and smaller components that can be made up into tall units. The Holzapfel Wardrobe timber unit for lateral filing costs £50 10s.

Thus there is both a wide range of units that will accommodate the lateral filing method, and systems that can be adapted to existing cupboards. These aim to provide either a suspended concertina of linked files into which folders can be housed, or a track from which individual removable files can be suspended. Furthermore, the actual filing systems give consideration to the variety of needs (correspondence to bulk filing), accessibility of loose folders, and the visibility of the index tabs. Lateral filing would be particularly suitable for coping with the bulk of trade and technical literature if dimensioning of pamphlets and magazines were systematized.

Drawing storage

The two main systems of drawing storage are horizontally in drawers and vertically. In the latter, the drawings are either suspended from the top rails or are held vertical in envelopes supported by compressor plates. There is also a system of rolled drawing storage which is more suitable to 'dead storage.'

In timber the Abbess range basically consisting of units of three drawers (imperial, double elephant or antiquarian sizes), is a very familiar design. The units can be made up into drawing desks.

The Magpie 'J' and 'D' ranges are particularly interesting designs in timber and steel frame forming drawing chests that can also be made up into desk arrangements.

The 'Leyton 12-tray Planfile' stocked by Hall Harding forms a plan chest of shallow drawers with doors that support the drawer when pulled out. The 'Leyton 12-tray Planfile' without doors is similar, except that the tray fronts have full width drawer pulls of polished oak giving a louvred appearance. Hille and Conran manufacture units suitable for drawing storage.

Arclight produce a shallow drawer metal cabinet consisting of 10 drawer sections. The drawers are 1 in. deep and are fitted with hinged flaps inside at the front and a fixed hood at the back of each drawer to prevent the curling of drawings. Drawers are designed so that dividers can be fitted to accommodate drawings of different sizes.

Harvey Steel Plan Cabinets are made of heavy gauge mild steel, stove enamelled with anodized aluminium fittings, supplied with or without locks in 6-drawer or 4-drawer units or a composite unit of 10 or 12 drawers. A unit with shallow drawers is also available. Norwood Steel Equipment Ltd. also manufacture a steel plan cabinet with 2½ in. drawers in 3 or 4 drawer units on a plinth. Lawes Rabjohns stock a special fire resisting plan chest.

The devices used for vertical filing are similar in principle to correspondence filing.

The 'Railex Plan Stand' consists of an open tubular steel frame, designed in two sizes suitable for imperial and double elephant drawings. The drawings rest in pockets, suspended from two rails. Drawings are inserted or removed from the side as for a lateral filing system. The 'Suspendex' Vertical Filing Cabinets manufactured by Norwood Steel Equipment Ltd. incorporate carrier bars that move out from a cabinet as the door is opened. Plans are arranged on these carrier bars. The unit is 24½ in. deep and aims to accommodate 400 to 450 plans with a maximum size of double elephant.

'Art Metal Planfiles' operate on the compressor spring system in which deep pocket folders are formed by flexible steel sheet separators compressed by intermediate springs. The drawings are filed in these pockets, which are suspended on rollers from top side rails. The top of the unit which is counter balanced, displays the drawing index when open. There are 15 spring pockets in each planfile. Each pocket contains four folders giving a classification system. The unit aims to hold about 3,000 tracings in any size up to 53 in. by 30 in. It is set on castors for mobility. The unit is designed to protect the drawings against fire risk, water and dust. On the front of the unit there is a hinged shelf to form a work or reference space. The planfile filler pockets consist of concertina folders of varying depths to suit the drawings to be filed. These are not

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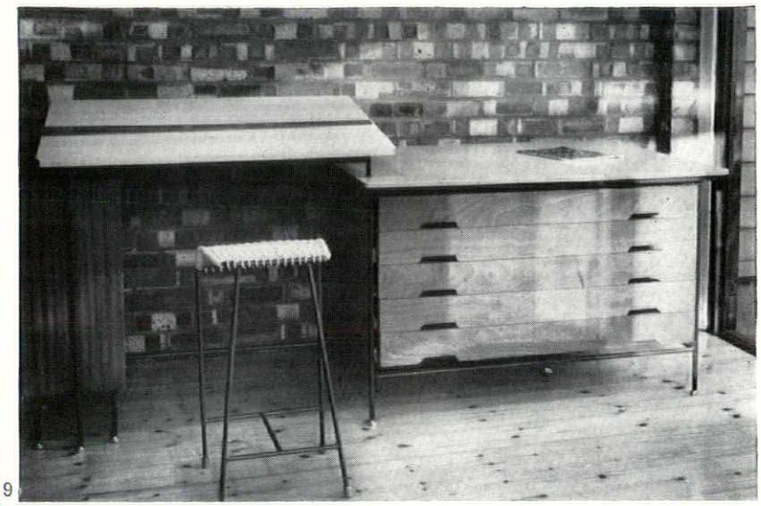

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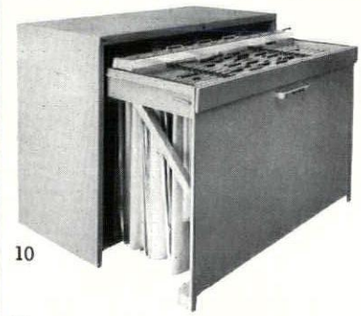
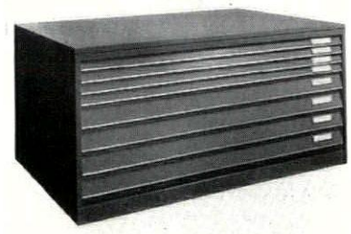


10

9, *the Magpie 'D1' double-elephant size plan chest with drawing board stand.* 10, *Gabs cabinet for vertical filing.*

11, *the Harvey plan cabinet.* 12, *'Railex Plan Stand' drawing storage.* 13, *'Plan-O-Class' plan cabinet.*

11



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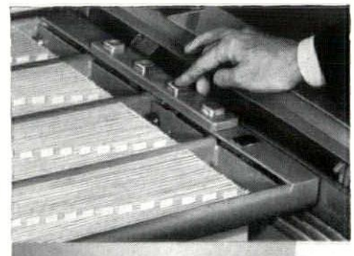

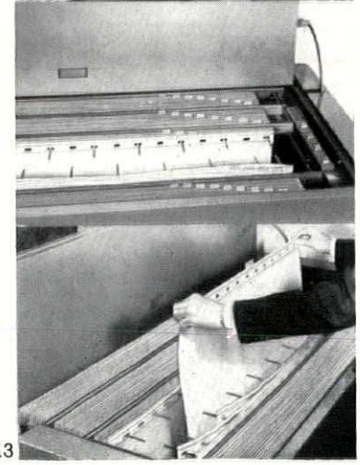

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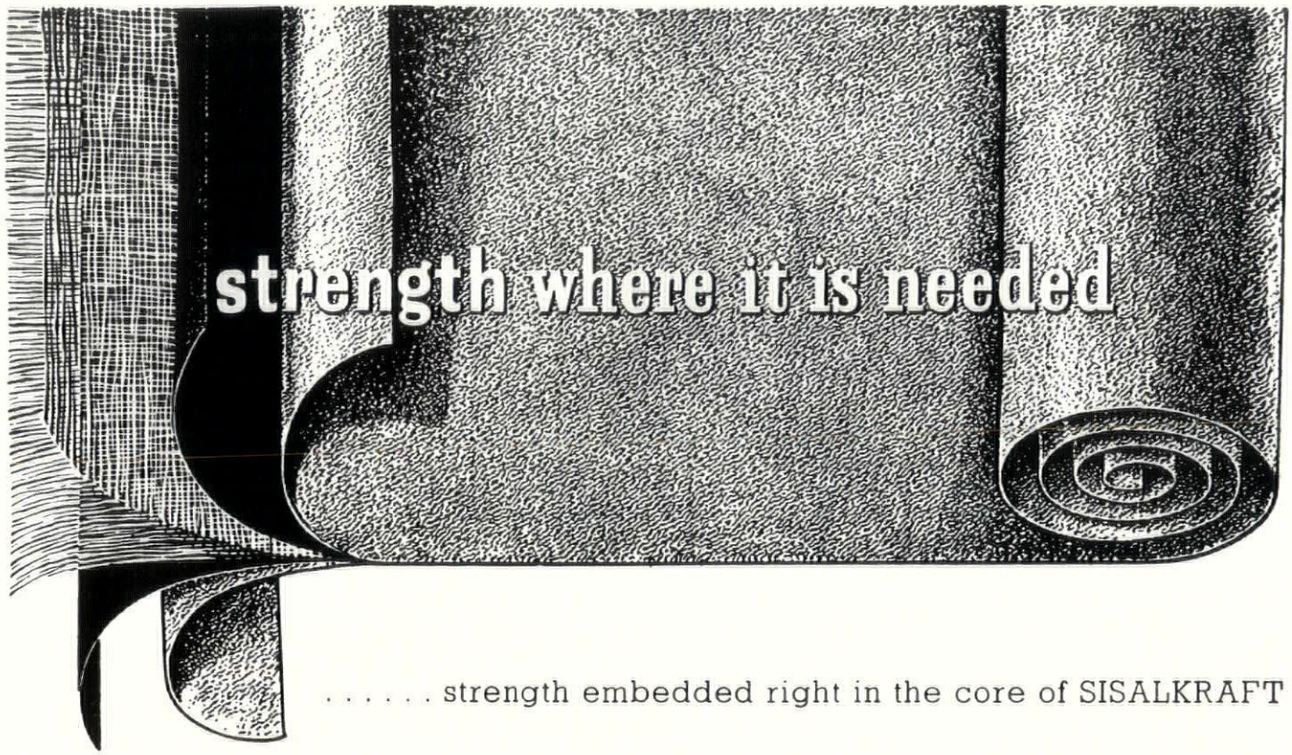

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14



15

14, *'Rolafile' unit by Swallow & Hicks.* 15, *Roneo 'Flushline Vertical Planfile.'*

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stocked in standard sizes but are made to order in sizes from 9 in. by 7 in. to 53 in. by 30 in.

Art Metal also manufacture a drawer cabinet with internal dimensions of the drawer 25 $\frac{13}{16}$ in. by 22$\frac{1}{2}$ in. (this allows for BS drawing sizes from 20 in. by 15 in. and less). It consists of a two-drawer unit with each drawer containing 56 full-sized folders giving four folders to a pocket. The pockets are supported by a system of spring compression similar to that employed in the planfile. There are similar four-drawer cabinets for drawings of quarto and foolscap size and a three-drawer unit for drawings of jumbo size (folders 18 in. by 13$\frac{5}{8}$ in.).

The 'Arclight' Vertical Plan Filing System stocked by Lawes Rabjohns Ltd. uses a system of interlocking prong brackets from which the drawings are suspended. When the side of the unit is opened, the prongs disengage and it is possible to slide out and remove the drawing required. The top cover opens up to give an index panel. The unit aims to hold 600 drawings and is manufactured in double elephant and antiquarian sizes. The lid and the front are counterbalanced so that the lid rises automatically when the front is opened. The drawings are hung from the rods (or prongs) by means of pre-punched adhesive strip that serves as a plan holder. Arclight also manufacture a simplified 'Economic' Vertical Planfile available in double elephant size.

The Gabs Cabinets for vertical filing, stocked by Hall Harding Ltd., also use a system of suspending the drawings on pegs at close centres. The drawings are compressed in a number of separate files with a carriage, running on rails at the sides of the cabinets supporting the system. Each file consists of a bar from which short pegs project every 4$\frac{3}{4}$ in. throughout its length, and also a second bar which clips on to these pegs and serves to compress the drawings on the file. The system includes a punch. It is recommended that the perforations are either made in a tracing cloth plan holder attached to one edge of the drawing, in a reinforced edge of $\frac{3}{4}$ in. adhesive transparent strip, or in the case of tracing cloth or stout material, actually along the edge of the drawing. There are two designs of Gabs cabinet, one with a hinged lid and the other with fixed top and extending front.

The Roneo Flushline Vertical Filing accommodates drawings free standing by using shaped dividers. These dividers give the drawings a 'wavey' form, sufficient to hold them in a vertical position. The cabinet will take sheets up to 42 in. by 32 in. and can be adapted to accommodate drawings of half this size.

There is a limited range of systems for storing drawings rolled. The 'Rolafile' Plan Filing System is of particular interest. This is manufactured by Swallow & Hicks Ltd. and consists of a steel cabinet containing either 120 1$\frac{1}{2}$ in. or 45 2$\frac{1}{2}$ in. diameter specially manufactured white chipboard tubes. Assuming double elephant size, the 'Rolafile' unit will house up to 1,200 filed drawings or tracings.

Conclusion

The appearance of office furniture has been greatly improved in some ranges by a fresh design approach. The office, and the architect's office in particular, is a place with a significance of its own. To outsiders, it

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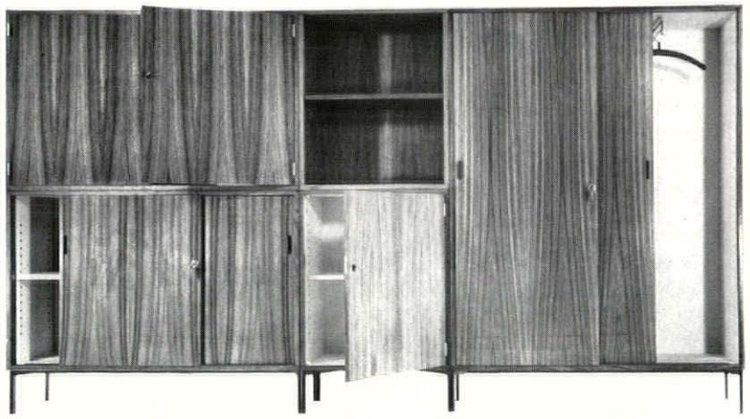

16, *Holzapfel DHS 30 teak multiple storage unit.*

TABLE 4: PLAN FILING

Manufacturer	Name	Construction, Colour and Finish	Filing System	Size and Price
Abbotts Bros. (Southall) Ltd., Abbess Works, Southall, Middlesex	Abbess Drawing Office furniture	Solid oak for drawer fronts and framing and oak veneered plywood for sides and tops (birch tops are inlaid linoleum)	Horizontal in drawers	Wide range including 3-drawer imperial 38 in. by 26 in. £16 8s. 4d. (with base). 9-drawer antiquarian 60 in. by 37 in. £56 13s. 8d.
E. N. Mason & Sons, Arclight, Colchester, Essex	Arclight Shallow Drawer Planfiles	Metal construction, constructed into drawer section, 1 in. deep drawers with hinged flaps inside	Horizontal in shallow drawers	10-drawer units, double elephant 45 in. by 33 in. by 21$\frac{5}{8}$ in. high. Antiquarian 58 in. by 35 in. by 21$\frac{5}{8}$ in. high. 20-drawer units, double elephant 45 in. by 33 in. by 39$\frac{1}{2}$ in. high. Antiquarian 58 in. by 35 in. by 39$\frac{1}{2}$ in. high.
	Arclight Vertical Planfiles	Steel construction. Counterbalanced lid. Finished in hammer tone grey or olive green stove enamelled with plated fittings	Vertical filing on 4 inter engaging $\frac{5}{8}$ in. diameter metal rods inside cabinet located in pairs	Up to 600 drawings of average thickness 35$\frac{1}{2}$ in. by 20 in. by 45 in. (double elephant) £68 5s. 6d. 60 in. by 20 in. by 45 in. (Antiquarian) £90 15s. 3d.
Art Metal, Buckingham Palace Road, London, S.W.1	Art Metal Planfiles	Metal construction with counterbalanced cover, with compressor springs, flexible steel sheet separators and filler pockets	Vertical filing in suspended pockets and supported by compressor springs	Will hold up to 3,000 separate sheets. From 43 in. wide, 36 $\frac{11}{32}$ in. high and 30$\frac{3}{4}$ in. deep to 60 in. wide, 42 $\frac{11}{32}$ in. high and 30$\frac{3}{4}$ in. deep.
	Art Metal Planfile Drawer Units	Metal construction as for standard filing cabinets. Drawers fitted with heavy duty, ball-bearing roller progressive slides	Vertical filing in drawers as for Art Metal planfiles	2-drawer planfile 29 $\frac{5}{16}$ in. wide, 51 $\frac{13}{16}$ in. high and 24$\frac{1}{2}$ in. deep, for drawings 25$\frac{1}{2}$ in. by 21 $\frac{9}{16}$ in. and less.
Magpie Furniture Ltd., Station Approach, Mortlake, London, S.W.14	'D' Range Drawing Office Furniture and 'J' Range Plan Chests	Timber construction of utile and framework in grey enamelled tubular steel stove enamelled hardboard panels, white and red for back and sides. Top of 15 mm. birch ply, clear polished	Horizontal in drawers	'D' range (5 drawers) double elephant 4 ft. by 3 ft. £45 10s. 0d. Antiquarian 5 ft. by 3 ft. 3 in. £52 10s. 0d. 'J' range. Wide range including 6 Antiquarian drawer unit £62 5s. 0d. 12 imperial drawer unit £79 15s. 9d.

[table continued on page 224

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The effect of these factors on the decoration of buildings will be many and will be discussed later, but one can be mentioned here. Although we associate the tropics with a high average temperature, it is possible for conditions to occur so that the light intensity in a place in the north of England can be many times the corresponding intensity in the tropics.

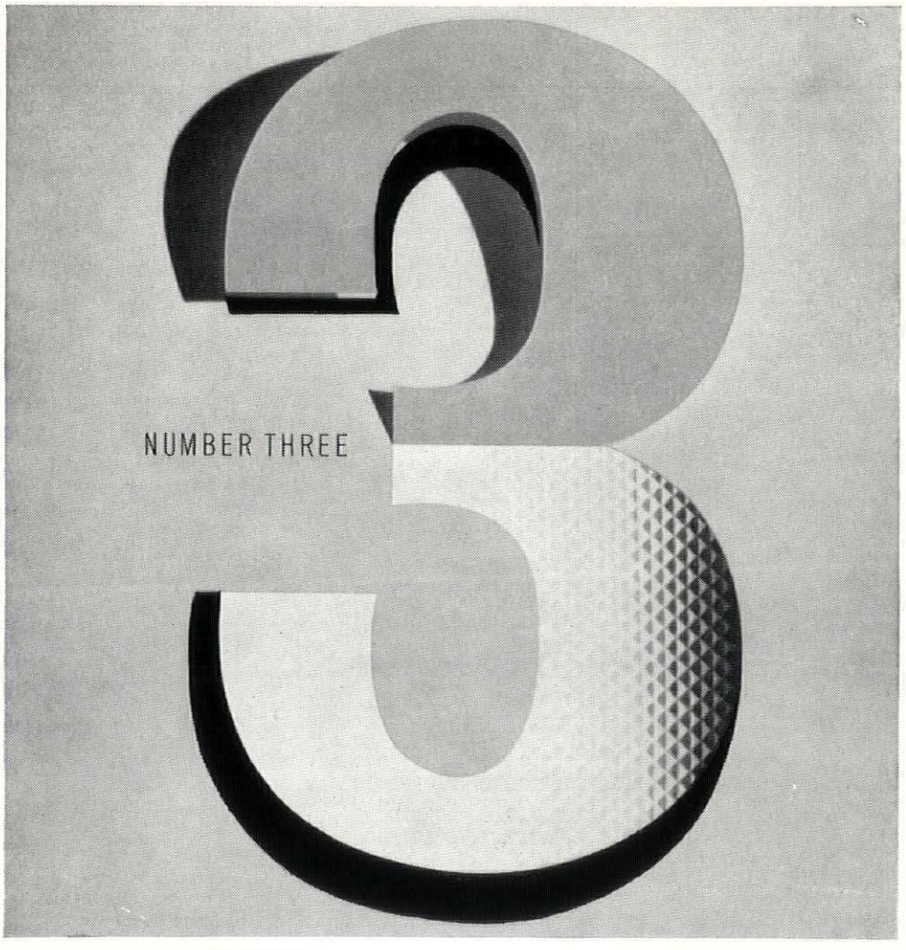

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TABLE 4: PLAN FILING continued

Manufacturer	Name	Construction, Colour and Finish	Filing System	Size and Price
Stocked by Hall Harding Ltd., Stourton House, Dacre Street, London, S.W.1	Economic Vertical Planfiles	Steel construction. Stoved enamel in hammer tone grey or olive green	As for Arclight Vertical Planfiles	Double elephant only 35 in. by 20 in. by 52 in. £45 10s. 3d.
Stocked by Hall Harding Ltd., Stourton House, Dacre Street, London, S.W.1	Evertaut Steel Planfiles	Steel construction. Standard finish in grey stoved enamel. Green available by order	Horizontal drawers 3 in. deep for double elephant size and 2½ in. deep for antiquarian. Drawers have 4 in. hood fitted at rear of two hinged flaps at front	(Without top and base) from 4-drawer double elephant 45 in. wide, 35 in. deep and 21⅞ in. high £37 10s. 6d. to 4-drawer antiquarian 58 in. wide, 35 in. deep and 21⅞ in. high £41 6s. 6d.
Stocked by Hall Harding Ltd., Stourton House, Dacre Street, London, S.W.1	Gabs Cabinets	Metal construction	Vertical filing compressed within a number of separate files with suspension pegs at 4¾ in. centres throughout length of carrier bar	Wide range from 48½ in. high by 54½ in. wide by 17 in. deep (i.e. for double elephant and imperial) at £77 7s. 0d. (average 1,200 imperial drawings) to 49½ in. high by 70½ in. wide, 28½ in. deep (maximum drawings 60 in. by 40 in.) £183 12s. 0d. (average 1,800 antiquarian drawings).
G. A. Harvey & Co. (London) Ltd., Woolwich Road, London, S.E.7	Harvey Steel Plan Cabinet	Heavy gauge mild steel sheet, stove enamelled. Drawer turns and cardholders in anodized aluminium standard colour in scarborough grey	Horizontal in shallow and deep drawers	From 4 deep drawer unit 45¾ in. by 38⅛ in. by 18⅛ in. high (double elephant) £35 16s. 6d. to 12 shallow drawer unit 58¾ in. by 38⅛ in. by 25⅞ in. high (antiquarian) £84 8s. 3d.
Stocked by Hall Harding Ltd., Stourton House, Dacre Street, London, S.W.1	Leyton 12 Tray	Timber construction with door or without (doors support open drawer) standard finish in medium oak	Horizontal in shallow drawers	Planfile with doors 47 in. by 38 in. by 36 in. (approximately 1,200 double elephant drawings) £89 10s. 0d. Planfile without doors 47 in. by 37 in. by 36 in. £82 0s. 3d.
Lawes Rabjohns Ltd., Abbey House, Victoria Street, London, S.W.1	Plan-O-Class	Steel cabinet stoved enamel in olive green or dove grey	Vertical filing on rails incorporating short prongs from which drawings suspend Prepunched edge binding suspension tape secured to drawing	Up to 1,200 antiquarian drawings. From complete with tubular footstool 60 in. by 40 in. £190 0s. 0d. to double elephant size 48 in. by 36 in. (600 drawings) £135 0s. 0d.
Frank Wilson & Co., Cross Street, Southport, Lancs. City Wall House, 84-90 Chiswick Street, London, E.C.1	Railex Plan Stand	Tubular steel frame finished in grey	Vertical suspension from two horizontal tracks	Imperial size. Double elephant.
Swallow & Hicks, 16 Eccleston Place, London, S.W.1	Rolafile Plan Filing System	Zintex steel cabinet with grey stove enamelled finish containing 120 1½ in. diam. or 45 2½ in. diam. white chip board tubes	Rolled and filed	Up to 1,200 drawings (based on double elephant size) from 30 in. by 28 in. by 16½ in. high (with 120, 29 in. by 1½ in. i/d. tubes) £12 16s. 0d. to 30 in. by 28 in. by 43 ft. 2 in. high (with 45, 42 in. by 2 ft. 2 in. i/d. tubes) £17 12s. 6d.
Norwood Steel Equipment Ltd., Howard Way, Harlow, Essex	'Suspendex'	Metal construction. Doors slide into top and bottom to give clear access, in green or grey stoved enamel	Vertical filing on carrier bars and held in position by special wire clips which allow instant insertion and removal	400-450 plans (max. double elephant). Cabinet 52 in. high, 36 in. wide by 24½ in. deep.
	Plan File Cabinets	Steel construction. 2½ in. deep drawers with hood at back and hinged flap in front. In green or grey stoved enamel	Horizontal in drawers	3-drawer, 1 4-drawer sections in double elephant and antiquarian. From 3-drawer double elephant to 4-drawer antiquarian.
Sankey Sheldon Ltd., G.K.N. House, 22 Kingsway, London, W.C.2	Vertical Plan File 3420	Metal construction. Stove enamelled finish in dove grey, medium grey, dark green, mist green or desert sand	Vertical filing. Top is raised to show index. Drawings suspended on telescopic filing arms	34 in. wide, 20 in. deep, 52 in. high for drawings up to 46 in. by 27 in.
	Horizontal Plan Files	Metal cabinet with six drawers on ball-bearing suspension with automatic locking. Stove enamelled finish in dove grey, medium grey, dark green, mist green or desert sand	Horizontally in drawers	Double elephant cabinet 4229 45½ in. wide by 32½ in. deep by 28 in. high Drawers 42 in. wide by 29½ in. deep by 3 in. high. Antiquarian 5434: Cabinet 57½ in. wide by 35½ in. deep by 28 in. high. Drawers 53¾ in. wide by 33 in. deep by 3 in. high.
Ronco Ltd., 17 Southampton Row, London, W.C.1	Flushline Vertical Planfile	Metal cabinet with hinged top and front wall to give access to drawings. Intermediate dividers operate on rollers	Vertical filing drawings stand freely between shaped (wavy line) dividers	To hold sheets up to 42 in. by 32 in.

All round improvement in dishwashing

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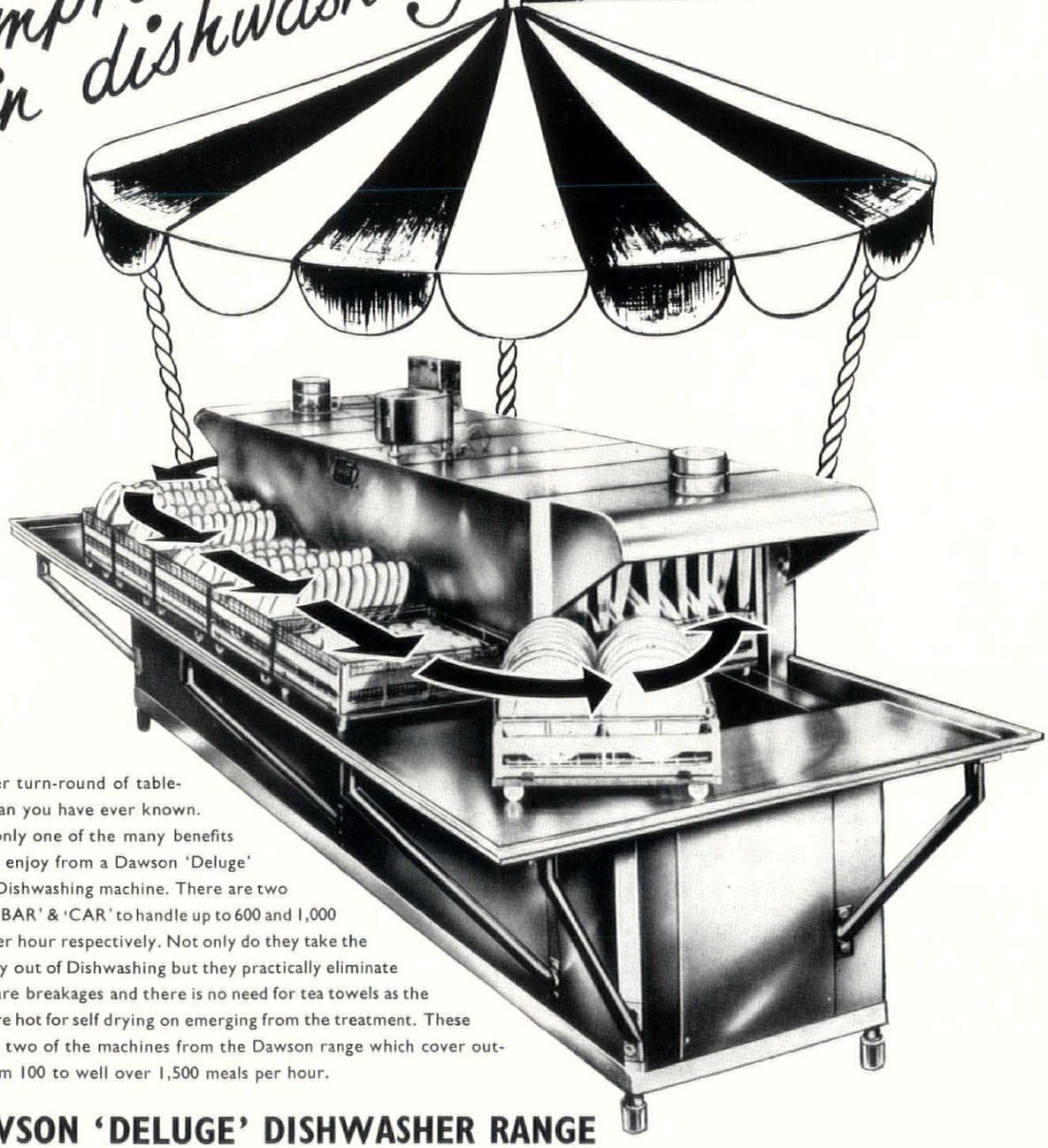

A swifter turn-round of table-ware than you have ever known. This is only one of the many benefits you will enjoy from a Dawson 'Deluge' Rotary Dishwashing machine. There are two models 'BAR' & 'CAR' to handle up to 600 and 1,000 meals per hour respectively. Not only do they take the drudgery out of Dishwashing but they practically eliminate table-ware breakages and there is no need for tea towels as the dishes are hot for self drying on emerging from the treatment. These are only two of the machines from the Dawson range which cover out-puts from 100 to well over 1,500 meals per hour.

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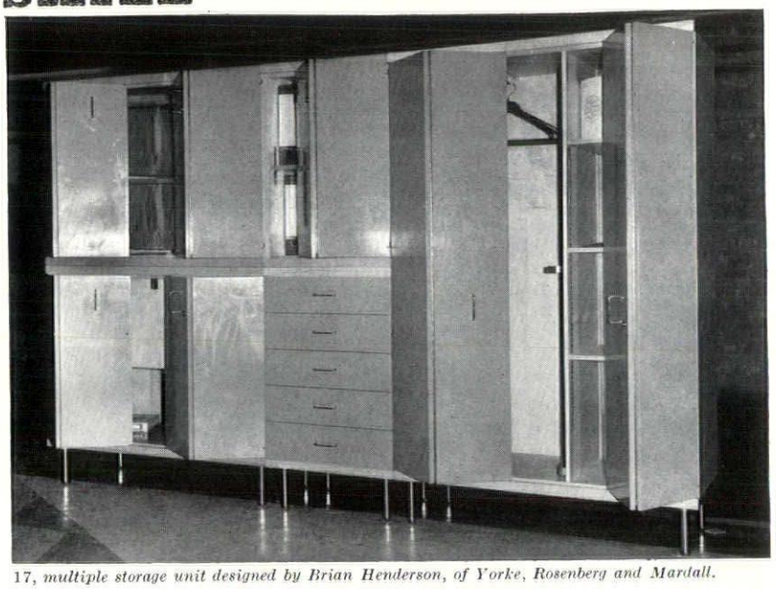

17, *multiple storage unit designed by Brian Henderson, of Yorke, Rosenberg and Mardall.*

continued from page 222]

represents the firm; to the staff it represents the background to daily life and work, the complex process of organization, reflection and discussion, which takes place from the first thoughts on a scheme to the efficient running of a building programme.

In forming this background there is a need for flexibility and variety. Most manufacturers are aware of this need and endeavour to meet it. The timber composite units (desks, cabinets, etc.) in particular favour the principle of a basic frame into which a variety of components can be fitted. The selection of larger storage units is related not only to the storage technique (vertical plan filing, drawer filing, lateral filing), but also to economic use of floor area and accessibility. The cupboards designed for lateral filing have retained the wardrobe appearance. Since office floor heights are becoming more standardized and since several manufacturers of storage units also make office partitioning, these storage units could be better integrated into the office plan. By suitable planning they could be made to provide a worktop, a space divider (considered from both sides) or a full height lining or partition. In the last event they would avoid the 7 ft. high dust collector of the 'wardrobe' unit.

Ranges of furniture are generally categorized by the manufacturer from the 'front office' 'executive' type down to 'standard' or 'commercial' ranges, giving a selection in size, finish and price.

Particularly noticeable is the high cost of modern designs in relation to the more conventional commercial ranges. All the tenets of modern design theory — rationalization, simple construction, economic use of materials, systematized units—would suggest a much lower differential. Do the high prices, in fact, represent the cost of the current mode in styling?

The standardization in the size of trade literature will aid the filing and organization of this essential element in architects' offices. Drawing sizes and methods of storage should be considered together. Both building techniques and drawing office methods indicate that antiquarian is antiquated and the smaller 'key drawing and schedule' system is more to the point. Smaller drawings would certainly make existing systems of plan filing more workable.

BS 3437 : 1961 (devoted to the specification for Equipment for the filing of drawings) gives a reasonable basis on which to determine the construction of existing plan filing units and refers to BS 3429 for standards in drawing sizes.

THE INDUSTRY*

Rotaflex lighting catalogue

A new catalogue has been produced by Rotaflex covering their entire range of Rotaflex and Lightplan fittings. The catalogue is extensive and well designed (by Philip Thompson, MSIA) in itself. This is, no doubt, to be expected from a manufacturer so obviously design conscious.

On examining the price lists, the first reaction is the thought that here is a company who have set out to provide economical well designed units covering the entire field of lighting design. Their success is obvious and proof that good design does not mean high prices.

The catalogue has one minor fault. It is not really conducive to quick reference. Taking account of the extent of its coverage, however, this is probably understandable and it was found that the indexing provided was of some help after fairly detailed study. In spite of this it is a worthy publication and deserving of shelf space in the architect's office.

Rotaflex (Great Britain) Limited, Rotaflex House, 7 Princes Street, London, W.1.

Shower mixing tap

A new type of shower tap is now available, suitable for the average domestic plumbing system. Known as the 'Mira,' it not only controls the amount of water flowing, but also allows the temperature of the water to be controlled within the same unit. It is the first of its type to be marketed in the United Kingdom.

The 'Mira' is basically a mechanical mixing valve with integral flow control. Adjustment of the inner dial causes incoming hot and cold water supplies to be blended in a set proportion, while the outer control dial acts as a tap determining the volume of flow.

Rotation of the outer dial causes ring seals to open to the dual supply ports. The proportions of flow of each supply are determined by the inner control which operates a port assembly arranged so that increase in flow of one is accurately balanced by decrease in flow of the other. Minimum working head is only 3 ft. To comply with Water Board regulations the cold supply must be from a tank and not directly from the mains.

Two models are available, Type 211 with integral back plate for wall or panel mounting and Type 222 which is designed for pillar mounting in any standard basin, 1.

Walker Crosweller and Company Limited, Whaddon Works, Cheltenham, Glos.



1, *the 'Mira' Type 222 pillar mounted mixing tap.*

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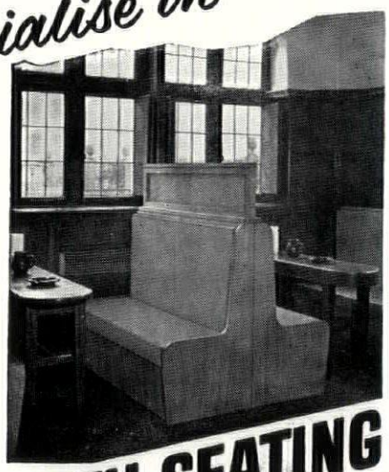

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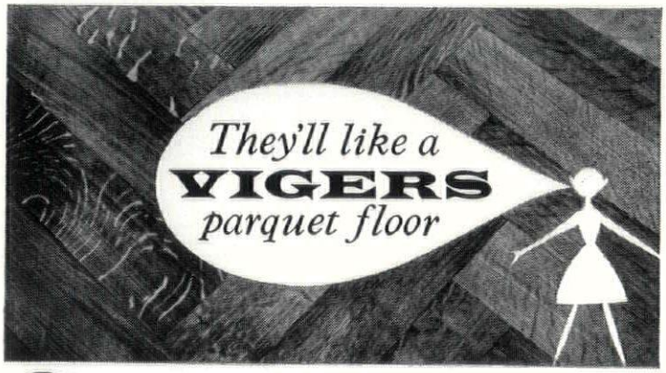

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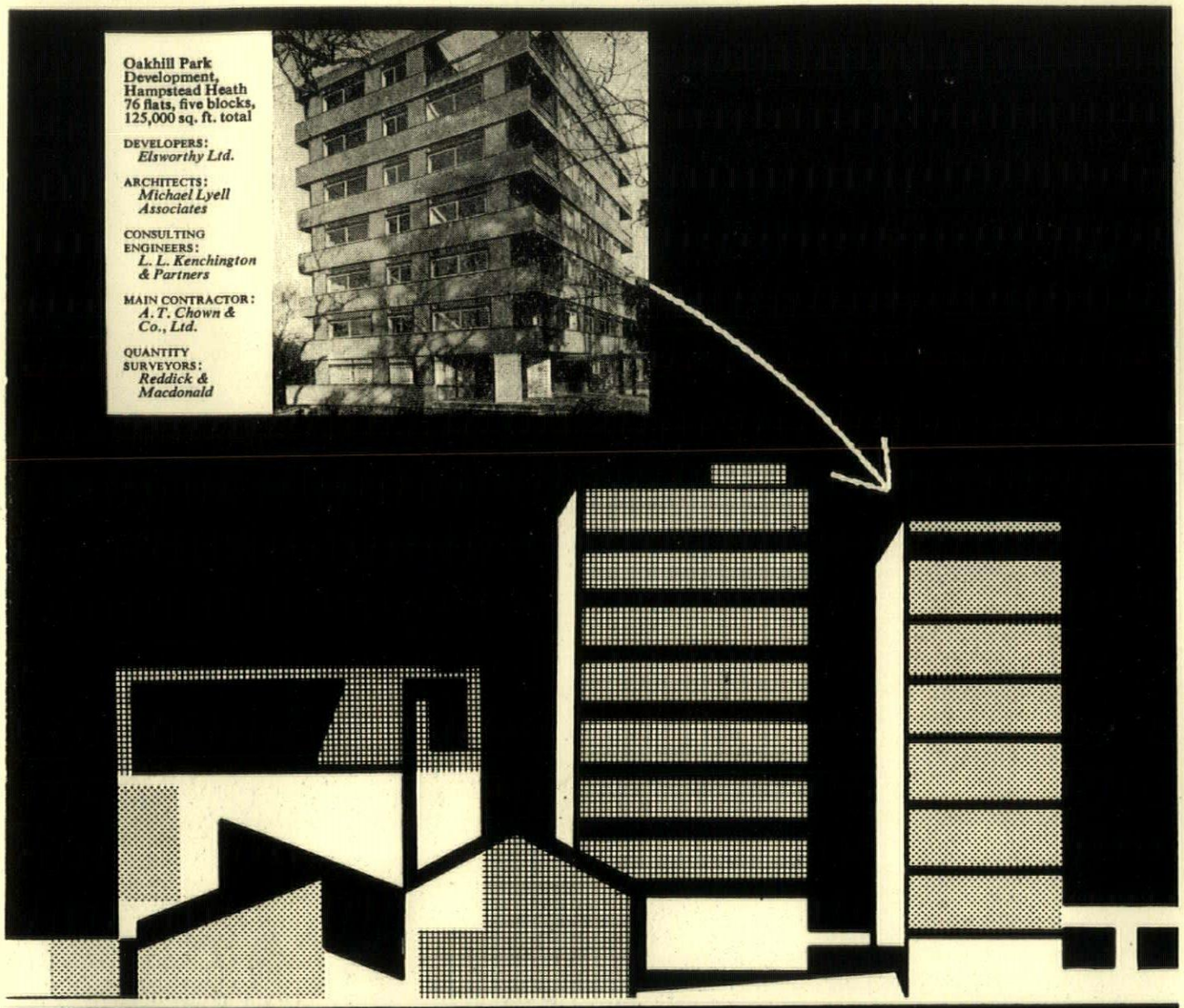

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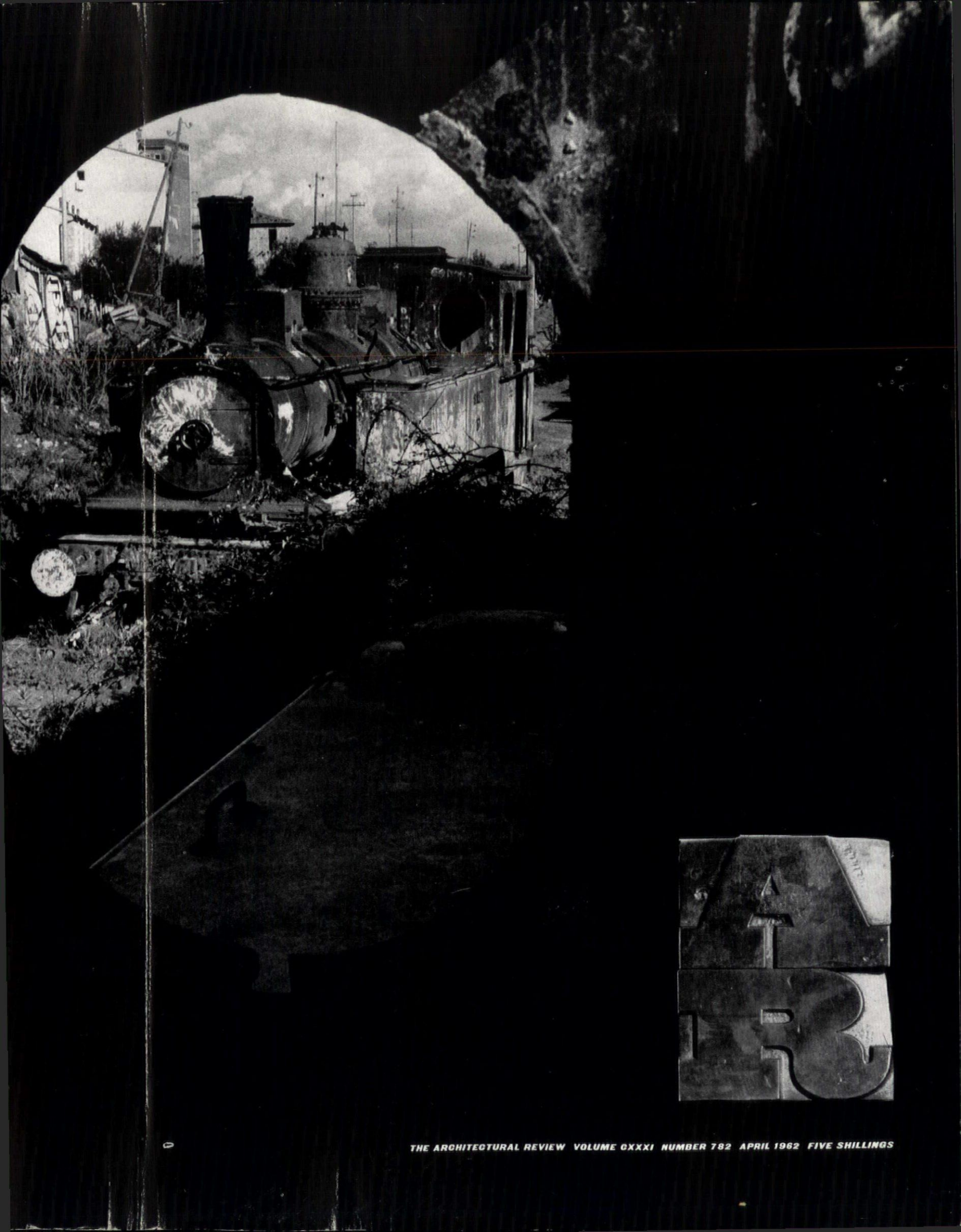

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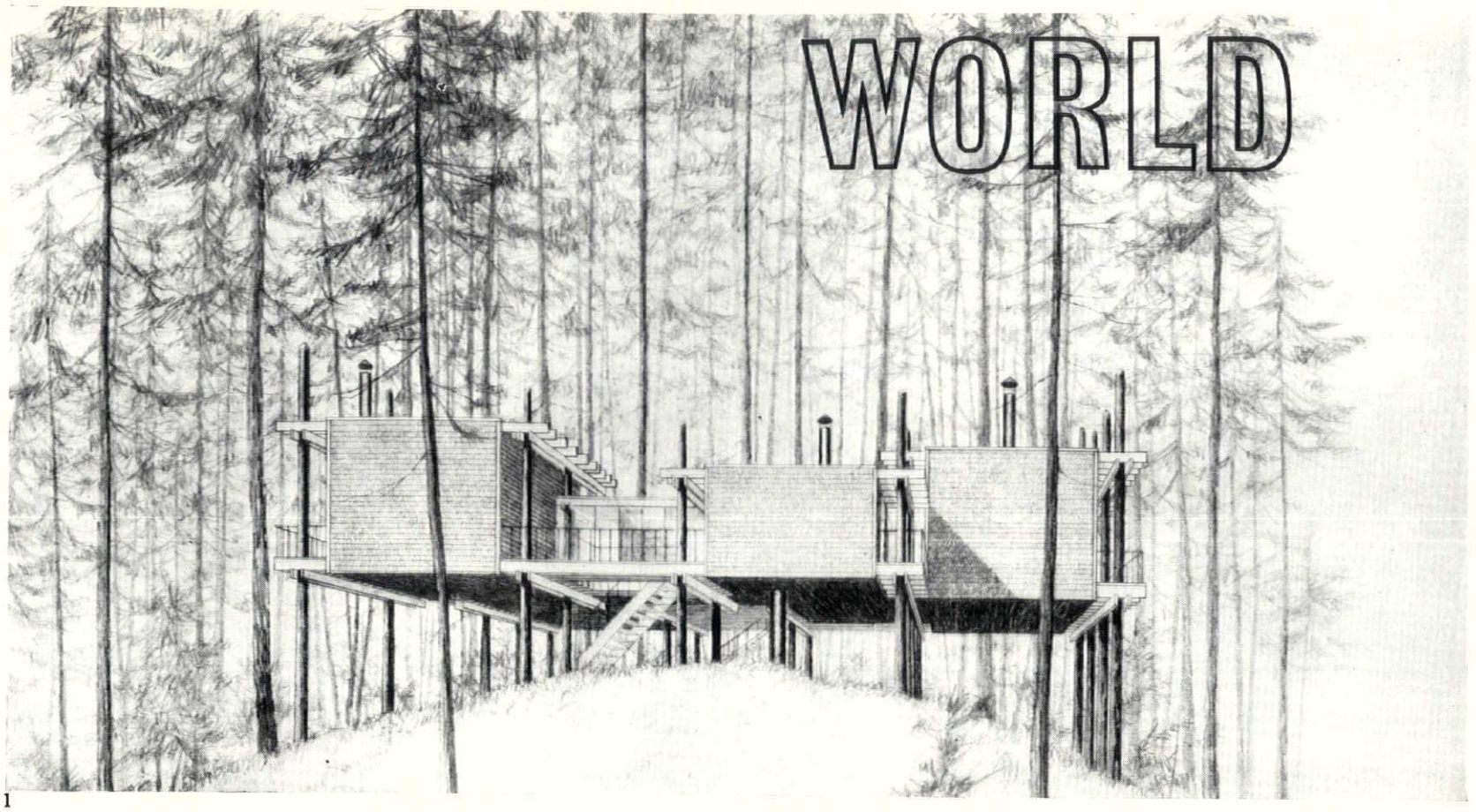


1

CABIN UP THE PINES

The tree-house dream is one of the more pleasingly Huckleberry aspects of the great American, pre-Spock myth of primal innocence, but few US adults show a notably strong desire to climb back up there, seeming to sublimate it in lily-pad, mushroom or suspended constructions. At least one American, as exalted a person as an executive at IBM, still has the dream clean and pure, however, and for him Richard W. Snibbe (architect of the Princeton Tennis Pavilion illustrated in *Marginalia*, March 1961) has designed a thoroughly sophisticated re-working of the basic theme, 1, overlooking Winter Harbor, Maine. Obviously, a substantial five-room house would be a pretty weighty proposition for one tree to have to bear; therefore an array of pine poles will carry the structural load and, with luck, their vertical forms may well be lost visually among the near-verticals of the live pines actually growing on the knoll. The exterior treatment, irregular plan and varying roof-heights, resume a local fisherman's vernacular of shingles and stove-pipes that is as specific to this area as are the net-sheds at Hastings illustrated in last month's AR.

THE MODESTY OF F. CANDELA

The pursuit and the avoidance of fame in the highly communicative world of modern architecture, where even failure cannot be relied upon to bring decent oblivion, weighs heavier on some consciences than on others, and few developments can have come as a bigger surprise (even to some of those who believe they know him) than the spectacle of Felix Candela attempting to cut his own reputation to size. Yet late last year he wrote to the editors of the Mexican newspaper *Excelsior* and asked them to display in a prominent page—with pictures—a statement in which he corrected the impression that he was the architect of three characteristically spectacular concrete shell structures in Cuernavaca, and the well-known restaurant shell in Xochimilco.

He was, he maintained, only the structural engineer for these structures, of which the former three should have been attributed to Guillermo Rosell and Manuel de la Rosa, the fourth to Joaquin Ordonez. He was also, he admitted, the head of the construction company that built all four of them, but it was improper to mention his name in connection with them without making any mention whatsoever of the architects involved. The point at issue is, of course, as old as modern architecture or, to be more precise, as old as modern engineering, and while Candela is legalistically correct, no doubt (he is inclined to be punctiliously correct in these matters) one may be forgiven for wondering how relevant this rectitude may be when it seems to be at variance with apparent architectural fact.

It seems unlikely that these vaulted and pleated shells would have been conceived had Candela not existed, it seems doubtful that they could have been put up without his mathematical skill and contracting services, and it seems doubtful if their eventual shape would have been so manifestly Candelesque without his hand firmly in control of the design. In addition, it is reported that the decision to employ shell vaults often stems from Candela's direct advocacy of this construction to the client, who then, justifiably, tells the press that he has a Candela structure going up. The presence of Candela's sign-board as contractor, pretty prominent on the site in most cases, will help to confirm his authorship in the public mind.

Until we have a properly documented breakdown of the design decisions made in some particular instances, and some knowledge of the precise stage in the design process at which Candela was called in, we must reserve judgment with the suspicion that we may here be confronted with the extreme generosity of a modest genius, who is anxious that credit shall be distributed over the entire team.

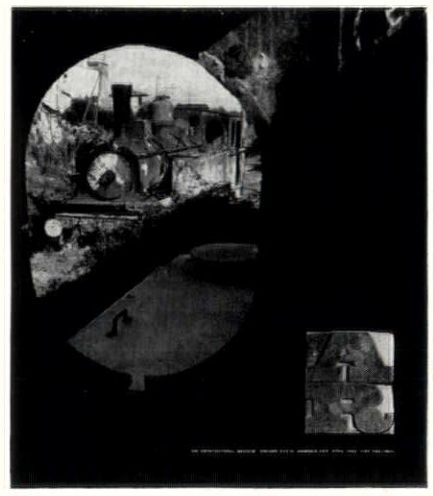

2

ATELJEER

The Swedish magazine *Arkitektur* opened the new year with an article on a theme that will awake an echoing response in all the major capitals of the world—*Pensioner, Museer—Tack, Ateljeer!* (Pensions, museums—studios, thank you!). Although this feature is liable to be remembered chiefly for one sensational historical document that blows the gaff for ever on the pretensions of nineteenth-century *plein-airisme*, 2, it has stronger claims than this to the attention of those who are sweating out private battles for studio-space against rising rents in London, or the Fire

ACKNOWLEDGMENTS

COVER: Ivy de Wolfe. WORLD, pages 227–230: 2–9, *Arkitektur*; 10–12, *Bauwelt*; 13–15, Artur Pfau; 23–29, *Progressive Architecture*. FRONTISPIECE, page 234: Eric de Maré. THE EUSTON MURDER, page 235, British Railways; page 237, (left) Toomey Arphot, (right) Eric de Maré. SCHOOL OF NAVIGATION, WARSASH, pages 239–248: Colin Westwood. EXPLORING EYE, pages 253–255: Ivy de Wolfe. PROGRESS IN BRASILIA, pages 256–262: David Crease. INTERIOR DESIGN, pages 263–264: 1, 5, Christopher Hill; 2–4, Alfred Cracknell. DESIGN REVIEW, pages 265–272: 1, Mann Bros.; 4, Heals; 6, Dudley Harris; 7, 17, Siège Steiner; 10, 11, Toomey Arphot; 13–16, Luciano Ferri; 19, Pietinen; 21, Bedford Lemere & Co.; 22, Clareville Studios; 23, Fotografi Clari; 24, De Benedetti. DERELICT LOT INTO MARKET PLACE, pages 273–276: Nairn Arphot. OFFICE BUILDING, MOTHERWELL, pages 277–278: Toomey Arphot. OFFICE BUILDING, NEASDEN, LONDON, page 279: Henk Snoek. OFFICE BUILDING, ALBERT EMBANKMENT, LONDON, page 280: Colin Westwood. MISCELLANY, pages 281–290: Exhibitions, 1, Mr. and Mrs. Paul Feldenheimer; 2, Museum of Modern Art, New York; 4, 5, Gimpel Fils Gallery; 6, Stearn & Sons; 7, 10, Brompton Studio; 8, Arts Council of Great Britain; 9, Courtauld Institute of Art. Credit, 1, 2, Galwey Arphot; 3–7, John Maltby; 8, Ministry of Works. Townscape, Eric de Maré. Architecture, John Maltby. SKILL, pages 291–296: 3, Building Research Station, Crown Copyright; 4, R. Wessendorf.



This month's cover *is an elegy for dead technologies for it shows one of the abandoned Borsig-built steam-locos of the defunct line between Santostefano and Orbetello, photographed from the footplate of the line's other engine by Ivy de Wolfe. The death of this little railway (recorded on pages 253-255) is a fair symbol of the death of steam-age transportation, more disastrously symbolized by the destruction of the Euston Arch, also documented in this issue in a leading article. But even the lettering on the cover is a memorial to a vanished technology a reversed photograph of the A and the R from an alphabet found, with many others, in a firewood shed, and salvaged by Keith Ingham of Preston.*

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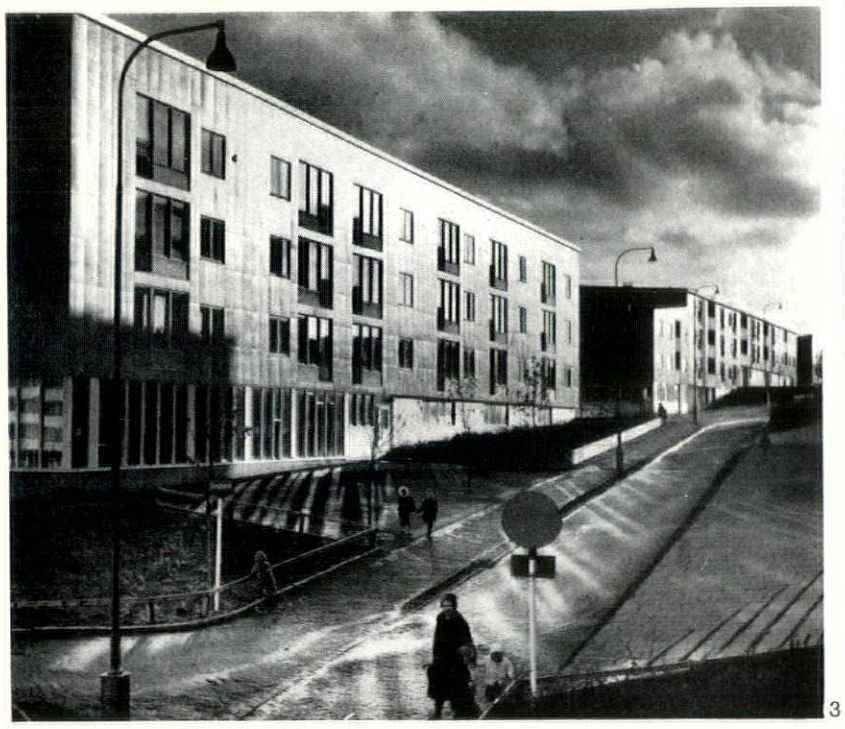

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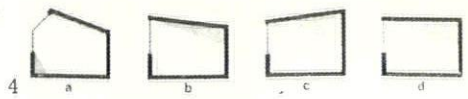
Ateljeer



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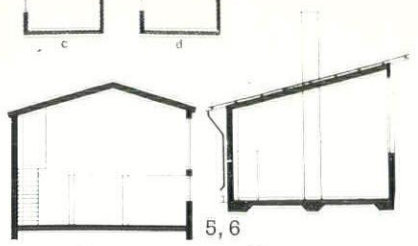

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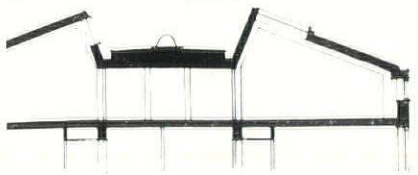

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Department in Greenwich Village. Their jealousy will undoubtedly be fanned by pictures of blocks with specially-built studios at Goteborg, 3, but chiefly the article is notable for giving a usefully wide coverage to the variety of current studio types in use, and especially for a wide-ranging selection of studio sections, 5–9, with some type-studies of the distribution of natural light, 4. One wonders whether any other allegedly cultured nation (even the US) can show as much, or as varied, studio-building as this?



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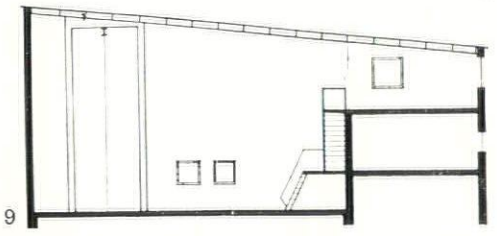

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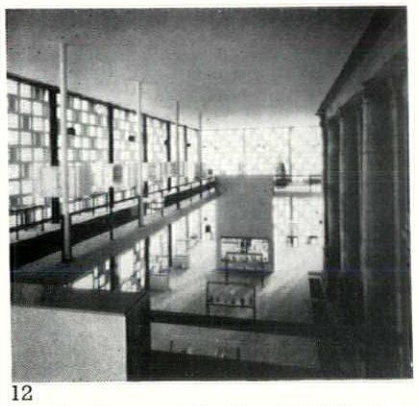
NEUBAU

Radical Reconstruction of German Monuments



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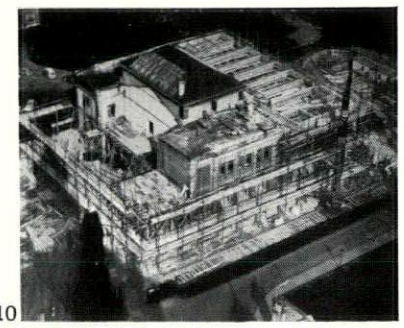

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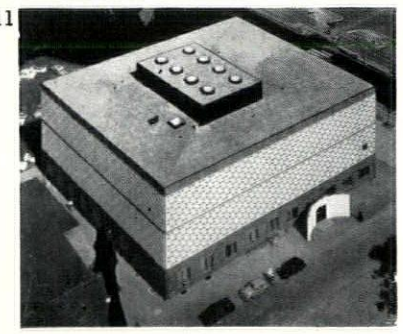

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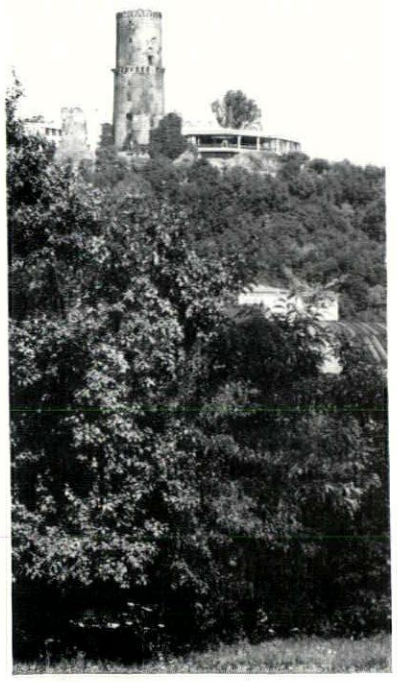
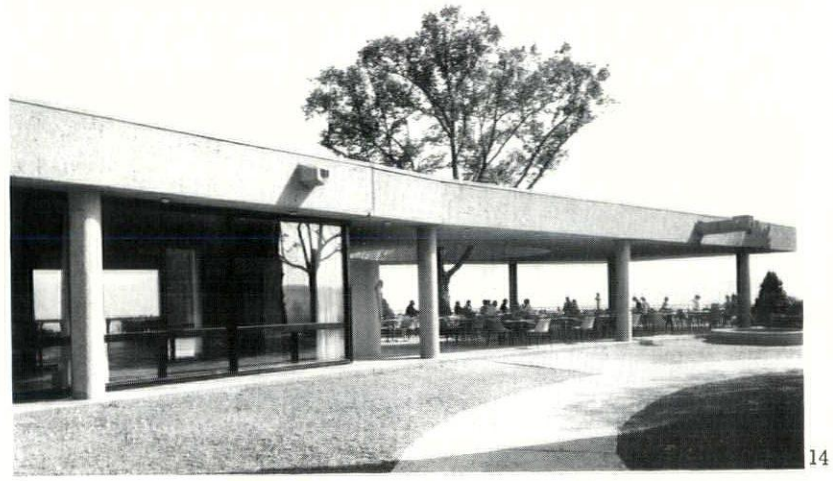
The German ability to put new with old has been commented in these pages before, and marks an area of architectural skill where they have taken over leadership from the Italians. Indeed, they now threaten to outdo the most praised Italian achievements both in boldness and sympathy of handling. In recent months we have seen the Schatzhaus in Hanover, wrapped in a box of grille-work, 11, by Werner Dierschke, leaving the original portico intact within, 12, as the Kestner Museum's prize exhibit—quite an undertaking under any circumstances, but here raised to the level of an organizational masterpiece by the need to build the new at the same time as the old was being taken down or altered, 10.

13





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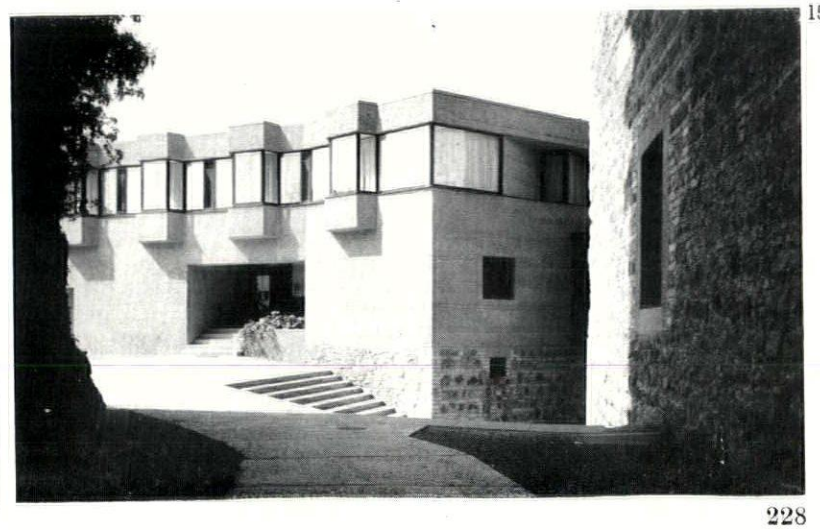
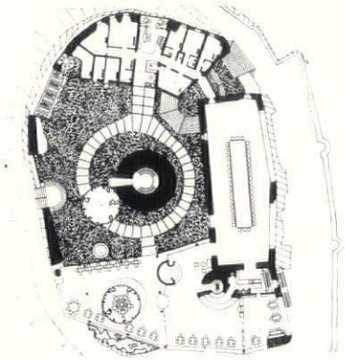
At about the same time (November, 1961) *Bauwelt* also reported that the Godesburg, overlooking the Rhine, had been *ausgefrischt* (freshened up) by Gottfried Böhm. This was something of an understatement—the archiepiscopal tower on its wooded bluff, 13, had been transformed into a restaurant and *gasthof*, partly by intelligent restoration, partly by the addition of new works whose varied styles hardly look, at first sight, as if they will settle down with one another, let alone a mediaeval fortification. In fact, the restaurant-terrace, 14, with its vaguely Brasilo-Corbusian air, and the rest-house block, 15 (a building which a number of Italian architects have been narrowly failing to design for the past five years), both agree satisfactorily with one another because of a similarity of exposed aggregate-surfaces and a similarly tight adaptation to functional need, forming a sort



15

Neubau

of Gordon Craig stage-set, steps and all, in which the ancient tower appears as the principal actor—see the plan, 16. But this is more than just stage setting—Böhm has identified and handled the two main given characteristics of the ruined site with a strange understanding, exploiting both its commanding position, as a viewing platform over an extensive scene, and its quality of an enclosed defence against that scene—a position and a quality that grew from its function as a fortification, but remain neatly apt, also, to its present function as a focus for tourism and gastronomy.



16

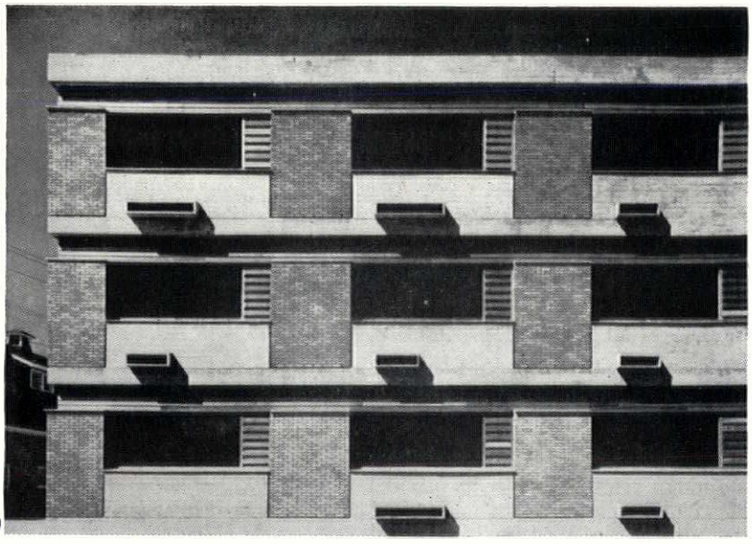
CANADA'S HUNDRED

Massey Award Winners 1961

The Massey Medal awards in Canada progress in prestige at an unprecedented rate as the architecture of the Dominion multiplies and matures—the 1961 jury selected 100 buildings for exhibition from 315 submitted, awarded nineteen silver medals, and gave the Gold Medal to the Koerner House, 17, in Vancouver, by Thompson, Berwick and Pratt, with Peter Kaffka as associated architect. The Gold Medal house immediately draws attention to the most striking aspect of Canadian architecture brought out by the awards—that it is no longer provincial, but it *is* regional, and its regionalism does seem to have some relationship with the regional variations in architecture south of the Forty-ninth Parallel. Thus, the Koerner House belongs unmistakably to the Pacific Coast, and educated guessing by cognoscenti presented with a picture of the house but no data is about designer or location, would surely embrace phrases like Redwood Belt, Belluschi-school, Austro-American, while some of the firm's other works are Bay Region and no argument.



17



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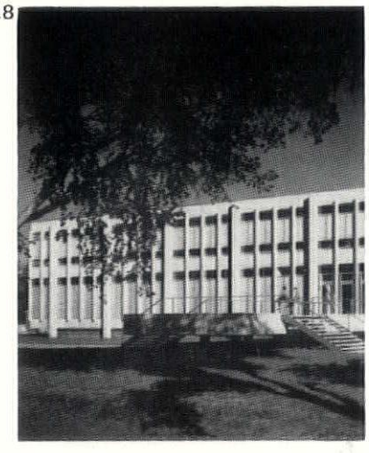
To make another regional comparison (though regional in the sense of a University's sphere of influence) Manitoba clearly has nothing to fear from the US Academic Coast, and possesses much that will stand comparison. The university school of architecture, 18, by Smith, Carter, Searle, Associates cannot avoid comparisons, and can stand them. The crop research centre, 19, by Waisman, Ross and Associates, and the same firm's Division No. 1 school in Winnipeg, 20, must make us wonder who is setting the pace in the Kahn-country these days. In other fields there can be no doubt that Canada leads. Irving Grossman's housing at Flemingdon Park is—in terms of scale and neighbourly planning—21, in a league by itself, and so (in a different way) is the deftly simple Community Centre, 22, by Klein and Sears at Wilminton Park, another division of North York.



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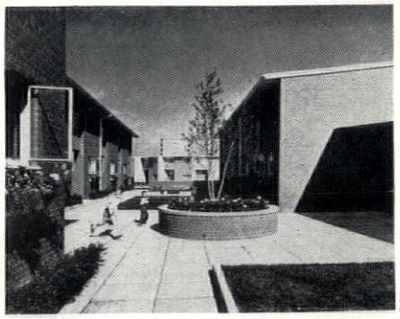

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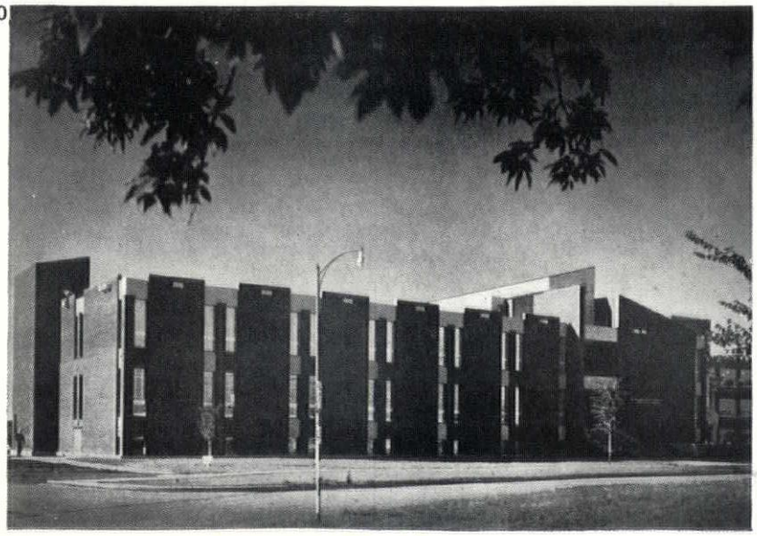

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This leaves another ninety-four first-rate buildings to discuss, and while space forbids here, it would be pleasant to think that discussion might be resumed if the RIBA could be persuaded to bring the whole exhibition to London at some date in the near future.

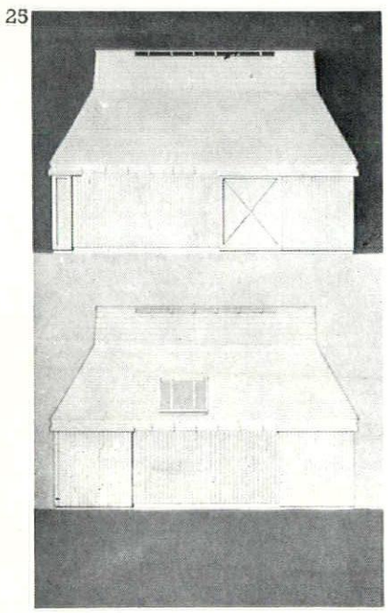
PHILADELPHIA VICTORIOUS



Neo-Academic Dominance in 9th P/A Design Awards

The School of Philadelphia is widely held to be an invention of the editors of *Progressive Architecture* (where it was heavily featured in the issue for April 1961) rather as the New Brutalism is regarded as the invention of the AR. At any rate, it can come as no great surprise that the Ninth P/A Design awards are an almost complete walkover for its Pennsylvania brainchild. Not quite complete, because the First Award has gone to the profession's favourite professional, Vincent Kling, for a block of municipal offices, 23, 24, which is not in the Philadelphia manner—but is to be in Philadelphia, even so. But all the designs premiated this year have a distinctly formalist bent, and the most outstandingly bent all exhibit distinct Philadelphia characteristics.

Thus, Mausoleum roofs are IN:



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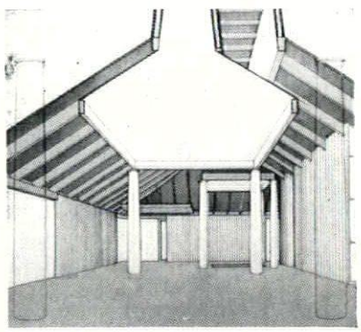
they appear on Charles Moore's house for his own occupation, 25, and on the Beth-Israel cemetery complex by Davis, Brody and Wisniewski, 26. Shameless cribbing from Lou Kahn is IN: the fenestration unit from Kahn's Luanda Embassy project reappears, for instance, in a project for a Christian Science Nursing Home (itself a curious proposition) in Dallas, but reworked in such a way as to reduce Kahn's eccentricity and at the same time to reveal the fundamental banality of the gimmick, 27.

But, above all, the Beaux-Arts Revival is IN, up to the astragal. The Moore house exhibits Tuscan Doric columns internally, 28, mere-



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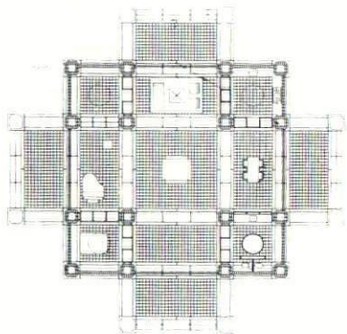

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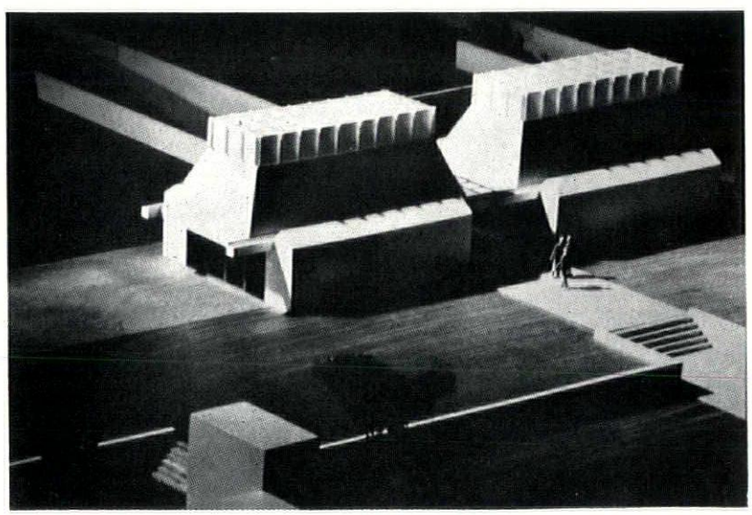

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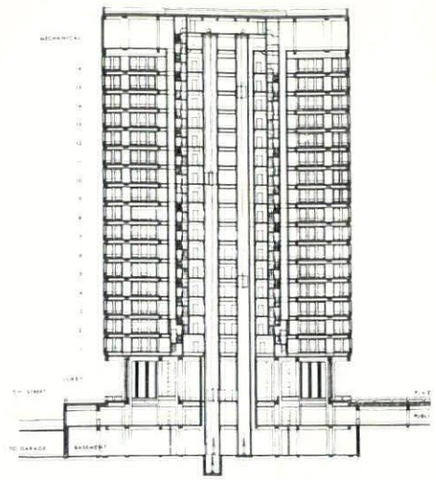

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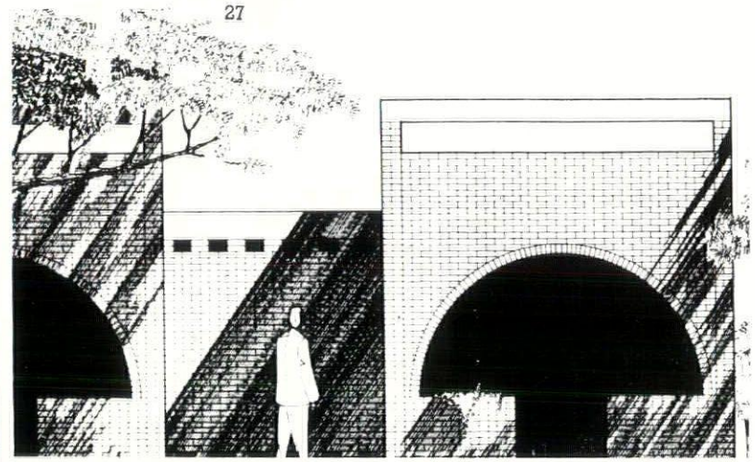

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triciously brilliant draughtsmanship is the order of the day (it is a P/A foible, of course) and in at least one case confirms one's graver suspicions by being combined with a plan, 29 (the Heymann House by Robert Finkle), that exhibits a positively Guadetesque elegance (but not much else) in the creation of an abstract plan pattern of rectangular repetitiousness.

What goes on? Earlier P/A sets of awards have been marked by a blessed lack of stylistic exclusiveness, and a serious-minded concentration on the functional and structural business in hand. These latter qualities are by no means missing this year, but they seem to have taken a very second place. It must be the jury then; but prominent among the jurors were such men of sense as Gordon Bunshaft, Fred Bassetti and Henry Pfisterer. The other two jurors, however, were G. Holmes Perkins (Dean of the school of Fine Arts, department of architecture, University of Pennsylvania) who was the chairman, and Arthur Drexler of the Museum of Modern Art, who gave quite a lot of the game away by saying, of the mausoleum-type roof, that it was 'largely a stylistic preoccupation which, one imagines, will be over shortly as soon as someone comes along with the next entertainment' and then contradicted himself by saying that this was part of a trend towards making buildings look less mechanistic and 'this, to me, is not a fashion, but is much deeper. The movement has been preparing for a very long time.'

It has indeed, for this appears to be one of the real revenges of time. Buckminster Fuller has accused those who welcomed Gropius, Breuer, *et al.*, to America of having been taken for suckers by a European fashion. It is a proposition that Europeans understandably resent, but the speed with which the Beaux-Arts tradition has reawakened, with the removal of Gropius's iron hand from the Academic Coast, suggests that New England's acceptance of functionalism may indeed have been as superficial as Fuller implied, leaving the entrenched Beaux-Arts tradition practically undisturbed. In the land where supposed modernists still speak of being *en charrette* (a phrase that has to be translated to Europeans) we may yet see Henry Hope Reed in Gropius's chair at Harvard.

views and reviews

MARGINALIA

MUSEUM OF MODERN ARCHITECTURE

A Museum of Modern Architecture has been established in Milan. It is the first of its kind not only in Europe but in the world. Erich Mendelsohn's widow had tried to establish such a museum in the United States, but had not been successful. She is now on the council of the Milan museum, together with 21 others, among them Franco Albini, Giulio Carlo Argan, Gillo Dorfles, Gio Ponti, Carlo Ragghianti, Ernesto Rogers, Giulia Veronesi, Bruno Zevi and of foreigners Professor Hitchcock, J. P. Oud and Professor Pevsner.

The programme is comprehensive and interesting. Modern architecture is to include the 'pioneers' as far back as the early nineteenth century. Town planning, industrial design and design for the theatre are also to be included. Apart from collecting books, photographs, models, original designs, etc., and apart from exhibiting its permanent collection, the museum intends to get up exhibitions and hold lectures and conferences. It is a vast programme, but much energy and enthusiasm stand behind it.

So far no site has yet been decided on for the building, but there is every hope of a site immediately next to the college of industrial design which the city of Milan has decided to establish. Meanwhile temporary premises are available to open the museum fairly soon. Money for the museum has so far been given by Olivetti, Pesenti, Pirelli, the Rinascente, the Snia Viscosa, the Milan Chamber of Commerce and others. Requests perhaps for some more money and certainly for photographs, books and original drawings will no doubt reach this country when the ordering of the display in the temporary building begins.

NEW ON MACKINTOSH

The most useful addition to the available literature on Charles Rennie Mackintosh since Dr. Howarth's book, comes appropriately enough from the Glasgow School of Art, deals exclusively with the school building, his masterpiece, and is the work of the present principal, Douglas Percy Bliss. At six-shillings post free from the school, its twenty-four pages are a bargain, for they constitute the most exhaustive photographic record of the building ever published, and omit no nook or structure, however obscure, that throws light on Mackintosh's peculiar genius. In particular, this is the first publication to do full justice to the other woodwork besides that in the library, such as the Museum roof-light, 1, and to the wrought ironwork throughout the building, notably the finials of the gable towers, 2 and 3. The supporting text gives a brief life of Mackintosh, an account of the school's activities, and an attempt to place Mackintosh as a world figure, which concludes, not surprisingly, by quoting Professor Pevsner's estimate of Mackintosh as the anticipator of Picasso, Kandinsky and even Alexander Calder.

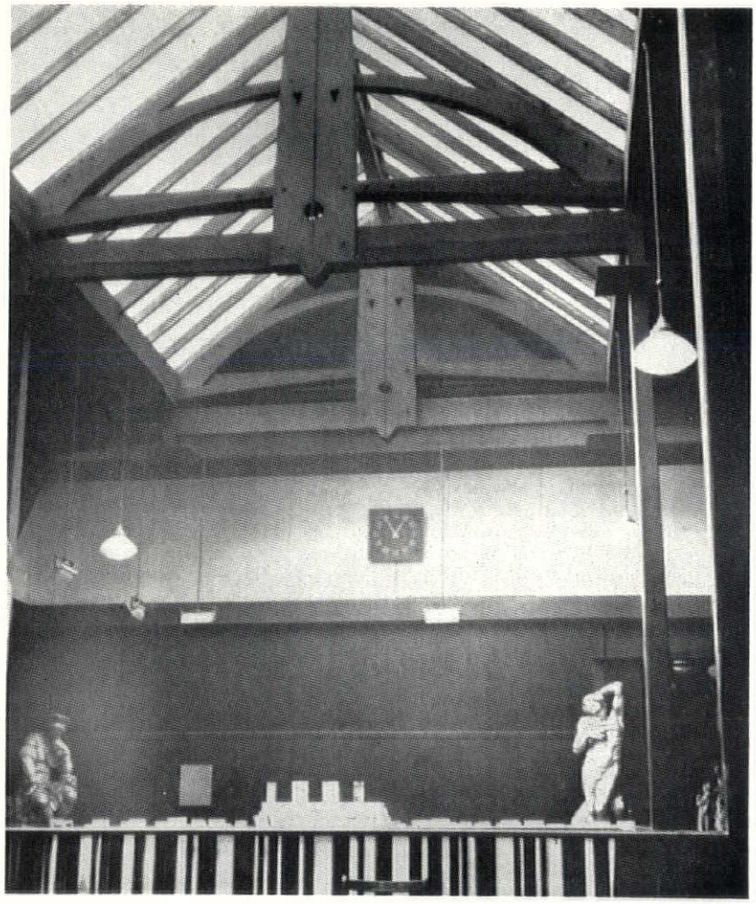
THE ARCHITECTURE OF KARIBA

Considering the long time during which closer co-operation between architects and engineers has been discussed as highly desirable, improvement in this direction has been slow in coming. It is nowadays seen at its best perhaps in the work of some of the large firms of consulting engineers who, with headquarters in Britain, design projects for all parts of the world. They employ large architectural staffs who, in the better organized firms, are brought into consultation at the earliest stages of a project.

Evidence of the value of this can be found in a report recently produced by Sir Alexander Gibb and Partners who are responsible for one of to-day's most important new engineering projects, the Kariba dam and hydro-electric scheme on the Zambesi River between Northern and Sothernu Rhodesia. The report is on the architectural aspects of Kariba, and there is a supplementary volume on Kariba township which provides the residential and social facilities required by the scheme. It is the work of the architectural department of Sir Alexander Gibb and Partners, at the head of which is Mr. H. L. Ford.

The report describes and illustrates the whole architectural evolution of the scheme, including the architectural aspects of the engineering works like the dam itself, the turbine hall and the access tunnels, as well as the design of surface buildings like control and switching stations and the airport specially constructed for the project some 20 miles from Kariba. It gives a detailed and informative picture of the visual as well as technical aspects of the whole project, including the problems of climate and landscaping.

The report is not being publicly issued, but can be consulted in the RIBA library where Sir Alexander Gibb and Partners have lodged a copy.



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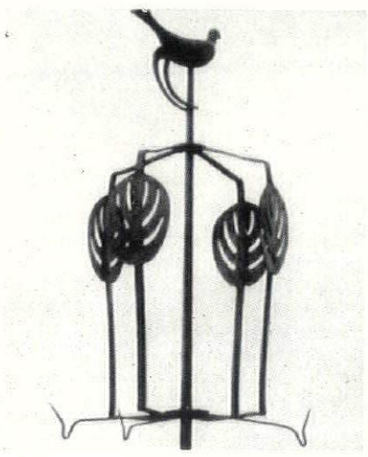

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MALE'S MASTERPIECE

The only criticism that one can level at the new Fontana reprint of Emile Male's *l'Art réligieux en France au XIIIème Siècle* is the new title, which is seen at its worst on the half-title page, 4. Just what persuaded the



4

publishers to impose this fashiony but misleading superscription on a work whose original title was both adequate and accurate is difficult to understand. At twelve-shillings-and-sixpence for 400-odd pages of close print it is not going to have to compete with the 'butchered blonde' type of paperback, and its sale is assured under its true title. Few standard texts on any period of the history of art have contrived to be at once rather noble and as consistently readable as this, few have tackled quite such a remote-seeming subject (thirteenth-century iconography) and made it both alive and accessible to the twentieth-century reader. Few books have so long been in need of an inexpensive reprint, and have been so well-served (title excepted) by their reprinters.

APHRODISIAS

Mr. Kenan T. Erim, assistant professor in the Department of Classics at New York University, who is field director in charge of the team of American archaeologists undertaking excavations at Aphrodisias in the Meander valley of Anatolia (see AR, December, 1961), informs us that the head shown in fig. 2 of the photographs by Ara Güler published in that issue is one of a series of Minotaur consoles from the baths of the city, that the subject of the seated figure shown in fig. 7 is Aion (Eternity) and that the colonnade in fig. 8 is part of the agora.

BOOK REVIEWS

THE ARCHITECT AND HIS EMPLOYER

ARCHITECT AND PATRON, *By Frank Jenkins. Oxford University Press (University of Durham Publications)*, 1961. 35*s*.

The principal concern of this book is to trace the changes in the relations between the architect and his employer in Britain from Tudor times until the present day. Mr. Jenkins finds the origins of the architectural profession in the Tudor master-builders, enjoying a period of full employment as a result of Henry VIII's redistribution of church lands, in the art of the Italian craftsmen imported by Henry to embellish his buildings and monuments, and in the landowners themselves, many of whom (Jenkins instances Burghley, Thynne and Gresham) took a leading role in

the design of their country houses.

Such a landowner would employ one or two agents to supervise the building in progress; these 'surveyors' might in turn produce designs of details, or even of entire buildings. (The terms 'architect' and 'surveyor' were more or less synonymous during the sixteenth century). But the modern concept of the architect as a professional and as an artist, responsible for the 'creation' of the whole design, was absent, and the relations between the landowner and his agents and builders depended primarily upon differences in social rank. With the coming of the Renaissance to Britain came the concept of the inspired artist, proud, even arrogant in his dealings with his employers. The first real British architect, Inigo Jones, was firstly an artist; Jenkins puts him with Kent and Vanbrugh into a class of artist-architects of the seventeenth and eighteenth centuries; other classes he distinguishes are scientist-architects (Wren, Hooke, North), craftsmen-architects (Morris, Flitcroft, Ware), gentlemen-architects (Gerbier, Pratt, Archer) and trained architects—those who trained for the profession under an established architect (Gibbs, Webb, Hawksmoor).

With the Hanoverian succession, cultural leadership passed from the Court to the nobility; during the first half of the eighteenth century the scene was dominated by Lord Burlington and, to a lesser extent, the Society of Dilettanti, and it was not until the Adam Brothers that the architect recovered artistic initiative. The nineteenth century saw the rise of the profession as we know it today; architectural training became formalised in the period of pupilage in an architect's office, and supplemented by drawing classes, lectures and mutual self-help; the patron of the seventeenth and eighteenth centuries gave way as employer to the ecclesiastical or municipal committee, and to the wealthy nabob. As the status of the architect rose, so his relations with his employer changed from that of the dependant and employee of a patron (whose benevolence too often entailed claiming his architect's designs as his own), to that of a petitioner to committees (Jenkins outlines some of the many abuses of the architectural competition system in the nineteenth century), to that of a professional with his client (the last half of the nineteenth century and the first four decades of the twentieth was the golden age of private practice) and, lastly, in post-war Britain, to that of the salaried employee of a public body.

Mr. Jenkins's survey is comprehensive if brief; he illustrates his arguments with relevant details. However, he does not do more than assemble the facts, and he deals only incidentally with what is the major characteristic of the architectural profession (as compared with the other professions in Britain); that is, the continuing struggle for artistic autonomy. The architect's idea of himself as an artist, with an artist's freedom and an artist's status, has been one of the most important determinants of professional activity since the eighteenth century. Mr. Jenkins is himself an architect and, moreover, an architect of his time. He sees the architect's function today as largely a technico-sociological one of co-ordinating in an overall plan the contributions of a team of technicians, and relating them to the needs of society. In his introduction, in describing the work of an architect, he refers to aesthetic considerations only indirectly—his main emphasis is upon 'the elusive property of right atmosphere.' But whatever may be the attitude of the profession today towards artistic pretensions, there is no doubt that historically these pretensions have played a very great part in shaping the profession's practice, policy and public relations, and not to take full account of them is to give only a one-sided picture of professional development.

Mr. Jenkins's book purports to be no more than a survey; he relies entirely on already published material. This is not to belittle the value of a preliminary study. There must exist in private and public archives many unpublished sources—letters, agreements, specifications, plans and the like—awaiting the researches of the architectural historian. It is to be hoped that Mr. Jenkins will continue his researches into this fascinating field and ultimately produce that detailed historical study of professional relations between architect and employer to which the volume under review will provide an admirable introduction and summary.

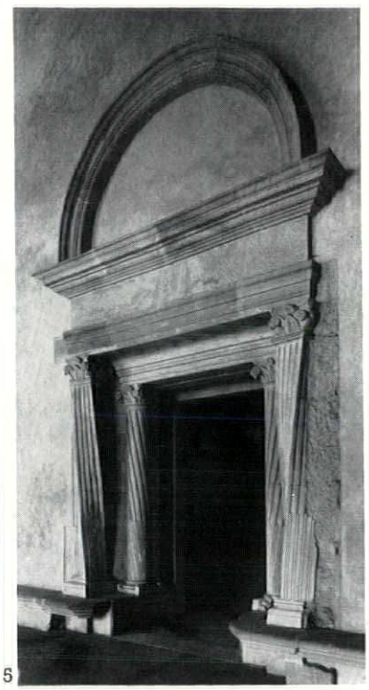
Barrington Kaye

ARCHITECT OF THE INTERIM

BENEDIKT RIED. *By Götz Fehr. G. D. W. Callwey, Munich*, 1961.

If you came across an architect today (most probably in Italy) who would design Nervi or Candela vaults and façades with giant Corinthian columns and a central pediment, you would surely dismiss him as wanton. Yet this is exactly the attitude suggested in Dr. Fehr's monograph as that of the most brilliant Late Gothic architect of Prague, Benedikt Ried. His patterned vaults in the Vladislav Hall and the cathedral on the Hradshin of 1493-1502 with three-dimensional ribs, with ribs breaking off at any arbitrary point, with ribs in the form of tree-trunks complete with sawn-off branches are famous enough, but until Dr. Fehr established it beyond any reasonable doubt, it was not known that at the same time as the vaults the straight-topped windows of the Vladislav Hall and the Chancellery Range (1502-9) were done, flanked by Early Renaissance demi-columns or pilasters. Up to now they had always been considered an alteration made some twenty or thirty years later. But Dr. Fehr not only proves that no documents justify the assumption of a later alteration, but also shows the dependence of these Renaissance frames on the Renaissance details at Buda, palace of King Matthias Corvinus of Hungary who had married the daughter of the King of Naples and brought to Hungary Italian architects and artists. At Buda the date is *c.* 1480, and Vladislav II of Bohemia became King of Hungary in 1490.

But this explains only where the Renaissance forms come from at so early a date. It does not explain how Ried could use them happily without feeling the incongruity of his involved northern vaults. Are we completely wrong then in our interpretation of the architects' own feelings about the forms they used, about the dynamic Gothic *versus* the static Renaissance, about the intertwining of forms *versus* their careful isolation? Or must an explanation be found different from Dr. Fehr's? I am convinced that that is the answer. There were Italians working in Hungary. May not the King have been taken with the elegance and dignity of the new style he saw in Hungary and have called in an Italian to design these external details at Prague, carefully avoiding of course any interference with Ried's constructional triumphs in vaulting. An argument in favour of this explanation is perhaps the internal doorway to the Justice Room, 5, which has a big semicircular North Italian pediment on pilasters, and in addition smaller columns set in the



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reveals. The columns have twisted fluting, a device familiar to the Italians, e.g. from Roman sarcophagi. But the pilasters have twisted shafts too, and that surely can only be the device of a Gothicist convinced of his own old style and sceptical about the new. On the east side of the Vladislav Hall moreover is a group of upper windows, too, where the pilasters, if not twisted, are set at an angle, i.e. with an angle pointing into the hall, like Gothic shafts. I would be inclined to consider these pilasters Ried's comment on what was being introduced by the foreigners.

Ried also did church work, especially the nave of Kuttenberg, as wide as the existing choir and choir aisles together, a typical Late Gothic concept, familiar from Gerona in Catalonia. There are no Renaissance forms here, but the vault is again delightful. It had its immediate effect on Upper Saxony, especially Annaberg, just across the Erzgebirge. Ried's own sources lay in another adjacent part of Germany: Bavaria. The dependence on Hans Stethaimer of Landshut and then the slightly later church at Wasserburg (consecrated in 1448) is demonstrated convincingly by Dr. Fehr. The relations between Bohemia and the parts of Germany just north and just west were naturally close.

Dr. Fehr says in his Foreword that he intended to steer clear of politics. 'The long-drawn-out quarrel as to whether Ried was Czech or German, seems immaterial today, since Ried as an artist took his inspiration from both peoples.' Yet the subtitle of his book is 'A German Architect between Gothic and Renaissance'—and what is worse, it must be accepted as correct.

Nikolaus Pevsner

WHAT IS AMERICAN?

ARCHITECTURE AND THE AESTHETICS OF PLENTY. *By James Marston Fitch. Columbia University.* $7.50.

'What is American about American Architecture?' enquires the blurb to Professor Fitch's collection of essays and reprinted lectures. A glance at the index, which fails to produce the names of Eames, Buckminster Fuller, Goff, Levitt, Nelson, nor the words *supermarket*, *motel*, *trailer*, will show that the publishers are pretending that this book is going to answer questions which it was never the author's intention to cover. What he does discuss, with most authority and scholarship, are such problems as 'what *used* to be American about American architecture?' and 'what have Europeans contributed to American architecture?'

On the first subject, there are excellent essays on Louis Sullivan, Wright, Catharine Beecher, Horatio Greenough, the Jeffersonian tradition, skyscrapers and American gardening: on the second, there are studies of Gropius and Mies. But, significantly enough, there is nothing about Neutra, Schindler and the Austro-American architecture of the Pacific Coast, nor about Maybeck and Greene and Greene. As a result, the publishers' misleading blurb begins to appear in a different light, and one begins to wonder if the book would have been substantially different, even if it *had* been a considered attempt to evaluate the American-ness of American architecture, and not just a gathering of disconnected essays.

For Professor Fitch (not yet as well-known on our side of the Atlantic as he deserves to be) is one of the ornaments of that pseudo-European academic culture that flourishes only in those parts of the USA that are nearest to Europe and most like it—the University Coast from Harvard to Philadelphia. Indeed now that he teaches at Columbia, a hill-top campus swarming with Europeans on the island of Manhattan, his is literally an off-shore view of the US. The essay on *The Esthetics of Plenty* that concludes the book and gives it its title could have been written by an European (it has already had one reprint over here, in *Stile Industria*) and shows, more clearly than any other part of the book, an extraordinary insulation from the daily dialogue with Detroit conducted on Main Street, Alloversville, by the kind of real Americans who make America real.

Of course, this European orientation of Cis-Appalachian America has its very considerable virtues as well—it gave America Gropius, whom Professor Fitch admires just this side idolatry, and behind him a wave of

distinguished Europeans who—where they were allowed to get over the mountains into the real Usonia—produced exactly the kind of spectacular results that are supposed to result when alien cultures collide. If you seek a monument of this, consider the Chicago works of Mies van der Rohe, which Professor Fitch, consistently enough, holds in less esteem.

However, allowing for his marginal viewpoint, Professor Fitch is very good indeed on subjects where he is really at home: the story of the unfinished church of St. John the Divine and its problems, the admirable piece on skyscraper cladding, the ringing obituary of Frank Lloyd Wright, and the numerous reflections on the traditional domestic planning of America—all these were well worth committing to more permanent print. And there is one touch that will surely recommend the book to many—Margaret Fuller is discussed, *in her own right*, not as the aunt of you-know-who.

Reyner Banham

HUMAN ECOLOGY IN CAMBERWELL

VICTORIAN SUBURB: A STUDY OF THE GROWTH OF CAMBERWELL. *By H. J. Dyos. Foreword by Sir John Summerson. Leicester University Press.* 30s.

Medieval London was the City itself and the Liberties, clustering close to its walls. There was Westminster along the Strand, and there were the Tower Hamlets. There was Southwark across the bridge. All around, fields, villages, religious houses, the occasional palace. Regulations buttressed the city up within its gates until the seventeenth century when it began to ooze, to flow, to flood out along the roads into the surrounding country; settling more thickly, like so much driftwood against the piers of a bridge, when it came to an existing parish; spreading evenly into the neat areas of free- or leasehold estates.

Nineteenth century London sucked people in for trade and industry and at first they lived where they could about the centre, building up a Dickensian squalor. First the middle and then the lower classes were caught in the daily respiration that now leaves the centre bone-empty at night. The richest are either flung furthest, or remain to compete with trade and industry for the expensive joys of a central site. Stretched between the stockbrokers of the home counties and the stockbrokers of Chelsea lies that vast, obscure, shifting, precisely graded, minusculely constructed thing, Suburbia: people, bricks and mortar, economic function, social aspiration, rustic dream. It is also an historical document.

Dr. Dyos has put Victorian Camberwell, one inlet of this suburban flood, under the microscope. Like a careful anatomy student, he picks out and identifies each individual system that contributed to the whole event: the original villages, the policies of the various landowners (the Dulwich Trustees careful, the Bowyer Smijths feckless), the available methods of financing development, the effects of different types of transport (canal, bus, tram, train), the reform of local government, the law, workmen's tickets, slum-clearance, land drainage, alternative uses of capital, water supplies, outbreaks of cholera, the origins and goals of the immigrant and emigrant populations and the degree of self-help they were capable of, the political significance of forty-shilling freeholds, 'Building societies, solicitors, estate agents, shopkeepers, music hall performers, publicans, priests, schoolmasters, rate-payers, lodgers, vestrymen, district surveyors, and so on all influenced the shape and character of the suburb.' And their interaction, and the feed-back effects . . . Dr. Dyos examines, locates, and documents them all.

And also the bottle-neck through which all these elements concentrated and flowed out: the Speculative Builder. Easy credit, subcontracting, teach-all text-books and a universally accepted building idiom made it possible for almost anyone to become a speculative builder; and be bankrupted at it. In such hands, unless they were restrained by law or by lease (or very occasionally by unusual success), standards tended always to sink. In the long run, restraint or not, they did sink, and by the end of the century only Dulwich of all Camberwell remained the true suburb, that is, a place of social amenity, with adequate transport to the town for basic employment, and close enough to the country for salubrious elbow-room. The rest of the borough had been passed through by the true suburbians on their way to new suburbs beyond, as far as a train or car can now reach in a couple of hours. (The process is presumbly starting again, as Islington and Notting Hill are rediscovered by the affluent, and Mayfair and Marylebone are redeveloped upwards (so that you can almost plot the value of a piece of land by the height of what it carries).)

The book provides of course an object lesson for town-planners and sociologists. Dr. Dyos does not draw political conclusions, but two seem to be clear. 'First is best': those parts of Victorian Camberwell which inherited a decent old village or a road or two of Georgian suburban villas, retained high standards longest. There seems to be no way of making later development an improvement on what is already there. What you build in a place first will set the tone. Of course redevelopment may improve things, but that is another matter.

Then slums. Some corners of Camberwell became slums within a few years, either physically, in the sense of bad housing, or socially in the sense of overcrowding, disease or crime. It is places cut off from the general circulation which go bad; dead ends below a certain size, areas shut off by a railway bridge, a canal, a gas works, anything impassable or not negotiable. Below a tourniquet, gangrene sets in. Perhaps between them the urban historian and the sociologist can work out how it is that in one street civic virtue prevails, while in the next asocial behaviour is the rule, or at least the fashion.

Sir John Summerson who, irrespective of speciality, is one of the most skilful and sure handed writers of our generation, has written a foreword. It does all one could ask in conjuring up the complex of responses and intuitions the town-lover has for the place he lives in, but has not made. The book itself is an exhilaratingly precise study of the organic growth of a piece of London. If Dr. Dyos follows this study of Camberwell with a study of Camberwellians over the same period, we shall be more than doubly in his debt. The book is very decently produced and has a good map in a pocket of the binding.

Elizabeth Young

DICHOTOMY OF COLOUR

COLOR, FORM AND SPACE. *By Faber Birren. Reinhold Publishing Corp. New York.* $11.50.

This book can be read in two different ways. It can be taken as a handbook in magic, giving instructions on how to trick your friends and clients, by means of colour, that something seems to be what it is not. On the other hand it can be regarded as a commentary (even if one-sided) on a very important aspect of colour research, namely the dichotomy between colour as the physicist understands it in his laboratory and as the individual experiences it in his perception.

The 'architectural' illustrations, some in colour, will be nauseating to most architects and designers. It is a pity that Mr. Birren did not write this book in collaboration with an architect so that his colour ideas could be expressed within an acceptable architectural vocabulary. His conclusions are based on Gestalt psychology, the implications of which, in terms of form and colour, are expressed in the dictum that beauty exists only in the eye of the beholder. There is no beauty until the 'eye-brain' of man has organized perception into harmony, balance, etc., by his own nervous system. The emphasis on the centrality of human consciousness and the significance of pure perception divorced from concept is important. But to deny the thing perceived of all values, to evaluate 'what were thought to be purely spiritual or emotional qualities' in man, in terms of a law which states that 'the intensity of a sensation increases as the logarithm of the strength of the stimulus' reduces man to a mechanism and excludes the evidence of his inner experience and his objective observation.

The Gestalt point of view is illustrated by examples to show that man prefers one arrangement of forms to another—for example, symmetry to asymmetry, convexity to concavity, the static to the dynamic, left/right sequence to right/left, pattern to disorder, and so on—and by optical illusions where a thing is a particular shape only in that it is so seen. Again, in the realm of colour, we are shown what man prefers—namely the simple, primary colours. 'Do not hold the illusion that primary colours are in any way vulgar or commonplace,' we are warned. But this is tempered by the consolation that 'intermediate colours are more subtle and perhaps for this reason more liveable.' There is also a muted colour range for the introvert.

Selection of colours should be based on the 'visual and psychological order of the Hering Colour Triangle.' This has three primary points—pure hue, white, black, and four derivatives—tint (hue+white), shade (hue+black), grey (white+black) and tone (hue+white+black). The use of this system leads to some startling conclusions, one being that tones (that is, containing hue, particularly soft blues, blue-greens and greens) not grey, as is usually assumed, are best as neutral, background colours. Examples are given of the visibility of colours in juxtaposition and in varying illumination, of colour contrast, of the characteristics of warm and cool colours, etc.

One of the most interesting and provocative chapters deals with the relationship of colour and form. The author makes a case for the primacy of colour over form and suggests that the architect might create form through colour. Thus, if a colour (or colours) suitable to the mood or use of a building were chosen, the nature of the colour would dictate the form. To most architects this will seem preposterous. The error is that it confuses the art of painting where form can legitimately emerge from colour, with that of architecture which fundamentally must be judged on form alone. However, the fact that colours have a life of their own and evoke different moods (and even, as Mr. Birren suggests, may relate to different geometrical shapes) should more frequently be taken into account when using colour on buildings and in interiors.

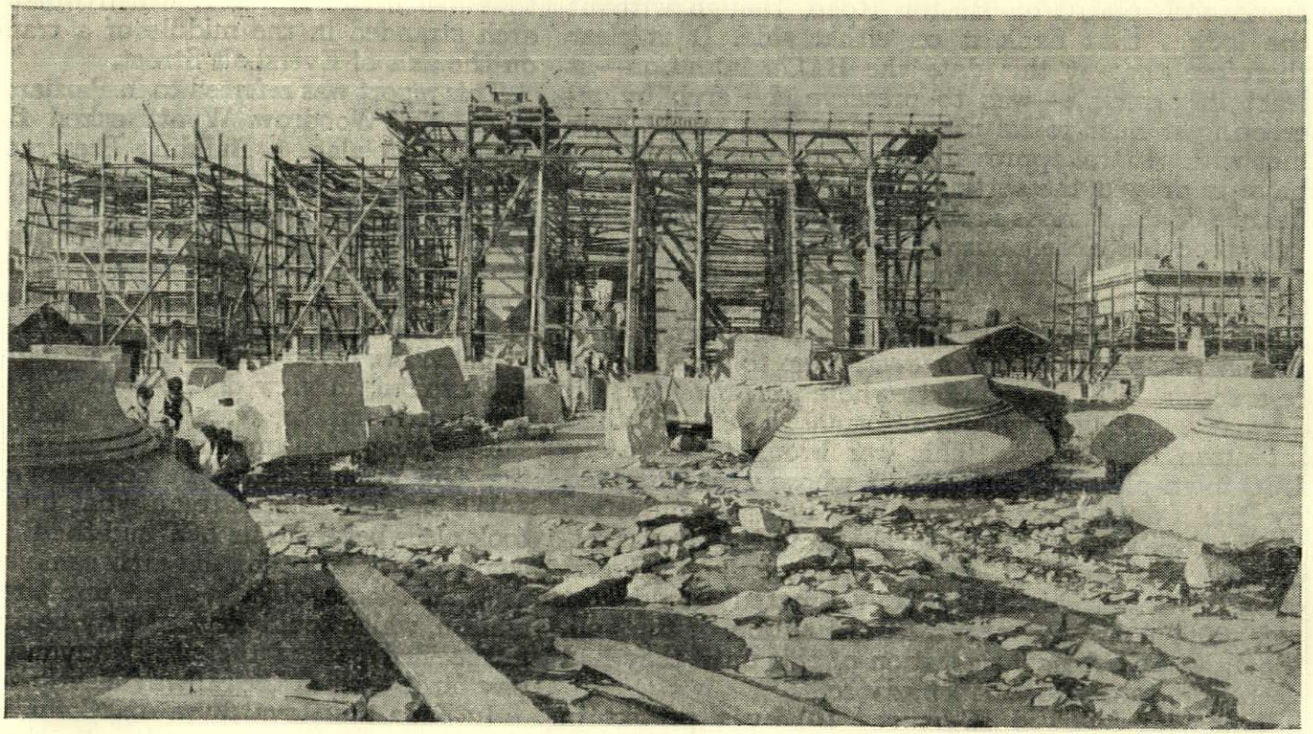
One of the perplexities and fascinations of colour study is the difference in behaviour of colour as pigment and as light. As it is mainly as pigment that architects use colour, they are insufficiently aware of the other half of colour experience—that of coloured light; even though, as reflected light, it may affect the appearance of their work. Mr. Birren suggests using pigment to simulate coloured light; for instance painting the right and left hand sides of a surface in different colours (say red and blue) and the space between them in the colour which would be the result of mixing the two colours as *light* (in the case of red and blue, a light lavender white). An illusion would thus be created of the surface being illuminated by red and blue light overlapping in the centre—but in fact all done in pigment. If pigments of these colours overlapped the result would, of course, be purple. There is no doubt that the counterpoint of colours mixed as light (producing lighter hues) and mixed as pigment (giving darker hues) can be used in painting to good effect. The question is in what degree, if any, this can be applied to architecture.

Similarly, transparent colour has a living quality lacking in opaque paint and the overlapping of such colours produces interplay of tones which can be imitated in pigment. But why not use transparent colour and be done with it?

It would be a pity if architects and designers kept aloof from the ideas and developments described in this book. Although sometimes submerged, there is a baby in the bathwater. We can be grateful to Mr. Birren that we are left free to work out our own application of his techniques. We know from the Rococo and the Irish pub façade that deception by colour is nothing new. Even the best of us one day may want to know how to make our work appear iridescent, lustrous, luminous or shrouded in mist. Particularly shrouded in mist. It is all here.

Kenneth Bayes


TIFFEN & CARTER
LONDON



On the facing page: the Euston arch, one of London's major architectural monuments, in process of demolition. This photograph, taken by Eric de Maré, can be compared with the picture on the right, which is one of J. C. Bourne's famous set of railway lithographs and shows the arch under construction. It comes from his volume, The London and Birmingham Railway, *published about* 1838.

THE EUSTON MURDER

The great Doric arch at Euston is being demolished. Its destruction is wanton and unnecessary—connived at by the British Transport Commission, its guardians, and by the London County Council and the Government who are jointly responsible for safeguarding London's major architectural monuments, of which this is undoubtedly one. In spite of the Euston arch* being one of the outstanding architectural creations of the early nineteenth century and the most important—and visually most satisfying—monument to the railway age which Britain pioneered, the united efforts of many organizations and individuals failed to save it in the face of official apathy and philistinism. The long drawn out history of bureaucratic dilatoriness and evasion which led up to the actual demolition deserves to be put on record, both because the facts should be known and because there are

* In fact not an arch but a propylaeum. It is, however, generally known either as the Euston arch or the Euston portico, and the latter is equally a misnomer since a portico is strictly something attached to a building.

lessons in it that can be applied when those in charge of them threaten to pull down others of our architectural masterpieces. What follows is an attempt to piece the story together, stage by stage.

It begins in August, 1959, when a meeting took place between officers of the London County Council and the British Transport Commission to discuss a proposed reconstruction of the whole of Euston station. A model submitted to the LCC at this meeting showed Hardwick's Great Hall, and the other splendid early Victorian interiors associated with it—such as the Shareholders' Meeting Room—eliminated, but the Doric arch placed on Euston Road, though without the lodges that flank it on either side. It is clear therefore that at this date the BTC's intention—at least in principle—was to preserve the arch by re-erecting it near to its present site. This would have met with general approval and would probably indeed have improved the setting and underlined the significance of the famous arch, which for two generations has stood too closely surrounded by later buildings.

After further study, the BTC informed the LCC (November, 1959) that in their opinion both the hall and the arch should be demolished and gave their reasons, which did not, however, seem to preclude the re-erection of the arch elsewhere on the site. In January, 1960, they gave formal notice of their intention to demolish. This was brought before the LCC town-planning committee* whose view (accepted by the Council) was that they had no objection to the demolition of the arch provided it was re-erected elsewhere 'in an appropriate, dignified and open setting.' This the BTC estimated would cost £180,000. As to the proposed demolition of the hall, the LCC deferred consideration of this until they had been able to take specialist advice.

This was followed (February 10) by a protest in Parliament by Mr. Woodrow Wyatt, who was the public champion of the Euston arch on several subsequent occasions. He said that moving it might be acceptable if it was not disfigured or altered. In reply Sir Keith Joseph (Parliamentary Secretary, Ministry of Housing and Local Government) said that the two months notice required before demolition could take place did not expire till mid-March and that the Minister would consider alternatives. Mr. Woodrow Wyatt also wrote a letter to *The Times*; so did Professor Pevsner.

At this stage the Royal Fine Art Commission, concerned about the possible loss of the buildings, asked the LCC and the BTC to consult them. The BTC said they preferred to leave such consultations to the LCC. The LCC, in their turn, suggested that the Ministry of Housing and Local Government were the right people to seek the views of the Commission, but the Ministry stated (quite properly) that from their point of view the matter was still in the hands of the LCC. Thus by shouldering off responsibility the two bodies principally concerned made it almost impossible for the Fine Art Commission to fulfil its function as watchdog on the public's behalf.

By May, 1960, the LCC had obtained the specialist advice already referred to in the shape of a report from a three-man committee consisting of two engineers (Mr. V. A. M. Robertson and Mr. J. E. G. Palmer) and one architect (Mr. Peter Shepheard). The report said that the preservation of the hall was not practicable, but that the arch ought to be re-erected. It considered the proposed site on Euston Road to be satisfactory, but not one of the several other sites that had been suggested, which would have left the arch stranded in the middle of a traffic roundabout on the axis of Eversholt Street.

This report was referred to in Parliament on May 18, when Mr. Woodrow Wyatt asked the Minister of Housing to place a Building Preservation Order on the Euston buildings. In a written reply Sir Keith Joseph said the Minister† felt he was not justified in intervening and that the LCC's experts had advised that the arch could be re-erected and the LCC were in touch with the BTC on this. In any case there was still at this stage a general feeling that, although the notice to demolish, given by the BTC in January, had long ago expired, in view of the status of the two bodies concerned and the views they had expressed, the safeguarding of the monument by a Building Preservation Order could hardly be necessary.

We can only speculate on what further discussions took place between the LCC and the BTC, but the outcome clearly was that the arch came to be envisaged as a foot-loose object, quite unrelated to the new station, which could conveniently be dumped on some unspecified part of the site if anyone was willing to pay for it—which the railway clearly wasn't.

In June the Royal Fine Art Commission discussed the matter again and wrote to the LCC (with copies to the BTC and the Ministry of Housing) expressing their emphatic concern that the arch should be preserved and their hope that they would be consulted 'when definite proposals have been formulated,' and a further letter was written to the Ministry in July. By now the large sum of money that the BTC had claimed that it would cost to take down and re-erect the arch was the factor overshadowing all others, though many people suspected that this (£180,000, later increased to £190,000) was an exaggerated figure. Sir Frank Markham, who had previously written a letter to *The Times* in favour of demolishing the arch, asked a question in Parliament on July 6 and received a written reply from Sir Keith Joseph that the Minister of Housing had just heard from the LCC that the BTC had informed them that they had no objection to re-erecting the arch but were not willing to pay for it, and that the LCC had inquired whether the Government could contribute, but that the Government had no power to make such contribution.

The LCC had in fact made this inquiry separately to each of the three Ministries at all concerned—Works, Transport and Housing—and eventually received a

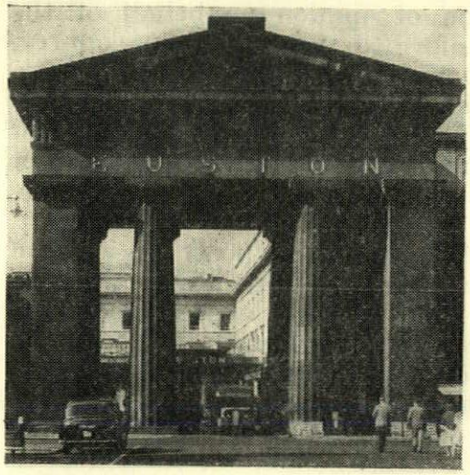
* Chairman, Mr. Reginald Stamp.

† At that time Mr. Henry Brooke.

negative answer from each. It may be noted that these inquiries were made in quite general terms; not in relation to any concrete proposition, and still less to any plan for the layout of the new station such as the Royal Fine Art Commission had asked to be shown. The Commission had not been given the chance to approve or disapprove anything.

Between July, 1960, and July, 1961—exactly one year—almost nothing happened on any public level relating to the future of the arch, though presumably during this period the BTC's plans were maturing and there must have been consultations between them and the LCC. With no decision as to a possible new site for the arch and no new source of finance for its re-erection, it may be that these two bodies had already come to regard the question of its preservation or re-erection as merely academic. But concern continued to be expressed by many people, newspapers and periodicals.*





The Euston arch photographed just before demolition began and, left, depicted by J. C. Bourne at the time when it was built, showing its more open setting with the pairs of flanking lodges intact. The arch was designed by Philip Hardwick and was completed in 1839.

In October, 1960, Mr. Woodrow Wyatt asked still another question in Parliament. He asked the Minister of Housing (October 25) what reply he had sent to the Royal Fine Art Commission's letter of the previous July. The answer was that he had not yet replied because 'he is still considering the matter in consultation with the other Ministers concerned.' The question of the arch's future was thus now approaching cabinet level, where its fate was eventually to be sealed.

It was another nine months, however, before the Minister of Transport made public, on July 13, 1961, in a written answer to a Parliamentary question, the Government's decision that the arch could not be saved because of the high cost of moving it. The Royal Fine Art Commission thereupon asked the LCC for information and the LCC replied—at the beginning of August—that they proposed to take no further action.

That, as it turned out, was the end of the story, though it dragged on for a couple of months more, with efforts to save it continuing even beyond the day in October when scaffolding was seen being erected round the condemned arch. The most energetic of these efforts were by the Royal Fine Art Commission and by various amenity societies, including especially the Victorian Society which set up a rescue committee and launched an appeal for funds. The Fine Art Commission began by asking the Minister of Transport for the plans of the new station it had never been allowed to consider. It received only the plans for the operational part of the scheme, the other parts, it was told, being still the 'subject of discussion with the planning authorities.' The Commission then, in September, wrote to the Minister deploring the Government's decision not to retain the arch and asking for further study of the problem of re-erection, and took the unusual step of making its letter public. The chairman of the Commission† also wrote personally to the Prime Minister's private secretary, asking for the Commission's views to be brought before the Prime Minister, and he wrote again ten days later, when it seemed that demolition of the arch might begin at any moment, pleading for at least a stay of execution. But these appeals brought no results whatever.

Meanwhile the Georgian Group had twice asked to see the plans but had been refused. The Advisory Committee on Historic Buildings to the Minister of Housing (a committee, it may be emphasized, on which the Government itself is supposed to rely for guidance on matters of historic buildings) expressed its regret that 'one of the great monuments of London' should be lost, but the Minister was able to point out that in the official list the Euston arch was only listed as Grade 2. Protests were also made (all now within the space of a few days, since it had become clear that although the BTC had been suspiciously silent about their intentions they were pushing forward plans for demolition to start) by Mr. Tom Driberg in Parliament, by the Society of Architectural Historians in a letter to *The Times*, and by the Ancient Monuments Society; and the Victorian Society suddenly flourished what could have been a trump card—the discovery of a Canadian firm of contractors who would move the arch on rollers to a new site for less than half the sum the BTC had said it would cost to take down and re-erect it.

The Times, which then came out with a sadly ill-informed leader declaring the arch not to be worth saving, apparently based on the misapprehension that

* Including THE ARCHITECTURAL REVIEW, which printed a photograph of the arch taken by Eric de Maré as the frontispiece to its November, 1960, issue, deplored the uncertainty of its fate, summarized what had happened to date and added the information that the legal advisers of the Ministry of Works had declared that there were no legal objections under the Historic Buildings and Ancient Monuments Acts to a government grant being made to assist the re-erection of the arch. The REVIEW concluded its note by saying that 'pressure must be applied at once and kept up until the future of the arch is secure.'

† Lord Bridges.

the pleas being made were for its re-erection on some distant site where it would no longer mark the entrance to Euston station, printed (October 20) a powerful letter pleading for the retention of the arch, signed by the president of the Royal Academy and the presidents or chairmen of the chief amenity societies: the Georgian Group, the Society for the Protection of Ancient Buildings, the London Society and the Victorian Society. Even the demolition contractors* who had already been given the task of dismantling the arch expressed misgivings about what they were being instructed to do, and surprise that they were not at least being asked to number the stones so that re-erection would still be possible if further study produced a practicable and suitable site.

Finally, as the climax to all this energetic and unanimous expression of opinion on behalf of the arch, by the best informed people in the country, the Prime Minister, on October 24, 1961, received a deputation consisting of the five signatories of the letter to *The Times* just referred to and several other eminent people, including engineers qualified to answer practical questions. They put the issue to Mr. Macmillan (and to Mr. Marples, Minister of Transport, who was also present) from the point of view of amenity, architectural value, historic association and intelligent planning. The technical experts, including those who attended with the deputation to answer any questions about the idea of moving the arch on rollers, were not called upon.

The Prime Minister said he would consider the deputation's views. He gave his answer on November 2, which was completely negative. He made no attempt to answer the arguments put forward, and did not even refer to the request made then and in a previous letter from the Royal Fine Art Commission—a request which his decision that the arch must be demolished forthwith did not seem to make it impossible to grant —that the stones of the arch should be numbered and stored.

There are a number of obvious inferences to be drawn from the foregoing history: that the BTC† had no interest in retaining the arch and merely went through such motions in that direction as were required of them by the LCC; that the LCC, after learning of the high cost of re-erection and accepting the BTC's view that the arch could not stay where it was, allowed it to become a side issue, detached from the problem of Euston redevelopment as a whole —though, as the planning authority, they were responsible for seeing that the picture was looked at as a whole; that both the BTC and the LCC deliberately evaded consultation with the Royal Fine Art Commission on the Euston redevelopment scheme and thus on the future of the arch; and that, where nineteenth-century buildings are concerned, the official lists of the Ministry of Housing require revision in the matter of grading. On the last point, however, it may be said that the Euston story does not give one much faith in the Government's sense of the value of the country's works of architecture even if they are highly graded in the Government's own lists.

The cost of re-erection was cited throughout as the reason why the arch could not be saved, and two comments can be made on this—apart from the obvious one that even if £190,000 was a just estimate, the country repeatedly spends far higher sums on objects of far less value than its major works of architecture. If the LCC, as planning authority, had faced the matter squarely from the beginning and insisted on the exploration of all possible alternatives and elicited from the BTC a satisfactory siting proposal, the cost might have been modified and the cost shared between the various authorities concerned. And there was a sad failure of architectural imagination on the part of the BTC from the outset. If they had valued the arch as they should—as a work of architecture, a symbolic monument and an essential part of their own history, instead of treating it as a nuisance somehow to be disposed of—they would have taken pride in planning their new station with the presence of the arch as one of the given characteristics of the site. Just as the architects of the Rome railway terminus made something positive—and a visual asset—out of the idea of incorporating some ruined Roman walling in their modern complex of transparent walls and spaces, so the architects of the new Euston station, given the will to find the perfect answer, not merely the easy way out, could have regarded this great arch as a challenge to produce a plan incorporating the old with the new and thereby showing it unnecessary to wipe out all of history whenever modernization is required.

* Later, the chairman of the company, Mr. Frank Valori, on his own initiative had a silver model of the arch made which he presented to the Victorian Society.

† Chairman, Dr. Richard Beeching, who succeeded Gen. Sir Brian Robertson in 1961.

ON THE SHORE OF SOUTHAMPTON WATER

SCHOOL OF NAVIGATION, WARSASH

ARCHITECTS | **RICHARD SHEPPARD, ROBSON & PARTNERS**

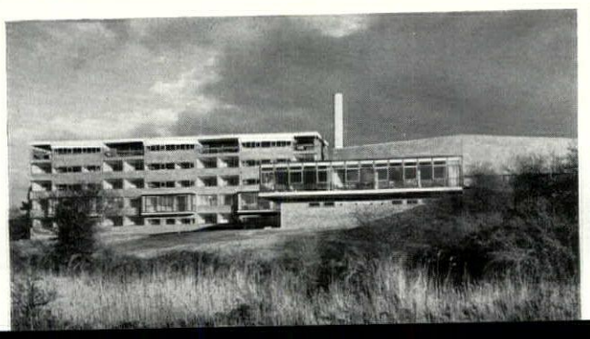
1. from the west: looking up at the refectory block with the corner of the cadet block on the left.

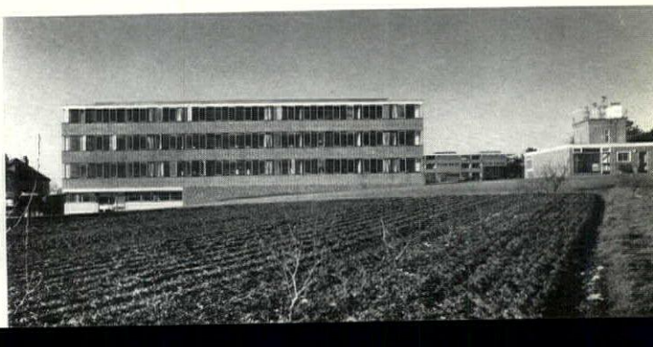


2

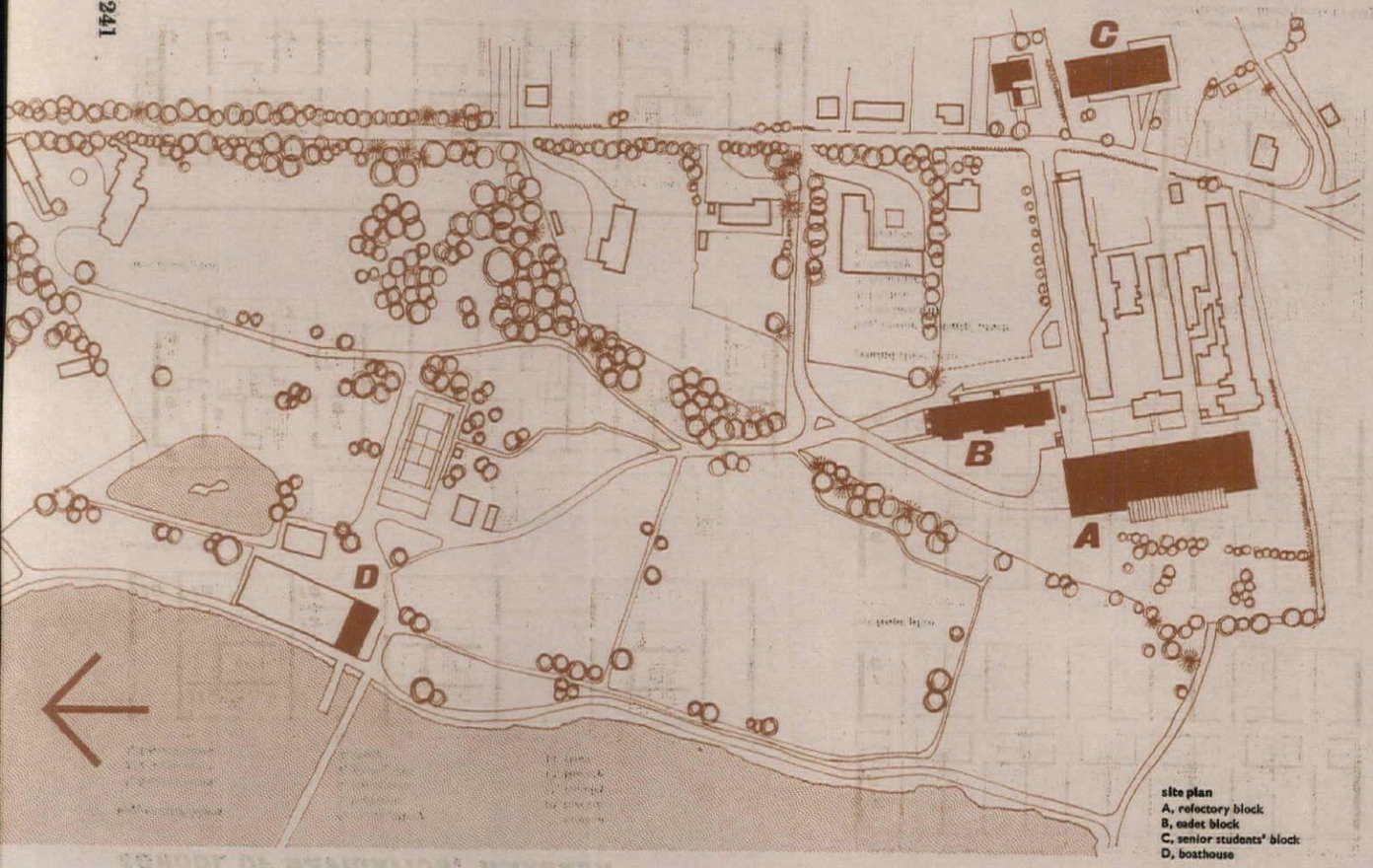




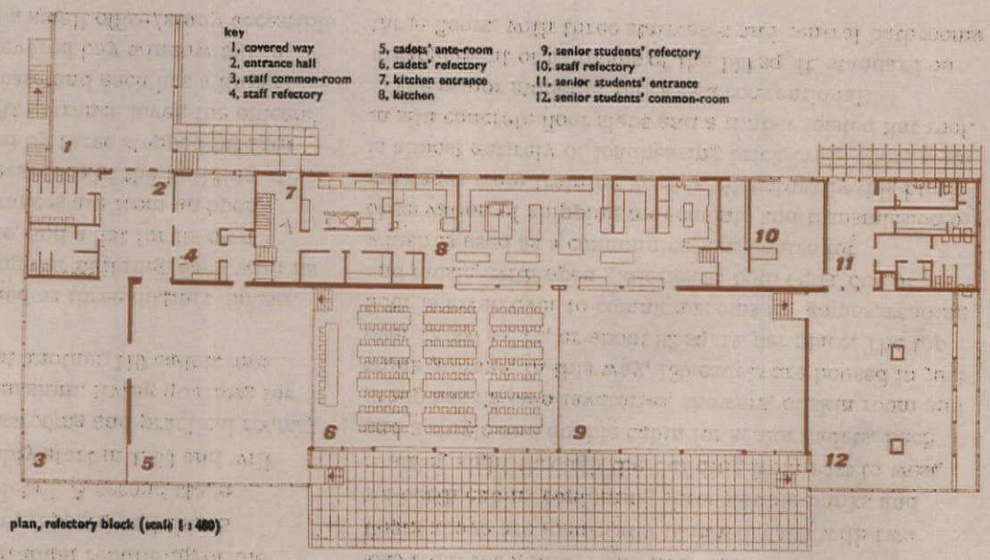




2, from the west, where the site meets the tidal foreshore of Southampton Water. In the centre is the cadet block (B on the site plan opposite) subdivided into three "houses." The cantilevered bay-windows at first-floor level are those of the living-rooms of the divisional officers' flats. On the extreme right of the picture is the staff common-room in the refectory block (A on the site plan). 3, looking along the terrace on the western side of the refectory block. The walls above the sliding refectory windows are slate-hung against wind-driven rain. 4, from the west again, but showing both the cadet block and the refectory block. 5, the senior students' block on the opposite side of the public road from the main school buildings (C on the site plan). It is photographed here from the east. On the right is the warden's house.



site plan
A, refectory block
B, cadet block
C, senior students' block
D, boathouse



plan, refectory block (scale 1:480)

The school, which is administered jointly by the University of Southampton and the Hampshire and Southampton Education Committee, occupies a superb site sloping down to Southampton Water, at the mouth of the Hamble River, with views of the Solent and Southampton Water from Spithead to Marchwood.

In 1956, when the planning of the present buildings started, the school was housed in a huddle of buildings partly dating from the first world war, when a group of late nineteenth-century coastguard cottages were extended for use as naval barracks, and the dining rooms and kitchens were housed in a decrepit Nissen hut. The money available made it necessary to retain any of the existing buildings which were not actually unsafe, and to provide living accommodation for 135 cadets with flats for three supervising officers, study-bedrooms for 69 merchant navy officers (senior students) who attend the school for courses of three to twelve months for additional training and qualifications, together with refectories for the cadets and senior students served from a common kitchen and common-rooms for students and staff. Subsequently, approval was given to rebuild the boathouse and workshops, and during the planning stage classrooms and practical rooms for radar instruction had to be incorporated.

The scheme comprises three blocks: a five-storey block for cadets with three flats for the divisional officers, in which every cadet 'cabin' has a view of the water; a block of 69 conventional study-bedrooms for the senior students, for whom a view of the water was less important, being less of a novelty; and a refectory block containing en suite a staff common room, cadets' ante room, cadets' refectory, senior students' refectory and senior students' common-room, all glazed continuously to the west, south and north and opening on to a terrace facing west over Southampton Water. The kitchen is on the east side with staff and private dining rooms on each end, and with service access and bulk storerooms below.

SCHOOL OF NAVIGATION, WARSASH

An overall plan for the gradual rebuilding of the whole school has also been prepared and this is now being worked out in detail. A second stage of development will probably start in 1963 and will include a new block of classrooms and practical rooms, an assembly hall and gymnasium, living quarters for staff and hostels for at least another 110 cadets and student officers.

The cadet block is planned as three distinct 'houses' although in a single rectangular building, each with its own entrance and staircase, and a flat for its own divisional officer. The entrances are from an open gallery recessed into the east face of the building at first floor level, approached by three stepped bridges from the parade ground. At entrance level, the officers' flats wrap round the staircase and each has a living/dining-room with a cantilevered bay window to the west, three bedrooms and a small office/study accessible also from the gallery. The floor below and the two floors above are identically planned, each with two six-berth cabins containing three double bunks and running right through the building from east to west, and a single and double cabin for senior cadets. Each group has its own lavatories, showers, oilskin room and trunk storage. In this way, 135 cadets are housed in just over 12,500 sq. ft., or about 92 sq. ft. per place. The top floor is given over to common rooms for games, reading and music, with open galleries at both ends, one of which is used as a communications centre for observation of shipping movements and transmission of messages from training vessels. Structurally this block is almost entirely of loadbearing brick cross walls, with in situ concrete floor slabs and a timber joisted flat roof.

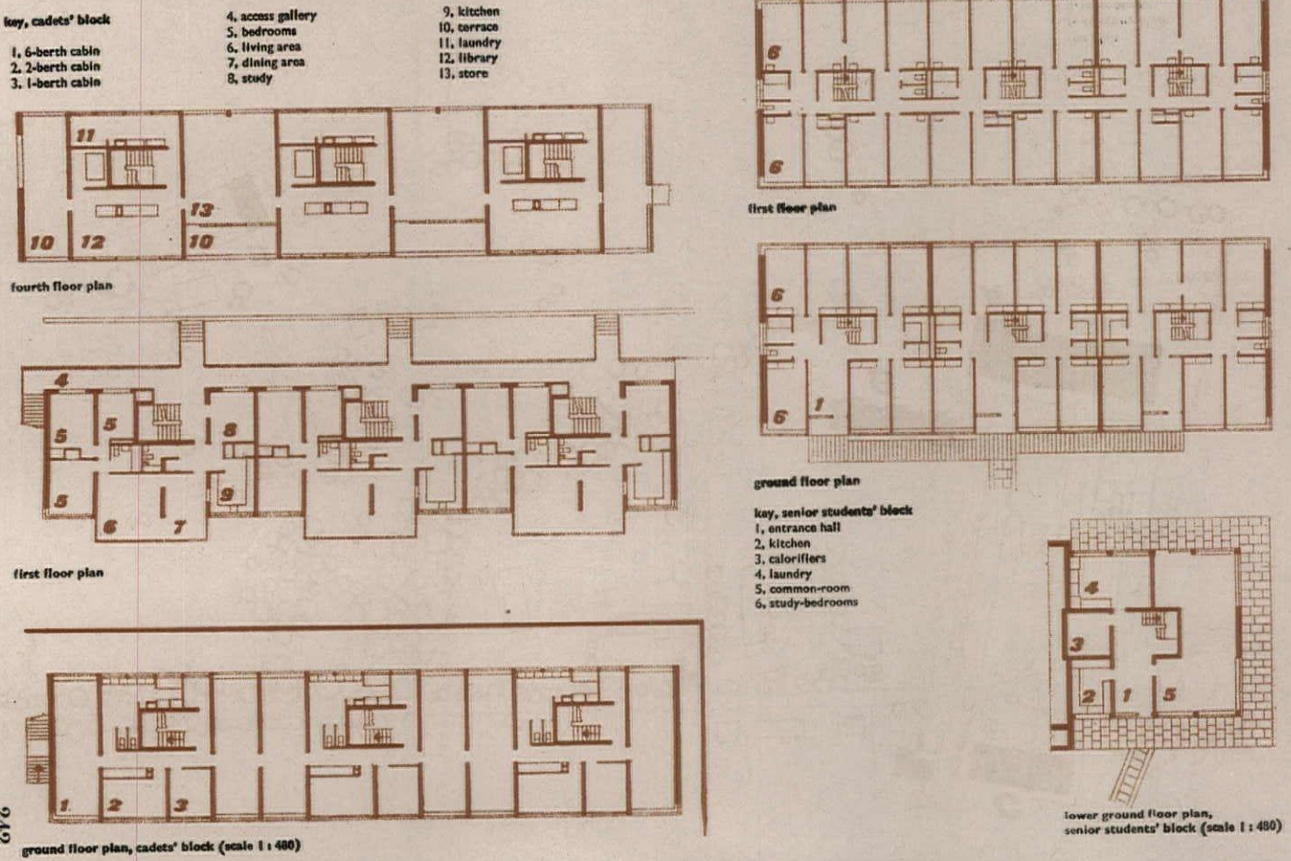
The senior students' block is a conventional arrangement of 69 rooms of the 140 sq. ft. standard on three floors, with three staircases and central bathrooms and lavatories. The steep fall of the ground made it possible to accommodate a common-room at lower ground floor level at the southern end. Structurally this is again a very simple building, using 6in. concrete block cross walls at 10ft. centres, in situ concrete slabs and a timber roof.

The refectory block stands on ground falling steeply to the west to the marshy banks of the Hamble River. The cadets' entrance is at the north end, approached by a 20-ft. wide covered way, which serves also as an exercise area in bad weather. The small entrance hall gives access to a staff common-room and the cadets' ante-room—a room for formal gatherings before meals rather than relaxation—separated from the cadets' refectory by a heavy curtain and a drop of three feet. The ante-room can thus be used as a platform or stage, and the refectory is separated from the almost identical senior students' refectory by sliding folding doors. On the west side these rooms open on to a wide paved terrace through sliding teak framed windows, and on the east separate serving counters are fed from a common kitchen. Service access is by a road which curves round below the cadet block and enters the refectory block at basement level, so that cadet and service traffic do not cross at any point, and small lifts bring supplies up to kitchen level from the bulk stores in the basement, which also houses, beneath the covered way, the central boiler house for the whole of the school buildings.

The roof of the refectories is timber joisted on steel portal frames; windows are restricted to door head height on the west side, and daylighting is supplemented by continuous louvred rooflights down each side of the roof. Fluorescent lights are fitted behind the louvres, but table lighting at night is provided by focused spotlights recessed into the ceiling, giving brilliant pools of light at intervals along the centre of the wide refectory tables. This gives the effect of table lights without the cost and inconvenience of wiring and fitting lamps to movable tables. Apart from the refectories themselves the common-rooms are timber roofed, the joists being carried direct on the teak mullions of the continuous windows.

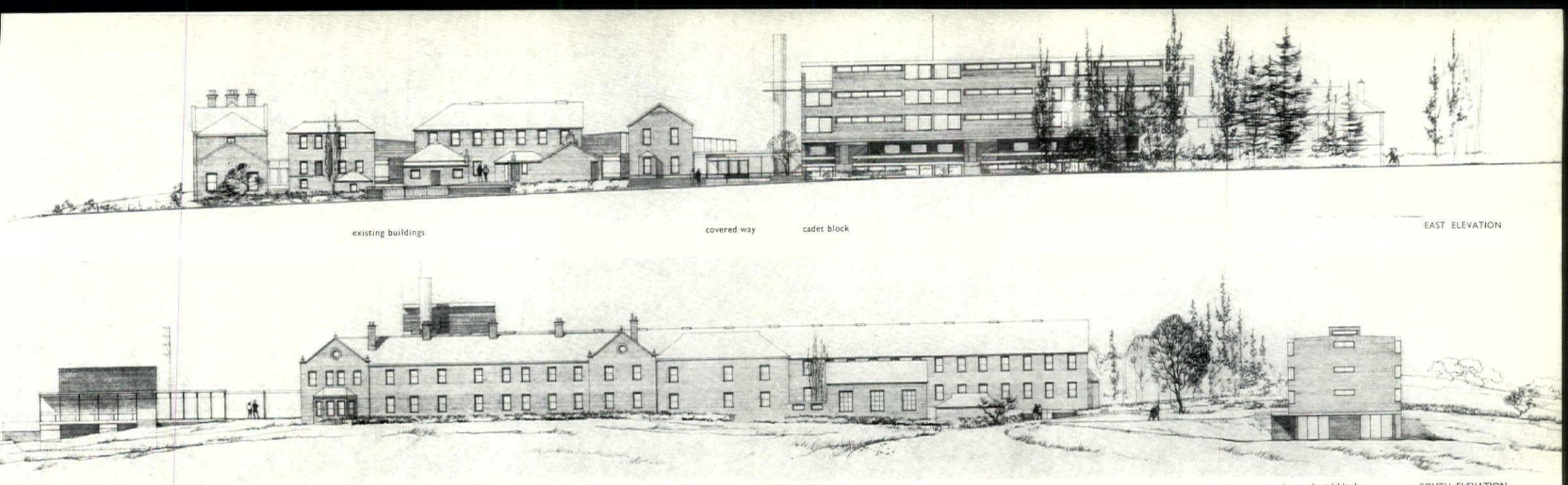
Below the senior students' common-room at the south end there are two classrooms for radar instruction, and the control rooms containing various types of radar equipment. These are connected to the scanners by a tubular steel mast which is cantilevered from the basement and ground floor slabs and passes through the timber roof of the common-room.

SCHOOL OF NAVIGATION, WARSASH



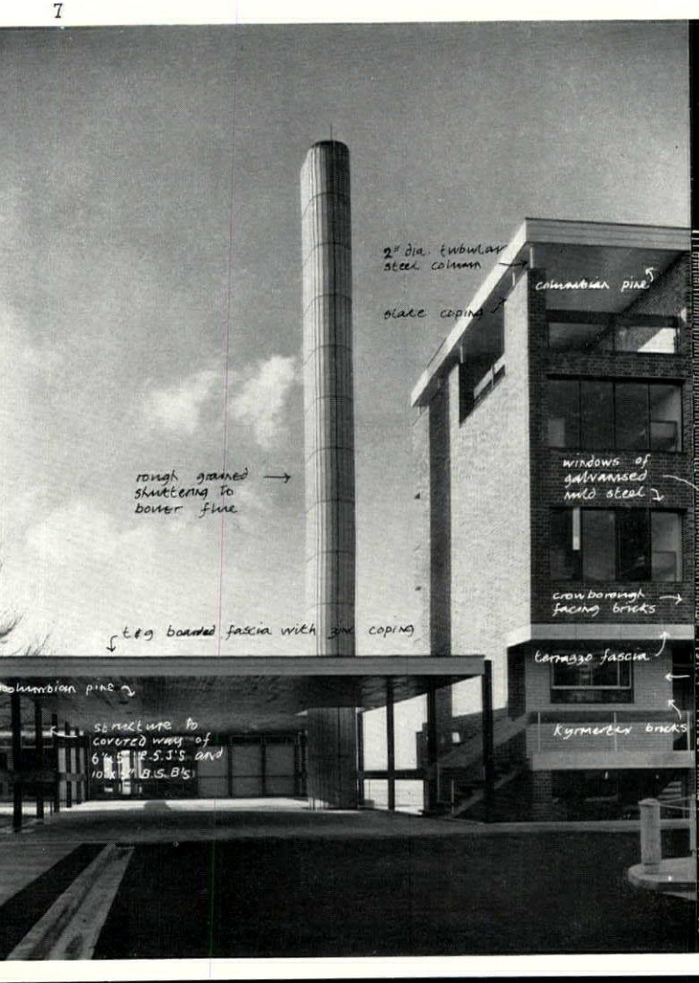


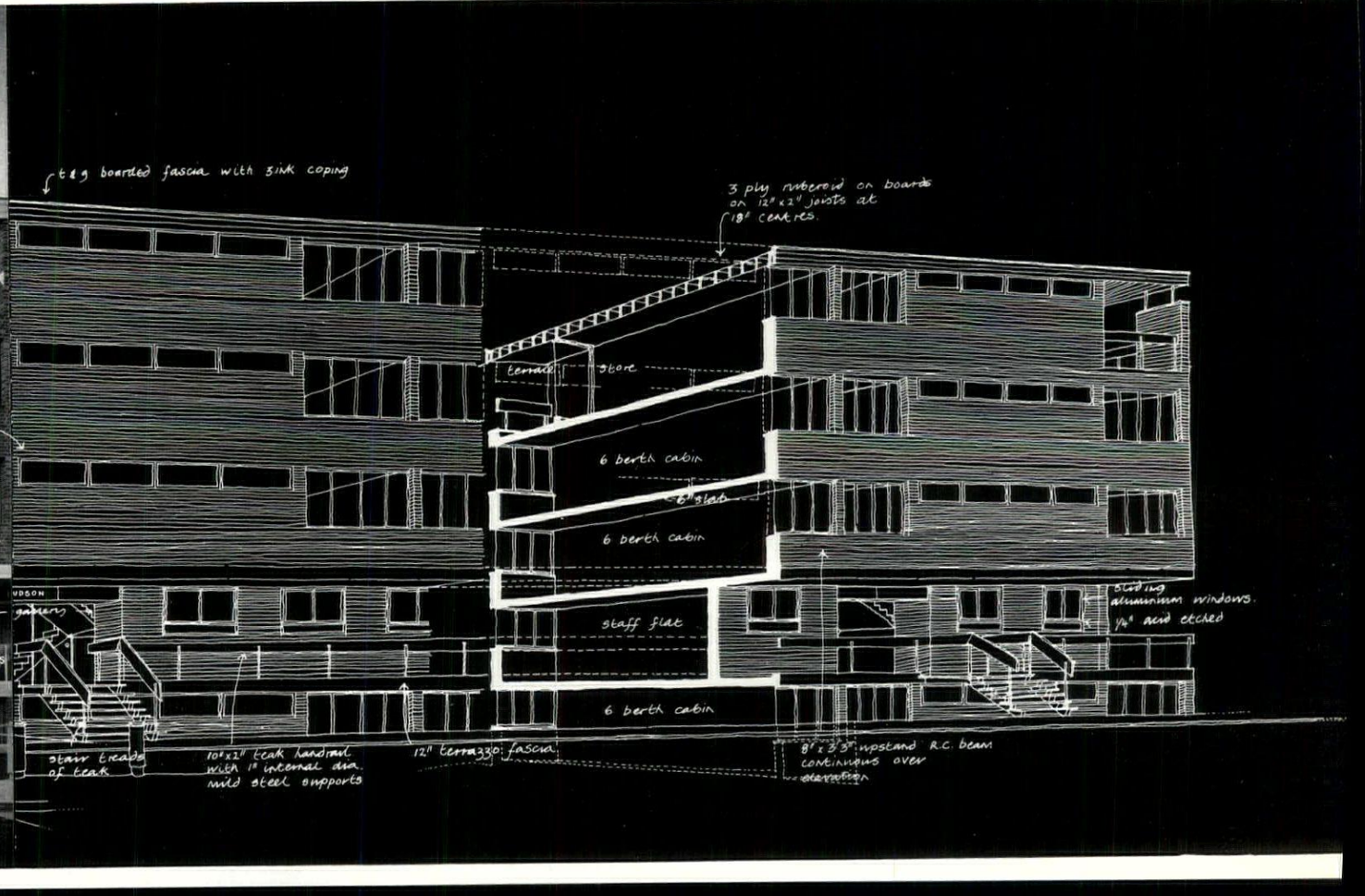
6, looking through the covered way that links the cadet block, right, to the refectory block.



EAST ELEVATION

SOUTH ELEVATION







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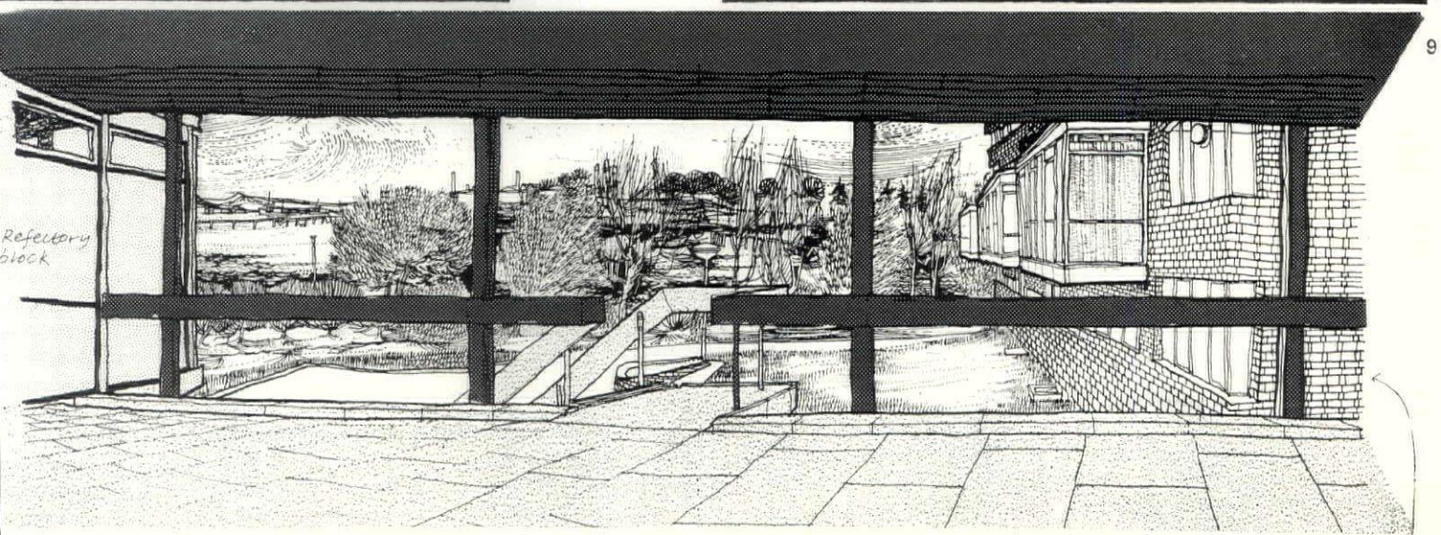

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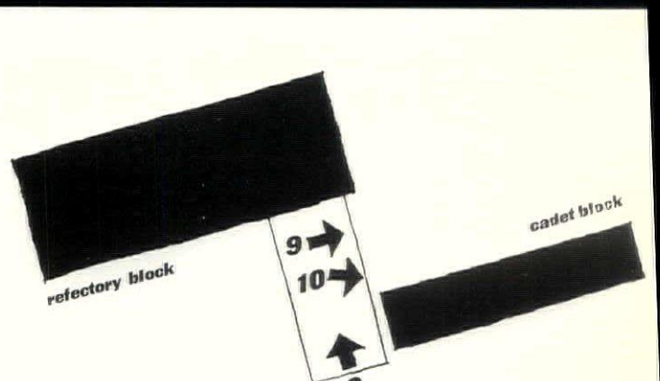


SCHOOL OF NAVIGATION, WARSASH

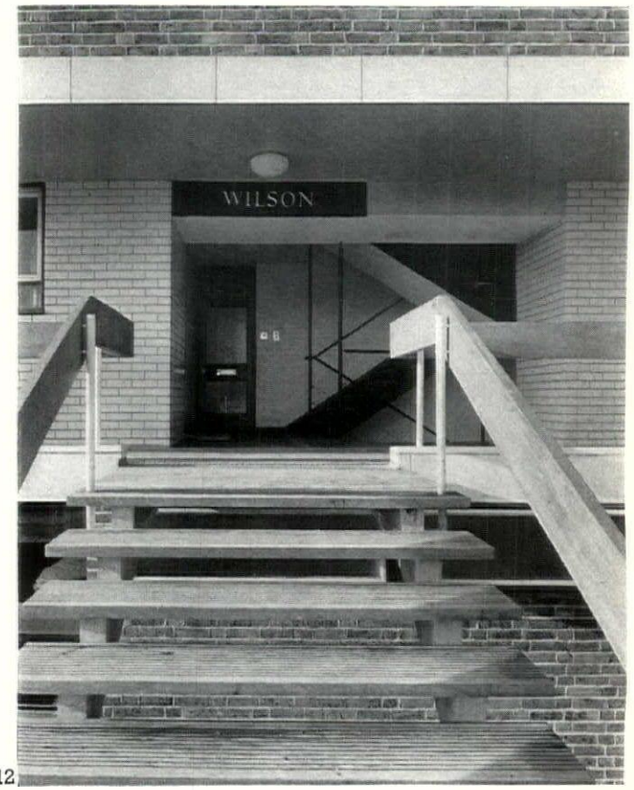
7 (facing page), the entrance (east) elevation of the cadet block, broken in the middle to show the arrangement in section. On the left is the covered way that links this block to the refectory block.
8 (left), inside the covered way, looking towards the entrance into the refectory block.
9, a sketch (by Richard Reid, who also drew the elevation opposite) showing the broad view over the school grounds, with Southampton Water in the distance, obtained on looking north from within the covered way after passing the end of the cadet block.
10, the western side of the cadet block from the top of the stairs leading down from the covered way.
The sketch-plan above shows the viewpoints of the photographs on this and the facing page.



10

cadet block

11



12

SCHOOL OF NAVIGATION, WARSASH

11 (facing page), the northern end of the cadet block, showing the first floor entrance gallery and the staircase (one of three) leading up to it—bottom left-hand corner—and the sunken bottom floor, which is a normal ground floor on the other side owing to the fall of the site—see 2, page 240. 12, close-up of one of the same three staircases leading up to the entrances. 13, the senior students' block: entrance side. A sharp fall in the site allows an extra floor at a lower level at the south end of the block. This contains the senior students' common-room. 14. 15, one of the entrances to the senior students' block.



13



14



15



16



17

SCHOOL OF NAVIGATION, WARSASH



18

16, interior of refectory, showing the screen which normally divides it into two (for cadets and senior students) folded back to make one hall for special occasions. The curtains on the left hide the windows overlooking the terrace and Southampton Water. On the right are the service counters. The photograph shows the combination of indirect lighting (behind the louvres on either side) and direct lighting (spotlights mounted on the slatted timber ceiling). 17, interior of the senior students' common-room at the southern end of the refectory block. 18, refectory block from the south-east, showing the same room from the outside with the radar instruction room below it. Beyond is the radar mast.

photographs by Colin Westwood



ON TRIAL

3: JEAN PROUVÉ

the thin, bent detail

REYNER BANHAM poses the problem of industrial detailing in an architectural context

The thin, bent detail from which this study takes its title, occurs conspicuously at the corners of one of Jean Prouvé's most gratifying inventions: the complete prefabricated entrance-lobby that has now appeared on a number of buildings for which he was a consultant—examples are the Institut des Petroles or the Buvette d'Evian. The functional proposition is that of an intake duct, in the form of a rectangular tube, large enough to admit human beings, and equipped with swing doors, doormats and the rest of the tackle needed to screen the input and separate the people from the uncontrolled environment outside. This is a typical Prouvé proposition—it does not introduce a concept that is new to architectural practice, nor does it radically revise an old one, but it takes one of the established 'elements of architecture' and re-packages it as a fully-industrialized bolt-on component.

It is this that puts the thin, bent detail in question—and the question is: If a technician chooses to work so deep within the accepted framework of architectural concepts, is he bound by the customary usages of detailing that go with those concepts? The solid basis of the question is the technician's relationship to his production processes. In all his significant works—such as the development of the first practicable industrialized curtain-wall for the covered market at Clichy in 1939—Prouvé is a sheet-metal fabricator before he is anything else, having moved into this field from the family discipline of *ferronerie architecturale* pretty well in step and in synchronization with the rise of modern architecture in France.

under or over

Now, in the fabrication of sheet metal there are two basic solutions to the key detailing problem, which is the management of the edge of the sheet. Either the edge can be turned under, as is the standard practice, near enough, in the automobile and appliance industries, and has the advantage of not presenting a sharp edge to the outside world (whatever it may do to the hands of maintenance staff), or the edge can be exposed. A plain exposed edge has the structural disadvantage (compared with a turn-under) of lacking stiffness, but where such an edge is acceptable, the stiffness can be restored by turning the edge outwards to form a flange—a solution which is found more than once in Prouvé's work, and most notably on the entrance unit under discussion.

The turned-under edge is normally associated with press-work techniques where the flat metal stock is being formed into three-dimensional curves, and the occurrence of further three-dimensional curvatures at the edge does not constitute

any additional problem. But Prouvé's turned-up flange is associated, for reasons of economical working, with simpler rolling and bending techniques that do not involve three-dimensional curvature —except where the flange has to do what it has to do four times on every length of the entrance-duct: go round a corner. This is an almost impossible detail to resolve technically even on a gently radiused corner—either the outer edge of the sheet will tend to split radially, or the inner angle, where it is bent up from the main sheet, will crumple and corrugate, an effect that will be familiar from cheap Brummagem tin trays.

On Prouvé's entrance duct, each length, though built up from a number of sheets which are joined to make the complete rectangular section, has a continuous flange running right round either end, which serves for jointing purposes at intermediate stations along the length of the duct, and at the open ends becomes a sort of frame around the doors. But such a flange cannot be got round the four corners of the tube without the disasters mentioned above, so Prouvé adopts the gordian solution of paring the flange away to almost nothing at these points. As a radical tech-man's gesture this has its attractions, but in performing it, Prouvé loses two things he needs at these crucial junctures— structural rigidity and architectural respect.

flange-paring

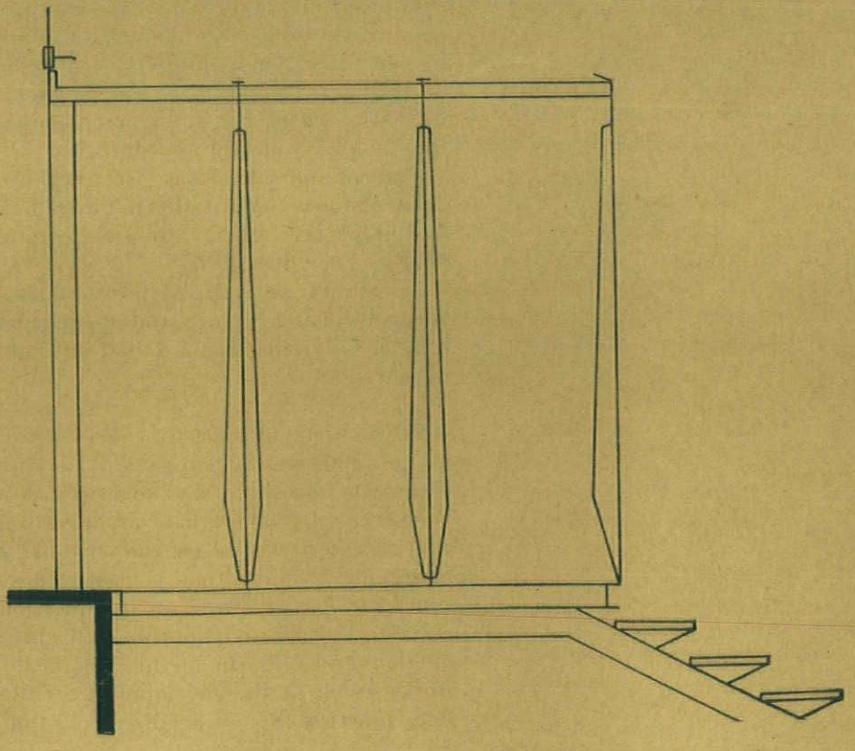


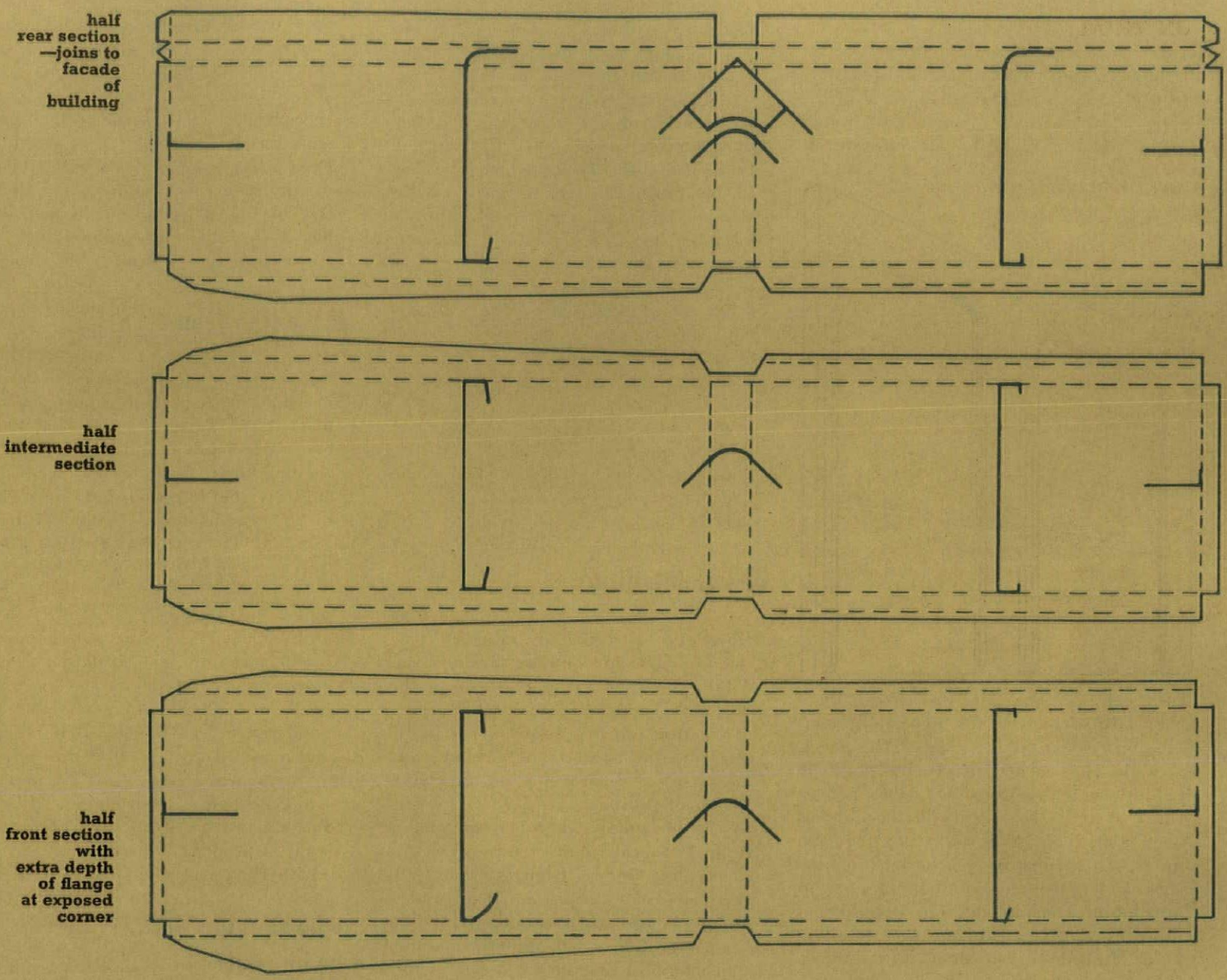
ON TRIAL: 3

Institut des Petroles: Entrance Unit

The rigidity he can probably get back by other means (the door-structures must provide substantial lateral bracing) but the architectural loss seems irretrievable, because it is simply an avoidance of one of those test-pieces for architectural competence, taking a moulding round a corner. It may appear that one is asking too much of Prouvé in demanding that he answer to the traditional standards of architecture when he 'denies an architectural tradition and refuses to be hampered by it' but his attitude to architecture in general denies his denial, and since he is on record as being concerned with 'the rational integration of industrial techniques into an architectural context,' he clearly accepts the pre-existence of something that can be recognized as architecture. His denial probably refers more specifically to a historicist and stylistic tradition, such as those once propagated by the Ecole des Beaux Arts, and this seems the more likely in view of his statement that he is 'en harmonie d'idées et de conceptions avec les architectes d'avant-garde, Le Corbusier et Mallet-Stevens.'

This, indeed, places our man in the most





Entrance Unit: Development and bending of metal sheets

traditionally-minded wing of Modern Architecture—he is not a radical technological extremist like Buckminster Fuller, and less of a radical than his younger contemporary, Ionel Schein. And because he is not radical he cannot claim the real radical's right to override good manners and common usages. Fuller's un-architectural detailing convinces because it is part and parcel of an un-architectural proposition about the nature and performance of buildings, and Schein in his un-traditional structures (such as the plastic dwelling units) enjoys a similar position. But Schein, ironically, does not need it—plastics, in general, tend to work up into bulk forms sympathetic to the present post-Ronchamp taste in architecture, and to produce thick, rolled-over edge details that are immediately assimilable to the French conception of *modénature* (in the nature of materials, only a sadist would expose stand-up flanges in any glass-reinforced resin).

the radical's rights

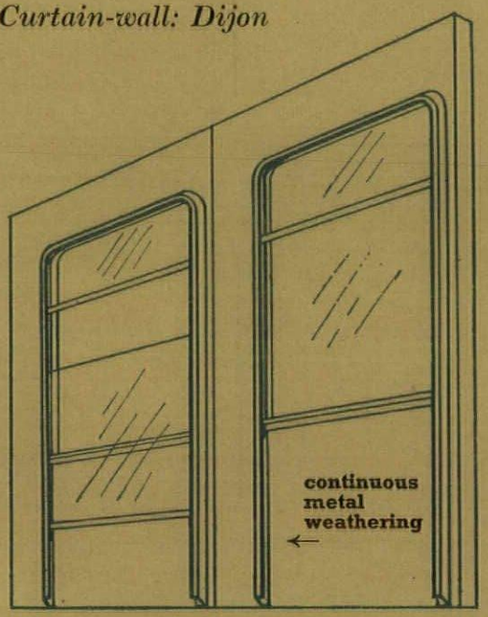
Prouvé, on the other hand, has accepted a position where the natural handling of his chosen material will often be out of sympathy with the architectural context into which he seeks to integrate it. Often, but not *necessarily* or *always*. His pioneer curtain wall at Clichy is not subject to these strictures, nor is the much more recent curtain walling of the Institut National des Sciences Appliqués at Lyons—but this latter is conspicuously composed of press-work, not rolled-and-bent panelling, and the system is such that edges of sheets are conveniently lost behind mullions and other components.

Nevertheless, curtain walls take us a long way toward the heart of the Prouvé problem, and two recent and related systems that he devised for the Nuclear Research Institute at Grenoble, and an HLM development at Dijon, make the conflict between context and technique a little deeper yet. The basic technical proposition of the windows in both systems has the conceptual elegance of a neat proof in mathematics: a single metal section is bent around the head of the fixed light at the top of the window, and then brought parallel down either side of the sliding light that covers the rest of the opening. This is a solution of which William of Occam might have been proud—details are not to be multiplied—since it acts as a weathering strip, or drip-stone, on the outside, and the rails for the sliding sash on the inside. Combine this with a crank-operated movement for raising and lowering the sash and embody the whole in a panel with a high thermal and weatherproofing performance, and you have a technologically desirable wall-component.

But is it architecturally desirable? Quite apart from the thin and flimsy air of

the bent metal section (a subjective response connected with the unfamiliarity of such details), is the bottom-end of the slide resolved in a manner that would get a 'pass' in a Third Year criticism? It

Curtain-wall: Dijon



isn't—the sliding rails just go on until they stop, which is, for no visually convincing reason, at the edge of the panel, though the rather diagrammatic logic behind even this decision is obscured by the fact that the bottom of the rail has been sliced off at a coarse sixty-degree mitre. Drip runs, or weatherings, of this sort are, of course, common practice in automobile technology, but a couple of minutes spent surveying the detailing of a Miniminor will show how difficult they are to finish off convincingly, even in a technology of which they are (so to speak) native. On buildings they present a double difficulty: not only are they difficult to resolve in themselves, but there is an added difficulty in disposing of the weather that they exclude from the window mechanism. On a car, rainwater runs down the weatherings and drips off on to the road, where it becomes someone else's problem: on a building, it runs down on to the panels of the storey below, leaving a stain or soot-whisker that, since buildings are not washed and waxed every Sunday, must soon become offensive and permanent. A solution might have been to crop off the bottom on the opposite mitre, to throw the water clear, but quite a number of building operatives would probably have been impaled on the exposed points that would have resulted.

There is a very real problem here, a general problem that extends far beyond the Prouvé situation, and should lie heavily on the consciences of architects who think that architectural-technical problems will solve themselves if you get a good enough consultant. One way to deal with the problem, of course, is to back out of it, abandon the technological possibilities of new materials and techniques and employ a Shell Building solution. There are two obvious objections to this: firstly, the technological specifications of buildings must go on improving because they are just not good enough yet; secondly, why should Prouvé and other technicians of genius put themselves out of employment simply to avoid embarrassing architects with technical advances that are not yet architecturally satisfying. The basic difficulty raised by Prouvé is that his thin, bent details so often usurp functions previously performed by traditional usages, such as door-frames or drip-stones, executed in traditional materials.

desert detailing

Where he does not compete with established usages, as in his Saharan dwelling units, there is no problem. Here, where he is designing radically for a radical functional solution, his thin-edged details are perfectly convincing in their own right, and follow naturally from the production process. This touches another fundamental point about Prouvé (and many other technicians of his class)—that his detail is determined by reference to the production methods, and follows from the fabrication technique as securely as bonding follows from brickwork. But there are more than *one* bond and, as architects are just beginning to realize, there are often as many equally justifiable solutions to a technical problem as to an architectural one. There is often a choice among the solutions that an informed architect could demand.

the fault, my masters

For the fault may not lie with Prouvé at all, but with the masters he has chosen to serve. When he first entered the field in the early Twenties as a *maitre-ferronier*, raised in the impressive shadow of Emile Gallé and the Ecole de Nancy, the components he produced—'grilles d'extérieur et d'intérieur, rampes d'escalier, cabines d'ascenseur, etc.'—were doubtless drawn out fairly fully for him by the architects, who assumed responsibility for the architectural handling, and left him to settle the production details. Such an attitude is now regarded as a bit Academic and *vieux-jeux*, a bit too much like thinking of a form and leaving the poor sweating consultant to fight out a method of making it work. But men trained in the disciplines of Nancy are not likely to have been as irresponsible as that, would have known the limits and possibilities of architectural metalwork, and would not have asked impossibilities of their *ferronier*.

In contrast, one has the feeling that in more recent years, the years of his fame, Prouvé has failed to fall in with architects worthy of his consultancy, and that the size of his contribution to any design has been inversely commensurate with the architectural calibre of its designers.

leave it to Jean

Too often, if the appearance of the buildings is to be taken as evidence, a sigh of relief must have run round the drawing office when someone finally uttered the magic formula 'Laissons les façades à Prouvé' and shrugged off half the building.

If this is what happens (and the excellence of French consultancy is reputed to cause it to happen ever more frequently) then it is an architectural crime. Quite apart from questions of avoiding just responsibility, this is no way to get the best out of the man. Where he has had a hard problem put to him straight—as in the curtain walls and staircase of the Institut de Petroles—he has never failed to respond magnificently and architecturally, and many of those who heard him speak at the World Design Congress in Tokyo, two years ago, became convinced that his was a major talent going to waste for the want of proper employment.

who should be on trial?

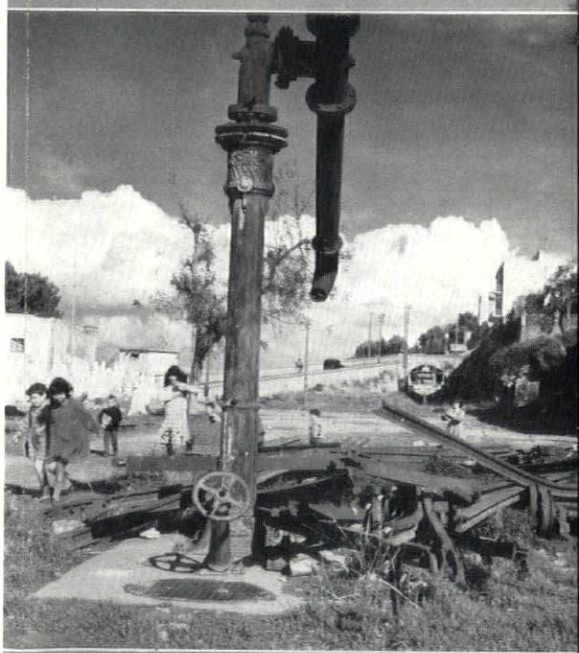
For here is a great industrial craftsman, animated by a deep-seated goodwill toward architecture, and it is a shame on the profession that so many architects should take that goodwill for granted and then blame Prouvé for faults that are really due to their own sins of omission—he is reputed to be very bitter about this, and well he might be! The lesson of 'le cas Prouvé' is clear enough if one compares his situation with that existing where architects have ridden their technologists hard, but intelligently, to produce results like Schneider Esleben's superb mullions for the Mannesmann tower. The value of the fresh mind and the high technical standards that a technician like Prouvé can bring to architecture is evident, but it rests with architects to so phrase their demands upon him that a thin bent detail will become a slender curved one.



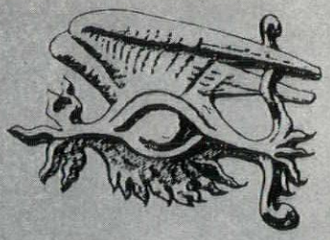




Rome-Genoa line, new harbour works at Civitavecchia, and war, conspired with Lambrettas and Cinquecentos to render the whole project redundant. A day arrived when driver and firemen climbed down from the footplate of the little green engine for the last time and trudged home to their pasta and wine, never again to sound the whistle or dive into the maw of a tunnel. There, precisely where they left it, the locomotive still stands together with its consort (A. Borsig, Berlin-Tegel, F, No. 7113, 1909) and the rest of the railway's rolling stock, no longer at the station or even on a rail, but lost in the jungle of blackberry and acacia which has swallowed platform and permanent way just as the forest swallowed the sleeping princess—platform, permanent way, wagon, truck, tender, passenger coach, elephant, engine shed. The return of the wild. Shape of things to come, anyway for the Railway Age over which the whiskers are everywhere growing, as British Railways have acknowledged by pulling down Euston Arch, its first and greatest monument. A very British gesture, not only going down for the last time but pulling your monuments after you so that not even X marks the spot. Ciriaco Baschieri-Salvadori's still nostalgically survives in a graveyard more affecting than any of the man-made kind.

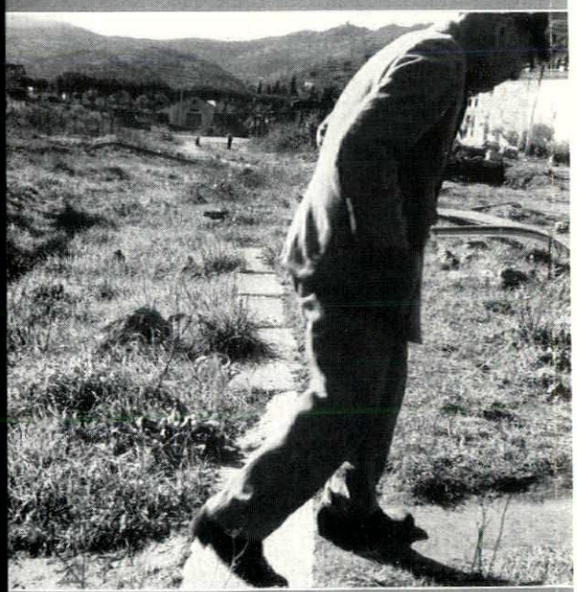


photographs by Ivy de Wolfe



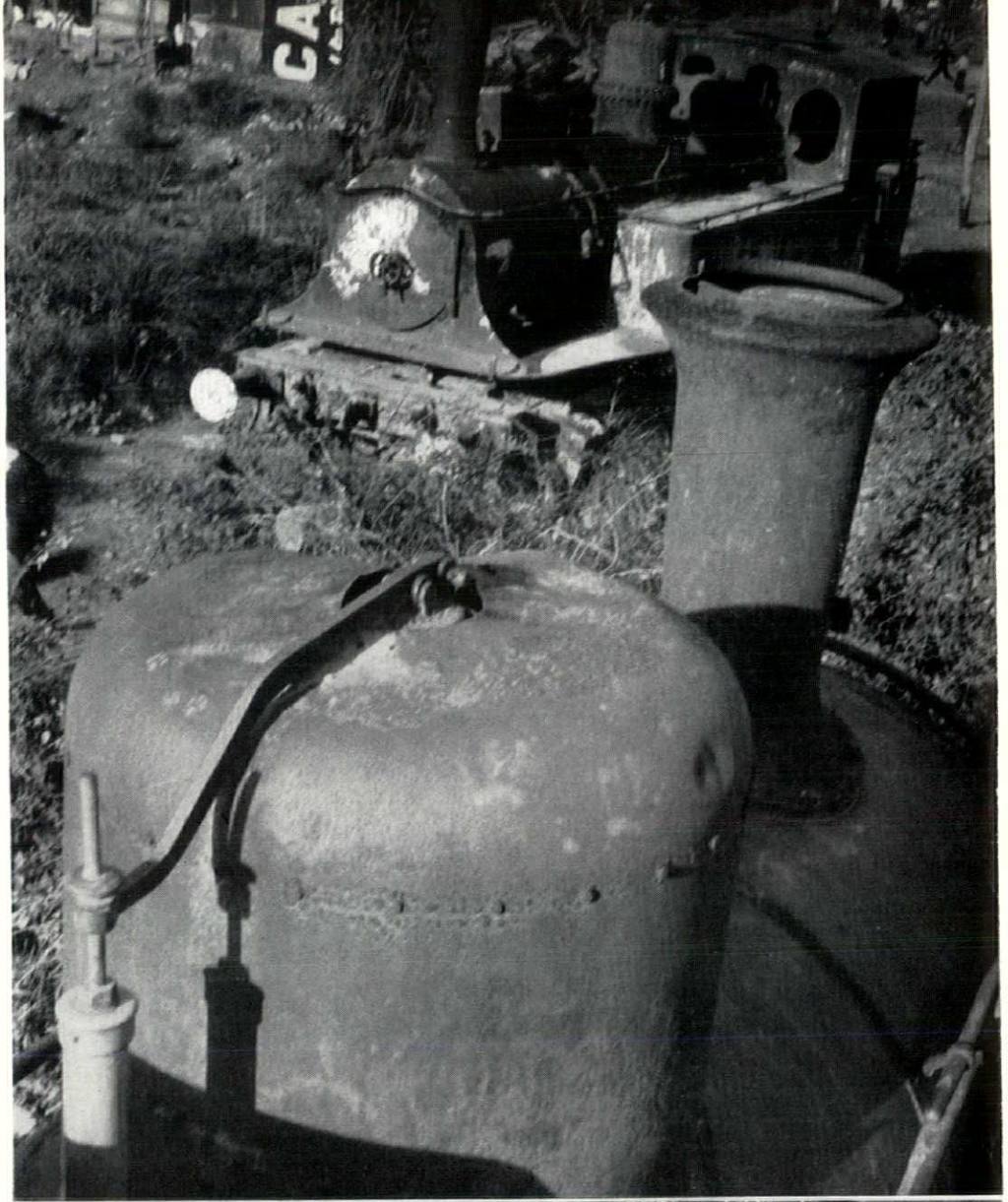
END OF THE LINE

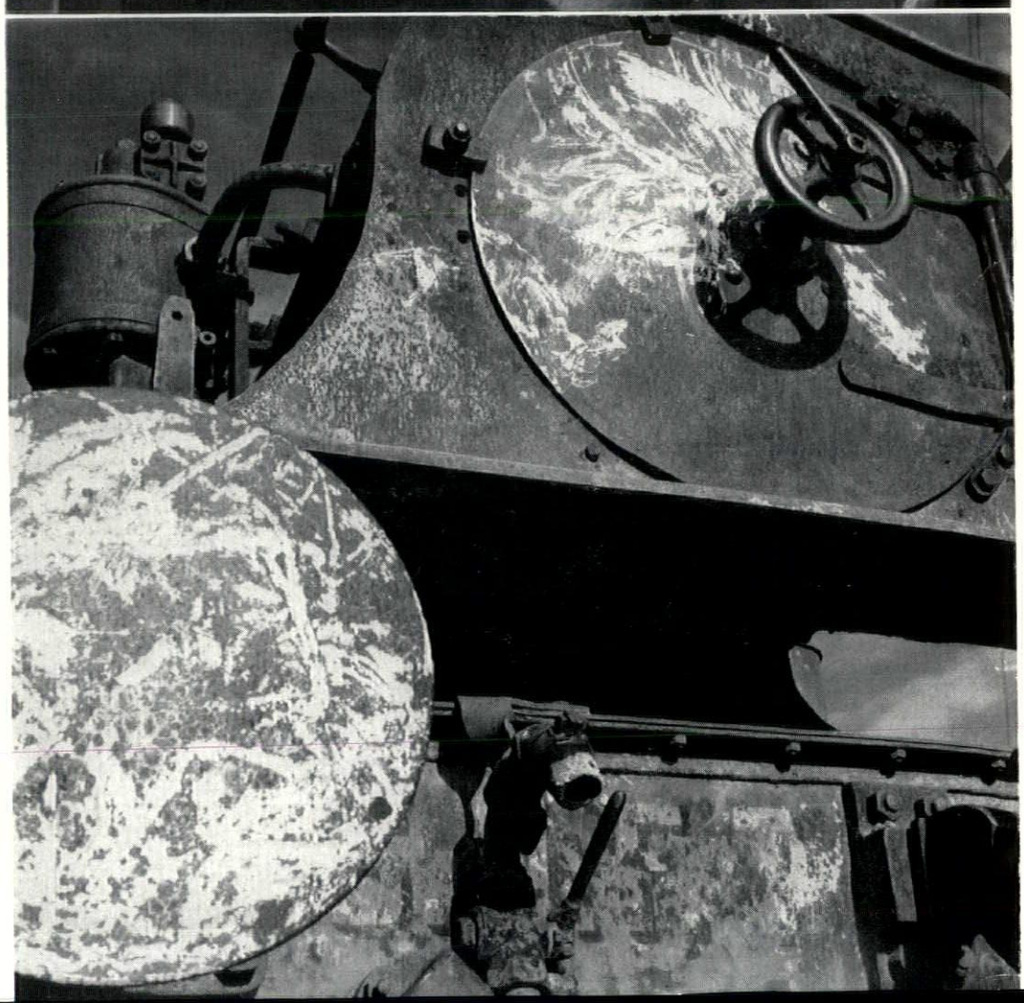
Ciriaco Baschieri-Salvadori, descendant of Caesar's Brutus, Provincial Councillor of Grosseto, Syndic of the Commune of Monte Argentario and builder of Roman Palazzos, completed his high-Victorian career by constructing a railway, most of it through impenetrable mountain, to his home at the port of Santostefano, on the west coast of Italy. Conceived heroically to cross Italy from the Tyrrhenian to the Adriatic by way of Orvieto, Orte, Foligno, and Ancona, the railway completed only the first leg, from Orbetello to the

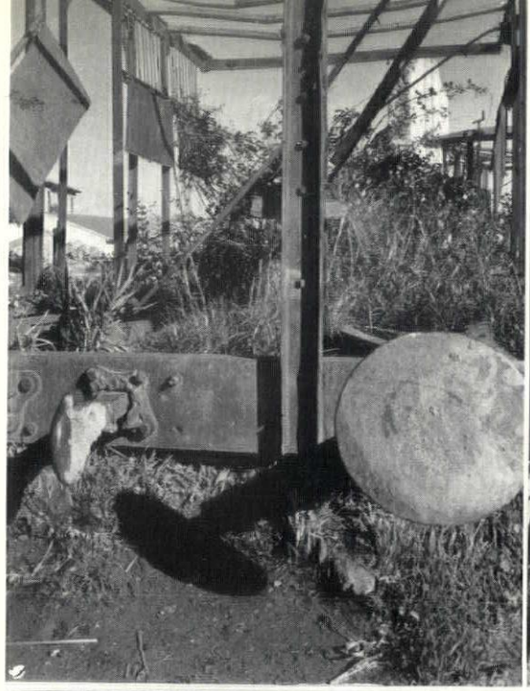


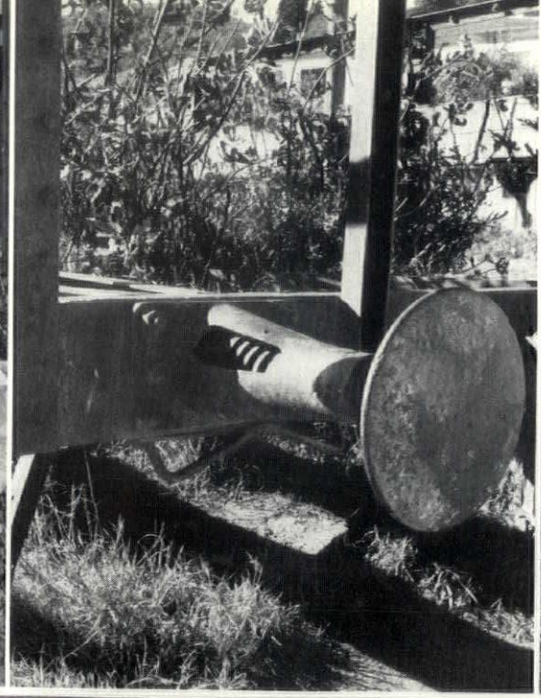
port. There, Ciriaco, uncrowned king of Santostefano, and President of the promotion committee of the Soc. Nazionale di Ferrovie e Tranvie (the railway's concessionnaires), transported coal for the State Railways and phosphates for fertilizers. Transported also himself, his family, friends and fellow-citizens back to Orbetello and the Rome Express. Less than fifty years later, together with the President of the promotion committee and a host of enchanting branch-lines in many parts of the world, the railway was dead. The electrification of the

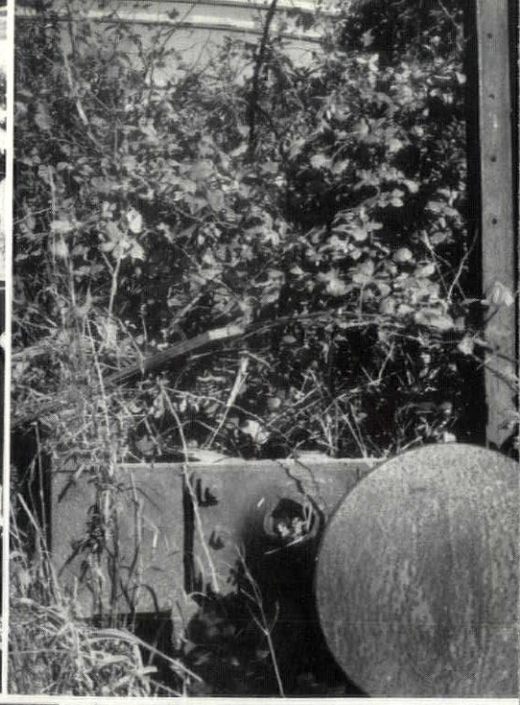
←continued



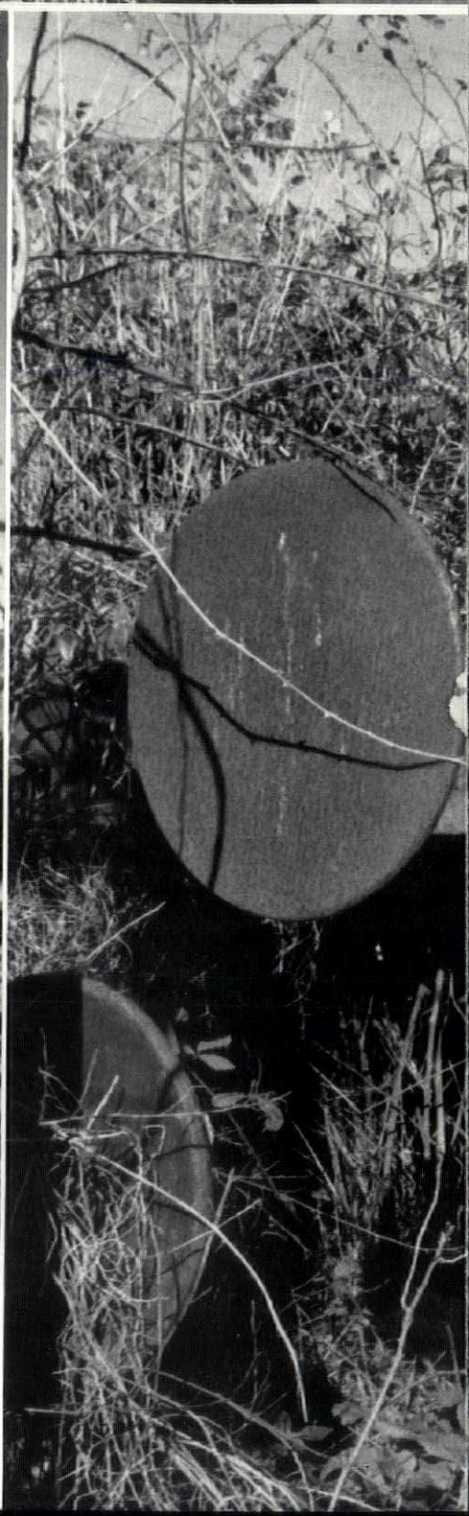


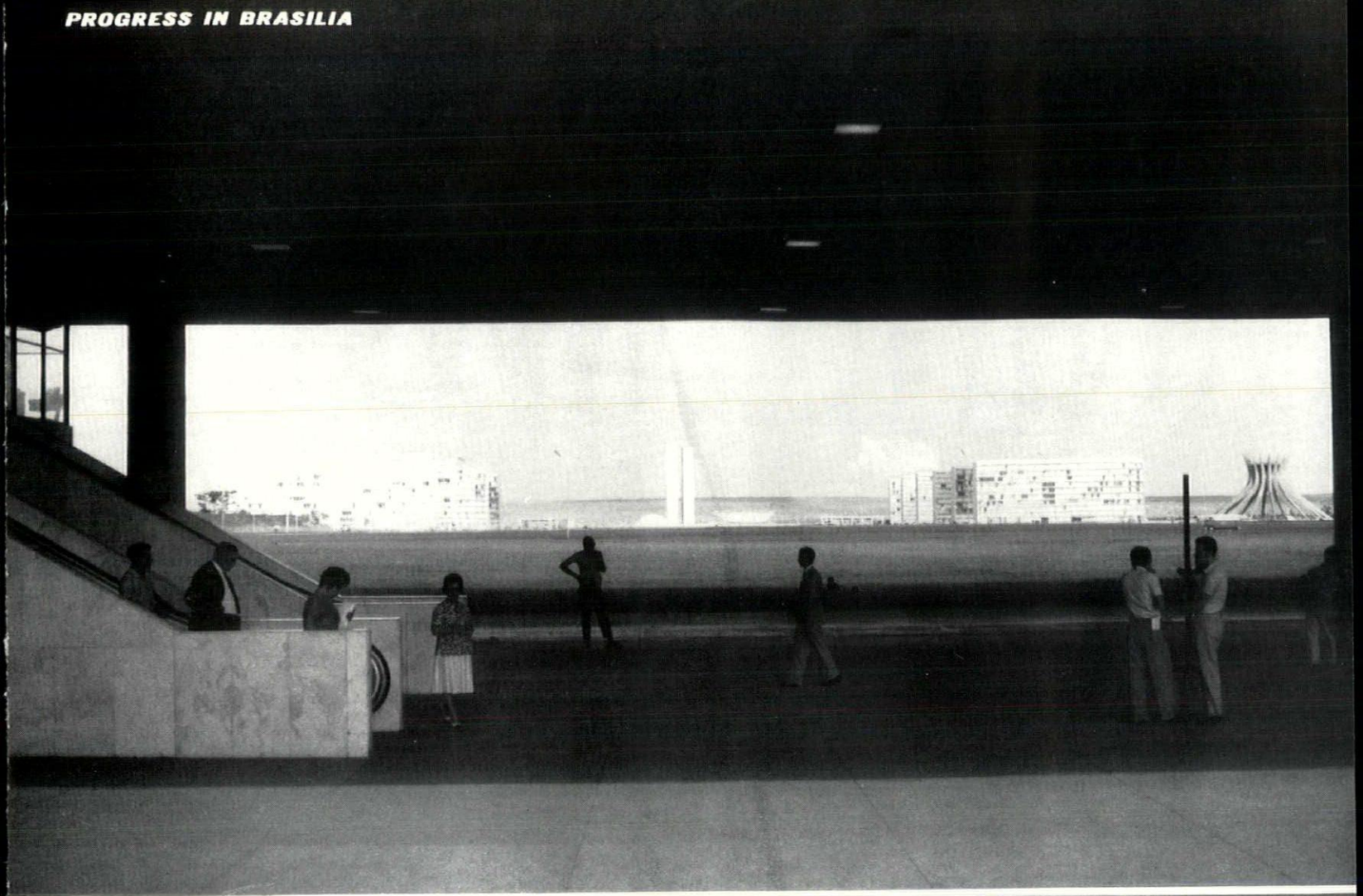


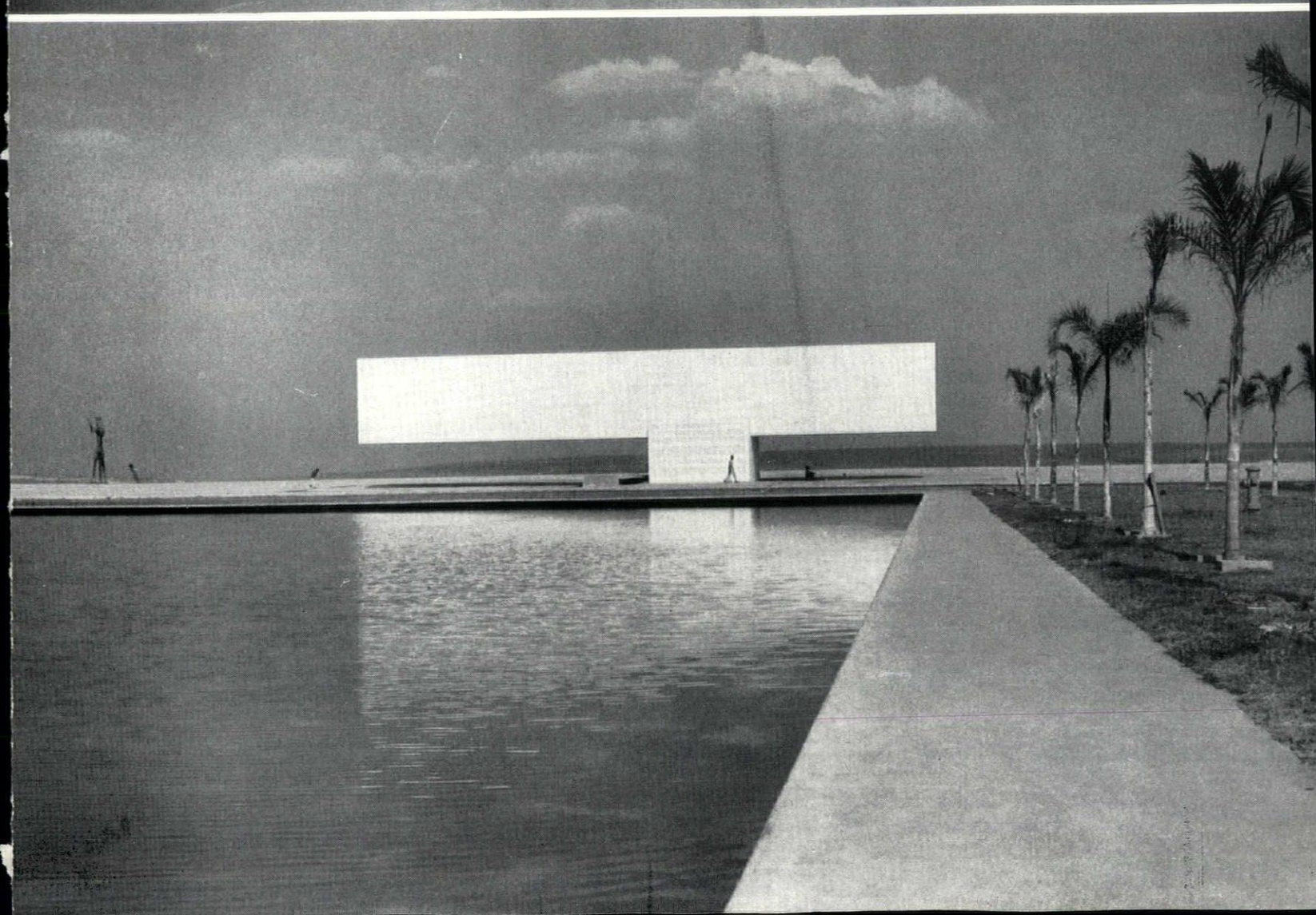












Below is an account of the gradual growth of Brasilia into a living city, by DAVID CREASE, an English architect who works there. On the right Brasilia is shown as a true political centre at the time of a change of president. On the facing page are, top, the view from the bus station with the Government buildings and the cathedral seen beyond the flat intervening ground and, bottom, the museum near the Planalto Palace (both designed by Oscar Niemeyer) with, on its right, part of the grove of palm-trees planted in honour of Le Corbusier's visit.



PROGRESS IN BRASILIA

Brazil's new capital, which this month completes its second year, is already a city with its share of history. Twice, since its inauguration in April, 1960, crowds have flocked to the Praça dos Tres Poderes to witness the transfer of the presidential sash—the first time in an atmosphere of electoral enthusiasm and democratic order, but the second amid threats of military and political uprisings and civil war. Beneath the astonishing white bowl that houses the public gallery of the Chamber of Deputies the Congress met in constant and clamourous sessions. The compromise that saved the day was their victory, and Brasilia's. Three thousand feet high on the central Brazilian plateau, Brasilia had proved itself as able to survive a crisis as an election, an island of calm amid the tumult of rumours and riots in distant cities. Costa and Niemeyer had provided a dramatic setting; the drama had now followed. In the past, there were many who doubted the wisdom of moving the capital from the turbulent and congested city of Rio de Janeiro; fewer do so now.

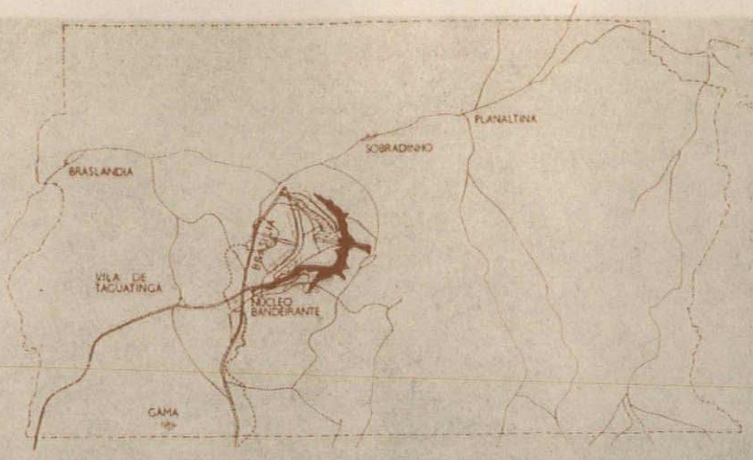
Brasilia, then, has proved to be (sooner perhaps than even its founders, for all their faith and imagination, could have foreseen) that focus of national unity, that element of stability in the confusion of the nation's political life, which it was its prime purpose to become. To what extent, however, has it become, visually and functionally, a real city? What is it like to live in? Can the various criticisms of the project now be answered?

The short answers to these questions are these: Brasilia is half a real city, and half an unreal city; it has something of the life of the metropolis, and something of the life of the frontier; some criticisms can be answered, some cannot, and some not yet. For instance, only time will tell whether the classic, inorganic concept of the form of Brasilia will survive intact the action of the secular forces that mould cities, or, in the shorter run, whether the transport and central parking facilities will prove adequate. On the other hand, some criticisms are now shown to be valid: the lack of a low-cost housing programme, the failure to evolve a regional plan, the neglect of climate as a factor in design. But these doubts and reservations are minor in comparison with the magnificence of the achievement. Those who held that Brasilia was impossible have been silenced: it is here. Those who said it was pointless are also confounded: it works. There remain the rumours that Brasilia is soulless, monotonous, dreary, and without life; but these voices grow fewer and fainter as the completed parts of the town receive their complement of people, planting, and urban paraphernalia, and the abstractions of the planners quicken into the reality of sights, smells, and sounds.

The sheer size of the achievement—possibly the largest single building enterprise since the time of the Pharaohs, and possibly the largest ever in a free society—disorients the critic. Confronted with a luxury hotel, or a twenty-storey office building, he starts to apply the standards he would employ in a city with a history of centuries. This leads to erratic judgments. Brasilia is raw, new, and not yet half built. It was conceived as a whole, and must be judged as a whole, when it is finished. Nevertheless one cannot accompany the progress of this great work without emotion—experiences of a new and surprising beauty, of shock at the miseries which its builders endure, of delight as a new sector of the city awakens and quickens with life, of dismay when plans go wrong in an emergency or through ignorance, of confidence in the growing purposefulness of the city, of exhilaration in each new glimpse of future grace and vivacity. What follows, then, is a record of facts and impressions, a report, with no more than an attempt at critical comment, on work in progress.

Brasilia, as the well known plans have already made clear, will be a city with three zones—monumental, residential, and commercial, each having, according to Costa's intention, its distinct scale. The seats of national and civic government in the monumental zone are conceived grandly as a setting for patriotic pomp; the residential superquadras are on a more human scale for the daily life of families within the neighbourhood; the commercial and entertainments districts are close-packed at the centre of the city, linked like giant batteries to generate currents of big-city bustle. Something has been built of all these, most in the monumental zone, least in the commercial. Let us take them in turn.

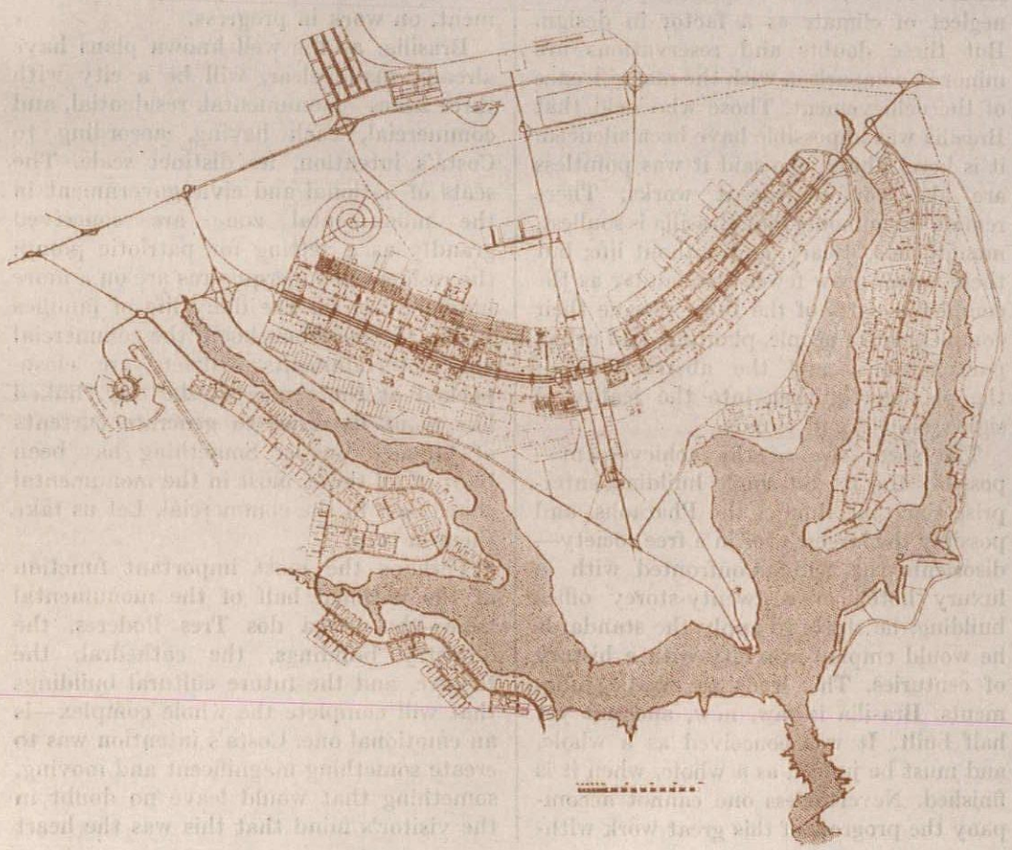
Perhaps the most important function of the national half of the monumental zone—the Praça dos Tres Poderes, the Ministry buildings, the cathedral, the theatre, and the future cultural buildings that will complete the whole complex—is an emotional one. Costa's intention was to create something magnificent and moving, something that would leave no doubt in the visitor's mind that this was the heart



The rectangular dotted line in the map above encloses the Federal District of Brasilia. In the centre is the new capital city itself, approached by two double-track highways and by the railway (dotted line). The other main roads in the area, all constructed since the establishment of the new capital, are also shown. Immediately to the south-west of Brasilia is Nucleo Bandeirante, otherwise known as Cidade Livre or the free city. Planaltina (top right) is a small town that existed before Brasilia was started. The other three places marked are the three new satellite towns now being built and Braslandia, an existing small village which is later to be expanded into a satellite town. The approximate population of the Federal District at the end of 1961 *was* 200,000, *made up as follows:*

Brasilia: the city proper	75,400
,, *suburbs*	20,200
,, *surrounding rural area*	19,000
Tagnatinga (satellite town)	37,600
Gama ,, ,,	16,500
Sobradinho ,, ,,	12,300
Nucleo Bandeirante	15,200
Planaltina	3,800

Plan of Brasilia showing the relatively few changes that have been made to Lucio Costa's original layout. The chief changes are the use of the peninsulas between the arms of the lake for suburban housing and the development of a new avenue, W 3 *(south) three miles long and lined with shops and houses, along the western side of the southern residential belt. This is tinted on the plan, and some of the work there is shown in the photographs on page* 260. *The residential superquadras so far built up are also in the southern arm of the residential belt, and include superquadra* 108, *also illustrated on page* 260.



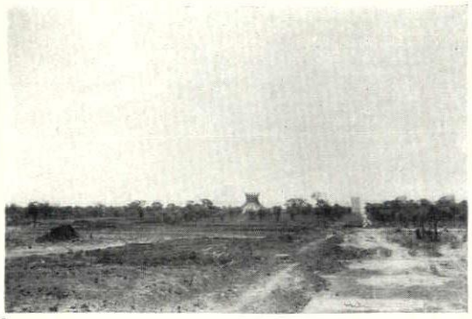
of a great nation. The problem was to achieve this aim without false rhetoric or bathos. Here the planner's vision has been perfectly complemented by the architect's. The clarity and simplicity of Niemeyer's formal inventions awaken and satisfy the legitimate patriotic sentiments of the beholders; at the same time they avoid totalitarian bombast and empty gigantism. The scale is, nevertheless, vast. From the Planalto Palace across the Praça dos Tres Poderes to the Supreme Court is a quarter of a mile; from the bus station to the Palace of Congress the Mall with its flanking ministries stretches over a mile. These distances are difficult to grasp. The buildings do not enclose space, but punctuate it. They stand like sculptures in a huge sculpture park, linked not by streets and squares or other related spaces but by lines of force and tension. Beyond the buildings the eye travels straight to the clean line of the hills that surround the capital at a distance of about ten miles. Multiply this a hundred times in every direction, and you have some idea of the vastness of the country that lies beyond. In this, the nation's central space, this immensity of scale is appropriate. The virgin bush runs right up to it, as a reminder to future generations of these pioneering days.

There are criticisms of these major buildings on functional grounds, the most valid of which concerns the orientation of the Ministry buildings in regard to the sun. At least one Minister had two offices, one on each side of the building, and changed over at midday. It is also to be regretted that the idea of a pedestrian platform linking the ministries at first floor level was dropped. Some critics, schooled somewhat narrowly in the classic dogma of structural integrity, find the novel shapes employed arbitrary and unjustified. Niemeyer sees it differently, especially in the case of this group of buildings. 'I favour an almost limitless freedom of forms,' he says, 'a freedom not slavishly subordinated to technical and functional requirements, but constituting before anything else an invitation to the imagination, suggesting new and lovely forms which surprise and excite with their novelty and creative spirit.'* This is a bold view, and a correct one in this case; it is interesting to speculate how many architects now working would express such an intention, and how many could achieve it with such a delicate balance of imaginative fertility and restraint. Niemeyer is no doubt fortunate as an artist to have had this opportunity, but Brazil, too, is lucky to have had him at such a moment.

Already, at six o'clock every weekday,

[*continued on page* 261

**Oscar Niemeyer:* Minha Experiência em Brasília, *p. Rio de Janeiro, 1961.*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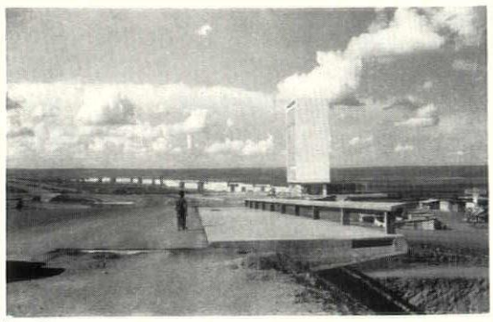
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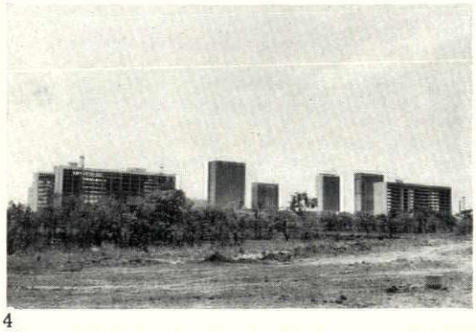
1, *distant view of the cathedral from the south.* 2, *the mile-long Mall, looking towards the Government buildings.* 3, *from the edge of the banking sector (north); the tall building is the headquarters of the Rio Doce Valley Corporation.* 4, *the banking sector (south) and commercial sector (south).* 5, *the commercial sector (south).* 6, *the most complete portion of the banking sector (south); on the left is the Bank of Amazonas (architects, the brothers Roberto) and on the right the Bank of Brazil (architect Ary Garcia Rosa).* 7, *the parliament buildings: congress tower flanked by senate (left) and chamber of deputies.* 8, *the Planalto Palace seen from the museum; the latter bears a sculptured head of President Kubitschek.* 9, *Planalto Palace and part of the congress tower.* 10, *base of the congress tower.* 11, *parliament buildings at night.* 12, *the same.*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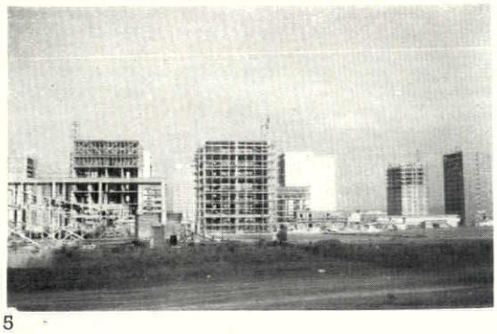
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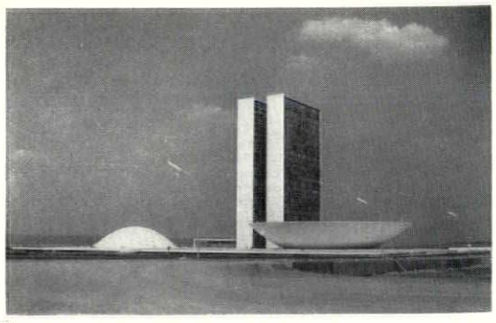
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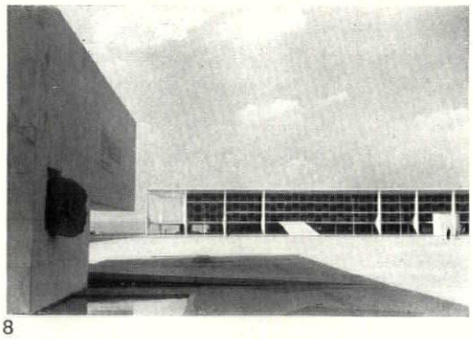
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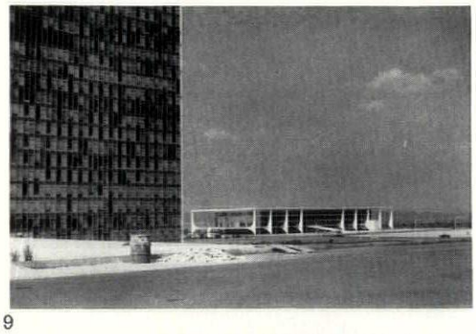
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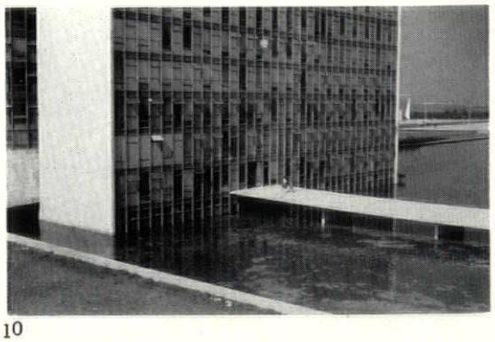
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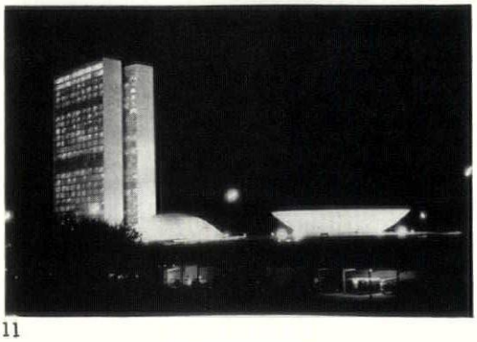
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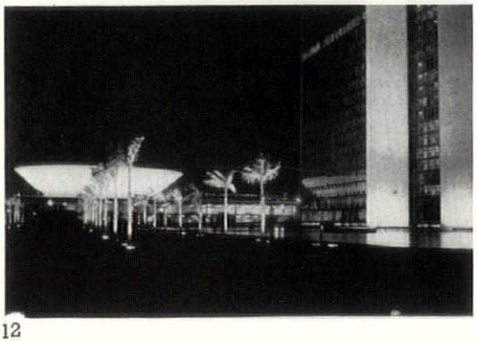
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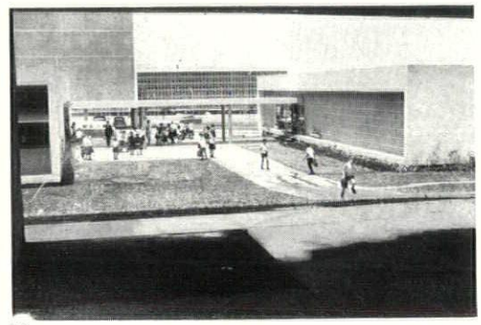
13, *the main traffic artery (south), with six lanes for express traffic in the centre and four lanes for local traffic on either side; in the distance, completed superquadras (housing neighbourhoods).* 14, *superquadra* 108 *(in the southern part of the residential belt).* 15, *the same.* 16, *primary school in the same superquadra.* 17, *looking from beneath one of the housing blocks in superquadra* 108 *towards a row of shops.* 18, *the new Avenue W3 (south), with shops on the left and houses on the right.* 19, *flats and houses for the Bank of Brazil on Avenue W3 (architects, Ney Gonçalves and João Rocha).* 20, *neighbourhood club in the same area (architect, Lucio Estrélita).* 21, *physiotherapy centre (architect, Glauco Campello).* 22, *meteorological observatory (architect, José da Souza Reis).* 23, *district hospital (architect, Oscar Niemeyer).* 24, *the uncompleted national theatre, also by Oscar Niemeyer, containing two auditoria and steeply ramped seating.* 25, *the bus station, by Lucio Costa.*



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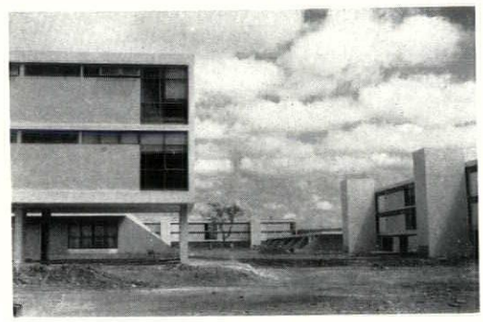

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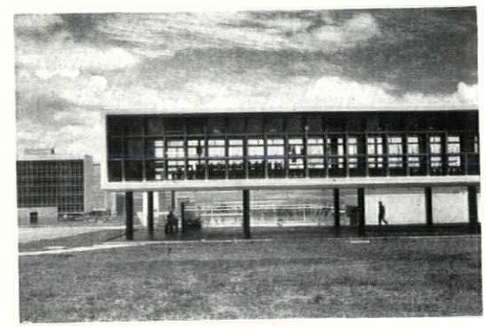

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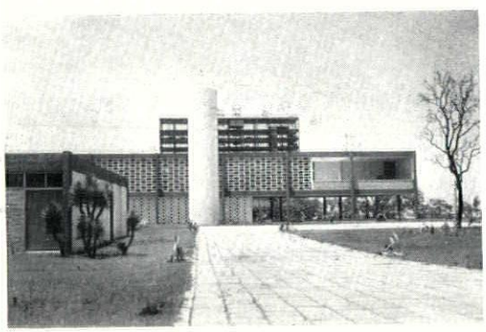

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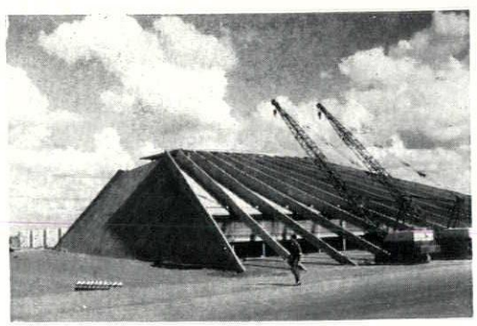

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continued from page 258

a rush-hour of respectable proportions surges from the Congress and Ministry buildings back to the residential superquadras. Within the last year, the superquadras have been coming to life, and at least one complete neighbourhood unit of four superquadras has been substantially finished. It has, in addition to the six-storey blocks of flats, groups of shops, a supermarket, a chapel, a cinema, nursery and primary schools, a club, and a clinic. It is possible to form some impression of the pattern and quality of urban life that is emerging here. The idea of residential neighbourhoods free of through traffic is, of course, a well-established one. What is new is the application of the idea to a complete city, and the confidence and tenacity of purpose with which the planners of Brasilia are asserting their belief that a full and decent life is possible within the town. The three enemies of town life—badly sited industry, uncontrolled motor traffic, and uncontrolled building speculation—are being held firmly at bay. It seems to be established here that life is possible within the town without relying on or being endangered by the motor car, and that at a density of between one hundred and one hundred and fifty persons to the acre it is possible to provide sufficient space for everyone, a framework for living that is urban without being congested.

Within this framework some few thousands of people, a lucky minority, mostly public servants, of the two hundred thousand now living in the federal district, have set up their homes. The motor car is not banned from the superquadra, but admitted on sufferance. In the morning come the coaches and minibuses provided by the various departments to pick up their functionaries and take them to work, and the superquadra re-echoes with the exuberant blowing of motor horns. There is also a public bus service, and many have their own cars. There is space enough for parking in the superquadra for everyone, still leaving most of the ground free for social use. The ground, in fact, is the community centre; informal social life, the street-corner and front-window life so essential to the Latin tradition, is in Brasilia transformed into the life of the pilotis. At times of festival people move down from their flats with furniture and decorations, and the pilotis and gardens become gay with Christmas trees, improvised fairs, or carnival bands, according to the season. All Brazil has come together to make Brasilia, and on these occasions you will find the food, the customs and the music of all parts of the country. It is from this fusion that a new and truly national culture is hesitantly emerging, product of the adjustment that each individual has to make in this challenging environment.







Above, temporary dwellings in the satellite town of Gama, and a distant view of the congress tower from one of the squatter areas. Below, in the Cidade Livre: a bus company advertises return trips to north-eastern Brazil, whence many of the construction workers come.

On to this common space, which flows without formal definition around and under the buildings, front the rows of local shops. Within it stand the schools; nearby, and in all cases accessible without crossing a major highway, are all the other buildings necessary for daily neighbourhood life. There is a sense of urban texture rather than of urban enclosure; the animation of the traditional street and square is there, but has gained in the second dimension, spreading loosely among the abstract geometry of the buildings.

The social achievement of the superquadras is more real than the artistic. Visually, the existing superquadras are decent but not distinguished. The architecture varies from good to humdrum. The flats are of adequate size, with the exception of kitchens and servants' quarters. Little attention is paid to the climate (indeed, until this year, no attempt has been made to collect simple data *in situ*), and identical flats are oriented in any direction, without regard for the sun. Through ventilation is rare, and balconies and terraces seldom provided. In laying out the superquadras the blocks are placed in a pattern which presents an appearance of order on paper, but less in fact. These strictures apply generally, but there are honourable exceptions, notably Helio Uchoa's disciplined superquadra for the IAPI pensions institute. Only a small proportion of the superquadras have yet been built, and the planners hope for a more varied architectural approach in future work, and perhaps for the collaboration of other distinguished names in Brazilian architecture, who have in the past twenty years caused us to apply such high standards to their work. By these standards it is not yet possible to be enthusiastic about the architecture of the superquadras. It must be emphasized, however, that the general level of attainment, judged by the standards of the average modern city, is very high—but in Brasilia, one raises one's sights.

Costa's original intention* was that all sections of society should live in the superquadras, and that these should be developed at various standards to cater for all classes. The ideal was laudable, but conflicted with reality in two ways: first, with the deep divisions between rich and poor in contemporary Brazil, and secondly, with the need for immediate housing for the workers, the immigrant labour who came, mostly from the impoverished north-east of Brazil, to build the city. The pattern that is now developing is this: the residential area of Brasilia proper is occupied by the middle and junior ranks of the civil service and employees of state and semi-state organs. All who can afford to do so are buying plots of land in the lakeside suburbs that have been added to the plan; these will become, in the sad old phrase, exclusive residential areas. The workers live at the moment in wretched conditions in construction camps and shanty-towns, from which they are to be removed to satellite towns elsewhere

**vide* Sir William Holford *The Architectural Review*, 1957

in the Federal District twenty miles from the capital they have built. Here they may erect on plots of land such shelters as they can, in the hope one day of a comprehensive and adequate programme of public housing. Such a programme is the most urgent need of Brasilia at the moment.

The population of Brasilia is thus scattered in various communities within the limits of the town plan and more widely throughout the federal district. Enormous areas for development have been sketched out on the ground with bulldozers and asphalt, rather as a painter sketches with charcoal on the bare canvas, to grasp more clearly what he is about to create. Apart from the fortunate few who by right or by influence have secured their place in the superquadras, people still have to face the problems of frontier life—problems of shelter, water, light, transport, and human comfort and assistance. To these, more recently, have been added problems of unemployment and hunger. Among these difficulties the inhabitants of the new capital nurse their incipient citizenship with a sense of hard times shared to good purpose.

The largest of the shanty-towns, the so-called Cidade Livre or Free Town, is now to stay. The Cidade Livre came into existence as a temporary expedient, to provide the pioneers with their necessities at a time when Brasilia itself was a city only of earth-scrapers and pile-drivers. It was here that the idea of Brasilia first flourished and found expression in the evolution of a focus of urban life and local pride. A lusty wild-west spirit pervades its streets, a mixture of idealism and buccaneering commercialism. Efforts were made to dislodge the inhabitants at the expiration of their temporary licences, but to no purpose; the community had taken root, and would not budge. The decision to recognize the inevitable and re-plan the Cidade Livre to decent standards is a wise one. The area is conveniently located at a distance of about ten miles from the centre of Brasilia, and there seems no better use for it than as a satellite. The spontaneous urban life that has grown up there is too valuable a thing to be destroyed; indeed, it is impossible to understand how Brasilia was feasible without taking into account the role played by the Cidade Livre; the one is part of the history of the other. Its unbuttoned, roistering atmosphere is in happy contrast to the elegance and formality of its august neighbour. Long may it remain.

The city itself has, however, with one exception, been executed with great fidelity and determination on the lines originally laid down by Lucio Costa. In spite of immense difficulties and of political and commercial pressures on every side, what has been built is substantially the idea that he laid down in those brilliant sketches of five years ago, the idea of which its author wrote 'I am merely liberating my mind of a possible solution which sprang to it as a complete picture, and which I had not sought.' Brasilia is being built in the same spirit.

The original crystal-like conception has, however, suffered one accretion. Early on in the development of the city it became necessary to build quickly accommodation for engineers of the development corporation and others. They were provided with single-storey houses of light but permenent construction on the west side of Avenue W3 (South). Shops to serve these houses, with flats above them, were then built on the east side of this street, which from then on quickly became the centre of the developing city. The banks set up agencies there, and the commercial houses and shops followed suit. Today the entire length of three miles of this street is in an advanced state of development, with heavy vehicular and pedestrian traffic. What was intended in Costa's original scheme to be a minor service road, part of the independent secondary system for lorries and supplies, has become a busy commercial street with shops on one side and housing on the other, visually monotonous and dangerous. In the north half of the town the corresponding street is to be developed with a scheme which avoids the worst failings of its predecessor. How much better it would be, however, to return here to the simplicity and beauty of the first idea, and to concentrate all development in the superquadras themselves.

The city centre has yet to come to life, though much has been built. It is here, in contrast to the monumentality of the national buildings, and to the precinctual character of the superquadras, that the animation and movement of the big city will be concentrated. It is here also that the most interesting experiment in traffic separation is being made. Provision for traffic is to be made under four heads: through traffic, local traffic and parking, secondary supply traffic, and pedestrian traffic. Separation is achieved partly by the use of different levels, partly by the use of different routes, and partly by the provision of zones and precincts. The system is complex, but carefully thought out, and constitutes the most original and brilliant part of the town-plan. It will be put to a severe test. Brasilia already has the highest proportion of vehicles to population of any Brazilian city, and traffic is already heavy. Public transport is by means of buses only. The success of the city will depend very much upon its roads, and the capacity of these will in turn be limited by the capacity of the central interchanges. Elsewhere, the road system, with its central artery of fourteen lanes fed by capillary routes winding among the superquadras, seems more than sufficient to bear future traffic loads. The central express lanes of the main artery lead directly to the city centre from its edge, without crossings or junctions of any kind; one comes to the end of the city in ten minutes, and gains the open country.

This immediate transition from town to country is one of Brasilia's most positive qualities. It has a mediaeval clarity and compactness of form. One arrives indubitably, at a definite instant, at the city; one is not slowly engulfed by mounting evidences of chaos and congestion. One comes over the lip of the bowl that surrounds Brasilia, after driving for hours through the semi-desert, and there the city stands, incredible, like a mirage. One approaches; one is there. It is a rare experience. For once, the random and conflicting forces that determine and confuse the growth of cities seem to have been overcome.

The completeness and inelasticity of the conception of the master-plan has itself aroused criticism. Costa explains that in this respect Brasilia was a unique problem, and is not an example to be copied in the case of other projects of a different nature. Brasilia did not spring, as most towns do, from the development of a region. It may be, and already is, the cause of such a development, but that is not its only, or most important, intention. It is, in his words, 'a deliberate act of possession, the gesture of pioneers acting in the spirit of their colonial traditions.' For this reason he gave Brasilia a deliberate and recognizable form, with nothing in it of the organic, spontaneous, vegetable-like character to which we are more used in towns which have developed with their own self-generated rhythms. Brasilia is imposed on the land; it does not spring from it. The conception is striking, and successful so far; one hopes it will be preserved against the pressures of future development.

In their battles to keep the idea of the city intact, the planners have had one great ally—popular opinion. Brasilia has been built, in spite of financial and organizational difficulties, because enough people wanted to build it, and were ready to go there and do so. It is this undercurrent of the public will which has preserved the city through changes of government and political upsets, and which has supported in their posts the two men whose conception it is. Brasilia is an element of stability and continuity in the swirling course of modern Brazilian history, uniting the nation in the consciousness of a great thing nobly accomplished, and in the desire to show the world something that the world cannot equal.

ID

a monthly review of interior design

Gallery in Dover St. W1

architects: David Rock and Robert Smart

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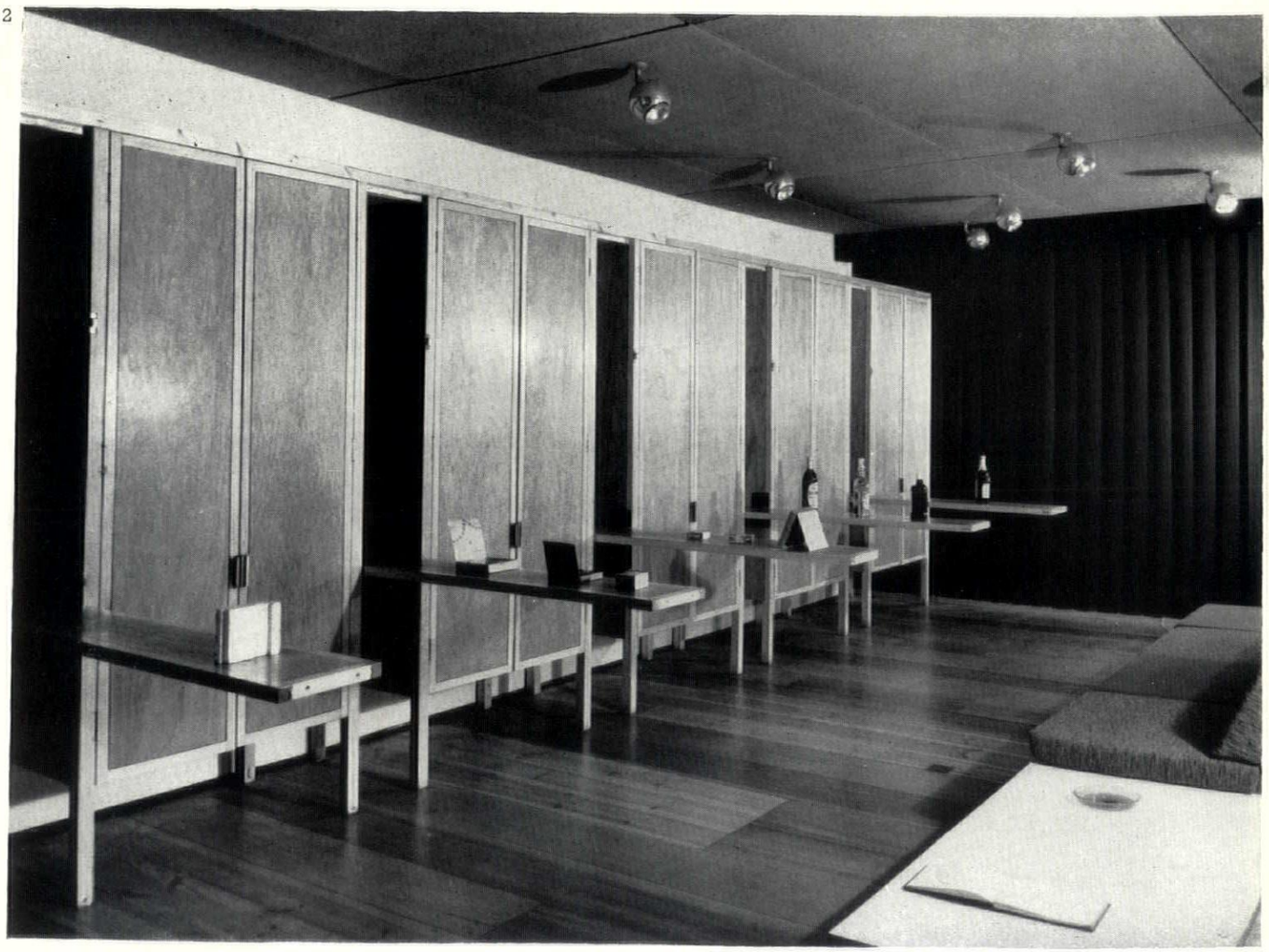

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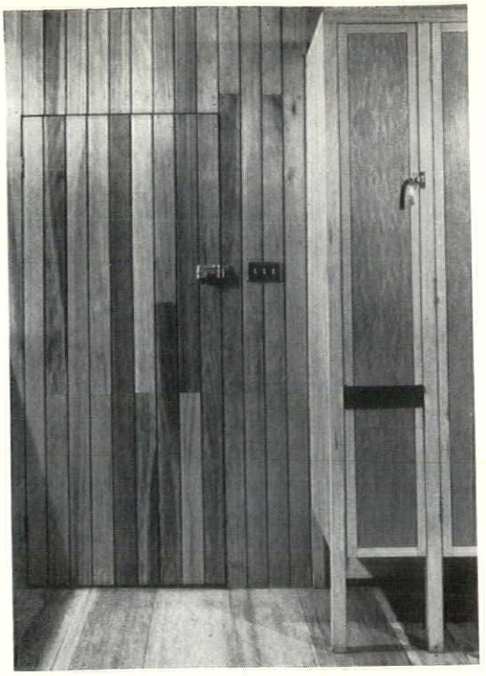
1. *detail of storage wall, with tables flapped up.*
2. *storage wall with tables down.*



4



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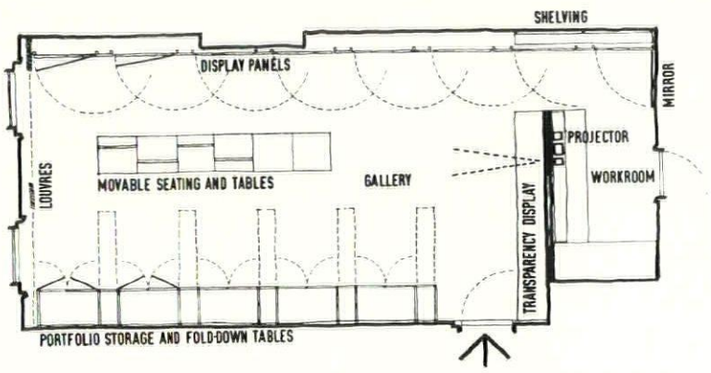
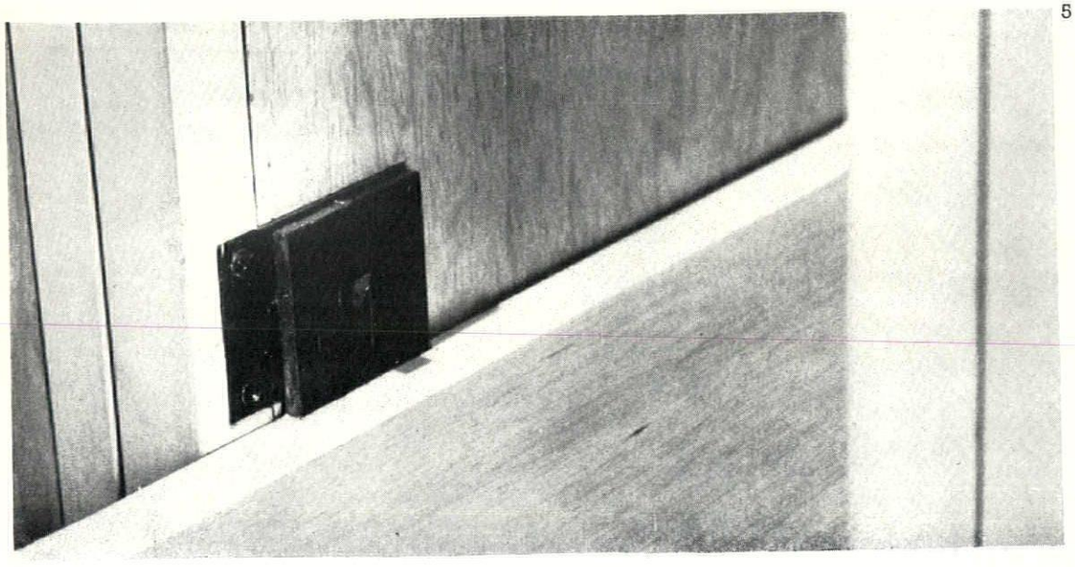
Not an art-gallery in the normal sense, this highly adaptable display space serves Artist Partners, an agency handling the work of a number of graphic designers, commercial and technical illustrators. The basic functional problem is the need to be able to mount a convincing and visually gratifying exhibition of representative work by a group of artists, while having further portfolios of work immediately at hand to be shown to clients.

ID ***Gallery in Dover Street***





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3, door from staircase, with one end of the portfolio storage at right.
4, display panels: hung about a foot in front of the structural wall, these afford pin-up surfaces on both sides, and on the wall behind, thus trebling the effective display space available on a simple wall.
5, the hinge of one of the flap-down tables, in plain black-enamelled mild steel. The detailing throughout the gallery is plain and blunt, almost functional traditional, and not purpose-made except where, as here, there is no suitable stock item, but—stock or special—all metalwork is used and placed with a sharp sense of the elegance of its contrast with areas of plain woodwork.

DR *design review*

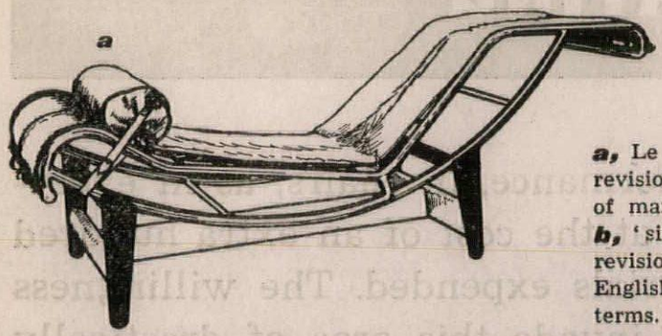
LUXURY SEATING

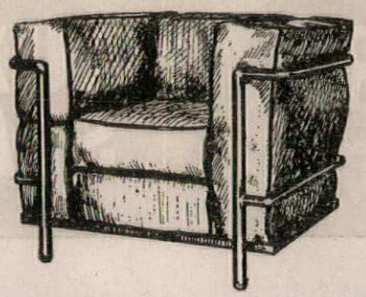
The last five per cent of performance, in chairs, as in everything else, is only to be won at the cost of an extra hundred per cent of energy and materials expended. The willingness of the Modern Movement to invade this area of drastically diminished returns, ignoring the principles of Economy and the demands of Social Conscience, is a telling tribute to the compelling power of absolute ideas—in this case, the idea of the absolutely comfortable chair. Among the noblest industrial products of our time are the Great Chairs, by Mies van der Rohe, Marcel Breuer, le Corbusier, Alvar Aalto, Eero Saarinen, Charles Eames, and others. It was—and is—of the nature of their greatness that they added a *continued over page*

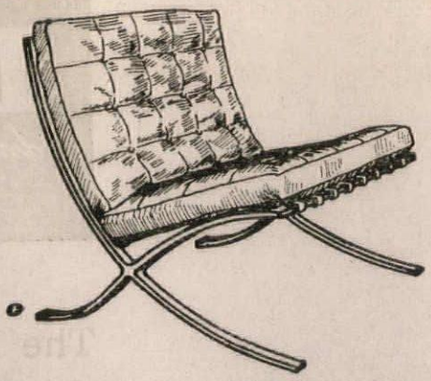


Charles Eames's 'Lobby' chair (Herman Miller/ Hille of London) with its generous black leather upholstery on an aluminium chassis, typifies the current trend to greater formality in luxury seating.

The Lesson of the Masters







a, Le Corbusier's 'Cowboy' chair: radical revision of posture based on the observation of man/chair relationships in Westerns.
b, 'siège grand confort' another Corbusian revision of a masculine sitting theme, the English club chair re-done in Machine Age terms.

c, Mies van der Rohe's 'Barcelona' chair: the X-frame of the neo-Classical curule chair turned side-ways for Twentieth Century sitting.

DR LUXURY SEATING

margin of superfluous luxury to the concept of a machine for sitting in, and a margin of sheer size over and above the dimensions needed to perform their fundamental functions of support.

Nor has this dream of luxury been restricted to heroic phases and particular schools of thought—at all times and in many places, Modernists have been beckoned on by the image of the superchair, and there have been consumers affluent enough to support them in the quest. Yet, in spite of the emergence of new materials and new forms, the basic rules of luxury seating have hardly altered since they were given definitive form by the classic chairs of the Twenties.

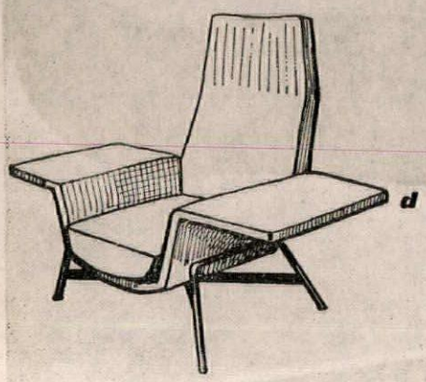
Le Corbusier gave two of the rules: in the so-called 'Cowboy' chaise-longue he introduced the concept of radically relaxed posture; and in the 'siège grand confort' the concept of utter upholstery in whose depths an equilibrium between resilience and gravity would cradle the sitter in a floating condition. To Mies van der Rohe's 'Barcelona' chair we owe the third basic conception—that of dimensional abundance, for the human organism is a persistent fidget and can never sit comfortably for long unless it can change position at fairly frequent intervals. And there is one further basic aspect on which the classics are agreed—leather, preferably black, which remains to this day the acme of de luxe upholstery materials.

Surprisingly little has been altered or added to these basic concepts, though advances in the available materials have paved the way for major improvements in performance—notably the use of resilient rubber webbing to support the seat cushions, and the use of foamed rubbers and plastics as fillers for cushions, padded arms and headrests. But the use of plastics as structural materials has hardly touched this field of chair design, however much it may have revolutionized the middle run of seating. We appear, currently, to be embarking on a phase of more formal sitting—the sprawler chairs of ten years ago, with their high permissiveness of variant postures, seem to be definitely on the way out, and are being replaced by chairs that need to be less permissive because they are better upholstered and better sprung, and tend to be mounted on various types of swivel pedestals, so that orientation can be altered even though only minor variations of posture are available.

Adjustability of posture through controllable seat and back rake, and the provision of accessory equipment, have barely begun to appear, but their ultimate arrival seems inevitable because of their provision on one class of luxury seating that enjoys ever-growing esteem and influence—air-liner seats. Any chair that allows a person to sit comfortably for up to fourteen hours in a closely packed environment must command serious attention. Even a first class air-passenger does not command 'Barcelona' dimensional standards, but the upholstery, posture, and range of posture-adjustment make this a nonpareil among chairs—and so it should be at its price. Few, if any, of the chairs illustrated on the next six pages can hope to rival the air-liner seat as yet, but it may be only a matter of time before the appearance of customers who are prepared to pay several hundred pounds for the privilege of sitting in jet-plane luxury in their own homes.

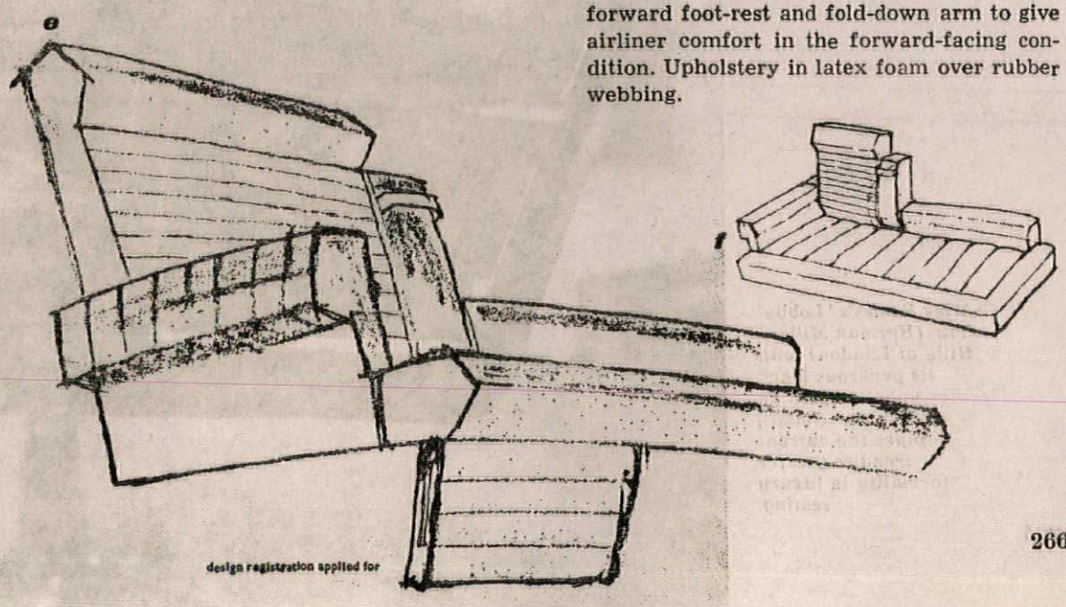
The Last of the Sprawlers?

d, Herrenberger/Knoll Model 457, designed by Otto Kolb; probably the ultimate term in postural permissiveness without mechanical adjustment.

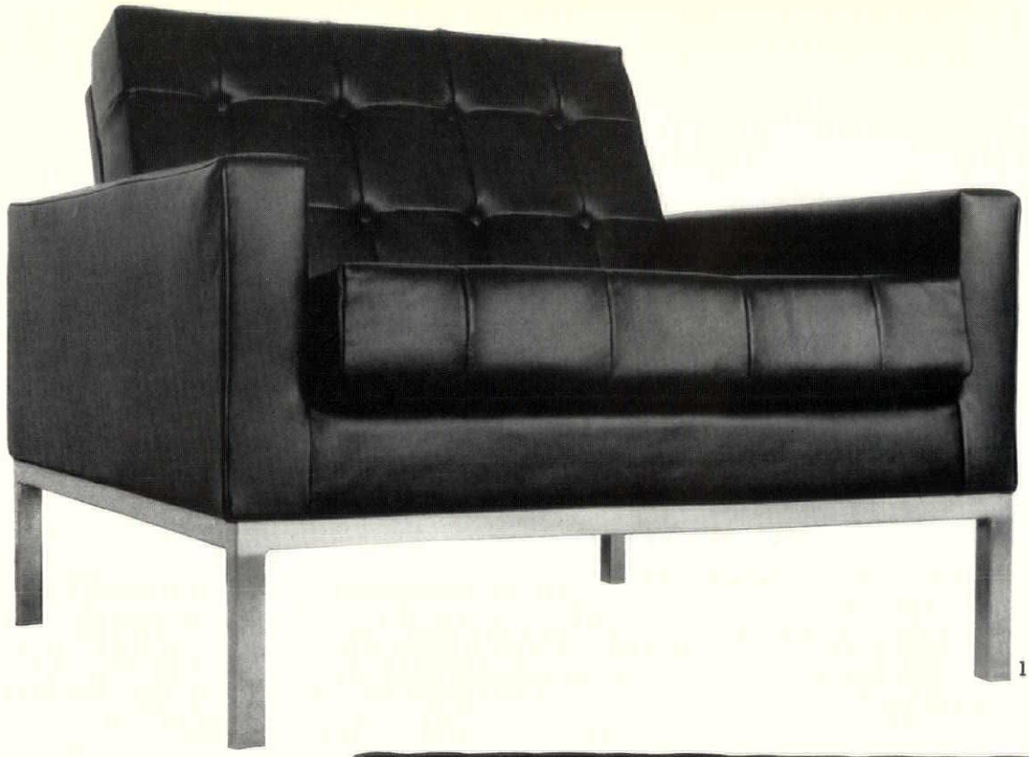


Towards the Jet-Age Super-Chair

e, f, Cedric Price's proposed combined/adjustable arm-chair/divan, with folding forward foot-rest and fold-down arm to give airliner comfort in the forward-facing condition. Upholstery in latex foam over rubber webbing.



club chairs



1

1, club chair designed by Robin Day (Hille of London, about £56): black leather over latex foam upholstery, carried on rubber webbing; chassis in satin finish stainless steel (alternatively, cloth upholstery and/or wooden chassis).
2, 3, settee and club chair in black leather with wooden chassis, designed for JOC (Sweden) by Karl Erik Ekselius.



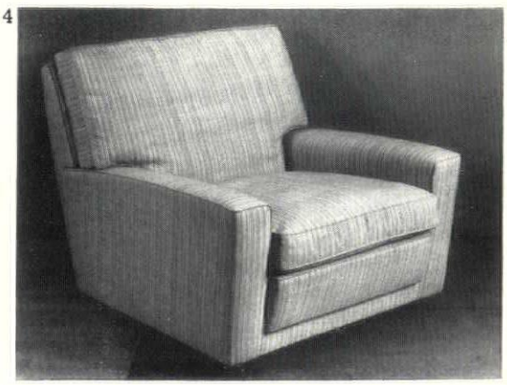
2



3

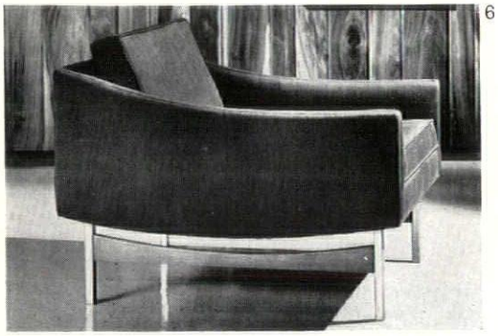
4, the club chair is still one of the products that the 'trade' does well, in continuance of an established tradition that goes back for almost a century. Here, designed by Howard Keith for HK Furniture, is a club chair with down cushions over coil springs, upholstered in a choice of different cloths for about £57.

4



5, club chair by Robert Haussmann for Swiss Design (available in England through Ryman's, Dover Street, W.1); king-size Continental version of the *fauteuil anglais*, upholstered in glove-skin with down cushions.

6, one of the better mass-production club chairs: Cintique's 'Italian' upholstered in cloth; wood and aluminium chassis, seat sprung by interlaced rubber webbing; price around £36.



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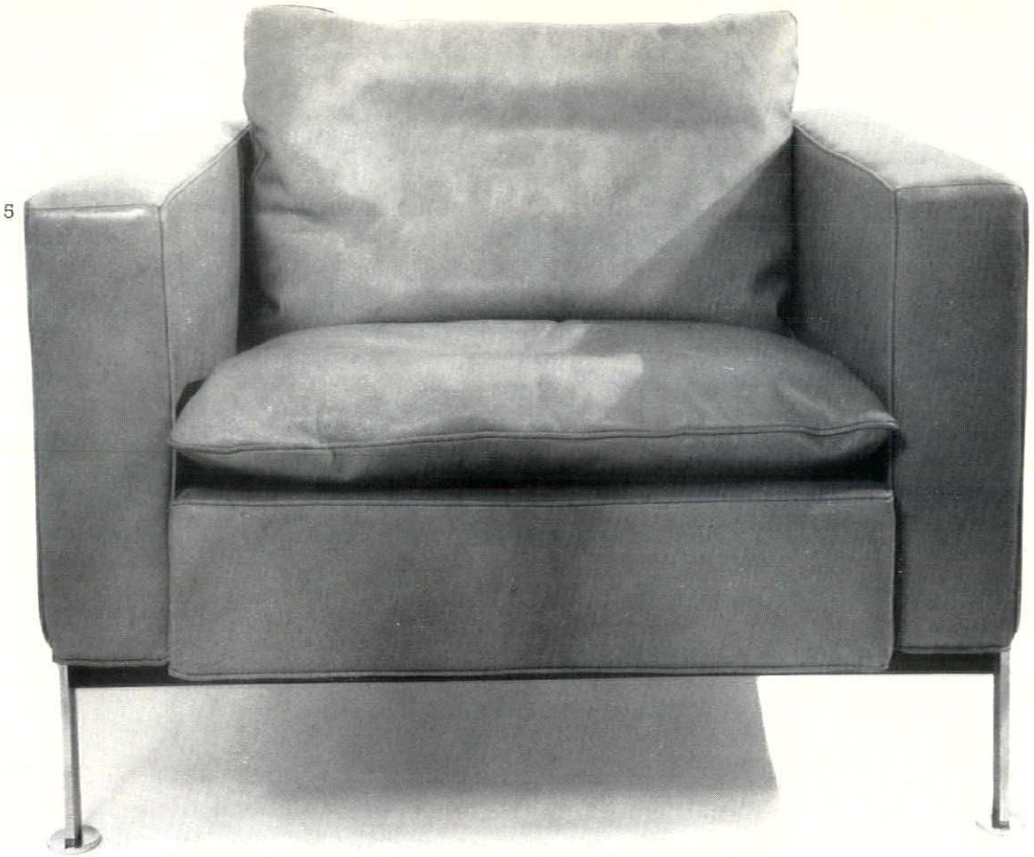


5

DR LUXURY SEATING

ottoman sets

7, 'Triennale' chair and stool designed by Michel Mortier for Siège Steiner, of Paris; latex foam upholstered in a choice of deep-pile materials, carried on formed ply sections and a chassis of wood and stainless-steel tube. One of the few successors to Charles Eames's famous lounge chair and ottoman that is comparable in looks and performance.

8, 'trade' version: G-plan Model 6250; four-inch latex-foam seat cushion on rubber webbing, back upholstered in latex over coil springs, rosewood chassis. In spite of its overblown styling, this chair and ottoman set goes a long way to justify both the maker's sweeping claims for its comfort, and its high price—over £62.



8



7

high performance chairs



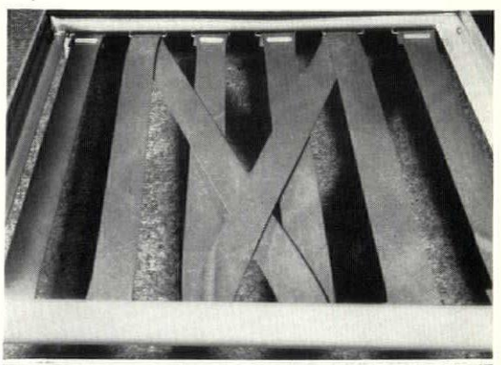
9

9, 'Kurva' chair (Swedish, available from Heal's) designed by Yngve Ekstrom; by no means an ultimate design in terms of absolute comfort, it is outstandingly the most comfortable posture chair on the international market: price, in sheepskin with laminated wood frame, just on £33.
10, arm-chair in black leather, rosewood and stainless steel, by Sven Dysthe (Norway): available from Heal's, £52 10s. 0d.

11, 12, 'Sheppey' chair by Ernest Race (designer and manufacturer), one of a number of alternative versions that can be assembled from a standard set of interchangeable mass-produced components. This version, WH1, with high back and wooden arms, around £22. Its performance fully justifies its inclusion among the world's luxury chairs in spite of its competitive price. The secret of its performance lies largely in the manner of interlacing the rubber webbing in the chassis, 11.



10



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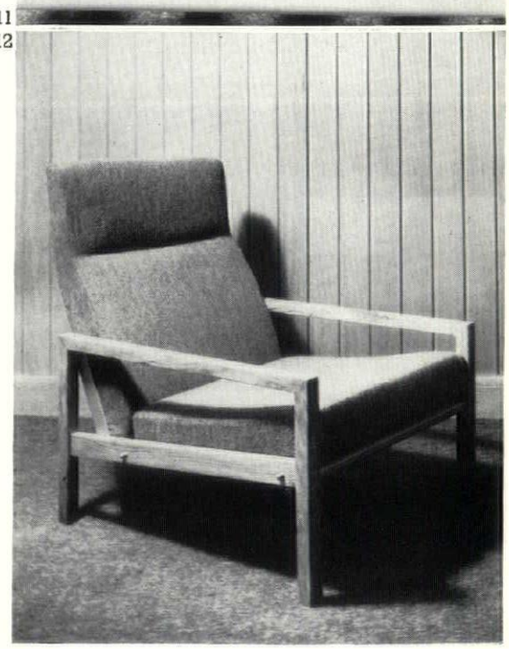


12

adjustable seating

13, the king of chairs—first-class seat units for Rolls-Royce Boeing 707's, designed by BOAC development team and now safely through their acceptance trials, to be built by Microcell. Adjustable for rake and leg-room, equipped with ash-trays and built-in shelf between the seats—ancillaries that are taken for granted in air-travel, and may soon be required for domestic seating (cf 25, page 272).

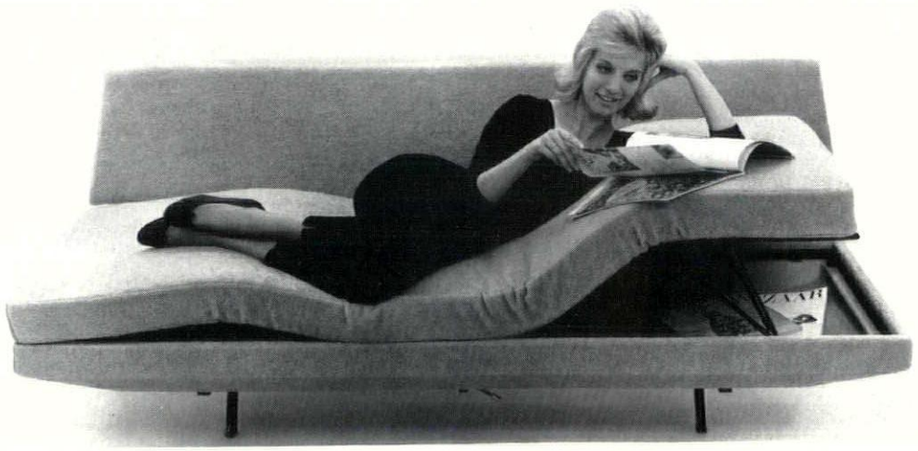
13



14



15



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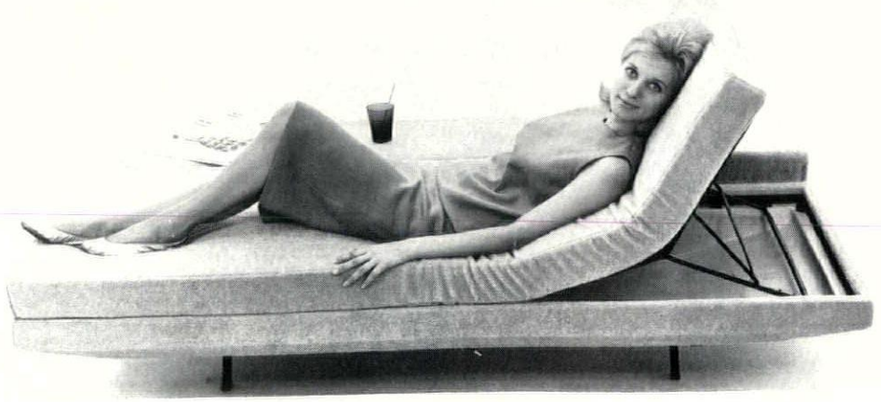
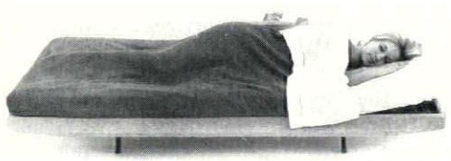


14-17, 'Relaxy-matic' divan designed by Paolo Tilche for Busnelli-Export of Milan: foamed latex over rubber webbing, moulded plastic chassis-shell, steel legs and adjustable supports: probably offers the world's widest range of posture options, from settee to double bed, by way of a variety of intermediate conditions.

17





18

18, 'Fragoli' by Gilbert Steiner for Siège Steiner, Paris: completely removable latex foam upholstery, in cloth, over tubular steel frame, chassis in stainless steel.

19, the pedestal chair returns to its origins in the executive suite, but in over-scale, de luxe form: Multalum Model KM26S, designed by George Kasparian, aluminium chassis, alternative coverings include hide as well as cloths: available from Ryman's, price about £52.



19



20

20, DH62 pedestal chair designed by Robin Day, for Hille of London: latex foam in cloth, seat cushion carried on rubber webbing, arms upholstered in black leather: price about £83, ottoman and matching table available.

21, institutional luxury: pedestal chair in fabric and stainless steel, designed by Toivi Korhonen and Esko Pajamies for the School of Social Science, Tampere, Finland: already beginning to appear in Finnish domestic interiors.



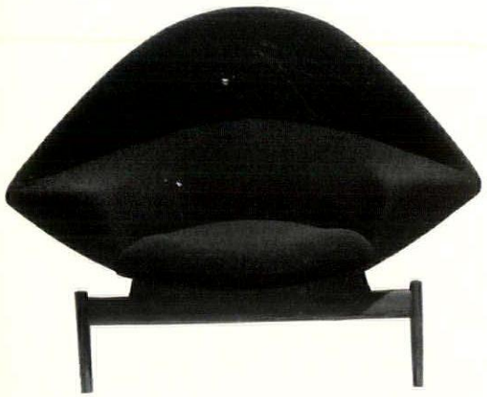
21

pedestal chairs

22, 'Carp' chair, by Aidron Duckworth for Vitafoam, a lightweight hollow double-shell reinforced polyester moulding on an aluminium pedestal-base designed by William Plunkett.



22



23

23, the same chair on an alternative wooden chassis. A prototype only, the future of the 'Carp' chair in either version is at present uncertain.

24, Martin Grierson's prizewinning chair in the *Arflex* competition; about to go into production and to be marketed in England by Darflex: moulded plywood seat structure and arms/back unit, leather upholstery: price to be announced.



24

DR LUXURY SEATING

integrated luxury



25

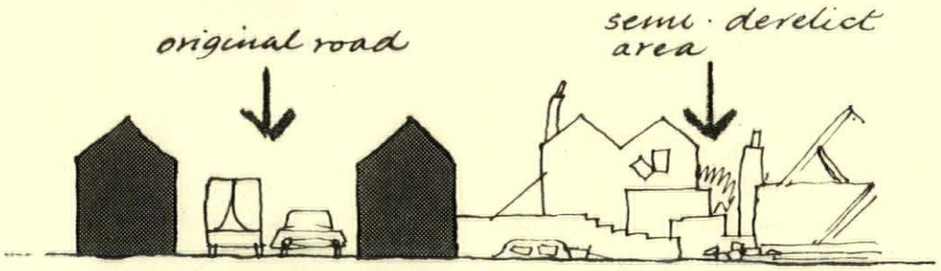
25, an aspect of luxury seating not represented in the foregoing pages—an integrated modular seating system with ancillary equipment such as ashtrays and reading-desks clipped into the uprights, conceived as part of a complete interior design—metre-square chairs and tables in the living-room of Vittoriano Viganò's own flat in Milan.

Ian Nairn and Richard Reid

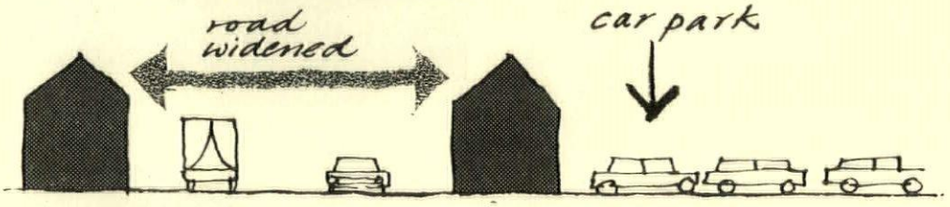
DERELICT LOT INTO MARKET PLACE

So many of the bad things that go on in English towns are good things done in the wrong way. When it comes to putting flowers on the roundabouts, or other forms of killing with kindness, the problem of transmuting bad into good is difficult, subtle and personal. But one of the simplest and most common operations carries no emotional overtones and a simple rearrangement of objects can effect the change.

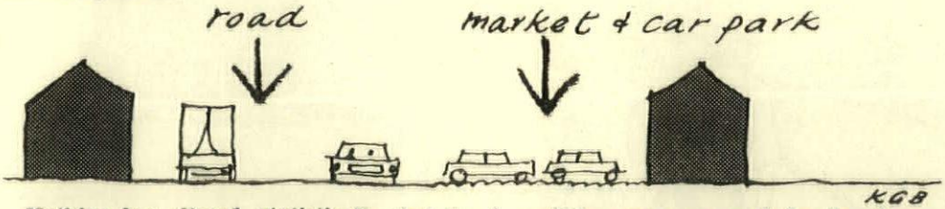
The operation is roughly as follows, and it is happening all over the country in the older industrial towns and villages. The original narrow road in the centre has to be widened, or old property in it has got to a hopeless state and has to come down. Behind it is an area of old housing which is cleared or a desert of rubble, sometimes twenty or thirty years old. A car park is



needed in the centre. So the street is rebuilt to a new improvement line and the cars go behind in an unlovely urban cabbage patch.



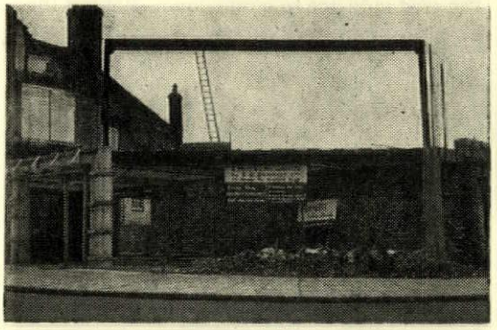
Now, rearrange these elements, by the simplest means and something very different becomes possible.



Nothing has altered, statistically, but the town or village now has the possibility of a central space, something it may never have had before. It also has a venue for the occasional street market, which at the moment often tries to get going in the most unlikely conditions, as some of the photographs show. The examples chosen try to explore a set of places each with different shapes and patterns but with a common potentiality—an area in the middle that could become a car park for five days and a market for two. In each of the examples there is no central space at the moment: in each of the examples a similar sequence of events is happening or is going to happen. The order in which they happen and the relationship of the finished parts is the thing. Ham and eggs can be crude irreconcilables on a plate or an expert and exciting combination: statistically, they are still the same.

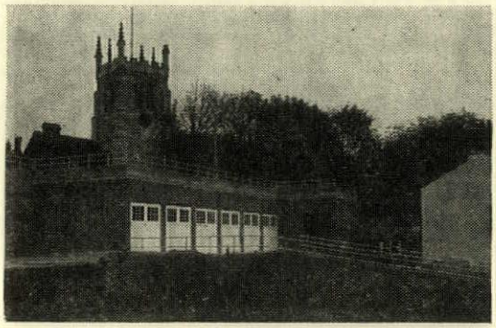
1 NEWPORT PAGNELL

Here the opportunity has been and gone. Demolition of a big area on the corner of St. John Street and High Street could have given the town a focus which it has never possessed, even though it has always been a rural centre. A complicated hillside site could have made possible a set of diminishing squares up to the church at the top. Instead,



1

setbacks and splay corners have produced a rebuilding which can be premised from the first unlovely fragment of the structural framing, 1, whilst the back land is taken up



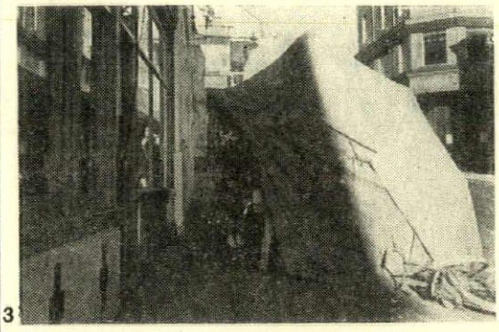
2

with an equally unlovely car-park, 2. What a waste of a grand opportunity, especially as Newport Pagnell, on the M1 midway between Luton and Northampton, is bound to attract more industry.

2 LUTTERWORTH

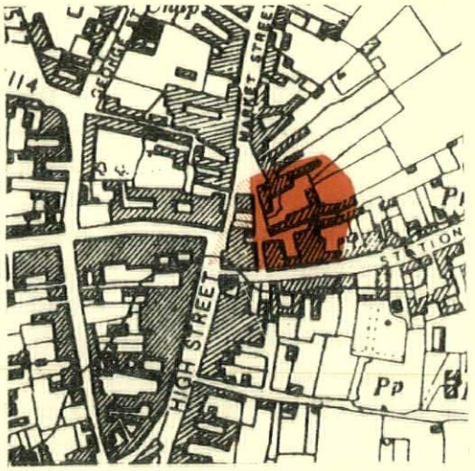
It is what is about to happen in Lutterworth which led to the general idea of this article. It is one of those places which has the shape, buildings and location of a town but the amenities of a village (no multiple stores; the only cinema closed recently). It is the opposite of the small village cruelly enlarged to become somebody's overspill; it has a population of three thousand which could easily become ten. And there is another complicating factor: it is eight miles to Rugby, thirteen to Leicester and fifteen to Coventry. All are within commuting distance on the wide Midlands roads. The joke is that some of the commuting works in reverse; there are factories in Lutterworth whose workers prefer to live in Coventry. At the moment, who could blame them?

Market Street, at the north end of the town, is one vehicle wide. Traffic coming from the northern end of M1 has accentuated a situation which would have happened anyway. To remove an uncomfortable one-way working, the buildings on the east side are to come down. Behind them, on a site which is already cleared, a block is to go up—designed, fortunately, by Michael Lyell; the details are not yet fixed and hence we have had to put the elevation behind a row of trees. For the space in between, nothing definite is proposed, a tentative car-park, perhaps. Yet, at this very moment, a



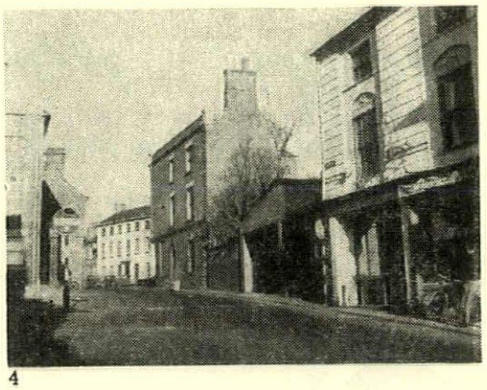
3

local market is operating as best it can on the pavements, 3. The inference is obvious; transfer the market to the space which seems made for it and which can become a car park on four or five days a week. Richard Reid's drawings show both possibilities, with comparative photographs, one view looking north, 4 and 5, the other looking south, 6 and 7.



map of town centre (red area already cleared, hatched area proposed road widening)

4 and 5. Looking north up Market Street. The buildings on the right-hand side of 4 will be demolished. Behind them (behind the screen of trees in 5) a new building is to go up designed by Michael Lyell. The space in between could easily become a small market place, 5, . . .



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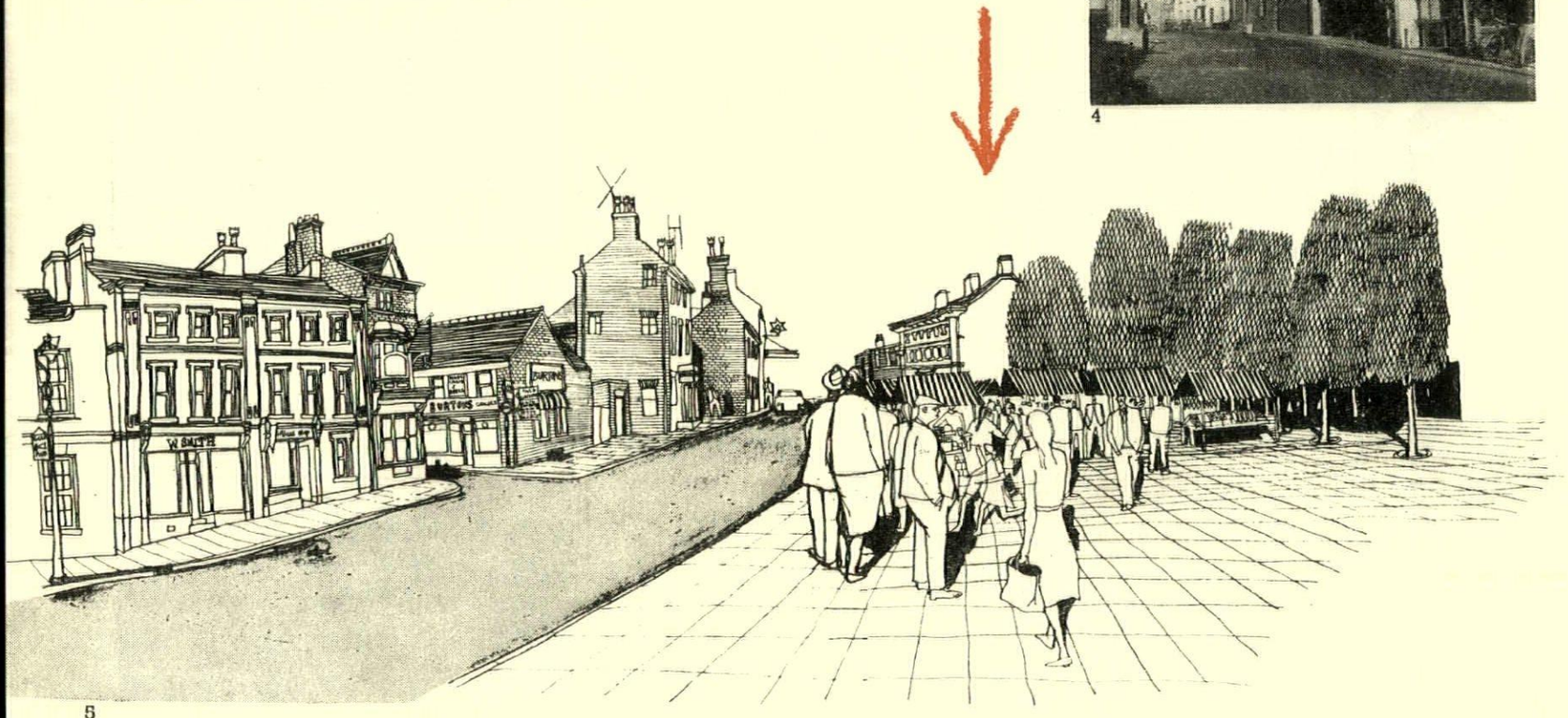

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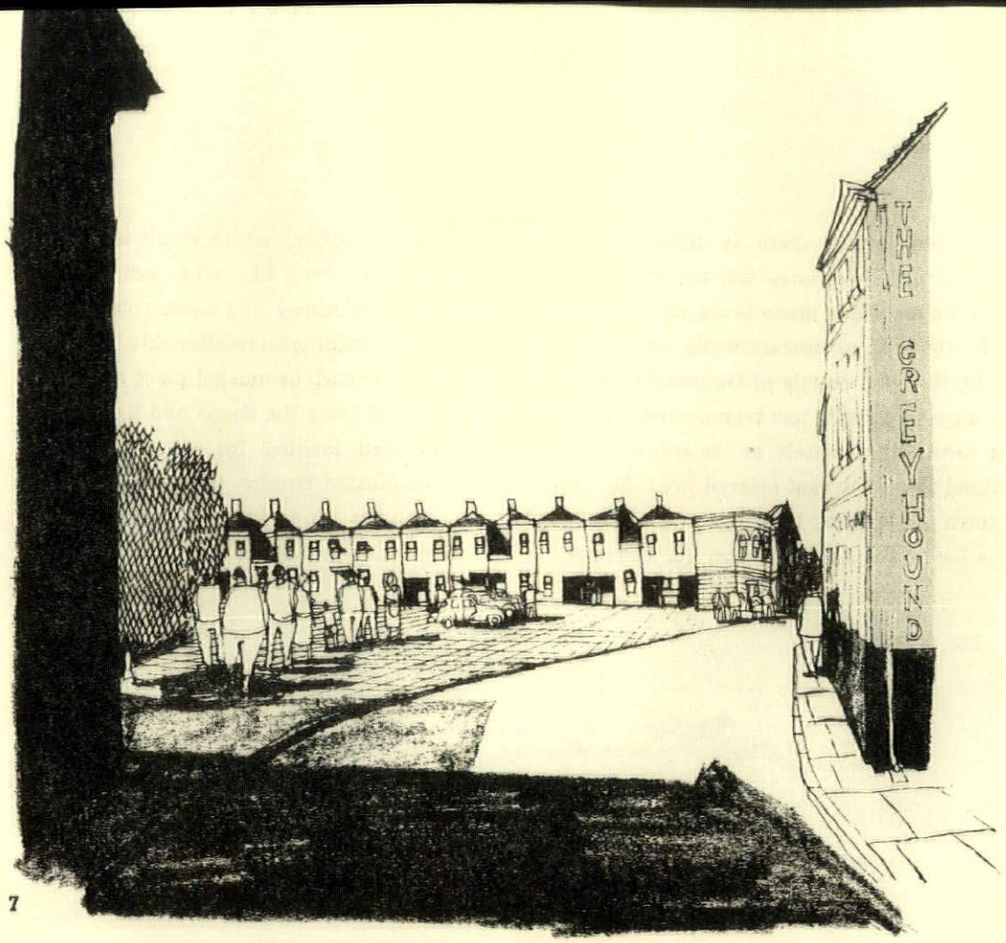

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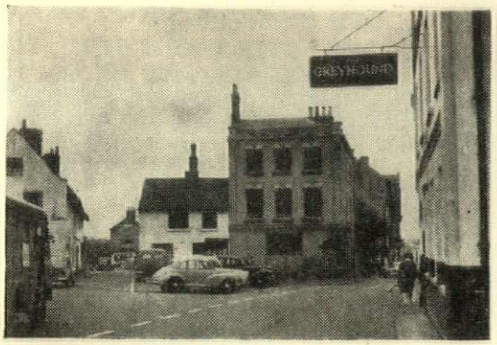


6

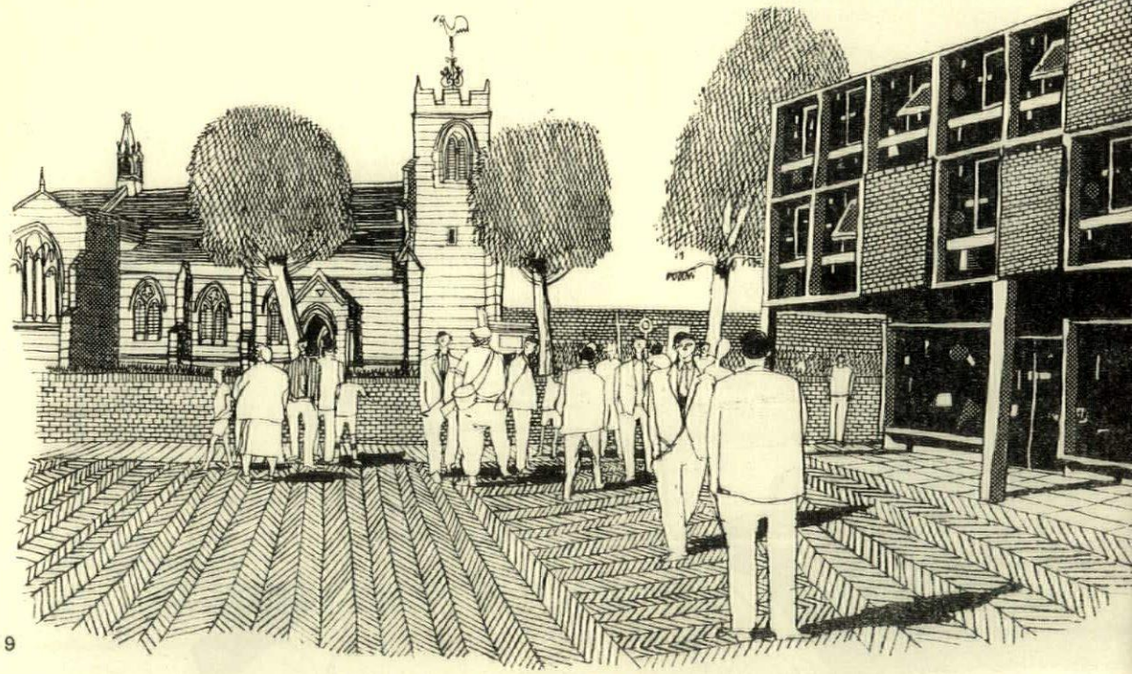
. . . *and could still become a car park when the market was not needed,* 7. *This is the opposite view, looking south towards the High Street. The present state is shown in* 6*; all the buildings between the two roads are to come down.*

3 BEDWORTH

This is a small coalmining town between Coventry and Nuneaton, and here nothing has happened yet. A big area beside the church has been cleared and—again, the tell-



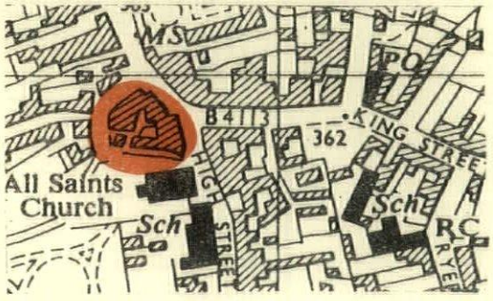
8



9

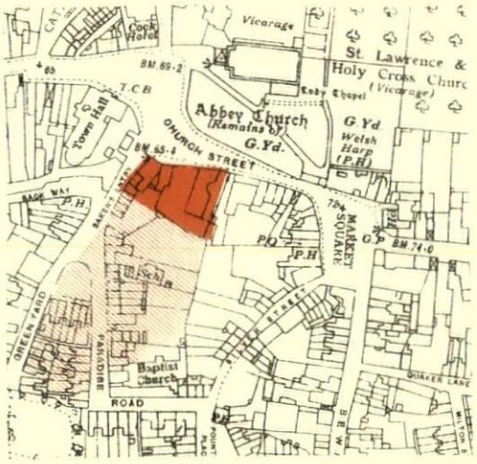
tale sign that something is needed—a market is trying to get started on a pitifully cramped pavement with industrial traffic thundering by a few inches away from the cabbages, 8. **Combine all the separate natural pressures and the derelict area becomes the market place,** 9, **backed by the church and enclosed by new shops. All the components are there now; they only need rearranging.**

8, *the present state of Bedworth High Street, which carries through traffic and has a market squeezed in uncomfortably on its fringes. On the extreme left is a site stretching back to the church which is already cleared and which could provide both a new shopping centre and a better place for the market,* 9. *This is a case where left and right hands do not know that they are wearing each other's gloves.*



map of town centre (red area cleared land)

4 WALTHAM ABBEY



map of town centre (red hatched area already demolished, solid area suggested demolition)

The opportunity here is tremendous and would finally remove the contrast between great church and mean town. At the moment, the abbey is an unexpectedly large incident (the size of a couple of Gaumonts, say) in a village street that has been pushed into being a town. Immediately to the south, Paradise Road is now a vast cleared area. By taking down the existing buildings in Church Street as far as the double arrow, 10, and creating a square at the back which would include the displaced owners, 11 (why not Paradise Square?) the Abbey and town could at last come into meaningful relationship. The space could be car park or market place at will, the town would have the shape and focus which it has been lacking for so long—for the existing Market Square, though tempting on the map, is tiny and has traffic rushing through it.



10, *Waltham Abbey from Paradise Row, a big cleared area to the south. Potentially, this could be one of the best town centres in outer London, a long thin market-place with the abbey church, end-on, closing the northern end. What prevents it at the moment is the line of buildings in Church Street between the single and double arrows. If they were rehoused in new premises fronting the new market place the end effect could look like* 11.



11

The technique has plenty of pitfalls—it could easily lead to the creation of yet more fragmented and flower-bedded spaces. But it is easy to understand, it simply rearranges what is happening anyway, it presents no big administrative problems (because the council often owns the cleared land) and it provides visual and social amenity without losing parking space or rateable value. It is worth a try.

Office Building, Motherwell

ARCHITECTS: KEPPIE, HENDERSON AND PARTNERS

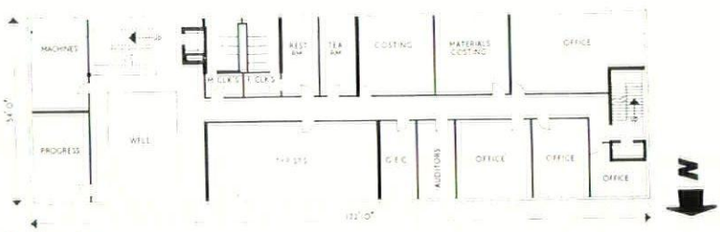
In an industrial and mining area south-east of Glasgow. The building provides 43,600 sq. ft. of office space on four floors, with storage space in the basement and a directors' suite in a penthouse. The layout of the ground floor offices is fixed; on the upper floors complete flexibility was

1, *from the north-west.*

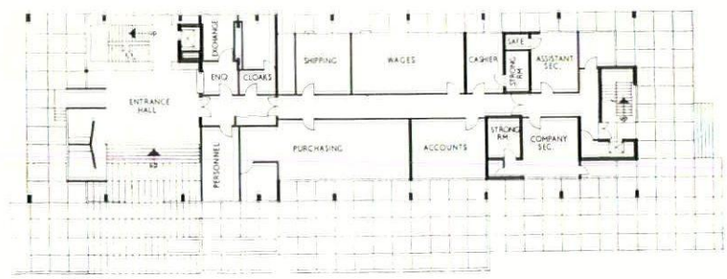


Office Building, Motherwell

2, *the entrance hall on the ground floor with the first-floor gallery above.*



first floor plan



ground floor plan

required for subdivision of the space into small clerical offices or large drawing offices. The site is alongside the stockyard of a steelworks and a main railway line, and windows are therefore double glazed against noise. Construction is a reinforced concrete frame and floor slabs, with structural mullions on the upper floors spaced 5 ft. 4 in. apart.

On the ground floor are steel windows and plastic panels in aluminium sections; on the upper floors, timber window units (afrormosia) set in main frames of iroko, with the panels below the windows in vitreous enamelled steel, backed with insulation and asbestos-cement sheeting. The main stair, which rises through the two-storey entrance hall, is steel framed with hardwood treads, risers and balustrade. The penthouse is constructed of timber, with aluminium sliding windows in hardwood frames. The building is heated by two oil-fired boilers serving convector heaters under window-cills.

Structural consultant: William Marshall.

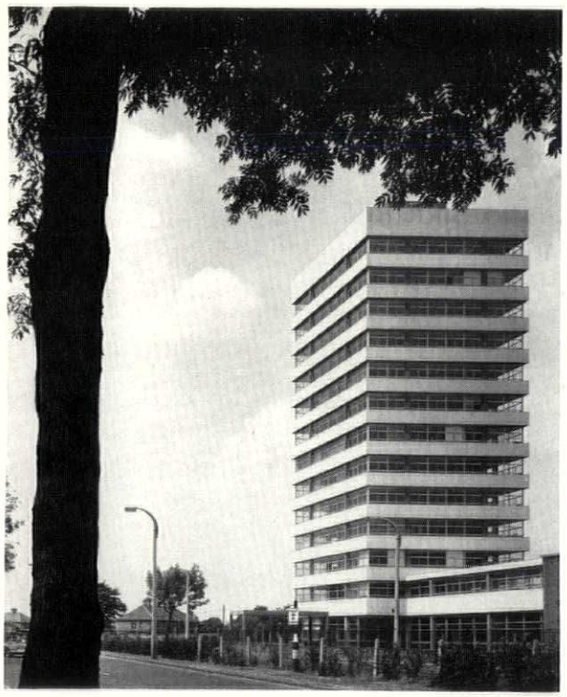
Office Building, Neasden, London

ARCHITECT: DENNIS PUGH

A thirteen-storey tower block with a two-storey wing linking it to an existing warehouse building belonging to the owners (Radiation Ltd.). The site is on the North Circular Road, in a semi-industrial area, and the building thus conforms to the current need to decentralize offices in the London district; 30,000 sq. ft. of office space are provided. The small departmental groups in which the firm works, as well as the restricted site, justified the planning in the shape of a tower with a relatively small area on each floor.

The structure consists of reinforced concrete columns and edge beams, in situ coffered floor and roof slabs and reinforced concrete walls to the central lift, staircase and service core. The edge beams are faced with slabs of travertine, held in position by bronze clamps. Windows are sliding, of aluminium, and have gutters at cill level (the face of the glass being set back) which discharge rain-water into downpipes in the corner mullions. The building is partially air-conditioned.

Consulting engineers, Ove Arup and Partners. Quantity surveyors, Davis, Belfield and Everest.



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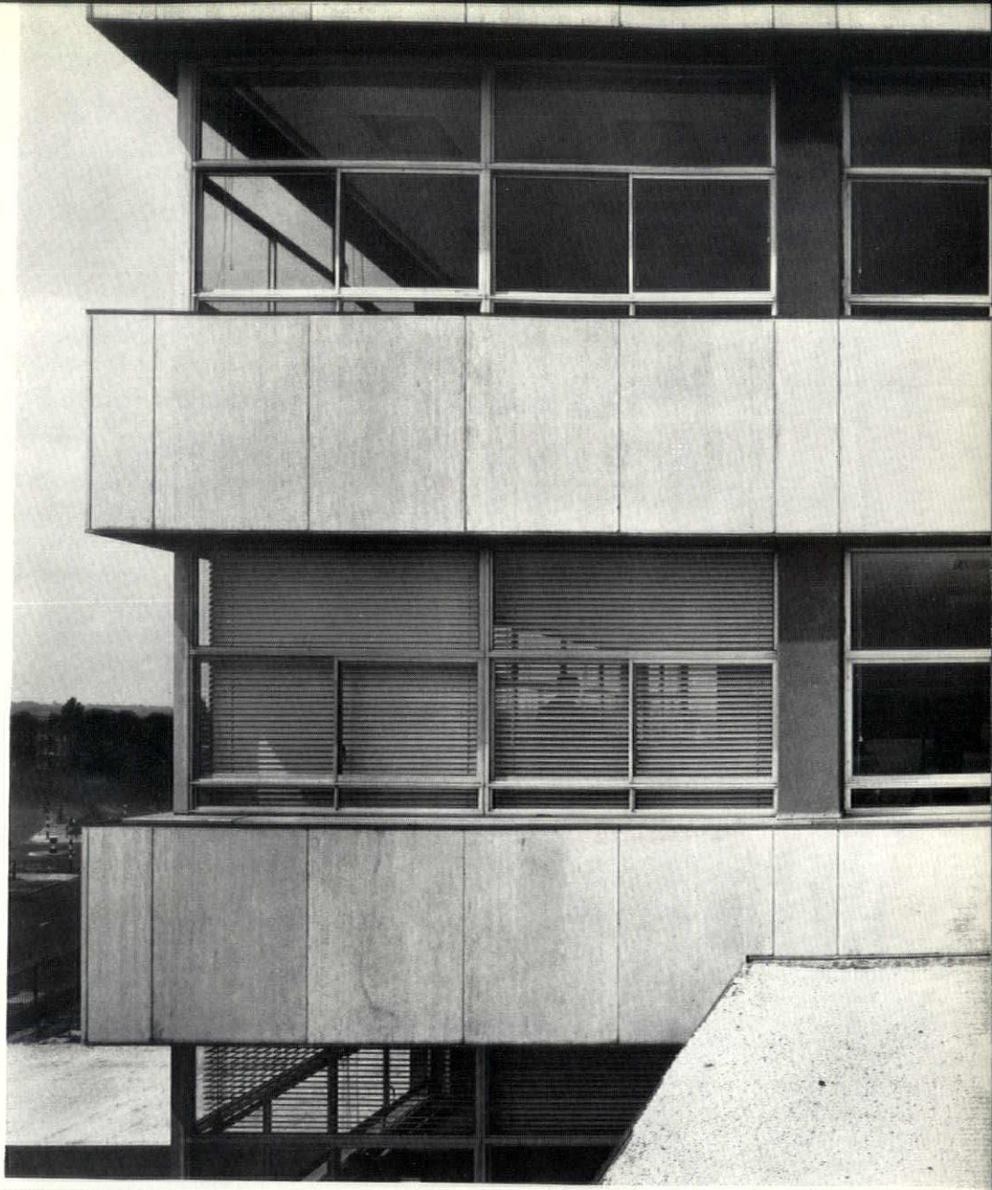
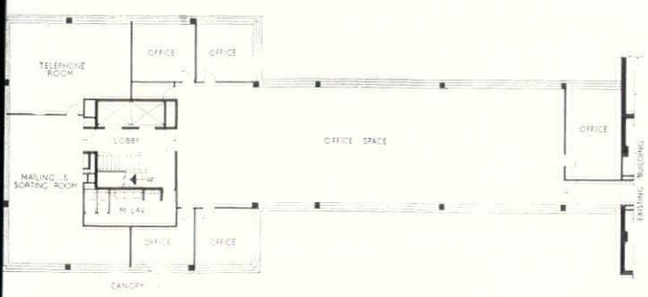


2



3

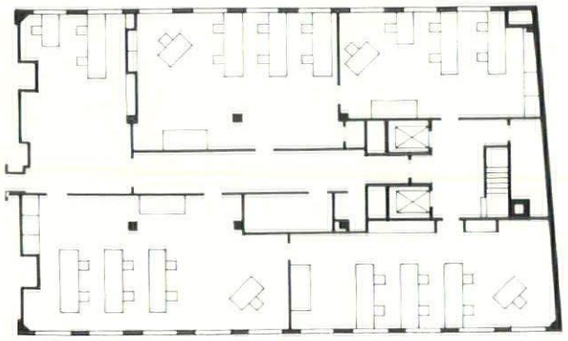
1, from the North Circular Road; the two-storey link is on the right. 2, close-up of the tower block. 3, the entrance hall on the ground floor of the tower block.



rst floor plan

Office Building, Albert Embankment, London

ARCHITECTS: CLIVE PASCALL, PETER WATSON AND ASSOCIATES



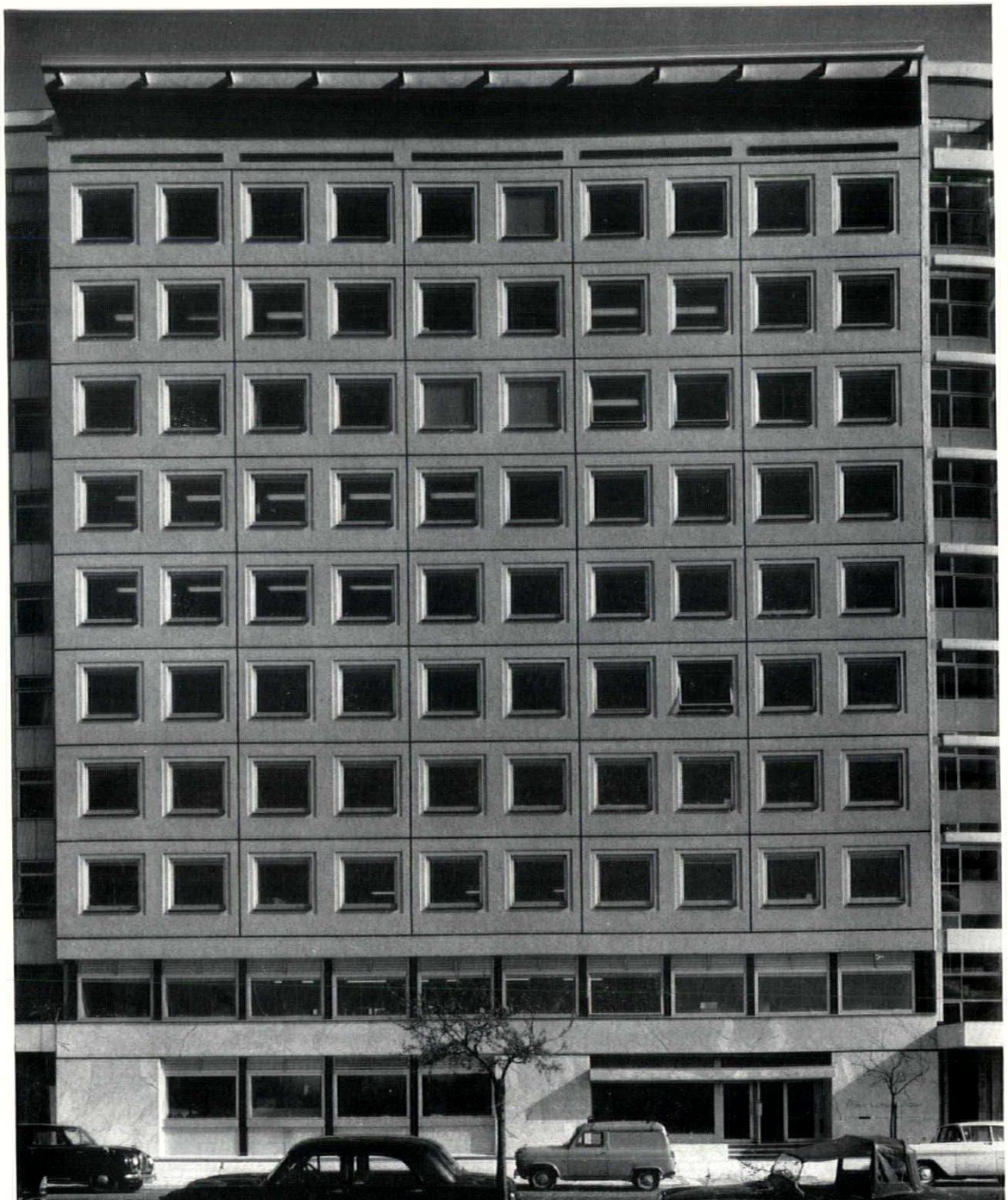
typical floor plan

One of the row of buildings that have been constructed since the war to form a continuous frontage along the south side of the Thames between Lambeth Bridge and Vauxhall Bridge. Called Prince Consort House, it therefore consists externally of a two-dimensional main façade (illustrated here) facing the river and a rear façade facing the railway embankment. The building contains ten storeys of openly planned office accommodation, with lifts, stairs and services grouped at one end, over two basements.

Construction is based on a system of solid, in situ reinforced concrete external walls without columns, punctuated by windows, with six internal reinforced concrete columns and concrete floor slabs spanning between the two. The external walls are 7 in. thick with 2 in. of wood-wool on the inside used as permanent shuttering as well as for insulation. Externally they are subdivided to facilitate jointing and faced with mosaic, the joints being formed of aluminium channels. The windows, of aluminium, are double glazed.

Consulting engineers, Gee, Walker and Slater.

1, *from the Albert Embankment.*



EXHIBITIONS

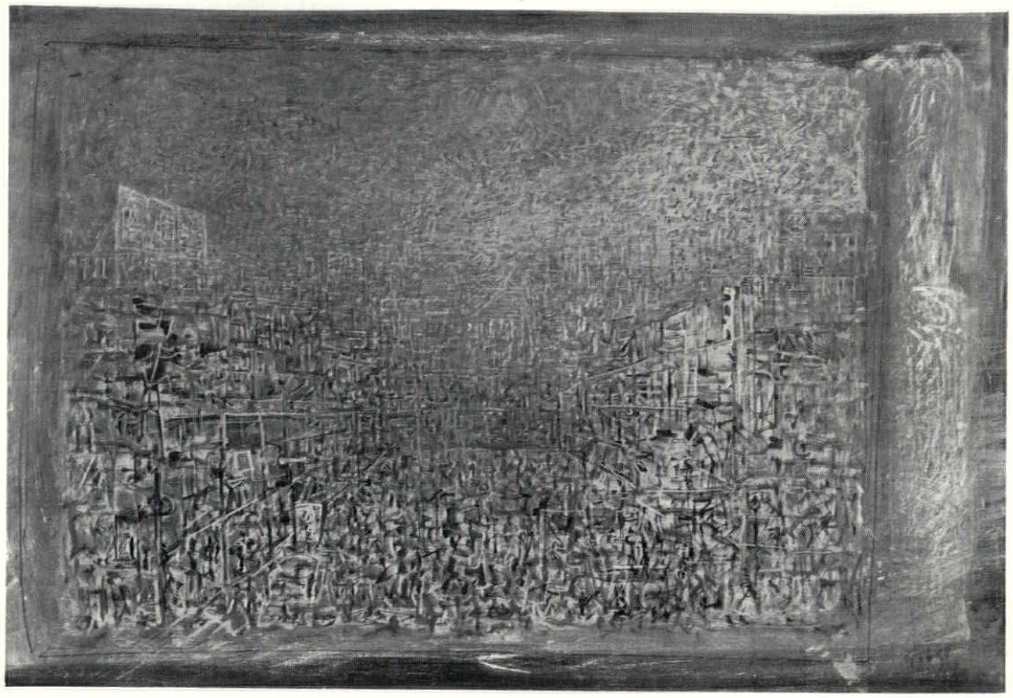
PAINTING AND SCULPTURE

Apart from that dreadful ballroom on the first floor, the Arts Council's rooms at 4 St. James's Square would have been better for Mark Tobey's paintings than Whitechapel. When the big Rothko paintings were at Whitechapel, the gallery took on a rich, intimate look as if it were hung with velvet curtains, but Tobey's Retrospective couldn't cope with the size of the place. There were plenty of pictures, but they were not large and they were too close-textured to yield an image from a distance and couldn't ward off competition from the many bits of wall on view; so the gallery became a gaunt, inhospitable barn of a place.

Bryan Robertson remarked in the Tobey catalogue that 'the paintings need slow and thoughtful attention, at close quarters: they are not display pieces and their quiet spirit is not helped by the artificial framework of a temporary exhibition.' I think they are as much display pieces as the big Rothkos: it's simply that they're display pieces for smaller galleries than the Whitechapel, and they are in no more need of slow and thoughtful attention than the large-scale paintings by Americans. A broadly handled Rothko provides as much excuse for contemplation as an intricately textured Tobey. You just sit a bit farther away. A good stare at one of Tobey's panels filled with beautiful, arbitrary, closely written script will leave one half mesmerized, and a good stare at a red and brown Rothko will give one the sensation of groping through a tender darkness. In the case of the Tobey, one can play with the idea of breaking the code of the script and finding directions for reaching Nirvana. In the case of the Rothko one can fancy that if one were to go deeper into its darkness one would suddenly be there. The best works of both painters tempt one to daydream, not to think. If I prefer Rothko it's because in front of his work I have the sensation of actually starting on a journey.

It's a question of pictorial space. Let me quote Bryan Robertson again. 'Tobey is concerned with space, with movement in space as well as equilibrium and repose in space. . . .' I find this statement disconcerting, for it's probably true and yet when I look at a Tobey I feel *deprived* of space. As I see it, his concern with space is to blot it out.

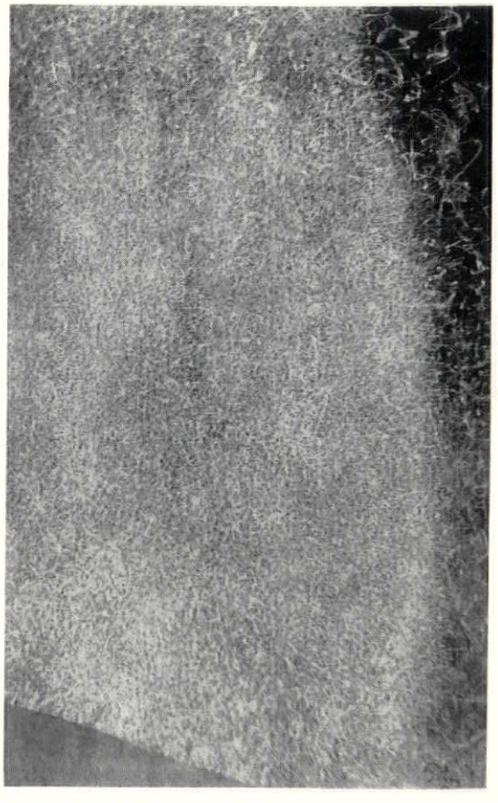
There was one painting in his exhibition which could be called the exception that proves the rule. It was entitled 'The Void Devouring the Gadget Era' and depicts a wave of darkness sweeping down on a multitude of colourful and inventive little forms. Some whisps of calligraphy inside the darkness suggest that a good many of them have already gone up in smoke. The fact that Tobey's pleased to deliver up the gadgets to the Void doesn't mean that he's on the side of the Void. But pictorially the wave of darkness is a relief for the eye since it operates as space. The curious thing is that the tiny forms symbolizing the gadget era have the teeming quality which is an abiding characteristic of his art and which in more typical works—the paintings of human crowds packed into streets and squares, and the tightly-woven mats of script that followed—tends to animate the entire picture surface. A crowd picture like 'Western Town,' 1, is a remarkable example of exuberant patterning, but the effect is rather horrifying, like the demented scurry in a broken ant-hill. The tiny forms in the gadget picture are a link between his human crowds and his sign-writing, but I have the impression that Tobey intends the closed forms of people and gadgets to symbolize limitation and the open strokes of his writing to stand for freedom.



1

No artist in the Western world, not even Klee, has created more beautiful imaginary scripts than Tobey. One can find in them the influence of the written forms of many languages, particularly those of the Middle East and the Orient, but he has used them to achieve an art of pure gesture. He himself has said: 'The larger the space, the more the artist needs concentration and spiritual energy to fill it; otherwise he falls back on decoration.' The words 'the larger the space' do not refer to the size of his panels but to his sense of the infinite, and at his best Tobey is, I think, actually trying to fill the infinite, in the sense of mending a gap.

His finest picture is probably the one called 'Edge of August,' 2, which was



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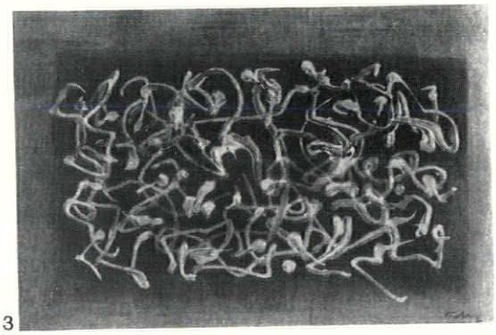
exhibited in London once before, when the Museum of Modern Art lent the Tate Gallery a selection from its twentieth-century American collection. In this picture the filling-up of space is depicted as an event. It is a strangely beautiful work in which the stillness is like the silence of the countryside in summer, a silence composed of the myriad sound of insects. The lower left-hand corner suggests the edge of the world, and the texture blanketing outer space is a kind of living substance compounded of minute calligraphies. The dark area on the right represents space, but the writing is already at work on it, will become denser and finally blot it out. In 'Edge of August,' painted in 1953, I sense that space is being slowly and implacably annihilated, and marvellous though the picture is, I can scarcely bear to look. The texture is full of little lights, but the stars are being denied.

Afterwards, in all his most important and powerful works, the texture creeps up to all the edges, and it is only in a few slighter pictures that one will sometimes see spatial effects, as in the elegant yet trivial 'Danse Macabre' of 1960, 3. He is a



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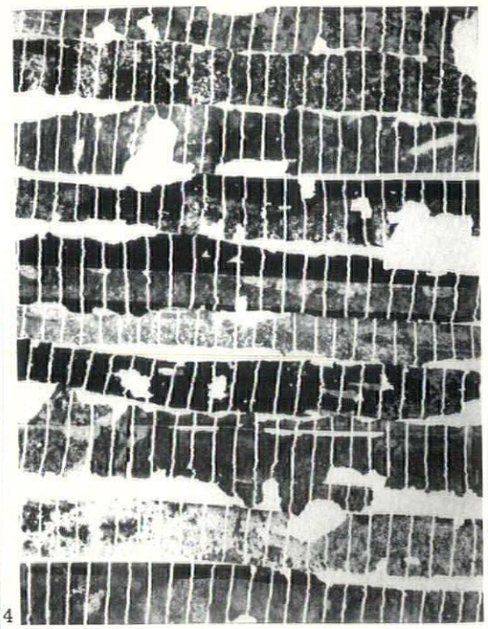
great artist because his best work springs from necessity and is created under the compulsion of extreme space-shyness. Tobey, the space-filler, and Rothko, the space-maker, represent the poles of American painting.

Gwyther Irwin, who is thirty years old, already has exceptional things to his credit, and much is expected of him. His recent exhibition at Gimpel's was devoted in the main to paper collages, but included collages of string, plywood and wood-shavings. In the past, he created superb cloudy-space effects out of overlapping pieces of paper, and his refined feeling for slight variations of tone transmuted the fragmented dirty grey backs of old posters into sumptuous areas of veiled light. It was a truly poetic activity which brought to mind the redemptive feats of Kurt Schwitters.

With one possible exception, there was nothing of this order in his latest exhibition, which was distinguished by first-class showmanship, quite dazzling in its way and very disappointing. He has overplayed his virtuosity and destroyed the equili-



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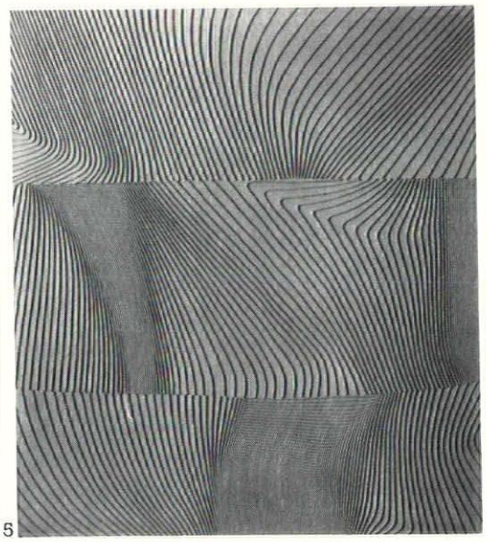

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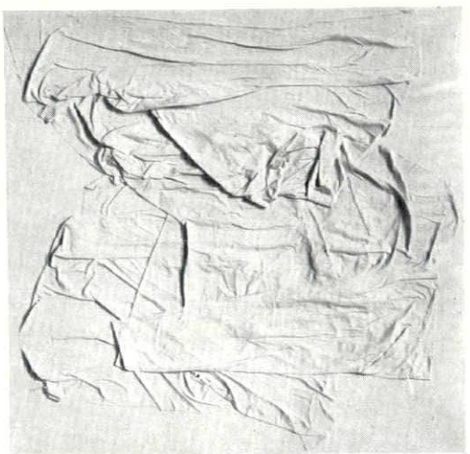
brium between lyrical vision and patient dexterity. In some of the paper collages, he uses the torn paper in a way which turns glimpses of the white ground into foamy wave-crests, and he achieves a kind of abstract Japonaiserie, 4, which is charming, decorative and a bit too smart. One of the string collages was perhaps the best thing in the show. The example reproduced here, 5, was spoilt by a clever game with colour which doesn't of course show in the photograph so it can serve as a memento of the other one, where the string was left as it was found and fastened to a hessian-coloured ground and suggested the ridged sand of beach or desert, or ploughed earth. In the coloured collage, the string has been dyed a greyish green and glued to a mauve ground. Where the strings are close together they become illusory greyish green areas of the background—an effect which may be considered a clever contribution to the eye-twitch abstract. But the other string picture, the naked one, retains the force of a poetic metaphor.

The exhibition of Michael Fussell's white paintings at the Hanover Gallery brought this painter's gifts right out into the open, and I think that henceforth he will have to be included in any serious account of developments in twentieth-century English painting. His plunge into a dangerous enterprise has brought out all his poetry and his natural elegance.

The totally white surface is so closely associated with the self-liquidation of Suprematism (Malevich himself called his white on white paintings the last Suprematist surfaces) that although the art of our time is dedicated to venturesomeness the all-white painting is thought of as representing the 'end of the road' or 'over the precipice' principle. White tends to get itself mixed up with God and other Absolutes, but Fussell has found a way of breaking down its purity into a kind of stainless mud. I think his art expresses a will to overcome space-shyness which probably springs from a strong puritanical streak in his nature, but the success of the venture is bound up with his discovery of a medium and a way of painting that is extremely sensual. He uses tissue paper soaked in white paint and spreads it across the canvas with his fingers. The forms are fortuitous and arise from an activity that marks them with a subtle unbridledness. He treats his medium as a space substance to be creased, 6, or torn, 7, or dominated



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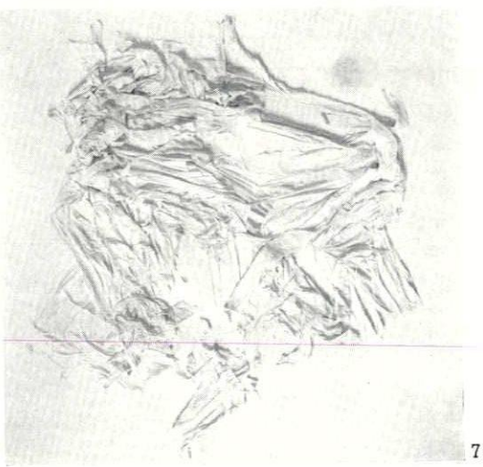

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in any way he thinks fit. But here the puritanical streak takes a hand, and between intoxication and sobriety the pictures achieve a singular poise.

The two hundred drawings recently on view at the Art Council's Gallery were a selection from the portfolios of Mr. C. R. Rudolf. The star of the collection is a wonderful Rembrandt study of an old man being led by a young man and a boy, and by comparison everything else looked just a little stiff. But the choice reflected a sensitive eclecticism, and the two works reproduced here, the wonderfully dignified 'St. Catherine of Alexandria,' 8, attributed to Pintoricchio, and the lively study of a naked woman going to bed, 9, attributed to Henry Fuseli, gives some indication of the range of Mr. Rudolf's interest in the vast territory covered by the term 'old master drawings.' They are both in pen and wash, and that's just about all they have in common apart from the fact that no one knows who they are by.

A surprising number of artists seem to be under the delusion that architects are looking for ideas for free-standing walls and decorative cladding inserts. It may be a way of rationalizing a need to emulate the painters and produce solid works which have no necessary limits. It now seems to have infected even the potters, for when I called in at Primavera in Sloane Street to see the stone-ware of Bryan Newman, I thought the nicest piece of all was the one reproduced here, 10, which looks like a very attractive maquette for a free-standing wall.

Robert Melville

CREDIT

POST OFFICE DESIGN

The installation of the first of the new telephone kiosks designed by Neville Conder is a suitable time-mark for a review of the architectural contribution to the GPO's current attempts to improve design in equipment and premises. The kiosk, cast in aluminium and specifically conceived for assembly in banks of two or more, 1, was a competition winner as long ago as 1958, when the Post Office first began to consider the replacement of Sir Giles Gilbert Scott's thirty-year-old neo-Classical pavilion that has become as universal as the pillar-box. Even now the new kiosk is regarded by the GPO as being only on acceptance trials, and even if it is finally accepted, it will only be used for new installations with Subscriber-Trunk-Dialling—the STD equipment, 2, designed by Douglas Scott, marking a radical advance over the traditional black box with its ergonomically unsatisfactory buttons 'A' and 'B.'

The brisk, technological and non-monumental aspect of both kiosk and equipment seems typical of the GPO's more progressive aspirations at present, and is equally manifest in the programme of



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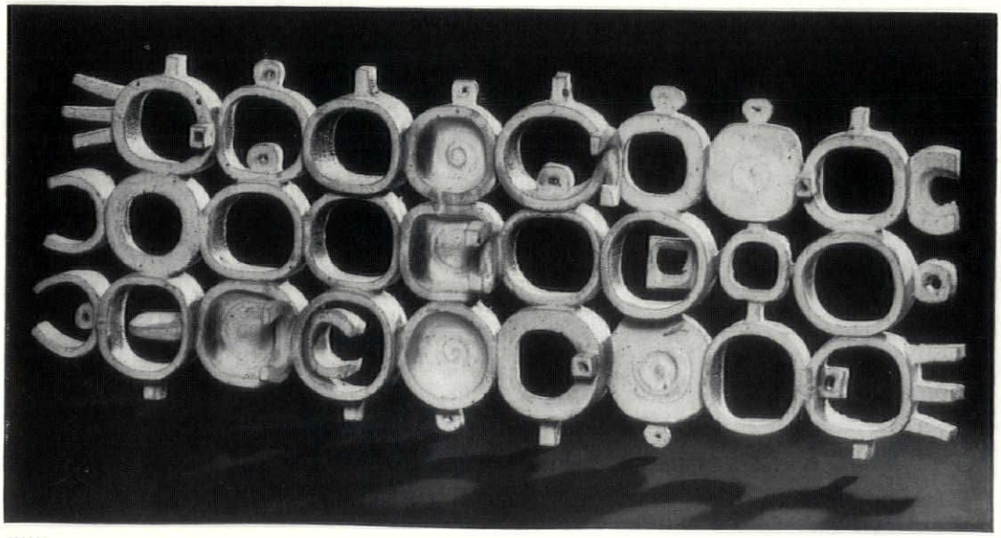

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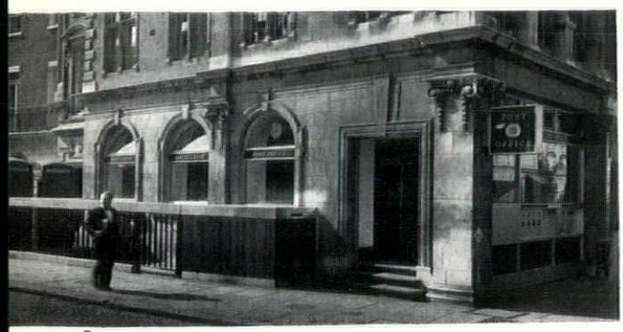

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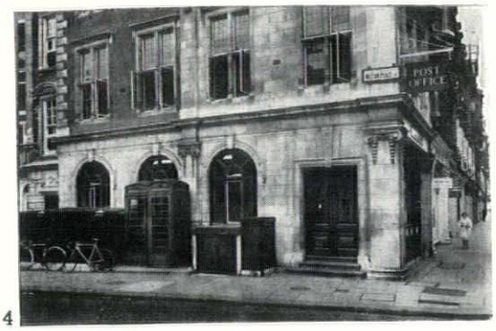

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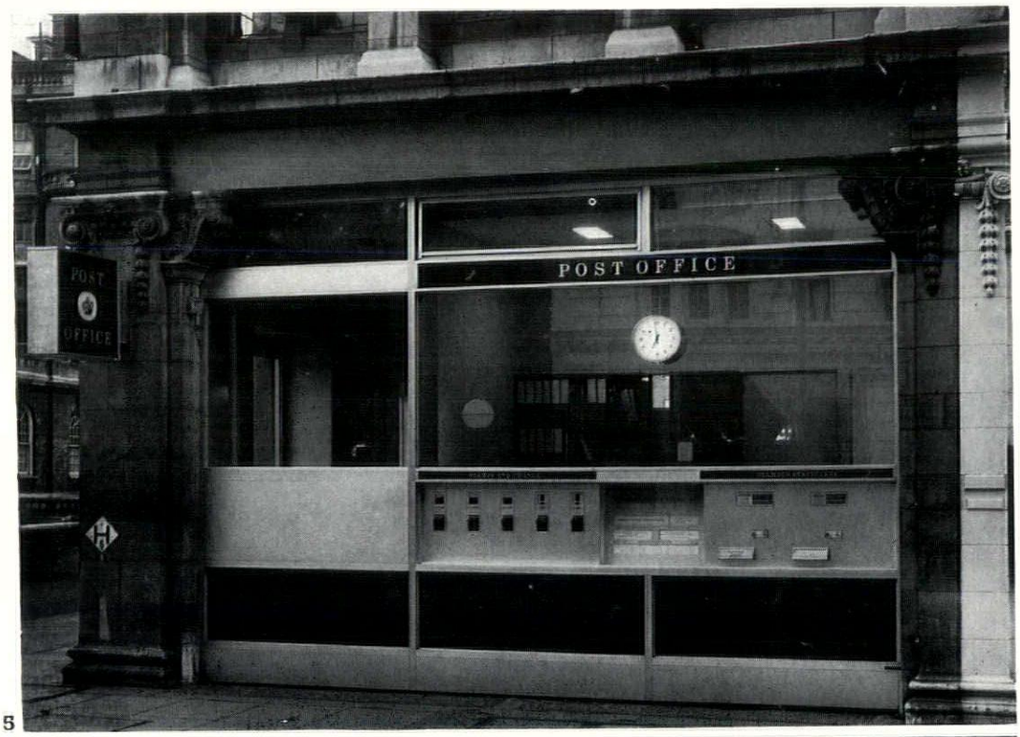
modernizing old branch Post Offices now proceeding in London under the architectural direction of Misha Black and Sir Hugh Casson. The second example of this modernization, at 55 Knightsbridge, is now in service, and represents a remarkable transformation, 3, within the frame of an unpromising building. Externally, the crucial operation has been the re-ordering of the ancillary structures in Wilton Place, formerly a mess of unrelated boxes, 4, but now brought within the visual discipline of a single rectangular enclosure—but how this could have benefited from the use of the Conder kiosk!

The span of the window-opening on the Knightsbridge side proved big enough to accept what is, in effect, a whole new façade, 5, comprising all those symbols (clock, projecting sign, etc.) by which the GPO service is recognized, and all those GPO services that can be automated—a mechanical wall of services and information, framed in satin-finish aluminium and glass, with red spandrels and white lettering. Internally there has been drastic simplification and modernization, 6, both in details and general conception, while the usable floor-space available to the public has been increased by doing away with a large projecting writing desk, and replacing it with more compact work-surfaces within the window embrasures, 7.



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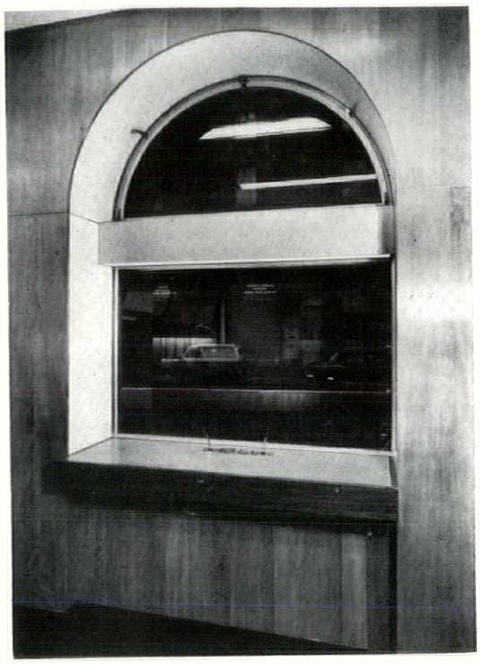

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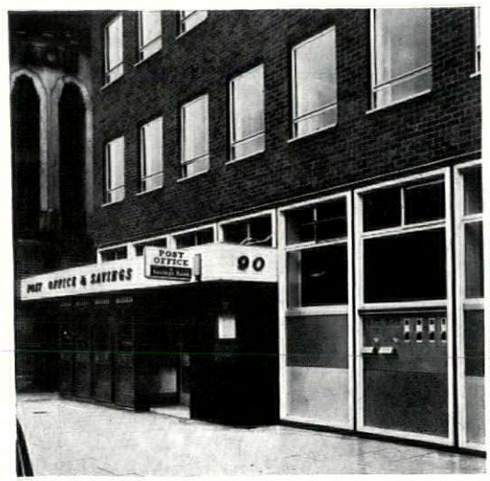
Both in the kiosk and in this redesigned branch office there is a welcome intention to promote the image of the GPO as a universal standardized service, rather than a monumental institution, and the emphasis is on helping the public to recognize the presence of this service the moment they see a telephone box or post office. But how effective will this intention be in the present fragmented state of GPO policy?—it is *not* intended to use the new kiosk to replace old ones, nor is it intended to use the Black/Casson style for *new* post offices. As if to emphasize this last point, the first



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major post office by the MoW/GPO Development Group, 8, at Hitchin, Hertfordshire, is in an entirely different style. There is a real risk here of a valuable design initiative being frittered away before its benefits have been exploited and applied.

Hugh Wykeham

SHRUBS *

SWORD-LIKE PLANTS

In particular relation to architecture, shrubs fall into two broad categories: plants whose individual outline is insignificant but which, when massed together, form an important counterpoint to buildings or other plant groups, and the plant of striking form used as a sculptural incident in otherwise simple surroundings.

This last has perhaps become something of a cliché, but used with care it can still make an important contribution to architectural design. The range of material here is more limited than in some tropical countries, and we may well envy the fine foliage plants which Burle Marx uses so effectively in Brazil, but there are nevertheless several shrubs which, while too exotic for the wider landscape, are very suitable in relation to buildings.

Of these, one of the most striking families is that of the Yucca. Coming from the coastal regions of the south-eastern United States of America, its members are quite hardy on any well-drained soil in the south and west, and will grow in sheltered situations much farther north. Failure is far more likely to be caused by damp and bad drainage than by actual cold, and this love of a well drained site makes the Yucca particularly suitable where walls and buildings cut off some of the natural water-supply.

Yucca gloriosa, the largest member of the family, 1, forms a stiff rosette of dark green, sharply pointed leaves, often five feet across. In time it may grow up on a small leg, like a dwarf palm, to six or eight feet high, and eventually shoots breaking from the bottom can produce a whole forest of near-black swords. When planting, it is as well to remember that the leaves are very stiff and the spines at their ends very sharp, so that ample room for development should be left near doors, steps and pathways.

Yucca recurvifolia, 2, while almost as large, is a less menacing plant. All the mature leaves turn their tips downwards, leaving only the centre group standing upright, which gives both a more graceful appearance and less likelihood of claims for damages. I once found a variety of



1



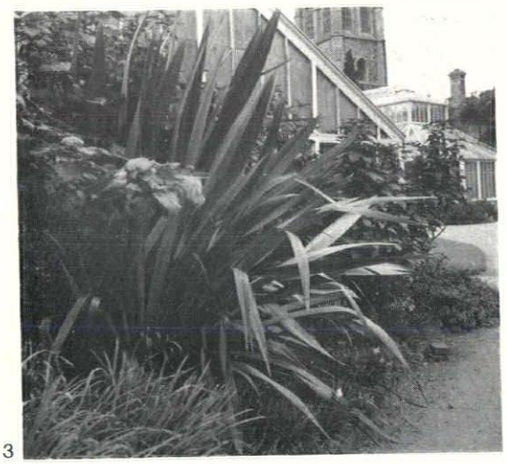
2

* Following Patience Gray's series of articles on plants suitable for architectural use, this article is the first of a similar series on shrubs.

this plant with leaves elegantly striped in greenish gold—possibly *marginata* or *variegata*—but I have never seen it in a nurseryman's catalogue, and fear that it may be out of cultivation.

For less monumental plantings, and on a smaller scale, the little *Yucca filamentosa* is excellent value. Growing only two feet high and forming clumps which may eventually reach a yard across, it obligingly sends up its spikes of ivory bells every year—a privilege granted only occasionally by the others when they have been long established.

Another very striking sword-like plant is *Phormium tenax*, 3, commonly known as the New Zealand flax, which is such a feature of some gardens in the West Country. This needs a good loam soil with plenty of moisture, and being rather less



3

hardy than the Yuccas it should be protected by a wigwam of twigs and straw for the first few winters in any but the warmest situations. Where it is happy it forms a magnificent iris-like clump of leaves, eventually six or seven feet high and as much through. We seldom see its extraordinary flower spikes, since our summers are not hot enough, but the beautiful grey-green leaves are well worth a little extra trouble. The variety *purpureum* has the colour and bloom of a ripe plum, ideal when associated with grey stonework or silver leafed plants. *Veitchii* and *variegata* are striped with cream or yellow, which I feel takes away something from the form of the plant, but could be useful where a complementary colour scheme demanded it. **A. du Gard Pasley**

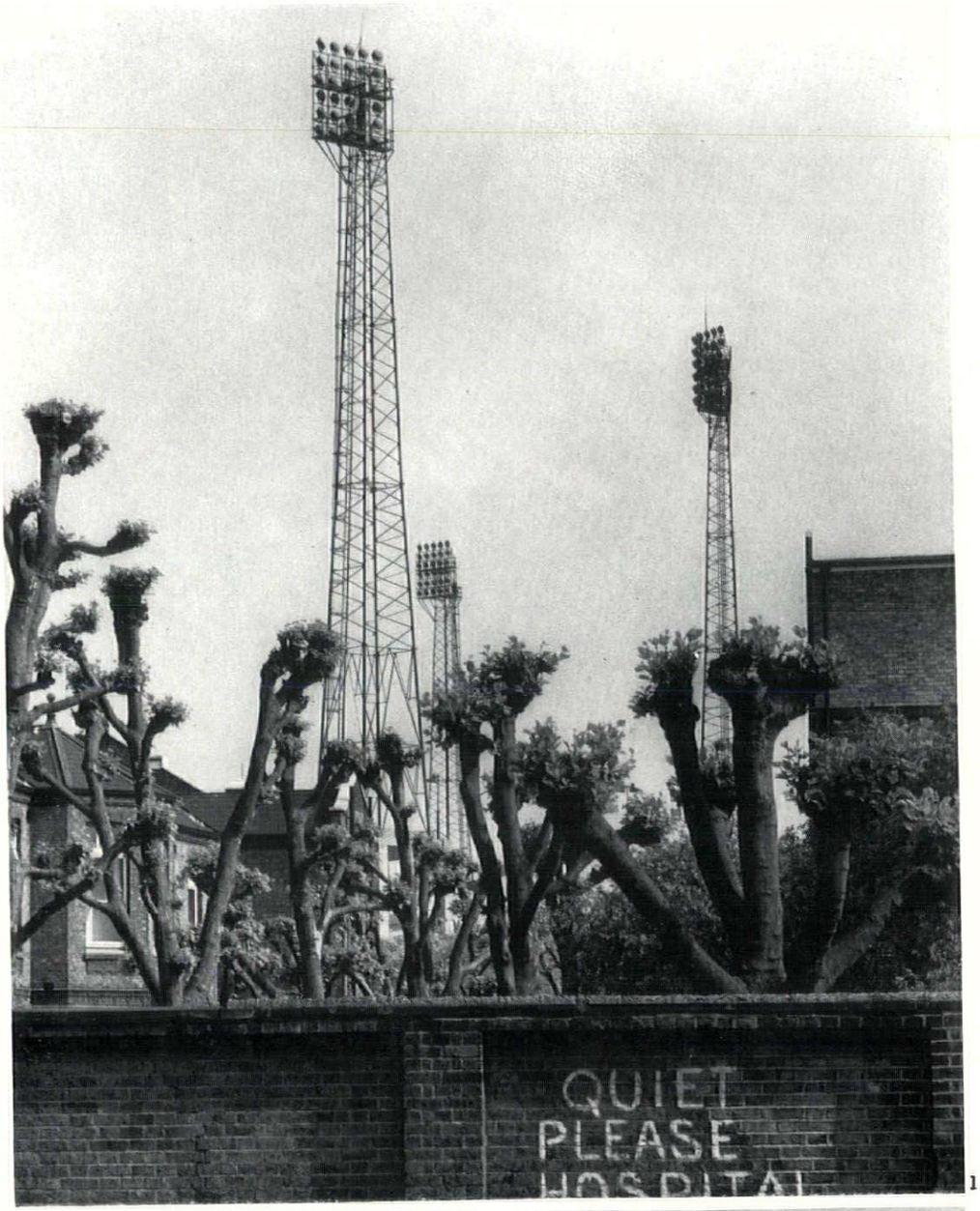
TOWNSCAPE

CHELSEA FLOODLIGHTS

Changes in the London skyline as a result of new high building was the subject of a group of Eric de Maré's photographs in the February AR. But other objects besides buildings push themselves up above the familiar roof-tops and make their separate impact on the townscape. One of the most surprising—and visually entertaining—of these is photographed, again by de Maré, herewith.

It is the group of lattice-steel masts carrying floodlights to enable games to be played after dark at the Chelsea Football Ground. The masts appear unexpectedly in several river views and are here shown close-up (looking south) from a nearby cul-de-sac, 1, and from inside Brompton Cemetery, 2.

Somewhat similar to the masts from



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2

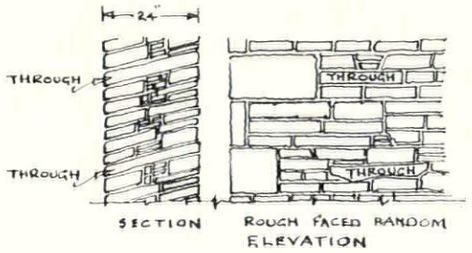
which railway marshalling-yards are illuminated at night, they add an agreeable item to the various vertical elements with which the creative town-planner can now devise his vistas and enliven his roofscapes.

J.M.R.

ARCHITECTURE

BARN INTO RESIDENCE

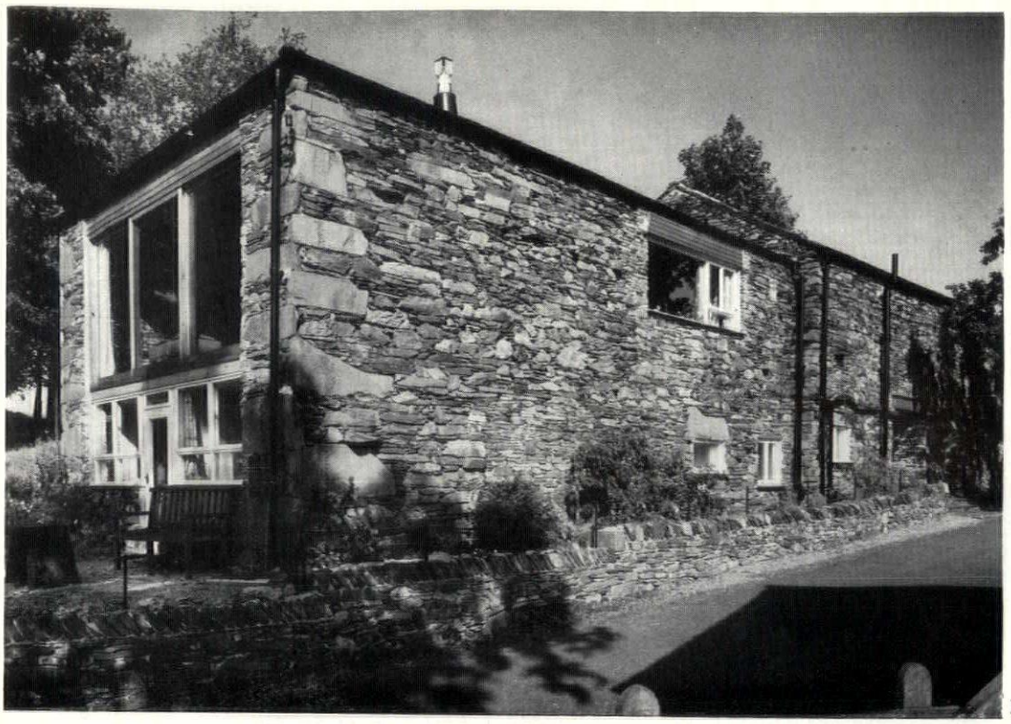
'Watershot' barns are a speciality of the Lake District. They are built of the local stone, which is a variety of slate, with an inner and outer face and an intermediate 'hearting,' the peculiarity being the existence of 'through' stones the full thickness of the wall (see diagram) which are tilted downwards. The top beds of window and door heads and the bottom beds of window cills are similarly tilted (or 'watershot'). This method of walling —which is now a dying craft—is described in W. B. McKay's *Building Construction*, vol. 1, from which the diagram is adapted.



External walls are from 21 in. to 30 in. thick and are very well suited to a region with heavy rainfall. Sometimes the 'through' stones project as much as 6 in., giving an interesting texture. Nearly every old farm in certain parts of Cumberland and Westmorland has one or more watershot barns—usually about 40 ft. by 15 ft. internally—and they are often no longer in use.

One such barn has recently been converted into a house by Mr. Basil Duckett (of Sir Lancelot Keay, Basil G. Duckett and Partners), and is illustrated herewith. Mr. Duckett reports that there are no major problems in such conversions. Intermediate wood floors are sometimes rotten and it is often best to build an internal brick shell to support the first floor. This improves insulation and permits plastered surfaces for which the original stonework is too rough. The formation of new openings is not difficult since the stones are wide and flat, but drainage can be expensive since the subsoil is generally solid rock. Other typical features of these barns, reports Mr. Duckett, are rough slate roofing to a 22-degree pitch, slates bedded on the face of lintels and the frequent limewashing of the lower portion.

The conversion illustrated here, 1, is at Spy Hill, Skelwith Fold, Westmorland.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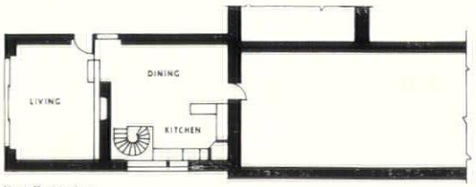
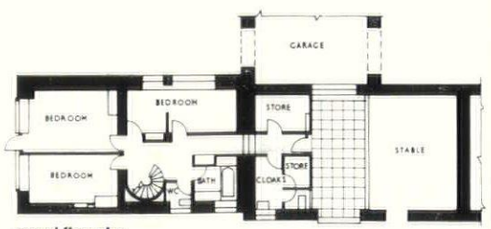
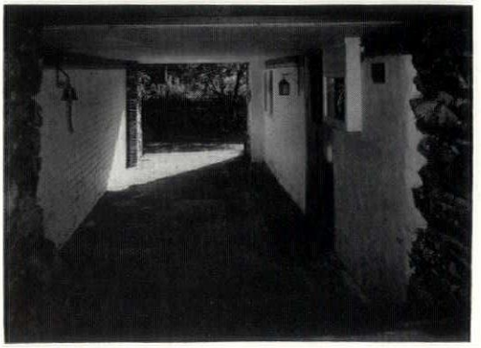


first floor plan



ground floor plan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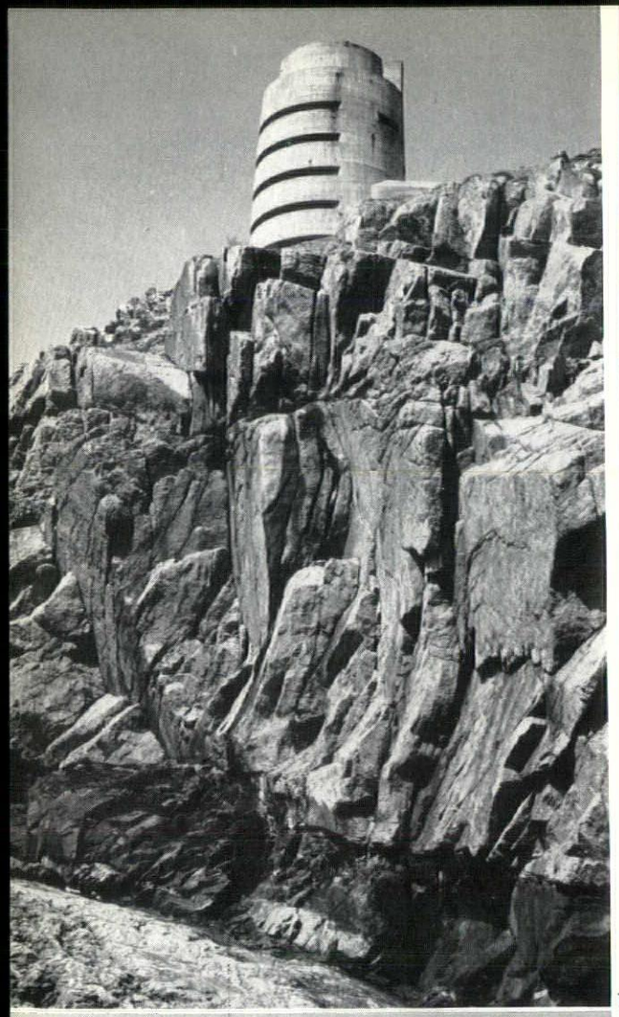

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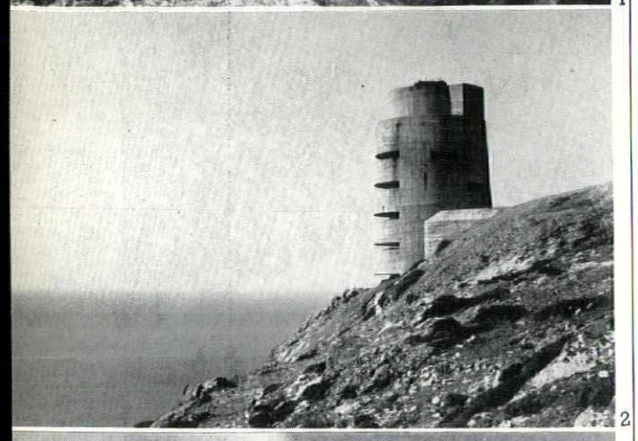

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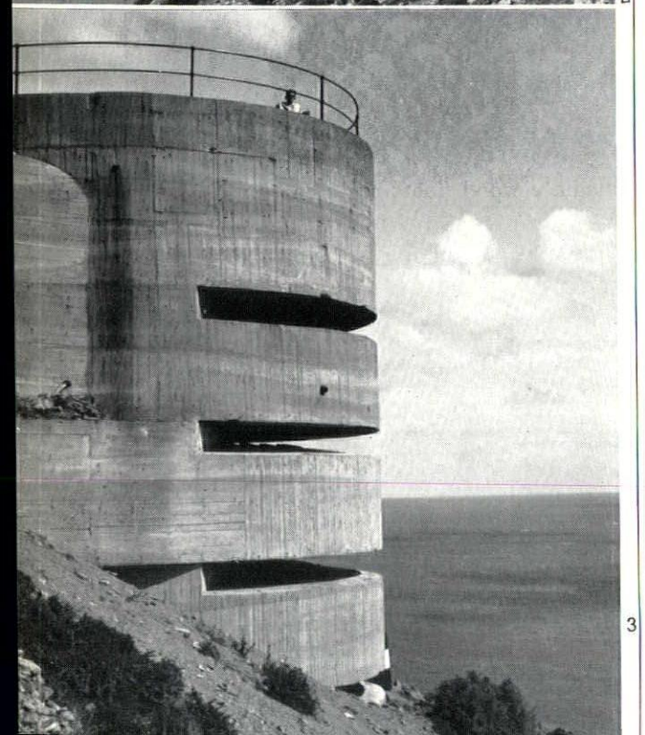


3

The client wanted sleeping accommodation for seven and a large living area. The best view was from the end wall, which faces south-west over the Langdale Valley, and the living area was therefore placed on the first floor and openly planned, with the dining portion raised to increase the angle of view, as shown in 2. The original pitch-pine roof trusses are retained but the underside of the slates is lined with plaster-board to reduce heat losses.

Separated from the house by a through-passage, 3, are more barns, now used partly for garage and storage, into which the house may be extended in the future.

HISTORY

WAR TIME WATCH-TOWERS

Three German watch-towers on the island of Jersey survive almost intact because the Channel Islands were bypassed by the closing stages of the war. The towers were built in the summer of 1941, when the Commander-in-Chief of the German Armed Forces gave orders to build fortifications on the islands, the building operations being carried out by the Organisation Todt. They served the coastal artillery of the army and navy, and were designed in accordance with the firing methods of the German navy, whose responsibility it was to guard the water approaches to the beaches constituting the forward area of coastal defence.

Although built according to a directive laid down by tactical authorities, which implied a certain amount of standardization, they were nevertheless varied to suit local requirements and site conditions. Attached to each tower was a fortified shelter, to accommodate the personnel who possessed only light arms for their defence.

Each tower is about 62 ft. high, and is massively built of concrete on which the marks of the imported form boards are deeply impressed. The quality of the shuttered concrete is very good in parts and has acquired an interesting 'patina' due to the rusting of exposed reinforcement. No camouflage paint was applied which might have detracted from the clarity of form of these buildings.

The five main floors are expressed externally on the seaward side as continuous slits. These embrace all sides of what is in fact a viewing balcony sealed from the main body of the tower by a massive steel door. Behind this door is a single cell with a staircase recess the full height of the tower. The slits were originally filled with glazed oak frames some of which were removable, and the floor and outer wall were sometimes lined with oak strips about 10 centimetres wide. This conscious attempt to make the watchers' immediate surroundings bearable, together with instruments bracketed from the wall, combined to give a distinctly nautical effect. Other windows, where they occur, are defensive by nature and so contrived to command the mainland approaches across relatively flat barren heathland. The roof details vary between the three towers, but the roofs were chiefly used as a gun emplacement. One of the towers, Les Landes, 1 and 2, still retains some radar equipment on its roof. The other tower illustrated, 3, is Noirmont.

Viewed in retrospect these watch-towers, in spite of their still accessible gouged-out passages and cells, may be classed among the follies of our coast. The towers on Jersey, having outgrown their initial usefulness, are now public property, and perhaps in the not too distant future the authorities will think it worth while to reinstate them as elevated viewing platforms visually connected. But used or not, they retain a powerful impact on the coastal scene.

Sholto Brooks

COUNTER-ATTACK

NEWRY, CO. DOWN

Rocque's plan of Newry marks in rather faint letters in one corner 'Old Brewry in Ruins.' Similarly a map of Ireland to-day might mark faintly in one corner 'Old Newry in Ruins.' With the possible exception of Derry, Newry is the most neglected and ill-treated town in the whole of Northern Ireland; and yet, while they remain, it is second only to Armagh in the quality of its buildings: at the present rate of decay and spoliation, it should reach the bottom of the list remarkably soon. Not long ago, amid general satisfaction, the two 'Dutch houses' with fine William-and-Mary fronts were pulled down: they had become too ruinous to do anything else. The same is obviously going to happen rather soon to the great bulk of the old town. One recent casualty is the Custom House, a noble early Georgian building which was the foundation of Newry's prosperity, but spent its last years completely hidden among the gas-works: perhaps it was too poignant a reminder of the work of time.

This however isn't meant to be a preserve-it-at-all-costs plea. On the contrary, to look at Rocque's map, 1, is to realize how a broad, intelligent plan was able to transform the town 200 years ago and that something similarly bold is needed to-day. The map is specially interesting as having been made (in 1760) while the new town was being built, and it shows proposed schemes which never came off as well as what was actually achieved. It shows, too, how the new plan was not only civilized and coherent itself, but very nearly managed to bring a reasonable shape to the straggle that was there before. Newry stands to-day on both sides of the Newry River, where it makes a shallow arc to the west; but until the eighteenth century only a ridge running north-

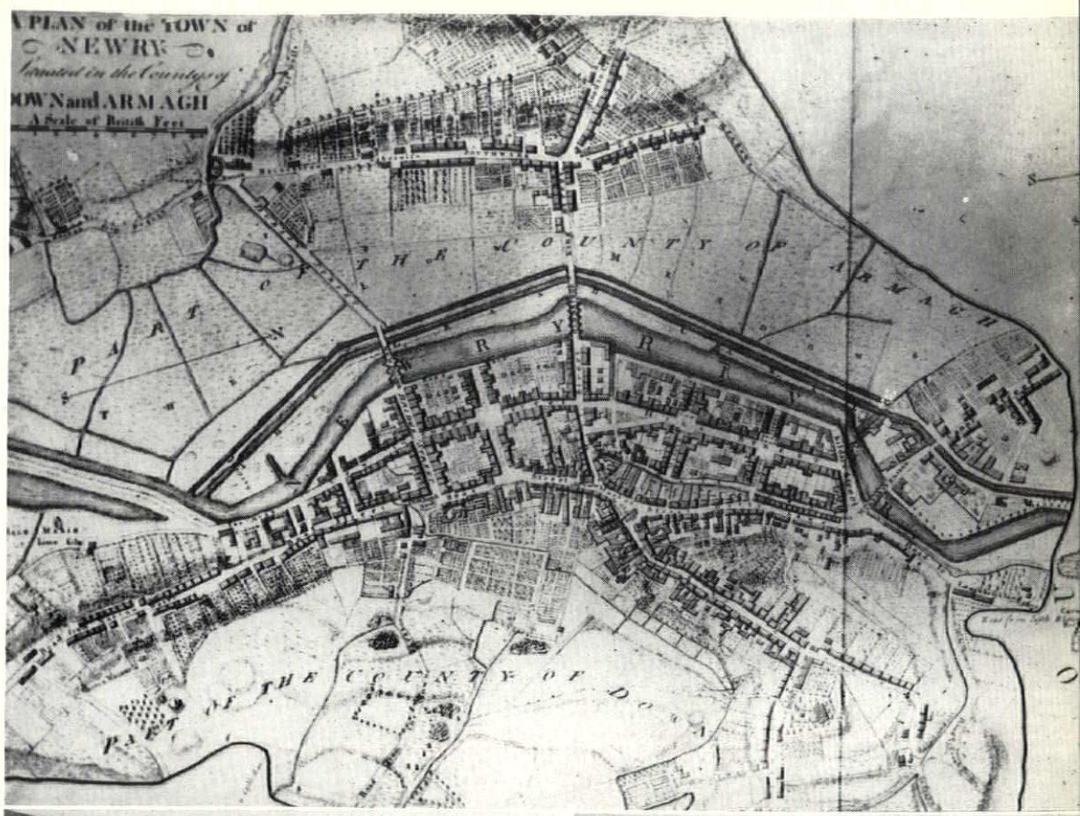
south two or three hundred yards east of the river was built up. It had—and still has for the eye of faith—a triangular market place where the three streets of the old town met.

In 1726 the Custom House was moved to Newry from Carlingford. In 1730 an Act of Parliament was passed for the building of a canal from the town to Lough Neagh, mainly to make an easy route to Dublin from the Tyrone coalfield. The canal was finished in 1741; at the same time the sluggish, marshy river was embanked, and on the reclaimed land between it and the old town a new town twice the size of the old was laid out; this now forms the centre of Newry. The suburb on the west side of the river is called Ballybot and wasn't built up until the late eighteenth century, though now it contains most of the big warehouses and commercial buildings.

Newry then, like so many other things, consists of three parts: the architectural and urban problem facing the town to-day can be looked at as three problems; or one might, as the eighteenth-century planners nearly did, try to conceive an overall view. One difficulty of this is that the parts are only uneasily related. At the northern end the old and new towns slide shabbily into one another with the help of a more or less accidental but particularly dingy car-park, 2. Now that the houses in the middle have gone, there is surely an opportunity to make a really agreeable feature of the sloping open space with a chance to use interestingly the change in levels: it wouldn't even cost much except a little imagination. Similarly, the junction between Newry and Ballybot has been miserably smutched. The two meet in a glorious confusion of streets at the north end of the town, with the town hall built over the river as if there were no room anywhere else (which at that time there probably wasn't). The warehouses along the canal front in Ballybot are fine: they have all the dignity of their kind, and some of them are actually being used, 3; more are on the long spit of land between the river and the canal (which run parallel through the town), but most of this is taken up with as dismal a tarmac desert as one could find, 4. A riverside green with big trees in the middle of this very grey town seems almost too obvious an idea, but Newry chooses to take advantage of its opportunities in other ways.

The general scruffiness here won't, however, come as a surprise after seeing the rest of the town. On the Armagh side of the river the north end is a gloomy mess of decrepit houses and warehouses which at one time must have been impressive, 5: even the superbly elegant 'House of Lord Kilmorey's Agent' is obviously on the way out. But the decay of Newry can be seen at its most vivid in the old town. Here everything is squalor and dereliction. The market-place, once the centre of the town, is almost unbelievably miserable. A grim concrete wall only half-hides a large vacant lot covered with rubbish, 6; there are the inescapable advertisement hoardings, big gaping holes in the street, and the houses that still just stand are being rapidly battered to pieces, 7, 8. Almost everywhere it is the same story, with only a few houses here and there treated as if they were things worth looking at and looking after.

The new town, the town of the mid-eighteenth century, isn't in the same danger: it has its own special one instead. What commercial prosperity Newry retains* has concentrated there, and many of the shops and houses are still in reasonably good condition. The south end of Hill Street is particularly good and is perhaps the best remaining stretch of the great design, 9 (but see also Upper Water Street, the background of 2). For even the shop-fronts, though in every case a later insertion,



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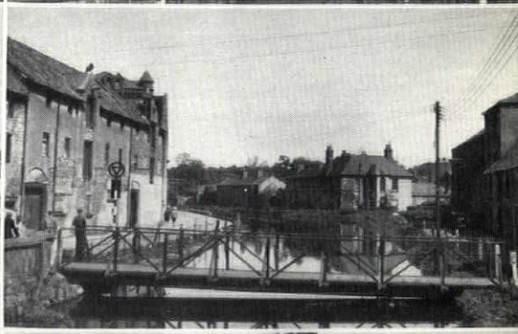
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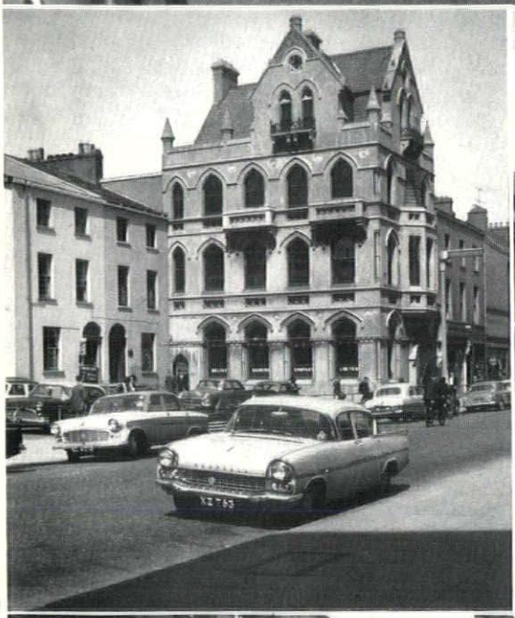
* Not much indeed: one of Newry's present troubles is its nearness to the border, so that it's more or less impossible to get new industry to the town.



9



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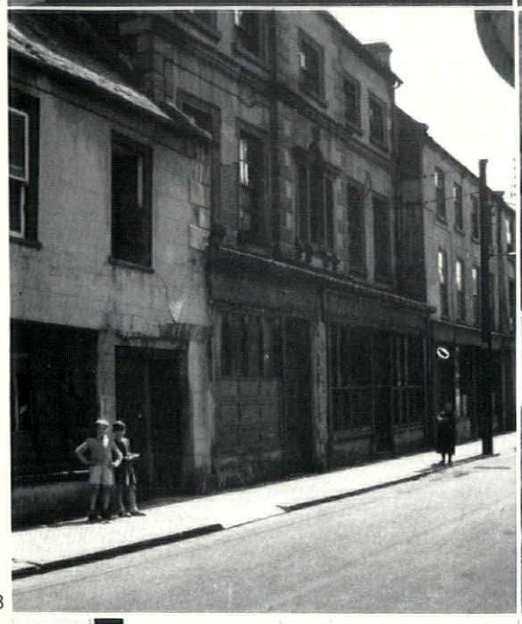

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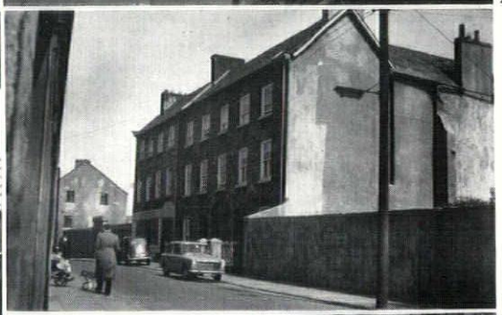

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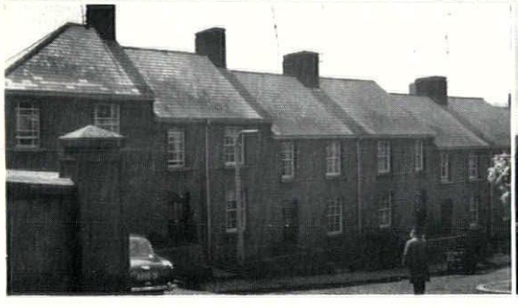


16



17

are modest and seemly, with a feeling for the scale of the buildings above them. The later nineteenth century, however, treated the centre of Newry very severely. Marcus Square was the worst sufferer: here, in particular, the Victorians were at their most vulgarly assertive, and any unity the little square might have had is totally wrecked by the loud ostentation of a building two storeys too high for its position, designed with a coarseness which is intensely painful in such restrained surroundings, 10. The final spoiling of Marcus Square was nevertheless left to our own time and has just been completed, by a building which seems to have more or less everything wrong with it, including a change of colour and material which, far from being a relief, looks brash and ill-mannered: it eats into the house next door, it breaks the roof-line, this time by being too low, its horizontal emphasis is quite alien to the upstandingness of the rest of the town, it is crude and coarse: in short it is a typical Woolworths, 11. The one thing that could possibly dislocate the square even further has also been discovered; the pavement has been carved up into mean little flowerbeds covered with chicken wire, 12.

What then is to be done? The one thing that could justify the loss of so many fine buildings is that a real attempt should be made to replace them with something equally good. But this means a real plan for the town as a whole. Now, everything is piecemeal and huggermugger; changes in one place are in no way related to other parts of the town. The whole place is totally disorganized and, it seems, totally without a plan. But an overall plan for Newry needn't involve mass destruction: it is simply a matter of co-ordinating one part with another, of seeing the town as a whole (and trying to make it into one), of connecting the parts together. Only in this way is there any hope of bringing back unity to the town, of giving some real life back to the rubble deserts of the old town, of filling the yawning gaps or preventing more Woolworths from making their tasteless inroads into the new.

If this seems hopeless let a start at least be made where it can be made now. One side of the market-place has been a rubbish dump for years. Why hasn't it been rebuilt? On the other hand there are numbers of fine houses, some of which might still be caught if anyone were interested. Some of them have contemporary shop-fronts, which are as rare in Ireland as elsewhere. Of all the houses on the obvious danger list, No. 21 Upper North Street is the most valuable, a heroically handsome house with fine panelling on the first floor, 13. That the houses *can* be restored a pair along Market Street amply demonstrate, though they also show how unsatisfactory it is just to save one or two when there are huge gaps all around, 14.

All this would matter less if there were signs that the losses would be decently made good. To scrap the lot and build the whole town afresh would be grand—if one could possibly believe in the outcome. As it is, houses built in Newry since the early nineteenth century have been wretched. A glance at the opposite sides of St. Colman's Park shows how cataclysmic has been the decline: the north side was built about 1790, 15, and has all the sturdy dignity of Ulster Georgian; the other side seems to have been vacant until some time in the 1920's. At least a terrace was managed, but the scale is wrong, the design trifling and the effect irretrievably suburban, 16. Recently a faint attempt was made at compact rebuilding in Boat Street, rendered futile by the suburban treatment of the gardens and the entire failure to provide a corner at all, 17. If this is the best that Newry can do now, the future really is alarming. But one doesn't have to go far in Newry to realize that.

Andor Gomme

SKILL

THE USE OF STRUCTURAL BRICKWORK FOR FRAMELESS HIGH BUILDING

1, Multi-storey Brickwork in Switzerland

The English builders have always been proud of their tradition of brickwork and certainly in facing work their pride is justified. When, however, one considers brickwork as a structural element in the context of modern construction, it would appear that greater development has been carried out in Europe than in Britain. In this, his first article of two, Donald Foster reviews this development with particular reference to Switzerland.

The British building industry lags far behind the Continent in the general structural use of brick masonry, particularly for flats. Such buildings, in which the plan form repeats on each floor, are ideally suited to this type of construction. Functional requirements other than strength often dictate the use in them of a fair number of relatively substantial walls capable of sustaining heavy loads, but unfortunately the intrinsic strength of these walls is rarely used here because most architects and engineers appear to favour framed structure and to be unaware of the potentialities of masonry construction in this type of building. The result of this is that mass, which is necessary, for example, for adequate sound insulation between flats, is often expensively supported on an unnecessary framework.

This fact has long been appreciated in Germany where practically all domestic construction, much of it quite high, is in loadbearing masonry. In Britain also, structural brickwork is widely used for flats up to five and sometimes six storeys, but higher brick building is extremely rare though there are many who believe that under present conditions it is inherently much more economical than alternative methods. This view is held with certainty abroad and it seems, therefore, that there are grounds for the following broad examination of practice there before considering in more detail the situation at home.

There are interesting examples of high loadbearing brickwork in several countries, but development in Switzerland has been more rapid and intense than elsewhere. Indeed some of the Swiss achievements can only be described as spectacular and it is proposed to concentrate on Swiss experience in this first article, although it should be mentioned that similar, though perhaps less exciting, work has been done in Germany and France.

General background to Swiss brick building

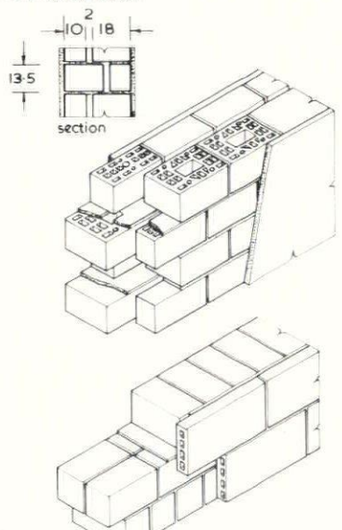
(*a*) *The influence of climate on brick development*

Although the climate of Switzerland varies quite widely it is well known that winter temperatures are generally lower than in Britain and in consequence much more attention is paid to thermal insulation. External walls have a higher standard than in this country and double glazing to windows is commonplace. P. Haller* has shown that the critical thermal insulation requirement of a masonry wall is that level which avoids condensation. For a solid brick masonry wall the 'U' value would need to be 0.205, a level not readily obtainable with solid bricks, and this is one of the reasons why perforated bricks have been developed in Switzerland. Another is the strong competition from alternative materials such as cement-sawdust or aerated concrete blocks which are light and easy to build and which give a very high thermal insulation. One of the reasons why materials such as these are so competitive is that external rendering is standard in Switzerland and therefore the appearance of such blocks is of no consequence. For this reason also the low maintenance cost and better appearance of facing brickwork are less appreciated in Switzerland than they are here, although there are signs of growing interest in facing brickwork.

(*b*) *Natural raw materials in Switzerland*

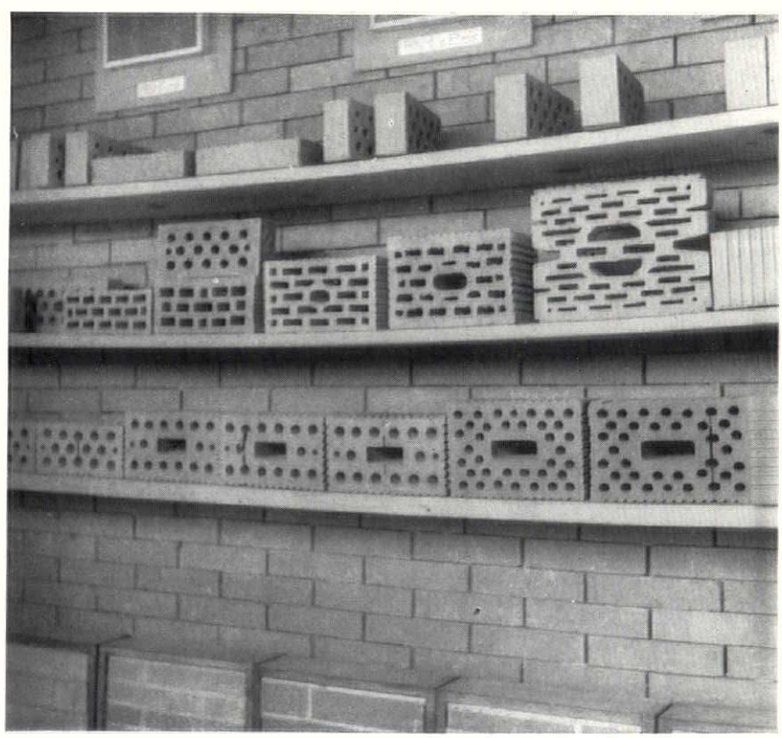
Switzerland has no coal or oil, and these materials are expensive commodities, usually imported from the Ruhr, along the Rhine. Structural steelwork, therefore, is at a much greater disadvantage than it is in this country, and apparently it is not usually considered as an alternative to reinforced concrete for multi-storey

* Head of Masonry Section, Swiss Federal Testing Institute.



1

1, *standard Swiss brickwork for ordinary building using Isolierstein bricks of different widths.* 2, *part of range of bricks made at the Paradies brickworks, Schuffhausen (Keller & Co. Ltd.).*



2



3, *multi-storey flats at Basle.*

construction. It is probable also that steel for the reinforcement is imported from the Ruhr and this must add appreciably to the cost of high building, a fact which should be remembered when making comparisons between Swiss and British practice because it was, presumably, an added incentive to the development of high brick building.

This is no place for a discussion of clays for brick-making but it should be recorded that clays suitable for making high strength bricks only occur in certain areas.

(*c*) *Swiss bricks in current use*

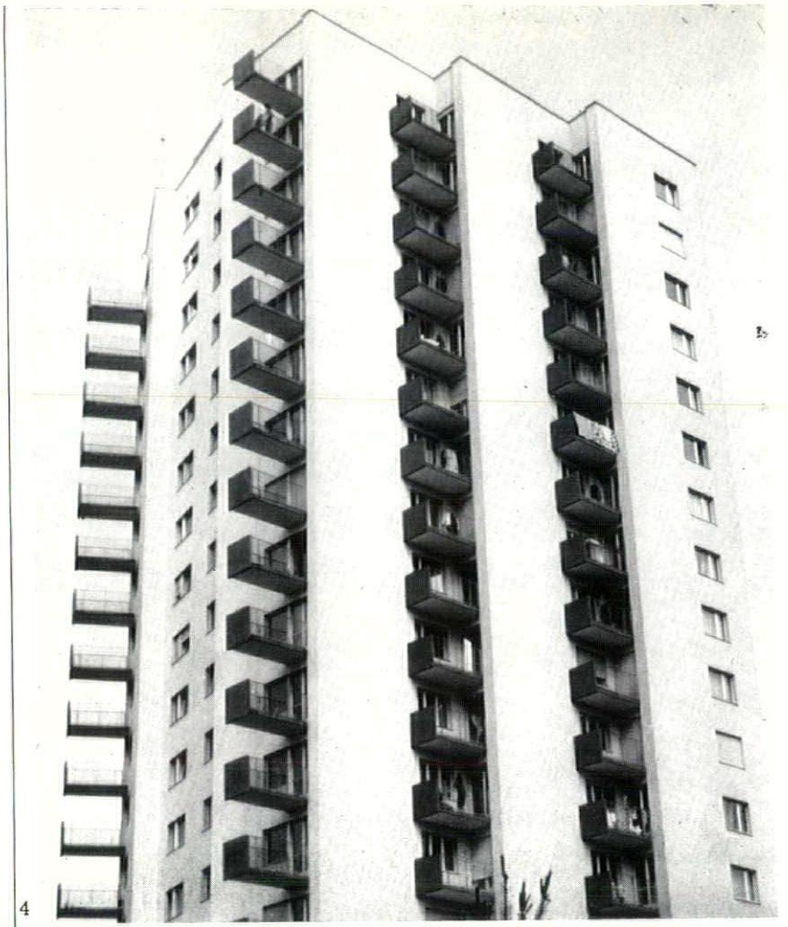
The standard brick size in Switzerland is 25 by 12 by 6 cm. (9.85 by 4.75 by 2.37 in.) but such bricks (either solid or perforated) are only rarely seen these days. The only need for solid bricks is for the construction of tall brick chimneys, and there is a statutory requirement that they should be used for this purpose. Other than for this particular kind of structure, solid bricks have not been used for at least the last thirty years. Even at the end of the nineteenth century the solid brick was giving way to the perforated brick, usually a vertically perforated brick with from seven to seventeen holes of about 1.5 to 2 cm. diameter. Such round-hole, vertically perforated bricks are still available in Switzerland but the smallest brick in common use, usually perforated similarly, is now one and a half standard bricks in depth, and is designated 1½ NF (normal format). These bricks have some advantage in thermal insulation over solid bricks though it is not great, but from them has developed a range of bricks which are widely used for normal building in brickwork. These bricks are the so-called insulating bricks (Isolierstein) which are 25 cm. (9.85 in.) long by 13.5 cm. (5.3 in.) high (that is twice the standard height plus one mortar joint), and they are made in four widths of 10, 12, 15 and 18 cm. (3.94, 4.76, 5.92 and 7.12 in.). Used in the way shown in 1, it is possible to obtain closely varying wall thicknesses and hence different standards of thermal insulation. There are also other and even bigger bricks, including the B.25. This has been described at length elsewhere*, and it is only mentioned here to show that the range of products expected by the building industry from the Swiss brick manufacturers is quite extensive, 2. The bricks used for the multi-storey construction described below are all based on the 'Isolierstein' sizes given above, with the exception of the bricks used in the external walls of the high buildings at Basle, which were 1½ NF bricks.

Examples of high buildings

It may be of use at this point to take a quick look at some of the buildings using the principle of load-bearing brickwork. It is noticeable

[continued on page 294

* B. Butterworth and D. Foster *The Development of the Fired Earth Brick*: Part II Bricks and Brickwork in Switzerland. Trans. Brit. Ceram Soc. 55'481 1956.



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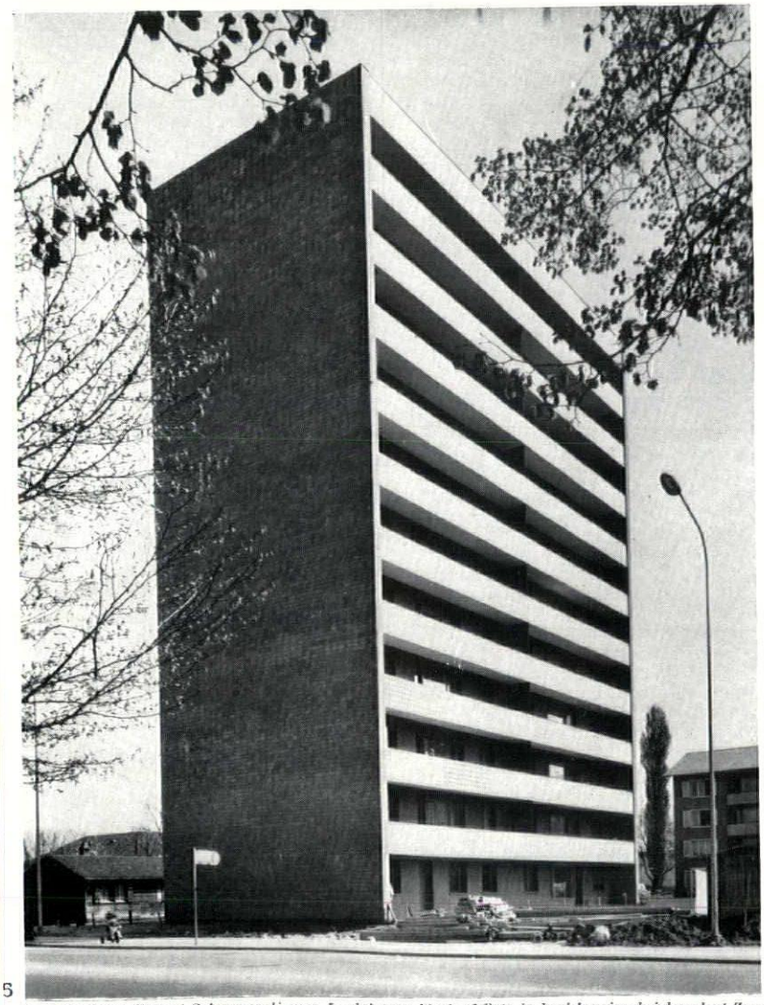


5

4, *multi-storey flats at Schwamendingen.* 5, *slab type block of flats in load-bearing brickwork at Zug.*

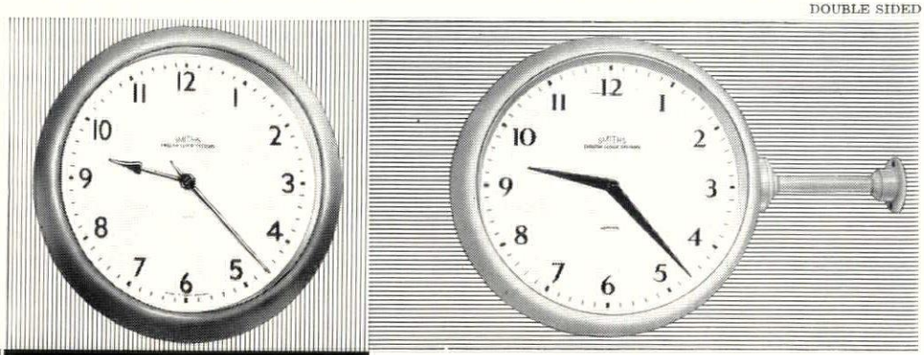
* MAYFAIR/FARNHAM



A certain style

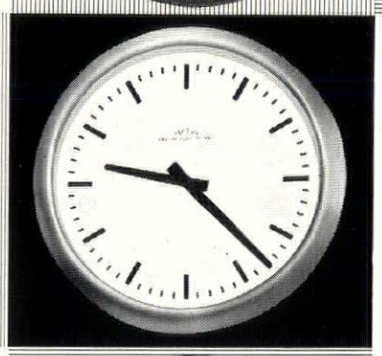
DOUBLE SIDED

* MEDWAY/FIFE

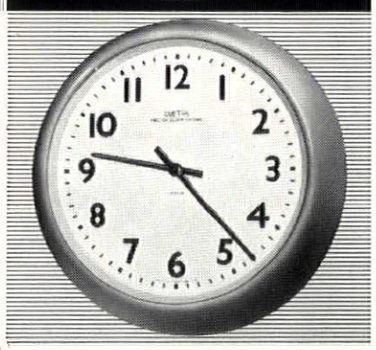




FALCON *

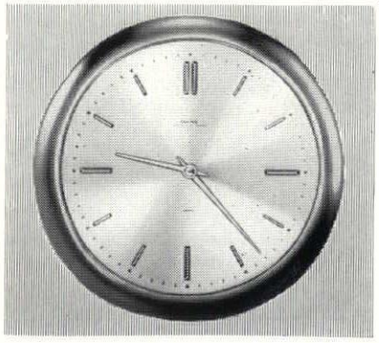


* MOSTYN/FLEET



* MELTON/FLEET

FULMAR *



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that later buildings show considerable technical advance.

Multi-storey flats at Basle (1951–53)

Three thirteen-storey blocks were erected on this site, outstanding examples for their time of loadbearing construction in perforated brickwork. They have, of course, been superseded technically by later work but still retain their inherent interest. Later buildings have made use of the taller bricks, 13 cm. (5.3 in.) as opposed to the 1½ NF bricks, 9.5 cm. (3.75 in.), used in these buildings. The taller bricks, by reducing the number of bedjoints, have been shown by Haller to give higher wall strengths.

Each block is about 75 ft. long and 50 ft. wide. Apart from the reinforced concrete substructure of basement and ground floor and some framing round the halls, perforated bricks are used for the whole 120 ft. height. Outer walls are in English bond, 39 cm. (15.4 in.) thick, and inner walls, apart from lightweight partitions, 18 cm. (7.12 in.) thick on first and second floors and 15 cm. (5.92 in.) thereafter.

The strength of all deliveries of bricks and of mortar was carefully controlled and drawings made to show the required bonding of all junctions and quoins. The design of the elevation was subject to limitations set by calculation which indicated a minimum pier width of 1 m. and a maximum opening width of 2.2 m. (7 ft. 3 in.). The acceptance of these limitations produced a design frankly expressing the solidity of the construction but avoiding too massive an appearance by departures from a plain rectangular plan shape.

Multi-storey flats at Schwamendingen (1957)

This block of flats is a tremendous demonstration of the possibilities of loadbearing brickwork, 4. There are eighteen storeys, seventeen of which are in loadbearing brickwork, plus a lift motor room, also in brickwork.

The bricks were supplied by the Paradies works of Keller & Co. Ltd. and their crushing strength ranged from 415 to 605 kg./cm.² (5,800 to 8,600 lb./in.²). It is claimed that they were free from cracks and any tendency to efflorescence and were highly accurate in shape and dimensions. The mortar crushing strength was 200 kg./cm.² (2,850 lb./in.²). The outer walls are 38 cm. (15 in.) thick and the inner walls 12, 15 or 18 cm.

The plan form is skilfully handled to give an attractive appearance, the staggered walls having the advantage of relieving the mass while adding elegance to the design through the vertical emphasis. Floors are solid reinforced concrete and at window openings they form the lintels. Where they join the outer walls they are carried through to the external face and the joint concealed by the external rendering. Insulating slabs are cast into the internal angle at the junction of the underside of the floor and the outer wall to reduce the risk of condensation.

High flats at Zug (*c.* 1958)

At Zug there is another example, ten storeys high, of the use of loadbearing facing brick masonry for gable walls but no details are available. This is unfortunate because it is a 'slab' block, 5, in contrast to the other tower or point blocks. The design may well be from the same hand as the fourteen-storey block at Luzern, next described.

Multi-storey flats at Reussblick, Luzern (1959–61)

This was the most interesting, architecturally, of all the buildings seen, 6. Facing brickwork is used on the gable walls, contrasting with broad bands of concrete on the other façades. The structure consists of fourteen storeys of loadbearing brickwork on a two-storey basement and heating room of reinforced concrete. The gable walls are 18 cm. (7.5 in.) thick Isolierstein bricks, treated with silicone solution at the brickworks. The inner face of this masonry is rendered in three coats, there is a small cavity and the lining consists of slabs made of gypsum with some form of foamed insulating backing, 7.

The plan of the building is delightfully attractive and simple giving twenty-seven three-roomed and twenty-seven four-roomed flats. All internal walls are 15 cm. (6 in.) thick in loadbearing high strength bricks. Average compressive strengths of bricks and mortar are 550 kg./cm.² (7,800 lb./in.²) and 270 kg./cm.² (3,800 lb./in.²) respectively.

Multi-storey brick building at Biel-Mett (1960)

Although architecturally less impressive than the flats at Luzern, these buildings are interesting for a constructional reason. Cavity walls, rendered externally, are used for the whole of the sixteen storeys and the floor slabs rest on the inner leaf. This is only 15 cm. (6 in.) thick and, in the belief that the two leaves serving different purposes would be subjected to differing influences of moisture and thermal movement, the outer leaf is only tied to the structure at each floor level. The detail of this tie is shown in 8 and 9 and consists of chrome nickel steel loops at about 30 cm. (1 ft.) intervals to a ring of Stahlton clay units at each floor level. The steel is protected by plastic covering, presumably to guard against corrosion of the reinforcement.

All ducts for heating, plumbing and electrical services were built in, using special bricks. Some of these are shown in 10.

High strength bricks and their specific requirements

(a) Compressive strength

The principal need is for high compressive strength and the individual bricks must normally be able to withstand a crushing stress of 400 kg./cm.² (5,700 lb./in.²). This is an average value and a tolerance of about minus 10 per cent is allowed in any batch of bricks tested. With any reasonable percentage of perforation it is clear that such strength can only be obtained by careful and adequate preparation of the raw materials.

It was stated that the resistance of a perforated brick to crushing depended upon the *tensile* strength

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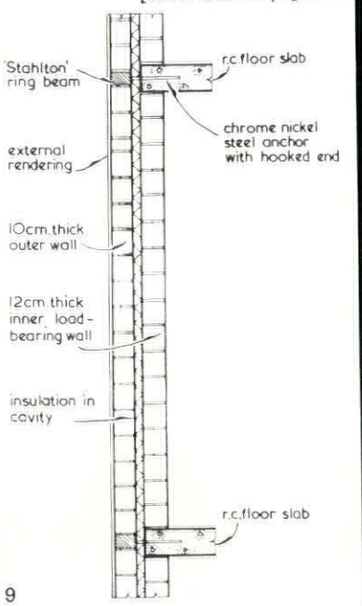

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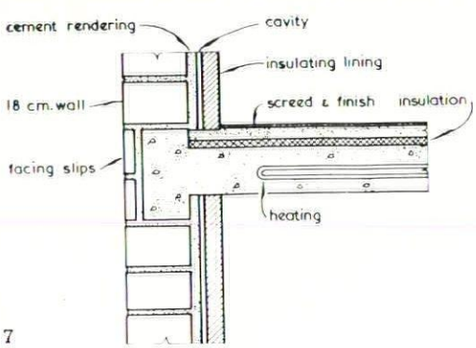
8, *mock up of method of construction adopted at Biel to tie outer to inner leaf at floor level.*
9, *detail of wall construction at Biel.*



6

6, *multi-storey flats at Luzern, 14 storeys in brick.*
7, *detail of wall and floor junction, Luzern.*



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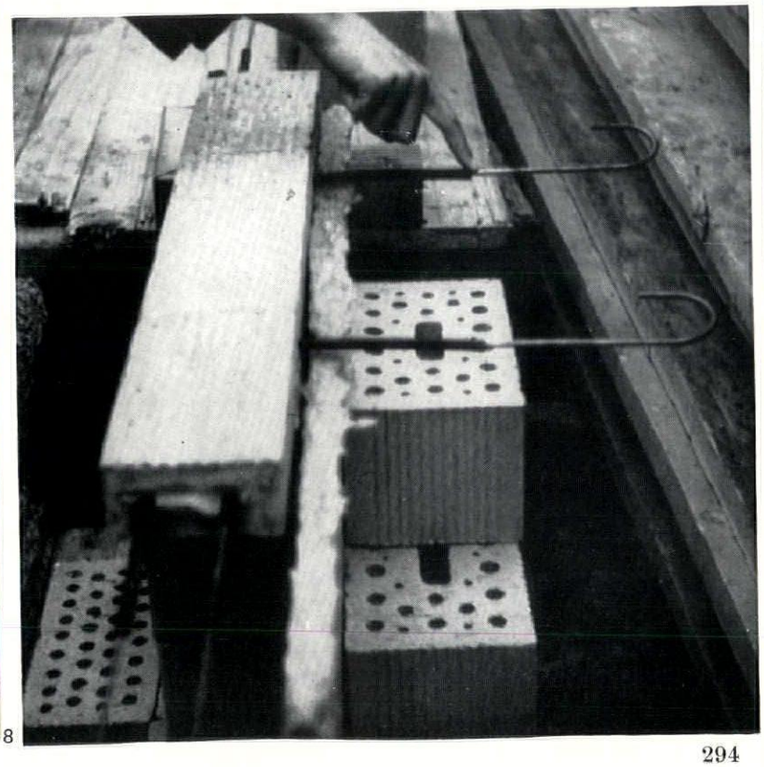

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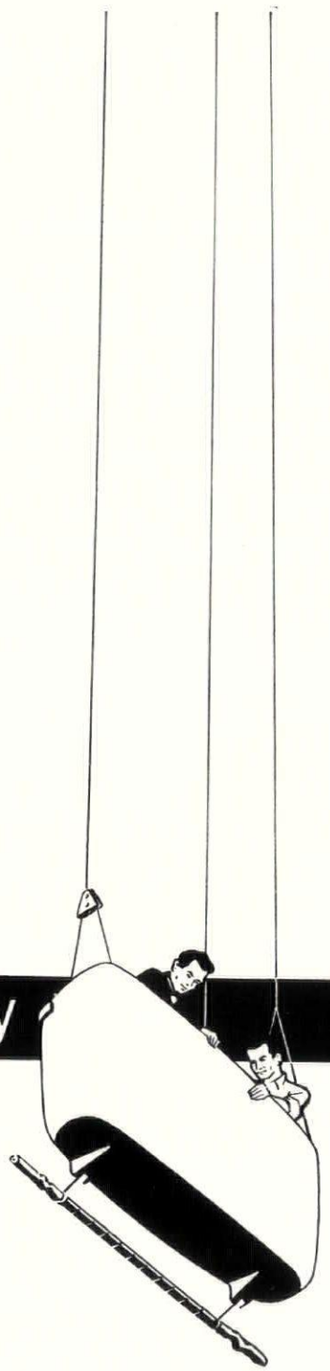

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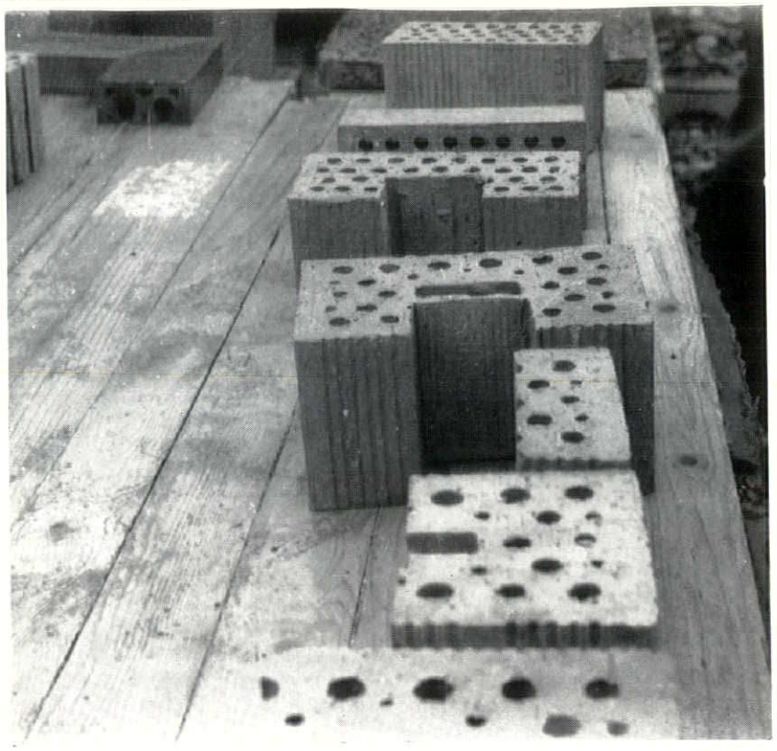

10, *special bricks and blocks made to avoid cutting and chasing.*

continued from page 294]

of the material; the action was that of bursting the brick and can be envisaged by imagining the brick to be a block of rubber. If the top and bottom of the rubber are squeezed, the block itself tends to spread sideways and it is this spread or transverse strain which gives rise to the tensile forces within the material.

In engineering terms, the brick and mortar together undergo compressive load and are jointly subjected to compressive strain; that is they are squeezed, and shortened in height. Strain is the ratio of this change in height to the original height. This shortening causes the spread or transverse strain just mentioned, at right angles to the line of force.

(*b*) *Dimensional accuracy*

It is evidently important when bricks are used in highly stressed brickwork that they are accurate in dimension and shape. This accuracy is required for several reasons. First, the horizontal joint must be as thin as possible, preferably not more than 12 mm. (0.47 in.). It must also be even. The thicker the horizontal mortar joint then the greater is the compressive and hence the transverse strain in the mortar, which in turn is transmitted to the bricks. The second reason for accuracy is concerned with the height of the brick. The taller of two adjacent bricks is more heavily loaded and therefore fails first—uniformity of height is therefore the ideal. The third reason is that bricks of accurate length and shape lead to speedier bricklaying and hence economy. Accurate length of brick means accurate placing in the brick's allotted space, avoiding the necessity of cutting to fit. Cutting and chasing was forbidden in any event in the Swiss buildings on the grounds that it would crack the bricks and weaken their resistance to load.

If the bricks are lozenge shaped in cross section, that is, the bed face is not at right angles to the vertical face, then there is a greater tendency to buckling, especially of single leaf walls. Uneven drying and firing shrinkage can also contribute to this effect.

It will be seen that this requirement of accuracy raises the question of dimensional co-ordination though this apparently has not occurred to the Swiss brick industry. Hitherto, judging from the previous visit, neither the manufacturers themselves nor the architects and the building industry generally had shown the slightest 'modular' interest in accuracy of brickwork and even now there seemed no awareness of the possible benefits of relating the brick-cum-joint size to the metric system. For example, instead of a brick-cum-joint total of 25 cm., or 4 bricks +4 joints to 1 metre (as in Western Germany), the Swiss standard brick length is itself 25 cm., and the vertical joint is additional. This must make drafting much more tedious and it also causes variation in the vertical joint size to fit given overall lengths of wall. Though dimensional co-ordination has little bearing *per se* on the high strength of the finished brickwork provided that cutting is avoided, it is possible that site work could be made easier by its adoption.

Discussion on the accuracy of the bricks raises the question of tolerances. Tolerances on dimensions for width, length and height are 1, 1, and 1.5 per cent respectively. Mean values may not deviate from the nominal measurement by more than 3, 3, and 2 mm. respectively. Roughly, for British brickwork, this means $\pm \frac{1}{8}$ in. on the standard length.

(*c*) *Suction rate*

For high strength bricks the suction rate should be very carefully controlled. On no account must it exceed 20 gr./dm.²/min. when the brick is immersed in water to a depth of 1 cm. A lower rate of 15 gr./dm.²/min. is preferable. Research has shown that bricks with a higher suction rate than this give lower compressive strength in brickwork, due partly to the fact that higher suction rate takes away much of the water needed for hydration of the cement in the mortar. There are other more complex reasons which are concerned with the thin layer of mortar directly in contact with the brick face itself. Upon this thin layer depends the adhesion of the mortar to the brickwork and it was held that the best condition demands that the bricks should only absorb water from this contact layer.

The relation between suction rate, total absorption and porosity is a complex one and evidently there is not always a correlation between porosity and suction. Further work is being done but the matter apparently rests at the moment on the established fact that a calculated suction rate of 15 gr./dm.²/min. is ideal for loadbearing brick masonry. Reducing the suction by wetting the bricks before use is discouraged because it gives rise to difficulties in laying and also increases the chance of efflorescence. There is also increased need for site supervision.

A further complication arising from too high a suction is the early loss of plasticity of the mortar. As the wall is raised there are unavoidable slight lateral movements until it is stabilized at the top. These sideways movements have the effect of slightly rounding the joint at the edges, and there is a marked fall in strength under eccentric load because the opened joints intensify the buckling effect. Evidently this is particularly noticeable in single leaf slender walls of 12 cm. (4.76 in.) and 15 cm. (5.92 in.) thickness.

(*d*) *Freedom of bricks from cracks due to manufacture*

Cracks in the bricks themselves lead to a lower brickwork strength by lowering the resistance of the bricks and they are not allowed.

(*e*) *Effect of perforation*

Although no actual figures were given it was stated that the amount of perforation should not be too great because high percentages obviously would dangerously reduce the cross sectional area of material resisting the tensile stresses. The pattern of perforation is therefore important and the subject needs further examination.

Mortar requirements

(*a*) *Strength*

Several factors affect the strength of the mortar—the amount of binder, the water-binder ratio and the shape and size of the sand particle. For high strength brick masonry it was essential to use a mortar of low transverse elongation and the compressive strength of this must be over 200 kg./cm.² (2,850 lb./in.²) after 28 days. The sand for such a mortar must be clean and free from loam and should not contain soft or weathered particles. The maximum grain size should be below half the thickness of the joint (i.e. about 5 mm. or $\frac{3}{16}$ in.) and the Swiss authorities recommended the addition of a plasticizer. Although there is some doubt about the nature of this, apparently it is an inert 'filler' and not an air entraining agent. Evidently clean sand, that is washed sand, contains too little fines as this is lost during washing and it has been proved in laboratory tests and in practice that the addition of an exactly defined quantity of fine sand can improve the quality of the mortar and that a higher compressive strength of brickwork can be achieved.

(*b*) *Rain resistance*

It was mentioned earlier that the Swiss appear to have a growing interest in facing brickwork. One of the documents obtained contained a paper which reported some rain penetration experiments carried out at the ASFBT* laboratories at Luzern and the results of various practical trials on facing brick buildings. It would be impracticable to include the full translation of this paper but one point of interest can be given. In one of the tests silicones were added to the mortar and it is assumed that this was probably done in practice also for the fourteen-storey block at Luzern where siliconized bricks were used.

Comments

The main point of interest which emerges from a comparison of the high buildings is the apparently increasing confidence of architects and engineers in their use of high strength brickwork. This is reflected in the change of 'style' since the first high flats were built. The flats at Basle are heavy and distinctly solid in character whereas the later buildings are lighter in appearance. Their increased height plays some part in this change but the main reason lies in the increased knowledge of structural behaviour and courage to make use of it—like Gothic cathedral builders the Swiss architects and engineers are gaining the mastery of their materials. This is reflected not only in the increased height of the flats but also in details such as the cavity wall construction at Biel and the extraordinarily slender 18 cm. flanking walls at Luzern, a structural aspect which is later discussed in some detail.

The cost of these buildings is evidently considerably lower than it would have been using alternative structural methods. The one estimate mentioned was of 8–9 per cent saving for the group of buildings at Biel; it was said that all the others were cheaper than their equivalent with reinforced concrete frames.

The high strength bricks are 15 per cent dearer than normal bricks of the same kind and size, which in turn are 5 per cent more than the price for standard 25 by 12 by 6 cm. bricks.

Apart from the probably higher cost of steel for reinforcement, mentioned earlier, there are two other important differences in the construction of flats which affect cost comparisons between British and Swiss practice in flat construction. The first of these is that it is normal in Switzerland to provide basements but they are not usual here. For high loadbearing brickwork a stable foundation is essential and the use of a reinforced concrete basement is therefore an advantage because it can be designed as a box structure of great stiffness, thus reducing the risk of differential settlement. One cannot state that generally, however, foundations would be more expensive than corresponding foundations in reinforced concrete structures, but the point needs to be borne in mind when envisaging the overall savings from the use of loadbearing brick.

The second and pehaps more important difference is one of climate. It is probable that British high loadbearing flats will have to use cavity external walling, though this may not always be necessary if developments in single leaf bricks continue to show promise. Considerations of this kind, however, are dealt with in more detail in the next part of this article, which will also compare permissible stresses in brickwork in Switzerland and the UK as well as suggesting points in specification.

*Swiss Brick and Tile Makers' Association.

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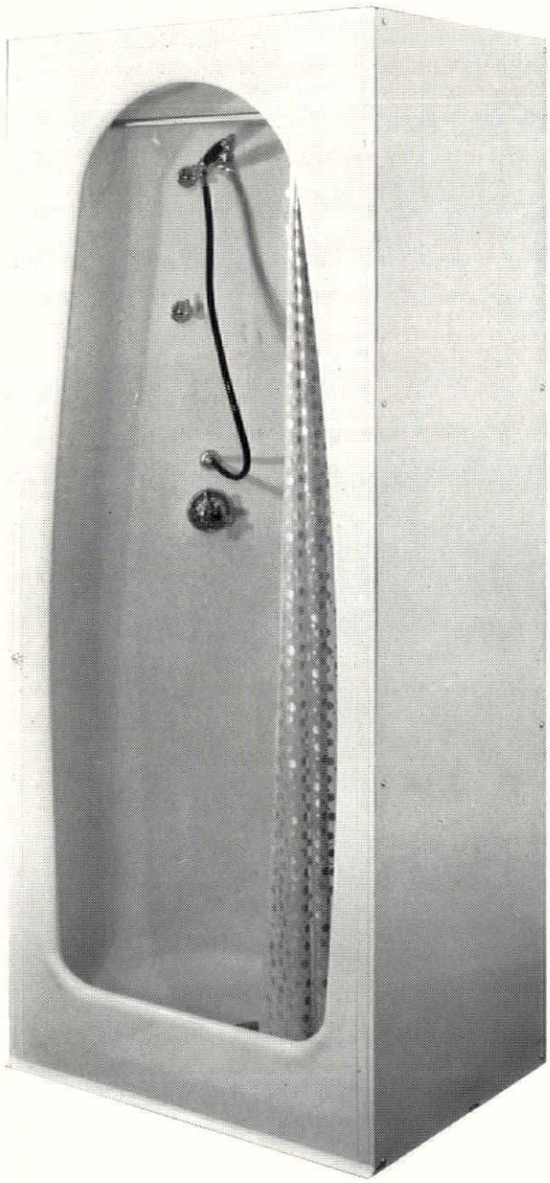

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Electric service lifts

In common with most items of mechanical equipment for which provision has to be made in a building, lifts usually present the architect with the problems of how much space to allow and how to organize his details to meet the specialist requirements. Hammond and Champness have produced a leaflet on their Unit-Construction electric service lifts which architects will find of great assistance in considering this item of equipment.

Clear, fully dimensioned drawings are provided, giving such things as maximum and minimum travel, minimum well dimensions and car sizes. The final page of this leaflet is taken up with a full specification of the lift and the ancillary works by others on site.

These lifts are available with a capacity of up to 2 cwt. and have been developed by the manufacturers as standardized units in order to reduce costs on the strictly purpose-made lift.

Hammond and Champness Limited, Gnome House, Blackhorse Lane, London, E.17.



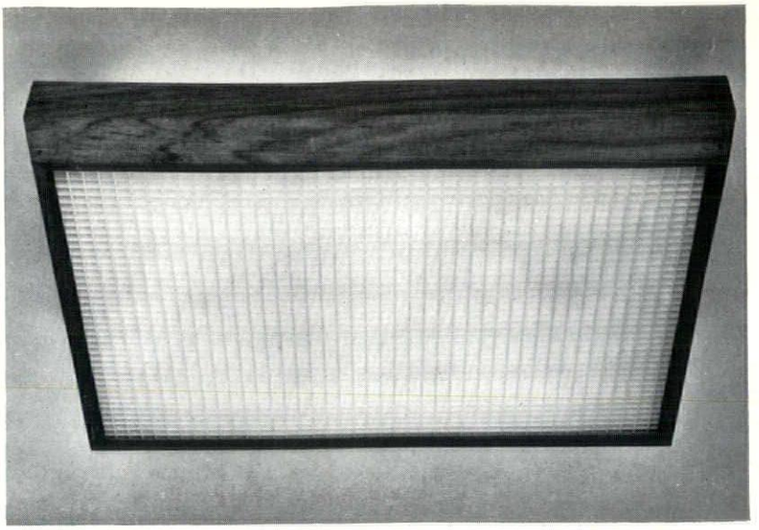
1, *Unit-Construction electric service lift.*

Lighting fittings

Merchant Adventurers announce a new series of fluorescent lighting fittings called the MA Teak 660. Notable is the use of an oiled teak frame, a small-cell moulded louvre with 45° cut off and controlled upward illumination providing anti-glare ceiling spill light.

The design is well thought out combining well the rather hard mechanistic quality of the fluorescent fitting with the softer, more human quality of the timber. This fitting forms an excellent addition to this manufacturer's range. The MA Teak 660 is available in two basic forms for ceiling or pendant fixing. Sizes vary from 27 in. square carrying six 2 ft. 20 w. or 40 w. lamps to 27 in. by 62 in. carrying six 5 ft. 80 w. lamps. The total range of sizes is 27 in. by 27 in., 14 in. by 62 in., 20 in. by 62 in. and 27 in. by 62 in. Prices range from £29 15s. to £49 15s.

Merchant Adventurers of London Limited, Hanworth Estate, Hampton Road West, Feltham, Middlesex.



2, *the MA Teak 660 fluorescent lighting fitting.*

Colour and paint

The transmission of colour ideas has for long been something of a problem. Translating human sensory perceptions into mathematically precise data is always difficult. Analysis of the colour problem produced the Munsell tree with which most readers will be familiar. Here was a notation of mathematical precision, but still there remained the problem of comparison and matching. The colour card with its tiny squares of colour is never really satisfactory particularly when a large range is offered. The production of large colour samples for comparison purposes is also beset with difficulties, largely economic.

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Walter Carson & Sons Ltd., London, S.W.11.

Glass tinting

The wide use of large areas of glass in building of recent years has brought in its train a number of secondary problems concerned with solar radiation. Solar heat gain, fading of fabrics and furnishings, and glare are typical examples. Faced with these problems, the architect or building owner may consider the use of tinted glass. But integrally

[continued on page 300



3, *the Telecolour automated colour communication device.*

* Further information on the products, etc., referred to in these notes can be obtained by making use of the reply-paid Enquiry Service Form which is printed on coloured paper at the back of each copy of the AR.

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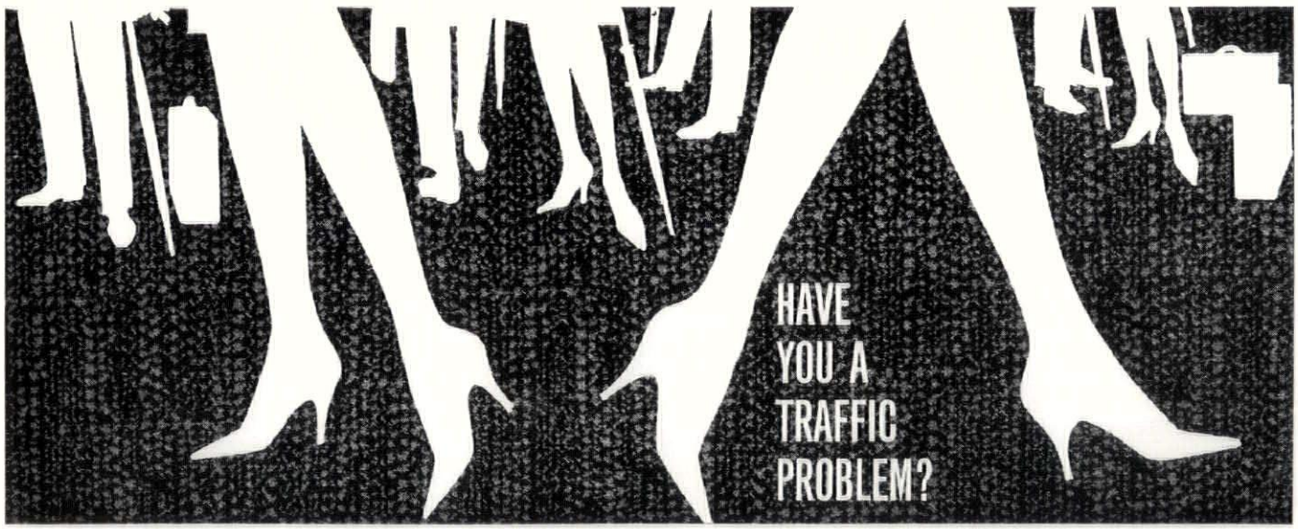

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continued from page 298]
tinted glass is an expensive commodity and in the case of an existing building, the scrapping of large areas of clear glass and replacement with tinted material, cost could be quite prohibitive.

An alternative to this drastic procedure is now available from Sun-X (Great Britain) Limited. Sun-X glass tinting, carried out on site, after glazing, applies a solar energy filter to ordinary glass imparting to it heat and glare resistance. The material, manufactured by Dupont in the USA, is a liquid plastic and after treatment the glass has the same appearance as a factory tinted product, free from distortion or blemish. The film bonds completely to the glass, without cracking, crazing or peeling. No special maintenance is necessary beyond the use of clean cloths and water when washing.

The material is applied by skilled operatives using specially designed equipment on the internal surface of the glass. Various shades and grades are available, each having different properties in relation to solar heat transfer and light transmission. Heat reduction claims are from 29 per cent to 69.2 per cent and glare reduction from 35.5 per cent to 94.4 per cent.

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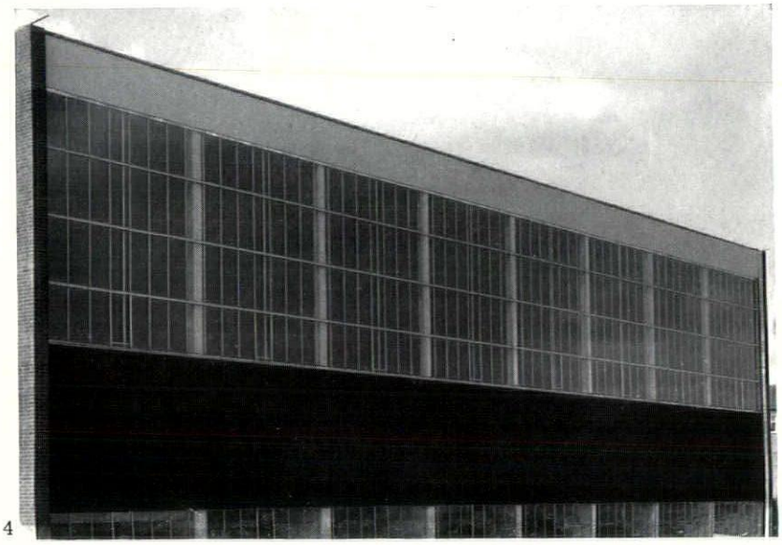

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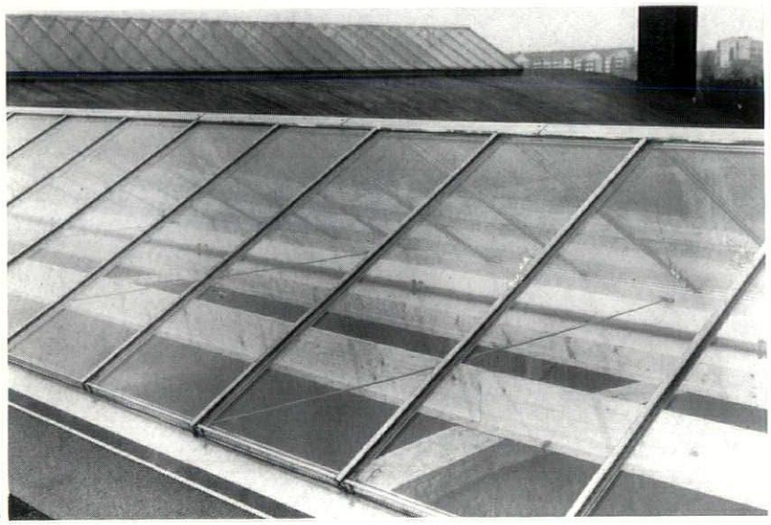

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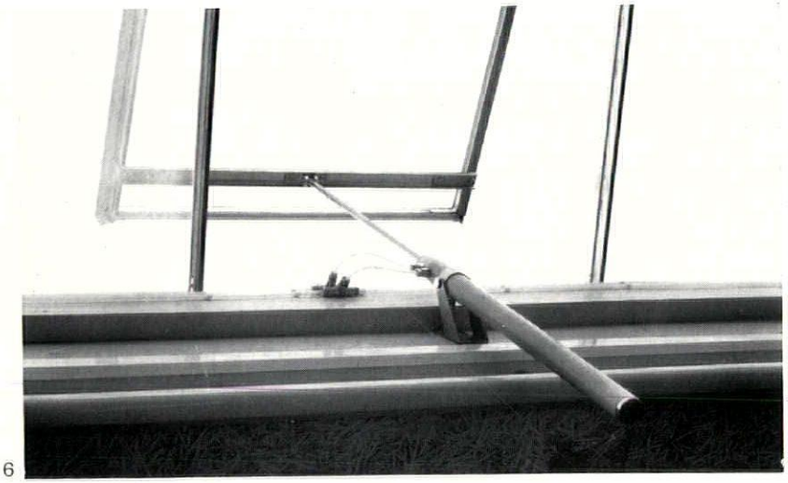

6

4, 5, two applications of Vitral double-glazed panels. 6, the Velta compressed-air remote control opening gear.

Double glazed units

More and more of recent times the building industry in general and architects in particular are thinking of building in terms of industrialization and increased productivity. To achieve this the extended use of factory-made components will be required; not prefabrication in the sense of factory-made whole buildings, but the concentration of manufacturing output on a smaller range of interrelated units.

The new Vitral Double glazed panels are a step in this direction. Three sizes of unit are available all 2 ft. wide and 3 ft., 4 ft. or 5 ft. long and consist of two sheets of glass carried in an aluminium frame. Adjoining frames are butted together with a foamed plastic resilient sealing strip between and the joint covered by an aluminium elliptical spring strip. Support is by angle cleats top and bottom to suitably spaced framing.

The units have been designed specifically for industrial use and can be employed in vertical cladding, in monitors, rooflights, single and double pitched skylights and northlights. Ancillary section of aluminium extrusion are also supplied to form the ridge of double pitched skylights. In addition top hung opening sections conforming to the modular pattern are available so that almost any arrangement of fixed and opening lights can be achieved.

It is, of course, always a problem with opening lights in inaccessible positions to arrange for suitable control. The opening sections in the Vitral assembly can be operated by all the existing systems but as a special addition to the system the same company markets a remote control opening device called the Velta based on the use of compressed air. This is a service which is commonly provided in a factory anyway and its adaptation to this function seems sensible and logical. The air mains can be run in the normal manner and the opening mechanisms are connected by two short flexible leads. The whole unit is neat and simple in appearance and an excellent development from some of the clumsier and ugly conventional systems available.

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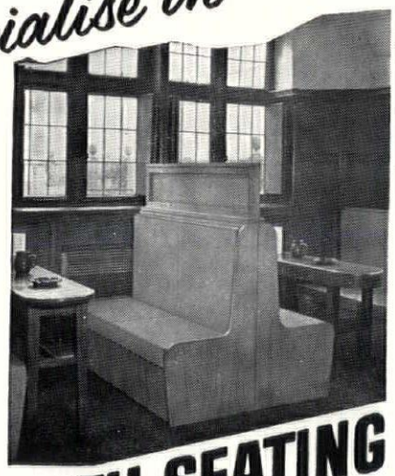

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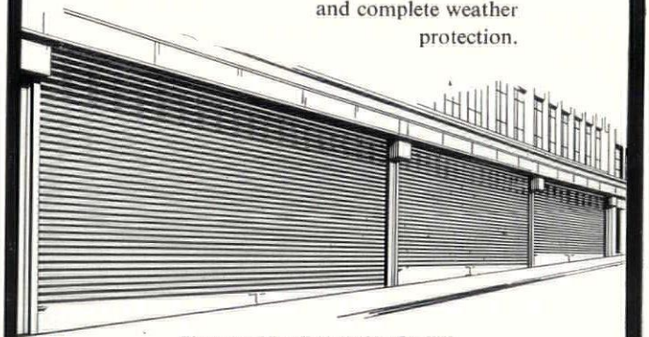

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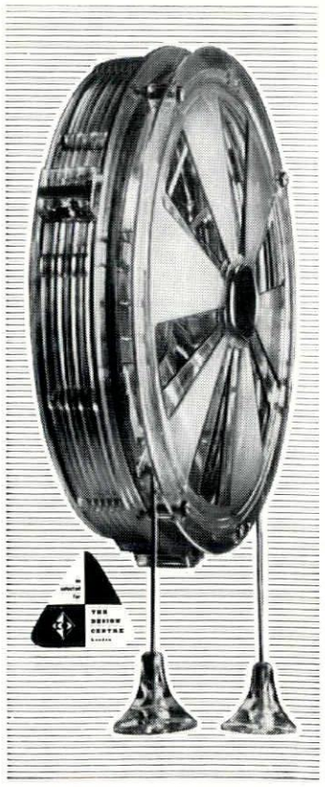

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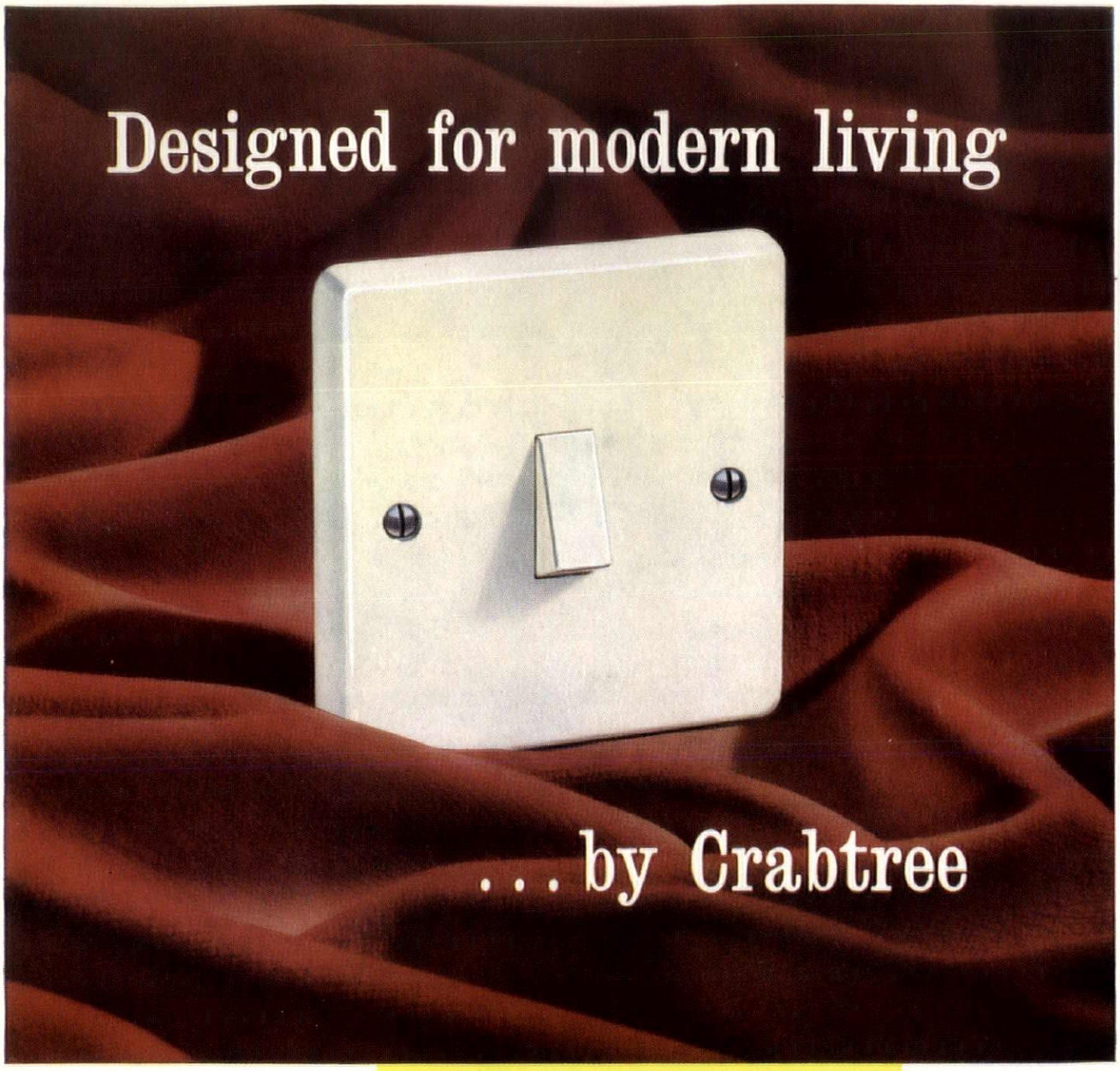

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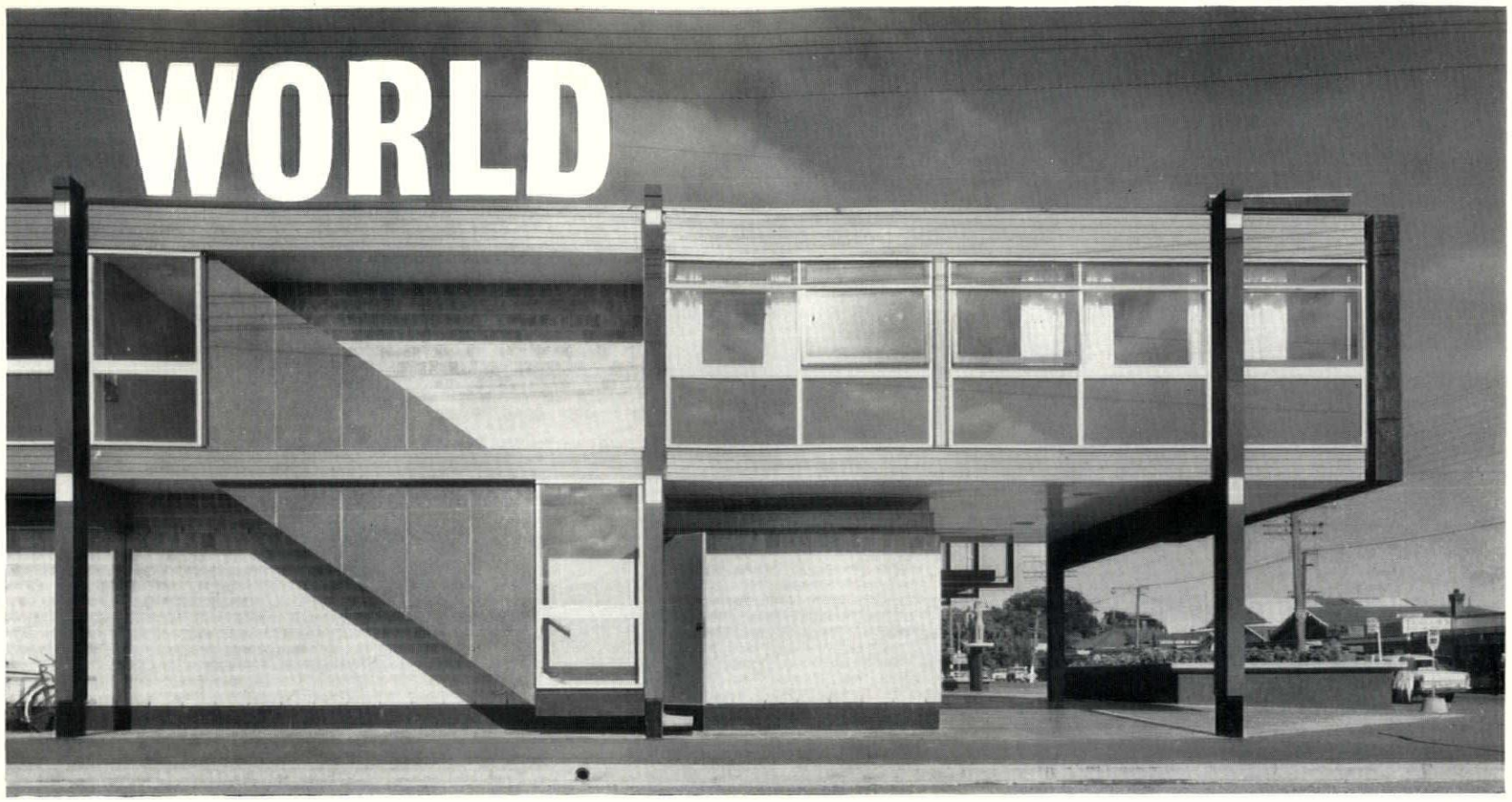
WORLD



1

NZ STORE

Supermarket near Christchurch

2

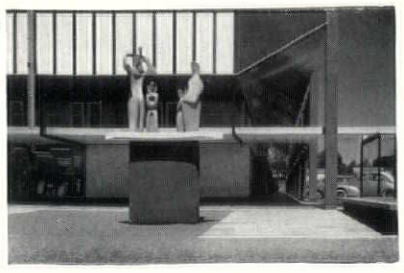


The straightforward elegance of Antipodean architecture at its best is one of the most attractive aspects of Commonwealth design today, and the neatly-filled bays of the mezzanine extension of Hay's department store, 1, at Riccarton, near Christchurch, shows that anything Australians do, New Zealanders can do as well if not better. Designed by Warren and Mahony, the store is quite simply and functionally a 25,000 square foot rectangular selling-floor, roofed by inverted bridge-trusses whose structure directly gives rise to the sloping roof of the shaded access-way, 3, on the car-park side. The mezzanine, seen again in 2, lies on the other side of the block, and is carried in a run of concrete A-frames which help to stiffen the whole structure laterally. A good deal of thought has gone into the surrounding amenities (which bespeaks an intelligent client, as well as good architects) such as covered walkways serving the car-parking area, and the sculptures by Russell Clark, 4, which serve as a streetside marker for the entrance to the store.

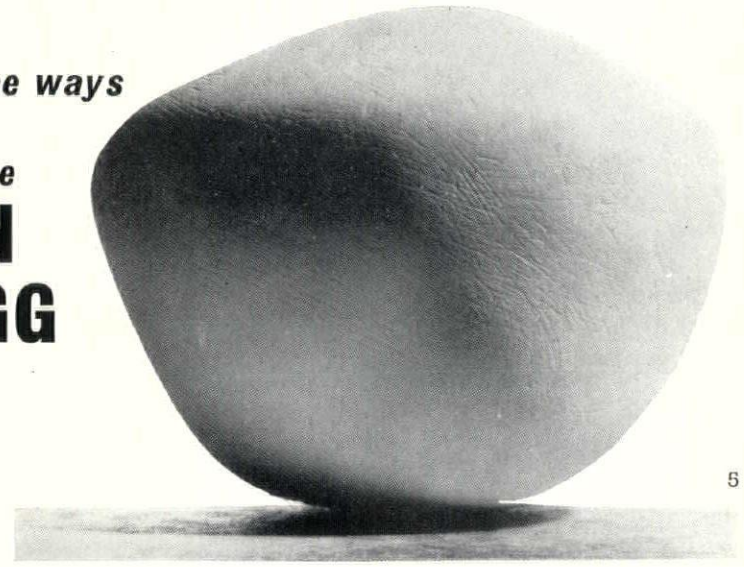
3



4



three ways to make AN EGG



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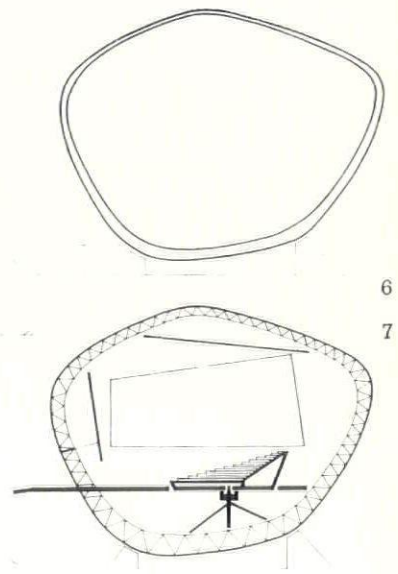
Few designs of recent years have made so clear the complete lack of dominance of structure over form as the project for a theatre at Dakar that appeared in a recent issue of *Architecture d'Aujourd'hui* (99, 1961–62) devoted for the most part to impeccably conformist opinions on architect/engineer collaboration. Dreamed up by André Bloc and Claude Parent, the theatre (conceived around the staging theories of Jacques Polieri) presents externally an obtuse and inelo-quent form, 5, not unlike an abstract sculpture of the mid-Thirties. To achieve this form, René Sarger, the consulting engineer, offers three entirely different structural solutions—a true shell, 6, in concrete; a very sophisticated tension compression structure, 7, with the inner shell used to pull the outer one tight, and a conventional (!) truss-system of struts and cables, 8. It will be observed that



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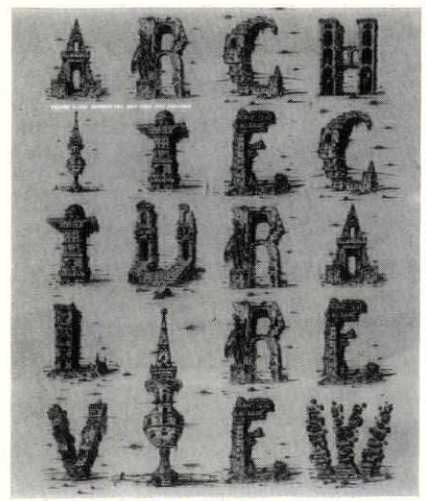
7

ACKNOWLEDGMENTS

WORLD, pages 301–304: 5–8, *Architecture d'Aujourd'hui*; 9–20, *Bauen + Wohnen*; 21–24, *Architektura CSSR*; 25, Jean Biaugeaud; 27, Universal Photo. VIEWS AND REVIEWS, pages 305–307: 2, Andrew Schumann. FRONTISPIECE, page 308: Galwey Arphot. HOUSE AT CAMBRIDGE, pages 311–314: Galwey Arphot. EARLY UNKNOWN GIBBS, pages 315–319: 1, 3, 4, 6, 10–14, 16–20, 24, Courtauld Institute of Art; 9, Toomey Arphot; 21, Royal Commission on Historical Monuments. THE SOFT JEWELLERY OF ART NOUVEAU, pages 320–325: 1–6, 8–13, Galwey Arphot. SCHOOL AT BASILDON, ESSEX, pages 330–335: Galwey Arphot. ID, pages 337–340: 1, 3, Galwey Arphot; 2, 4, Colin Westwood; 5–8, Edgar Hyman. STRAITJACKET, pages 341–343: Browne Arphot. DR, pages 344–348: 1–4, 18, 19, Toomey Arphot. MAGISTRATES' COURT, BUCKINGHAM, page 357: F. Jewell-Harrison. MISCELLANY, pages 358–364: Exhibitions, 5, 6, O. Vaering. Bouquet, 4, Publifoto; 6, 9, Patellani; 7, Ghedina; 8, Aldo Ballo. Shrubs, 1, 2, 4, J. E. Downward; 3, John Brookes. History, 1, Centraal Museum, Utrecht; 2, 3, Courtauld Institute of Art.



This month's cover *employs letters from an architectural alphabet drawn by Peter Söderlund, and exhibited at the Arthur Jeffress Gallery last year. This type of* capriccio, *which may be compared with Archimboldo's still-lives that are also portraits, has a long tradition behind it—but might also serve to trigger some experimentation towards architectural lettering in a new mode.*

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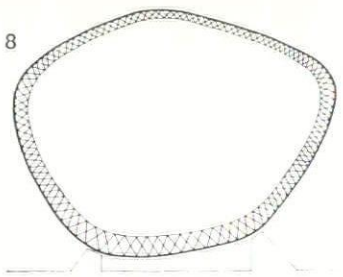
Egg

none of these is allowed to make the slightest difference to the shape of the exterior envelope and precious little to the interior—but one wonders how far practice would confirm theory, in view of the number of wild vaults that have had to be tamed of late, when the hard calculating began.

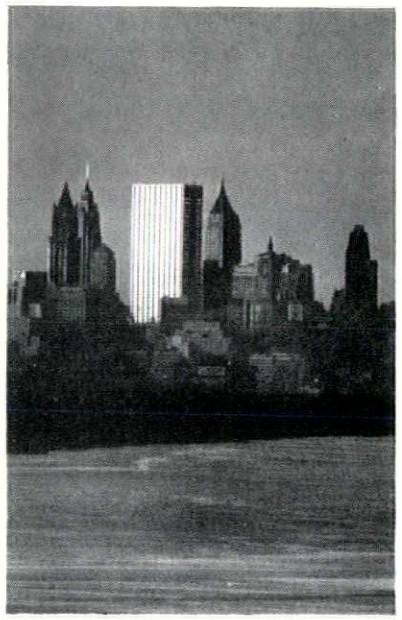
8



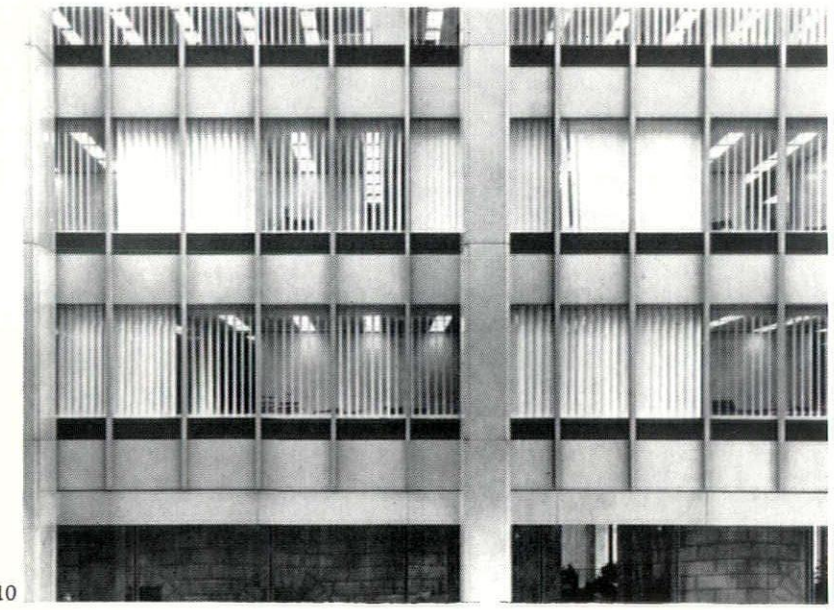
THE GREAT CONSERVATIVES

Skidmore Owings & Merrill under review

9



Although it may not be easy to see Gordon Bunshaft in the role of Senator Goldwater, there is more than a grain of truth in Philip Johnson's proposition (*Arts and Architecture*, February, 1962) that Skidmore Owings and Merrill are among the 'great conservative firms.' In the present welter of free-for-all radicalism versus the revived Birchite tyrannies of the Beaux-Arts, SOM stands up as a figure of monumental conservative calm, going nowhere, perhaps, but by that same token not going crazy either. The study of Skidmore Owings and Merrill that appeared in *Bauen & Wohnen* (1, 1962), though prefaced by the inevitable square 'Impressions of New York' by the equally inevitable visiting European fireman, is a solidly professional account of six worthwhile buildings by a solidly professional architectural office, giving pride of place to Chase Manhatten, 9, overwhelmingly the finest executive

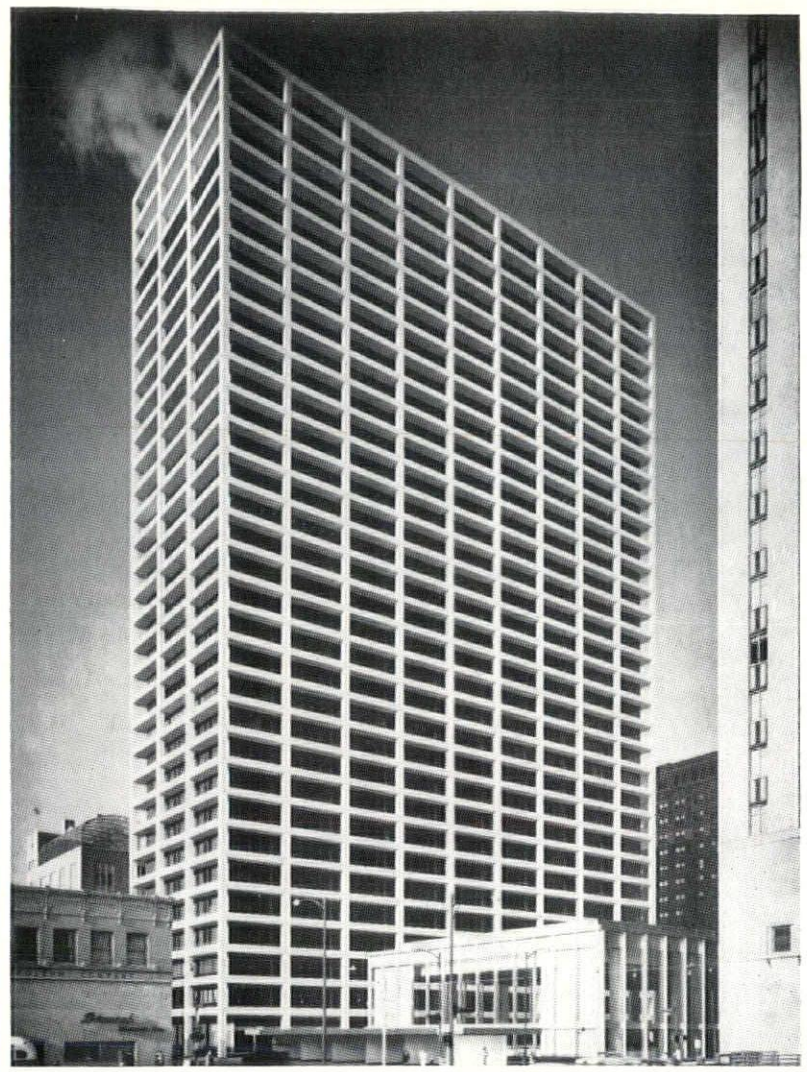


10

11



monument ever built, and the ruination of the lower Manhattan skyline. The pure shaft of its immaculately detailed exterior, 10, is a fair frame for some of the most art-stuffed interiors, 11, ever created in honour of an acquisitive society, but the whole is carried off with a practised ease that epitomizes the expertize that commends SOM to experts in other fields than architecture.



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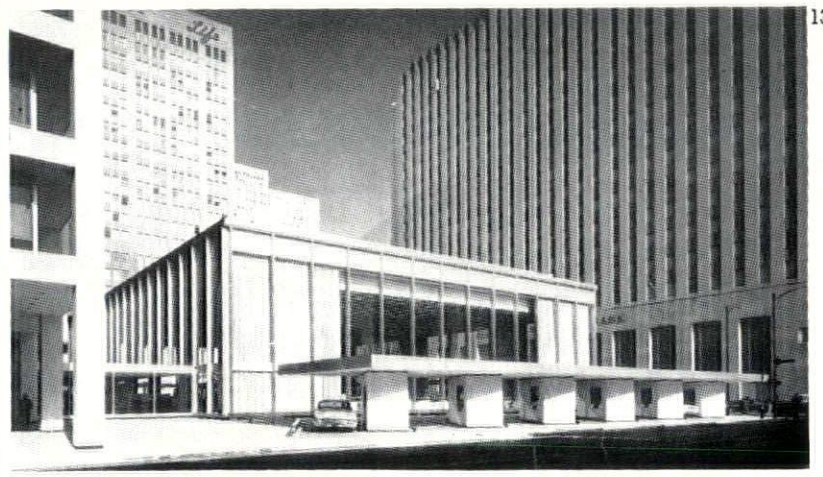


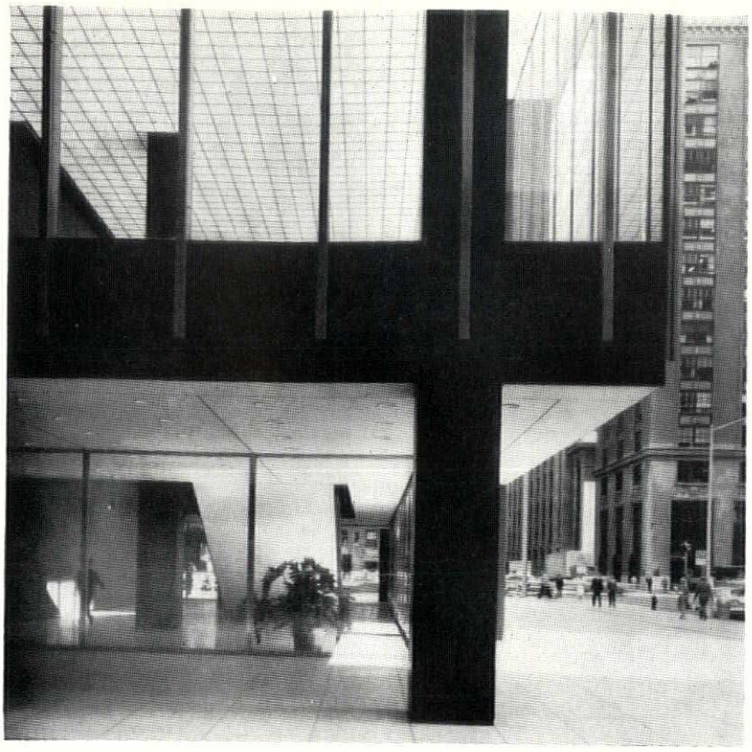
13

The marbled exterior frame of the First National City Bank in Houston, 12, shows the firm making a surprisingly restrained response to the exuberance that is Texas (far less *outré* than, for instance, their John Hancock building, *World*, December, 1960). However, the tower proper is flanked by a free-standing banking hall, flanked in its turn by a drive-in banking zone, 13, with room for six millionaires to draw out their last cent simultaneously without leaving their Cadillacs. For all its dispersal into a number of separate blocks, this Houston scheme creates a more unified impression, in many ways, than the Union Carbide Building in New York, standing impassive guard, 14, over the 'little Velasca' at the back of Grand Central Station. Part of the trouble with Union Carbide is that on close

14



SOM



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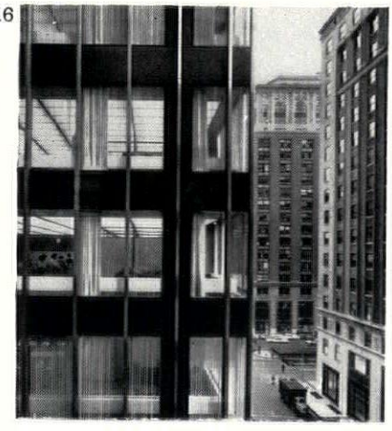
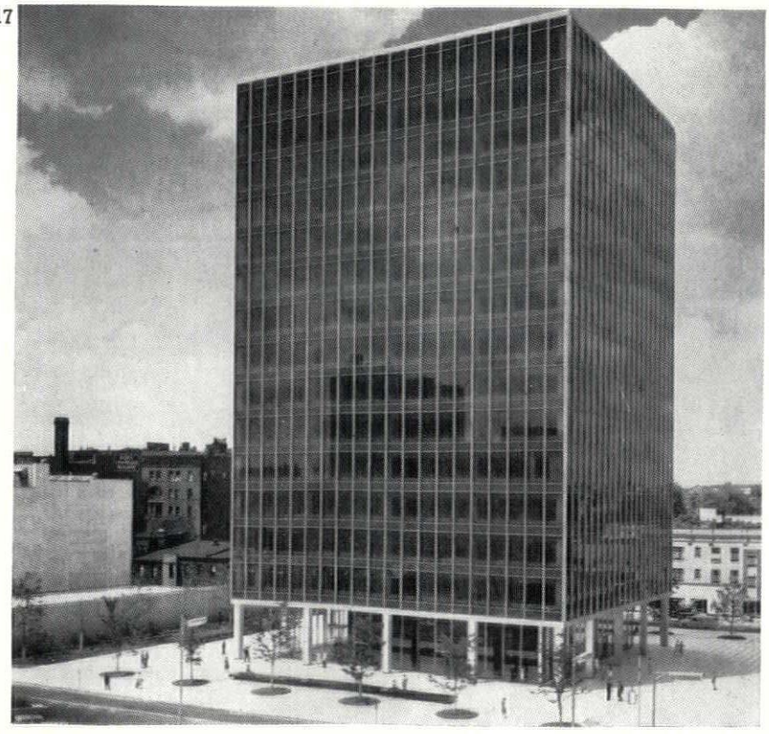


16

approach the detailing seems over-simplified for this great scale, 15, as if there were need for steel, aluminium and glass to find some scale-indicating surface treatment comparable to the shutter-patterning of the concrete of Le Corbusier's *Unités*. The absence of such a treatment is the more remarkable in view of the almost Greek optical refinement provided by the close-spacing of the last pair of mullions before the corner, 16.

Against this, the Libby-Owens-Ford office block in Toledo, Ohio, creates an immediately gratifying impression of a simple job, simply done, 17, and its interiors present a quality that is almost that of a Mies or Bauhaus



17

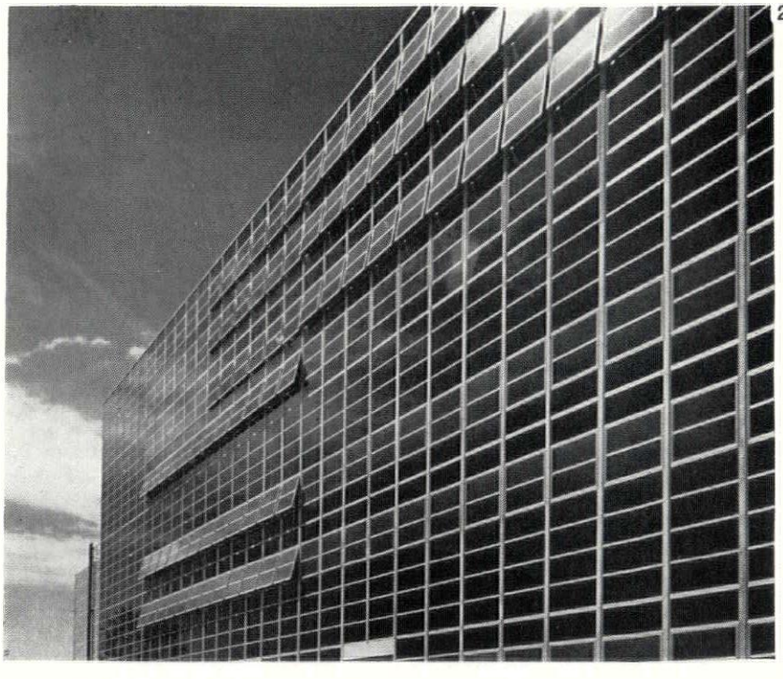


18

space-study suddenly come to life, 18, from the drawing. The 'great glass wall' from this group of jobs, however, comes not from any of the offices or office projects (such as Federal Home Loan and Savings, 19, in Chicago) but from an industrial scheme, for the glass flanks of Parke-Davis Pharmaceutical, 20, go beyond even the famous Heinz facades of SOM (AR, *Machine-Made America*, May 1957), both in sheer scale and in the subtlety of the miscellaneous modulations within the grid.



19



20

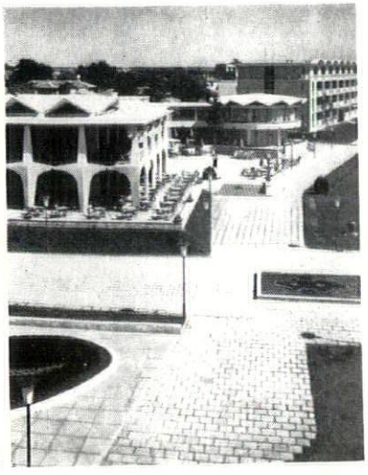
DEMOCRATIC PLEASURES

resort architecture in Rumania

Eastern Europe seems to have been de-Stalinizing itself more rapidly in architecture than in other fields, and the area abounds in surprises—pleasant, as often as not. One has the impression, even, that the Peoples' Democracies are surprising one another as much as they are non-Communist observers, and the February, 1962, issue of the imperturbable Czech magazine *Architektura CSSR* contained a scrap-book on recent Rumanian architecture that must have raised many eyebrows among the good grey rationalists of Prague and Brno (though the facts are not as startling as *ACSSR's* translator might suggest—'informs the readers about the administration of investical buildings-up').

Rumania

Joking aside, however, the complex of restaurants and hotels at Mangalia, 21, is not the average *Time-Life-*



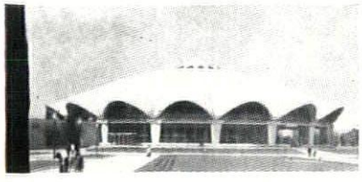
21

blinkered Westerner's idea of what Iron Curtain architecture should look like. Unfortunately, no architect's name is given for this project, though one can distinguish a similar hand in the restaurant at another resort town, Eforia, 22. Indeed, what happens to be



22

more important than any individual names is the appearance of a great Rumanian expertize in the architecture of pleasure. Development schemes and redevelopment schemes for new and old resorts seem to be the order of the day, and one of the most attractive of all the pleasure buildings would stand up to international competition of the strongest kind—the new permanent circus buildings at Bucarest, housed under a lobed vault that needs no excuses, 23, given the shape of the



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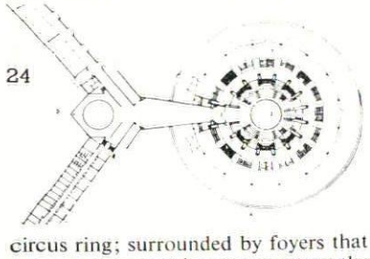


24

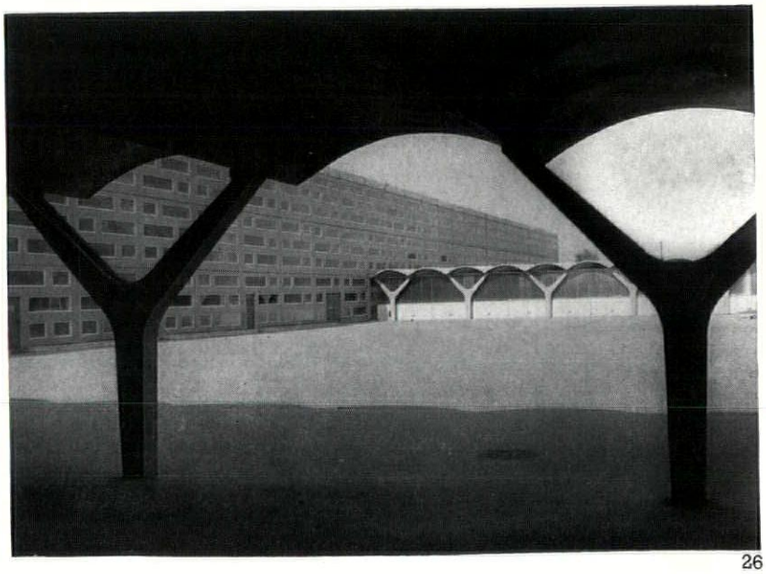
circus ring; surrounded by foyers that are a heaven-sent improvement on the mud and chaos of the entrance to the average big top; and linked to the animal lines and human residences in a plan, 24, that formalizes the ideal layout of a traditional tenting circus into a *parti* that makes sweet good sense in any architect's eyes.



25

SCHOOLS AT LES COURTILLIERES

Some, at least, of the interior space enclosed by the great serpentine block of flats in Emile Aillaud's residential development at Pantin-les-Courtillières (AR, November 1961) has now been filled-in with some remarkable school buildings, also by Aillaud. One is a créche (doubling up with an infant-welfare clinic, day-nursery and other local social services) sheltered by two sets of remarkable irregular vaults, 25, disposed on a plan which is a complex of interlocking ellipsoidal segments, 27. In order to eliminate the waste of complicated shuttering that could not be re-used, these vaults were executed in the Fabre technique—a double shell of hollow tiles rough-set over centering and plastered, the exterior being made water-tight with brightly coloured glass-fibre polyester. The resulting structure not only affords a suitable nursery gaiety of form and colour, but is also relatively cheap and has excellent heat-insulating properties. The other, larger school, though less extreme in form, achieves, when unoccupied, an extraordinary ambiguity of scale, as if one were viewing a model, 26, and even the presence of scholars, 28, does not altogether resolve the optical ambiguity entrained by the use of



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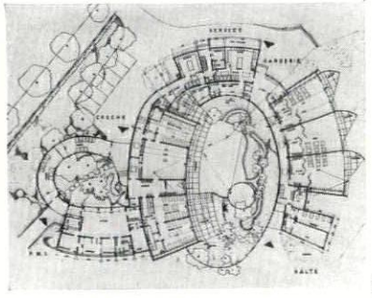


27

such a pronounced system of three window-strips per floor-height cladding unit. Although one still looks in vain for an unique personal style to



28

attach to the name of Aillaud, the sophistication and sheer professional ability exhibited by all his work, however various in approach, suggests that France may here have produced a talent comparable, in his way, to Eero Saarinen.

views and reviews

MARGINALIA

THE END OF THE COAL EXCHANGE

All too hard on the heels of the demise of the Euston great arch (recorded in last month's AR) comes the news that the Ministry of Housing and Local Government has given permission for the LCC and the City of London to proceed with their plan for the widening of Lower Thames Street. This bald statement of the news means, in practice, that the fight to save the Coal Exchange has been lost by stealth, no one in authority having bothered to tell any member of the delegation from the Victorian Society that their three alternative schemes for avoiding its destruction had all been turned down. By the time the news finally leaked out, the Minister's decision was already a month old.

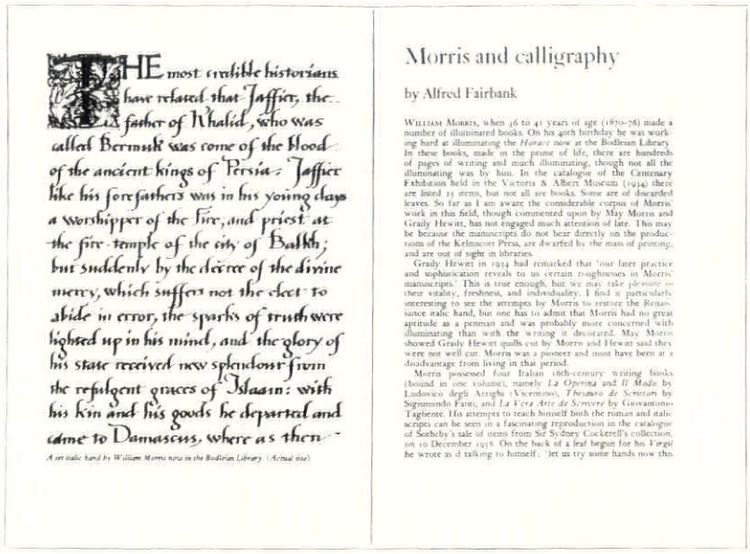
The whole business, underhand and undemocratic, seems thoroughly reprehensible irrespective of the building at stake, but the Coal Exchange was a building of exceptional interest and quality. Designed by J. B. Bunning, it is a multi-storey prefabricated cast-iron rotunda, capped by a glazed dome, and anticipates the ferro-vitreous architecture of the Crystal Palace by four years, having been put in hand in 1847. It is of sufficient technical interest and size (the rotunda is sixty feet in diameter) to warrant inclusion among *The Iron Pioneers* (AR, July, 1961) but it has always been a building of particular interest to the AR since its virtual discovery in these pages by Henry-Russell Hitchcock, the first modern author to draw attention to its remarkable qualities (AR, May, 1947).

MORRIS STUDIES

The appearance of the first issue of the Journal of the William Morris Society has been awaited with an unusual degree of specialist interest, because the Society has always set tough standards of scholarship, and has consistently implied that standards of design in typography ought to be as elevated as those of the Master himself. The standards of scholarship exhibited in the first issue need no discussion here, though none of the papers bears directly on architecture, but the layout and typography have been the subject of close study and emphatic decision inside the Society, and will doubtless be the subject of some spirited comment outside it.

The editors, while following closely the prescriptions on the general 'architecture' of book design given by Morris in *The Ideal Book*, have decided to use the non-Morrisian type-face 'Janson' which—as they admit—came from a period (the seventeenth century) that Morris did not particularly admire, and they justify their choice on four grounds. Firstly, it avoids the Victorian-Revival taint implicit in using Caslon (for all that the type had Morris's approval); secondly, it has a certain 'gothic' irregularity; thirdly, it has a better colour than Caslon in small sizes, and, fourthly, it has qualities of legibility and close fit that Morris would have approved (they also note, in passing, that Hermann Zapf, who produced the Linotype adaptation of the face, is the author of a sympathetic book on Morris).

All this being said, have the Society created the type of book they intended? 'Morris is in his grave, but his ideas go marching on.' But does his ability to inspire the creative designer continue in the same way? The appearance of the *Journal* makes one wonder, and this doubt is backed up by an observation in the report of the adjudicators of the Society's Peter Floud Memorial Prize Essay Competition to the effect that 'the lack of interest shown in Morris's work as a designer was disappointing, especially in view of the notable contribution to Morris studies made by Peter Floud.' Characteristically, the prize-winning essay, submitted by the same John Purkis, dealt with Morris's Icelandic travels, and the runners-up dealt with his poetry and poetic connections. It is clear, then, that the *Journal* has appeared at exactly the right moment to document either a swing of interest towards Morris's literary activities, or else some reassessment of his standing as a designer.


THE most credible historians have related that Jaffier, the father of Khalid, who was called Bermuk was come of the blood of the ancient kings of Persia: Jaffier like his forefathers was in his young days a worshipper of the fire, and priest at the fire-temple of the city of Balkh; but suddenly by the decree of the divine mercy, which suffers not the elect to abide in error, the sparks of truth were lighted up in his mind, and the glory of his state received new splendour from the refulgent graces of Islaam: with his kin and his goods he departed and came to Damascus, where as then

A set italic hand by William Morris now in the Bodleian Library. (Actual size)

Morris and calligraphy

by Alfred Fairbank

WILLIAM MORRIS, when 36 to 41 years of age (1870–76) made a number of illuminated books. On his 40th birthday he was working hard at illuminating the *Horace* now at the Bodleian Library. In these books, made in the prime of life, there are hundreds of pages of writing and much illuminating, though not all the illuminating was by him. In the catalogue of the Centenary Exhibition held in the Victoria & Albert Museum (1934) there are listed 15 items, but not all are books. Some are of discarded leaves. So far as I am aware the considerable corpus of Morris' work in this field, though commented upon by May Morris and Graily Hewitt, has not engaged much attention of late. This may be because the manuscripts do not bear directly on the productions of the Kelmscott Press, are dwarfed by the mass of printing, and are out of sight in libraries.

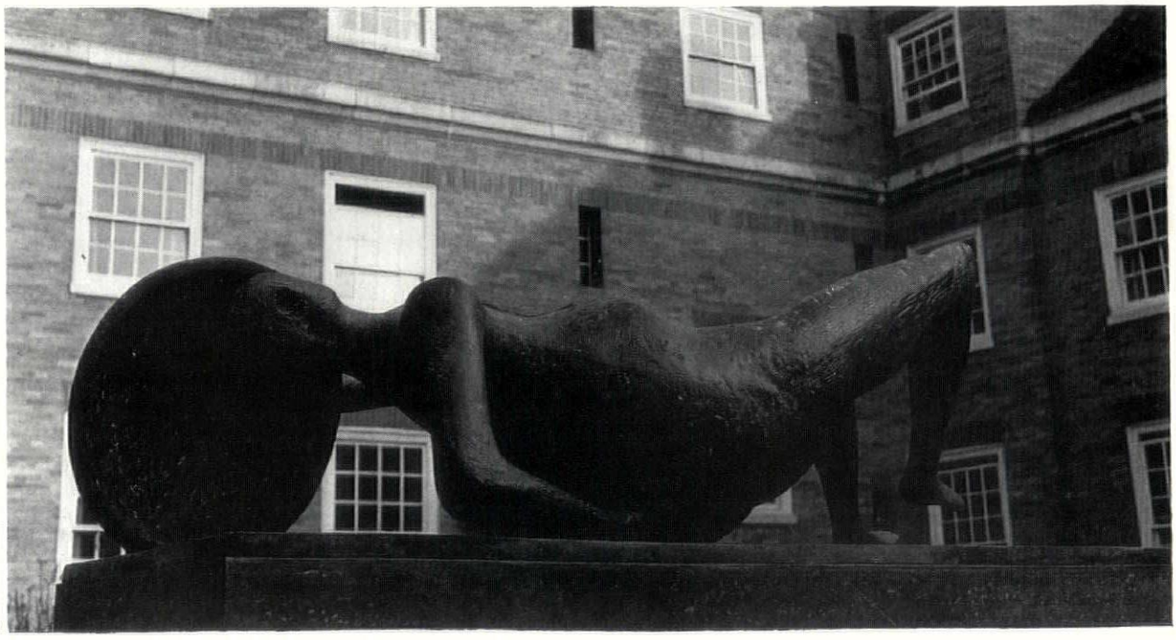
Graily Hewett in 1934 had remarked that 'our later practice and sophistication reveals to us certain roughnesses in Morris' manuscripts.' This is true enough, but we may take pleasure in their vitality, freshness, and individuality. I find it particularly interesting to see the attempts by Morris to restore the Renaissance italic hand, but one has to admit that Morris had no great aptitude as a penman and was probably more concerned with illuminating than with the writing it decorated. May Morris showed Graily Hewett quills cut by Morris and Hewett said they were not well cut. Morris was a pioneer and must have been at a disadvantage from living in that period.

Morris possessed four Italian 16th-century writing books (bound in one volume), namely *La Operina* and *Il Modo* by Ludovico degli Arrighi (Vicentino), *Thesauro de Scrittori* by Sigismondo Fanti, and *La Vera Arte de Scrivere* by Giovantonio Tagliente. His attempts to teach himself both the roman and italic scripts can be seen in a fascinating reproduction in the catalogue of Sotheby's sale of items from Sir Sydney Cockerell's collection on 16 December 1968. On the back of a leaf begun for his *Virgil* he wrote as if talking to himself: 'let us try some hands now this

1

A typical spread, 1, impresses first by its impeccable craftsmanship in production (the responsibility of Geoffrey Bensusan, formerly of the AR), and the precise architecture of the layout. But would Morris have approved its neutral good taste, which smacks, in some ways, more strongly of the school of Eric Gill? In a letter to the *Journal*, John Purkis observes that

MOORE AT CLARE. The policy of unobtrusive aesthetic enlightenment that led Clare College, Cambridge, to employ the talents of David Roberts (AR, June 1959) has also led the College to acquire and unobtrusively install one of the ten bronze castings of Henry Moore's Fallen Warrior, *which now occupies a plinth in the courtyard of Sir Giles Gilbert Scott's Memorial Buildings (appropriately enough). The cast was acquired through a combination of undergraduate and other subscriptions with college monies, and the final siting of the work was supervised by the sculptor himself.*



2

HERMANN MUTHESIUS

Thirty-five years ago, on October 26, 1927, Hermann Muthesius died in a traffic accident shortly after he had retired from his job as Inspector of Prussian Schools of Arts and Crafts. His name is known to those interested in the early history of the 'Modern Movement' and of the influence of the English Domestic Revival on the Continent. He gets some respectful references in Professor Pevsner's *Pioneers* as the chief promoter of the *Werkbund* and of anonymous as against personal forms of industrial design, and Dr. Banham writes in greater detail on the same events. Now a never-published memento has come to hand, written by Mr. Günther Muthesius, his son, and containing some facts and stories which deserve recording, and which, with his permission, are here recorded, as little could be found in print on Muthesius's life and character.

His father was a mason in a village. That alone explains much—his acceptance of William Morris's doctrines and of the buildings built by Morris's disciples. He was sent to a grammar school and then the Technische Hochschule at Berlin. His office experience was with Wallot, the respected architect of the Houses of Parliament. He must have been an enterprising young man; for in 1887, when he was twenty-six, he joined a Berlin firm, which needed assistants to supervise buildings in Japan. Japan impressed and influenced him greatly. The Japanese houses must have prepared him for the English houses. He had found rational principles in the one which he could recognize in European terms in the other, when in 1896 he was appointed Technical Attaché to the German Embassy in London with the explicit duty of studying the arts and crafts. In 1893 already he had taken up an architectural job with the Ministry of Works in Berlin. He was a convinced German, but just for that reason highly sceptical of the Emperor and of militarism. His dislike of

Wilhelm II had a personal origin. A design of his had to be passed by the Emperor and had been changed by him and signed 'Wilhelm, architect.'

In London Muthesius was extremely busy. The outcome of his seven years was not only his close knowledge of English art education, but also the three volumes of *Das englische Haus*, still the best summary of English domestic architecture of the Morris-Webb-Shaw-Lethaby age (1904–05), and the folios *Englische Baukunst der Gegenwart* and *Die neuere kirchliche Baukunst in England*. He was an absorbed worker and when, on the birth of his first son, the nurse rushed into his study and shouted: 'A boy!' he turned round and said: 'Tell him to wait.'

In 1904, on the strength of a pamphlet on the *Teaching of Drawing in English Primary Schools* (1900), he was appointed to the post in the Prussian Board of Trade which he held till his retirement. His last paper was a thoughtful and thoroughly interesting review and criticism of the Weissenhof Exhibition.

OBITUARY

'JUNIUS'

The obituaries that appeared in the newspapers when Joseph Peter Thorp died, in early March at the age of eighty-nine, duly remembered him as a pioneer of better advertising, as a reforming typographer, as a friend of Eric Gill and as 'T,' the dramatic critic of *Punch* from 1916 to 1934. But they did not note that under another pseudonym — Junius — he wrote the column entitled *A Free Commentary* in the AR from 1930 until his retirement due to ill-health in 1935.

This offered a natural and unforced outlet for his opinions on a great variety of subjects connected with design, and revealed him as the kind of general-purpose practical aesthete-cum-man-of-the-world that the REVIEW has always tried to cultivate—in his very first contribution (January, 1930) he was raising his voice against the wirescape threat of the power-grid, while condemning any attempt to render the pylons 'aesthetical' with decoration, and drawing attention to a new type-face, Eric Gill's *Perpetua*. He maintained his common-sense tone and breadth of interest throughout a difficult period when Carlton House Terrace was having to be defended, and the Modern Movement in English architecture nursed through its toddling years. Some passing ruderies about the Tecton gorilla-house at the London Zoo suggest that he might not have been happy with his column had it lasted much beyond September, 1935, but his was a voice of enlightened sanity in the early 'thirties.

CORRESPONDENCE

ROCK PARK, BIRKENHEAD

To the Editors.

SIRS,—Your outraged assistant has not marshalled all the facts before mounting his counter-attack on 'some bloke in an office who sees nothing but his road.' Rock Park is not near, but in Birkenhead, where within two miles your contributor would have found the Borough Engineer and Surveyor and Planning Officer very willing to discuss the alleged outrage and supply much relevant information missing from the article in your February issue.

The scheme will not interfere with public access to The Esplanade and its dramatic view of the Liverpool skyline across the river, but your readers should know that the river bed at low tide, so attractive on a black and white photograph, is not by any means clean sand, and that the view of Liverpool is very much interrupted by the recently constructed tanker cleaning berth and the ocean terminal of the Shell Refining Company Limited at which two 65,000-ton oil tankers may be tied up for discharging to the tank farm on the reclaimed foreshore immediately north of the Park (this is one of the few points in Great Britain where 65,000-ton tankers may be discharged, and has in fact the quickest turn-round time in northern Europe). Your counter-attack does not mention the facts either that the Minister of Housing and Local Government does not list Rock Park or any of its buildings as being of architectural or historic importance under Section 30 of the 1947 Planning Act, or further that the Royal Fine Art Commission decided after hearing their visiting sub-committee that they will not make any formal representation to the Birkenhead Borough Council or to the Ministries concerned in opposition to the proposed Rock Ferry by-pass.

There is no 'bottleneck' in Rock Park, but nearly all that part of New Chester Road to be by-passed has shops at each side and is narrower than its northward continuation to the Mersey Tunnel. To the south of the proposed by-pass are the 'old' New Chester Road passing through Bebington's shopping centre, and the New Ferry by-pass opened some two years ago and providing two-lane dual carriageways with no side access. The proposed Rock Ferry by-pass is, in fact, an extension of the by-pass already constructed on which industrial traffic to and from Liverpool and Birkenhead Docks travels freely without interfering with local traffic in the Bebington shopping centre.

Your contributor's suggestion for using a widened Rock Lane East was considered and rejected, because, amongst other things, it involves mixing and separating again local and through traffic between the northern end of the New Ferry by-pass and the junction of Rock Lane East with New Chester Road. The by-pass is the most urgently required part of a more comprehensive scheme which has been prepared for improving A.41 northward to the existing Mersey Tunnel, a new Mersey Crossing yet to be located in detail, and beyond to the Birkenhead Docks.

So far as compulsory purchase powers are concerned, most of your readers will be well aware of the elaborate machinery which exists for the protection of all interested parties and they will not be impressed by your contributor's statement that the road engineer can impose his perspective by means of compulsory purchase. It appears to me that this is one more example of the denigration of the work of municipal engineers by architects. It is clearly not justified by the full facts of the case and I trust that you will, by publication of this reply, try to correct the misconceptions created by the ill-conceived article in your February issue.

Yours, etc.,
H. C. OXBURGH
(Borough Engineer and Surveyor, Birkenhead)

Ian Nairn replies:

Mr. Oxburgh's letter only confirms me in the view that the essence of Rock Park is hopelessly misunderstood. It is an organic entity like a village. Whether the individual houses are on somebody's list or not is immaterial, and this was said in the article. Rebuild the unit by all means, but keep an overall pattern, which is truly remarkable. It was never suggested that the Liverpool view was pretty; it in fact is likely to be made more exciting by the tanker terminal rather than less. My real point was that once a town and its parts are understood organically, then the whole process of planning, whether roads or anything else, works from inside outwards. If there is no understanding, then we have the familiar refuge in lists and expedients and committee decisions—and so it has proved.

BOOK REVIEWS

THE EXPLODING CITY

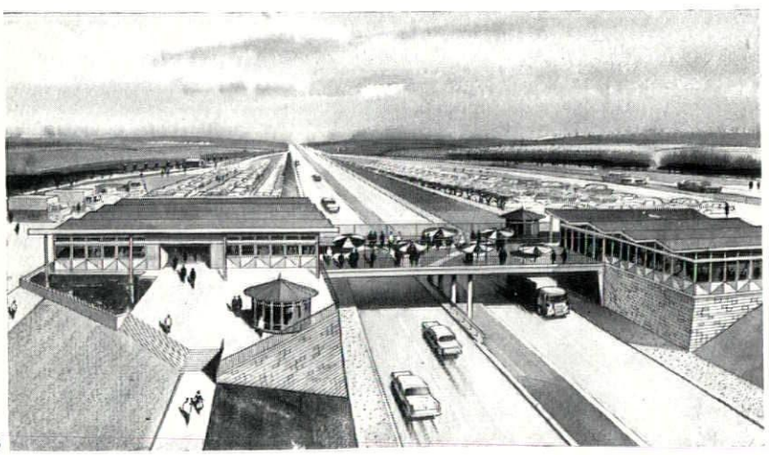
THE CITY IN HISTORY: ITS ORIGINS, ITS TRANSFORMATIONS AND ITS PROSPECTS. *By Lewis Mumford. Secker & Warburg, 70s.*

'Is the old man getting past it?' That, in crude sum, seems to be the thought behind the lukewarmly respectful reception given by our younger planners to Lewis Mumford's recent writings and addresses. Well, is he?

Listening to him during his last visit to London, I was vividly reminded of the occasion, thirty years before, when I heard another great generalist, seer and champion of humanity—H. G. Wells—speak to the young Socialists of Oxford. They were bitterly disappointed by his apparent unwillingness to get down to brass tacks, his almost frivolous treatment of what they regarded as the burning issues of the hour. When they tried to pin him down with the $64 question—should they join Labour or the Communists?—he advised them to form a 'Liberal-Fascist' party. So Mumford, asked for his solution to any of the specific problems that engross our minds, would veer off at a seeming tangent into fields remote from practical politics, if not beyond the planner's province. Was he, then, getting out of touch? Or had our own perspective been disastrously distorted by a myopic preoccupation with the false antitheses of current controversy?

The true and chastening answer will be found by him who reads this book—not just the last three of its eighteen chapters, dealing with the present plight and prospects of urban development, but all 576 pages of its text. This is no penance, for Mumford's command of words is an unfailing refreshment; but it is not a light refreshment. It will be found, however, to justify his premise that one needs a long running start in history—5,000 years long—to gather the momentum for a sufficiently bold leap forward. Except in the light of this fascinating and scholarly conspectus of urban experience, Mumford's apocalyptic vision of where the 'expanding economy' phase of the city's evolution is leading us would seem unconvincing, if not downright hysterical.

The City in History amplifies and supersedes *The Culture of Cities*. Its central theme—drastically oversimplified—is that in the beginning there was a shrine, a ceremonial meeting-place; that the city was born of the coming together at the shrine of the stronghold (the masculine culture of



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An interesting footnote to Raymond Spurrier's article on Motorway service areas (AR, December 1960) is provided by the recently published perspective of the proposed service area at Farthing Corner, Kent, on the M2. The proposal advanced by the architects, Sydney Clough and Partners, to employ a bridge restaurant, spanning between embanked car-park areas on either side, has clearly been made possible by the fact that the whole site is under a single control, and can be planned comprehensively, and the single controller is a company that revels in a competitive spirit, the Rank Organisation.

the palaeolithic hunter) and the village (the feminine culture of neolithic husbandry); that the resulting 'implosion' within the city walls released human potentialities which must otherwise have remained latent, but that inherent in the means of their release were the instruments of their restriction and ultimate destruction—sovereignty, slavery, rapine, 'protection,' parasitism, war and legalized violence in all its forms; that successive urban civilizations, in their rise and fall, have expressed the persevering but as yet unavailing efforts of the human spirit, constantly drawing strength for renewed attempts from the enduring vitality of the village, to evolve a form of city whose power to enrich personality could prevail over its tendency to quench it; and that it is our bad luck that another failure is more than likely to wipe out city and village alike. *Reculer pour mieux sauter* is an option no longer open to us: this time we get over the hump, or else.

That success in this endeavour lies within man's reach, if only man will heed the lessons of his past experience, Mumford is as firmly convinced as he is of the cataclysmic consequences of default. We have only to build into the city our deliberate renunciation of its demonstrably suicidal capacities, without at the same time inhibiting its life-promoting urge. To this end we must plan organically (a tribute here to Rowland Nicholas) and dynamically, continually adapting the original design to new needs and opportunities; we must preserve the city's cellular structure and limit its unit size, yet provide for its unchecked growth and for the emergence of ever more specialized functions. And the key to this paradox lies in Ebenezer Howard's concept of the Social City or regional constellation of separate but interdependent towns, each in itself combining openness with urbanity, each (like a power station in an electric grid) both serving local needs and helping to serve the exceptional needs of all, and all looking to a common centre or capital only as a place of assemblage for those still more exceptional functions which by their nature depend on concentration and mutual proximity.

That Howard's ideal was not the Garden City, but the articulated cluster of garden cities, is one of Mumford's many salutary reminders to the blinkered partisans of modern planning's factitious factions. 'It was in its urbanity, not in its horticulture, that the Garden City made a bold departure from the established method of building and planning.' 'Architectural critics who recently have confused urbanity with high population densities and tight building stultify themselves by forgetting the openness of Bath'—a city no less notable for the spaciousness of its back gardens than for the elegant continuity of its street frontages, as also was the medieval city until later centuries filled the gardens in. On the other hand, Mumford points out that Howard's residential densities work out at from 70 to 100 persons to the acre—from the middle to the top of the Hook range. Again, the recovery of Venice's supreme contribution—organization by neighbourhood and precinct—is described as fundamental to the establishment of a new urban form. Even the garden suburb (which is as old as the Mayas), though exposed in all its self-defeating futility, produced something that must be incorporated into the new concept.

But what Mumford sees as the crucial break-through in the city's evolution, on which both its own and humanity's survival now depends, is that it should acquire and consciously exert the faculty of reproducing itself as soon as it is big enough. To this was due the glory that was Greece (which Greece lost through failing to recognize its source) and the brief flowering of New England. The formulation of this idea was Howard's main contribution. 'He saw that, once it has achieved an optimum size, the need for the individual town is not to increase its own area and population, but to be part of a larger system that has the advantage of large numbers and extensive facilities.'

We in Britain have made a tentative start in this direction. When we come to regard the building of new towns to take the overspill from new towns not as a *reductio ad absurdum* of our planning policy, but as its true fulfilment, then and only then shall we, like Mumford, really be 'with it.'

Derek Senior

NEAPOLITAN INFLUENCES

ARCHITETTURA NEOCLASSICA A NAPOLI. *By Arnaldo Venditti. Edizione Scientifica Italiana, Napoli. L.6000.*

As a presentation of unfamiliar and unknown facts, this book is excellent, amply annotated and fully illustrated. The facts are of interest to this country too. What comes out is this. Baroque was still undefeated in Naples at the end of the eighteenth century. The turn to neo-classicism came with Joseph Bonaparte and Joachim Murat, i.e. about 1806-8. The climax is the work of Antonio Niccolini (1772-1850) and especially his Teatro San Carlo. Unfortunately, however, the author's approach to his subject is parochial. The infinitely most interesting and important problem, the connections with the France of Boullée, Ledoux, Durand, Chalgrin, etc., is nowhere even recognized, in spite of the fact that the presence of the French kings pointed firmly in that direction. Percier and Fontaine, it is true, are mentioned occasionally; but that is not enough. Take the Teatro San Carlo. Surely the arcaded and rusticated ground floor comes straight from the Odéon, and equally surely, the splendid colonnade on the upper floor—a descendant from the Louvre colonnade—comes from such designs as that of Ledoux's Maisons Hosten of 1792 (Raval-Moreux fig. 58). Similarly, is the church of S. Francesco di Paola with its embracing colonnade (embracing what was at first to be called the Foro Murat) directly inspired by the Pantheon and the piazza of St. Peter's or indirectly via Peyre and the style of the Parisian Grands Prix?

Particularly interesting in a British context is the fact that Niccolini also designed the completely English-Picturesque plan of the Villa Floridiana of 1816-17 with its Ionic rotunda, its Egyptian gateway and its 'caffeaus.' The dates are rather late from the English point of view, even if not quite as belated as the Chinese summer house in the garden of the Principe d'Angri's villa at Posilippo which was put up in 1833. Amongst the proprietors of villas Lord Drummond comes in and what the author calls Sir Acton (Villa Acton, later Rothschild). Sir William Hamilton, on the other hand, is hardly touched on.

To return to stylistic rather than personal matters, Gothicism appeared remarkably early in Naples, in comparison with other parts of Italy: in the church of S. Lencio which dates from 1799 and has a thinly Gothic facade in front of a classical interior. Doricism on the other hand remained unpopular for a curiously long time. The earliest example mentioned is the Villa Craven of c. 1820; the earliest example illustrated belongs to the Villa Acton and the year 1827 or thereabouts. The architect here was Pietro Valente. But his collaborator Guglielmo Bechi had still written a paper in 1826 on the misuse of the Doric order by some modern architects who 'fatten it beyond all measure, as the ridiculous crinolines once did to graceful ladies, and use it in threes and fours to weep in cemeteries, more over their own deformity than over the dead that surround them.' This is almost as good as Sir William Chambers's celebrated baboon.

Nikolaus Pevsner

PIONEER OF SEGREGATION

DIE AUTOGERECHTE STADT. *By Hans Bernhard Reichow. Otto Maier, Ravensburg* 1959.

Professor Gordon Stephenson pioneered the idea of traffic segregation in Britain through a large housing scheme for Wrexham and his plan for the pedestrian centre of Stevenage (with Clarence Stein) in 1950. 1954 saw the first housing completed at Vallingby where Markelius had planned a new town on the Radburn idea. It is in this context that we must place Dr.-Ing. Reichow, for, already in 1940, he had planned the extension to Anklam, as a masterly piece of traffic segregation. In 1955 he won the competition for the Sennestadt, now nearing completion (15,000 inhabitants approximately) and this shows many of his own, original developments from the Radburn idea, as first used in 1928, and subsequently most successfully at Baldwin Hills at the same time as Reichow planned Anklam.

The book under review is a slim volume with a minimum of text. 172 illustrations fill most of the 90 pages with informative, interesting and entertaining photographs, plans, sketches, diagrams and cartoons. It is this wealth of pictorial communication that makes the book useful for even those who do not read German. Reichow touches on most aspects of traffic segregation, illustrating with examples, taken in many instances from his work, how existing concepts on traffic must be revised. This is the first book in any language, I believe, which deals specifically with the proper provision for pedestrians and vehicles in towns.

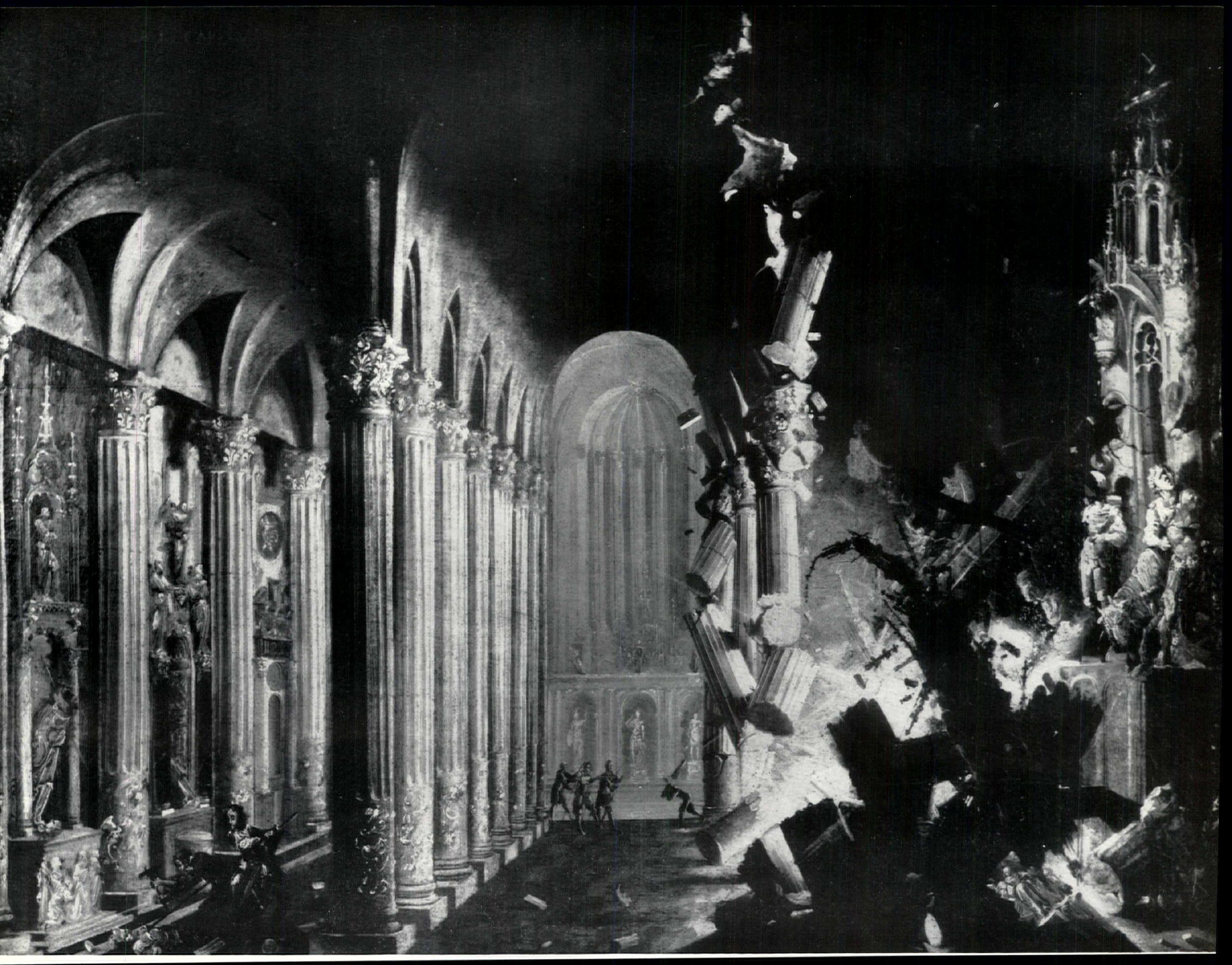
Reichow's text is clearly written, his tone is urgent and he is ready to fight, roundly denouncing, e.g. Le Corbusier's grid iron plan for Chandigarh as hopelessly out of date. He stresses his own theory of the organic flow of traffic, along curves, properly calculated for each speed, in many contexts. There are no cross roads in his schema, one-way traffic and V-junction are preferred, with a clear indication of major and minor roads. At Sennestadt different colour lighting makes this clear at night. Reichow's design emulates the organic branching forms of the tree or its leaf, making the roads the main spine. Thus, although he segregates paths, as does Clarence Stein at Radburn, Reichow plans, he says, not from a ring road, with culs-de-sac, but from a central road stem with culs-de-sac. As he demonstrates, this is more economical in roads given one stem only. But the idea of a central pedestrian area, leading to shops and schools and other attractions, is replaced by a much more intricate problem of creating successful pedestrian traffic. What is more, as soon as a number of Reichow's trunks are placed side by side we are back again at the ring-road shape and there is no difference in road costs. One may well fault a concept of 'organic' planning in which road economy takes precedence over pedestrian flow. However, Reichow's insight taught me, personally, that the superiority of a turning circle over a T-turning point is decisive from a noise and fume generating point of view—no reversing, gear change or reving. He is also one of the first to use a horseshoe of garages to shield the dwellings behind from noise.

Many of the other recommendations in the book are now well known in this country, but it must not be forgotten that Reichow pioneered in this field. In fact many of the illustrations in the book under review were first included in his *Organische Stadtbaukunst* (1948) and *Organische Baukunst* (1949). It is no wonder that this dates the book to some extent. More serious is the omission, felt today, but inevitable in 1959 when the book was published, of such schemes as Farsta, Cumbernauld, and Høok which have recently added so decisvely to planning for traffic segregation with multi-level centres, high density housing and in other ways.

I find his philosophy sympathetic but not compelling. Reichow's influence has been great, his design rational and it has had a life-positive direction, while the profession, as a whole, floundered. His grand manner has taken him through opposition and to the victory of many competitions so that among his larger projects are Limes, Leverkusen-Steinbüchel, Margarethenhöhe bei Essen, Hohnerkamp, and others. His schemes are often tackled with co-workers, notably Eggeling.

It was this grand manner which dispatched twelve one-metre square chip-board mounted photographs to my Amsterdam exhibition when I had asked for just a print of the plans and some 8 in. by 10 in. pictures to go with the other sixty schemes shown. The transport for the second crate of, no doubt, equally large and wonderful photographs, could also not be afforded by the Dutch exhibitors.

Paul Ritter



The mysterious Monsù is less of a mystery than was once the case—the researches of Pevsner and Scharf (AR, September 1948 and February 1949) have established his extraction, his background, and his real name, Francisco Desiderio. But his work remains exceedingly rare and the entry of so distinguished an example as this Explosion in a Church *into the permanent collection of the National Gallery is a welcome addition to the very small number of Monsù's on public view. And this is more than a distinguished Monsù, it is a unique one, for here his iconography does not merely record the consequences of ruin, but the act of ruination itself, with one half of his customary calm frontal perspective disrupted by some unexplained cataclysm that topples its altars and sends its columns flying in pieces.*

Ellis Waterhouse

THE CLAIMS OF TOURISM

THE CASE OF THE ELGIN MARBLES

One of the most curious affairs which the anthropologist has been forced to observe during the present century has been the courtship and marriage of Tourism and Nationalism. Tourism is an Anglo-American concept, which has been eagerly seized upon by other countries, who have found no need to discover a word for it of their own. It is the debased form that Travel has taken in the Digest Age, and it ranks next to commerce—and in some countries far above commerce—as the means by which large sums of money are transferred from the pockets of one nation into those of another. Tourism has largely taken its colour from the specific kind of curiosity, which is perhaps endemic in the United States, and has certainly been much fostered there—a curiosity to observe with benevolent surprise everything which is most characteristic, most indigenous, most nationally significant, about other peoples. This is a perfectly healthy, even a laudable, curiosity, but it may give rise in the peoples who seek to gratify it to certain less healthy symptoms, which may not be so praiseworthy.

There can be no doubt that the reason why Tourist Boards—and even, in some countries, Ministries of Tourism—are encouraged by the governments of European countries is because they are one of the best ways of introducing dollars into the native economy. The more you have to show, the more dollars will accrue, and this has led everywhere to an entirely admirable renewal of interest in, and a renewed feeling of the value of, the national heritage in fine buildings and works of art. So far, so good, so simple. It is less simple if we begin to wonder about the nature of works of art and of a 'national heritage.'

All works of art have been the creation of individual artists who belonged to a particular time and to a particular people, but the not very large category of really great works of art—like great ideas or great works of literature—are timeless, and, although they all perhaps partake to some extent in what recent generations have taken to calling a 'national culture,' they are no more and no less valid for one nation than for another. Great artists step instantly outside their national culture, and it was an Athenian who is the first on record to point this out. 'Every land, for a man of noble mind, is his native country,' wrote Euripides, perhaps after he had joined the band of other distinguished Athenians who had retired, in forced or voluntary exile, to Macedonia. Virgil and Horace are a little more distantly a part of the national heritage of Britain and France than they were in the eighteenth century, but the whole of Western European civilization is inconceivable without them; and, in the eighteenth century, the 'Laocoon' and the 'Belvedere torso' were a part of the national artistic heritage of every country west of Turkey and her Empire.

A certain reluctance to let great works of art (not of

necessity native ones) leave one country for another is to be found in the eighteenth century, but it is only in the Romantic Period, with its creation of public museums and awakening of nationalist feelings that there grew up—and then very slowly—the notion that there was a national responsibility to build up collections of national art; and it was only in the present century, and then first in the Dictator countries, that it became possible to speak of national 'claims' on works of art, because they had been produced in a certain country (as with Mussolini and the *Ara Pacis* reliefs) and to force a public Gallery to sell 'foreign' pictures (as Berlin did a Duccio) in order to buy lesser works by native artists. With the coming of the new ideal of Tourism these 'claims' have been becoming more and more vociferous, and a marriage of Tourism with Nationalism has seemed one of the best ways of confusing the issue. The logical conclusion of this alliance is the claim that the Elgin marbles should be returned to Athens.

The seventh Earl of Elgin was appointed Ambassador at the Porte on an ordinary diplomatic mission, but at an extraordinary moment; he was also—somewhat unpredictably, as far as earlier knowledge of his career is available—fired with an exceptional zeal for the furtherance of classical scholarship, and he took with him, and settled in Athens, a small group of artists with a view to recording and making casts of the surviving remains of Antiquity. He arrived at Constantinople in November 1799, and he managed to establish remarkably cordial relations with the Sultan. He and his newly-married wife (who was later to desert him) became genuinely friendly with the Captain Pacha and with his sister, who was a favourite of the Sultan. They seem to have behaved in a natural and friendly manner which was probably as uncommon in diplomacy then as it is to-day. And then in 1801 came the British recapture of Alexandria from the French and the Treaty of Amiens, by which France was to return Egypt to the Porte. The Elgins were in a position such as no British representative had ever been before to ask favours of the Sultan.

Meanwhile Lord Elgin's artists in Athens had discovered that every accessible piece of figure sculpture on the Parthenon was being defaced by the Turks, and that several pieces of sculpture which had fallen from the pediments had been converted into lime for building purposes, and the idea occurred to Lord Elgin that it would be desirable, not merely to make casts of what was left, but to carry off the originals to England before they suffered further damage. He finally secured a *firman* to do this and the whole proceedings were carried through with unusual correctness. The sculptures eventually became the property of the British Nation by purchase from Lord Elgin in 1815.

The effect on the arts and the art-history and on the general culture of Western Europe (and the United States) since the transfer of the Parthenon marbles to London has been tremendous, and they have become as much a part of our own national inheritance to-day as are the cathedrals of York or Durham or Canterbury. It is probably fair to say that the whole of Antiquity is a part of the national inheritance of the whole of Western Europe, and there can be little doubt that the Parthenon marbles are the finest sculptural remains of Antiquity. The only grounds that can be put forward for transferring them back to Athens—apart from the quite absurd grounds of Nationalism and the interests of national Tourism, which, if accepted, would involve a game of General Post for half the works of art throughout the world—are what can be called grounds of 'sentiment.' The modern Athenians are descended from the Athenians of the time of Pericles by about as convincing a line of descent as are the Modern Athenians of Edinburgh.

There certainly should be no suggestion (one can hardly venture to say there *can* be no suggestion, since odd things have been happening to the Parthenon in recent years) of returning them to the building from which they came. Not only would they be infinitely less visible, but the industrial smoke from the Piræus has probably done more damage to the Parthenon marble since the war than anything that the Turks have achieved during the last two-and-a-half thousand years. In the archæological age in which we live there is a notion that buildings which have been dealt with by time should be restored as far as possible, on 'the most scrupulous archæological principles,' to as near their original state as may be. When this method is applied to paintings at least half the world is up in arms, but we shall probably have to wait until one of the major temples of Antiquity is made to look like the Pennsylvania Museum before the disastrous effect of this doctrine in the field of architecture becomes equally apparent.

But the custody of works of art involves a heavy responsibility. In the matter of making them available to the public and to scholars we have a better record than the modern Greeks. The total inaccessibility for a generation of the Thebes Museum and its contents, without even the excuse of war damage, is something we have never achieved even in a centre remote from the main stream of tourism. On the other hand great works of art demand that great attention should be given to displaying them to full advantage. The Metropolitan Museum in New York has contrived to make even Cypriot sculpture look distinguished by the arts of display, but the British Museum seems to have been content to allow the Parthenon marbles to speak for themselves without any addition of the Graces. A railway waiting room with its walls painted thrush-egg blue is a not unfair description of the room in which they are at present housed, and their general presentation in the British Museum compares unfavourably with the method of displaying classical sculpture in the National Museum of Athens. This, however, is remediable, and, if every work of art which was inelegantly displayed in a Museum were to become automatically a candidate for repatriation, the world would be reduced to absurdity in no time.

The Parthenon marbles do not in the least help us, or anyone else, to understand the Greeks of to-day, but they do help us to understand the civilization of which we are a part and which we believe to be worth preserving. They should be cherished and guarded as among the most precious things we possess, and kept entirely outside the muddy political waters of National-Tourism.

The last Danish house in England to be illustrated in the AR was designed by Erhard Lorenz for Ove Arup, the celebrated engineer, and was published in May, 1958. Readers who compare the two will find little common national character about them, though neither appears quite native to the site on which it stands, and each is an enrichment of the area to which it contributes its foreign accent.

DANISH HOUSE IN ENGLAND

HOUSE AT CAMBRIDGE

ARCHITECT | **ERIC C. SORENSEN**

1, the living room from the south.



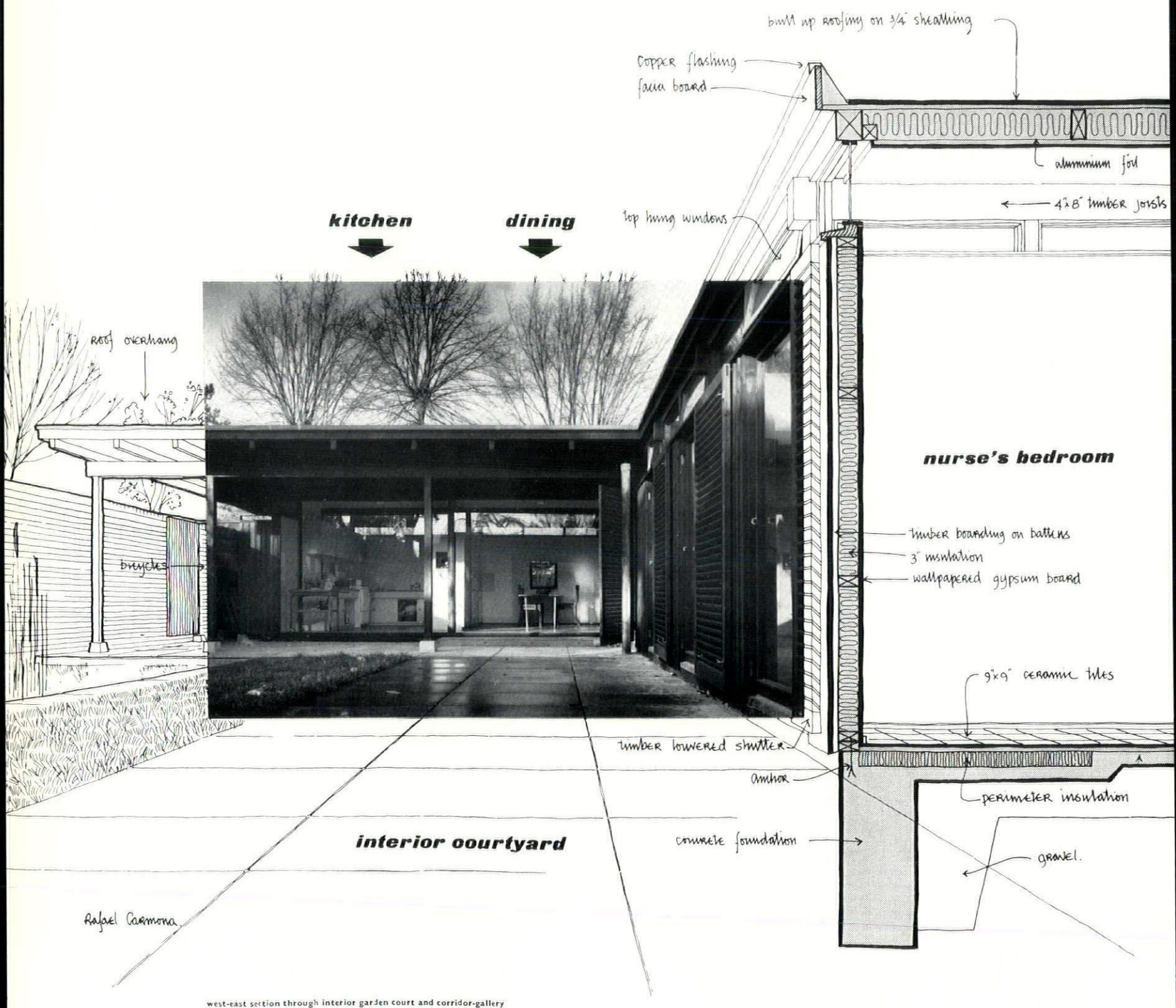
HOUSE AT CAMBRIDGE

This single-storey house has been built for a Cambridge doctor and his wife who is a crystallographer. The site is part of an old garden, belonging to a turn-of-the-century house on the south side of Hills Avenue, the old house remaining as the new one's neighbour to the west. The site is about 190ft. deep but only 50ft. wide.

The accommodation is based on the special needs of the owners: both husband and wife are away during the week working in research laboratories (he in Cambridge, where he has college rooms; she in London) and occupy the house at week-ends, where, however, their two children live permanently in the care of nurse and maid.

The plan is based on a module representing the spacing of the timber frame. All the rooms are laid out around an interior garden court, into which they open. On the north side of the court, nearest the road, are the entrance and dining-kitchen; on the south side are the owners' self-contained quarters (living-room, bedroom and bathroom), facing an enclosed garden to the south, and connecting these two wings is a corridor-gallery, lined with bookshelves, off which is a row of bedroom-cabins for the children and maids. The fourth side of the court is formed by the west boundary wall, and between the corridor wall and the eastern boundary is a narrow herb garden in which a couple of the old trees remain.

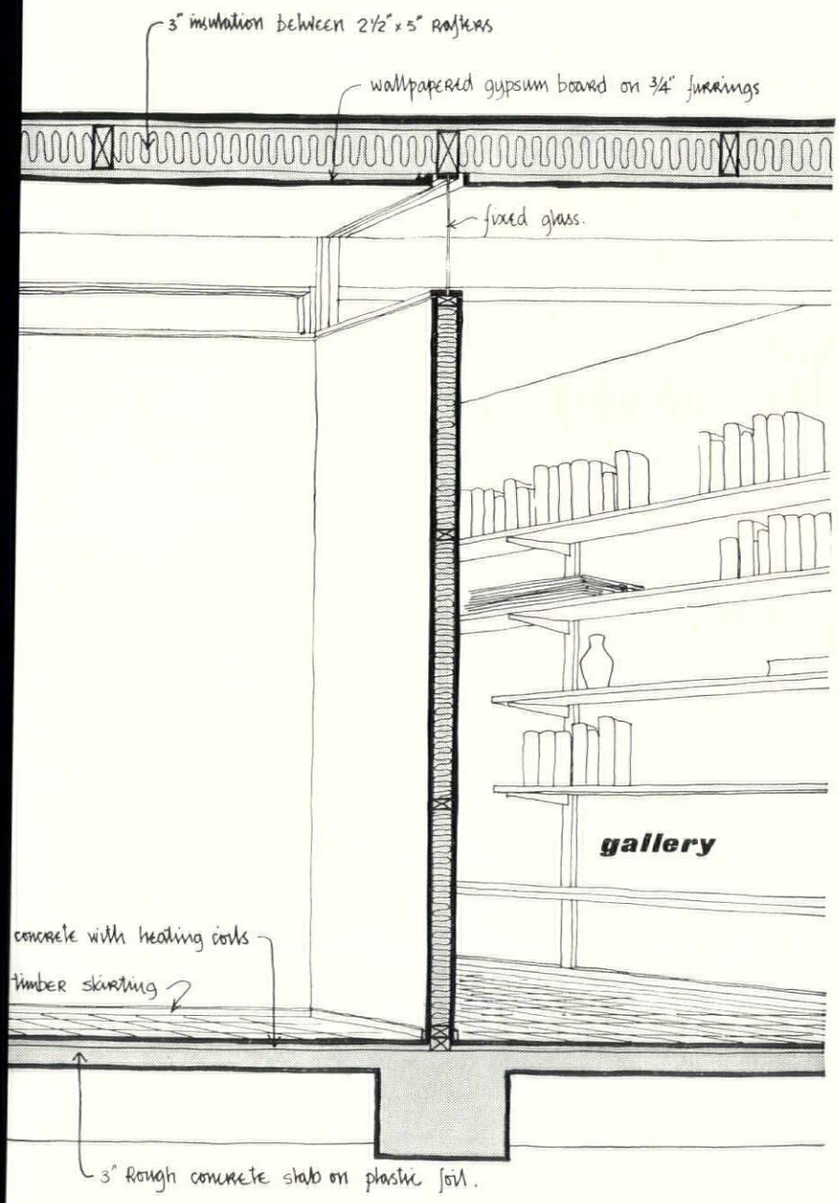
In the front, a canopy over the entrance extends also

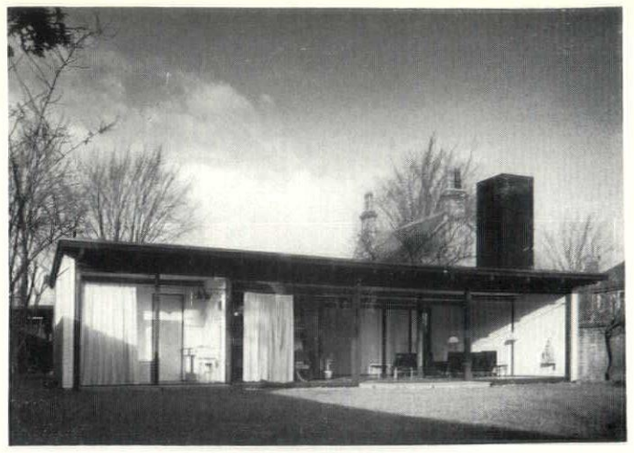


west-east section through interior garden court and corridor-gallery

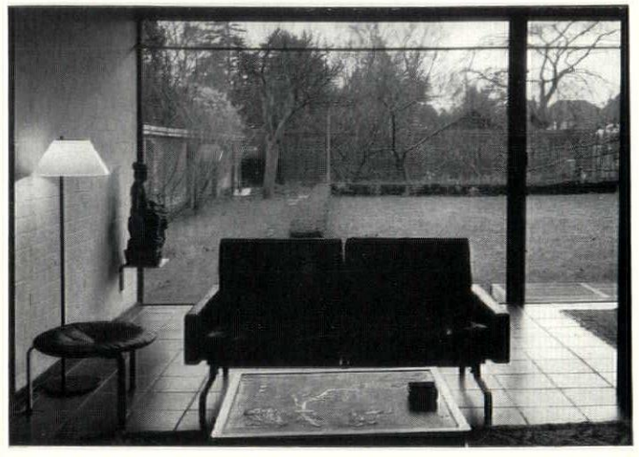
over a car-parking space and service entrance. A similar canopy provides shelter over the northern part of the interior court. The layout generally is designed to screen the living-spaces from the windows of the two-storeyed neighbouring houses.

The structure is partly brick and partly timber frame; the latter is stained dark brown and rests on a concrete slab containing heating coils and covered with ceramic tiles. Exterior boarding is also stained brown. Brickwork and plastered interior walls and ceilings are white. The built-up roof has copper flashings. The interior court is planted with bamboo. Elsewhere the garden is grassed, with some fruit-trees and box-hedging surviving from the old garden.





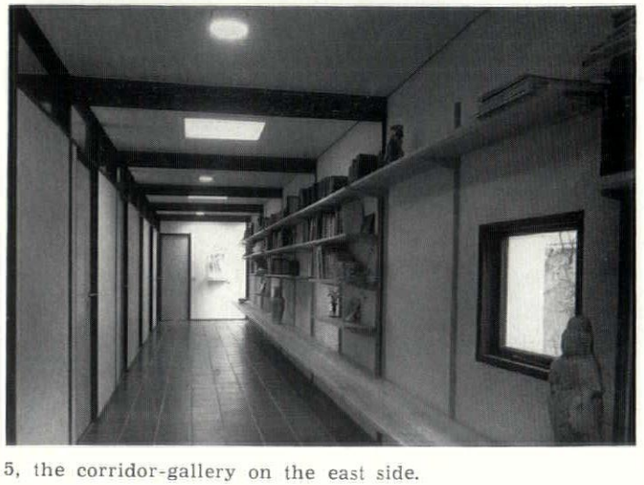
2, from the south: bathroom on left, living room on right.



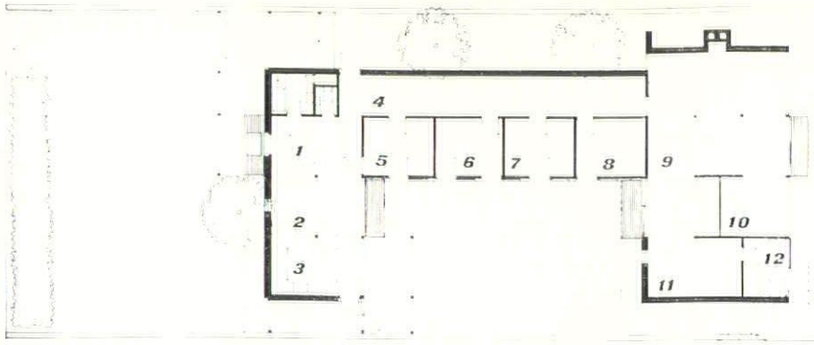
3, looking from the living room into the garden.



4, the bedroom seen from the living room.



5, the corridor-gallery on the east side.



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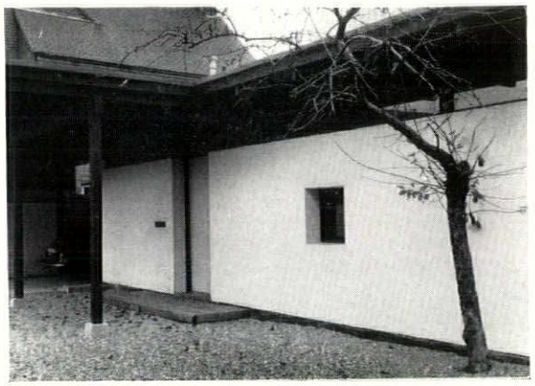
key
1, entrance.
2, dining room.
3, kitchen.
4, gallery.
5, nursery.
6, child's room.
7, nurse's room.
8, maid's room.
9, living room.
10, study.
11, sleeping area.
12, bathroom.

6



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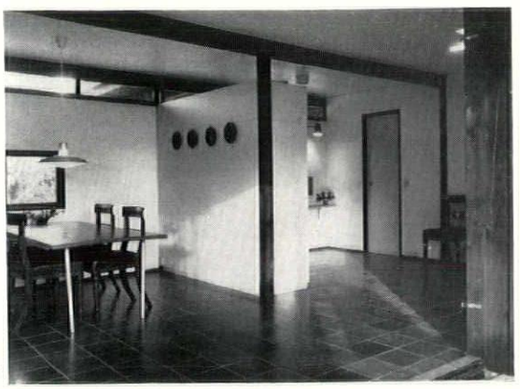


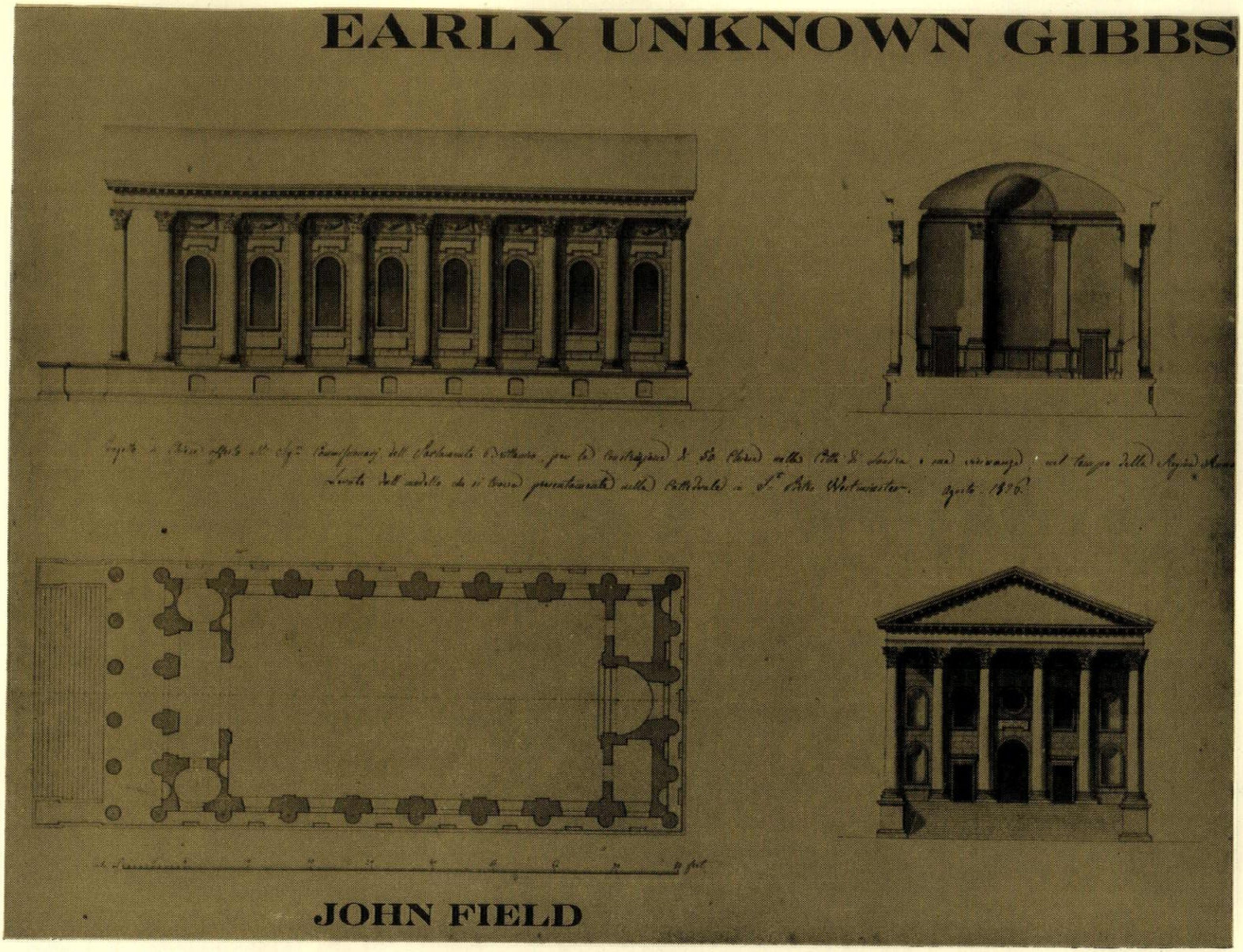
6, the entrance from the north-west. 7, the dining area with the entrance on the right. 8, the living room.

photographs by H. de Burgh Galwey

8



EARLY UNKNOWN GIBBS



JOHN FIELD

1, *Cockerell's drawing of Gibbs's design for a pseudoperipteral church.*

Mr. Howard Colvin's important article on the Commission of 1710 for the 'Fifty New Churches' appeared in the March, 1950, issue of THE ARCHITECTURAL REVIEW. Four years later the missing papers of the Commission[1] came to light at Lambeth Palace, giving many more details and necessitating certain revisions in the dating and, in some cases, the authorship of various church designs[2]. In 1960 Mr. Kerry Downes's monograph on Nicholas Hawksmoor was published, utilizing this new material to relate the part played by that architect as Surveyor to the Commission[3].

The papers of the Commission also shed new light on the activities of James Gibbs as Co-Surveyor during this crucial period at the beginning of his career. They give important new information concerning the development of the design of St. Mary-le-Strand, which was his first masterpiece and his stepping-stone to success. They also enable us to envisage three hitherto unknown church designs by Gibbs which are his earliest identifiable architectural works. These designs are linked with his two most important churches, St. Mary-le-Strand (1714) and St. Martin-in-the-Fields (1721). In a wider sense they suggest a reassessment of the influence of ancient Roman architecture on Gibbs and his relation to the Palladian movement.

Mr. Colvin referred to Professor T. L. Donaldson's paper, published in 1843[4], which described fourteen wooden models made for the Commission and at that time still surviving in Westminster Abbey[5], 2. Ten of these models were for unidentified church projects. Mr. Colvin also referred to plans and elevations of two of them drawn by C. R. Cockerell in 1826[6]. The papers of the Commission now enable us to identify as the work of James Gibbs three of these models, including one of those drawn by Cockerell[7], 1.

Gibbs was born at Aberdeen in 1682. He was a Jacobite and a Catholic and he spent ten months at the Pontifical Scots College at Rome studying to be a missionary priest[8]. His vocation failed, but he remained at Rome first as a painter, later as a student of architecture in the studio of the celebrated Carlo Fontana, where he worked for about four years. This training was unique for a British architect at that time.

He returned to England in the winter of 1708–9 and, through his patron the Earl of Mar, he obtained a sinecure commission in the garrison of Stirling castle. In 1711 he was present at the inauguration of Kneller's academy. His first datable work is the frontispiece design for Flamsteed's 'Historia Celestis,' published in 1712, which derives from designs for high altars by Padre Andrea Pozzo[9]. Nothing else is known of Gibbs' first four years in England except that he made the acquaintance of Wren.

In his autobiographical manuscript at the Soane Museum[10] Gibbs says, 'Sir Christopher Wren was much his (i.e. Gibbs's) friend who having seen some of Mr. Gibbs drawings was much pleased with them.' This is confirmed by Wren's letter[11] endorsing Gibbs's application for the Surveyorship to the Commission in 1713: 'I have been for some time acquainted with Mr. Gibbs, and have

(1) These papers comprise: Minutes of the Commission meetings, Minutes of Building Committee meetings, Books of Works, Contracts, warrants, accounts, muniments, deeds and miscellaneous letters and papers. Although there are a number of site-plans there are no other drawings.

(2) St. George, Hanover Square, was designed in 1720, not in 1712. See ARCHITECTURAL REVIEW, August 1960.

(3) Downes, *Hawksmoor*, London, 1959. I am indebted to Mr. Downes for directing me to the Gibbs material at Lambeth Palace.

(4) *The Architect, Engineer and Surveyor*, London, 1843, p. 351.

(5) An inscription on Donaldson's original plans at the RIBA library (see below) states that the models were in the 'Kensington Museum 1876.' Mr. J. Pope-Hennessy suggests that they had been donated to the Architectural Museum, which between 1857 and 1869 was housed at the V & A. When the museum was dissolved in 1916 there was no record of the models nor are they listed in any catalogue of either museum.

(6) V & A, Prints and Drawings, E 3024–3026, 1909. The third model drawn by Cockerell is apparently by Hawksmoor. See: Downes, op. cit., p. 172. Also illustrated by Colvin, op. cit.

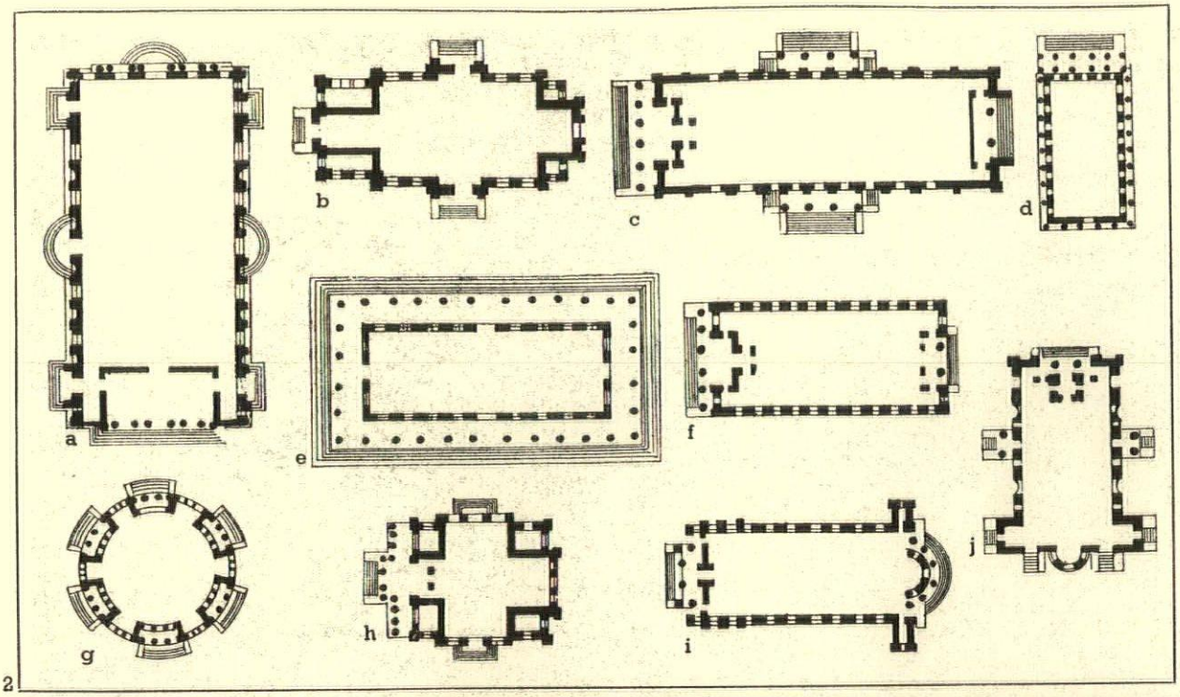
(7) The present article is based on the author's unpublished MA thesis, U. of London, 1958, wherein the documentary evidence is discussed at length.

(8) B. Little, *The Life and Works of James Gibbs*, London, 1955.

(9) A. Pozzo, *Perspectiva Pictorum et Architectorum*, Rome, 1700, 1702, Vol. II, plate 80.

(10) J. Holloway, 'A James Gibbs Autobiography' in *Burlington Magazine*, London, May, 1955, p. 147.
The Soane MS does *not* state that Gibbs studied architecture in Holland. This is stated in an otherwise inaccurate article in *Scots Magazine*, Sept., 1760.

(11) Misc. Papers, Box XII, petitions bundle.



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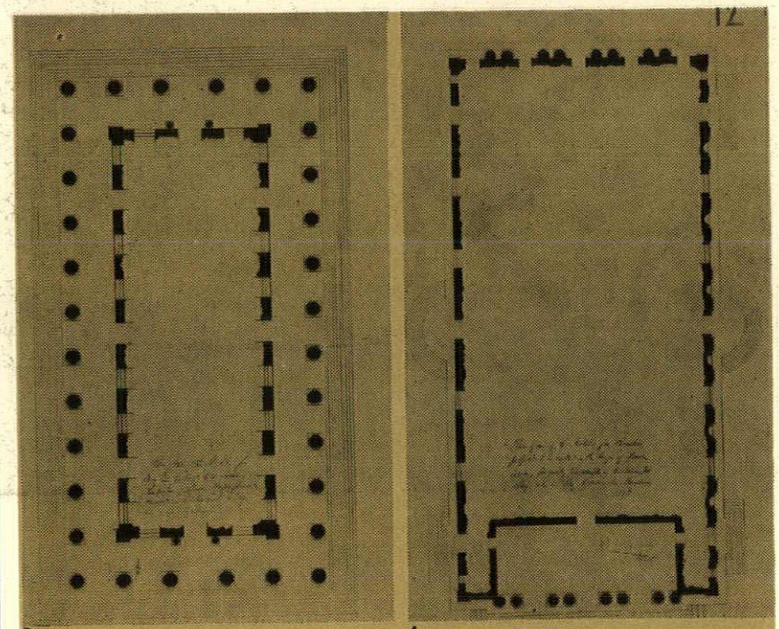
had the opportunity to observe his knowledge in Architecture.' The exact nature of Gibbs's relationship with Wren is still unknown but it is clear that during his first years in England Gibbs studied Wren's works very thoroughly and assimilated the English architectural idiom with his Roman teaching.

The Minutes of the Commission show that on May 14, 1713, six months before he replaced William Dickinson as Co-Surveyor, Gibbs submitted two apparently unsolicited church designs and was ordered to make wooden models of them. These two designs can be identified with two models on Gibbs's bill[12] and with Donaldson's plan and descriptions. Both designs are surprising and extremely unusual. One was for a large church[13] in the form of an Ionic, hexastyle, peripteral temple with a 'lofty steeple' rising from its roof[3]. The other, even larger[14], was for an oblong building with towers at each of the four corners, 4.

On February 4, 1714, about three months after he had got his Surveyorship, Gibbs delivered a third model in the form of a Corinthian, hexastyle, pseudoperipteral temple. This was one of the models drawn by Cockerell, 2. Gibbs's bill states that this model also had a steeple although it had apparently been lost when Cockerell drew it.

Although the first two models may have been purely ideal and not for specific sites, there is some evidence to justify the identification of the pseudoperipteral model of 1714 as an early design for St. Mary-le-Strand. It seems to have been made pursuant to the Commissioners' order of December 9, 1713, instructing the Surveyors to make designs for St. Mary's. Hawksmoor had many other commitments at this time and probably left the job to Gibbs. The internal evidence of the size and shape of the design seem to support this identification. The following April a new scheme for St. Mary's was approved which superseded any earlier designs.



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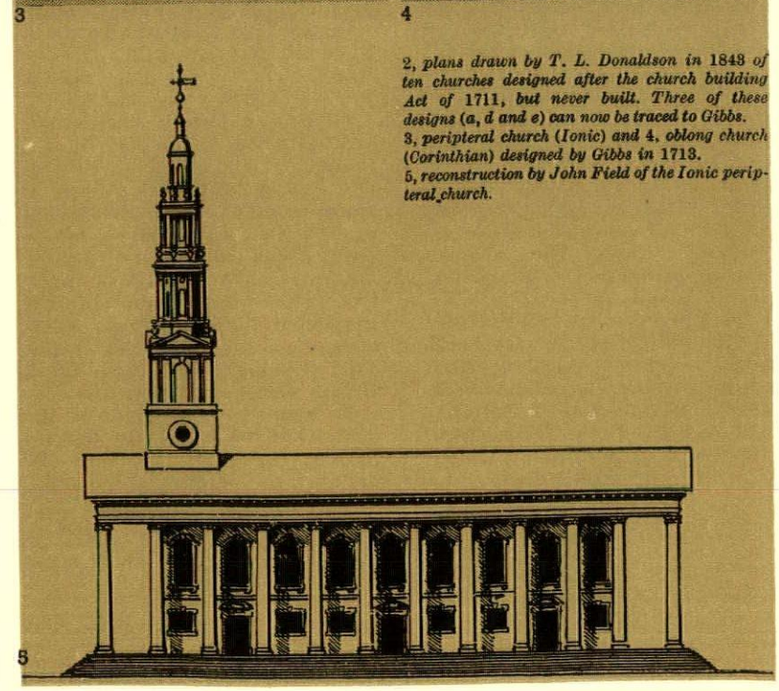

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2, plans drawn by T. L. Donaldson in 1848 of ten churches designed after the church building Act of 1711, but never built. Three of these designs (a, d and e) can now be traced to Gibbs.
3, peripteral church (Ionic) and 4, oblong church (Corinthian) designed by Gibbs in 1713.
5, reconstruction by John Field of the Ionic peripteral church.

Although Gibbs's three models are now lost we can reconstruct their approximate appearance from the surviving information. The small plans of the models published by Donaldson were carelessly drawn and inaccurate, but in 1956 large plans of the models were found at the RIBA Library, which had apparently been used to illustrate Donaldson's original lecture[15]. These plans were carefully drawn, but unfortunately Donaldson omitted the interior plans of the models although he states that their roofs were hinged and that they were fully furnished inside. His measurements are not all reliable as they sometimes contradict the proportions of the plans. Thus Gibbs's model of 1714 is said to measure 15¼ in. by 21 in. which is impossible. It seems that Donaldson did not always include projecting steps in his overall dimensions. Also it is not clear whether the height he gives for the order includes the entablature.

It is not difficult to envisage the stepped platform, Ionic peristyle and entablature of the peripteral model. Alternating with windows, the eight entrances of the cella were placed between the columns with exact symmetry. Only the front and rear doors were emphasized with aediculer enframements.

If the ecclesiastical specifications were followed the cella should have contained a vestry, a baptistery and a stepped chancel, which must have been screened from the rear door, perhaps as in Hawksmoor's St. Alfege, Greenwich (designed 1712). The lofty steeple, if it was to have been of stone, would have required a strong foundation core within the cella. The cella may have been too narrow for galleries but without them the seating capacity would have been far too small to justify the expense of the peristyle. The peristyle would have made the interior rather gloomy, 5.

At the end of 1715 Gibbs's patron the Earl of Mar led the Jacobite rebellion in Scotland and Gibbs lost his surveyorship to John James. His countryman Colin Campbell, coveting Gibbs's job, apparently denounced him as a Jacobite Papist[16]. In 1720 Gibbs was made surveyor to the new church of St. Martin-in-the-Fields, which was built under a separate commission. The two 'temple' models were the obvious prototypes of St. Martin's and one of Gibbs's early designs for this church may reflect the steeple

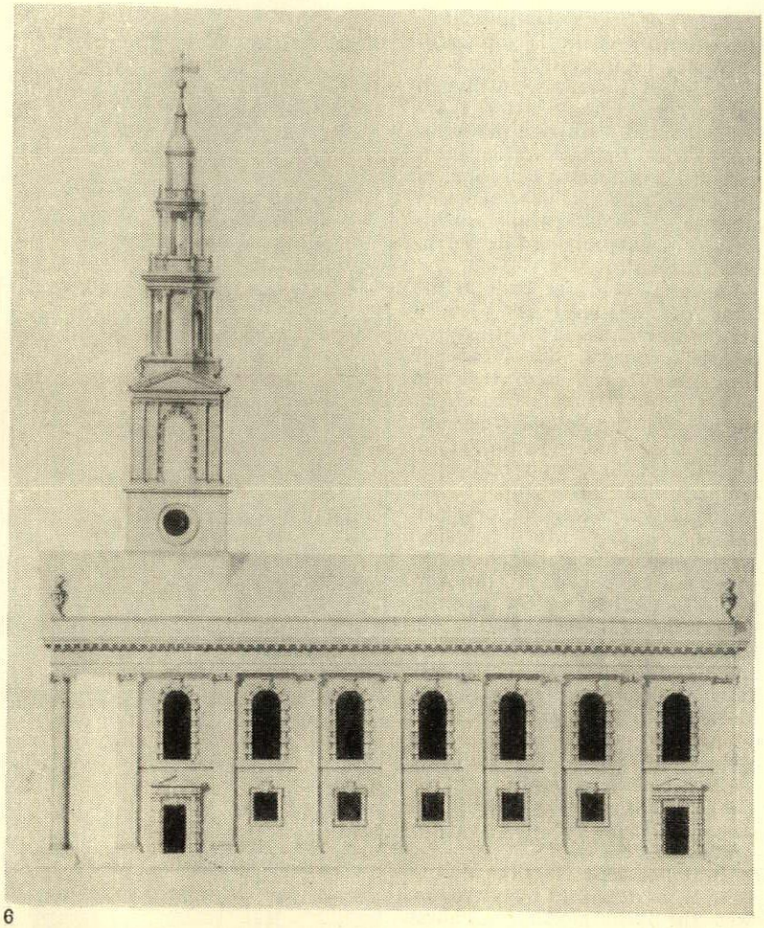
(12) Ibid. An Inventory of August 6, 1733, in Misc. Papers Box X also lists various models.

(13) Donaldson, op. cit., gives the dimensions as 22 in. by 47 in. and assumes a uniform scale of ¼ in. : 1 ft.

(14) Donaldson, ibid, says 48 in. by 23 in. These two models were the largest of the ten.

(15) RIBA OS5/13A. These plans were discovered by Miss P. Hodgson and Mr. J. Harris.

(16) Misc. Papers Box XII, petitions bundle.



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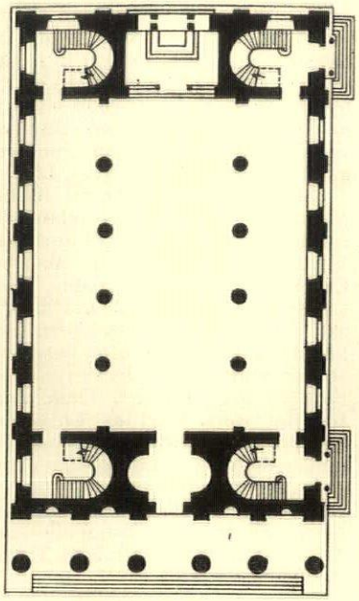

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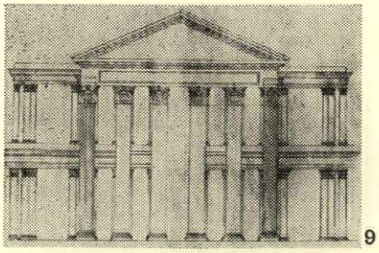
6, elevation and, 7, plan of Gibbs's second project for St. Martin-in-the-Fields.
8, John Fields' reconstruction of the Corinthian oblong church (plan 4).
9, Wren's giant order for St. Paul's.
10, design for a cathedral by John Webb.
11, Gibbs's design for St. Mary-le-Strand.
12, two designs by Gibbs for St. Martin-in-the-Fields.



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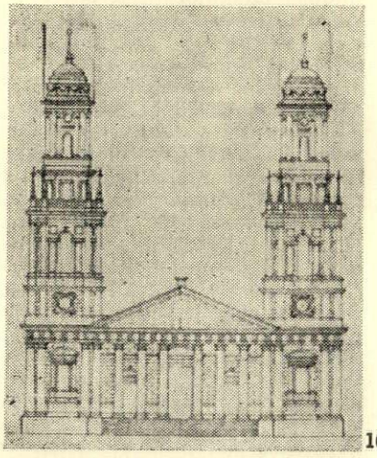

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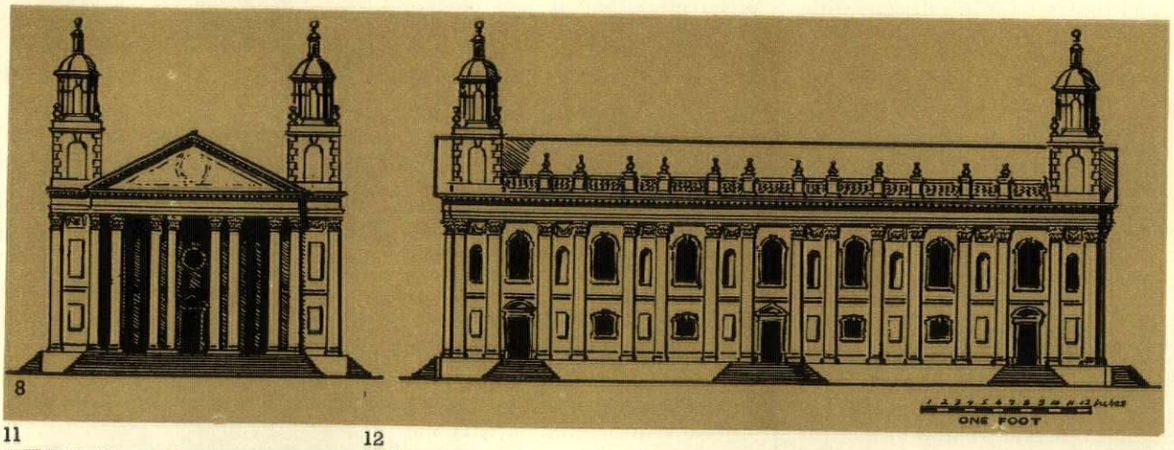

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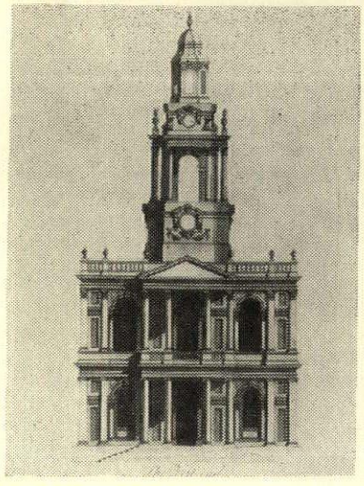
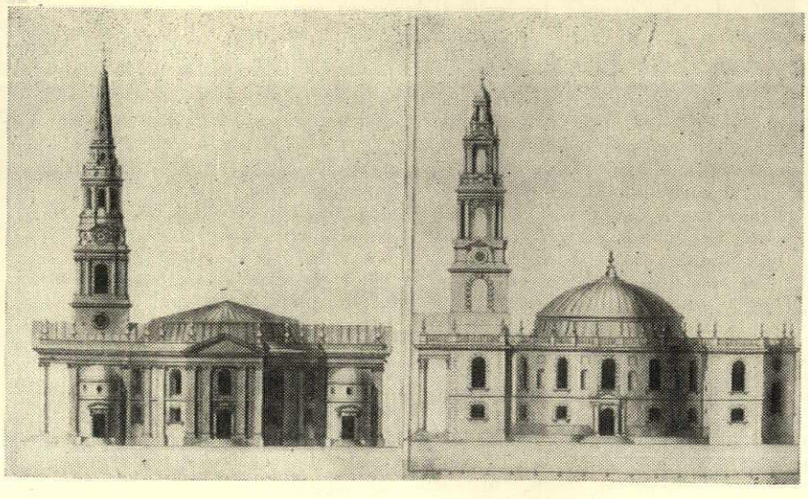




of the lost Ionic, peripteral model of 1713.

In 1720 or 1721 Gibbs made a series of designs for St. Martin's which are now among the drawings by Gibbs in the Ashmolean Museum, Oxford. He probably started with a design in the 'modern' idiom which is a blend of Roman Baroque and Wren[17] and then he seems to have reverted to the theme of his peripteral and pseudo-peripteral 'temple' designs of seven years earlier. The second design for St. Martin's is a synthesis of these two models, an Ionic pseudoperipteral church with a lofty steeple[18], 6. The executed church gradually evolved from this design. The steeple of this early design for St. Martin's is composed of relatively simpler, more classical forms than the executed steeple and its effect is lighter and less massive as would have been appropriate for the peripteral model of 1713.

The main difficulties in reconstructing the large, oblong model concern the interior plan and the four towers. Gibbs's bill states that the interior had Corinthian pillars supporting the roof. Together with the fact that the front and rear pediments were narrower than the total width of the building, this implies that there was a wide nave with lower flanking aisles. The Commission probably wanted galleries and some of the towers may have contained staircases. However, like other architects, Gibbs disliked galleries on aesthetic grounds and he may have omitted them as in his aisled church of All Hallows, Derby (1725). As in the peripteral model the chancel would have been screened from the central rear door and it was probably flanked by vestries.

Except for the flanking towers it is easy to reconstruct the front elevation with its portico of four pairs of giant Corinthian columns supporting the pediment, 8. The deeply recessed porch would have caused the columns to stand out in sharp contrast to its shadow. The rear elevation of the model echoed the front but with attached columns instead of a porch. The

(17) Ashmolean, Gibbs, Vol. VII, folios 14–18.

(18) Ibid, folios 7–13. Probably the 'Round Draughts' were designed after the pseudo-peripteral design. See: author's unpublished M.A. thesis, U. of London, 1958.

source of these elevations is St. Paul's and Gibbs probably knew Wren's designs for the west front with a colossal order[19], 9. John Webb (1611–1672), Inigo Jones's assistant, made a number of church designs which are another possible source of Gibbs's design. In one of these[20], 10, there is a similar overlapping of the portico and the inner edges of the flanking towers.

The side elevation was enriched with paired giant pilasters and niches flanking the openings. Surprisingly, neither the centre nor the ends are stressed below the entablature. As in the peripteral model the side doors are not accented by a small framing order but are equivalent to the windows in width, decoration and stress. The complex rhythm of the side elevation is akin to that of the two published designs for St. Mary's, 11, the various designs for St. Martin's, 12, and the Radcliffe Library at Oxford. Throughout his church designs Gibbs alternated between this 'modern' Italian idiom, which is derived from Bramante's Belvedere Court in the Vatican and Mannerist architecture, and the more restrained classicism of his 'temple' designs[21].

The four corner towers are problematic. Probably they were neither tall nor elaborate. They may have resembled the rather simple 'Tempietto' steeples of Wren's early designs for St. Paul's or the bell-tower of Gibbs's St. Peter, Vere Street (1721), 13, or some of the simpler steeple designs published in his 'Book of Architecture' (1728). A possible reflection of Gibbs's oblong model is the design made by his friend James Thornhill for the St. Martin-in-the-Fields competition (1720), 14[22]. The flat-topped square towers of this design suggest an alternative reconstruction of the towers of Gibbs's model.

Both Archer's design for St. John, Smith Square, which probably preceded Gibbs's design by a few months[23], and Hawksmoor's St. George-in-the-East, which was designed the following year, also have four turrets. During this period there must have been a considerable sharing of ideas between Gibbs, Hawksmoor, Archer and Vanbrugh[24].

We are fortunate in having Cockerell's plan, elevation and section of Gibbs's pseudoperipteral model of 1714 and only the form of the steeple is unknown. Judging by the lack of foundation shown in the plan this was probably to have had a wooden superstructure as at St. Peter, Vere Street, 13.

Gibbs's pseudoperipteral 'temple' derives from such classical examples as the Temple of Fortuna Virilis in Rome and the Maison Carrée at Nîmes, 15. Gibbs had studied the former while in Rome[25] and might possibly have seen the latter while en route between Rome and Paris. In any case both were engraved[26]. These two temples were used as Christian churches but their deep porticos and relatively small cellae were not very suitable for large Christian congregations. Gibbs made his porch only one intercolumnation deep like the temple at Tivoli as published by Serlio[27], 16.

Gibbs had no qualms about deviating from antique authority by introducing large windows between the attached columns of the cella. His attitude toward the use of antique forms was that of the modern (i.e. Renaissance) tradition whereby classical motifs could be freely adapted to suit modern needs rather than being slavishly copied. This is most clearly seen in his unabashed placing of Christian steeples on the roofs of his Christian 'temples.'

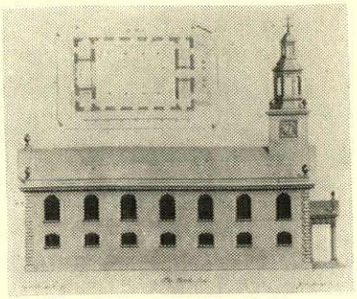
It is interesting to compare and contrast Gibbs's designs with Colin Campbell's 'Vitruvian Church' published in the second volume of his 'Vitruvius Britannicus'[28] in (1717), 17. Whether or not Campbell had seen Gibbs's models on display in the Commission's rooms at Lincoln's Inn Fields, his design derives from the same antique sources as Gibbs's 'temples.' In contrast with Gibbs's practical adaptation, Campbell's design is an almost exact reproduction of a Roman temple. The porch is three intercolumniations deep as at Nîmes and the sides of the cella are blind. His only concessions to Christian worship are the two small vestries and the large Venetian window in the rear wall, which interrupts the applied order.

Campbell's accompanying text is a pretentious bit of Vitruvian pedantry. He piously denounces the 'licentious and insignificent ornaments so much affected by some of our moderns' and says, '. . . I have abstained from any Ornaments between the Columns, which would only serve to enflame the Expence; clog the Building. In those admirable pieces of Antiquity, we find none of the trifling, licentious and insignificent Ornaments, so much affected by some of our Moderns.' This could apply to Gibbs's pseudoperipteral model and Campbell goes on to attack his executed church of St. Mary-le-Strand and accuses him of either 'entire Ignorance of Antiquity or a vanity to expose . . . absurd Novelties.' Although the targets of these attacks are unmistakable, Campbell never refers to them by name. This was a part of his deliberate campaign of silence in which Gibbs, alone of important contemporary architects, is not represented in 'Vitruvius Britannicus.'

Churches were not built in the form of peripteral or pseudoperipteral temples before the nineteenth century[29], but it is not surprising that Campbell should dream of a 'Vitruvian Church' at the onset of the Palladian revival. It *is* somewhat unexpected to find that Gibbs, who had been trained in the International Late Baroque style at Rome, designed churches in the form of classical temples *before* the Palladian movement was under way. However, Gibbs (born 1682) was of the same generation as the Palladians William Kent (born 1685) and Giacomo Leoni (born 1686) and shared with them the direct experience of Late Baroque Italy. Among the diverse tendencies within the Late Baroque were both the influence of Borromini, as represented by the decorator Pozzo, and the academic, classicizing trend represented by Fontana.

In Renaissance Italy the antique temple, as described by Vitruvius, was the ideal model for church architecture but it was understood that it should be freely adapted to suit modern Christian needs. Thus Palladio says, '. . . we by omitting the portico's round the temple build them like basilicas, in which . . . portico's were made in the part within, as we now do with temples. . . .'[30] Therefore there were no Italian precedents for churches in the literal form of peripteral or pseudoperipteral temples.

However there *were* precedents in the English Renaissance tradition established by Inigo Jones early in the seventeenth century. The first Renaissance church built in England, Jones's St. Paul's, Covent Garden (finished 1631), was based on the form of a prostyle temple, 18. At Worcester College, Oxford, there are several designs based on the temple form which were attributed to Jones in the eighteenth century. Although they are now known to be by John Webb, they probably embody Jones's ideas[31]. In one of these designs the church is a true pseudoperipteral temple flanked by twin free-standing steeples[32], 19. Webb also copied Serlio's plan of the pseudoperipteral temple at



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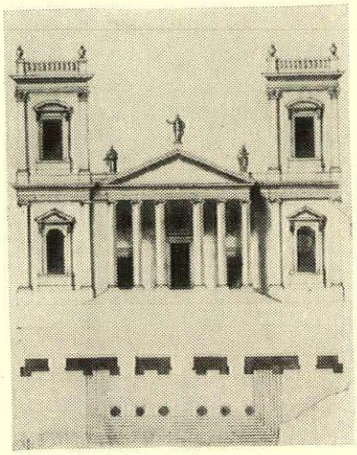

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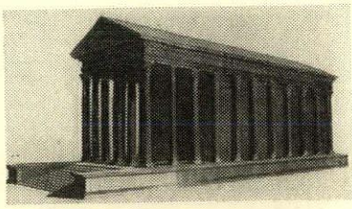

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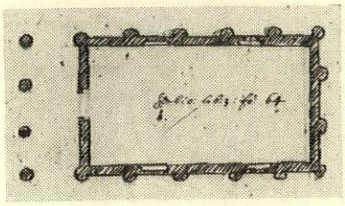

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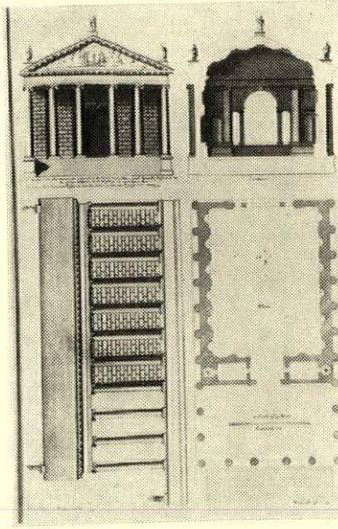

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13, *St. Peter, Vere Street, by Gibbs.*
14, *Thornhill's design for St. Martin-in-the-Fields.*
15, *Maison Carrée, Nîmes.*
16, *Webb's copy of Serlio's plan of the temple at Tivoli.*
17, *Colin Campbell's 'Vitruvian Church.'*

(19) St. Paul's was also a source of Gibbs's executed St. Mary-le-Strand. See: S. Lang 'Gibbs . . .' in THE ARCHITECTURAL REVIEW, Vol. 116, London, 1954.

(20) Worcester College, Oxford, I 47.

(21) Cf. the following contemporary pairs: 1. Classical, peripteral model and 'Modern,' Italianate model—both 1713. 2. Classical, pseudoperipteral model and Italianate published designs for St. Mary's—1714. 3. Classical, pseudoperipteral design for St. Martin's and various other designs for the same church—all 1720–21.

(22) RIBA, J 3 113.

(23) Archer's model for St. John's was approved April 30, 1713, but may have been submitted January 14, 1713. The same year it was considered that St. Paul's, Deptford, might have two steeples and a portico. See: Minutes, November 4, 1713.

(24) Vanbrugh and Archer also made designs for St. Mary-le-Strand. See: Minutes of Commission, April 29, 1714, and Minutes of Committee, November 4, 1714.
The round model published by Donaldson must be the '1 Round Church Lincoln's innfields by Archer' of the inventory dated 1733.

(25) Soane MS.

(26) Gibbs owned J. Poldo, *Discours Historial de l'antique et illustre Cité de Nismes*, Lyon, 1560.

(27) S. Serlio, *I Cinque Libri d'Architettura*, Book III, plate 64. The Tivoli temple was also drawn by Palladio, *Edificii Antichi . . .*, Vol. X, plate 15.

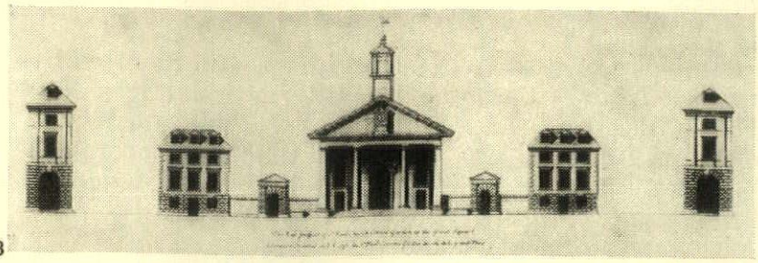
(28) *Vitruvius Britannicus*, Vol. II, pg. 2, plate 27.

(29) James Stuart's Greek Doric temple park ornament at Hagley was built in 1758. Gibbs designed garden pavilions in the form of prostyle temples.

(30) A. Palladio, *I Quatri Libri d'Architettura*, Introduction, Book IV, quoted by Rowe op. cit. below.

(31) M. Whinney, 'Some Church designs by John Webb,' in *Journal of the Warburg and Courtauld Institutes*, Vol. VI, London, 1943, pp. 142–150, and C. Rowe, *The Theoretical Drawings of Inigo Jones*, unpublished M.A. thesis, U. of London, 1948.

(32) Worcester College, I 47 2. Related designs (cf. I 42) are also based on prostyle temples but with protruding chapels and chancels. Whinney, op. cit. suggests that they derive from Palladio's reconstructions of Roman temples.



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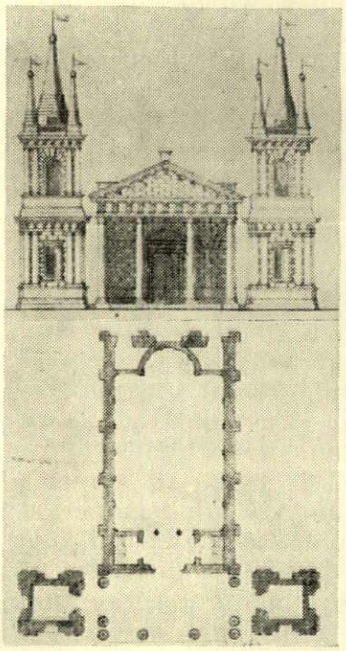

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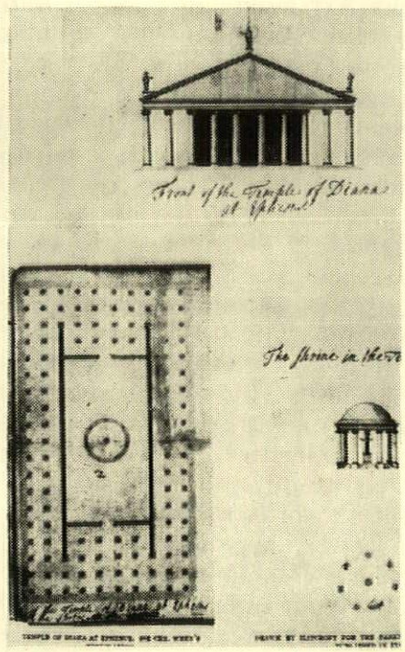

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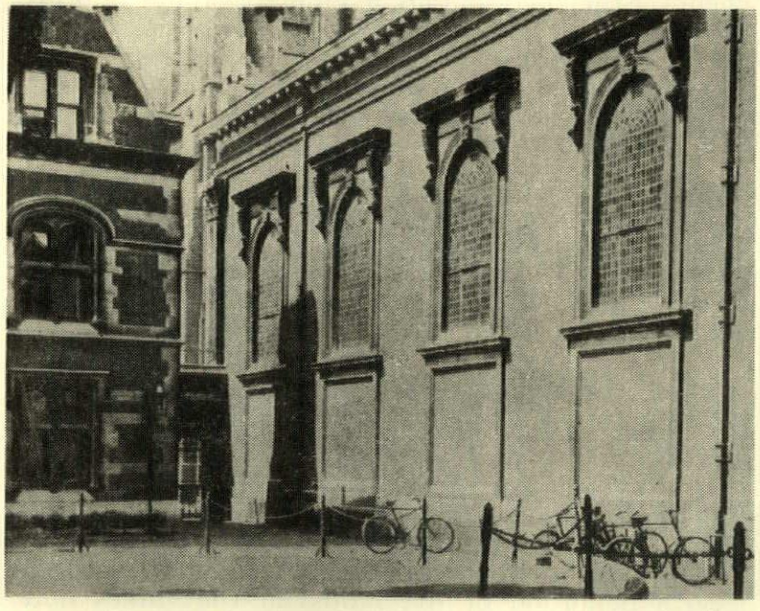

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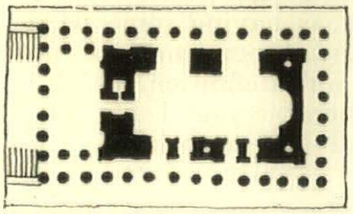
18, *St. Paul's, Covent Garden, by Inigo Jones.* 19, *design for a church by John Webb.* 20, *Wren's drawing of the Temple of Diana at Ephesus.* 21, *Pembroke College Chapel, Cambridge, by Wren.* 22, 23, *designs for temples at Oxford by Hawksmoor.*



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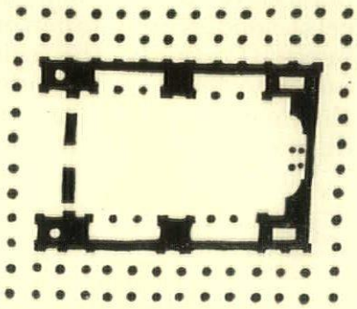


23

Tivoli on a sheet of designs entitled 'private Chappells for pallaces or otherwise"[33], 16. It is not clear whether Gibbs could have known the Jones-Webb drawings[34].

For Wren the classical temple was mainly a subject of purely antiquarian interest as exemplified by his reconstruction of the Ionic, peripteral Temple of Diana at Ephesus[35], 20. He did not design 'temple' churches, unless Pembroke College Chapel, Cambridge, can be considered as a pseudo-peripteral temple without a portico, 21.

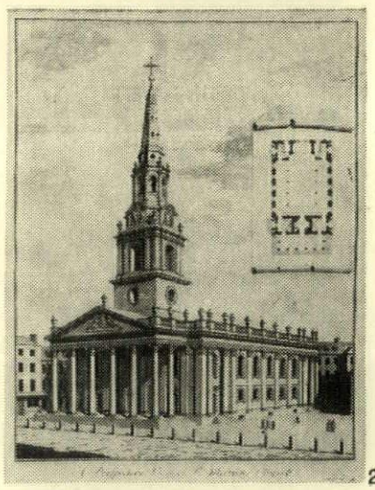
Hawksmoor prided himself on his antiquarian knowledge and derived various motifs from his studies which he adapted in original and sometimes unorthodox ways. During the same year in which Gibbs made his Ionic peripteral design, Hawksmoor drew up a series of three town-planning projects for Oxford, 22, 23, one of which seems to show the plan of a peripteral temple[36], 22. Mr. Downes thinks that this design is probably of about the same date as a related design dated August, 1713. Gibbs's peripteral design was submitted on May 14, 1713.

It is likely that Gibbs's interest in designing churches in the form of classical temples may have derived from his early contact with Wren and, presumably, with Hawksmoor. The influence of Jones's St. Paul's, Covent Garden, and Gibbs's possible knowledge of the Jones-Webb drawings suggest that, either he was influenced by the future exemplars of the Palladian Movement, or that he had independently developed certain similar themes. In any case, since the identification of the 'temple' models, his later church of St. Martin's can no longer be interpreted as representing the classicizing influence of Lord Burlington's Palladian Movement.

Having considered the precedents and parallels to Gibbs's interest in designing churches in the form of peripteral or pseudo-peripteral temples, we must return to a consideration of Gibbs's individual treatment of this theme.

The position of the steeple, rising above the 'temple' roof, rather than seeming to stand four-square upon the ground, was Gibbs's radical innovation. The substitution of a lofty steeple for the modest bell-turrets of St. Paul, Covent Garden,[37] and Pembroke College Chapel was more than a quantitative change. The monumental vertical form of the steeple dominates the composition within, and above, the mass of the church, rather than as an external adjunct[38]. In terms of massing the steeple crowns the composition as does a Renaissance or Baroque dome, however the closest analogy is the type of English Gothic cathedral with a lofty steeple rising above the crossing as at Salisbury. This may be fortuitous but both Wren and Hawksmoor studied Gothic steeples and Gibbs himself describes steeples as 'of Gothick extraction' in his 'Book of Architecture' (1728).

In the series of his designs discussed above we can follow the stages by which Gibbs attempted to synthesize the steeple and the temple form. The addition of a lofty steeple to the quite literal imitation of an Ionic peripteral temple in the model of 1713 lacked unity and must have seemed incongruous, 5. In the pseudo-peripteral model of 1714 the temple' had been modified and transformed into a Christian church as much by the introduction of large windows as by the steeple on the roof. Seven years later, in his designs for St. Martin's, Gibbs modified the 'temple' form still further and 'rooted' the steeple more firmly to achieve a more coherent synthesis. In the executed church the steeple rises from the massive front of the main body of the church and the original prostyle temple form is altered by interrupting the regular rhythm of the applied order, emphasizing the side doors, and making the portico appreciably narrower than the cella, 24.



24

24, *St. Martin-in-the-Fields as built.*

Despite the criticisms of classicistic purists[39] Gibbs's new synthesis passed into the repertory of church architecture throughout the English-speaking world[40].

(32) Worcester College, I 72. There is also a series of drawings (I 77 a–e) illustrating the Vitruvian temple types but not adapted to Christian churches. See: Rowe, op. cit.

(34) The Worcester College drawings were purchased by Dr. G. Clark in 1724–25, apparently from Webb's descendants. See: Rowe, ibid.

(35) *Wren Society*, Vol. XIX, pp. 134–135, plate LXXXII.

(36) Downes, op. cit., pp. 121–125. An alternate version of this plan may have had a clerestory and thus would not have resembled a conventional temple.
Downes says that the elevation of a peripteral temple published by Colvin, op. cit. is not by Hawksmoor.

(37) The elevation of St. Paul's, Covent Garden, published in *Vitruvius Britannicus* gives the impression of a prominent bell-turret rising above the portico. In fact the turret was at the other end of the roof.

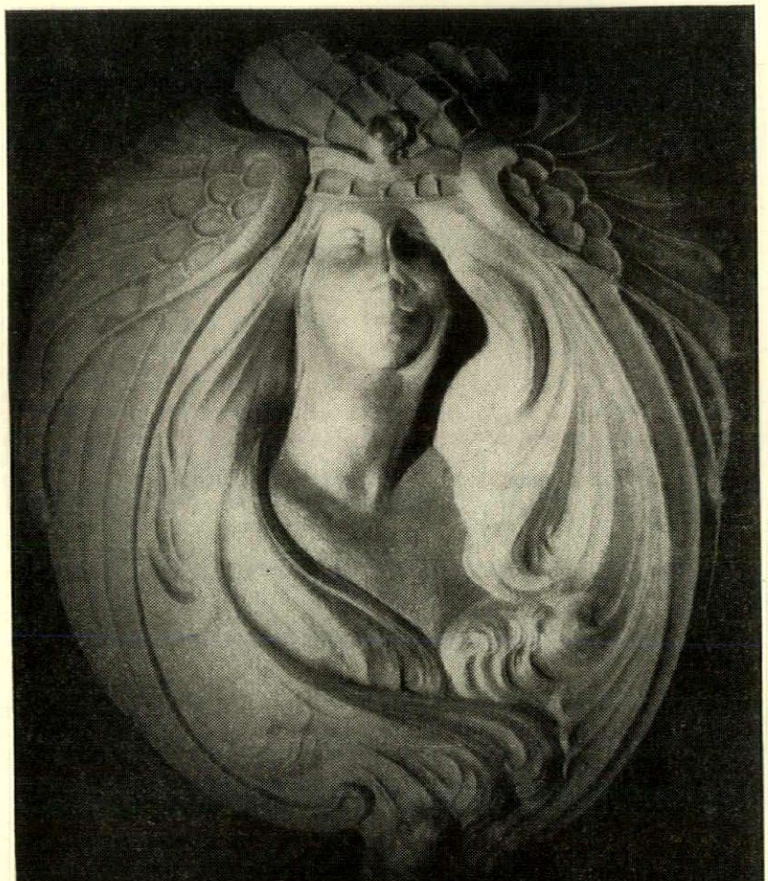
(38) J. Summerson, *Architecture in Britain*, 1530–1830, 2nd edit. Harmondsworth, 1955, p. 180.

(39) Donaldson and Cockerell represent different appraisals of Gibbs's 'temple' designs. Donaldson admired them without qualification whereas Cockerell deplored the solecism of a steeple on a temple roof. Cockerell designed a chapel in the form of a temple with an inconspicuous bell 'aedicule' in place of acroteria. See V & A, E 3008, 1909.

(40) M. Whiffen, 'The Progeny of St. Martin in the Fields' in THE ARCHITECTURAL REVIEW, Vol. 100, London, 1946.

Robert Melville

THE SOFT JEWELLERY OF ART NOUVEAU



1, *copper pendant by Marcel Bing; the wings are of grey, green and blue enamel*

A few years ago, Robert Schmutzler declared in this journal[1] that the principal carrier of the Art Nouveau style was ornament. I have no reason to doubt that this is a statement of fact, but he drew conclusions from it which seem to me to be questionable. He contended that 'Art Nouveau is essentially a style of ornament,' and although he conceded the existence of Art Nouveau architecture and 'even painting,' he maintained that 'it gave its best in interior decoration and the arts of the book.'

It might have been more correct to call Art Nouveau an ornamental style rather than a style of ornament, for it is one of its characteristics that its decorative devices are practically independent of medium and scale. The coiling and uncoiling lines of a Majorelle bannister would make an embossed motif for a book cover; Van de Velde's design for a capital 'M' would serve admirably as a Guimard portico; Horta's famous inkwell would reduce to a brooch; some of the Tiffany vases would serve as maquettes for street lamps of an unheard of gracefulness. And now, still haunted by the Art Nouveau room at the International Jewellery Exhibition held at Goldsmiths' Hall towards the close of 1961, I have no doubt that the decorative border round Edvard Munch's well-known 'Madonna' lithograph is a rough sketch for the quintessential Art Nouveau necklace and pendant.

Munch's naked Madonna is a forcible rendering of the Art Nouveau ideal of feminity, which subscribed to the Pre-Raphaelite demand for dreaminess and abundant hair but strikes a more avid note. Deknatel[2] calls this Madonna a representation of the 'ecstasy and pain of the act of love,' and it may well be so, for the decorative border is composed of sperms trailing long wriggly filaments which meander round three sides of the image and end in a fœtus-like pendant. The waves of the woman's long black hair are echoed by long curvilinear colour strokes in the darkness around her, like visible waves of erotic vertigo. The decorative border is rough because it is intended overwhelmingly as sign.

I hope I have said just enough about this masterpiece of Art Nouveau to make it evident that if we are going to call the style ornamental we must allow that it puts no curb on expressiveness. All Munch's finest works were achieved in his Art Nouveau period precisely because the long sinuous asymmetrical line, which Nikolaus Pevsner has called the lietmotiv of Art Nouveau[3], perfectly conveys his basic conception of the powerlessness of the individual before the great forces of nature,[4] and I would suggest that whenever the long, sinuous, asymmetrical line informs Art Nouveau ornament it is the automatic, though not necessarily explicit, carrier of the same concept.

But if Dr. Pevsner is right in calling this line the leitmotiv of Art Nouveau, Alan M. Fern[5] is no less right when he says that 'the mere presence of the serpentine curve is not sufficient to define the style.' It has to be what he calls 'a twisting, living thing.' Even so, there are many works in which the specific character of the Art Nouveau style is not attributable to the curvilinear element alone. The fact that the Art Nouveau line is not imitative implies that there is no call to make clear distinctions between the nature of different substances, and in the paintings of Munch, for instance, the paint has a mucous-like quality that invades every form in the picture and can be attributed to a concern with the idea of a primary living substance. A similar tendency to turn all substances towards deliquescence is a contributing factor to the unprecedented nature of Art Nouveau jewellery.

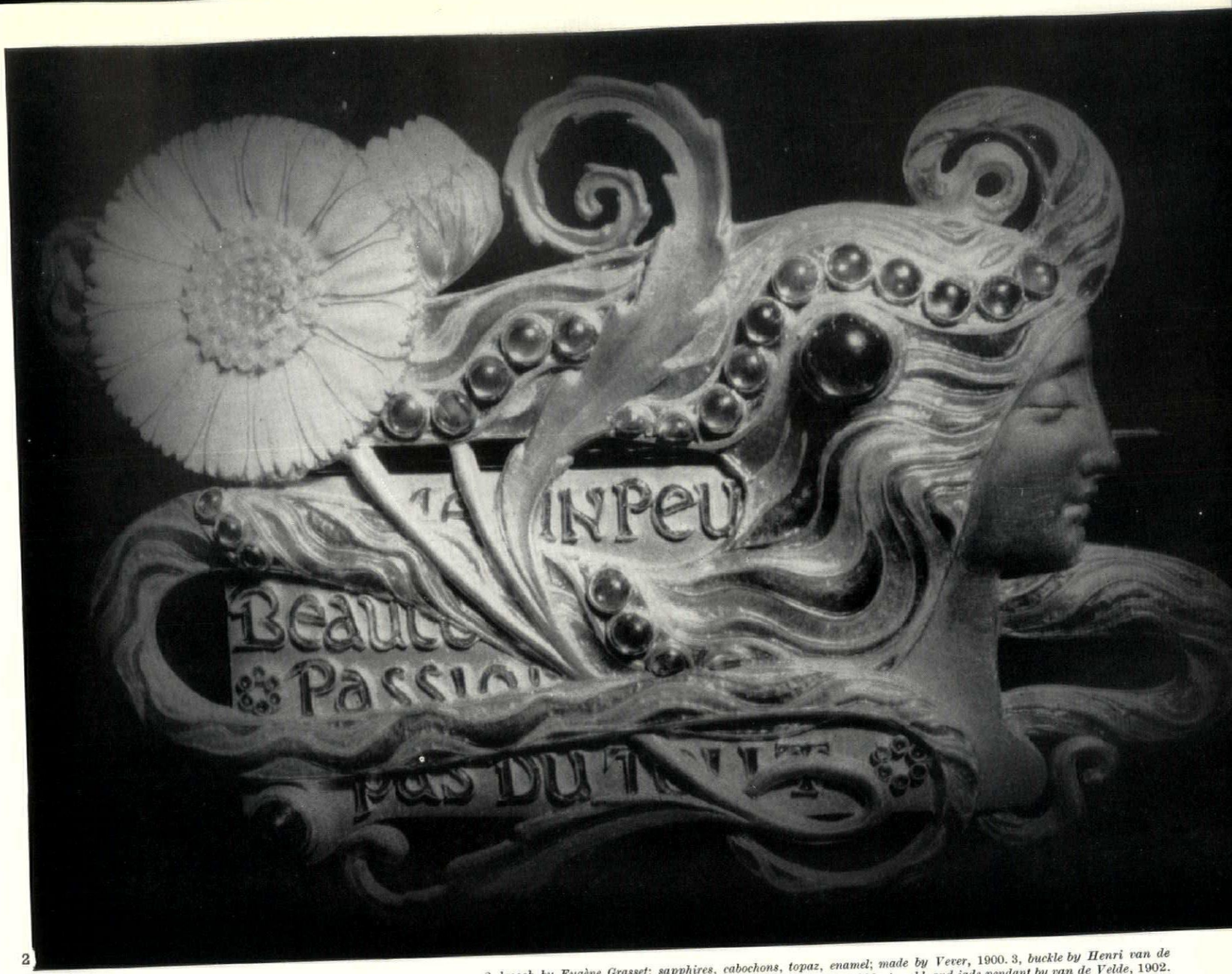
So a definition of Art Nouveau that takes note only of the curvilinear element is not inclusive enough. Henry-Russell Hitchcock[6] regards the 'humorous and pejorative' descriptions of the style, which refer to eels, noodles and tapeworms, as having some pertinence. Certainly the eels and tapeworms are not unconnected with Salvador Dali's definition, which is the most inclusive and serviceable one I have yet discovered. He calls it the 'undulant-convulsive' style.

Dali's own work has been greatly influenced by

[*continued on page* 325

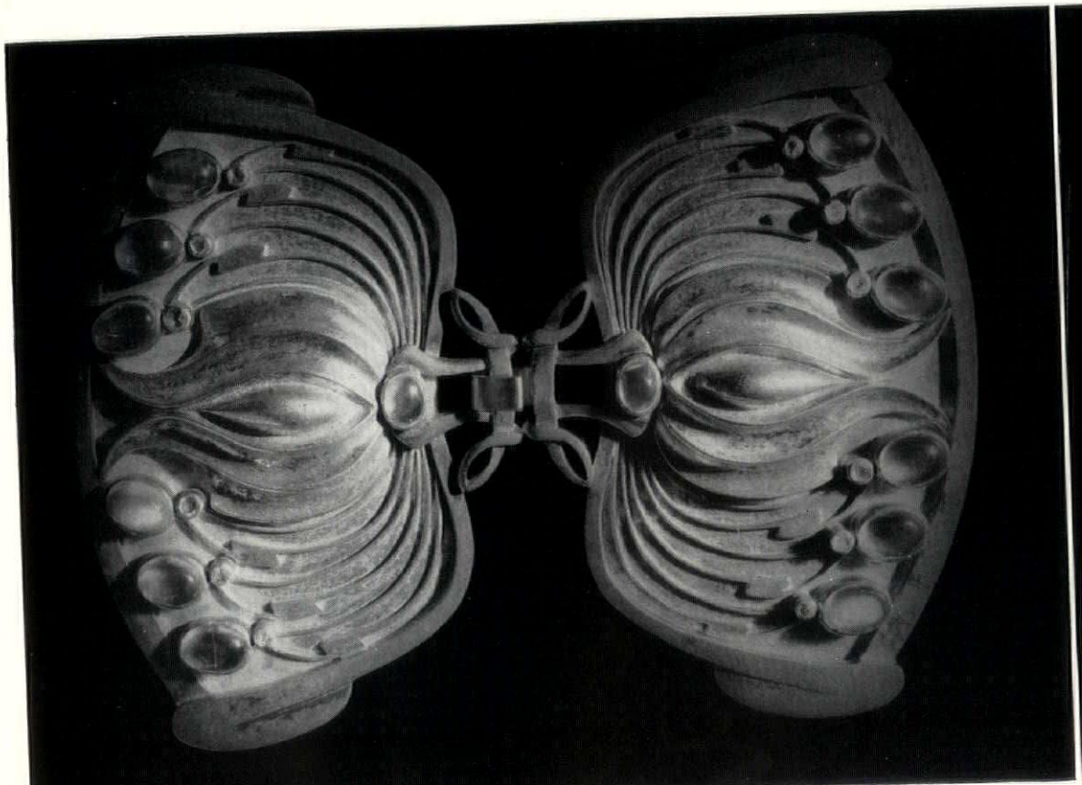
1 THE ARCHITECTURAL REVIEW, February, 1955.

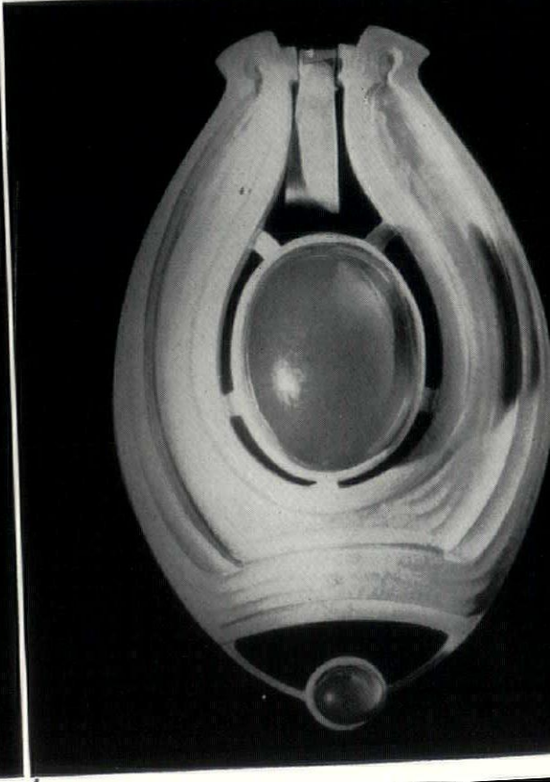
2 F. B. Deknatel, *Edvard Munch*, London, 1950.
3 Pioneers of Modern Design, New York, 1949. Referred to by R. Schmutzler, *Blake and Art Nouveau*, THE ARCHITECTURAL REVIEW, August, 1955.
4 F. B. Deknatel, op. cit.
5 Art Nouveau, The Museum of Modern Art, New York, 1960
6 Ibid.

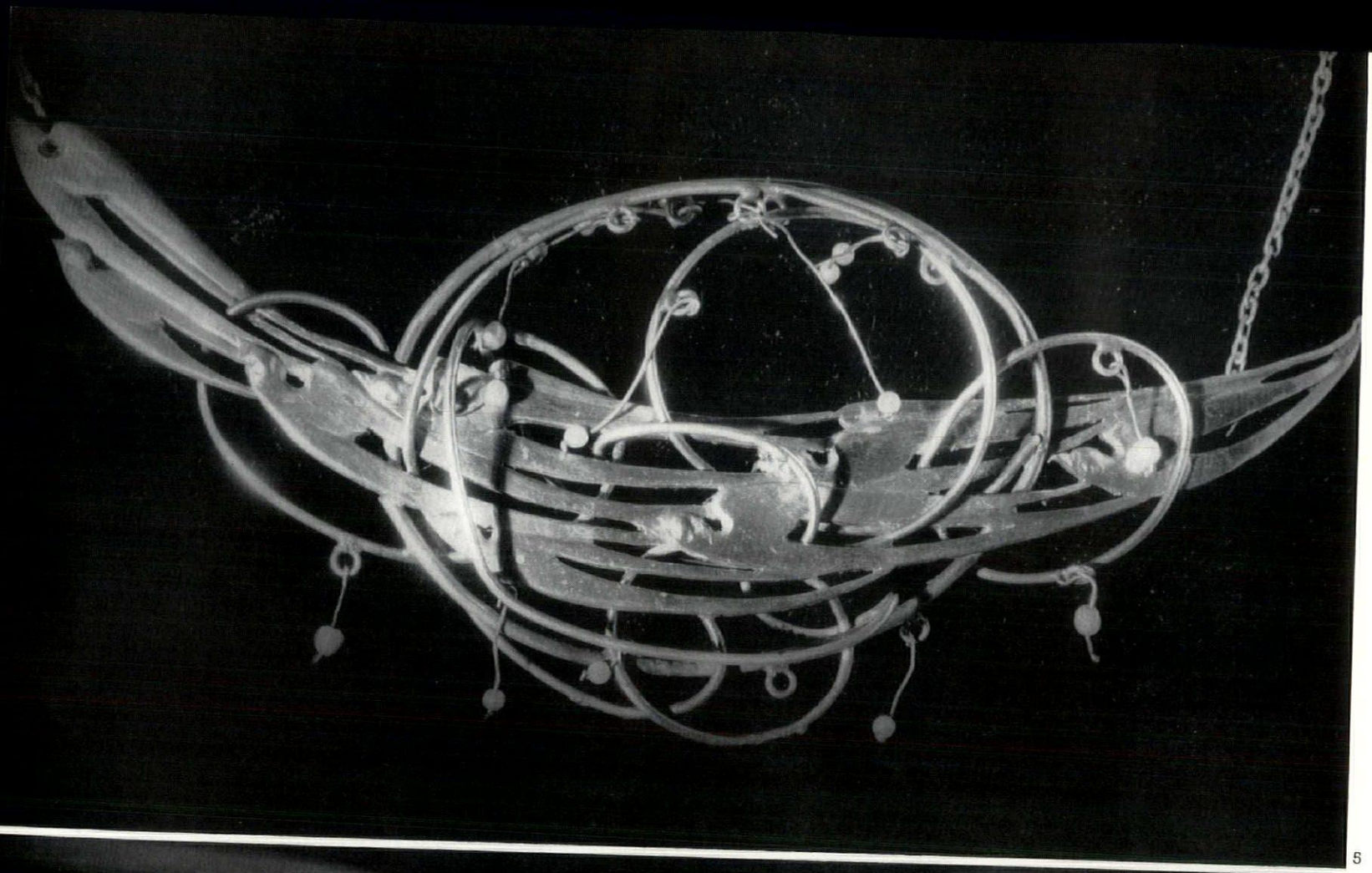


2

2, *brooch by Eugène Grasset: sapphires, cabochons, topaz, enamel; made by Vever,* 1900. 3, *buckle by Henri van de Velde: oxydised silver, moonstones and rose diamonds; c.* 1898-1900. 4, *gold and jade pendant by van de Velde,* 1902.







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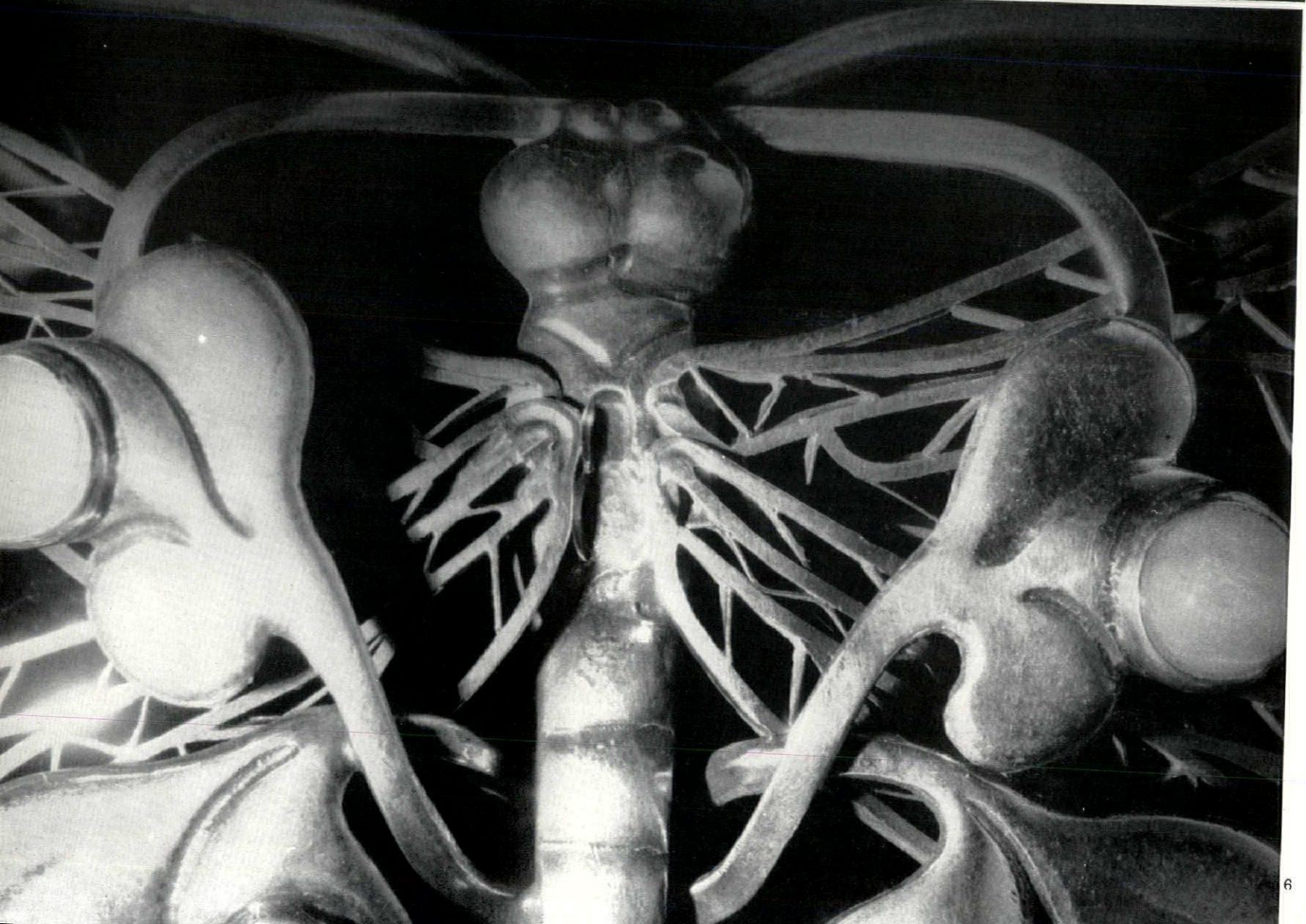

6



age: 5, necklet and chain by Charles Rennie sh: silver openwork and wire with small pearls; made by Margaret Macdonald Mackin-905-7. 6, detail of 'Dragonfly,' belt buckle by nsen, 1901: silver with opals. Above: 7, pendant by Phillipe Wolfers: carved ivory, gold and opal; 1898-99.

f badge by Sir Alfred Gilbert: silver gilt, k crystal, semi-precious stones; c. 1891-96. ivory chain by Joseph Hoffmann, c. 1925.



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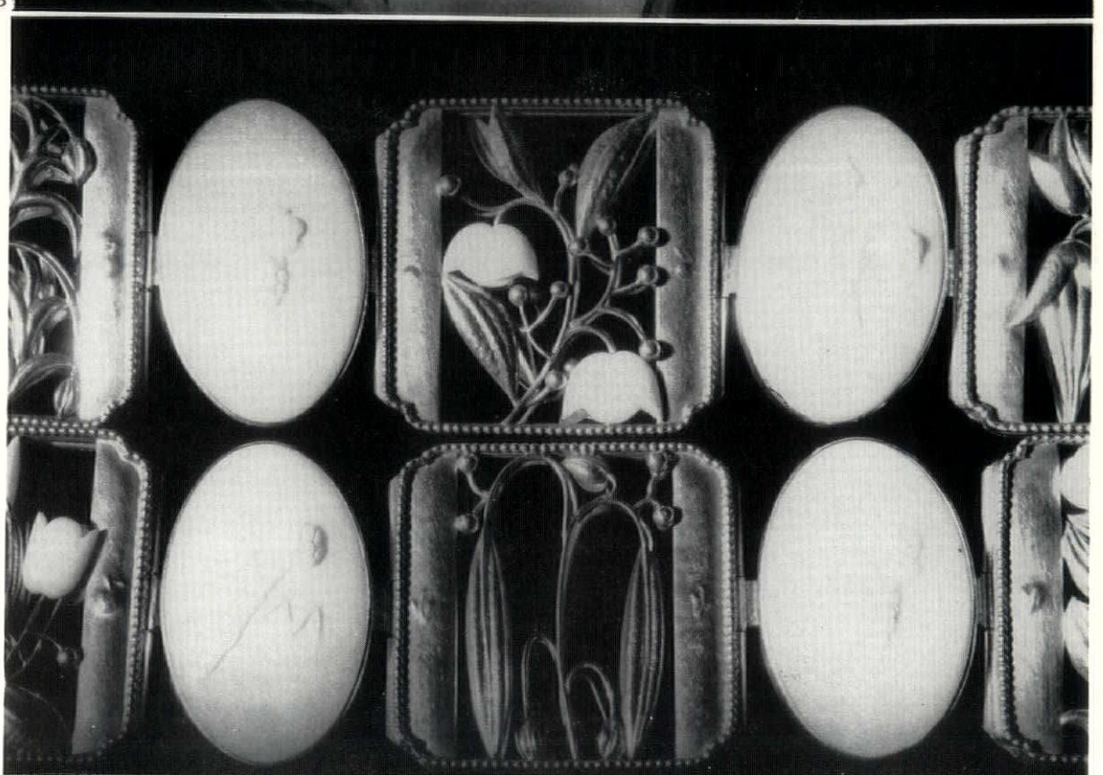

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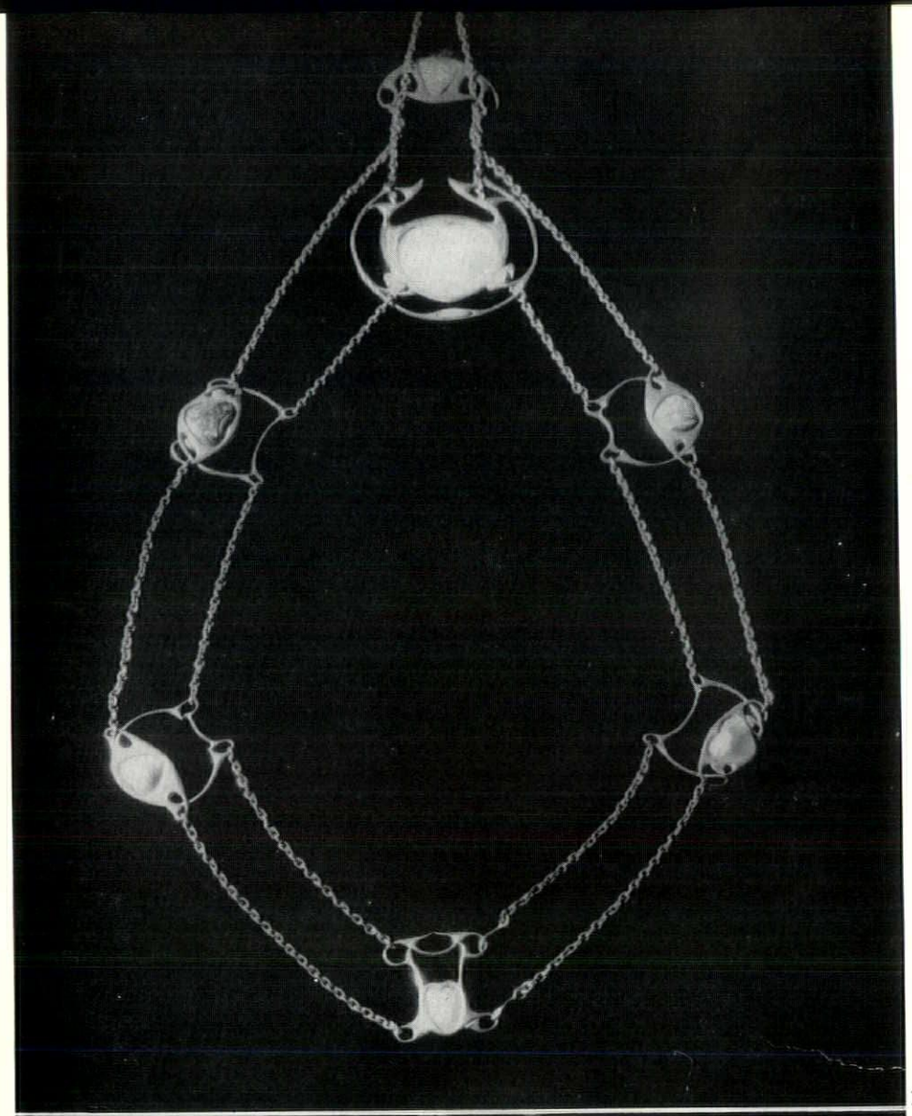

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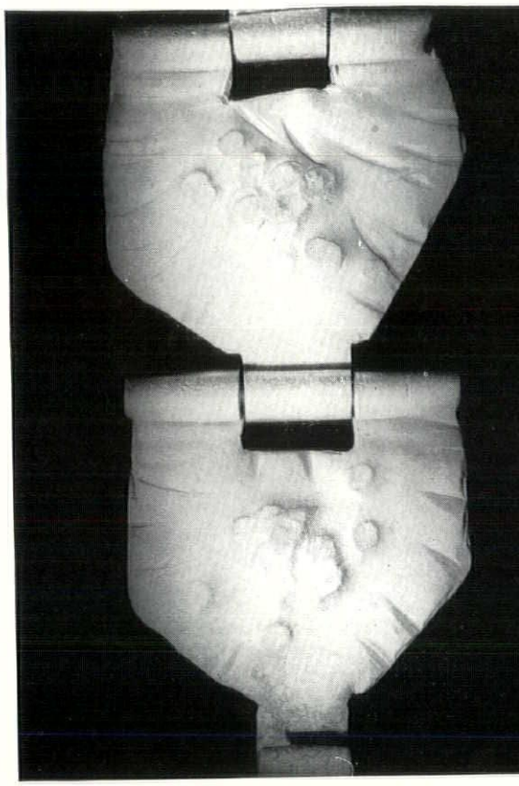


10, *pendant necklet by Liberty & Co.: gold, opals, mother-of-pear*
pendant by Fabergé: round medallion, translucent enamel with light
and strawberry red letters on a base of yellow enamel, held by two c
enamelled in natural colours; c. 1900. 12, *detail of copper gilt br*
Schmidt Rottluff. 1912. 13, *fan brooch by Tiffany Inc., c.* 1890
white, red, yellow, gold.



11



continued from page 320]

Art Nouveau, and one of the most curious features of his contribution to Surrealism—'his preoccupation with malleability, his passion for softness, which leads him to convert hard objects, like watches, into substances as soft as camembert'[7] is intimately connected with his enthusiasm for the architecture of Gaudi.

Dali's limp watch is a brilliant witticism, verging on vulgarity. The makers of Art Nouveau jewellery were more subtle, probably because they were not giving self-conscious demonstrations of a 'passion for softness,' and if their most refined designing and workmanship seems often to have been totally devoted to obtaining from metals and gems the look of softer substances, such acts of 'conversion' need not have been fully intentional, and could have arisen from a profound feeling for the general aims of Art Nouveau, succinctly described by Peter Selz as a 'desire for symbolic-organic structure.'[8]

In pursuit of this symbolic-organic structure, the jewellery makers attempted to minimize the distinction between gems and their settings, and to give the gems the look of being, so to speak, a natural outcome of the metal. To give an instance, Wolfers made a buckle in 1898 in which the curvilinear design in relief gave the unpierced metal the appearance of having the consistency of one of the fleshier succulents. The design is a highly conventionalized plant form, and the stones placed along the outer edges of the buckle are no doubt symbolical buds or seed-cases, but are more suggestive of a watery exudation as if the metal were mysteriously perspiring. A similar effect was obtained in Van de Velde's 1902 pendant, in which an oval of jade is given a curvilinear setting of gold: the jade looks so much softer than the gold that it seems as if only a miracle prevents the hard translucent oval from going out of shape and lolling over its rim of gold like one of Dali's limp watches.

Human hair serves the same purpose in Art Nouveau design as plant forms and marine fauna, and like these, tends under the pressure of the convention to lose its identity. Long flowing feminine tresses lend themselves very easily to flesh-like effects in the metal relief work, and the faces framed by them—usually with eyes simmeringly closed—seem to be emerging from or receding into an ectoplasmic flux.

The designers were not much concerned with the intrinsic value of the gems they used. Their choice of stones was determined by their evocative possibilities, and they would seem to have preferred the gentle pearl and semi-precious stones of the cloudier kind to the hard flash of diamonds. But the stone they favoured most of all was the opal, and it is the symbolic-organic significance that they impart to this marvellous and mysterious stone, with its aura of ill-luck and its delicate colours coming and going under a milky bloom, that gives me leave to speak of Munch's spermatozoan chain as if it contains the secret of the spell that the Art Nouveau jewellery cast over us all at Goldsmiths' Hall.

I will have to confine myself to three instances. One of them is the Jensen buckle in silver and opals in which a dragonfly is inextricably involved with a pattern of leaves. The opals are used as terminal points of some of the leaves and operate as glimpses of the interior matter. Jensen conveys the impression that the silver work is a thin skin, and that where the opals appear the skin has been peeled away to reveal them. The opals take on the look of a softly gleaming mucous slowly emerging from openings in the silver. Even the plant trails and wing skeletons have been thickened in a way that suggests that they are filled with the same milky substance, and the beauty of the stones turns it into a kind of sacred sap, as if it might be the 'fifth substance' of the Ancients, latent in all things.

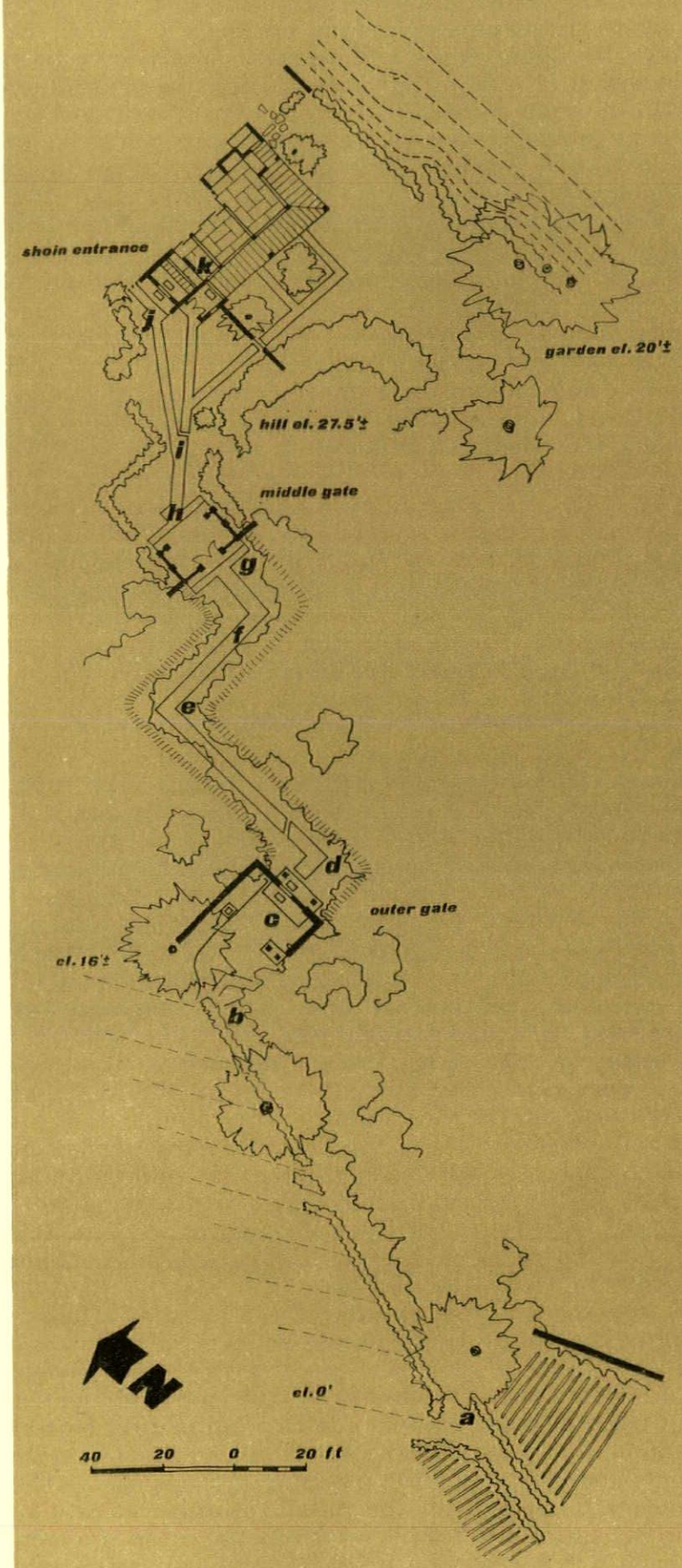
My second instance is the famous 'Medusa' pendant made by Wolfers just before the turn of the century. The staring and screaming head of the Medusa is carved in ivory and encircled by a scarf of the same substance. It is surmounted by a tight interlace of enamelled snakes. Two snakes have withdrawn from the central knot to form the coils to which the chain is affixed. Another has coiled itself into the scarf, under the Medusa's chin, and lowers its head to spit out an opal dropper. The Medusa's eyes are also opals. I don't suppose anyone knows whether Wolfers attached a specific symbolical significance to his snake spitting out an opal, but certainly no other stone could have more appropriately carried the significance that springs to mind, and it serves to draw our attention to the fact that the only stones that could be used to translate Munch's decorative border into an actual necklace are opals.

But the 'Medusa' pendant verges on melodrama and tends to break out of the purely decorative field. So my third instance is a Liberty necklace of 1903. It would not have come to mind if I had not seen it in the context of the Art Nouveau room at Goldsmiths', for it is only on the popular periphery of the undulate-convulsive style, but with its delicate gold chains running between six opals and its complete detachment from overt symbolism, it represented the transformation of Munch's drawing into pure ornament.

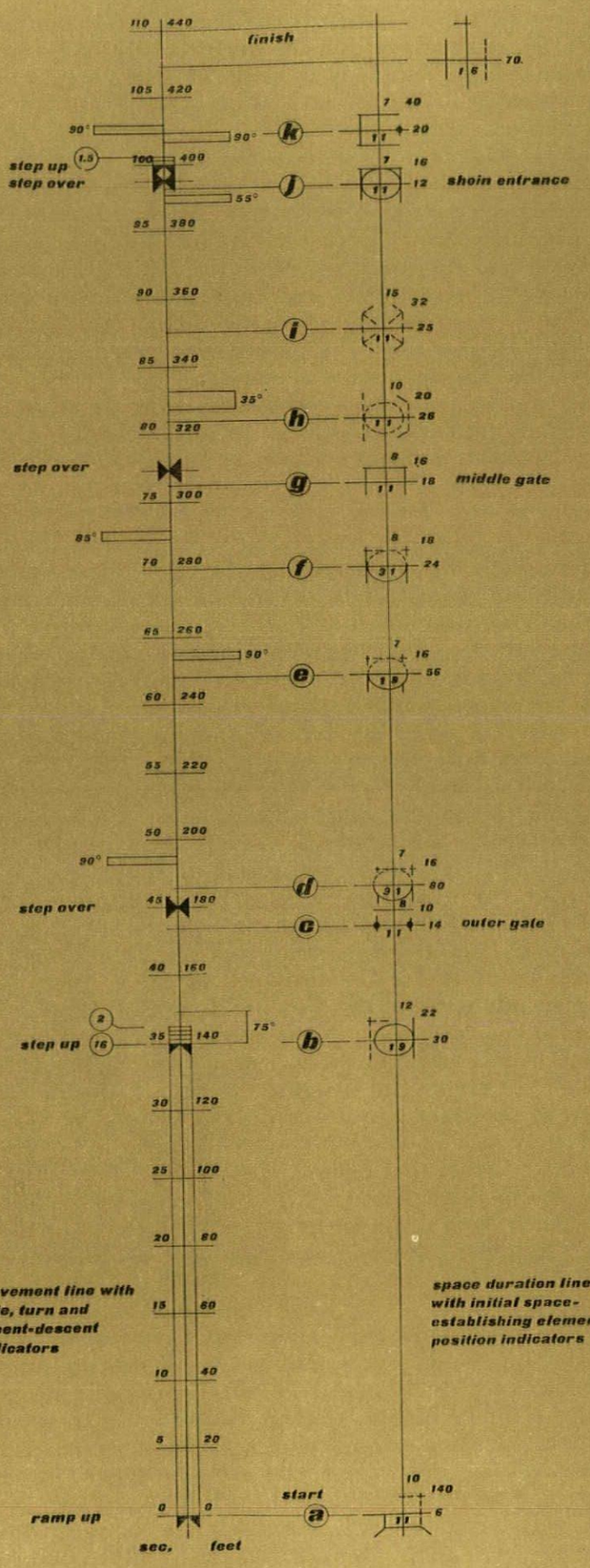
When the movement came to an end, and the serpentine line had straightened itself out, what remained was Art Nouveau's equivocal attitude to substance. One can find it even in the daylight art of Cubism, for Picasso was still near enough to his own involvement in the Art Nouveau movement to be interested in the adumbrated nude, the nude forming before one's eyes, and, in the 'Girl with a Mandoline' painted in 1910, now in the Museum of Modern Art, New York, the figure is still not finally detached from a kind of space paste. Three years later, Boccioni created the Futurist masterpiece known as 'Unique Forms of Continuity in Space,' which is the apotheosis of Art Nouveau's sense of a soft primary substance.

And to return to jewellery, the splendid copper gilt bracelet made by Schmidt-Rottluff in 1912 looked profoundly at home in the Art Nouveau room in spite of its angularity, for the working of the surface—the puckered edges and the small protuberances like forecasts of Arp's 'navels'—creates the sense of a substance softer than the material used: as one would expect of a German Expressionist, he extolls imperfections rather than potentialities, but the creasing and pimpling doesn't deter one from associating it with Art Nouveau's endless roll of living matter.

[7] James Thrall Soby, *Salvador Dali*, The Museum of Modern Art, New York, 1941.
[8] Art Nouveau, op. cit.



plan of the Jiko-in sequence: the letters correspond to the pictorial views on pages 328-329

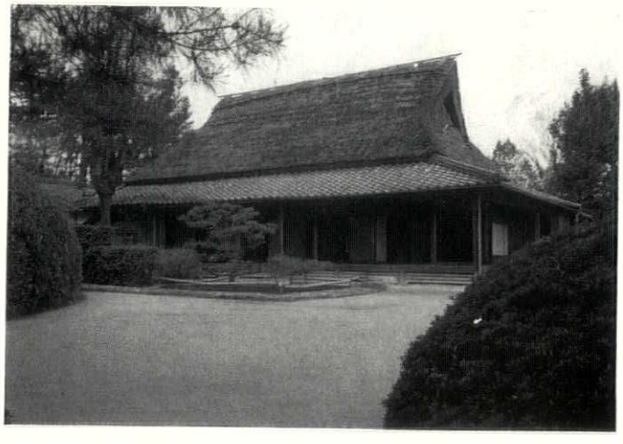


the Jiko-in sequence in terms of space notation

Philip Thiel

An Experiment in Space Notation

The study of the spaces between buildings (townscape) and the spaces inside them (interior design) is becoming increasingly concerned with the relation of one space to the next, and the objective and subjective activities (motion and response) of moving from one to another. The graphic means available for describing these experiences are, at present, too simple and too rigid, but on the pages that follow, the American architect, Philip Thiel, puts forward an essay towards a better notation of a sequence of spatial experiences.



The Jiko-in, the building at the end of the sequence on the plan (left, facing page) which is shown pictorially on the next two pages.

As the booklet available at the entrance informs the visitor, ' The Jiko-in which belongs to the Daitoku-ji branch of the Rinzai Zen Sect was founded by Lord Sadamasa Kitagiri, head of the Koizumi clan in Yamato, in 1663 A.D., and was erected under the patronage of Rev. Gyokushu, the 185th patriarch of the Daitoku-ji Temple in Kyoto. . . . The roof of the study room is of straw in the " Kirizuma " style, with eaves of tile. There is a wide veranda leading from the study room to the superb tea room. . . . The famous historical garden, from which one can see the Yamato plain, is a masterpiece. . . . '

What the booklet doesn't need to tell the visitor is that he has just experienced an excellent small-scale example of the quiet orchestration of spatial sequences. Arriving on foot, the visitor has been subtly processed and prepared for his moment of arrival in the course of his transit of the path that ascends from the plain toward the summit of the low hill on which the building stands. The article which follows presents both a photographic representation of this sequential experience, a plan and a parallel documentation in terms of a graphic notation which he is currently developing: and discusses briefly the significance of such experiences and studies to the continuing evolution of architectural and urban design techniques.

' Sometime in the future,' writes the anthropologist Edward T. Hall,[2] ' a long long time from now when culture is more completely explored, there will be the equivalent of musical scores that can be learned, each for a different type of man or woman in different types of jobs and relationships, for time, space, work and play.' Hall, of course, is concerned here with the problem of the realization of the inherent potentialities of human experience, which are culturally determined and limited. He points out that ' a musical score is comparable to the technical descriptions of culture that the anthropologist is beginning to make. In both cases, the notation system, i.e., the vocabulary, enables people to talk about what they do. Musically, the process of making shorthand notes does not diminish the artist in any way. It simply enables him to transmit to others who are not present what he does when he plays. . . '

So also for the temporal art of the dance, which has its own system of notation.[3] But architectural and particularly urban design are also temporal arts, but in an inverted sense: unlike the case of the dance or music (and the cinema[4]), the members of the audience here are not passive, but are usually quite free to determine the order and rate of the sequence of experiences at will. The perceived pattern of spaces and associated meanings are not ephemeral: to a large extent they can be reviewed at any time, and as Lynch points out ([5], chapter IV), may be begun or ended at different points, like an endless piece of jazz.

But like music and the dance, the creative processes are similar in that tentative design ideas are conceived, expressed, evaluated and reformulated until a sufficient degree of appropriate objectives, criteria, standards or values are embodied. The choreographer may try out a few steps ; the musician can play a few bars ; but the designer must make some marks on paper: he thinks with his pencil. Even model studies are too laborious or time-consuming in this process of conception (although very useful in checking and evaluating those ideas which have been brought to a certain degree of explicitness).

Design conceptualization in terms of the sequential experience of space is at present encumbered by the static limitations of the available graphic systems: station-point sketches, or the orthographic plans, sections and elevations which are more suited to the needs of the renting agent or the contractor than indicative of the experience of the future moving observer. The isometric perspective, of course, is a means of indicating some aspects of spatial relationships in sequence, but in addition to being difficult to use in cases where many changes of direction and level occur, and in imposing a bird-like viewpoint, it suffers more seriously from what may be called a necessity for over-explicitness, for purposes of tentative conceptualization. What is needed is a simple hierarchical system that will permit the designer to quickly explore, via scribbles on paper, a variety of ideas dealing first with the major attributes of spatial experience: of the dynamics of movement, and of the size, position, number, shape, direction; and of the character and relationships of the spaces of a proposed sequence. With these basic thematic elements of the score fixed, the local specifics of detailed form, materials and construction can be subsequently orchestrated, in accordance with the other design requirements, and by other hands.

Our future will be increasingly concerned with the development of new towns and cities, and the redevelopment of old cities. Today our projects are of larger sizes, built at faster speeds, planned by more people, and experienced from more routes than ever before. But our form-conceptualizing techniques are still only adequate for cottages. As Kepes points out,[6] ' The basic unit of our urban vision . . . is not the fixed spatial location but the transportation-defined pattern of a sequence of vistas. . . . In the visual field, particularly in the successive images we perceive in our environment, the juxtaposition of images offers the most potent symbolic qualities. The contrast of the towering cathedral with the cluster of small dwellings in a medieval city had a symbolic quality. . . . It is self-evident that the architect or planner cannot consciously create this grand scale of poetry with such symbolic juxta-positions ; but, on the other hand, awareness of the power and meaning of contrasting forms is necessary if we are to guide the shaping of a rich poetic city. In the intricate and numerous visual-sequence relationships that the city offers its population, meanings are conveyed in accordance with the structure of the sequence path that we follow.'

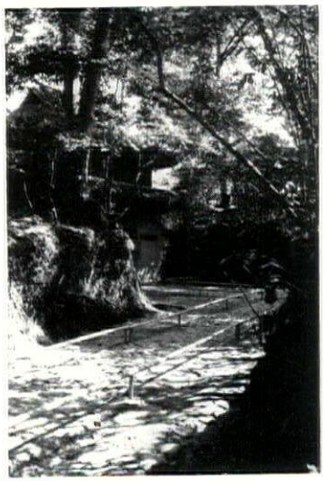
References

([1]) Thiel, Philip, ' A Sequence-Experience Notation for Architectural and Urban spaces,' *Town Planning Review*, April, 1961. (The example herewith uses a slightly different form from that described in this reference.)
([2]) Hall, Edward T., *The Silent Language*, New York, Doubleday and Company, Inc., 1959.
([3]) Hutchinson, Ann, *Labanotation*, New York, New Directions, 1954.
([4]) Eisenstein, Sergei, *Film Form* and *The Film Sense*, New York, Meridian Books, 1957.
([5]) Lynch, Kevin, *The Image of the City*, Cambridge, The Technology Press and Harvard University Press, 1960.
([6]) Kepes, Gyorgy, ' Notes on Expression and Communication in the Cityscape,' *Daedalus*, Winter, 1961. (Relationships of motion and meaning in the city.)
([7]) Mori, Osamu, *Japanese Gardens*, Tokyo, Asahi Shimbun-sha, 1960. (Photographs, contour maps and a Japanese text with English summary on the Jiko-in and other gardens.)



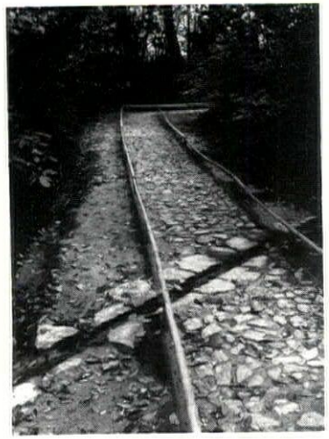
Through the gate, obliquely to the right, there is reassurance and a resolution: the high thatched roof of the *shoin*.

g



f

Around this last turn, partly hidden by the foliage, you are suddenly confronted with a two-storied gatehouse, roofed in thatch, with barred windows over the entrance.



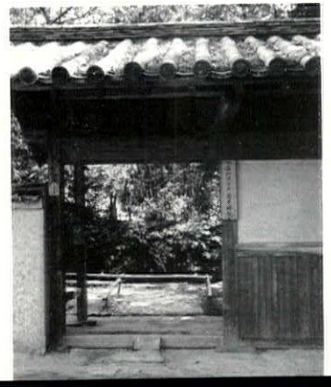
e

Here one is completely enclosed in the shadowy heart of the hill, but the small wood sounds and the damp earth smells are in counterpoint with the sharp geometry of the path, leading first left, then right, then left again.

d

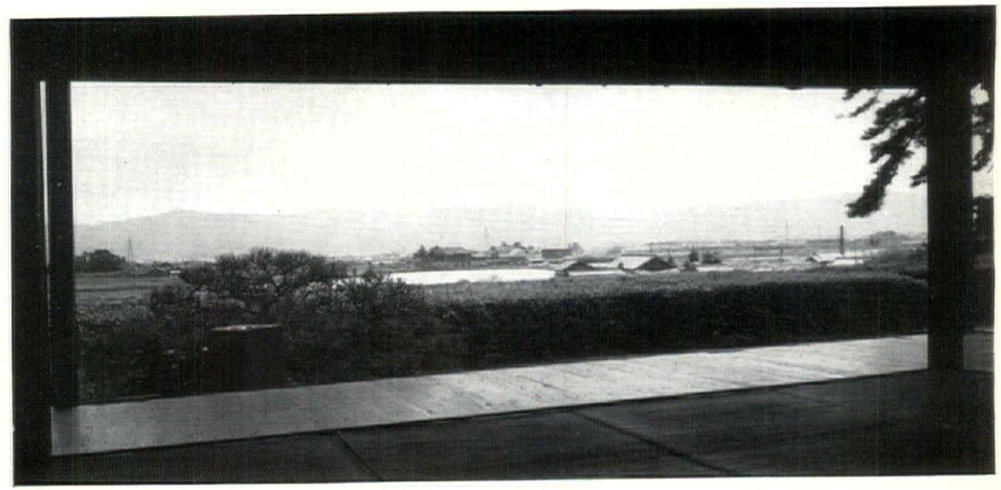
Bordered with moss and root-laced earthen banks, it extends to the left under a continuous canopy of trees.

But your eye is drawn through the low square opening into the green shadowy area beyond; and your foot to the narrow stone-cobbled path.



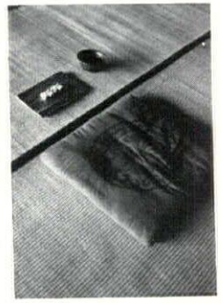
Here another stone monument and a wooden tablet invite a pause.

c



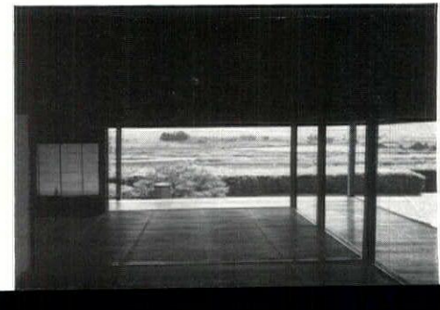
m

And at the edge of the veranda a stone water basin cups a bright round mirror of the sky.



Ahead of you, beyond both the house and the garden, over the low hedge that marks the edge of the hill, lies the Yamato plain, extending eastward to the low range of blue hills five miles off in the morning haze.





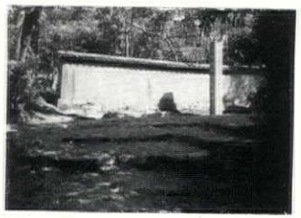
l

Close on your right, outside this, is the garden: an expanse of raked sand backed by low rounded bushes and a sun-pierced grove of venerable pines.

Before you stretches the shadowy matted floor, under a low dark ceiling.

And when you then pass around the monochrome painted screen that blocks the entrance, the climax









b At the top of the path a few informal steps bring you into a small sunny forecourt extending to the right: embedded in trees, and with a low tile-roofed gate at the far end.

Up ahead through the shadowy tunnel there is a glimpse of a bright tile-capped wall.



The morning breeze agitates the leaves of the dark thicket concealing the western side of the hill: to the left a low hedge permits backward glances at the fields you have just left.

The meandering dirt footway turns to gravel as you move under the branches, and leads purposefully upwards.

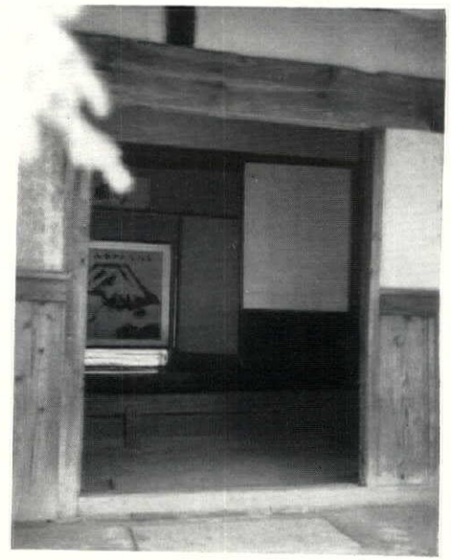
The entrance is marked by a tall clump of trees on one side and a small weathered sign on the other.



a A bit of orchard and broad paddy fields are on your left: to the right the corner of a white plastered wall encloses a farmhouse courtyard part-way up the slope.

read up

The path to the entrance lies at the end of the village street, and takes you westwards past a monument and around the southern base of the wooded hill.



k



As you slip out of your shoes and step up on silken polished wood there is a glimpse of bright sand and pine branches.

In the shadows you are greeted by the hostess, kneeling on the raised tatami floor.

j But two paths are closed, and you are gently directed by the third to the dim *shoin* entrance partly concealed in the shrubbery.



i

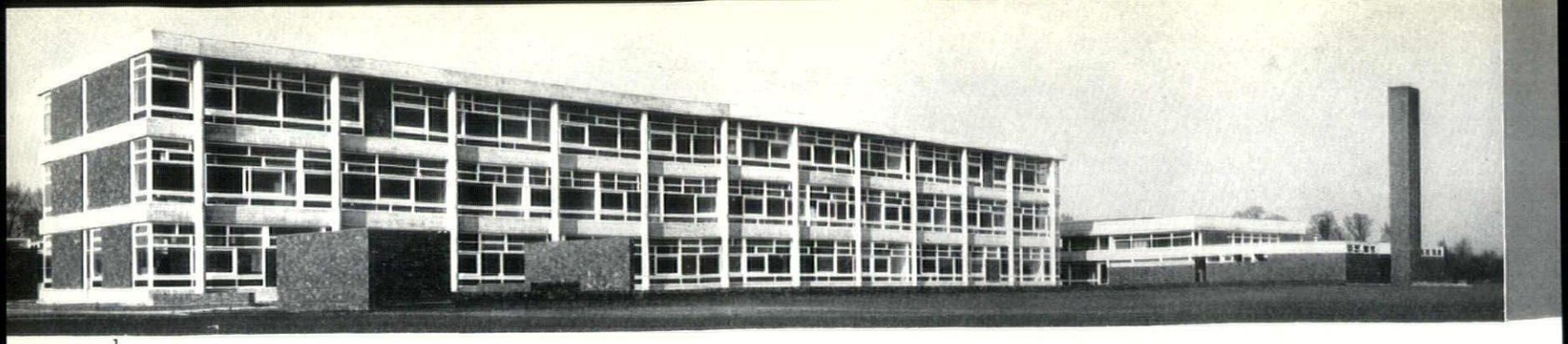




Three branching paths lead from the dimness of the gatehouse diagonally through two small sunny hedge-bordered areas: to the *shoin* entrance, to the veranda entrance, and to a gate in an eye-height mud wall—and here is the sudden intimation of distance: there seems to be a great space behind the wall.

h





1

SCHOOL AT BASILDON, ESSEX

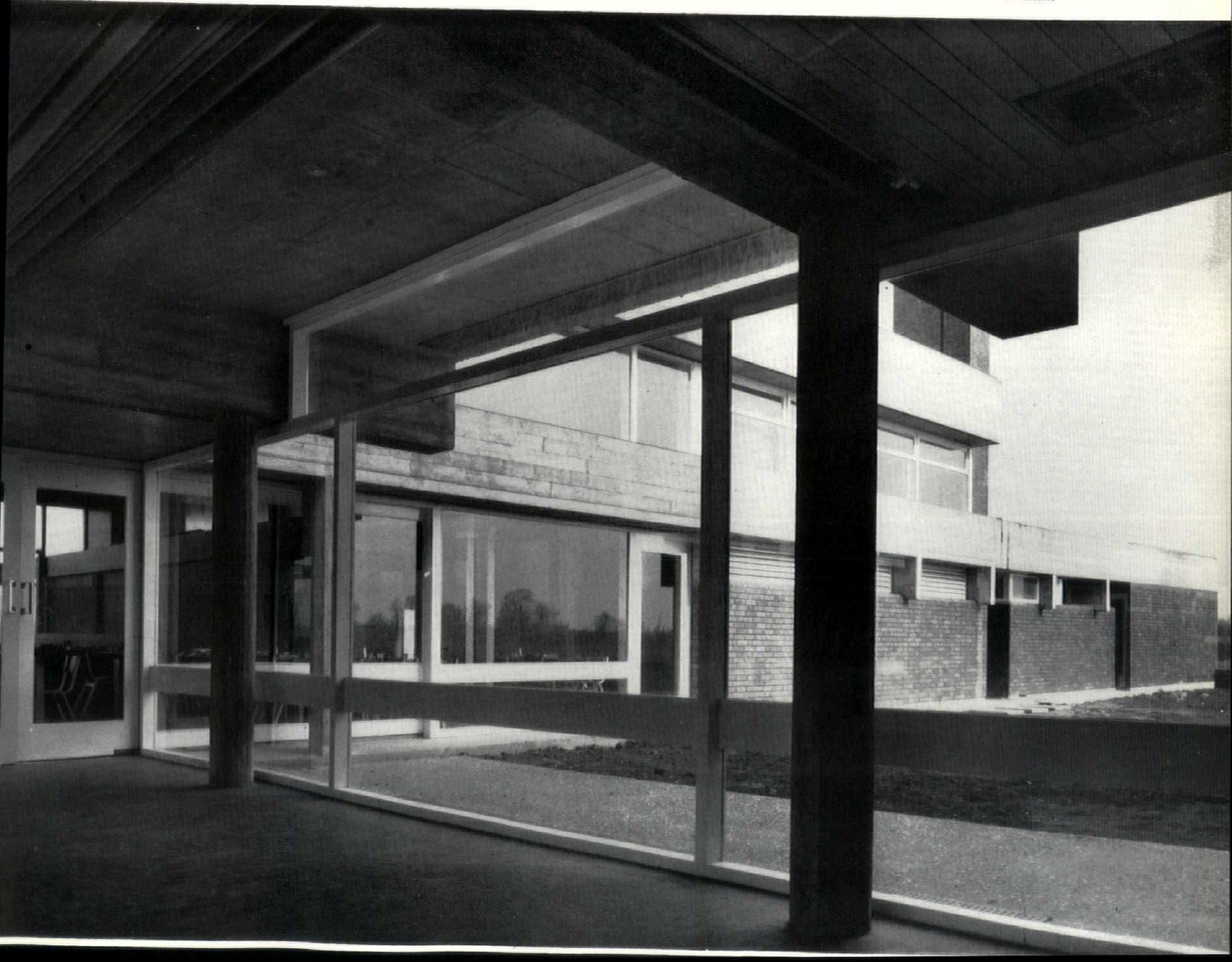
ARCHITECTS | **YORKE, ROSENBERG AND MARDALL**

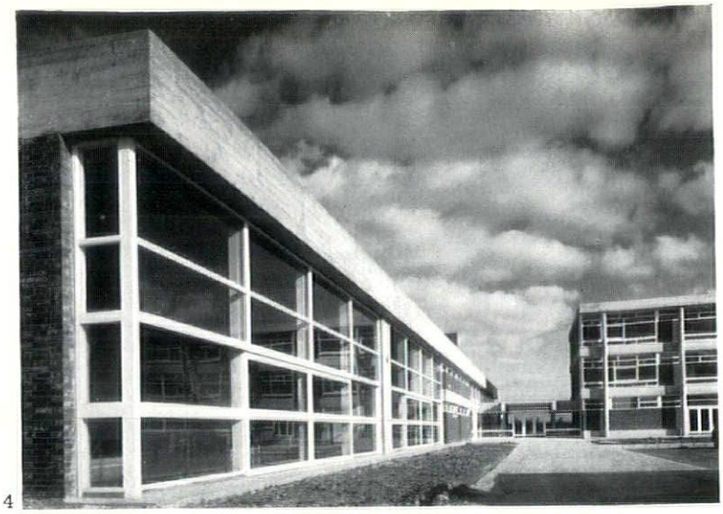
2

SCHOOL IN FORM WORK

Exposed, shutter-patterned, concrete is a rare material in English school-building, especially in the form of an exterior frame of cylindrical columns. In fact, the solution employed on the Barstable Grammar School, Basildon New Town, may be regarded as an extroversion of the structural principle of the passenger building at Gatwick, designed by the same architects. At Gatwick, similar columns rose inside a skin of glass and metal; at Basildon they rise outside a skin of glass, wood and engineering brick.

1, the teaching block from the south-east. 2, the main entrance. 3, looking through the north side of the entrance link.





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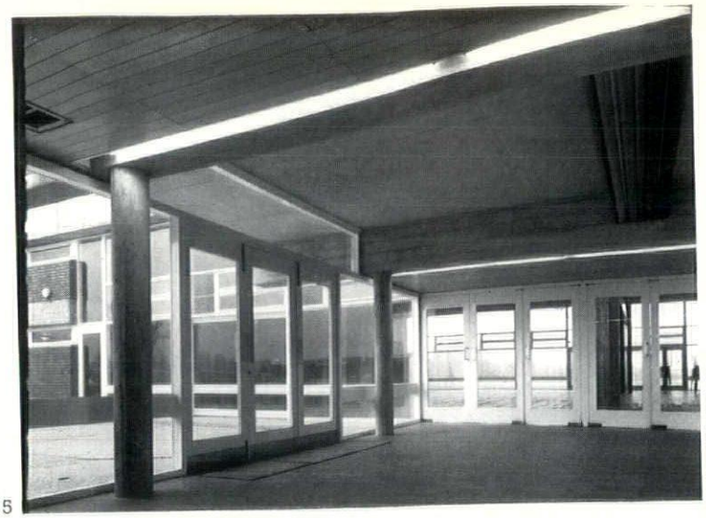

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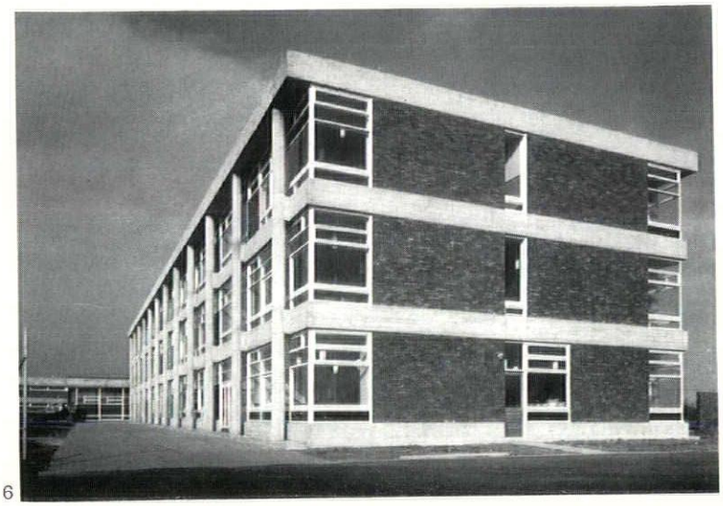

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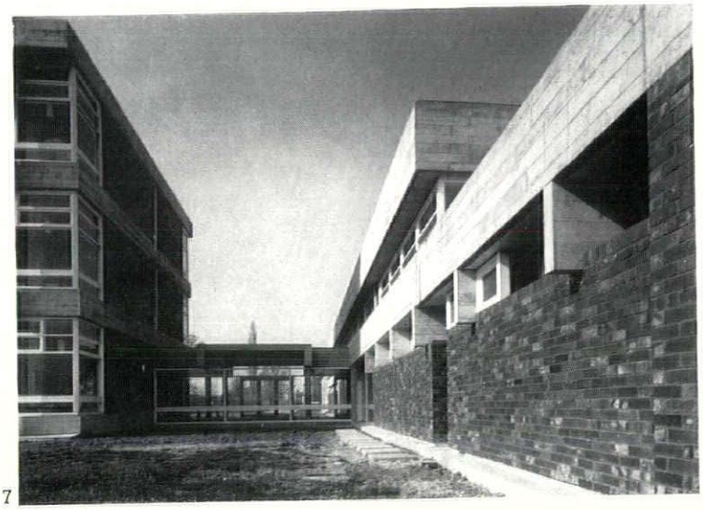

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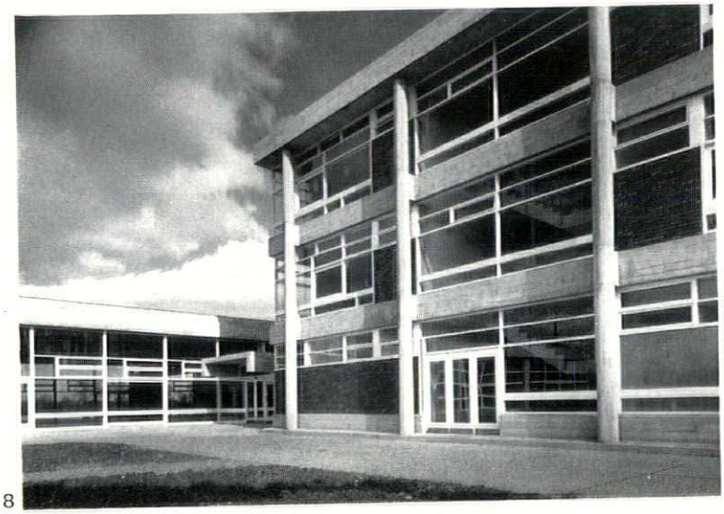

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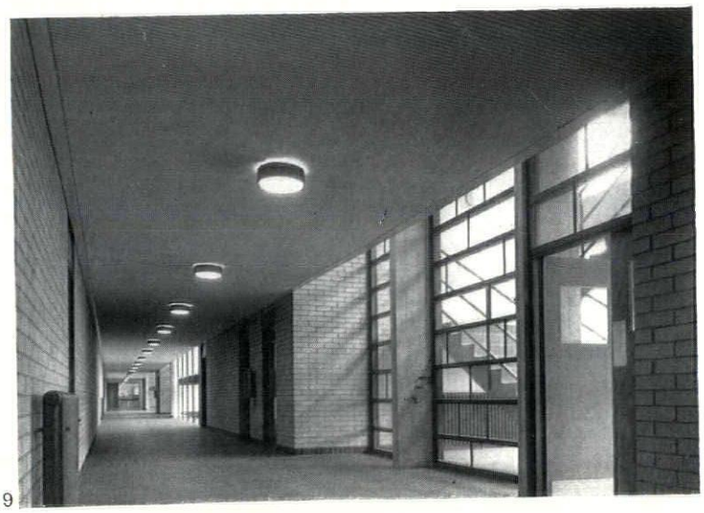


9

SCHOOL AT BASILDON, ESSEX

4, from the west, with the assembly hall block on the right and the three-storey teaching block on the right. 5, inside the entrance link. 6, the teaching block from the south-west. 7, the entrance link from the east, with the kitchen wing of the assembly hall block on the right. 8, the entrance and teaching block from the south-west. 9, ground floor corridor in the teaching block. 10 (facing page), close-up of a corner of the teaching block showing external column.



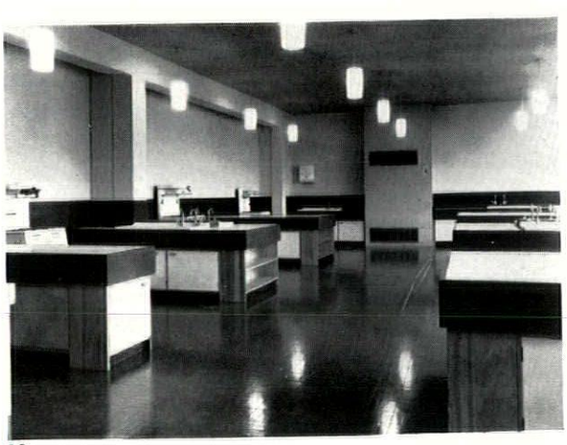
11

photographs by H. de Burgh Galwey

11. looking from the large assembly hall to the small one, with the kitchen beyond. 12. the swimming pool in the assembly-hall block. 13. domestic science room and. 14. science laboratory—both in the teaching block.



12



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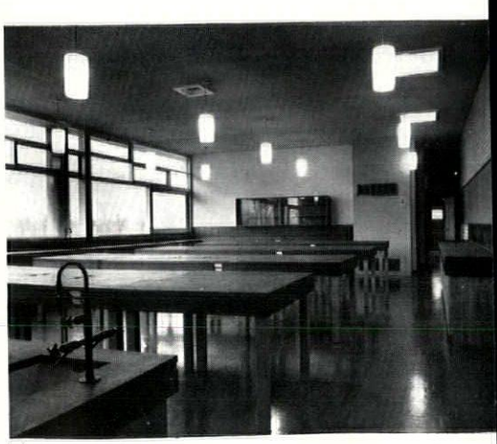


14

SCHOOL AT BASILDON, ESSEX

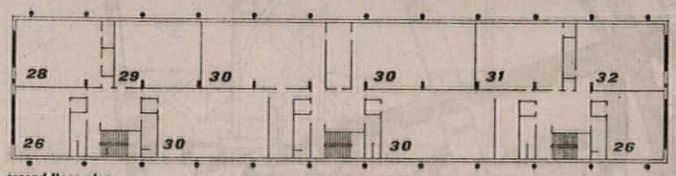
The site is in the Barstable neighbourhood, on the outskirts of the new town, adjoining Timberlog Lane. The school is a four-form entry grammar/technical school for 750 boys and girls. There are three main blocks: a teaching block with classrooms and special rooms; a workshop block with art and craft rooms and an assembly-hall block with kitchen, dining-room, gymnasium and swimming pool. All but the teaching block, which is three storeys high, are mainly single storey.

The structure is in exposed reinforced concrete with blue brick infill panels and timber windows. In the classroom block, external structural columns stand free of the walls, giving complete flexibility to the partitioning of each floor. The window pattern follows the same principle. The assembly-hall block is roofed with a folded reinforced concrete slab spanning 80 feet over the hall and dining-room. The practical block is built with loadbearing brick walls lined internally with precast concrete blocks. It is mainly toplit by a series of monitor-type rooflights, in timber on rolled steel channels.

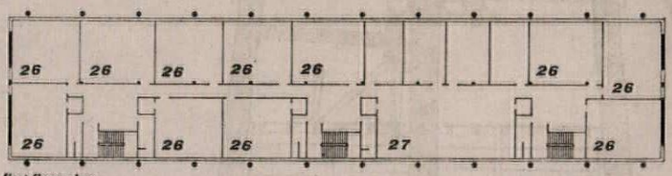
Extensive use has been made of fair face concrete and flint lime bricks internally, with subdued colours generally. Ceilings are mainly in asbestos spray, except for corridors which have suspended ceilings in fibreboard. These form the ducts for services.

The school was designed in collaboration with Harold Conolly, Essex county architect. Structural consultants, Ove Arup and Partners. Heating and electrical consultants, R. W. Gregory and Partners.

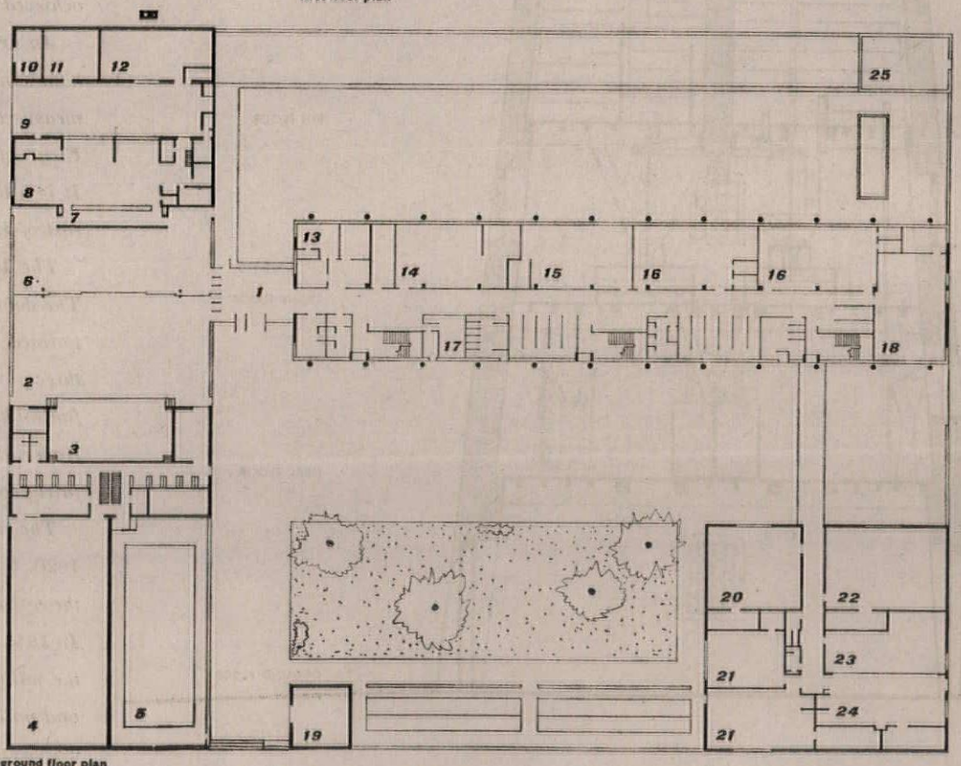
key
1, entrance.
2, large hall.
3, stage.
4, gymnasium.
5, swimming pool.
6, small hall.
7, servery.
8, kitchen.
9, yard.
10, groundsman.
11, fuel oil store.
12, boiler room.
13, headmaster.
14, staff room.
15, needlework.
16, housecraft.
17, medical inspection.
18, biology laboratory.
19, transformer.
20, art room.
21, woodwork.
22, drawing office.
23, craft room.
24, engineering metalwork.
25, greenhouse.
26, classrooms.
27, library.
28, music room.
29, commerce.
30, laboratories.
31, lecture room.
32, geography.



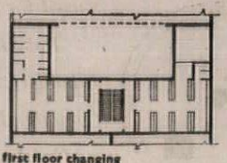
second floor plan

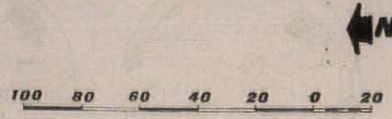


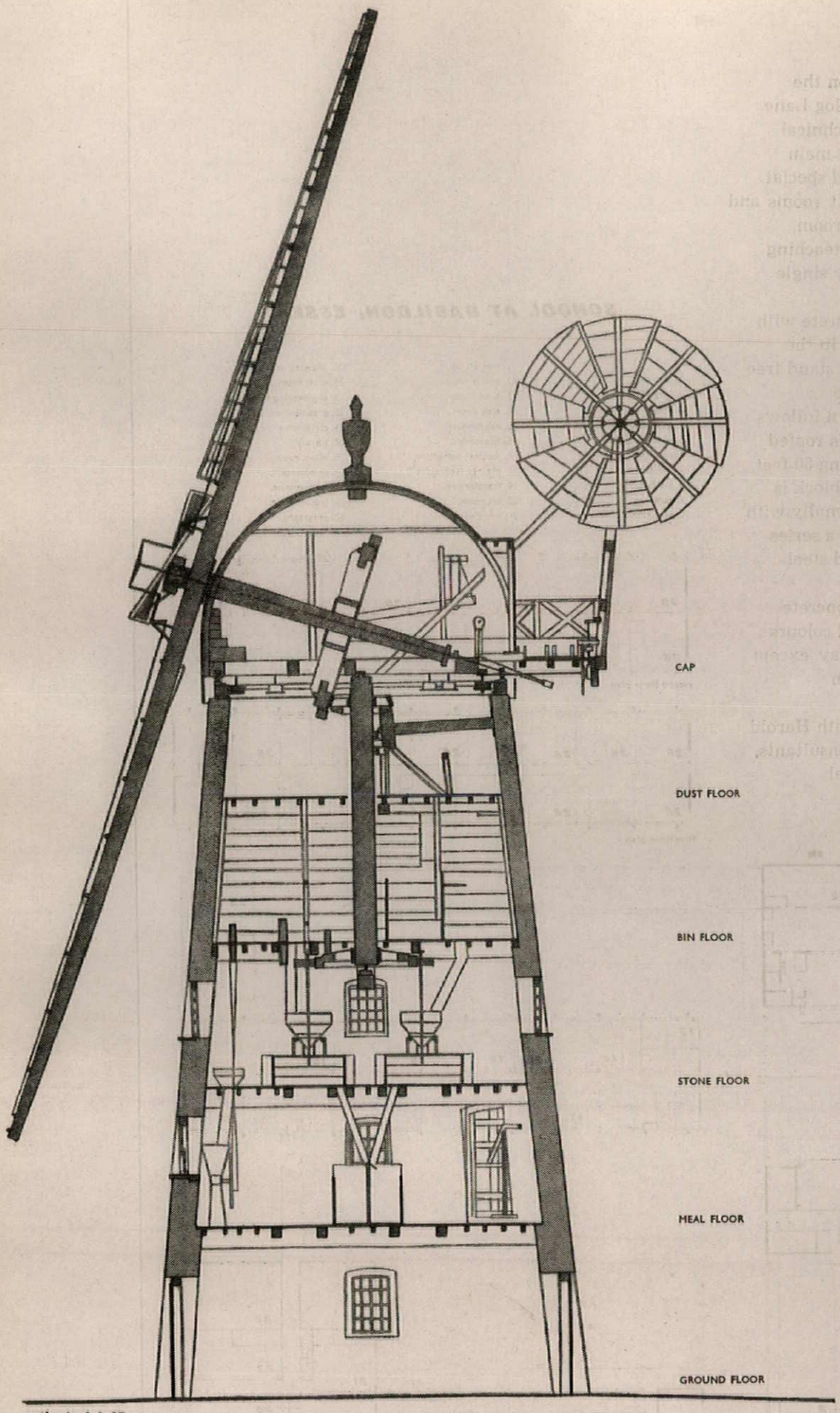
first floor plan



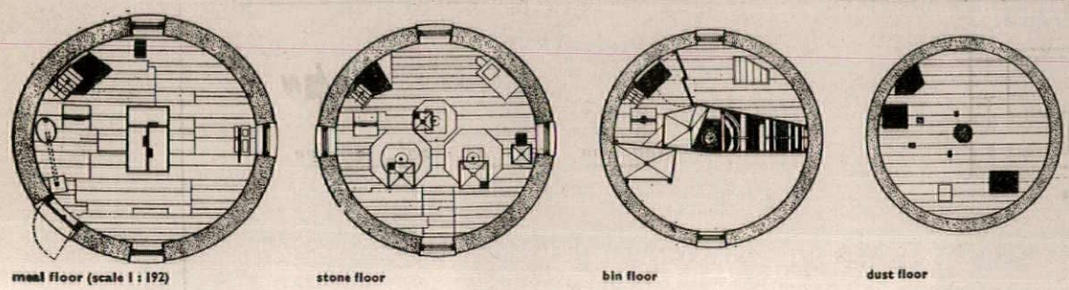
ground floor plan


first floor changing rooms over stage

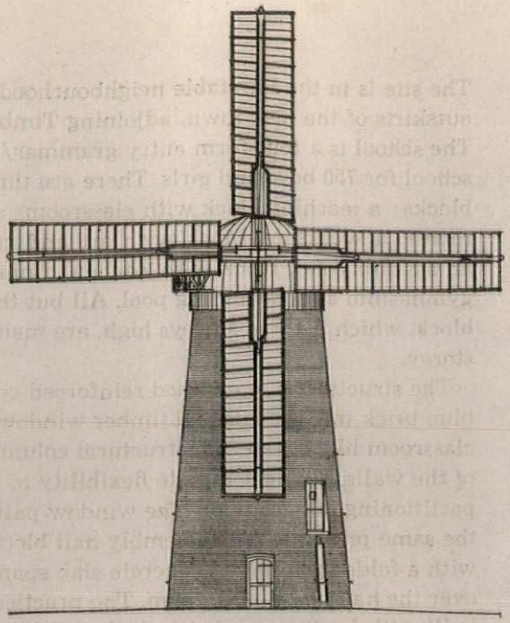




section (scale 1 : 96)



meal floor (scale 1 : 192) stone floor bin floor dust floor



elevation

PAKENHAM WINDMILL, SUFFOLK

Measured and drawn by P. D. R. Eley

Of all the types of building associated with the Functional Tradition, the windmill is perhaps the one whose beauties have been longest recognized. Like the sailing ship, the windmill began to be superseded technically at the moment when it had reached its peak of development and had therefore achieved a definitive aesthetic form.

An excellent example, still working, is Pakenham windmill, Suffolk. It is the subject of a set of measured drawings recently made by Mr. P. D. R. Eley, of which six are reproduced herewith. It is a tower mill, and stands seven miles north-east of Bury St. Edmunds, on the Ixworth Road.

The 40 ft. high tower is of brick, tarred black. The domed wooden cap, which turns at the top, is painted white. There are four sails, which drive three pairs of stones on the second floor. A wooden fantail keeps the sails facing the wind. The gallery, from which painting and repairs can be done, is a fairly recent addition.

The mill is thought to have been erected about 1820, the miller then being a Mr. Heffer, though the earliest date to be found in the building is 1835. In 1845 the owner was the Rev. Henry Adams and the miller Clement Goodridge. The present owner and miller is Mr. John Bryant, whose family have worked the mill for 76 years. At present it is mostly used for grinding animal foodstuffs.

Pakenham windmill is in full working order, though the cap and other parts are in need of repair. It has however received a grant from the Ministry of Works and Suffolk County Council.

ID
a monthly review of interior design

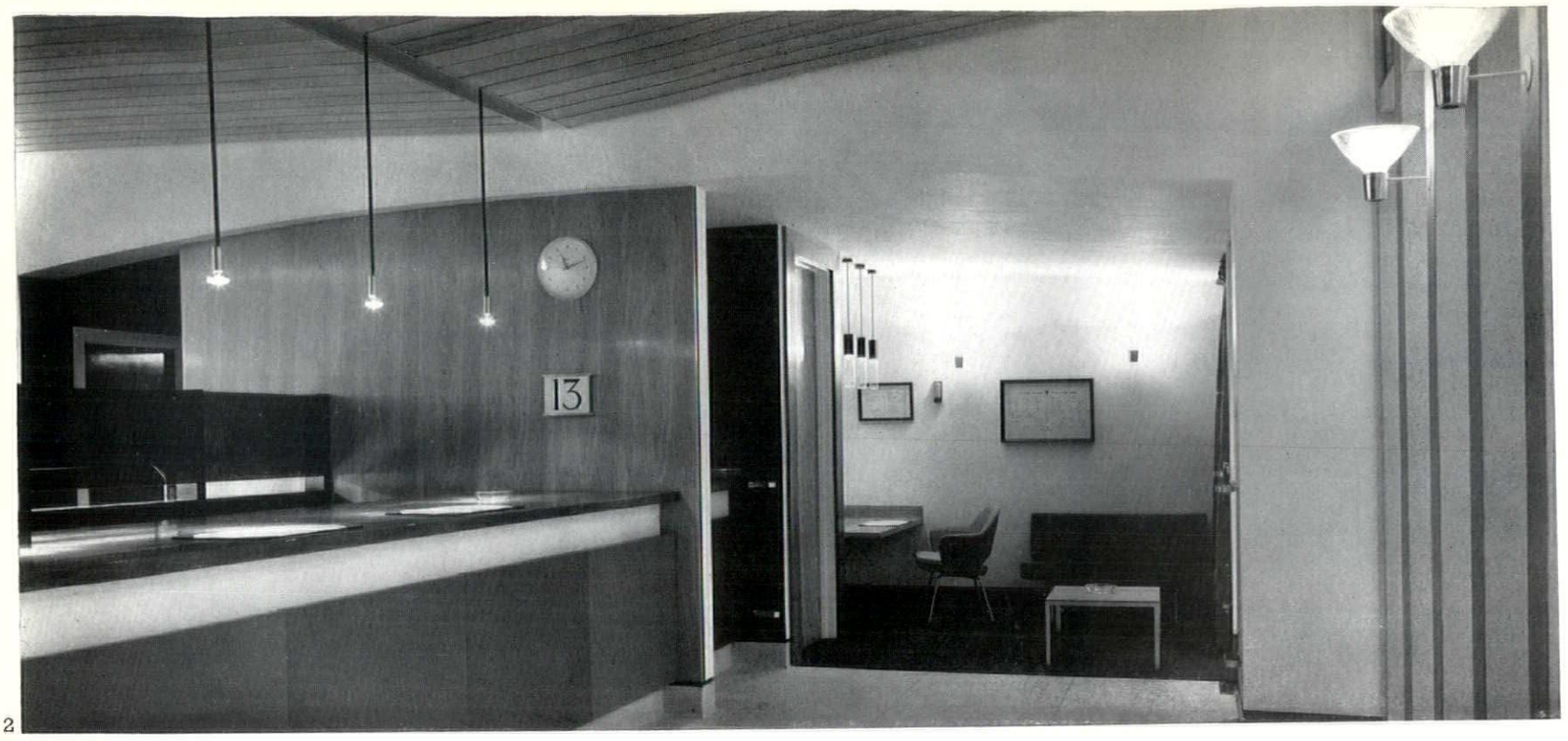


Bank in Canterbury

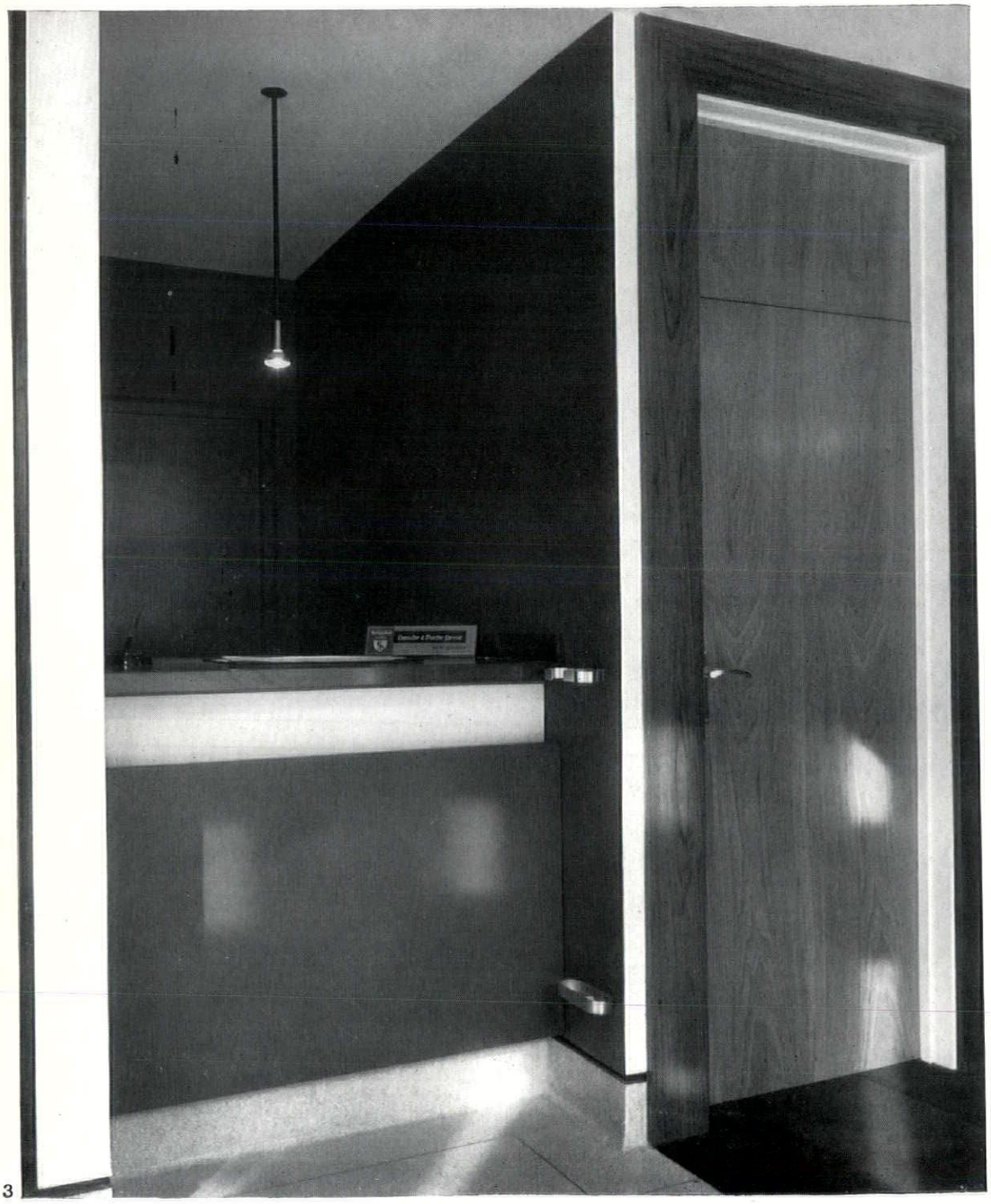
architects: Michell & Partners



1. *view along the main banking hall from the entrance; the grasshopper (shown larger on the title block, above) was salvaged from an older Martins bank, and is incorporated in the bank's present crest.*



2



3

Unusual among recent banks in being able to spread itself along the pavement line (see exterior, 4, below) this Martins branch in Canterbury occupies the full depth of the ground floor of a new block in the rebuilt business area. Provision has been made for later extension into the rest of the ground floor.



4

bank in Canterbury

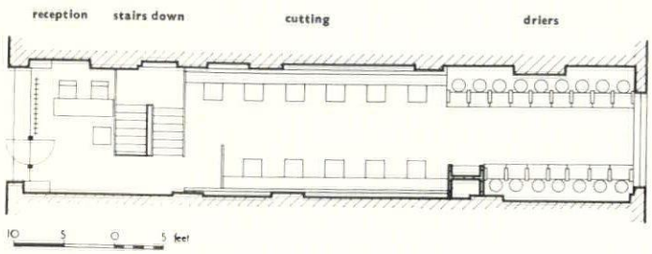
2, panorama of the entrance end of the banking hall, with the entrance behind the projecting wall, right. Directly facing the entrance is an enquiry desk, screened from the main counter by a panel faced in Kent elm. The main counter front is panelled in hide, three of the panels being a brilliant red, while the counter top is solid Australian walnut. Beyond the enquiry desk is the entrance to the interview room, and a carpeted writing/waiting area, the flooring of the rest of the banking hall is in white terrazzo banded in grey (see 1, on previous page). The ceiling, of ash boards, slopes down from back and front to a line parallel with, and directly above, the counter, at which point the pendent lights are hung. Beyond the end of the counter at either end, the ceiling drops to a flattened vault.
3, the enquiry desk, with door to interview room at right. A panel of blue hide on the front of this desk distinguishes it from the counter proper, and a similar coloured hide is used for the panel on which the grasshopper is mounted (see again, 1, on previous page).

ID

Hairdressing Salon in London, W1

architects: Gordon Bowyer & Partners
assistant: Mavis Milburn

To some eyes, this establishment appears to lack the air of femininity that is thought to be proper to a ladies' hairdressers. Against this, however, it offers an atmosphere that is smart, without affectation, and a plan that makes for efficiency without fuss or bustle—all attributes that are very proper to a situation just off Oxford Street and a clientele that consists largely of models and other professionals. These illustrations show only the main floor; downstairs are showers, changing room, and washing and tinting.





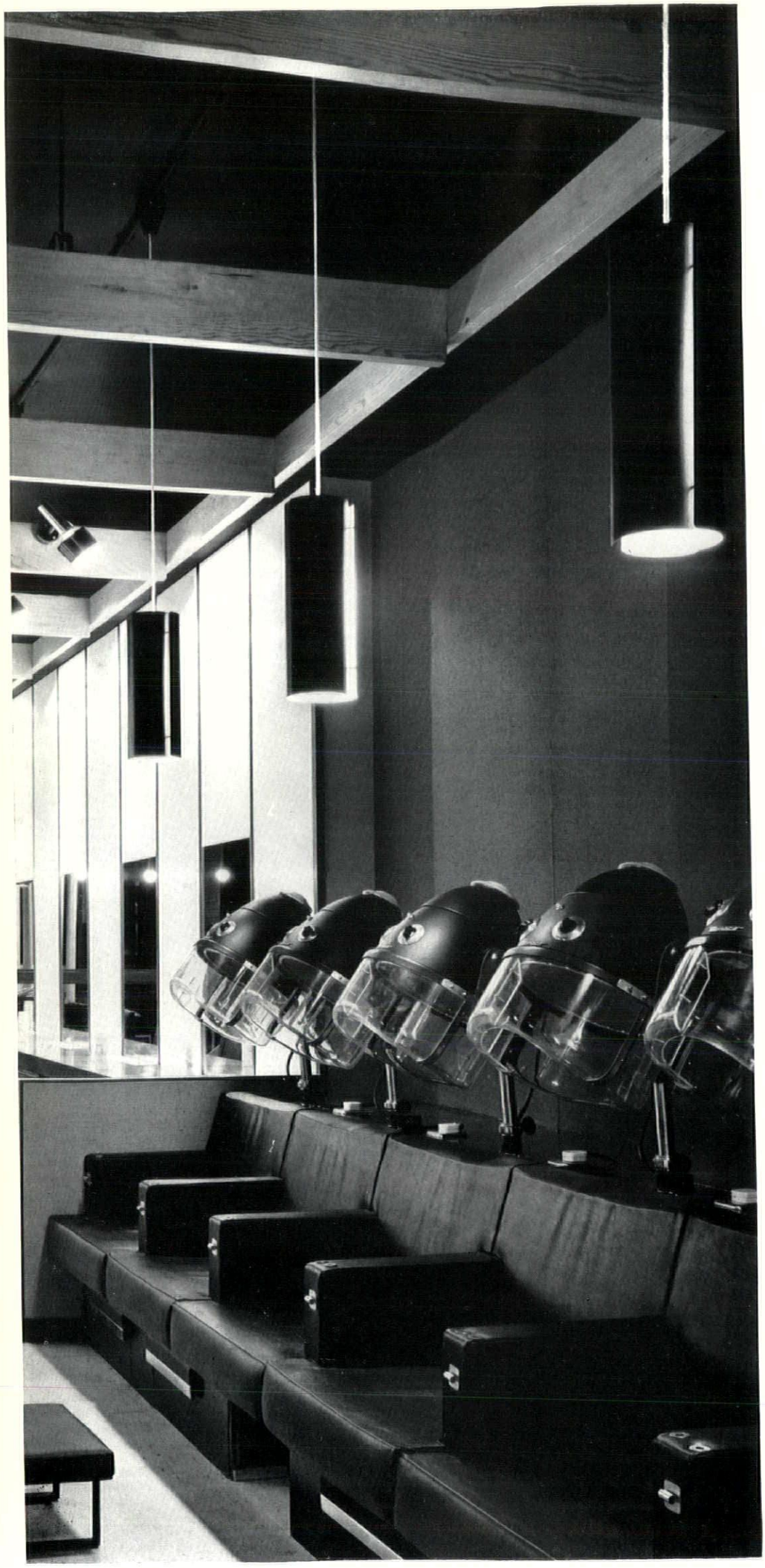
5

5, the entrance, seen from North Audley Street.

6, looking into the reception area over the stairs. The staircase is in teak, the balustrading filled in with armourplate glass, carried in satin-chrome uprights.

6



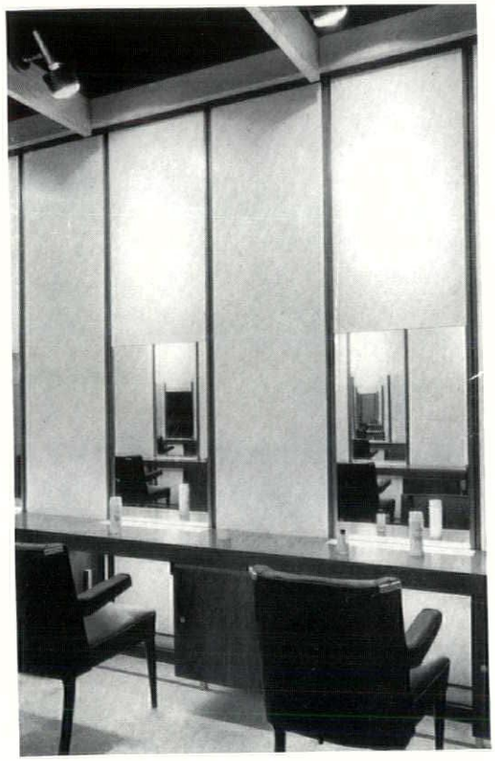


7

ID

hairdressing salon

7, part of the drying area. The walls here are covered in dark brown jute canvas, the floor white terrazzo and the ceiling black painted, with a grid of natural pine beams suspended below it—these beams mark out the basic module on which the main working areas on this floor are planned. The seats are upholstered in black p.v.c.



8

8, two bays of the cutting area, which is the first in London to arrive at a satisfactorily simple solution to the problem of an effectively expressed module for a series of identical work-stations, each of which must provide a work-surface (here faced in grey plastic), a mirror, a storage unit (here in teak and aligned with the blank panel on the wall), a chair and sufficient floor-space for an assistant to perform her work without strain.

Kenneth Browne

The L.C.C. Daylighting Code
V.
The London Street

STRAITJACKET

It is disturbing, to say the least, to discover that the type of street which many value as the essence of London and of urban living could not possibly be built today. The daylighting regulations would prevent it. Surely something must be wrong.

As visual evidence of the affluent society, London, after years of restriction and frustration, is rebuilding with ever-increasing speed. The skyline bristles with tower cranes, vast new buildings spring up like mushrooms overnight and familiar places are often a pile of rubble at the next visit. No longer are architects asked merely to design single buildings, but whole street blocks at a time. This is as it should be, and in theory at any rate makes for unity of design rather than a piecemeal competition of facades. But, in the next ten years it is likely that London will have changed out of recognition and in this context it seems fair to ask the question 'who is shaping this new London?' In theory, of course, it is the townplanners, but in practice nearly every development we see is the mutilated compromise resulting from a prolonged tug-of-war between a large number of people, ranging from the client who initiated the scheme to the LCC townplanning committee (of laymen) who finally set their seal on it. A bit of give here, a bit of take there and it all shows in the finished result. How else, for instance, can you explain the extraordinary jumble of buildings now rising between Victoria Street and Buckingham Palace Road.

The fact is, the professional LCC townplanning staff are so inundated by applications that they cannot give enough study to each scheme and in consequence fail to fulfil their function of positive planning. Too often they rely on the negative aspect of the planning machinery, the straitjacket of LCC planning standards (with which every new building must comply) and in particular the Daylighting Code. Each new scheme is fed into a devil's pin-table of restrictions and requirements and then most likely rejected for the player to try again. Not often is the bell rung first go, unless of course, the scheme has been tailored to fit the machine; no guarantee of any design standard whatsoever. The worse the architect, the more likely he is to conform unquestionably to a prescribed pattern, obviously the quickest way of getting the job through. While standards are essential to prevent bad living conditions, they must be used as a guide and not a Medean Law. Furthermore, if some rules are based on a fallacy, as seem likely, they must be changed.



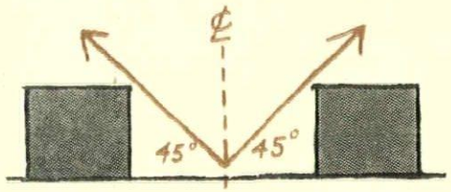
The position is this. London as we know it is being destroyed faster and more efficiently than the Luftwaffe ever managed it. The anonymous stockbrick London street—the backcloth which many of us think of as the essence of London is being condemned wholesale as being unfit to live in, or ripe for development. Either of these pretexts may be true, but before it goes we should recognize its value. Such streets have the real feeling of urbanity about them; tight built yet human in scale, *1*, they clearly state TOWN, not half town or pseudo country; they are the reverse of prairie planning. We may well ask whether we can hope to replace them by anything as urbane. From the built evidence the answer is surely 'No.' The Daylight Code Indicator*, that needle's eye through which all schemes must pass, will prevent it. Expressly aimed at fostering open planning, the antithesis of urbanity, the code gives little chance of a design solution from basic principles (and surely we want nothing less in the present mess?), unless the architect is prepared to question the rules all the way, with the delays and possible failure that this entails.

* Designed by the Ministry of Town and Country Planning; and adopted as a standard by many local Authorities.

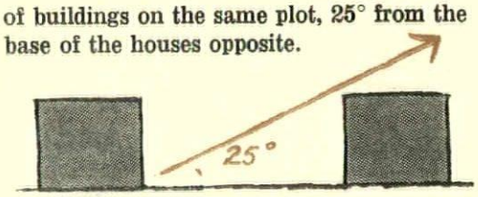
For, in the case of 'serious infringement' of the Code, even if the planners are on the architect's side, they can only recommend acceptance—the last word lies with the lay planning committee.
It needs a very bloody minded architect, very sure of his client, to invite this. And one who would recommend that much of the area should not be redeveloped at all, but merely repaired (often the best course) thus losing fees as well, can hardly be imagined.

HOW THE DAYLIGHTING CODE WORKS

The Code is operated by a complex juggling of special daylighting protractors, which few architects have bothered to master, but in the case of terraces of buildings facing each other the issue is simple. In residential areas they must not exceed a vertical height dictated by an angle of 45° from the centre of the road

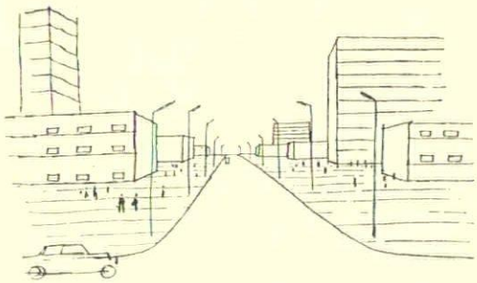


or in the case of buildings on the same plot, 25° from the base of the houses opposite.

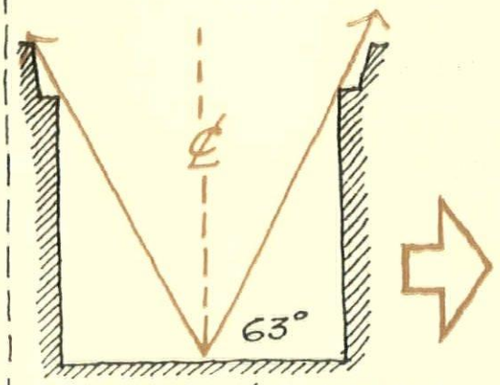


Invariably, this prevents the designer from replacing in height what is already there, even in the case of three- or four-storey buildings. He must either build lower, stagger the face of the building back or move back the building line. The street, ***1*** (previous page), now looks like ***2***.

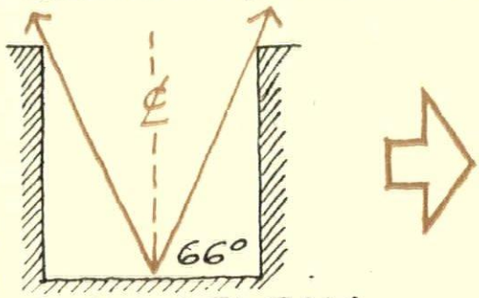
Surely it is time to question a code which fosters the disintegration of the town and the dreary boredom of one prairie planned housing estate (below) after another.



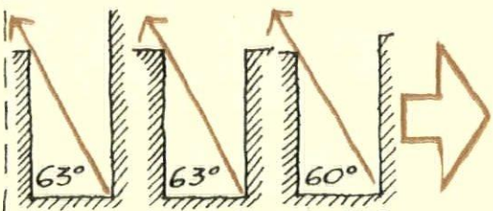
In towns the contrast of space, the language of enclosure and release (all the townscape qualities the Review has pinpointed and advocated), are now virtually impossible to achieve because no buildings can be close enough to one another. CONTRAST is eliminated, except between low and high buildings—the only gambit left. But with tight planning the outside space could again become as much architecture as the buildings themselves. This is surely what we want of a town, not acres of asphalt and too much light. A look around Chelsea, ***5-8*** (facing page), should be enough to convince anyone that the rules are, indeed, too stringent and in fact the amount of light demanded is unnecessarily high. There must be the choice open for people to live close together in a truly urban way if they wish—anyway, not everyone wants to be overlit.
The code presumably evolved from fear of slum conditions, but the planning arteries have hardened—after all it is the people who make a slum.
If we now look at some streets, ***4-9*** (facing page), we know are good places to live in, and good townscape what do we find?—that they all infringe the daylighting code and could not be built today.



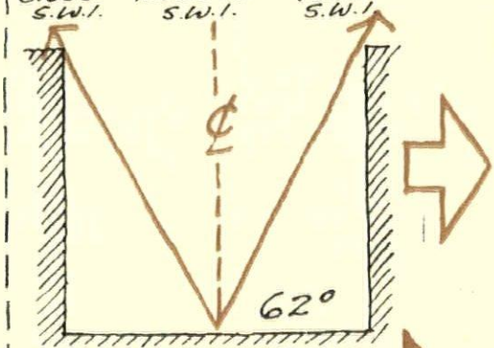
Queen Anne's Gate S.W.1



Motcomb St. S.W.1



Ann's Close S.W.1. | Kinnerton Mews N. S.W.1. | Justice Walk S.W.1



Montague St. W.C.1.

none of these streets could be built today



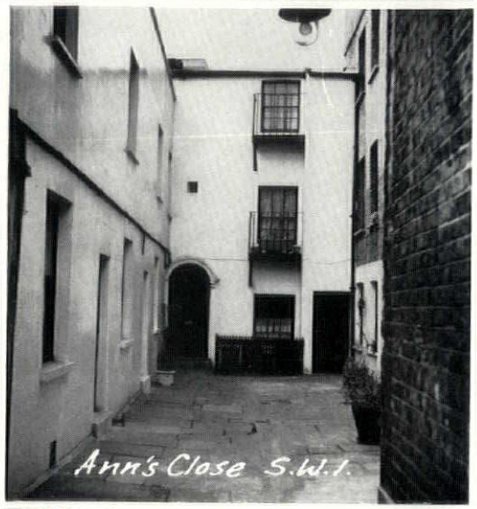
*The effect of the daylighting code on urbanity can be judged by comparing Montague Street, W.C.1, altered to comply with the 45° angle, **3** (left), with the same street as it is today **9** (opposite). Its main townscape point—restriction contrasting with release (at Russell Square)—would be destroyed.*

*The diagrams above show the light angles of the streets on the facing page. In **5–7** the angles would have to be 25° to conform with the code, since the facing buildings are on the same plot.*

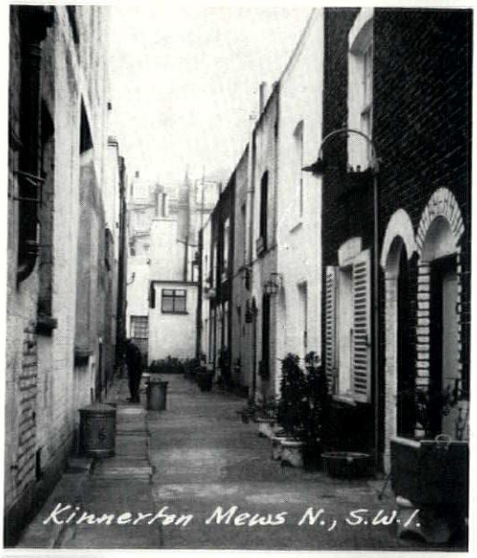
*In Motcomb Street, **8**, since there are shops on the ground floor the angle would be calculated from first floor level—even so it would be 57°.*


Queen Anne's Gate S.W.1.

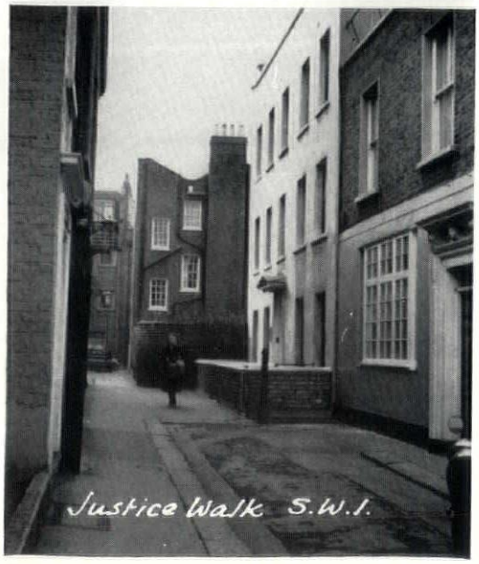
4


Ann's Close S.W.1.

5


Kinnerton Mews N., S.W.1.

6


Justice Walk S.W.1.

7


PANTECHNICON
Motcomb St. S.W.1.

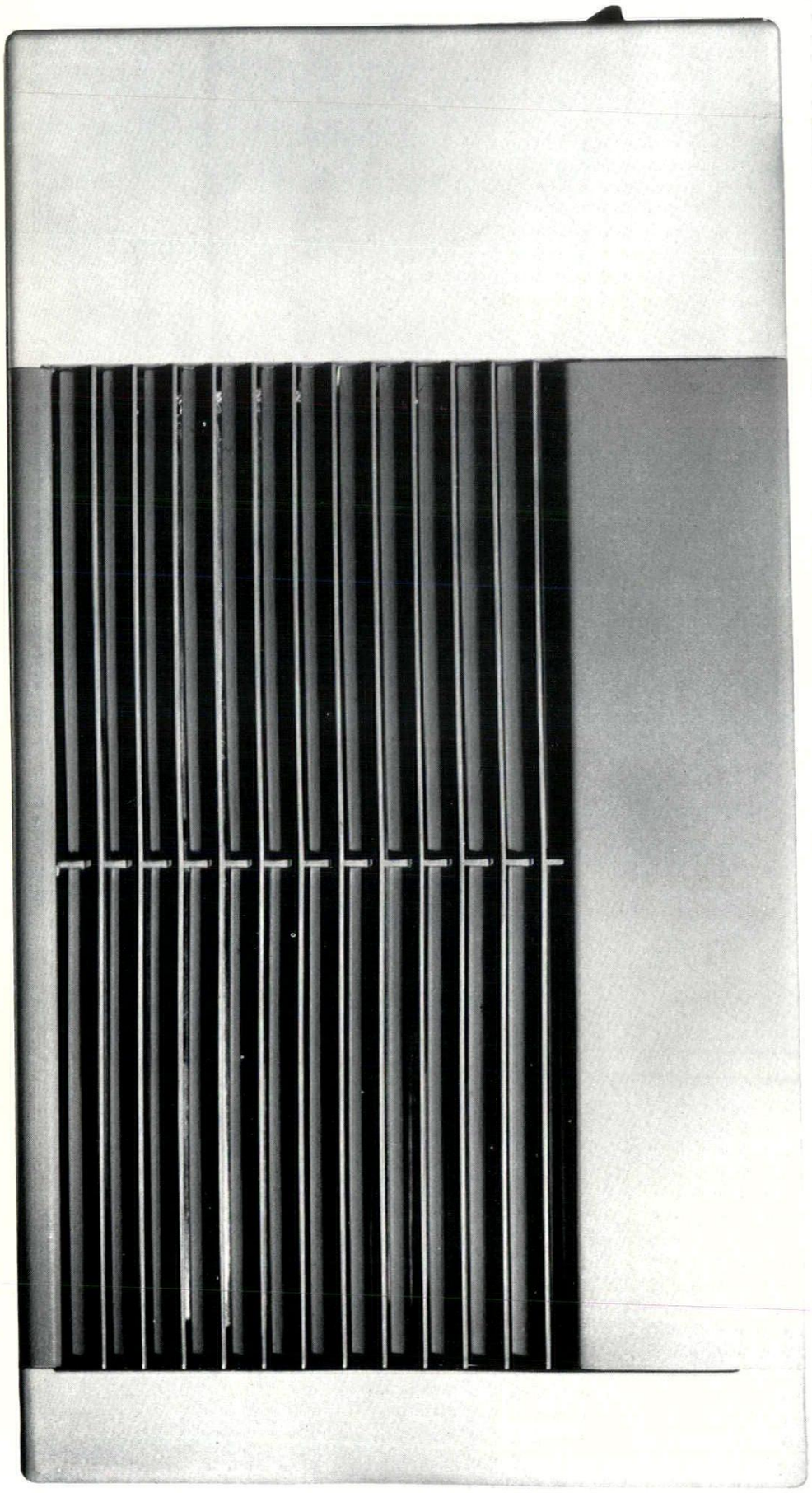
8

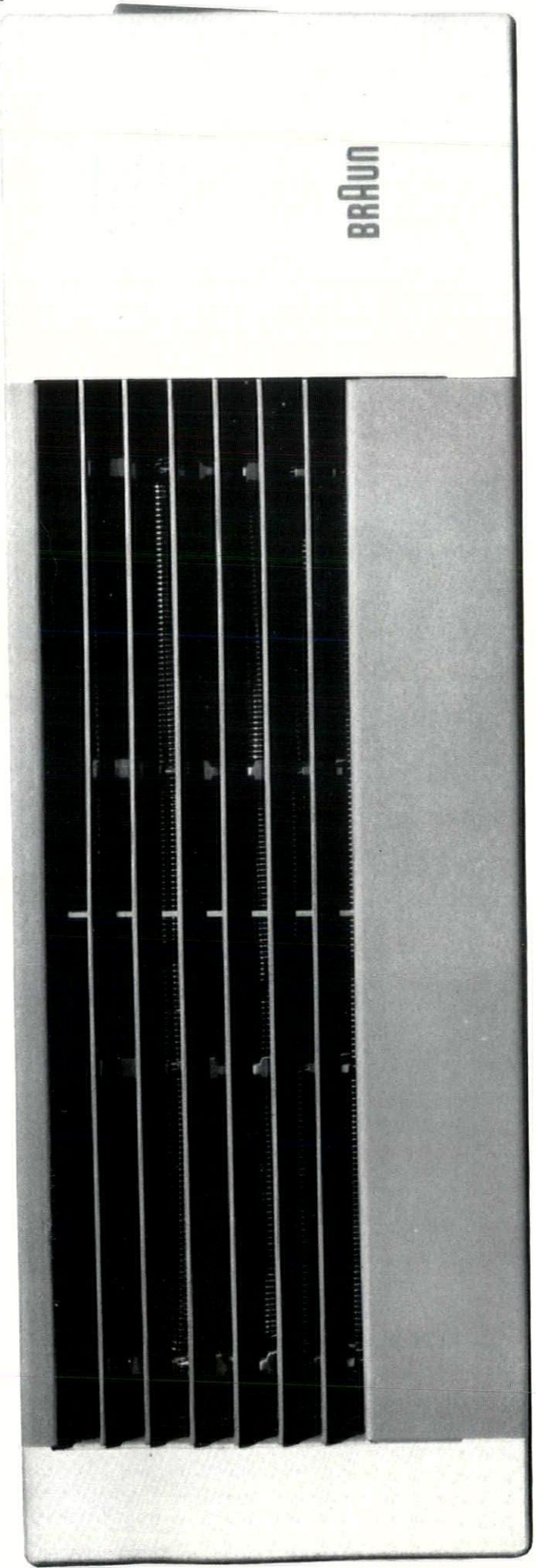

Montague St. W.C.1.

9

DR
design review

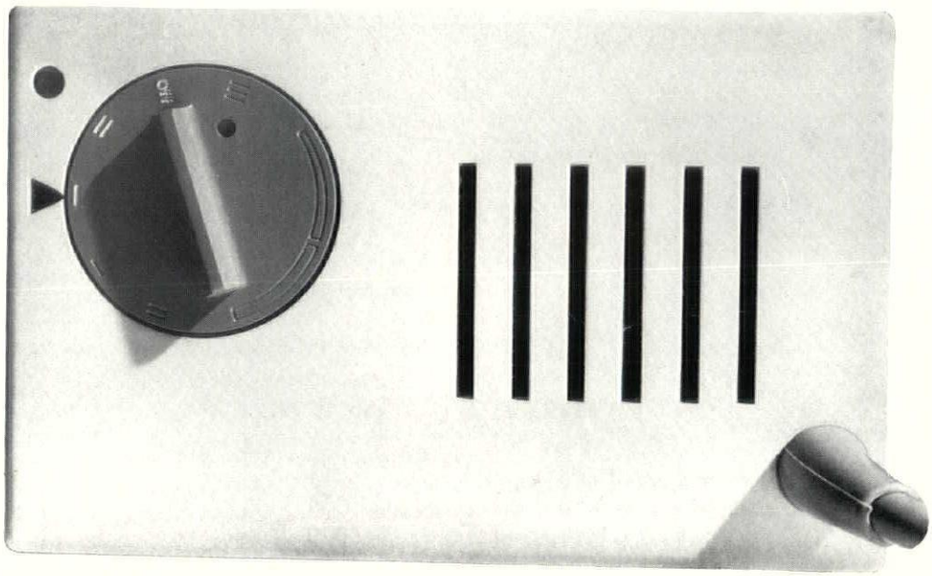
1 2





BRAUN
compasso
d'oro

3

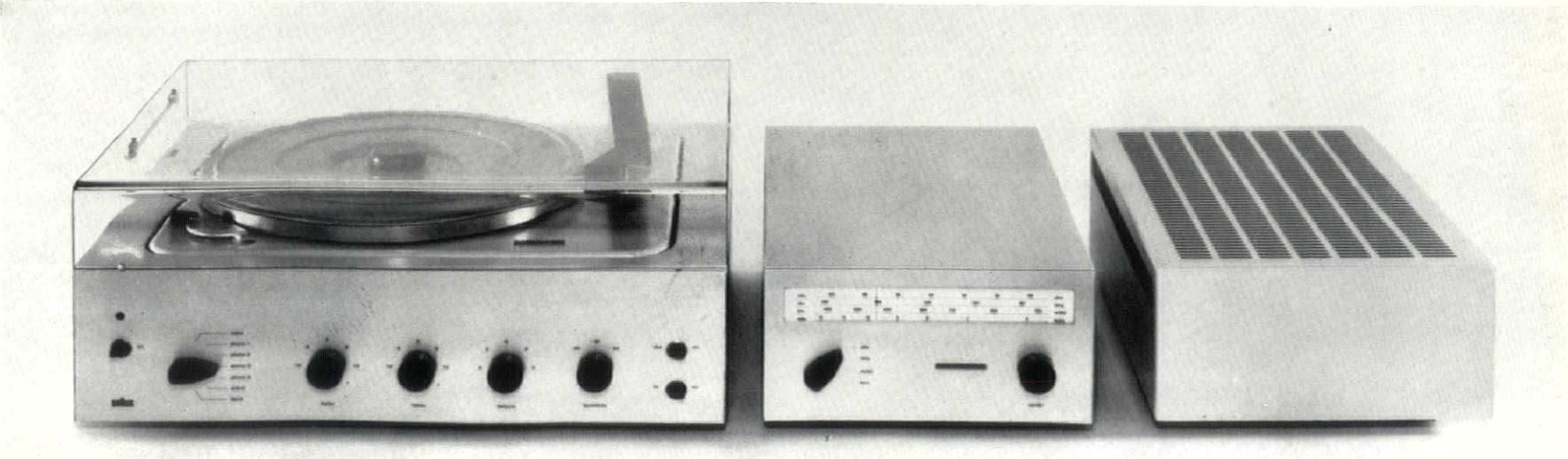


1, 2 (opposite), top and side elevations of the Braun domestic heater.
3, control end of heater. 4, the complete appliance.
5, Braun *Studio* 2 stereo rig (without speakers).



4

5



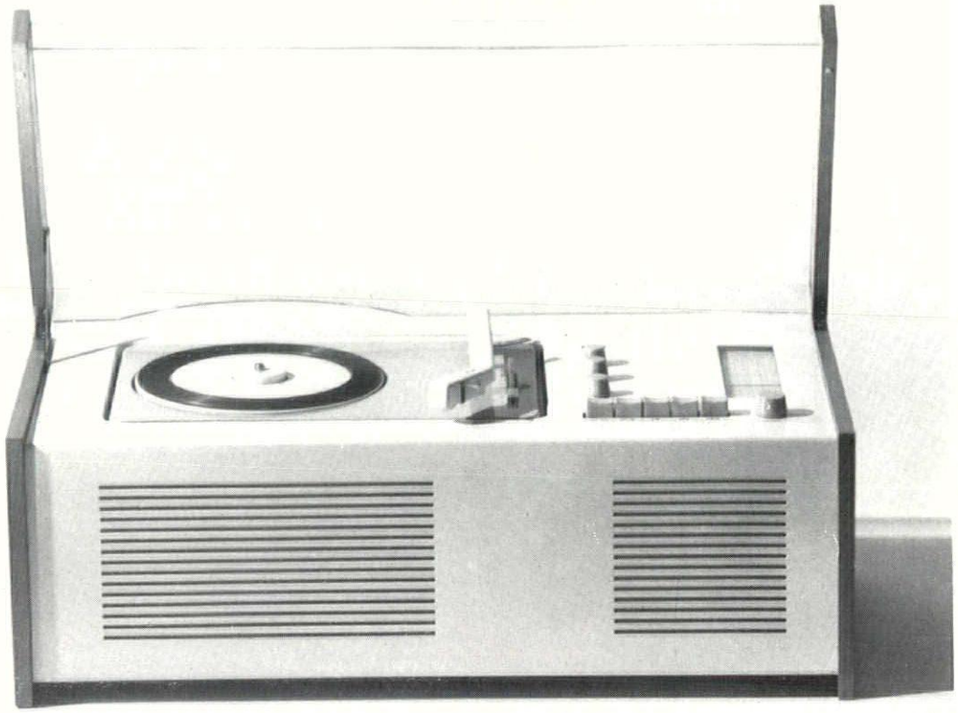
The Award and the Image

The award of the 1962 *Compasso d'Oro* was couched in unusual and significant terms: to Artur Braun, Erwin Braun and Fritz Eichler for developing a new conception of industrial design at the managerial level, and for employing designers of the quality of Hans Gugelot, Dieter Rams, Herbert Hirche and Gerhard Lander. The award is thus made neither to an individual, nor an organisation, but to an organisational method, a system of commissioning and employing designers—a welcome and salutary development in the tarnished history of design awards.

But there is also a product in view, or rather, an image—the *Grau-in-Grau* image of the pseudo-anonymous dual-grey technological box, plugged into the mains at one end, producing heat, light, music or nourishment from the other, the image of the neo-functionalism and cool approach of the *Hochschule für Gestaltung* at Ulm. For an award to Braun is, by implication, an award to Ulm: Hans Gugelot, the creator of the neutral box legend, has divided his time between the company and the school ever since the latter was founded—the collaboration goes back to the TS/G-Super gramophone of 1955, and, as Hans Eckstein has recently observed, 'the current estimate of Braun would be unthinkable without the contribution of Gugelot and Ulm.'

The image is of the 'instrument look,' as some Anglo-Saxon critics term it, introduced into the field of consumer durables. Yet a comparison of the Braun heater, 1-4, the most widely known of their domestic appliances, with the *Studio*-2 stereo rig, 5, which is an instrument in this sense, shows how imaginary this image really is, and an examination of the Braun products on the next three pages will reveal that the company is far from being what Gunter Fuchs calls 'a slave to its own formalism.'

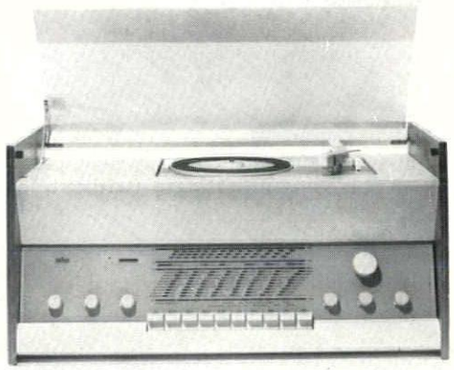
BRAUN
compasso
d'oro



6

What is a House-Style?

The Braun house-style is in part a legend, in part a subtly-modulated reality. The products differ more in fact than memory records, and exhibit distinct family characteristics, usually allied to functional sub-divisions, within the total output, e.g. the dual-tapered case-work of the photographic equipment, 16 and 17, opposite. Yet, in spite of this, all are so unmistakably Braun as to make the trademark almost unnecessary.



7

DR

8





9



10

6, SK61 radiogram, a late version of a Gugelot design that is one of the most solid bases of the Braun reputation—and also one that queries the wide-spread myth of unshakable functionalism both at Braun and at Ulm—the back of the dust-lid has to be cut away to clear the turntable, and admits dust.

7, *Atelier* 2 radiogram.

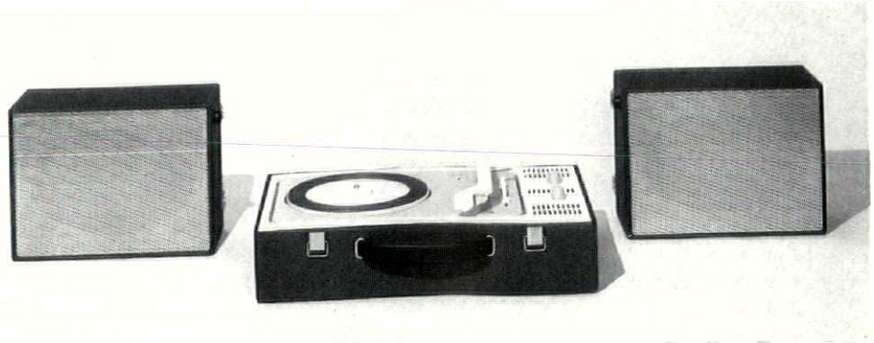
8, *Phonosuper* TP2, portable-gramophone/transistor-radio combination—one of Dieter Rams's cleverest designs, dating from 1957, and now out of production.

9, T520, portable transistor set, designed to be fitted under the dash-board of a car.

10, the earlier T24 transistor portable.

11, PCV4 stereo rig shown opened up—the three components clip together to make a single box of portable dimensions for travelling.

11

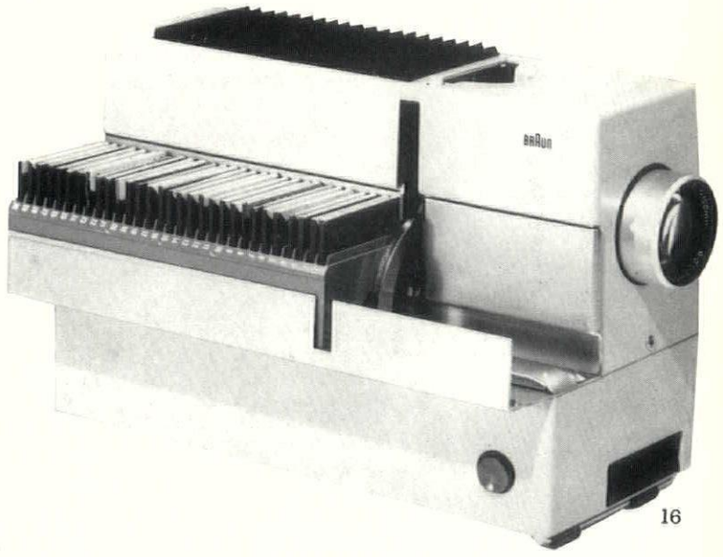




12



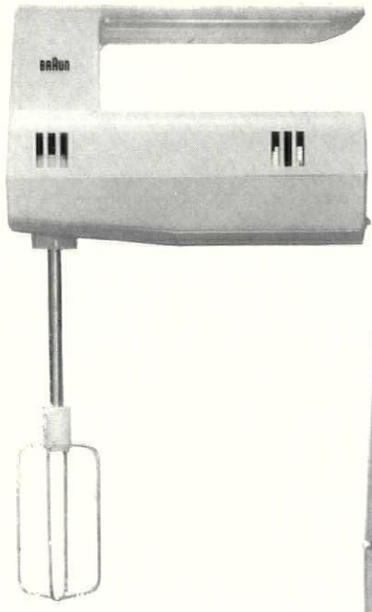
15



16

12, the *Multipress* juicer, one of the distinguished family of Braun kitchen machines whose influence extends even beyond the Iron Curtain, and are now established as a world standard in domestic design.
13, the famous *Küchenmaschine*, designed by Gerd Muller, a prize-winner at the 1957 Triennale di Milano (and available in England as the Berry " Magicmaid ").
14, *Multiquirl* hand-held electric mixer.
15, electric razor—as with the *Multiquirl*, departures from " Braun-form " are required for ergonomic reasons such as hand-holding, as well as those of fabrication in plastic. This model also is available in England under another name ; in this case, Ronson.
16, D40 magazine-fed slide-projector.
17, *Kompactblitz*, the smallest of a family of Braun electronic flash-guns.

14



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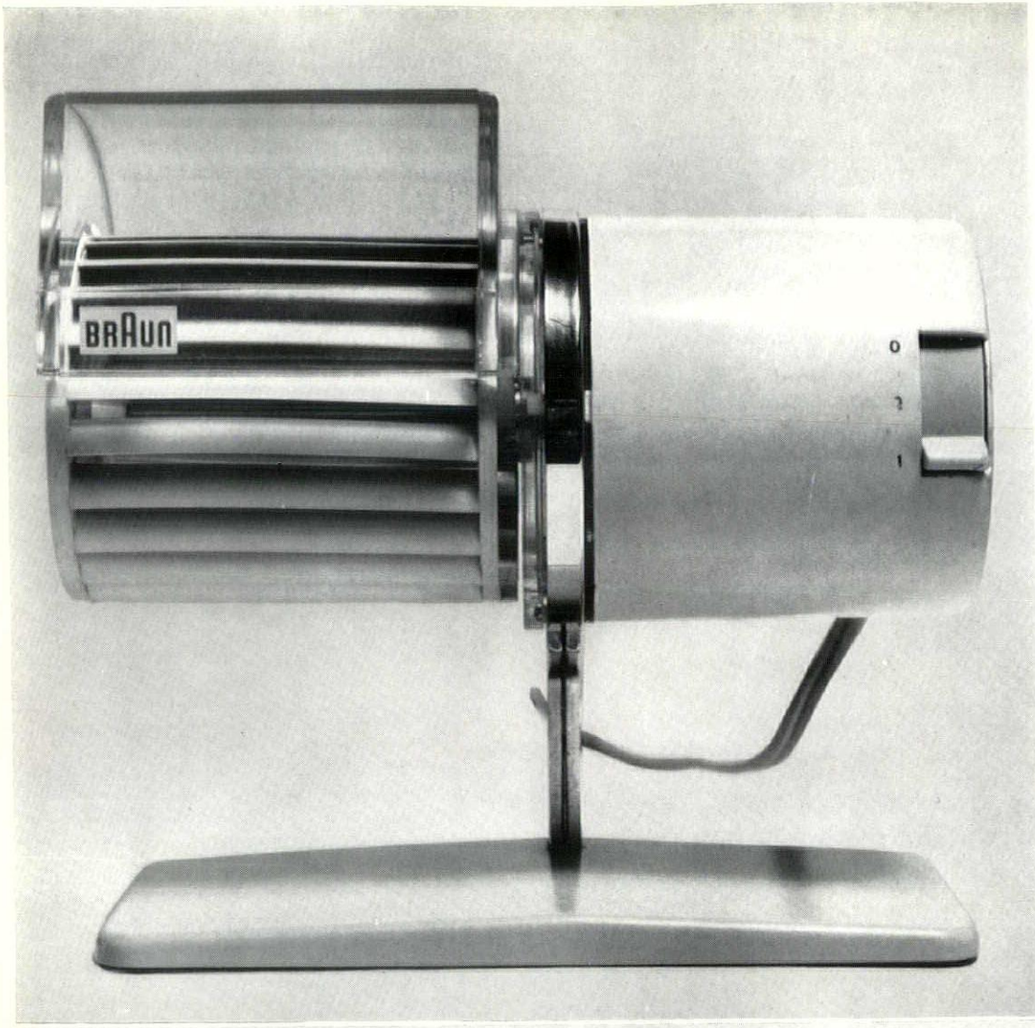
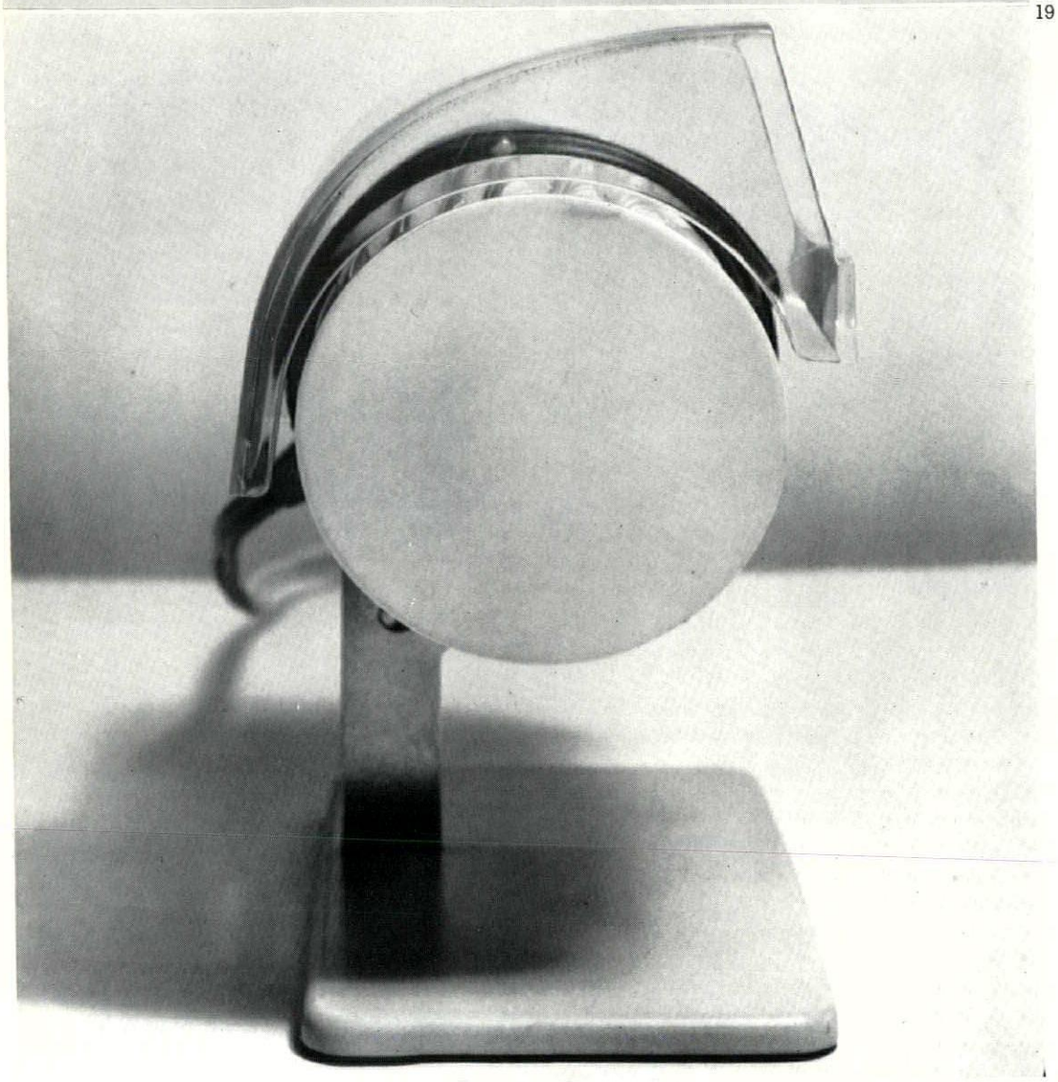
17





18

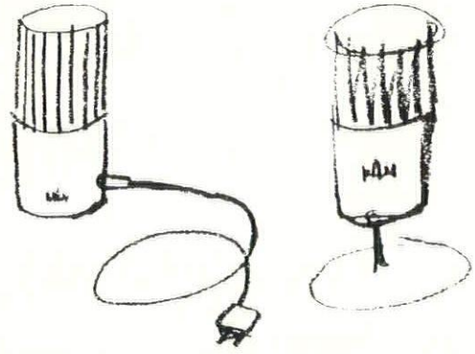


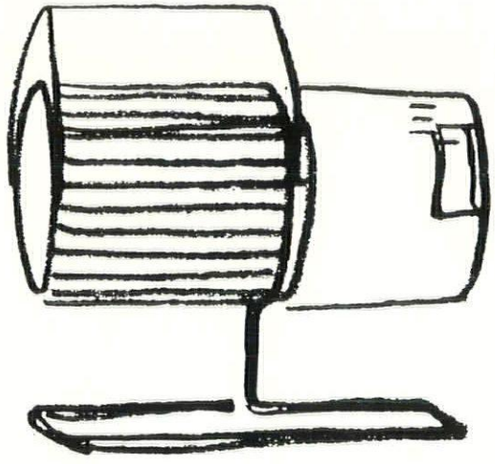
19

BRAUN
compasso d'oro

A little masterpiece

Acclaimed as a little masterpiece, the HL1 *Tischlufter* applies the same roller, or tangential-fan principal as the domestic heater, but with minimal shrouding. The sketches show its evolution from the original conception of a vertical configuration (which would have given no control over the elevation or depression of the draught of air) to the final horizontal form.





18, 19, front and end elevations of HL1 desk fan.
20, the complete appliance with the shroud turned to blow air upwards at an elevation of about 45 degrees.

20





ON TRIAL

4: CLASP

ill-met by clip-joint?

REYNER BANHAM examines the effects of juxtaposition in prefabrication

The Consortium of Local Authorities Special Programme (CLASP) is a difficult architectural phenomenon to put on trial, not only because of its manifest virtues but also because of an almost complete absence of published architectural evidence. Incredible as it may seem, after five years' operation and a Special Grand Prize at the 1960 Triennale di Milano, the detailed architectural appearance of CLASP buildings remains unknown to most readers of architectural magazines, including—be it admitted—the AR, in spite of the undoubted success of the operation. The organizational, financial, social, managerial and even political aspects of CLASP have been sufficiently well publicized to substantiate the unspoken claim that co-operative design-and-development organizations of this type may well prove to be the only medium through which Britain, and probably Europe too, can get the quantity and quality of buildings that is needed—Italian CLASP is already on site with its first school, with the Germans about eight months behind.

But only a minute fraction has been published of what is needed to establish whether or not Britain and Europe are going to get any tolerable architecture as a consequence. This is not due to any lack of interest, nor to any conspiracy of silence—simply that the architects involved (and particularly those most closely involved, in the Nottingham County Architect's office) are unwilling to have the details published unless they can prepare them for publication themselves.

secret details

And their unwillingness to throw their brain-children to the wolves of architectural journalism is understandable in view of the blinkered hostility of supposedly responsible members of the architectural profession—'It is not architecture,' 'The detailing must be awful,' 'There are a lot of unavoidable mistakes where different materials meet.' These are a sampling of *obiter dicta* from opinion-leading architects too distinguished to be named here without embarrassment.

Against these opinions must be set the fact of a major award at a Triennale: Grand Prizes are not awarded to stout efforts or pious intentions (otherwise Britain would carry off the palm every year) but to finished three-dimensional objects actually exhibited in the Parco, after deliberations by about the most sophisticated jury that judges any comparable event in Europe. CLASP needs neither to be despised nor coddled any more, it is mature enough to stand on its own feet.

But any approach to serious criticism involves traversing some very unfamiliar territory. Firstly, because CLASP is neither a person, nor an office-hierarchy such as designs other buildings, but an association of disparate bodies co-operating in the process of developing a system, and to many of those involved the process of development is more important than the monuments it leaves behind as it rolls forward.

product v. process

This is taken to constitute a sort of perpetual moratorium on criticism, because the Mark II is better than the Mark I, and the Mark III will be better still, etc. But this cannot be accepted; the buildings are not secreted like pearls in the process of doing something else—the function of the process is to produce buildings (a point frequently avoided by CLASP's apologists) and the system must be judged by its products.

Secondly: we are in an unknown country, because CLASP, besides being the most sophisticated as well as the most convincing prefabricative system that has ever gone 'on stream' is also quite untypical of the general class of prefabricative propositions that have helped to form the climate of present architectural thought. The classic type of Modern Movement prefabricating system tends to be both absolute and cerebral. It is absolute in the sense that it either proposes a compact and closed system of components, with no choices in their arrangement outside those built into the system at its conception, in order to guarantee a degree of architectural discipline; or else, it presupposes the imposition of some universal modular dimensional discipline on the entire building industry in order to enforce a degree of architectural discipline on materials before they reach the site. The classic type of system is also cerebral in that it tends to be conceived under the sign of Occam's Razor and to be admired for qualities less architectural than akin to those regarded as elegant in mathematics—consider, for instance, how much attention is devoted to the jointing systems in Wachsmann's various proposals and how little to the architecture that can be made with them; how rewarding these joints often are as exercises of topological wit and how few the advantages they offer over nail, screw and scaffold-clamp.

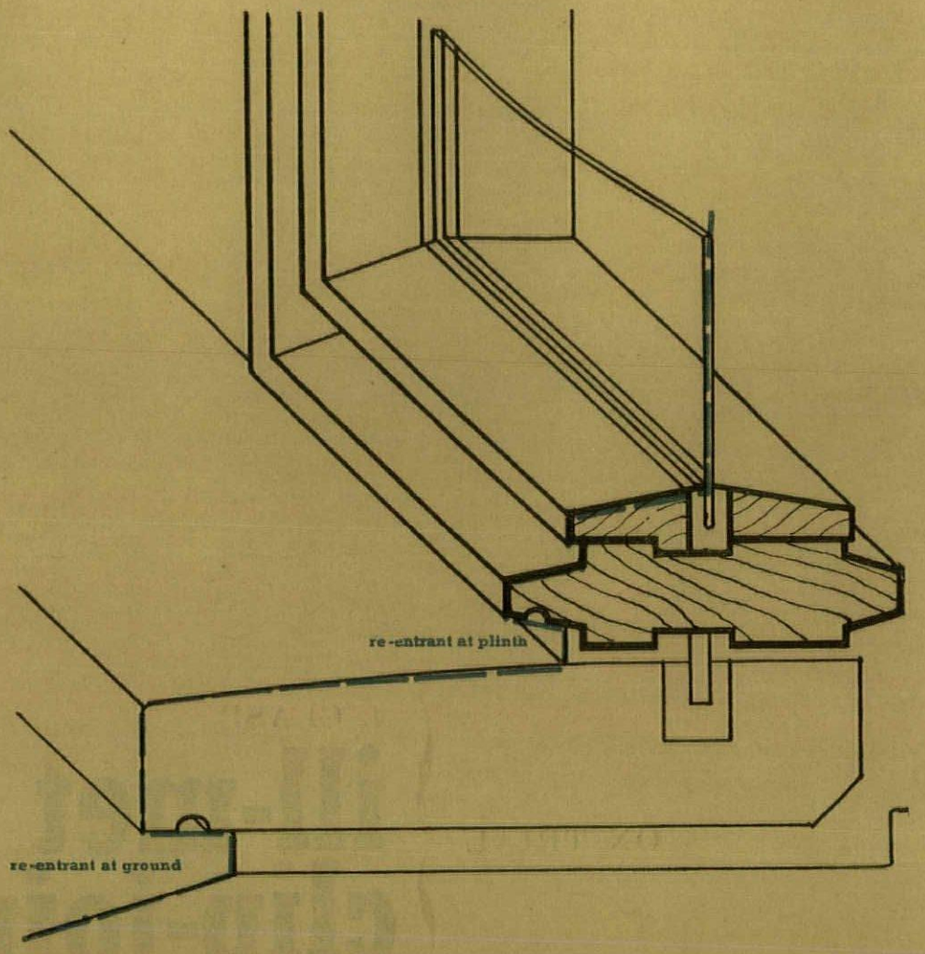
absolute and cerebral

The CLASP system is distinctly thin on these respected disciplines and expected virtues. Its basic conceptions are neither absolute nor intellectually economical. Its kit of parts was always unusually large, is expected to go on growing as the system grows in application—and was always too large to be the product of a single mind. Its modular discipline, though it builds on earlier work such as that done in Hertfordshire, is not part of any rigid, universal system, and its economies derive from long production runs, firm orders and research that is *ad hoc* as often as it is fundamental.

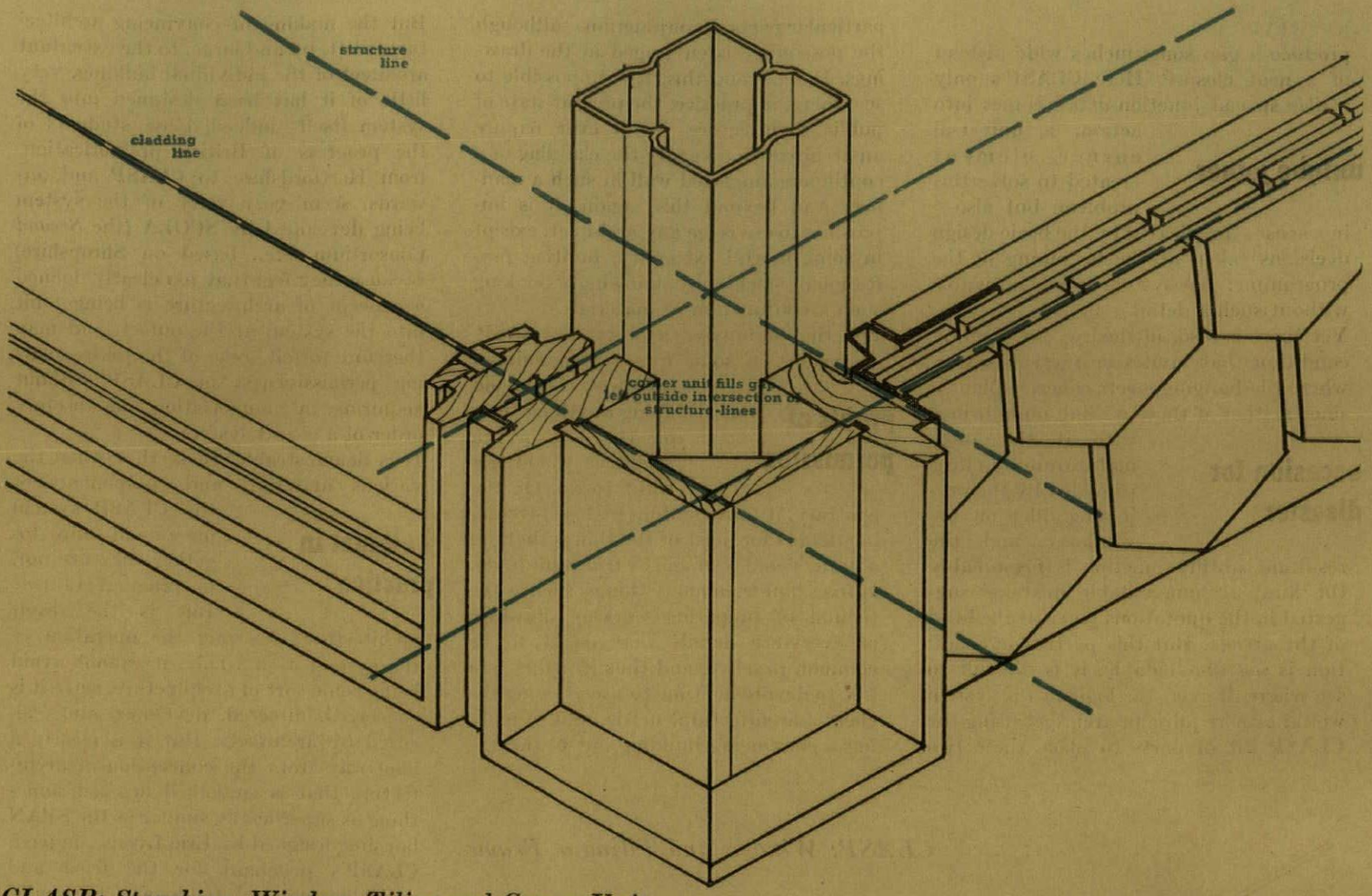
the big kit

CLASP, in fact, has thrashed most of its practical problems by going half way to meet them, and has provided the nearest thing to a broadly permissive prefabricative system that we have seen so far—and it is precisely these two practical-minded virtues that have excited the alarmist opinions cited earlier. The fact that many of the components have been developed through the existing technical facilities of commercial companies, and that some, indeed, are previously existing components made over to CLASP specifications and dimensions, has brought with it a suspicion that not all details will be under sufficiently single-minded control at the point of conception. Over and above this, the broad choice of solutions often available to any given situation has bred the suspicion that the system is not tight and absolute enough to make mistakes impossible. Yet, to take the case of the most publicized and scrutinized CLASP structure so far—the model school at the 1960 Triennale—the only mistake in detailing that struck the eye was a goof-up with the rainwater down-pipes that did not appear to be implicit in the system, but stemmed from the unlikely proposition that it was better to hack a clearance in a pre-cast plinth-slab than shorten the down-pipe to throw over it.

Nevertheless, the proposition to bring together, edge to edge or—more difficult—in corner conditions, claddings and infills developed at different times by different organizations may well appear to be inviting disaster when the materials and their meeting conditions are as diverse and as numerous as they can be in CLASP structures. Yet the evidence



CLASP: Window, Cill and Plinth



CLASP: Stanchion, Window, Tiling and Corner Unit

of the eyes emphasizes that disasters do not occur for these reasons; is this because they have been designed out of the system at the beginning, or have they been phenomenally avoided by the executant architects of individual structures? The answer is: Both, and inseparably. Certain factors restricting the occasions for disaster were inherent in the scheme from the very beginning—most notably the standardization of the structure and the basic structural modules, decisions conditioned in part by a purely local consideration (the need to be able to take up settlement due to mining subsidence) that also conditioned the choice of cladding material flexible enough to take up movement. Here, then, for a start, is an unobvious congruence of cladding and structure that introduces an almost invisible substratum of discipline into all subsequent design decisions. But, also at the start, Donald Gibson (then the Nottingham County Architect) made the fundamental architectural decision that the system should be visually, as well as mechanically flexible, probably in order to allay public hostility to prefabrication. This meant, in practice, that a number of important decisions about individual buildings would have to be passed a long way down the design hierarchy, possibly beyond the reach of those who took the original decisions about the system.

Fortunately, a number of intelligent standard solutions to most conceivable architectural problems were passed down the line as well, with the result that most —nearly all—possible junctions between different components and materials are solved automatically by the working out of the system. This is not achieved by any specific junction details as such (with the exception of one to be discussed later). There is no universal standard joiner strip, or other solve-all device, but, rather, it is almost impossible in theory, and quite impossible in fact, for wall to meet ground, glazing to meet cladding, and so forth, in any but a satisfactory junction.

automatic junctions

Glazing, for instance, is resolved satisfactorily at ground level by the way in which, in practice, it never meets the ground at all, but is separated from it by a doubled negative detail that has an almost Perpendicular Gothic repetitiousness about it—CLASP's Mark II windows have a projecting wooden fillet all round each glazing unit, and this, automatically, creates a groove or re-entrant between one unit and the next, and, at the bottom of the frame, a groove above the projecting plinth slab, which itself projects clear beyond the foundation slab, thus creating a second groove or re-entrant. Whatever the practical merits of this double detail as a protection against the consequences of English rain, it stood up, as architecture, to the searching glare of the Italian sun.

double negative

Again, the same projecting fillet automatically resolves, visually and mechanically, all junctions between glazing areas and solid infill panels, whether of tile-hanging or of concrete planks (and any further claddings, such as king-size clay tiles, that are envisaged for later developments) because the presence of the fillet provides a visual frame for the edge of the solid panelling—a vital precaution for the untidy extremities of the tile-hanging—as well as a backing for the weatherproof flashing needed at this point. There is only one meeting condition where this framing effect does not work out in practice, and that is at an external corner, where the logic of the geometrical relationship of skin to structure would automatically

produce a gap some inches wide instead of a neat closure. Here CLASP's only *visible* special junction-detail comes into action, a universal corner element created to solve this problem, but also—in a sense—predicated by the basic design decisions taken at the beginning of the programme: the system is inconceivable without such a detail.

unique joiner

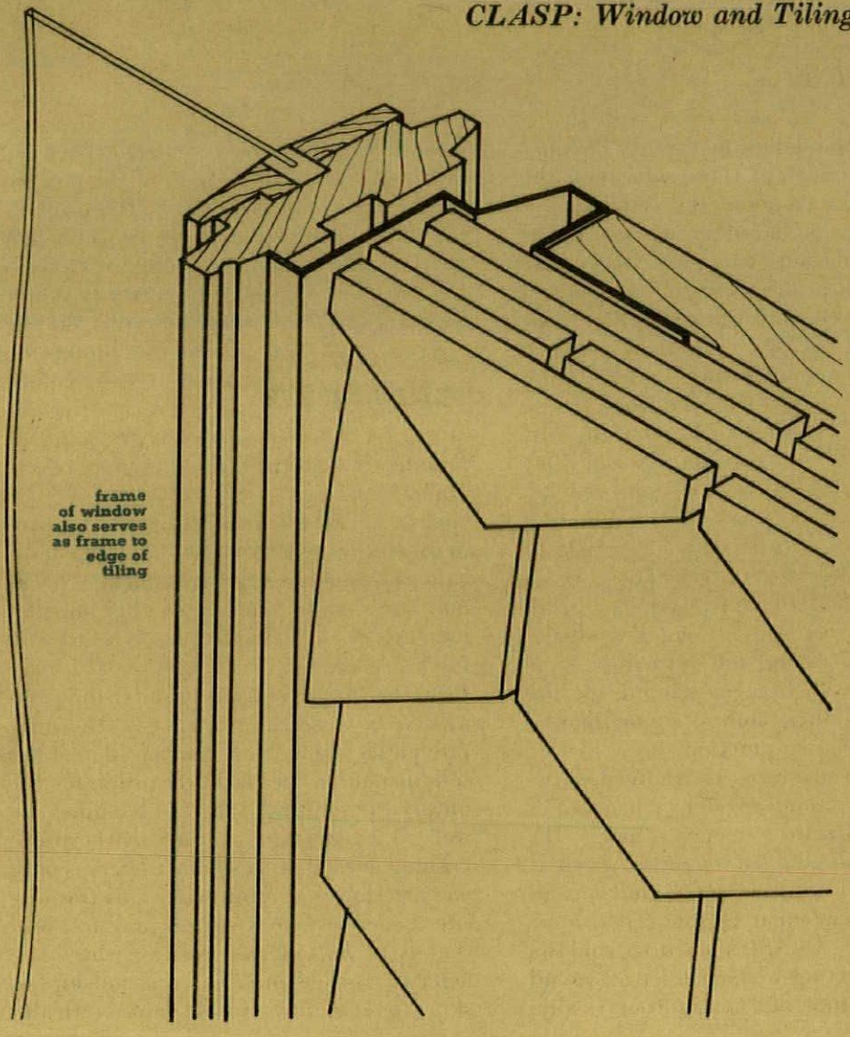
Yet there is also, in theory, one meeting condition that invites aesthetic disaster: where tile-hanging meets concrete planks, since neither of these walling units brings with it the automatic framing effect provided by the projecting fillet on the windows, and the resultant untidy junction is presumably the kind of 'unavoidable mistake' suggested in the quotations given at the head of the article. But this particular condition is *not* unavoidable: it is difficult to see where, if ever, the logic of the system would ever require an architect using the CLASP kit of parts to place these two particular parts in conjunction—although the possibility is envisaged in the drawings. But beyond this, it is impossible to see where, in practice, the present state of public architecture would ever require an architect to diversify the cladding of a continuous unglazed wall in such a manner. And beyond this, again, it is impossible to envisage any architect, except in some mortal extremity, inviting professional suicide by knowingly making such a conjunction of materials.

occasion for disaster

For the permissive aspects of CLASP, so suspect in some quarters, permit an architect to avoid doing anything that, on the average, an architect would not want to do. On the contrary, it provides him with self-resolving details for most of the things that, on a professional average, he *will* want to do. It frees him from many things, such as the tedium of preparing working drawings of everyday details that ought to be common practice, and thus it makes him free to devote his time to ascertaining the client's architectural needs, and to making a convincing building out of them.

profits of permission

CLASP: Window and Tiling at Frame



But the making of convincing architecture is left, by and large, to the executant architect of the individual building, very little of it has been designed into the system itself—indeed, close students of the progress of British prefabrication, from Hertfordshire to CLASP and onwards, seem very wary of the system being developed by SCOLA (the *Second* Consortium, etc., based on Shropshire) because they feel that too clearly defined a concept of architecture is being built into the system at the outset, and may therefore forfeit some of the self-regulating permissiveness of CLASP without acquiring, in compensation, the absolute order of a closed system.

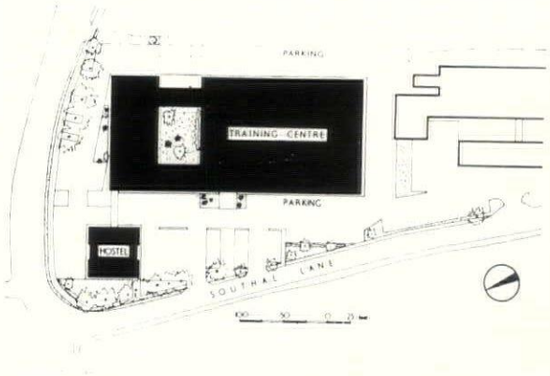
well-met in practice

It is demonstrable, then, that when the various materials and components of the CLASP system meet and clip together they are not, in practice, ill-met. But is the result architecture? Viewing the operation of the system as a whole, it cannot avoid being some sort of architecture, since it is conceived, directed, developed and executed by architects. But it is clearly a long way from the conception of architecture that is embodied in even something as superficially similar as the SPAN housing designed by Eric Lyons—indeed, CLASP's penchant for the tried and available material to do any particular job has done much to disguise its truly revolutionary content from professionals as well as laymen. It has been called a sophisticated Machine-Age vernacular—yet it is clearly an equally long way from the sophisticated vernaculars of, say, Stirling and Gowan. Is it, then, an *architecture autre*, an *other* architecture? If this concept is defined on radical grounds, not the purely formalistic ones that have been advanced so often of late, the proposition has some force. This is not, in any visible sense, architecture considered as one of the accepted fine arts; not architecture as the expressed will of a highly developed personality. And yet it carries its own visual conviction, the air of being the expressed will of something or some body of things, the product of some sort of highly developed creative force. Above all, it can clearly co-exist with architecture in the accepted sense without being reduced to that snob's desideratum 'background buildings.'



Training Centre for British European Airways, Heston

ARCHITECT: R. S. HARVEY
(staff architect, BEA)



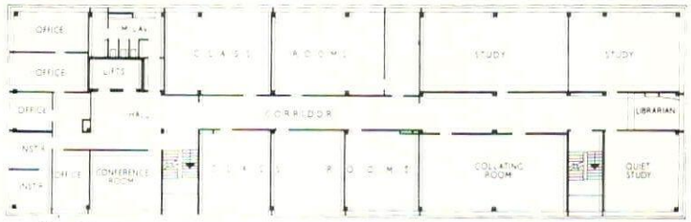
site plan

The site is on the north-west corner of the former Heston Airport. There are two buildings: a six-storey training college and an eight-storey residential block. They are connected by a bridge at first floor level.

The training college contains thirty classrooms, specialized instruction rooms and two lecture-theatres seating respectively eighty and fifty people. The theatres are partially air-conditioned and are equipped for showing slides and films. On the third floor are a library and study rooms and on the ground floor a large demonstration hall for displaying engineering, electrical and radio equipment, with a maintenance workshop adjoining it. Nearby is a

1, *from the west: hostel on left, training centre on right.*

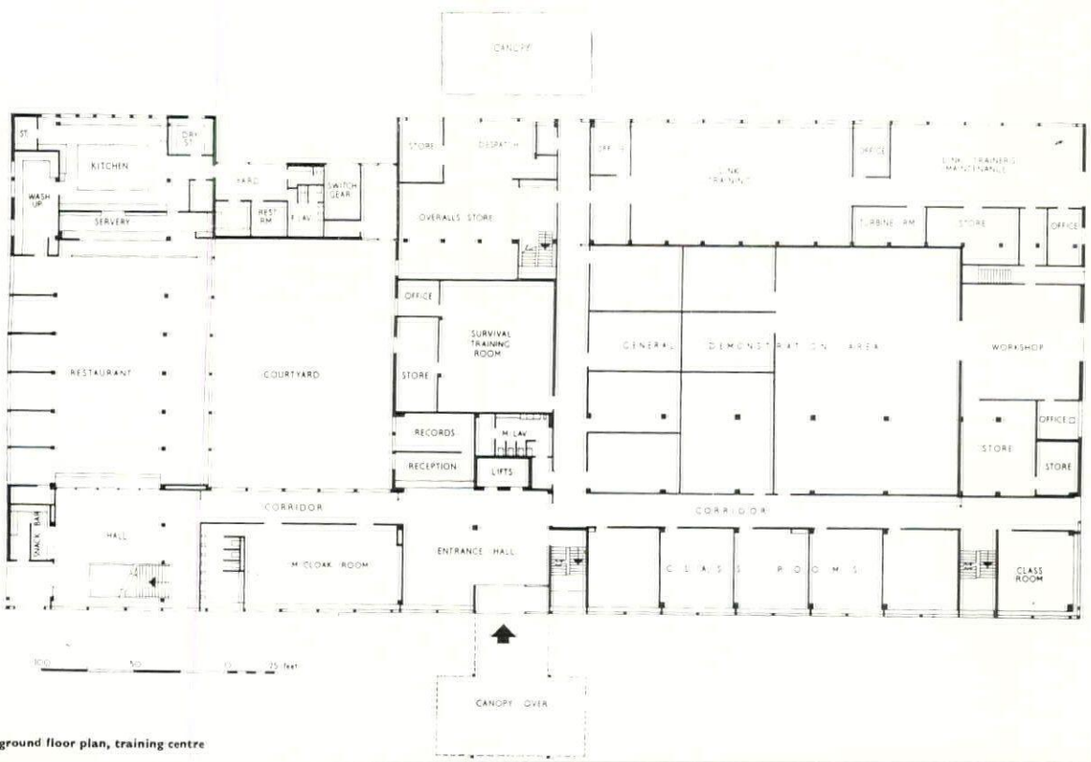
Training Centre for British European Airways



upper floor plan



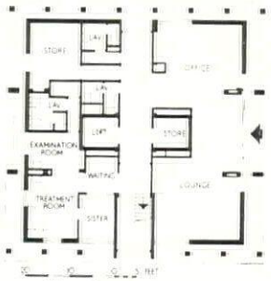
first floor plan



ground floor plan, training centre



upper floor plan



ground floor plan, hostel



2, *from the south with the training centre on the right.*
3, *the large lecture theatre.*



Link Trainer room with its own workshop and a room for 'survivor' training. At the north end of the ground floor, separated from the training areas by a paved courtyard, are a restaurant seating 200 and its kitchen, with common-rooms for trainees and staff above. The building also accommodates BEA's uniform store.

The residential block contains 96 bed-sitting-rooms arranged in groups of four, each group having its own shower and lavatory. These occupy the first to sixth floors. On the ground floor is a medical unit and on the seventh a superintendent's flat.

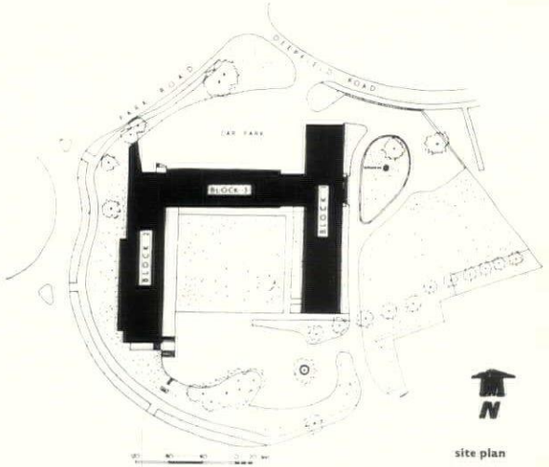
Both buildings have a reinforced concrete frame, with considerable use of prestressing in the college building, for example in the long beams that support the roof of the demonstration hall. The external walling of the college consists of grey glass panels with small areas of brickwork on the lower storeys, and aluminium framed curtain walling with white glass panels above. The residential block has brick walls, partly covered with white cement rendering.

Senior architect in charge, R. Stepan; assistant, A. J. Wright. Quantity surveyors, Wakeman, Trower and Partners. Structural engineers, Scott & Wilson, Kirkpatrick and Partners. Electrical consultants, Barlow, Leslie and Coombes. Heating and ventilation consultants, J. Roger Preston and Partners.

Meteorological Offices, Bracknell

ARCHITECTS: MINISTRY OF WORKS



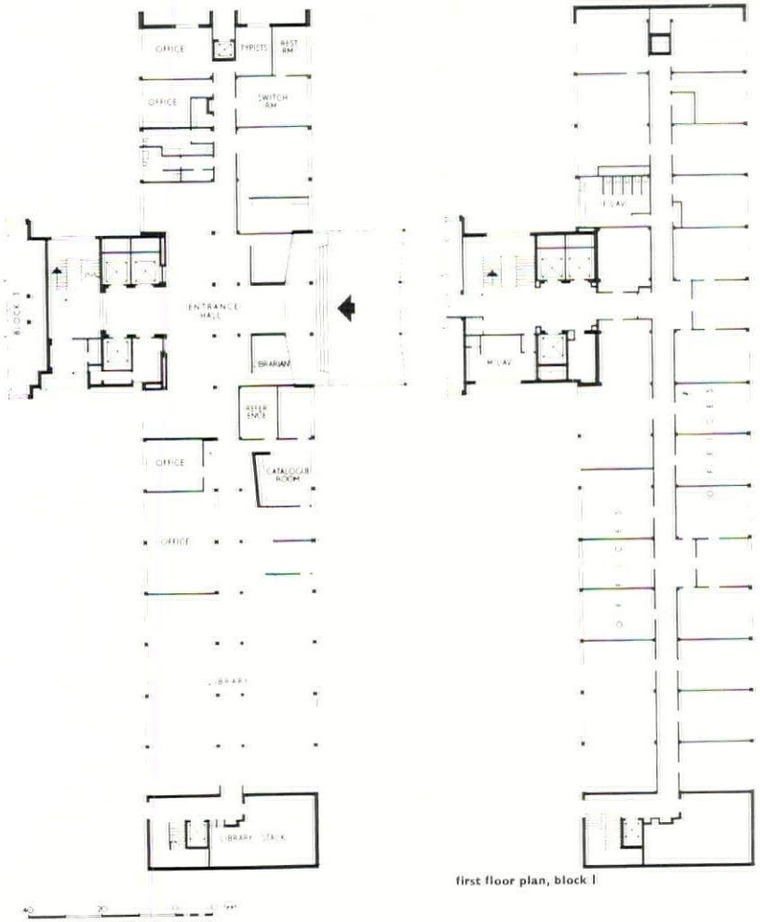


site plan

The site overlooks a new roundabout on the main approach from London to Bracknell new town. There are three separate but connected buildings, grouped round a grassed court open to the south: a six-storey administrative block (block 1 on the site plan above), a three-storey block (2 on the site plan) for the Instrument Division and a nine-storey block, (3), linking the other two, for the Weather Forecasting and Research Divisions. Because of the sloping site, the ground floor of the last two blocks is at the same level as the first floor of the administrative block, and a boiler house beneath the Forecasting block is only partly below ground.

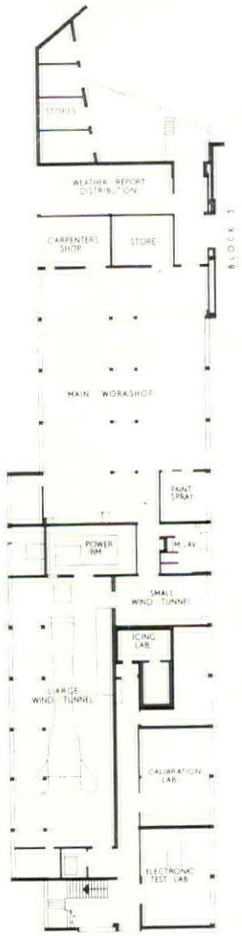
The administrative block contains offices, conference rooms and library, with dining-rooms occupying a penthouse, opening on to the flat roof. The dining-rooms and kitchen are contained within a concrete frame, forming an open top storey to the block, to give it a level skyline. The nine-storey block is similarly treated, with the frame concealing tank-rooms, instruments, etc.

1, *block* 3 *seen from the roof of block* 1.

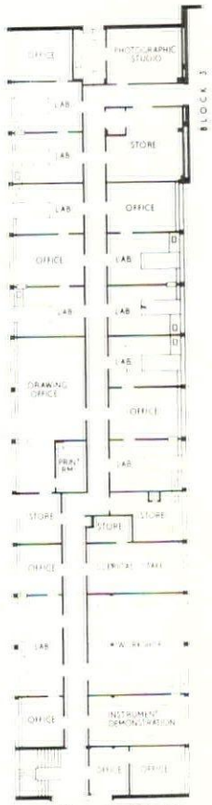


entrance floor plan, block 1

first floor plan, block 1



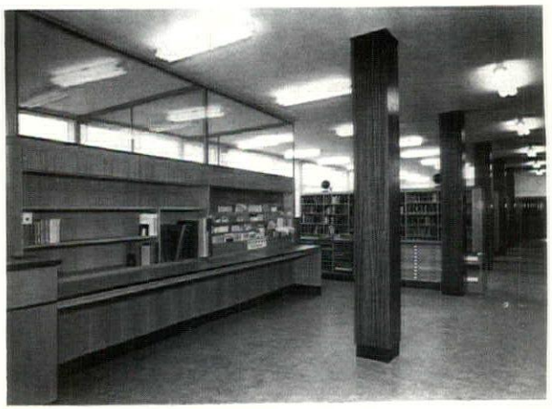
ground floor plan, block 2



second floor plan, block 2

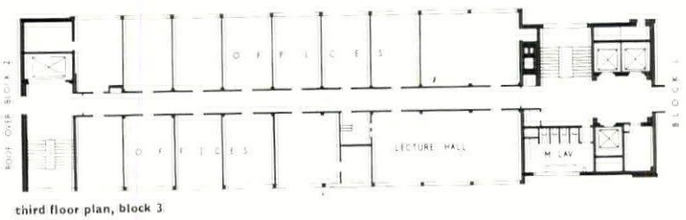


2, *from the south-west.*



3, *the library in block* 1.

Meteorological Offices, Bracknell

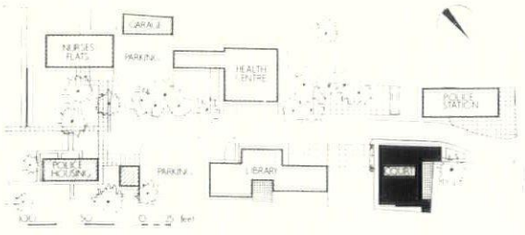


third floor plan, block 3

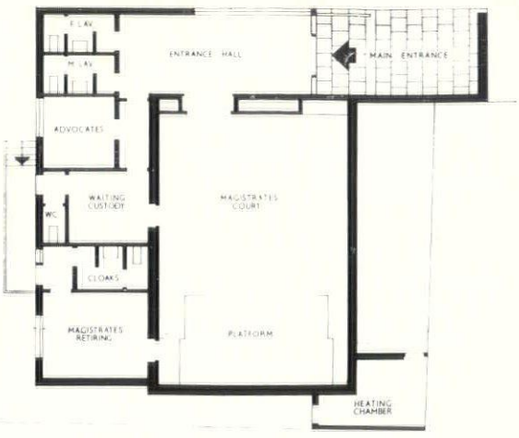
The Instrument block consists principally of laboratories and offices, together with a small wind-tunnel and a workshop. The Forecasting and Research block, which also house communications and postal services and a printing plant, has the air-conditioned weather-forecasting rooms on the top floor. In the communications centre below weather reports from north-west Europe and the eastern Atlantic are collected, assembled and retransmitted by radio and landline teleprinter. This and a room below housing a digital computer are also air-conditioned.

The building is of reinforced concrete construction with an exposed frame with Portland stone aggregate. Plate floors give an unbroken ceiling surface. Flank walls and lift tower are faced in brick of a brown colour. Coloured panels separate the windows which extend to the full width of the frame.

Superintending architect, H. A. Snow. Mechanical and electrical engineering services by the Chief Engineer's division, Ministry of Works (senior engineers, V. Noble; A. M. Palmer).



site plan



plan

Magistrates' Court, Buckingham

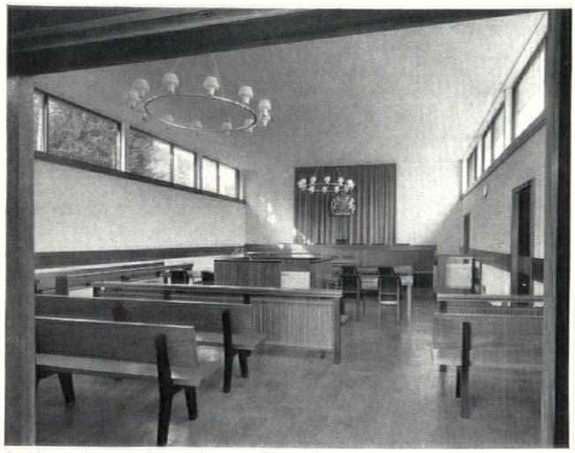
ARCHITECT: F. B. POOLEY (Buckinghamshire County Architect)

The first of a group of civic buildings to be built in a small development area in the centre of Buckingham to serve the town and its neighbourhood. The accommodation includes a formal court room, entrance, waiting hall, magistrates' retiring room and solicitors', interview and detention rooms. There are no permanent administrative rooms in the building.

The site has a gentle slope away from the main road and stone from an old wall is reused to form a plinth to level off the ground slab. The structure is load-bearing brickwork, using a Bucks machine-made facing brick. The pitched roof is finished with copper. Internal finishes include Derbyshire marble, leather cloth, acoustic ceilings, cork tiles and polished mahogany. All the furniture was purpose-made and is mainly unfixed to allow some flexibility in the well of the court.

Heating is by a gas-fired warm air blower unit, the air being fed into the building through underfloor ducts with grilles along one wall and extracted on the opposite wall. Casual ventilation is obtained by remote controlled clerestory windows. All service switches, sockets, gearing and thermostats are collected together in a dado rail around the court.

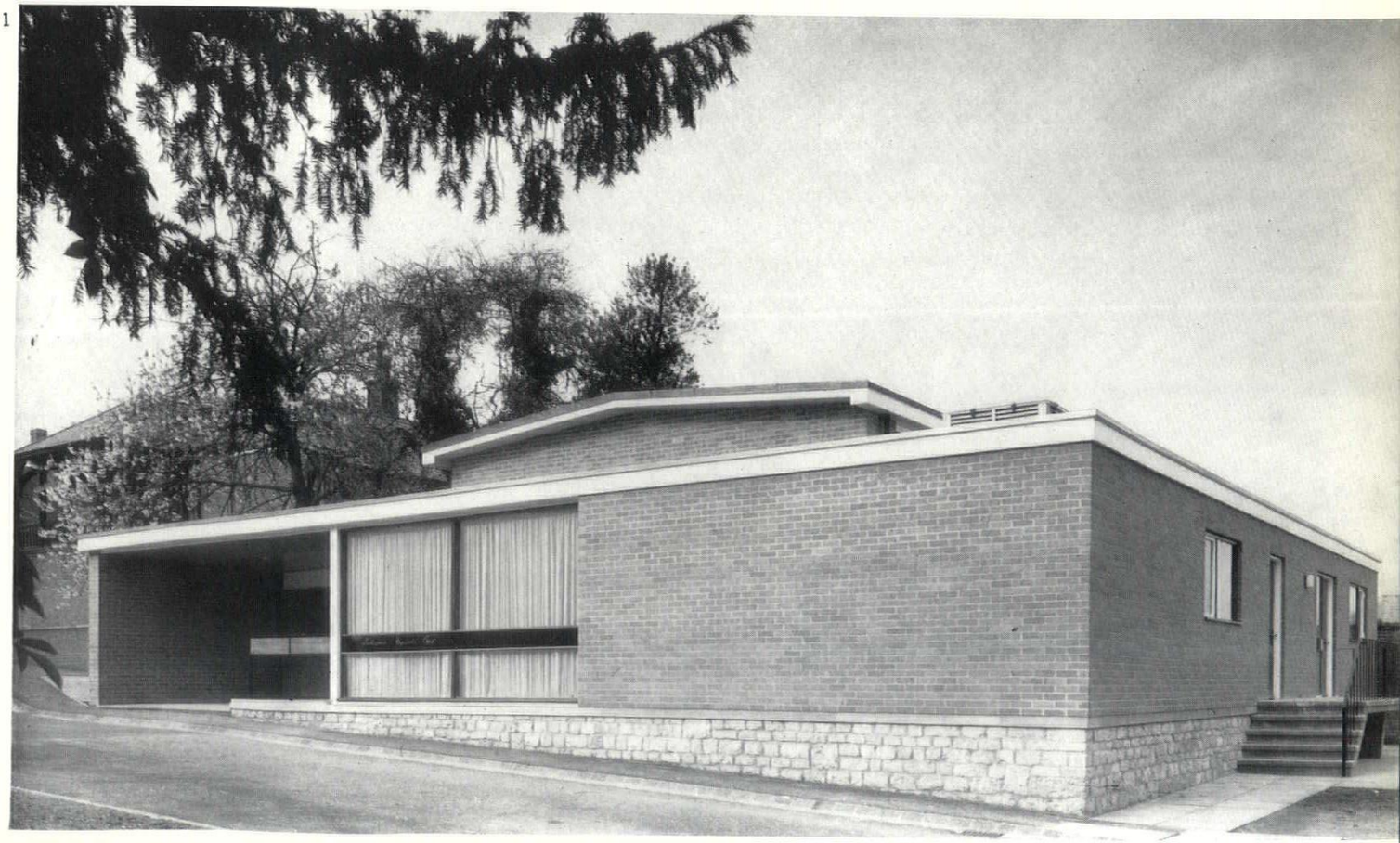
Assistant county architect, A. R. Walker. Assistant architect, D. C. Turner.



2

1, *the entrance from the south.* 2, *the magistrates' court*

1



EXHIBITIONS

PAINTING

The American 'Vanguard' show wandered round so many corners at the Embassy that I felt like an illegal immigrant every time anyone who looked like an American passed me in a corridor or an annexe. But dispersal did little or nothing to reduce the authority of the veterans of abstract expressionism, and to all intents and purposes Pollock, de Kooning, Rothko, Still, Kline, Newman, Motherwell and Gottlieb still constitute the vanguard. No attempts on the part of a younger generation to thrust them into the past have as yet been very effective. Yet there is a sense in which they are already art history: they are the heroes of American painting but the heroic period is over. Nearly all the heroes are still with us but they now rest comfortably on their laurels and recount their victories in splendidly familiar works.

They repeat themselves. In this respect they resemble Mondriaan and like him would seem to have accepted with resignation the prospect of a monotony of masterpieces. However, they are still far from being old men, and it's possible that old age will bring some breaks in the general solemnity: we may yet see something like Mondriaan's last-minute boogie-woogies ripple their self-righteous surfaces.

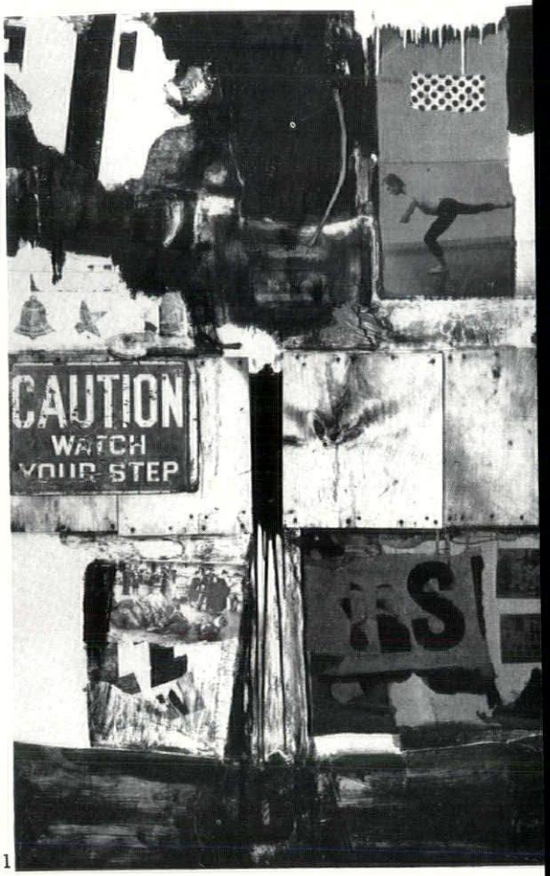
It's probably the very nature of the task they set themselves that prevented further development after they made the break-through. They made paint itself, viscous and formless, reflect their belief in themselves. They wanted their pictures to be nothing but the evidence of their domination of paint, nothing but the reflection of naked creative power. They treated paint as the primordial ooze and themselves as Gods. They were not Gods but they were certainly heroes. European artists brought painting to the point where the task had to be tackled, but were too sly and knowing to attempt a head-on attack, and in the last twenty years Paris produced nothing as adventurous and awe-inspiring as New York. The Americans brought physical endurance and spiritual endeavour to their task, and the results have been splendid yet disheartening. They have shown once and for all that there are severe limits to what one man's unaided gestures can formulate. In order to change and develop they would have to adopt a different attitude to painting, and no doubt such a prospect would present itself to them as a defeat, but in painting reproductions of their limited victories they have turned the evidence of self-discovery into over-sized emblems of spiritual pride. They have got themselves orientated and have become pillars of American culture. No wonder some of their countrymen are beginning to attach a religious significance to their work.

The Vanguard show included three paintings by Robert Rauschenberg, who is thirty-six years old and has a big reputation in the States: these three works seem to me to disclose some of the problems and inhibitions with which the veterans have saddled his generation.

Rauschenberg calls his pictures 'combines' because they are a mixture of paint and oddments, but he is obviously aware of having special responsibilities as an *American* painter, and the impact produced by his use of extraneous material is reduced by his conscientious artistry and his evident fear of being mistaken for a joker. His work has nothing of the boldness with which our own Peter Blake, for instance, creates a serio-comic identity for himself out of his neatly spread collections of pin-ups, pop singers, badges, circus freaks, public notices and sets of playing cards. Rauschenberg feels compelled to introduce an artistic disarray into all his work, and although in the picture called 'Trophy,' 1, he comes near to setting out his material in orderly rows, he breaks up some of the lettering and introduces passages of free brush strokes and trickles. One feels, in fact, that the words 'Caution watch your step' on the old tinplate notice which he has fastened to this picture is more revealing of his attitude to collage than he himself probably realizes.

His use of ready-made material is far from being a rebellion against painting: it is an attempt to make a contribution to abstract expressionism by an indirect route. The ready-mades are introduced as barriers to be knocked down, and the pieces of printed paper in his 'Double Feature,' 2, are pushed about like paint. Only one word is allowed to remain intact, but even this word 'Loft' may only be part of a word and is not sufficiently potent in itself to distract one's attention from the arty effervescence of the composition. My guess is that the full word is 'Lofty' and that he left off the 'y' for modesty's sake.

In 'Summer Rental,' 3, his desire to be an American painter in the grand tradition created by his immediate predecessors comes right out into the open. The fragments of printed lettering in the top right-hand corner are, so to speak, tossed about in the great wind raised by



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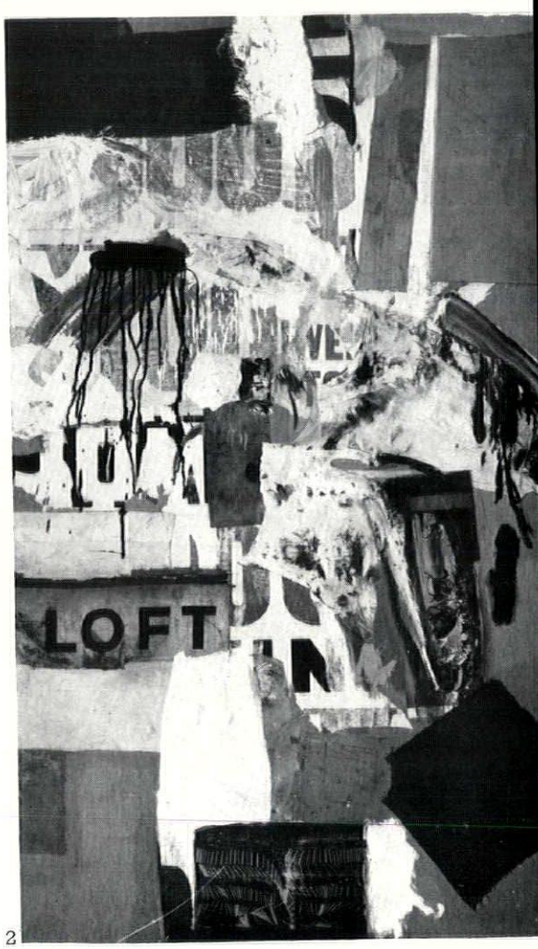

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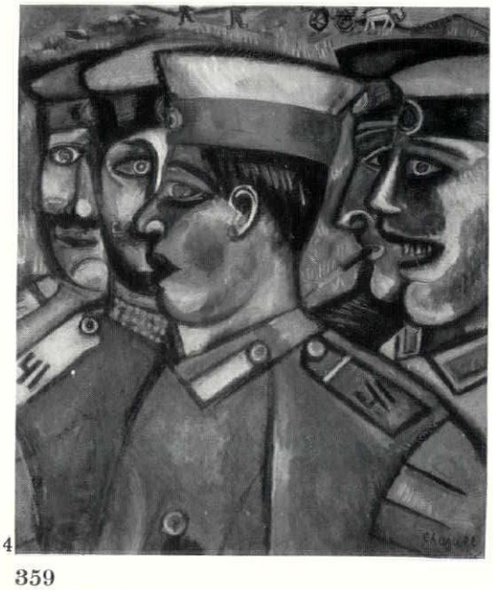
3

his painterly gestures. But this kind of painting comes too easily to his generation; he can only be an aesthete of the style, and the passages of paint in 'Summer Rental' have a thin virtuosity that reminds one of the slap-happy painting of long gowns in John Singer Sargent's portraits of society beauties.

The exhibition called 'Two Decades of Russian Experiment' at the Grosvenor Gallery includes some precious documents connected with the Russian drive towards pure abstraction. Malevich made his first geometrical abstracts two years before Mondriaan produced the rectilinear works on which his ultimate style was founded, but whereas Mondriaan's verticals and horizontals express equilibrium and reflect his sense of a universal harmony behind appearances, Malevich's diagonals have a kind of urgency, as if they were pointing out the general direction in which humanity should attempt to go, a direction that can be read either as the exploration of space or the soaring of the spirit. In this sense his art remained more aspirational and perhaps more human than



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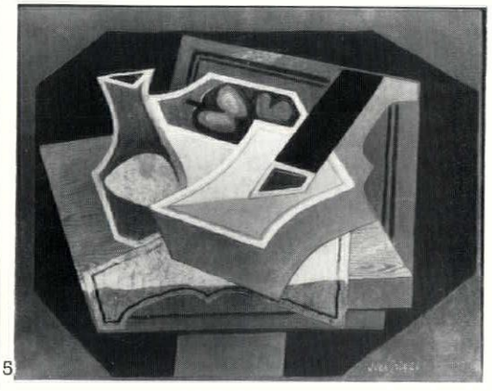
Mondriaan's. It was the basis for the sign language of exhortation which made the Suprematists the artists of the Revolution. There is a famous poster by Lissitzky which sums up their power to address sharp, clear, urgent messages to a mass audience: it has the simplicity of genius; it depicts a red triangle piercing the perimeter of a white disc and bears the slogan 'Drive a Wedge into the Whites.'

But it was Chagall who stole one's attention at the Grosvenor Gallery show. In his picture of 'Russian Soldiers,' 4, painted in 1910 or 1911, he achieves 'flat space' with less huffing and puffing than the cubists, slotting the figures one behind another like playing cards without any loss of the sense of solidity and keeping the top strip, devoted to a distant scene of peasants at work, on the same plane as the



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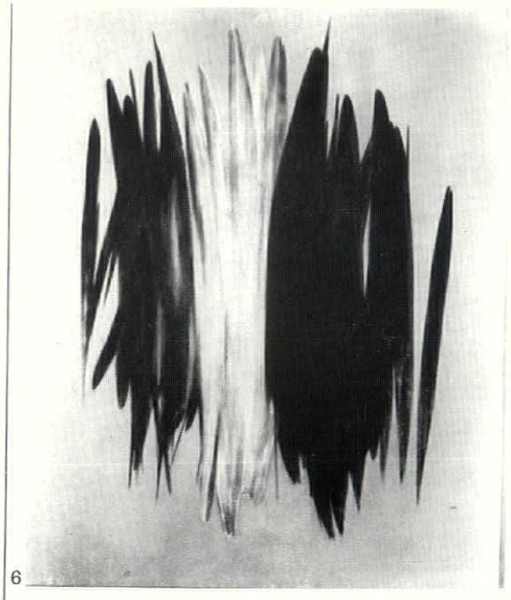
soldiers by the brilliantly 'innocent' device of making the green of the field unnaturally vivid. At the same time the image brought to mind a Russia that seems almost to be imbedded in one's own childhood although one learnt of it much later—the Russia of carnage and wheatfields that gives the stories of Isaac Babel their inexplicable splendour. This picture makes me feel all over again that it was horribly mischievous of Baudelaire to tell the painters that the effects of line and colour were separable from the subjects they encompassed. If he had been content to say that line and colour *transform* the subject we might have been spared the ultimate boredom of the abstract picture-making of Parisians like Manessier, le Moal, Singier and Estève whose works occupied so much wall space in the Tate Gallery exhibition of the Henie-Onstad Collection. There was, however, a little scene by Estève which suggested that these painters could have produced a pleasant landscape style—a kind of fauvism in pastel shades; and—who knows?—if they could have pocketed their pride and allowed nature to compensate for a lack of imagination they might have immeasurably enlarged their talents. There were many other things in the collection, including a lovely Bonnard still life, a big group of tasteful works by overpraised Jacques Villon, ambitious figure



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compositions by Leger, war-time and post-war paintings by Picasso, the figures much distorted but altogether more human than the plasticine proletariat concocted by Leger, some good still life paintings by Gris, mostly late, rather mannered examples, like 'Guitar, apples and carafe,' 5, dated 1925. The best of the Parisian post-war abstracts were by Hartung, 6, and Soulages, but the latter's heavy black abstractions are becoming light-weight with repetition.

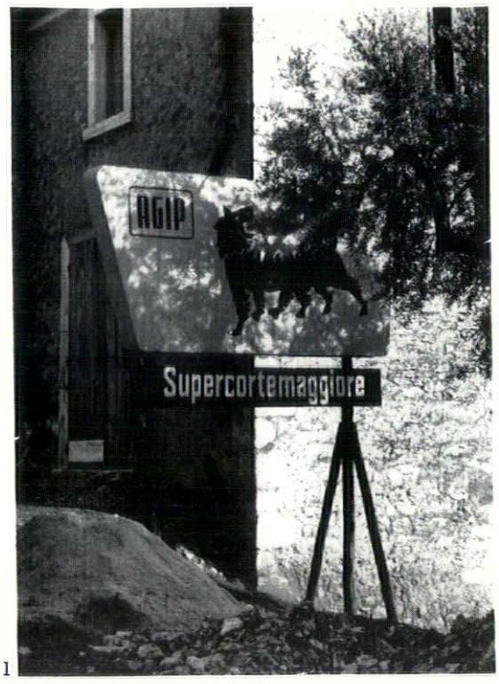
Robert Melville

BOUQUET

THE FACE OF THE MIRACLE

Agip *is the public face of an Italian Economic Miracle, no less sensational than the German* Wirtschaftswunder—*the discovery of oil and natural gas in quantities big enough to be worth the extraction and marketing.* The miracle is recent—its impact has been felt only since the late 'fifties—and its scale has altered the economic balance of Europe. Between 1950 and 1953 the output of the National Hydrocarbons Agency (ENI) leapt from about 5,000 tons per annum to 132,000-odd and now stands at 364,000 tons of petroleum products per year, an increase of some 7,000 per cent, while the output of commercial and domestic fuel gases from natural sources has increased even faster. Although ENI is neither the largest, nor the only, seller of petroleum on the Italian market (though it has the liquid gas business in its pocket) its impact on the nation's life has been profound, and so has the impact of *Agip*, its main retail agency.

Entering a highly competitive field later than its rivals, *Agip* has established itself



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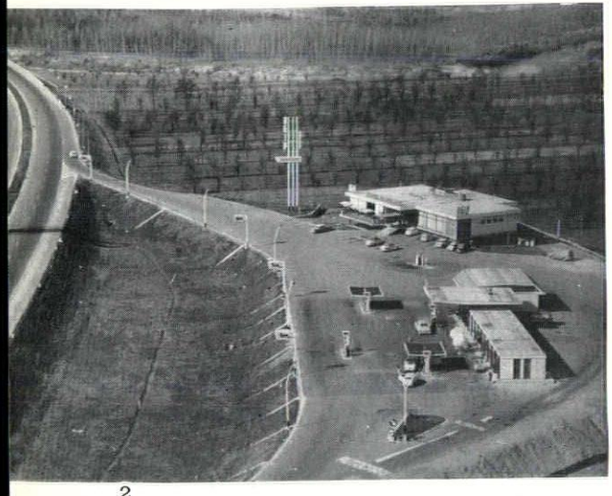
by offering a better service than the other companies, better in the double sense of being more comprehensive and better presented. On both scores it is now the pace-setter for Europe—every major *Agip*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outlet offers motorists a service that may even include a motel, usually a restaurant, always a bar, telephones and lavatories. And visually, though its success has been uneven, it still holds a Continental lead, exemplified by the trade-mark of *Supercortemaggiore* (*Agip's* prime motor-fuel), a mythical beast that can appear anywhere in the Italian scene, 1, with the assured authority of an heraldic blazon.

However, the great lesson of *Agip* in the field of house-styles lies in the subtle variations that are played upon certain basic standardized elements in the building up of the complete service station. All these basic elements are seen together at the station at Rubiero on the Autostrada del Sole, 2 (architects, *Agip* Design Team), which brings together the largest version of the new standard filling station, and one



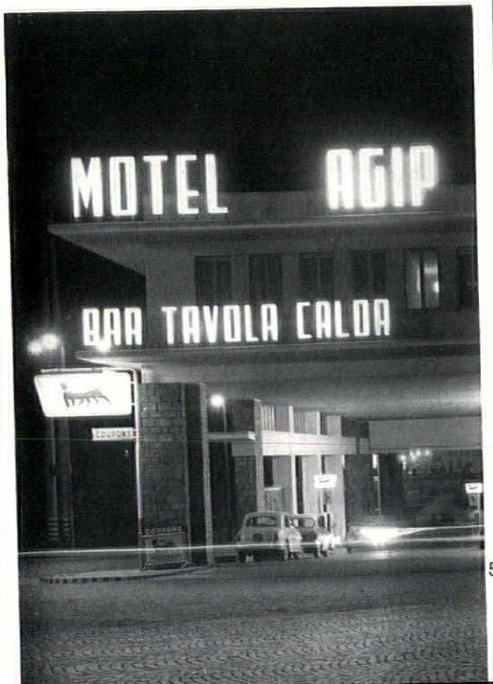
3



4

of the many variants on the restaurant theme.

The same drop-fascia canopy over the pumps, and the same glazed gables to the trussed roof of the bar can be found in smaller stations, 3, and the architectural elements of the restaurant can be seen differently arranged at the Parma station, 4, also on the Autostrada del Sole. Again, two basic alphabets of display letters are



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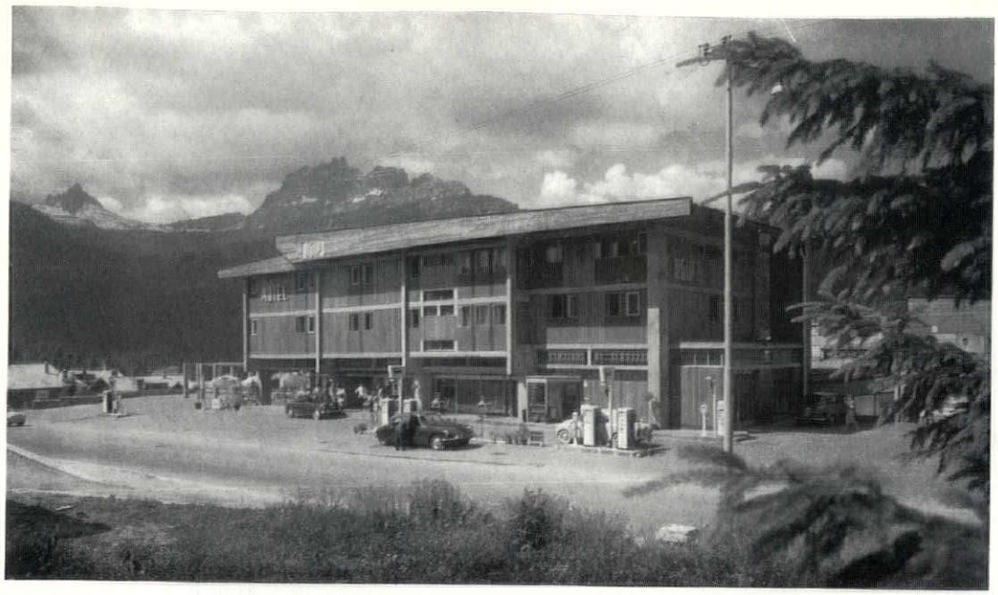
seen throughout the operation, the main Agip/Motel set being differently displayed but standard in form—5 is an example from Bolzano—while that used for *Supercortemaggiore*, while it always remains a Narrow Gothic, undergoes considerable modifications for different uses, as may be seen by comparing 1 and 3 with the fine spread on the tanker in 6.

The actual architecture of the motels teaches a rather different lesson about standardization, however. The motels of the first phase, around 1955, mostly in Northern, *Volkswagen* Italy, such as that at Cortina d'Ampezzo, 7, were in Edoardo Gellner's style of Agip-Rustic although the pairing of the windows next to structural members shows that the internal planning was already turning toward the standard, handed, pairs of rooms that are revealed by the fenestration of the Turin motel, 8, of 1961. This second style is clearly conceived as a company standard that could be



6



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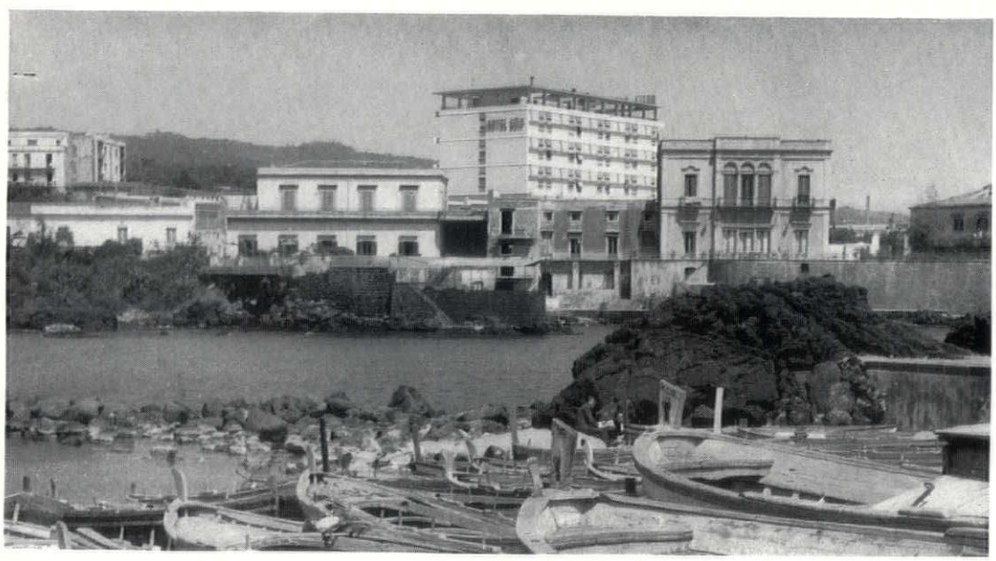

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applied all over Italy; experience shows that it can, and, with the addition of external sun-shades, 9, it looks equally at home in the southern townscape of Catania (here, again, designed by the *Agip* Team).

The public face of ENI is thus growing more self-assured and sophisticated, so that one is tempted to compare it with the very great, like the house-styles of Olivetti or Braun. It cannot stand such comparison—yet. No doubt this is because Enrico Mattei, the present head of ENI, has different pre-occupations to those of an Adriano Olivetti or Artur Braun, But *Agip* still stands head and shoulders above its Italian competitors who—at their worst—are happy to project a brand-image as ridiculous as that of Pavesi-Shell, 10, or—at their best—can be as good as the still-improving Motta-BP collaborations, such as the bridge restaurant at Bologna, 11 (architect, Ian Warwick, consultant to BP-Italiana). Above all, *Agip* are capable of taking a leaf out of Olivetti's book (could this be the influence of the ubiquitous Leonardo Sinisgalli, once with Olivetti, now with ENI?) and employing Nizzoli to design



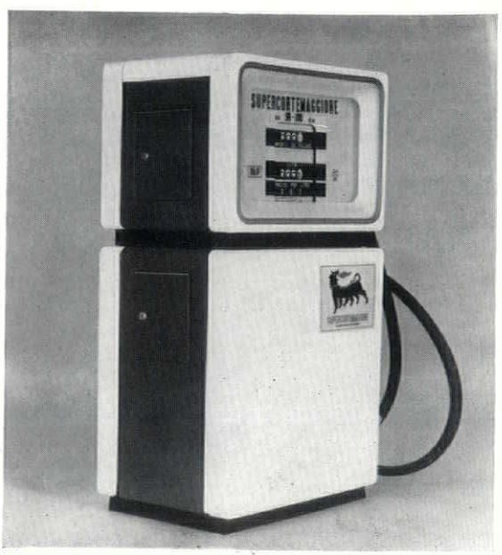
10



11

their new Schwelm petrol-pumps, 12. Not only do these take the petrol pump a little further along the road from the tin-spaceman image towards the kerbside computer, but they also mark an important step in the evolution of a high-grade house style for the Italian miracle.

P.R.B.



12

PEOPLE

F. R. YERBURY

Thirty or so years ago, when the Building Centre was in Bond Street, its front door by some ingenious mechanism opened wide of itself before the visitor as he stood on the doormat. This door, clicking responsively at the opening to Yerbury's own Centre, is a perfect symbol of Yerbury himself; quick in reaction and welcoming, and, when the door has been passed, the visitor is in a brightly lit arena of new ideas in practice.

The fact that Yerbury has retired from the Directorship of the Building Centre after thirty-five years from its first beginnings in the basement of the Architectural Association is nothing more than an excuse for another interim report. '*Ce type Yerbury*,' as the French might say, indicating uniqueness and not typicalness, is one of the élite who glitter in our dull firmament not only because of what he does but because of the sparkle of his way of doing. As foreground to his beguiling character is of course his solid achievement in the sectors of architecture and the building industry in which Yerbury has chosen to work. The AA, as we know it today, has received the lasting imprint of his characterful years as Secretary. He went there in 1901—which is scarcely believable—became its Secretary in 1911 and 'officially' retired in 1937. But he has never really left it. Apart from his admirable habit of popping in for a drink and little bouts of Yerbury-wise conversation, well salted with reminiscence and gossip, he has, in his parental role, so embued the place with his spirit that the Yerbury quality must pervade the AA as it were genetically. One does not have to be an old-timer from before 1937 to sense these worth-while traditions, even though the post-Yerbury generations may not know how many of them they owe to him.

The substantial things that he has done in AA or BC have not been just the fruit of good administration so much as the fruit of his genius for communication; a capacity to identify himself with an idea, personally and creatively, and to enthuse others with its validity and to stimulate an interest in growth and expansion. The good idea must be made into a big idea. Perhaps no one can say at what date the little AA materials bureau was visualized by him as the Building Centre it has now become, but it is a fair bet that when he first devised a materials exhibition for AA students, with his able and imaginative collaborator, Jim Winser, his view did not stay for long in the basement. And even in those early days he probably saw the Centre as the focal point for creative co-operation between the industry and architects on a big scale.

When Yerbury the traveller set his eye perceptively on Scandinavian architecture in the early 'twenties he lifted his personal excitement into a campaign, and, to be a good campaigner, made himself, as an incidental sideline, one of Britain's best architectural photographers. The fact that England is spotted with imitation Swedish and Danish town halls is not Yerbury's fault, but the fact that the AA became more decisively than ever before a focal centre for architectural communication with Europe at a time when Charles Reilly was directing Liverpool students towards the American classicism of Carrère and Hastings is certainly one of his most significant contributions.

There are two portraits of Yerbury: one, in the AA Members' Room, shows a neat executive character, self assured with even a touch of brashness in the mien ('fair enough,' as they say); the other, reproduced in *The Architects' Journal* in 1948, shows a reserved, tweed-coated countryman in front of his own loved countryside (Yerbury is only under pressure a townsman). This picture has much in it of the quality of sentiment, of warmth and composure which tempers his more public image, adds substance to his wisdom and endears him to his many friends.

E. J. Carter

SHRUBS

FOR DRY BORDERS

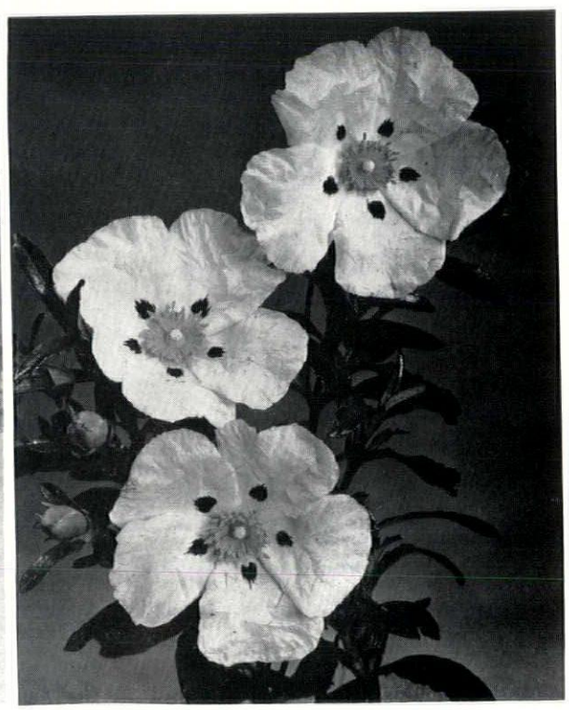
Very often, against the walls of buildings, one finds an arid strip of soil facing south or west, from which most of the natural water-supply is cut off by eaves or other projections. Such situations appear difficult to fill, but they are in fact ideal for many sun-loving shrubs which come mainly from the dry hills of Mediterranean countries, and are more likely to fail through excess damp than cold in our English winters.

The family of *Cistus*, or sun-rose, is particularly good in these positions and comprises a range of evergreen shrubs

1, Cistus purpureus. 2, Cistus paladin Pat.



1



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from one to eight feet high, so that there is no lack of variety in form and habit. *Cistus cyprius*, *Cistus laurifolius* and *Cistus populifolius* are the hardiest of the tall growing type. All are handsomely evergreen with reddish brown stems, individually fleeting but numerous white flowers in summer, and a distinctive spicy fragrance from their gummy leaves, noticeable even on sunny days in winter. Intermediate in size is *Cistus purpureus*, 1, from three to four feet high, with grey-green leaves and large flowers of a reddish purple. Unfortunately this attractive plant is not reliably hardy even in a dry south border, and might need extra protection in winter.

Of the low, mound-forming *Cistus* about two feet high and rather more wide, probably the best are *Cistus corbariensis*, one of the hardiest, with white flowers, *Cistus crispus sunset*, with good grey leaves but rather fierce magenta pink flowers, *Cistus lusitanicus*, white, and *Cistus*, silver pink, a pretty hybrid with good clear pink flowers. All these last are excellent groundcover plants for hot dry places and would be ideal on banks facing south or west.

Rosemary, long grown as a herb, is another excellent shrub for the dry border where it can be allowed to grow freely and spread itself over a yard of ground or, trained up a wall, reach a height of nine or ten feet. The spires of narrow, grey-backed leaves, 3, and pale blue flowers in early spring are always fresh and interesting, while near a path or doorway it is popular on account of its aromatic fragrance, released at the touch of a hand. The variety Miss Jessup's Upright will grow into the shape of a small Irish yew, about six feet high, while *angustissimus* (or *Corsicus*) has much finer, more needle-like leaves and flowers of a bright sky blue.

All the Lavenders, 4, are ideal for dry and sunny situations, from the spreading, three-foot bushes of *Lavandula spica* to the dwarf varieties Hidcote purple and Munstead blue, which seldom grow more than six to nine inches high and can be clipped if necessary into a neat formal edging similar to dwarf Box. There is an unusual white flowered form of *Lavandula spica — spica alba*—growing from two to three feet high, which can be extremely telling when used with a background of very dark brick or stone, although rather insipid in other situations.

For a very dry and sunny corner, particularly near a door, where the passer-by can brush against the fragrant leaves, the rather tender *Lippia citriodora*, or *lemon verbena*, is a good choice. Although the spikes of washy mauve flowers are not exciting, the fresh, crisp leaves and grey stems are always elegant, and the sharp lemon scent is most refreshing, even on the hottest day. The great mistake with this plant is to give it too rich a soil, since poverty results in a more wiry shrub which, if protected with a little straw for the first year or two in winter, should survive all but the most severe seasons.

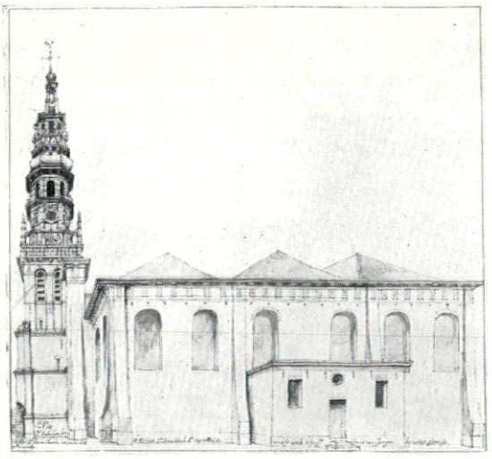
A. du Gard Pasley

HISTORY

SAENREDAM AT UTRECHT

An exhibition recently held at Utrecht of the art of Saenredam gave students of townscape-painting an unrepeatable opportunity of reflecting upon the experience of one of its most curious exponents. To think of Saenredam in the abstract is to conjure up a vision of bland milky spaces, one very like another, and of perspectives artfully twisted askew and flattened out, as though pressed between imaginary panes of glass. In this delicate art of calculated spaces and surfaces direct perception plays a minor part, and the effect reveals a mental contrivance of the most deliberate kind: indeed, as a witty spectator put it, Saenredam goes as far in the direction of Mondrian as anyone *need* go.

But when Saenredam's finished works are juxtaposed with the empirical sketches that form their starting point and the intermediate strict 'artificial' perspective constructions that span the two stages, forming an independent third stage, the processes of invention that join the sketch to the projection and the projection to the picture are seen to be of some subtlety and not at all without conflicts of an instructive kind. The sketches show that in the difficult art of compassing a townscape Saenredam was not one of the pioneers of his age, like the masters of Delft, such as Carel Fabritius and Houckgeest and—most of all—Vermeer. They perceived that in order to draw large buildings from close at hand it was inevitable that the planimetric frontality of Brunellescan perspective should be replaced, at least ideally, by a system of paraboloid curves, as though the building were reflected in a very slightly convex mirror. On the rare occasions when Saenredam allowed himself to sketch scenes which frankly accepted an oblique view, he at once betrayed his ignorance of the laws of diagonal perspective which Fouquet had already perceived intuitively and Jean Pélerin had formulated 150 years earlier.



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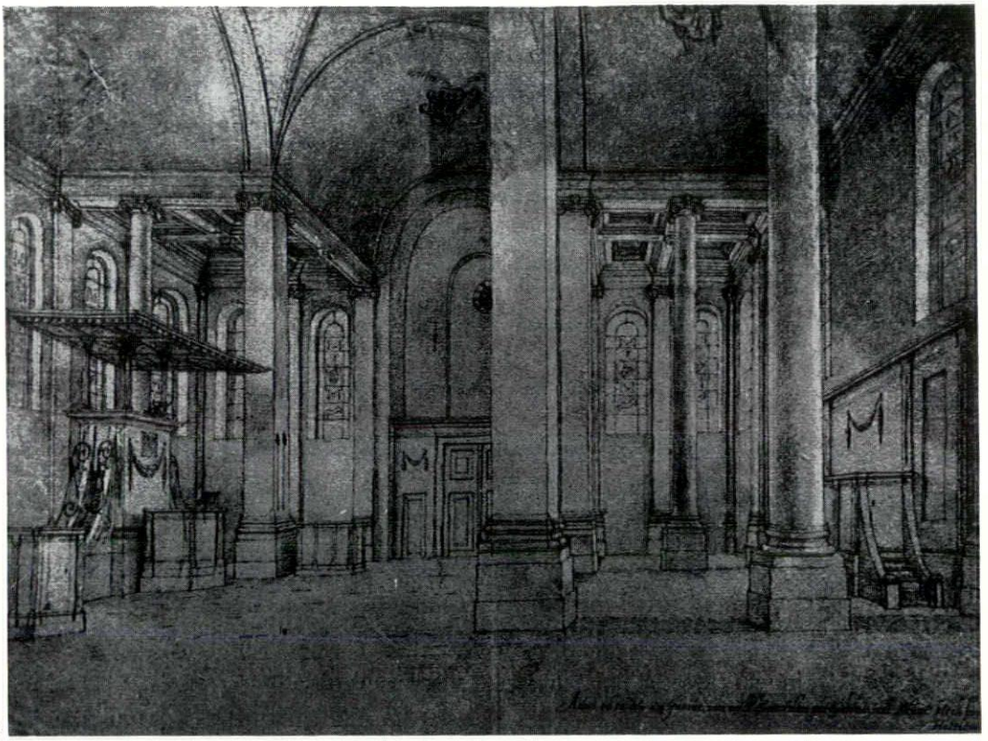
1, *drawing by Saenredam of the exterior of the Nieuwe Kerk, Haarlem*, 1650. 2, *sketch of the interior*. 3, *finished painting*.

Being perhaps obscurely conscious of this theoretical insufficiency, and not possessing an eye sufficiently detached or a hand sufficiently obedient, Saenredam seems to have taken refuge in the letter of Brunelleschi's law, and applied frontal perspective in all its rigour even in cases where it was least applicable. Indeed, Saenredam's almost morbid taste for such perspectival casuistry leads one at times to suspect that he positively rejoiced in the distortions that some of these procrustean experiments engendered. By placing his vanishing-point, as he often does, very near one corner of the picture, the bases and capitals of columns in the opposite corner are as fiercely twisted as if they had been photographed by an excessively wide-angle lens. In short, one wonders whether Saenredam did not adopt a frankly mannerist attitude to such problems, and extract, as Johnson said of Pope's grotto, an ornament from an inconvenience.

In Saenredam's paintings empirical truth is always, and willingly, sacrificed to theoretical rectitude; and it is quite touching sometimes to watch how doggedly he withdrew from what his eye saw to what his mind knew. His various sketches, 1, 2, and constructions and paintings of the Nieuwe Kerk at Haarlem are a case in point. He was obviously fascinated by the problem of rendering a new square church into a new and nearly square picture. His senses told him that the four equal arms of the Greek cross were spanned by identical barrel vaults which met in a quadripartite crossing. But his experience told him that this simple fact was by no means simple to render pictorially. In consequence, the only version (of three known) which attempts to face this fact—the Esterházy one in Budapest, 3—is the most distorted: the others all accept in varying degrees the fact that what is over your head cannot be seen at the same time as what is immediately in front of you or under your feet. In short, what the roving eye actually sees, and so retrospectively knows about, even such an obliging interior is not compatible with what can be demonstrated by applying the strict laws of Brunellescan perspective.

Therefore even the most enclosed classical interior lends itself no better to the townscapist's art than the most complex intersecting multiaxial Gothic interior; and Saenredam, for all his exquisite pictorial sensibility and his impeccable sense of values and his droll appreciation of lurking figures who love and respect and play up to his *amor vacui*, is not one of the progressives among seventeenth-century Dutch townscapists, but rather the ultimate perfectionist left over from the medieval and the mannerist past.

Roger Hinks



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3

SKILL

THE USE OF STRUCTURAL BRICKWORK FOR FRAMELESS HIGH BUILDING

2, Comparison of British and Continental Practices

This is the second article by Donald Foster on the uses of brickwork as a loadbearing construction for high buildings. The first article in last month's issue surveyed development in Switzerland. He now goes on to compare development here with suggestions for amendments to the current Code of Practice which could make more efficient use of this traditional material.

Part I of this article briefly described some high loadbearing flat-blocks in Switzerland and discussed the kinds of brick and mortar used. This second part will discuss this development in relation to conditions in the United Kingdom, seeking particularly to highlight the reasons for the scarcity of similar work here.

With this in mind it is clearly necessary to compare the materials available in both countries, the labour and skill to use these materials correctly and finally the kind and quality of the background information available to the structural designer, drawing, in this respect, from German as well as Swiss sources.

Materials

Two facts are immediately apparent when comparing British and Swiss bricks and mortar.

First, the bricks stipulated for high flat building in Switzerland are not remarkable for their crushing strength when compared with British high strength (engineering quality) bricks to BS 1301. These, of course, are generally solid and therefore can be expected to be stronger but there are also one or two firms here making perforated bricks with a crushing strength higher than Class A ($\geqslant$10,000 lb/sq. in.) of BS 1301, and several more whose perforated bricks meet the Class B ($\geqslant$7,000 lb/sq. in.) requirements of that Standard.

If it is recalled that the highest strength of brick required for the eighteen-storey structure at Schwamendingen was 8,600 lb/in² and that the average for Swiss tall structures is 5,700 lb/in² (400 kg/cm²), then it must be agreed on this evidence that the strength of British bricks, either solid or perforated, cannot be the cause of the lack of development of high loadbearing brickwork at home. In fact Britain is richer than Switzerland in clays suitable for high strength bricks. It should also be noted that high strength bricks will only be needed for the most highly stressed portions of buildings and that many bricks of less than 'engineering' strength can be used in this kind of building, say on upper floors.

The second point of note, which requires more careful examination, is that mortar strengths decreed in Switzerland for high buildings appear to be much higher than those usually assumed for the strongest mix (1 : 0–¼ : 3 cement : lime : sand) recommended in CP 111.101. On average this is about 1,600 lb/in²* which is considerably lower than the recommended Swiss strength of 200 kg/cm² (2,840 lb/in²) at 28 days. The age at which the strength was determined was not stated for the British strength quoted, but it is assumed to be 28 days because it related to a series of tests on brickwork and these are usually carried out after that period.

Now the Swiss specify a mortar mix by the weight of cement per cubic metre of mortar, and a cement content of 350 kg. per m³ evidently corresponds to a mix by volume of 1 : 4 cement : sand. The compressive strengths achieved by this mix are 140 kg/cm² (1,988 lb/in²) and 200 kg/cm² (2,840 lb/in²), at 7 and 28 days respectively. The former strength cannot be very different from that obtained after 7 days by the 1 : 0–¼ : 3 cement : lime : sand mix previously quoted as the strongest mortar recommended in CP 111.101 and it seems, therefore, that mortar strengths might not be so critical as they appeared at first sight. On the other hand, it has been learned since the first part of this article was written that the specified mortar strength for the Lucerne building was 200 kg/cm² *at 7 days*.

Obviously there is need for further study of this point. At this stage all that can be said is that there are some differences in mortar strengths and that they may be one part of the key to the lack of development in Britain.

Availability of skilled labour

Bricks and mortar of the right kind are no use without good bricklayers, particularly if high strength brickwork is required. Swiss engineers lay much emphasis on the employment of the highest skilled operatives, and often before a new job begins, a one-day symposium is arranged to explain to the bricklayers the critical effect of their workmanship on the strength of the walling.

Bricklaying skill is widely available in the United Kingdom, for this is a country with a strong facing-brick tradition and the general level of brickwork here is much better than rough and ready walling of normal (not high strength) work in Switzerland. As mentioned earlier, rendering is the usual external finish there, a fact hardly conducive to accurate bricklaying. When measured against the level of normal Swiss brickwork, the high strength work there does perhaps represent a high standard of craftsmanship but, judging from the examples seen, it is a standard which would not be considered exceptional in this country. There is thus no reason to believe that any dearth of high loadbearing brickwork here is due to lack of British bricklaying skill.

Structural design information

(a) Generally

If there is little difference in the quality of materials and none in that of labour, then one must look elsewhere for the causes of the comparative lack of British advance in brick structure.

In both countries the basic information on the strength of brickwork was obtained by crushing portions of brickwork of varying cross section and height. The research was on similar lines and it is likely that the British work, being earlier, guided that in Switzerland. There is one difference, however, which might be important. The British research, for the most part, was carried out on piers, whereas the Swiss was on panels of wall about four feet long. This difference may be more important that it at first appears. It is discussed in more detail later.

Haller* says that the first step in the Swiss development was the installation of a 6 m. high 500 tons press in 1946 at EMPA, the Swiss Federal Materials Testing Station: '. . . only by means of this press was it possible to carry out tests on brickwork which could yield reliable results. . . .' Such a press has long been used at Building Research Station. It therefore appears entirely reasonable to ask why the Swiss are so far ahead in the application of this work. Some clue might be obtained by attempting to compare the permissible stresses for British and Swiss wall panels of equivalent slenderness. This will be done first with 'half brick' walls with a high slenderness ratio.

(b) Strengths of half brick walls

A comparison is given below between a 'British' length of wall 4½ in. thick, 9 ft. high (with lateral restraint at top and bottom and with axial loading) and the nearest equivalent Swiss wall. Such a wall has here a slenderness ratio of 18, the maximum allowed according to CP 111.101 for structures other than two-storey houses.

Actual height of wall = 9 ft. 0 in.
Effective height = ¾ actual = 6 ft. 9 in.
Effective thickness = actual thickness (for solid walls) = 4½ in.
Slenderness ratio $\frac{\text{6 ft. 9 in.}}{\text{4½ in.}}$ = 18

Referring to table 1 (from page 27 of CP 111.101) and choosing a brick of crushing strength of 5,700 lb/in² (400 kg/cm²) with a mortar of Type (i), i.e. a mortar mix 1 : 0–¼ : 3 cement : lime : sand with an assumed crushing strength of 1,600 lb/in² (113 kg/cm²), one finds that the maximum permissible uniformly distributed stress for a masonry member with a slenderness ratio of unity is 402 lb/in². This figure is obtained by interpolating between 360 and 510 lb/in² corresponding to brick strengths of 5,000 and 7,500 lb/in².

The slenderness ratio is not unity, but 18. Therefore the figure of 402 lb/in² must be multiplied by the reduction factor 0.30, obtained from table 2 (from page 28 of CP 111.101). The final permissible uniformly distributed stress is thus 402×0.30 lb/in² = 121 lb/in².

The nearest equivalent Swiss wall is 12 cm. (4.75 in.) thick. The height, 9 ft 0 in., is about 2.75 m.

Actual height = 2.75 m.
(No equivalent for 'effective height')
Actual thickness = 12 cm.
Slenderness ratio, height/thickness = 23

Referring to 1, it can be seen that the permissible stress allowed in Switzerland for this same wall, *with a factor of safety of* 5 (more correctly, a load factor of 5) is 32 kg/cm² or about 452 lb/in²—more than three times the British figure.

For the results of an actual test on a 4½ in. wall of about this height one must refer to tests described by Davey and Thomas*. In this series of tests, table 3, the brick strength was 3,500 lb/in² and the mortar strength 1,000 lb/in² (1 : 1 : 6), both considerably lower than those in the foregoing comparison.

The failing loads under axial loading in table 3 are misleading, as pointed out in the text describing these tests, because the walls were heavily restrained in position and direction at top and bottom, and this much increases their load carrying

* See F. G. Thomas, 'The Strength of Brickwork' *The Structural Engineer*, 1953, 31 (2), pp. 35-46. Page 38, Column 1, Paragraph 2, line 7.

* P. Haller, Section Head, Masonry, Swiss Federal Testing Station.

* N. Davey and F. G. Thomas, 'The Structural Uses of Brickwork.' Proc. Inst. of Civil Engineers, Session 1949–50 (February 21, 1950), page 28.

Table 1: Maximum permissible uniformly distributed compressive stresses (at and after the stated times) on masonry members with slenderness ratio of unity

Description of mortar	Mix (parts by volume) not weaker than			Hardening time after completion of work (days)*	Maximum uniformly distributed stress in lb./sq. in. corresponding to units whose crushing strength (in lb./sq. in.) is :†								
	Cement	Lime	Sand		400	1,000	1,500	3,000	4,000	5,000	7,500	10,000	10,000 + ×
(i) Cement	1	0–¼	3	7	40	100	150	210	250	360	510	660	660 + 0.042 × but not more than 900
(ii) Cement-lime	1	1	6	14	40	100	140	190	230	260	350	350	350
(iii) Cement-lime	1	2	9	14	40	80	120	170	210	250	350	350	350
(iv) Cement-lime	1	3	12	14	30	70	100	130	170	200	200	200	200
(v) Hydraulic lime	—	1	2	14	30	70	100	130	170	200	200	200	200
(vi) Non-hydraulic	—	1	3	28‡	30	60	80	100	100	100	100	100	100

* These periods should be increased by the full amount of any time during which the air temperature remains below 40°F, plus half the amount of any time during which the temperature is between 40° and 50°F.

† Linear interpolation is permissible for units whose crushing strengths are intermediate between those given in the table.

‡ A longer period should ensue where hardening conditions are not very favourable.

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Table 2: Reduction factors for slenderness ratio

Slenderness ratio.	Factor.
1	1.0
2	0.96
4	0.88
6	0.80
8	0.70
10	0.60
12	0.50
14	0.40
16	0.35
18	0.30
21	0.25
24	0.20

Table 3: The strength of 4½ in. walls, 4 ft. 6 in. long, of various heights and eccentricities of loading

Brick strength: 3,500 lb. per square inch.

Mortar strength: 1,000 lb. per square inch.

Nominal height ft.	in.	Overall height ft.	in.	Failing load : tons		
				Axial loading	Eccentricity ½ inch	Eccentricity 1 inch
3	0	3	9	128 136	111	72
4	6	5	3	107	110	67
6	0	6	9	158 134	93 90	61 61
7	6	8	3		97	40
8	3	9	0	151 148	69	32
9	0	9	9	155	63	32
9	9	10	6	137	66	30 24
10	6	11	3	132	54	21

A wall of 7 ft. 6 in. nominal height, loaded axially without directional restraint, failed at 105 tons.

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capacity when compared with similar walls tested between knife edges, as the Swiss walls were. It is therefore necessary for this comparison to make some arbitrary allowance for restraint and one approach would be to ignore axial loading and to consider the figure of 63 tons, which is the failing load with an eccentricity of ½ in., to be the *axial* load at failure. The failing stress on a 4 ft. 6 in. length of wall is then equivalent to $\frac{63 \times 2{,}240}{54 \times 4\frac{1}{2}}$ = 580 lb/in². Referring again to 1, one can read directly that the maximum permissible axial stress for a 1 : 1 : 6 mortar and a brick strength of 3,500 lb/in² is 190 + 20 = 210 lb/in². Using the same reduction factor of 0.30 for height, the final stress is 210 × 0.30 = 63 lb/in² or between $\frac{1}{5}$ and $\frac{1}{10}$ of 580 lb/in², the actual failing load *eccentrically* applied. If a failing load of, say, 80 tons were assumed (which presumably would be nearer to the actual axial failing load tested between knife edges) the factor against failing in the Code would be of the order of 15, or almost three times that for a roughly similar Swiss wall.

One cannot completely assess the limitations of CP 111 which are now becoming apparent on the basis of the relatively simple comparisons given above. They do give some indication, however, of its restriction of permissible stresses of walls with a high degree of slenderness.

The comparison will now be continued with walls which have a much lower slenderness ratio.

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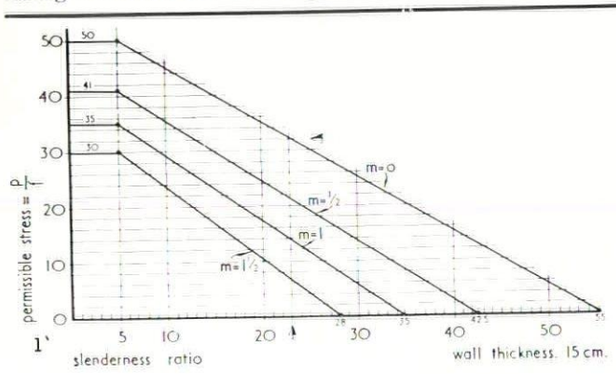

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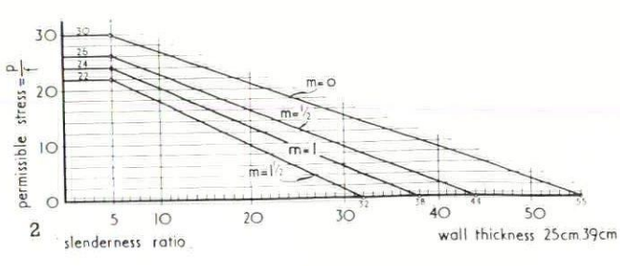

2

key
p = load
f = wall area
m = eccentricity factor
h = wall height
d = wall thickness
h/d = slenderness ratio

1, graph of permissible stresses in Switzerland for 12, 15 and 18 cm. 'half brick' walls.
2, graph of permissible stresses in Switzerland for 'one brick' and 'brick-and-a-half' walls.

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(*c*) *Strengths of one-brick walls*

Some published work* of tests on axially loaded more substantial British walls, nominally 9 in. thick and where the slenderness ratio was about 9.3, shows average load factors of between 6.8 and 7.1 for three different types of brick, one solid double frogged, one perforated with 16 per cent voids, and the other perforated with 24 per cent voids. The average mortar strength for all the tests was 2,000 lb/in². Unfortunately for present purposes, all of these walls were built of high strength bricks of average crushing strengths of 12,230, 12,700 and 8,720 lb/in² respectively and they are therefore not directly comparable with the data available† for less slender Swiss walls, 2. Such load factors of 6–7 for the British walls quoted can only be considered reasonable and are given to show that some permissible stresses in CP 111.101 must approach those in Switzerland. No published data are known giving load factors for 9 in. walls with brick strengths of about 5,700 lb/in² or 400 kg/cm², but some unpublished works show that these might lie between 11–13, in contrast to the Swiss load factor of 5.

An example is now given for a 9 in. (nominal) wall 9 ft. 0 in. high fully restrained laterally and axially loaded.

Actual height = 9 ft. 0 in.
Effective height = $\frac{3}{4}\times$ 9 ft. 0 in. = 81 in.
Nominal thickness = 9 in.
Actual = effective thickness = $8\frac{3}{4}$ in. (say)

$$\text{Slenderness ratio} = \frac{81}{8.75} = 9.3$$

Reduction factor = 0.635

Using a brick of say 5,700 lb/in² (400 kg/cm²) with a mortar of 1 : 0–¼ : 3 cement : lime : sand, the permissible stress for a slenderness ratio of unity, as for the slender walls, is 402 lb/in².

Applying the reduction factor for slenderness the final permissible stress is $0.635\times402 = 255$ lb./in².

The nearest equivalent Swiss wall is a 25 cm. (9.8 in.) wall about 2.75 m. high.

Actual height = 2.75 m.
(No equivalent for effective height)
Actual thickness = 25 cm.

$$\text{Slenderness ratio} = \frac{275}{25} = 11$$

Referring to 2, it can be seen that the permissible stress is then 27 kg/cm² or about 380 lb/in², a significant increase over the British figure of 255 lb/in².

(*d*) *Comments on comparisons*

It is obvious from these comparisons of both types of wall that the British Code apparently unduly penalizes slenderness because both Swiss and British basic permissible stresses, i.e. with unit slenderness ratio (respectively 30 kg/cm² or 426 lb/in² and 402 lb/in²), are not very different for this strength of brick, at least for the thicker wall. For the thinner wall the Swiss is much the higher at 50 kg/cm² (710 lb/in²).

In addition to penalizing slenderness, the British Code apparently penalizes eccentricity to a greater extent. This can be seen clearly if one takes the metric equivalent (8.5 kg/cm²) of the stress of 121 lb/in² (the permitted uniformly distributed stress from *axial load* on the 9 ft. 0 in. high $4\frac{1}{2}$ in. wall) and examines the appropriate Swiss diagram, 1, to see what degree of slenderness and eccentricity of loading is allowed with it.

This stress (8.5 kg/cm²) is allowed by the Swiss 'code' for a 12 or 15 cm. wall which has a slenderness ratio of 21.2 (see 1) corresponding to a height of 21.2×12 cm., about 8 ft. 4 in. *but with an eccentricity of loading of* $\frac{t}{4}$, where t = the thickness of the wall. This is derived from $m = 1\frac{1}{2}$ where m, an eccentricity factor, is derived from the formulae $m = \frac{e}{k}$ in which e = eccentricity of the point of application of the load and $k = \frac{t}{6}$. For the 12 cm. wall in question this gives an actual eccentricity of 3 cm. One can only conclude from this that the British Code apparently assumes that $4\frac{1}{2}$ in. walls of storey height will have a 'built in' eccentricity of $\frac{t}{4}$!

It is appreciated that the British Code allows a 25 per cent increase of basic permissible stresses where additional stresses are due to eccentricity of loading but even if this is added to the figure of 121 lb/in² it can be shown that the resulting permissible stress of 151 lb/in² corresponds to an eccentricity very much lower than $\frac{t}{4}$. Alternatively the permissible stress of 8.5 kg/cm² corresponds to an axially loaded 12 cm (4.75 in.) wall with a slenderness ratio of about 46, or a height of about 18 ft. 0 in! It is not suggested, nor is it likely, that walls of such slenderness have

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Table 4: (Extract from DIN 1053)

Permissible compressive stresses in kg./cm.² (with eccentric loading maximum permissible edge stresses) for brickwork.

1. Loaded walls with thickness ⩾ 24 cm., which are stiffened by intersecting walls according to section 2.21.
2. Piers and loaded walls with thicknesses ⩾ 24 cm. and slenderness ratios ⩽ 10 not stiffened by intersecting walls according to section 2.21.
3. Vaults and vaulted domes of any thickness.

Column	a	b		c	d	e
Line	Type of Brick	Designation		Mortar Group		
				I	II	III
1	Hollow blocks of lightweight concrete Solid bricks of lightweight concrete Bricks of autoclaved, aerated or cellular concrete	Hbl 25 V 25 Class of quality 25	DIN 18 151 DIN 18 152 DIN 4165	3	5	6
2	Porous bricks Horizontally perforated bricks Bricks of blast-furnace slag Hollow blocks of lightweight concrete Solid bricks of lightweight concrete Bricks of autoclaved, aerated or cellular concrete	PMZ 1, 2/60 LLZ 1, 2/60 HS 50 Hbl 50 V 50 Class of quality 50	DIN 105 DIN 105 DIN 398 DIN 18 151 DIN 18 152 DIN 4165	4	7	10
3	Solid bricks Porous bricks Horizontally perforated bricks Vertically perforated bricks A or B Bricks of blast-furnace slag Solid bricks of lightweight concrete	MZ 100 PMZ 1, 4/100 LLZ 1, 4/100 HLZ 1, 2/100 and HLZ 1, 4/100 HS 100 V 75	DIN 105 DIN 105 DIN 105 DIN 105 DIN 398 DIN 18 152	6	9	12
4	Solid bricks Facing bricks Vertically perforated bricks A or B Facing—vertically perforated bricks Sand-lime bricks Bricks of blast-furnace slag Solid bricks of lightweight concrete	MZ 150 VMZ 150 HLZ 1, 2/150 and 1, 4/150 VHLZ 1, 4/150 HS 150 V 150	DIN 105 DIN 105 DIN 105 DIN 105 DIN 106 DIN 398 DIN 18 152	8	12	16
5	Facing bricks Hard bricks of blast-furnace slag	VMZ 250 HHS 250	DIN 105 DIN 398	10	16	22
6	Clinker for high building Clinker for high building	KMZ 350 KHLZ 350	DIN 105 DIN 105	—	22	30

Table 5: (Extract from DIN 1053) Stiffening of Loaded Walls

Loaded walls must be sufficiently stiffened by intersecting walls. If the intersecting walls providing stiffening are interrupted by openings, the distance of the first opening from the stiffened wall must be ⩾ 1/5 of the height of the storey, but must at least be 50 cm. (19.68 in.). The thicknesses and minimum spacings of the intersecting walls providing stiffening must conform to this table.

Intersecting Walls Providing Stiffening

Column	a	b	c	d	e
Row	Wall thicknesses and mean distances				
	Thickness of loaded wall needing stiffening in cm.	Height of storey in m.	Intersecting wall providing stiffening		
			In the 1st to the 4th complete storey from above, thickness in cm.	In the 5th and 6th complete storey from above, thickness in cm.	Mean spacing in m.
1	⩾ 11.5 < 17.5	⩽ 3.25	⩾ 11.5	⩾ 17.5	⩽ 4.50
2	⩾ 17.5 < 24				⩽ 6.00
3	⩾ 24 < 30	⩽ 3.50			⩽ 8.00
4	⩾ 30	⩽ 5.00			

* 'The Strength of Some Perforated Bricks.' *The Brick Bulletin*, Vol. 4, No. 7, March, 1961, page 6.

† P. Haller, 'The Properties of Load Bearing Brickwork in Perforated Fired bricks for multi-storey buildings' (*Die technischen Eigenschaften von Backstein—Mauerwerk für Hochhäuser*). *Schweizerische Bauzeitung*, 1958, 76 (28), 411–419. Translated from the German by G. L. Cairns. BRS Library Communication No. 870, February, 1959.

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Table 6: Effective thickness of wall stiffened by piers

Ratio $\frac{\text{pier spacing centre to centre}}{\text{pier width}}$	Ratio $\frac{\text{Effective thickness}}{\text{Wall thickness}}$ for $\frac{t_p}{t_w}=1$ †	for $\frac{t_p}{t_w}=2$	for $\frac{t_p}{t_w}=3$
6	1.0	1.4	2.0
8	1.0	1.3	1.7
10	1.0	1.2	1.4
15	1.0	1.1	1.2
20 or more	1.0	1.0	1.0

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† $\frac{t_p}{t_w}$ = $\frac{\text{pier thickness}}{\text{wall thickness}}$

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much practical application, but the point is worth making. According to Haller the limiting value in the Swiss Code for reinforced concrete walls is 43 and it can be seen from 1 and 2 that those for brickwork are 55. Consequently in Switzerland loadbearing walls could be thinner of brick than of reinforced concrete.

Referring again to restriction on slenderness the reader should also note that no reduction of permissible stress for slenderness up to a ratio of $\frac{\text{height}}{\text{thickness}}$ equals 5 is required by the Swiss 'code' whereas the British Code requires a reduction immediately the slenderness ratio is greater than unity. Further evidence on this point can also be obtained from the German 'code,' DIN 1053, on brickwork. From table 4, reproduced from this document, it can be seen that for walls which are not less than 24 cm. (9.45 in.) thick, no reduction in basic permissible stress is required where the wall has a slenderness ratio of 10 or less, even where the wall is not stiffened by intersecting walls. Where such a wall *is* stiffened according to table 5 (from DIN 1053) the slenderness ratio can be slightly greater than 14, still without any reduction in basic stress. The British Code also contains a clause (304 of CP 111, page 17), table 6, dealing with the effect of stiffening of loaded walls by intersecting walls, allowing a reduction of stress by modifying the effective thickness and hence the slenderness ratio. It compares unfavourably with the German, however, as the following example will show. Assuming a 9 in. loaded wall, Clause 304 allows some modification of effective thickness by intersecting walls not more than about 13 ft. 0 in. apart, about 17 to 18 times the thickness of the loaded wall. The German equivalent spacing is 8 m. (26.2 ft.). The point is discussed in more detail elsewhere.*

From the foregoing it seems fair to observe that CP 111 is highly conservative over at least part of its range. Thomas† describes the wide variation of load factor, from 5 to 36, for a large number of brick piers tested presumably as part of the research into brickwork strength behind the recommendations of CP 111.101. Apparently all these piers were tested between knife edges and while it must be agreed that in this way it was possible to obtain more accurate conditions of loading, hence reducing the variables in the tests, it should be appreciated that lower failing loads, and thus lower load factors, would be obtained by this 'pin joint' method.

As the recommendations of CP 111.101 are based on the strength ratios (strengths of brick to strengths of brickwork) obtained by testing in this manner, it follows that no allowance is made in that Code for the directional restraint, and hence considerable increase in load carrying capacity which often occurs in practice, particularly where a solid slab sits squarely on a wall. The tests on the 4½ in. walls quoted earlier and shown in 4 support this contention, particularly in relation to slenderness ratio for it can be seen that 'there is no significant reduction in strength with increasing slenderness over two-thirds of the range covered by the Code.'

In addition to this fact, published work shows that there has been no series of tests on wall panels comparable to those on piers, though CP 111 makes some allowance for the fact that there is less likelihood of danger from local overstressing of a wall rather than a pier by permitting a reduced effective height (three-quarters of the actual height) for walls which are laterally restrained. It should be noted here that lateral restraint corresponds to positional but not directional restraint though there nevertheless must be some degree of directional restraint present in almost any lateral restraint. This allowance for laterally restrained walls appears insufficient in comparison with the German allowance for slenderness ratios of 10 or less and probably this is because directional restraint is taken into account in DIN 1053.

The wide range of load factors quoted earlier for piers shows that the greatest load factors occur when high strength bricks are used with very weak mortars. Increases of permissible stress when the Code is revised are, therefore, more likely in this 'area' of Table I of CP 111.101, but such odd combinations of materials are hardly likely to be of much use to designers interested in brickwork for tall structures, and it seems remarkable, when judged by Swiss experience, that the Code even includes permissible stresses for them. On reflection, however, this immediately indicates one important cause of the big differences between Swiss and British permissible stresses. The Swiss on the one hand have concentrated their effort on the combination of one strength of brick with high strength mortar. The British Code, by contrast, legislates for all strengths and types of bricks and blocks, set in mortars ranging, in terms of crushing strength, from 100 to 1,600 lb/in². It is clearly difficult in an 'umbrella' code of this kind to allow for the highest possible level of performance for any single type of unit and mortar. It is also equally clear that the latent engineering possibilities of structural brickwork will never be fully realized as long as the Code is framed in this way.

Proposals for Britain

(*a*) *Modifications to CP* 111

Apart from the obvious benefits to be obtained by modifying CP 111 to take account of development abroad there is also, as with other structural materials, a clear need for further study on the composite action of brickwork rather than further analysis of the strength of component parts such as individual wall panels.

It might well be argued that it is the duty of the brick industry to undertake such work and readers may be interested to know that some research on these lines, comparing model brickwork using half or third scale bricks with actual structure, is already in hand but in the meanwhile, however, it seems that there is a strong case for the inclusion, in any revision of CP 111, of a separate and much higher range of permissible stresses where certain, more stringent conditions of use, such as those outlined below, are applied.

A. The bricks are subject to quality control methods at the works to ensure

1. A closer control of strengths with less variation about a mean.

2. A closer control of water absorption.

(Bricks to BS1301, for example, might be assumed to meet these requirements already.)

B. The mortar strength is maintained at the desired figure by regular cube testing.

C. The structure is designed by competent qualified structural engineers.

D. The workmanship is carefully supervised.

E. Cutting and chasing is subject to careful control, or eliminated by pre-planning.

F. The structure is adequately tied by means of relatively stiff concrete slabs with or without ring beams.

These are merely suggestions for guidance and are not meant to be exhaustive or conclusive. It is appreciated, for example, that they raise problems of testing of materials particularly of mortars, but despite this, there seems no reason why British development in this particular type of structure should not be rapid and fruitful.

In the belief that this will be so, the following notes are advanced on the use of brickwork for high structures.

(*b*) *Specification notes for British high loadbearing brickwork*

i. *Rain resistance:* British conditions differ markedly from Swiss primarily because of the much wider use of facing brickwork. Hence the use of cavity walls is essential when ordinary bricks are used if rain penetration is to be avoided. It should be borne in mind that brickwork in the higher storeys is quite likely to be subject to an exposure which can be classed as severe, even where the lower storeys are in a relatively sheltered position in terms of the site. The brickwork is therefore liable to become and remain wet for longish periods in winter; good detailing is needed around openings and a good standard of workmanship is necessary.

ii. *Strength and stability:* The effective thickness of a cavity wall is only two-thirds that of a solid wall of the same thickness of material. Thus the maximum use should be made of both leaves of the wall and the slab should be carried through or nearly through to the outer face.

It seems more logical to make as much use of internal walls, even 4½ in. walls, to carry load, than to have wide spans with lightweight partitions. In this way, with slabs that are relatively stiff, the stresses in the walls are more nearly axial, eccentricities being 'swamped out' by the prestressing effect, particularly on the lower storeys.

The building should be planned and the loads arranged to give as even a distribution of stress as possible. If thinner walls are used for higher storeys they should be placed axially over the thicker lower walls.

The Swiss claim that it is necessary for the designer to specify the bond and to provide bricklaying plans, showing the bonding of alternate courses and elevations of the walls, particularly where planned recesses for services are provided. Whether these should be provided by the engineer, in place, say, of the reinforcement schedules and drawings, or by the architect, is a moot point. As far as is known those in Switzerland were provided by the architect.

The roof should preferably never be a lightweight roof. If it is, very stringent precautions should be taken to ensure firm anchorage to the walls of the top-most storey, both to provide adequate restraint to these walls as well as to hold the roof down.

iii. *Dimensional stability (differential, thermal, and moisture movement):* The use of brick slips to cover the edge of the slab is not always a good constructional detail. If it is employed it would be wise to use an expansion joint horizontally between the top of the row of slips and the bottom of the face bricks forming the next lift. This joint should be pointed in mastic material.

iv. *Durability (sulphate attack):* This only takes place in the presence of excessive moisture and can give rise to expansion and severe cracking. It is rarely seen in normal facing brickwork up to three or four storeys because the brickwork is never wet for long and it is very rare in ordinary housing. Brickwork in the top storeys of high buildings might be severely exposed, however, and become and remain wet for long periods. It might be wise, therefore, to use sulphate resisting cement for the mortar of high buildings in brickwork unless the user is sure that the bricks contain only low amounts of soluble salts.

v. *Thermal insulation:* Where concrete floor slabs are exposed at their edges, there is a distinct possibility of condensation on the slab at the internal junction between floor and ceiling, due to the lower permeability of concrete to water vapour and to its higher thermal conductivity. The use of a strip of insulation of, say, ½ in. foamed polystyrene sheet on the soffit of the slab will avoid this trouble.

* D. Foster, 'Load Bearing Brickwork. (An example of multi-storey construction in Hamburg.) Comparison of permissible stresses.' *The Brick Bulletin*, Vol. 4, No. 10, page 8, December, 1961.

† F. G. Thomas, 'The Strength of Brickwork.' *The Structural Engineer*, 1953, 31 (2), pages 35–46.

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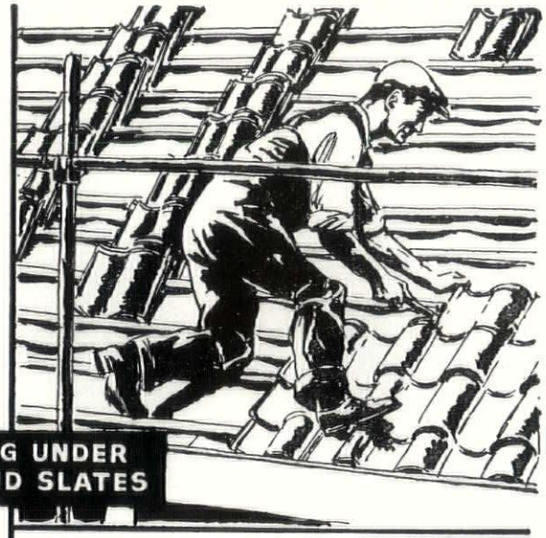

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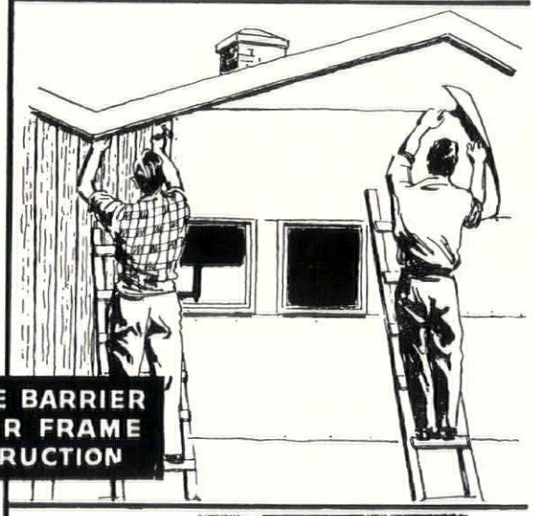
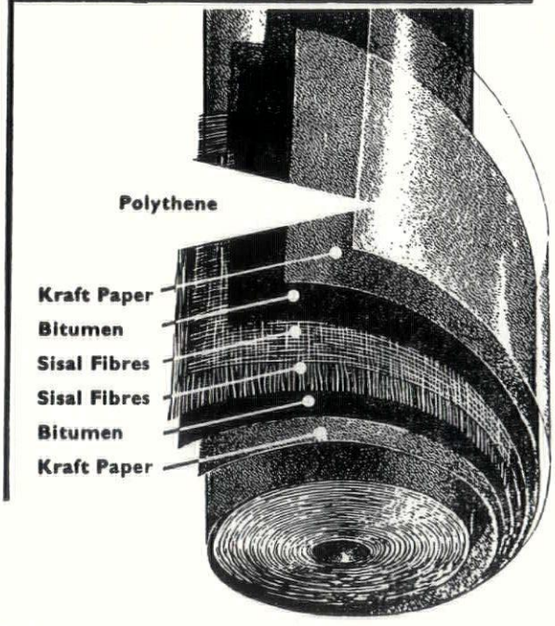


MOISTURE BARRIER IN TIMBER FRAME CONSTRUCTION

APPLICATIONS

Sarking under tiles and slates
Moisture barrier in timber frame construction
Under timber floors
Moisture and air stop in walls
Underlay to concrete
Separation layer between concrete
Curing concrete
Form lining
Protection from frost
Temporary tarpaulin



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THE INDUSTRY*

Office furniture

The 'Skill' articles on Storage for Architects (AR, February and March, 1962) drew attention to the current trend in office furniture that provides a system of interchangeable components.

An interesting range of 'component office furniture' is being developed by Scott Smith Limited. This includes tables, desks, shelving systems and the recently added hat and coat racks. The components consist of steel legs or frames with a timber top and timber pedestal drawer units in the case of tables and desks—steel ladders, timber shelves and cabinets in the case of storage units.

The tables cover a variety of sizes from a low 24 in. by 32 in. occasional table (from £3 14s. to £4 8s. depending on finish) to a 'drafting table' 2 ft. 8 in. by 5 ft. 4 in. by 33 in. high (from £11 19s. to £13 16s. depending on finish). Legs are either round section (vertical, splayed or splayed and braced) or square section (individual legs or complete supporting frame). Metal work is finished in matt black, white or light, medium or dark grey. The table tops, ¾ in. thick, are finished in either mahogany or teak veneer, Formica or moss green Everflex. Pedestal drawer units of polished beech can be incorporated with the table to form a desk unit. A 32 in. by 48 in. desk-table with one pedestal, 2, costs £21 11s., a 32 in. by 96 in. desk with four pedestals costs £57 4s., whereas a double elephant plan chest adapting the same system costs £35 11s. A basic table unit 48 in. by 24 in. (£6 15s.) can be made up with extension tables into a variety of patterns to form a 2 ft. modular office table system.

The shelving system consists of metal ladders and timber shelves. The ladders, 8 in., 12 in. or 18 in. wide, can either be fixed to a wall to form a bracket or, by means of either metal ties or a braced slatted timber screen, they can form a self-supporting unit. Either shelves or cabinets can be set into this system. A 64 in. high by 72 in. wide double sided island unit with polished ramin slatted bracing screen, 36 in. combined cork fascias and top covers and sixteen shelves costs £34 18s. (plus tax).

The hat and coat rack is constructed of 1 in. square steel tube supports 6 ft. with a 4 in. by 1 in. obeche top rail with hat and coat hooks, and 12 in. by 1 in. centre rail on to which an umbrella holder can be fitted. A mirror and shelf can also be incorporated in the system. An arrangement 6 ft. 0 in. wide and 6 ft. 0 in. tall costs £22 16s. (plus tax).

Scott Smith Limited, 55 Victoria Road, Deal, Kent.

White paint that stays white

Everyone knows the difficulty of using white paint. Even the best of them so quickly turn creamy or even yellow after a short time, particularly in town atmospheres. Much has been written on causes and many attempts have been made by manufacturers to solve the problems. Basically the difficulty lies in combining the best pigment with a suitable medium.

Research soon produced the titanium oxide pigment, a usable material with the least liability to chemical attack and the production of staining compounds. The medium, however, proved a tougher nut to crack. Linseed oil, the traditional material, suffers badly from yellowing with age and most of the others seem to be affected to a greater or lesser extent.

This was the point at which A. Sanderson & Co. Ltd., of Hull, began their research, culminating in their recent announcement of 'Kingston Stawhite' paint. It is claimed that, not only does it stay white under normal conditions, but also under extreme conditions of polluted atmospheres, darkness, high temperatures, boiling water and fumes. It dries quickly and forms an extremely hard surface, at the same time retaining adhesion and flexibility to withstand scuffs and knocks. On most surfaces it is recommended that the special undercoat should be used and cleaning of brushes should not be by white spirit or turpentine.

Further information and details of tests can be obtained from the manufacturers.

A. Sanderson & Co. Ltd., Kingston Paintworks, Hull, Yorkshire.

Hospital lighting

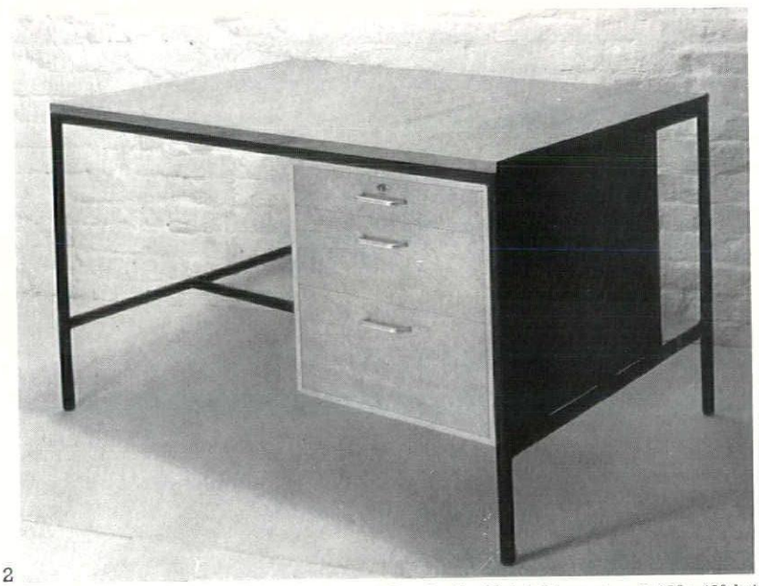
It is something of a relief, in the field of light fittings, to find ingenuity being spent, not on 'styling' but on providing for those many specialized functions which we now are beginning to discern. Schools have long had their own specialized lighting fittings and very good they are. Now attention is being turned on hospitals and the fine display of prototypes which Falks showed at the Building Exhibition serves to remind us how diverse requirements are. For the hospital bed there were two fittings. One was a low-level wall fitting designed for building in. Provided with a perspex visor, the light source is completely screened from all positions above the horizontal. Price (excluding purchase tax) is £3 0s. 4d. Another model for lighting a ward bed was a bracket lamp, designed so that the light source could not only be swung through a semi-circular arc but could also be tilted. Price is about £6. For general ward lighting the objective was to avoid all glare but also to avoid any surfaces on which dust could settle. These were achieved by the use of three concentric aluminium louvres each vertically set. The price for the model shown is £9 4s. 4d. (excluding purchase tax). As operating theatres have to be hosed down, the solution here was to use a fully enclosed fitting (whether recessed or not) with a water tight gasket, and, of course, armour plate glass to withstand the intense heat. List price, £8 17s.

Falk Stadelmann & Co. Ltd., 91 Farringdon Road, E.C.1. Holborn 7654.

[continued on page 374

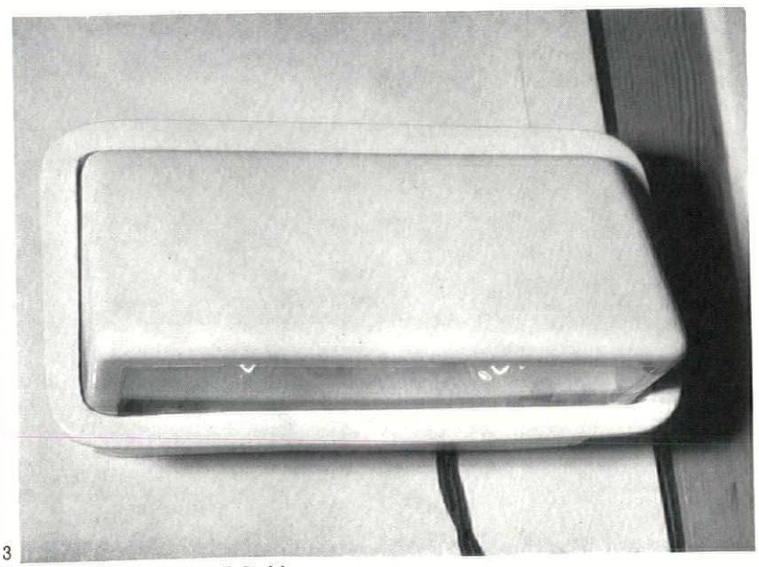


1



2

Two pieces of office furniture by Scott Smith Limited: 1, double-sided shelving system; 2, 32" × 48" desk table with pedestal.

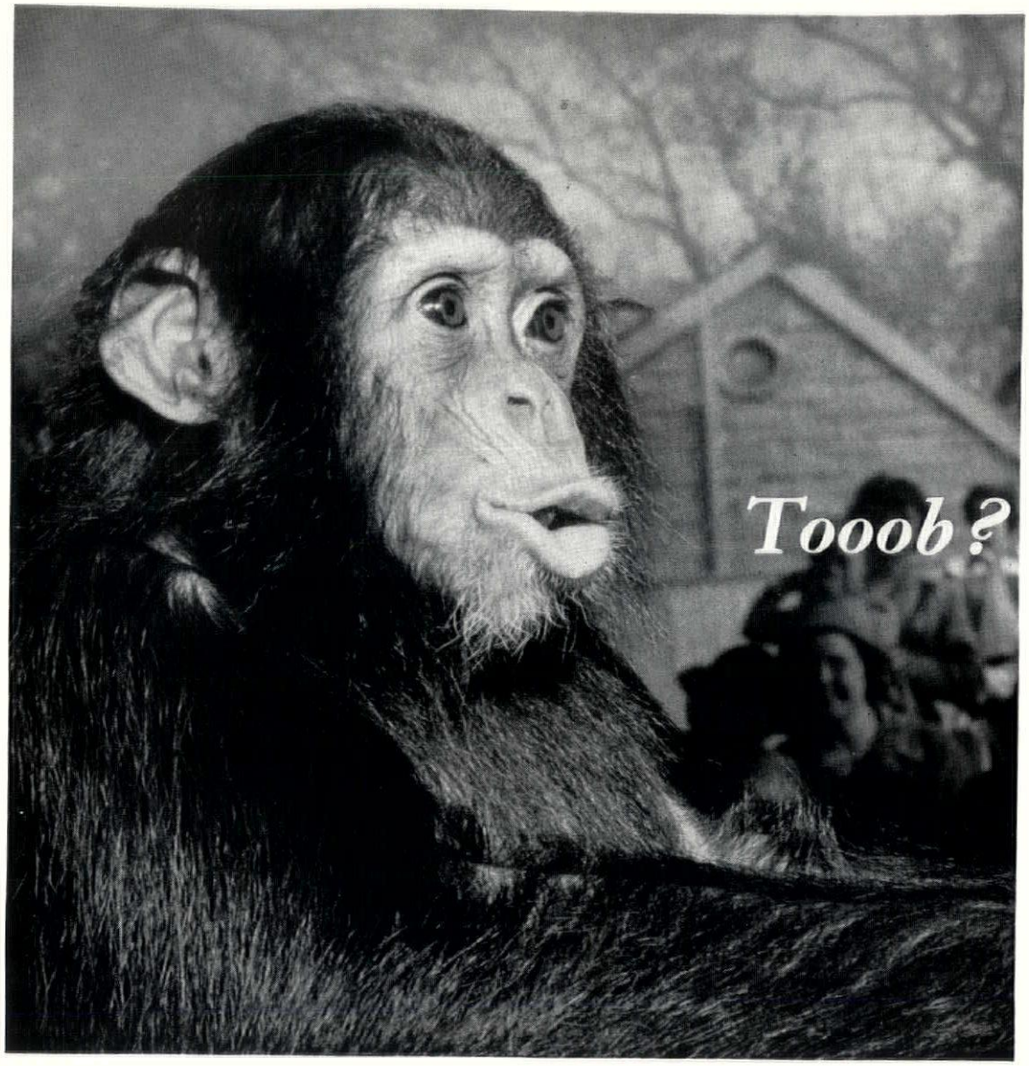


3

3, low-level bed light by Falk Stadelmann.

* Further information on the products, etc., referred to in these notes can be obtained by making use of the reply-paid Enquiry Service Form which is printed on coloured paper at the back of each copy of the AR.

SfB (60)



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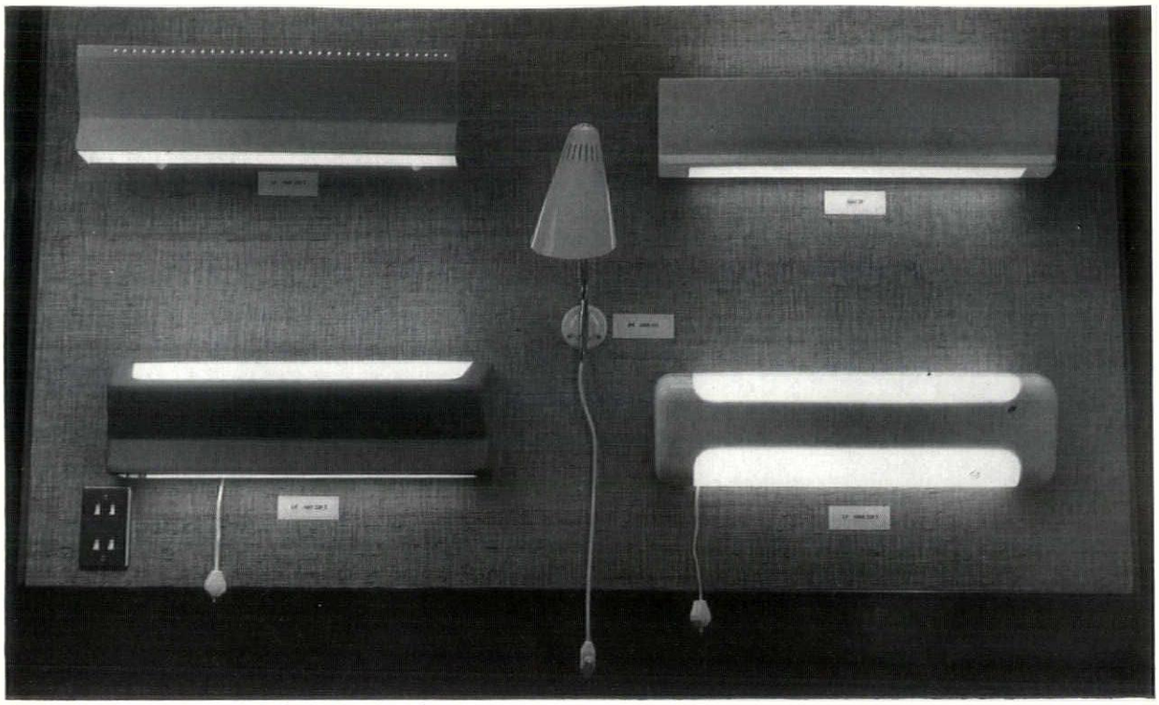


4, part of the range of over-bed lights by Stanley Cox Ltd.

continued from page 372]

More new hospital light fittings

With the glowing interest in hospital building fanned almost to a blaze by the MOH Ten Year Plan, several organizations are actively studying their products in relation to this specialist field. Not least amongst these are manufacturers of light fittings. The recently revised IES Code has also added momentum to thoughts on development. Almost every week another manufacturer produces something new, more efficient, easier to maintain and very often of better design. The trend is a happy one and to be encouraged.

Among announcements of this type received recently is one from Stanley Cox Ltd. who have opened a new division specializing in hospital lighting and marketing a new range of fluorescent fittings with vacuum formed perspex diffusers. These are dustproof, insect-proof, in some cases flameproof and in others moisture-proof, an impressive array of -proofs. They also claim to reduce maintenance to a minimum.

The type of construction allows the formation of slim, clean, shallow fittings and a high light transmission value for the diffuser is claimed. The material has also been used in forming a range of fluorescent bed-head fittings. Part of this range is shown in 4.

Stanley Cox Ltd., Electrin House, 93–97 New Cavendish Street, London, W.1

Timber engineering

Many architects are aware of the possibilities of structures engineered in timber particularly lamination work, but principles related to actual data are often difficult to find. To meet this need and to up-date their data sheets, H. Newsum, Sons & Co. Ltd. have reissued several sheets dealing with Trofdek, Glulam beams and columns and general data sheets on stress graded timber beams and on weights and insulation calculations. All the sheets are A4, prepunched and, apart from the insulation sheet, preclassified in accordance with RIBA recommendations. Another minor point of definite interest to those of us keen on checking the topicality of reference data is the printing under the reference block of the month and year of publication—a recommendation not often observed by manufacturers. Altogether these are to be highly commended for a clear concise exposition of strictly technical information without frills and are highly deserving of filing space with any information conscious architect.

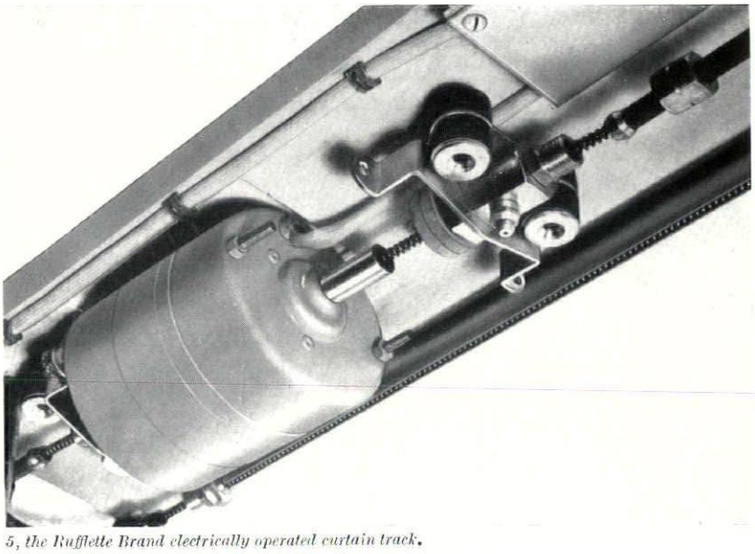
H. Newsum, Sons & Co. Ltd., Carr Lane, Gainsborough, Lincs.

Electrically operated curtains

For those positions where curtain control by the touch of a button is a useful attribute or a client requirement, Thomas French and Sons Limited are now marketing the Rufflette Brand electrically operated curtain track. The system operates on an electric motor suitable for normal 220/240v. AC supply with runner rail, driving cable, master runners and limit switches. The entire mechanism is carried on an appropriately dimensioned headboard forming part of the pelmet fixture. The recommended maximum weight of curtains for one motor is 66 lb.

The whole unit forms a very neat compact whole and is a useful addition to the already wide Rufflette range of curtain equipment, though obviously of rather specialist interest.

Thomas French and Sons Limited, Chester Road, Manchester, 15.



5, the Rufflette Brand electrically operated curtain track.

CONTRACTORS etc

School at Basildon, Essex. *Architects:* Yorke, Rosenberg and Mardall. *General contractor:* Thomas Bates & Son Ltd. *Sub-contractors: Heating:* Coleman & Hoskings Ltd. *Swimming pool:* United Filters & Engineering Ltd.; Clark Hunt & Co. *Flooring:* Marley Tile Co.; Jos. F. Ebner (1953) Ltd. *Quarry tile floors:* Dennis Ruabon Ltd. *Asphalt roofs:* The Excel Asphalte Co. *R.c. rooflights:* Luxfer Ltd. *Furniture and fittings:* North of England School Furnishing Co. *Laminated timber beams:* Rainham Timber Engineering Co. *Ironmongery:* Alfred G. Roberts Ltd. *Flush doors:* John Sadd Ltd. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Stage lighting:* F. J. Furse & Co. *Paints:* Screetons Ltd. *Fencing and gates:* Bayliss, Jones & Bayliss Ltd.

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Hairdressing Salon in North Audley Street. *Architects:* Gordon and Ursula Bowyer. *General contractor:* R. Mansell Ltd. *Sub-contractors: Shopfitting:* Economic Shopfitters Ltd. *Plenum installation:* Rosser & Russell Ltd. *Terrazzo flooring:* London Mosaics Ltd. *Blinds:* Venetian Blinds Ltd. *Sanitary fittings:* John Bolding & Sons Ltd.

Meteorological Offices, Bracknell. *Architects:* Ministry of Works. *General contractor:* W. E. Chivers & Sons Ltd. *Sub-contractors: Cell concrete roof insulation:* Celcon Ltd. *Rolling shutters:* Haskins Ltd. *Heating, ventilation and hot water services:* G. N. Haden & Sons Ltd. *Oak and Burma teak flooring:* Horsley Smith & Co. *Foundation stone, Portland stone and Ashburton wall facing:* Walter W. Jenkins & Co. *Floor tiling:* Marley Tile Co. *Metal windows:* Mellowes & Co. *Insulation:* Newall's Insulation Co. *Bituminous built-up felt roofing:* Pilkington's Asphalte Co. *Paving:* Prodorite Ltd. *Planting:* William Wood & Son Ltd. *Lifts:* Express Lift Co. *Refrigeration:* Lightfoot Engineering Ltd. *Tip-up seating:* Cox & Co. *Library tower, book stack:* G. A. Harvey & Co. *Library fittings:* Chas. Hearson & Son Ltd. *Rubber flooring:* Rubberware Ltd. *Venetian blinds:* Venetian Vogue Ltd.

Training Centre for British European Airways, Heston. *Architect:* R. S. Harvey (staff architect, BEA). *General contractors:* Holland & Hannen and Cubitts (Great Britain) Ltd. *Sub-contractors: Curtain walling and metal windows:* Williams & Williams. *Joinery suppliers:* Young & Partners (Joinery Manufacturers) Ltd. *Heating and ventilation:* Benham & Sons Ltd. *Lifts:* J. & E. Hall Ltd. *Terrazzo finish:* Alpha Mosaic & Terrazzo Co.

Magistrates' Court, Buckingham. *Architect:* F. B. Pooley (Buckinghamshire County Architect). *General contractor:* W. & A. Collisson. *Sub-contractors: Metal windows:* Rea Metal Windows Ltd. *Marble wall linings:* Nine Elms Stone Masonry Works Ltd. *Entrance Doors:* Webster & Cannon Ltd. *Suspended ceiling:* Gyproc Products Ltd. *Joinery:* Hammond & Co. *Light fittings:* Merchant Adventurers of London Ltd. *Furniture:* George Stone (Furniture) Ltd., V. Robinson & Son Ltd., C. L. Turner Ltd. *Lettering in marble:* The Lettering Centre.

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Application for forms should reach him not later than 18th May.

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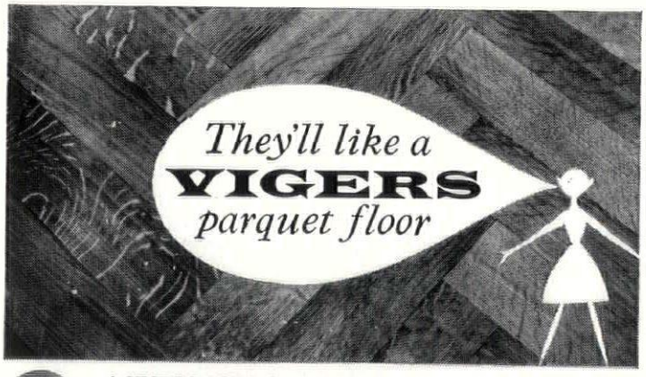

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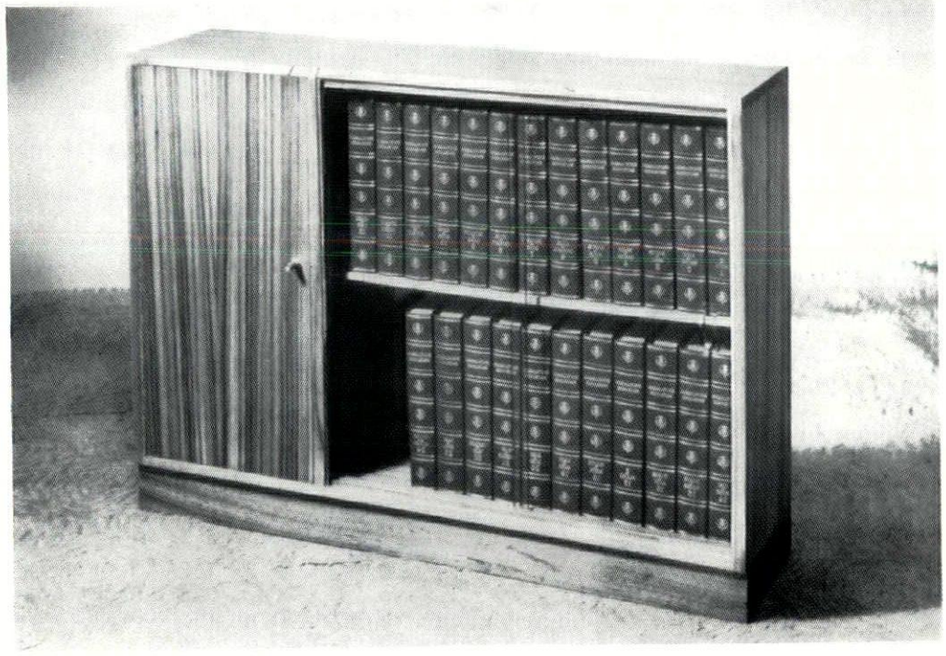
Wright Anderson & Co. Ltd.	30
Yorkshire Imperial Metals Ltd.	43



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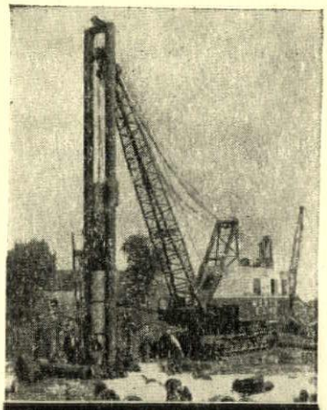

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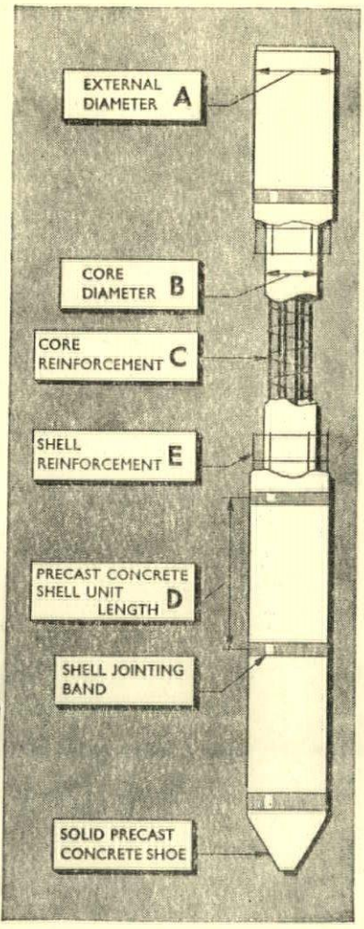

PILE DATA

To be read in conjunction with sectional drawing.

Ext. Dia. "A"	*Core Dia. "B"*	*Core Reinforcement "C"*	*Shell Length "D"*	*Shell Reinforcement "E"*	*Loading (Tons)*
24″	19″	In accordance with design requirements	3′ 0″	Mesh reinforcement	100-200
20″/21″	15″		3′ 0″		75-120
17½″	12″		3′ 0″		50-80
14½/15′	10⅞″		3′ 0″	6 vertical bars 7-12 rings	Up to 60

The core reinforcement "C" is varied to suit the load on the pile.

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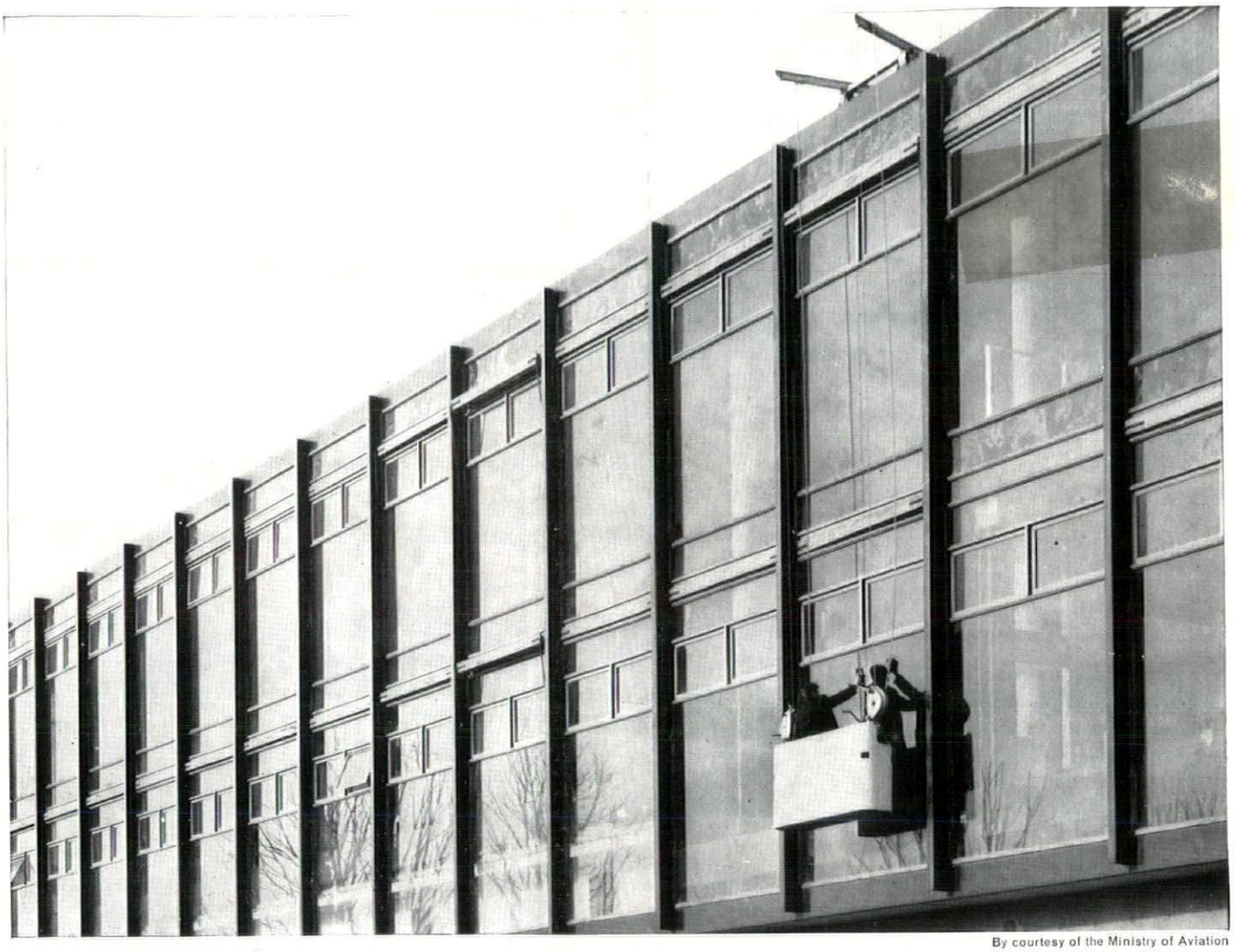

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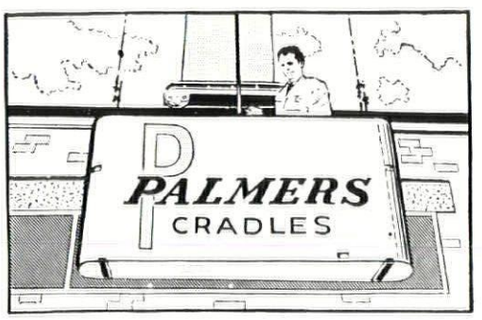

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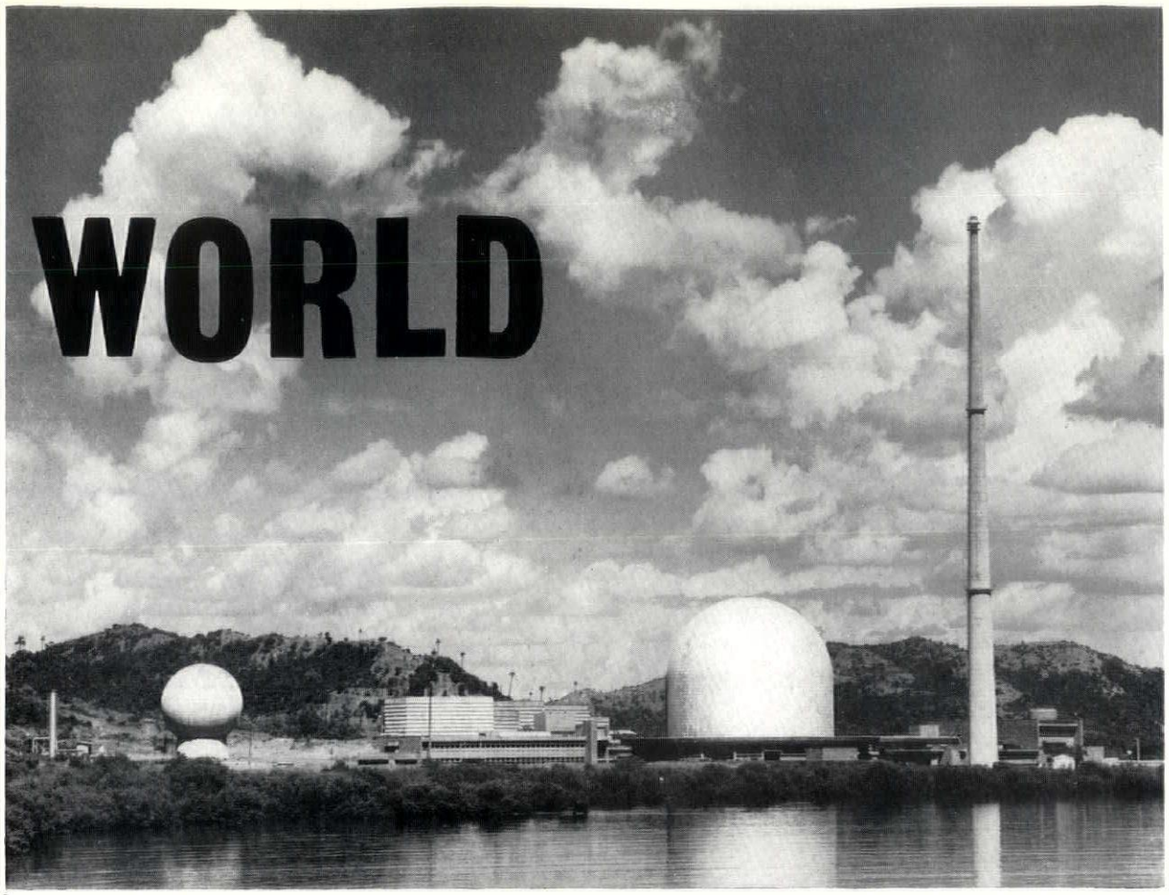


1

ATOMS FOR INDIA

Pioneer research Reactor

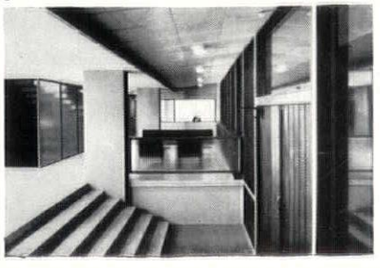
Gratuitous visual mistakes notwithstanding, atomic architecture usually contrives to possess something of the heroic scale and honest technological dignity proper to a major human adventure, as if the grandeur of the theme, the magnitude of the risks, the enormity of the threat or promise for mankind, had somehow managed to rub off, even on the pettiest of the specialist minds employed. India's first atomic research establishment, at Trombay, 1, stands well above this minimum of achievement, however. By the time the scheme is completed, under the direction of various engineers and architects, including V. Patel, of India, and Luigi Calini, of Rome station fame, it will include research laboratories (still to be built), engineering laboratories, centre in 1, concrete water-tower left, the main reactor installation under an aluminium-clad dome, a 300-odd foot chimney, ancillary buildings and a discharge jetty running some way out into the ocean. Quite apart from the generally excellent quality of the design, the water-tower clearly deserves a place in any anthology of recent formal inventions in this field.



2

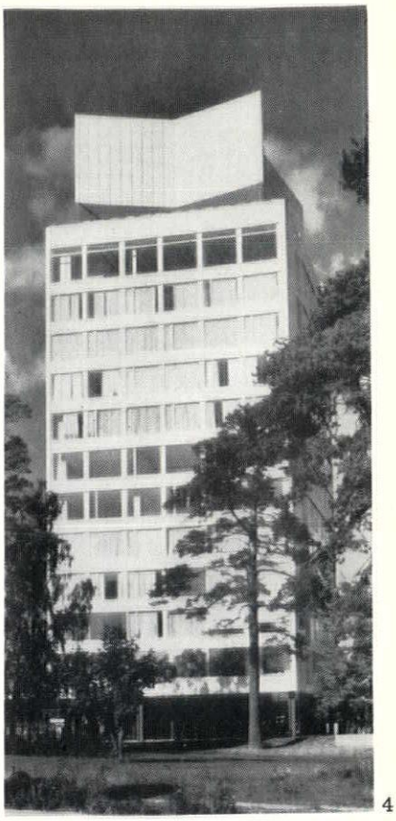
COOL, BEAUTIFUL

3



Civic and Military in Finland

In an issue graced by a number of cool and beautiful buildings, such as the annexe to the Guards' Barracks in Helsinki, 2, 3, by Revell and Castren, the Finnish magazine *ARK* recently (12, 1961) published the remarkable



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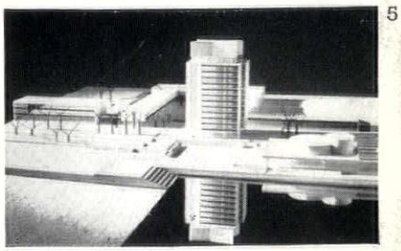
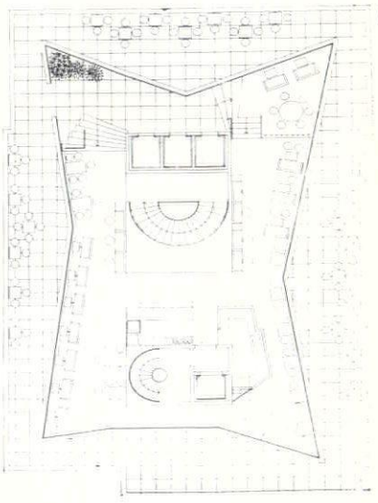


5

Tapiola Centre tower, 4, by Aarne Ervi. This office tower forms part of a long-range scheme for central-area development, 5, in the garden city of Tapiola, now with over 10,000 inhabitants and a target population of 16,000. As is so often the case with Ervi's work, the effect of the building, though undoubtedly Finnish, evokes a flavour of something un-Finnish at the same time—and in this case it can be focused, unmistakably, in the remarkable roof-structure, whose plan is given in 6. Effectively, this four-cornered hat provides a machinery room, in its central core, but



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Finland

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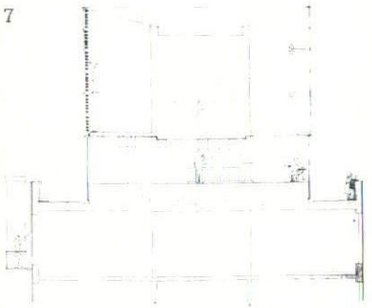


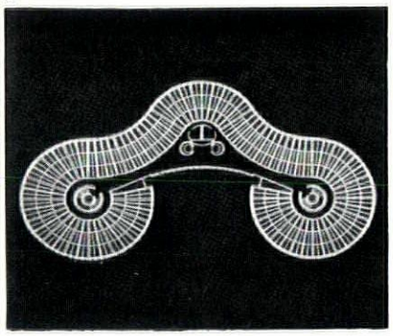
this is elevated one full storey above roof-level in order to provide a clear floor and terrace for a viewing-restaurant. Above this, the polygonal outer skin provides the necessary rack-work and battens for illuminated advertising displays, all these various functions being shown in 7. Although the tower is not exceptionally tall for buildings of its class (twelve main floors) the striking form of the roof-structure by day and its illuminations by night should provide a very effective skymarker, visible over the surrounding trees, for the shopping centre clustered round its base.

TROUBLED COAST

Documents on the New England scene

Those who feel obliged to keep up with the present developments on 'the Academic Coast' of New England can now address themselves to two recent publications that may shed some light. One takes us straight to the heart of the alleged 'trouble'—Philadelphia—and consists of a seventy-page, large-format record of the exhibition staged by the architecture school, University of Pennsylvania, at the time of the AIA congress in Philadelphia, 1960. Those who expect a saturnalia of Beaux-Arts formalism will be disappointed, those who are content merely to mark down sinister Beaux-Arts influences will find plenty to be holier-than-thou about—for instance, Robert Geddes's Police Administration building, 8, for Philadelphia. Professor Kahn emerges, needless to say, head and shoulders above everybody else, on whatever scale of values one judges, but those who like to write off Philadelphia for its 'frivolity' would do well to notice also that the school boasts August Komendant and Robert le Ricolais among those who teach structures, Erwin Gutkind and Ian McHarg among planners.

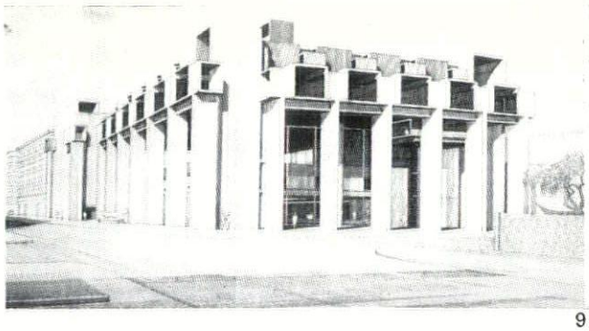
8



The other document touches what is, in some ways, a more sensitive spot—Yale. Whatever new developments may follow the appointment of Serge Chermayeff as Professor there, the Rudolph regime has been a period of outstanding importance for the school, and *Perspecta* 7 will be the last issue of that erratic and symptomatic magazine to have been prepared and published in the Rudolph age. The register of contributors is significant in itself. The first column reads: Philip Johnson, Louis Kahn, Eero Saarinen, John Johansen and, obviously, Paul Rudolph. Apart from the absence of Ulrich Franzen, this pretty neatly sums up the influences and ambitions of the school. The second column raises problems, chiefly about Yale's connections with the real world outside: Sibyl Moholy-Nagy stands for the *donna universale* tradition of speaking up smartly on each new subject that comes along (in this case, the contents of the first column of contributors); James Gowan, for the long range views of an English office admired *de lointain*; Walter McQuade (the Reyner Banham of the New York scene) for an urbane and metropolitan temper that Yale often needs (he has since joined the faculty); Peter Collins for the new erudition north of the Forty-Ninth parallel; and Colin St. John Wilson, of Cambridge (Cambs, not Mass.), for Transatlantic visiting critics generally.

Effectively, what goes on is that the five form-givers in the first column are talking about their own work, and the five critical voices in the second column are talking about exactly the same thing, pulling Johnson, Kahn, Saarinen, Rudolph and even Johansen over the coals of hot criticism. Mrs. Moholy is at her rude and unscrupulous dialectic best, filling in the historical sources of the new men with erudition and occasionally damning effect. This, *grosso modo* is the best literary contribution to this particular *Perspecta*. The two most telling quotes are from Peter Collins 'How justified are we in studying modern architecture as a sequence of premature obituary notices?' and Colin Wilson's corrosive footnote, that demolishes a world-wide fad 'Will "servant-spaces" be the next form of decoration?'

But what makes *Perspecta* 7 valuable, both about Yale and about the situation of US architecture, is that it publishes all six versions of Rudolph's design for the new school of architecture at Yale, 9–14. Whatever may be thought of these individually as architecture, the progress from the fairly diagrammatic first version, 9, which draws a structural screen around its internal complexities,



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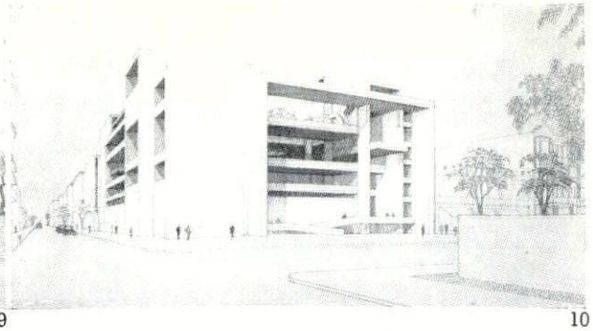

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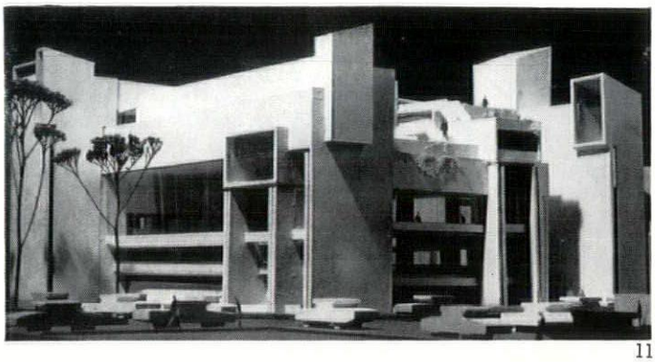

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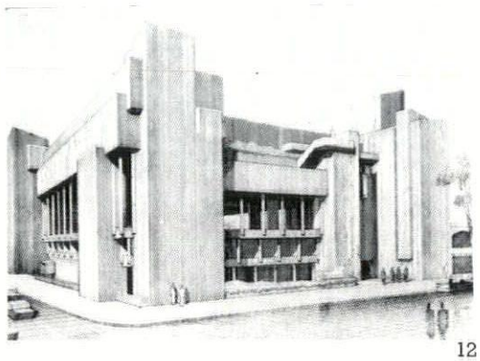

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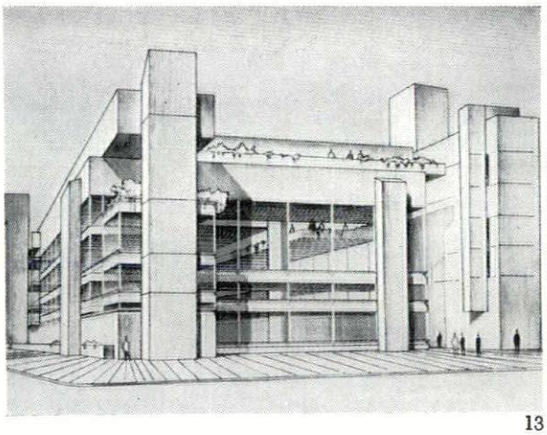

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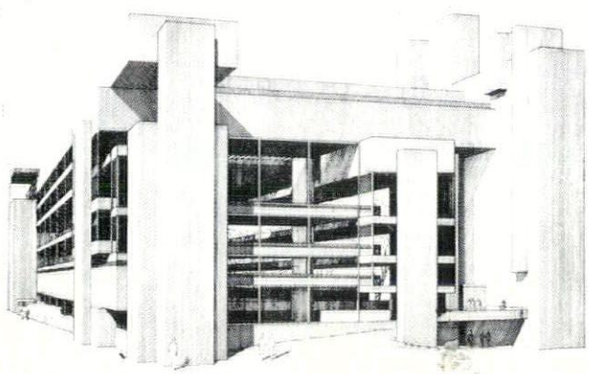

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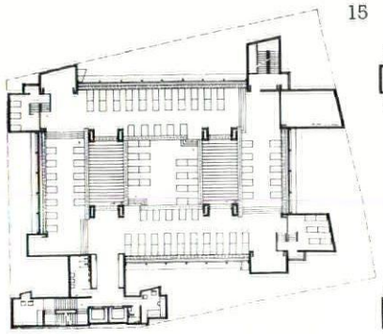

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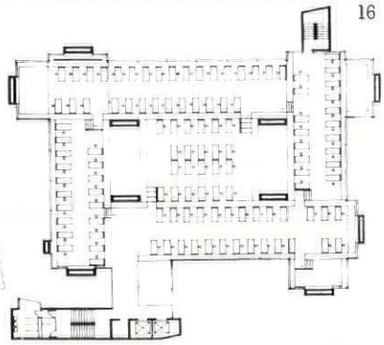

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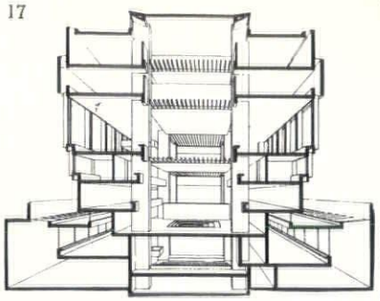

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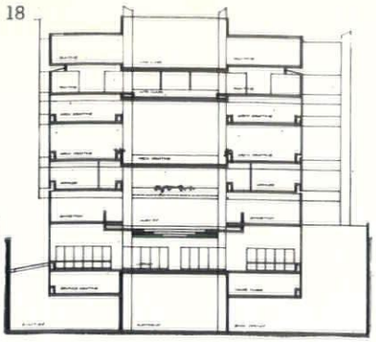
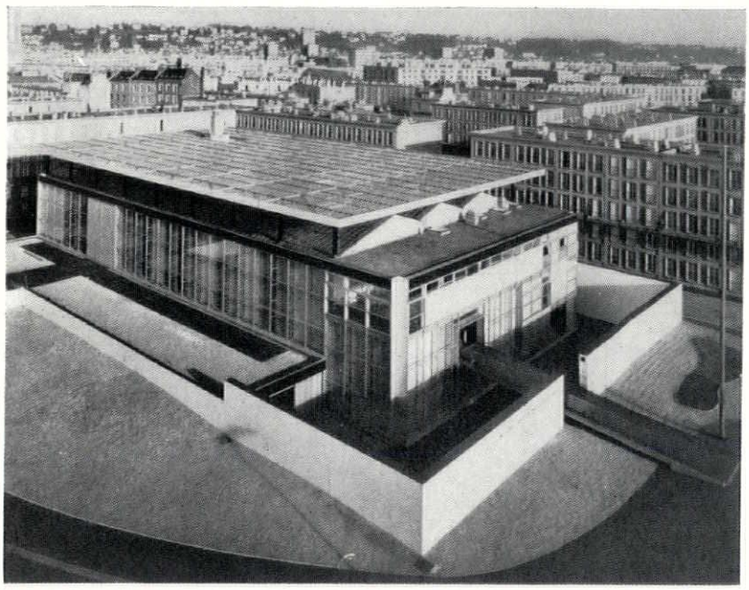


Yale

to the final scheme of 1961, in which the internal complexities force their way to the surface of the building, 14, is as frank a record of a man hard up against a design problem as we shall see committed to print for some time. But what is equally fascinating is to discover how little is at stake from stage 4(12) onwards, planwise. The fifth stage offers only detail refinements over the fourth, 15, 16, but there is some drastic tidying-up of the section, 17, 18, and after that there is very little at stake at all, except what hurts most —the architecture—and it was into this last stage, as far as one can make out, that the real sweat and agony were poured.



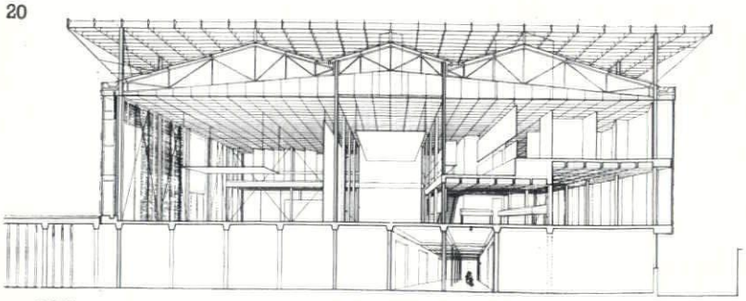
19

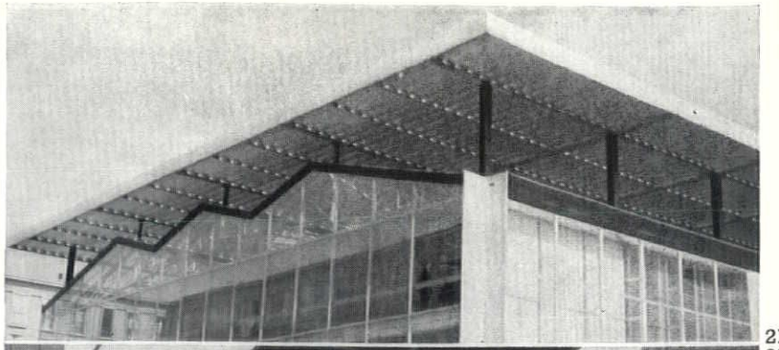
PARALUME AND HYPERBOLOID

Two major French buildings that have failed to make the public impression that might have been expected have appeared in the last twelve months. One is the museum at le Havre, designed by Lagneau and Audigier, with the formidable engineering collaboration of Jean Prouvé and René Sarger. This scheme, which has now attained a degree of notice, through winning the 1962 Reynolds award calls for a rectangular exhibition building set in a pool, 19, which is partly decked over. A massive, offlying abstract sculpture by Adam serves as a street-marker on the Boulevard Clemenceau, and the whole is sheltered under a double roof, seen in the excellent section, 20, published by *l'Architecture Francaise* (January-February, 1962), consisting of a complex three-crested truss, which is glazed, and—above it—a horizontal *brise-soleil* of aluminium, 21, punningly called a *Paralume*. However, none of this complexity is visible within, being hidden by an all-over suspended ceiling, 22, below which subsidiary space-regulating and light controlling ceilings can be suspended where necessary (see section, 20). At a time when museological opinion seems to be leaning in the opposite direction (towards irregular spaces and irrational lighting) the Musée du Havre punches across the image of the fully-adjustable Rationalists' box of light, whose main architectural features are the gigantic areas of glazing controlled by Venetian blinds, 23.

The other building in question is now scheduled to cease to be French in the near future, if it does not cease to exist altogether, thanks to the OAS and their plastic bombs. The new *Basilique d'Alger*, 24, should resist such unnatural weathering, however,

20





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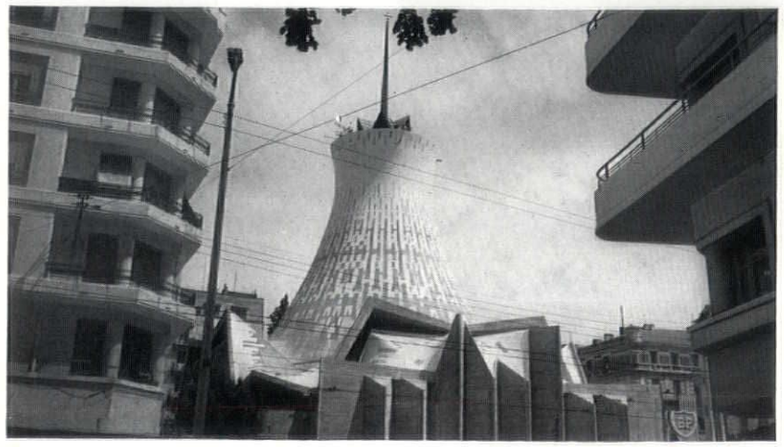
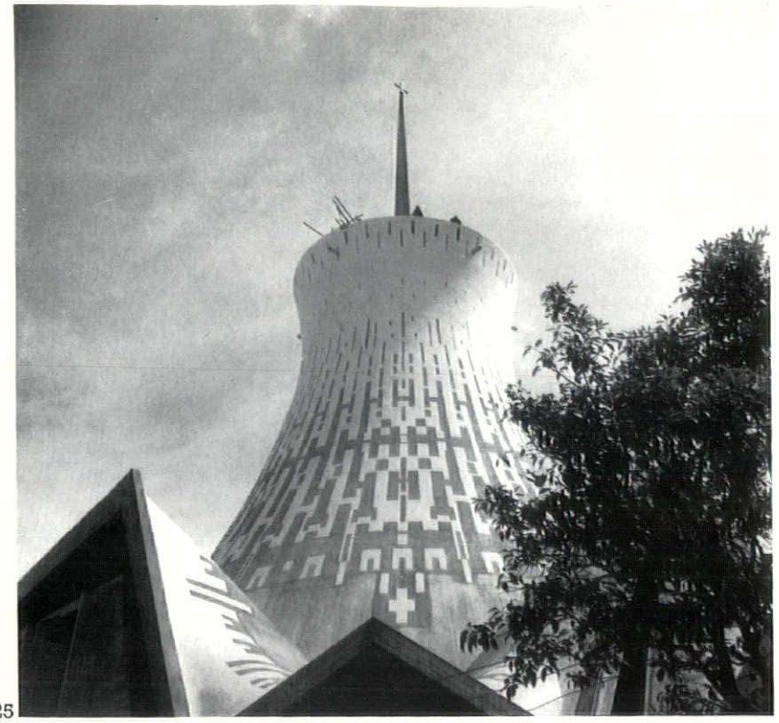
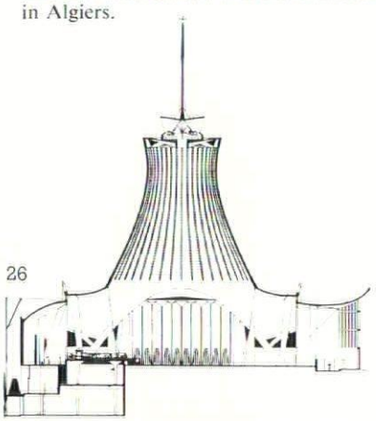




25

Algiers

since its basic form is that of the inherently strong cooling-tower, 25, hyperboloid of rotation—a point made even more clear by the section, 26. The architects, Herbe and Le Couteur, with the redoubtable Sarger once more, have balanced this unlikely tower above a crossing of warped pendentives and staggered concrete legs, but all this has very little effect on the plan, which might conceivably have been roofed in some other way, though the exterior boasts some strong beton-brutish details, such as rainspouts, 27. Whatever one may think of this as architecture—and it is worth study that goes beyond surface gimmickry—it would seem to be a 'Natural' for the popular press, and no doubt will become so when there are fewer distractions from architecture in Algiers.



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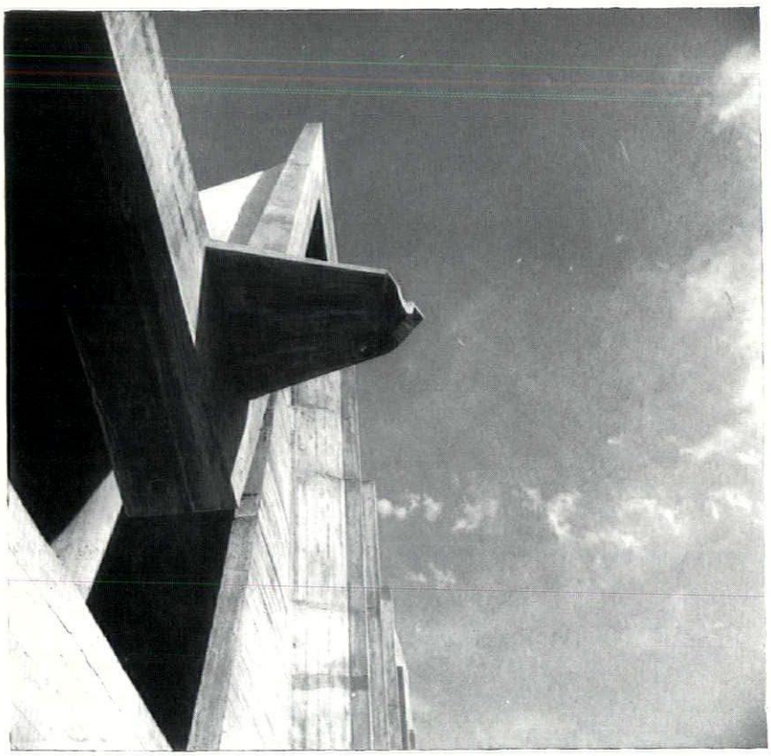

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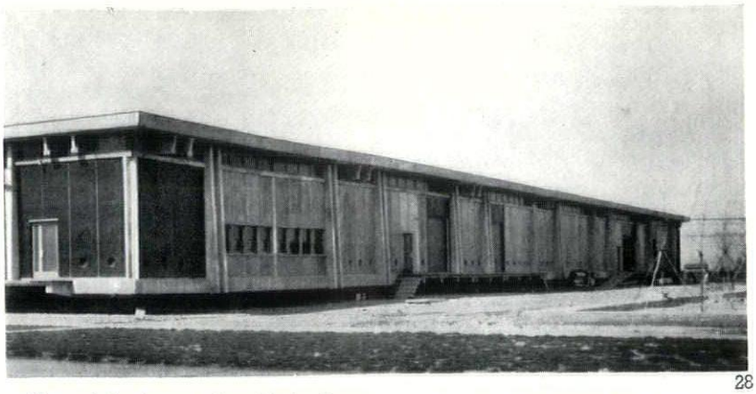

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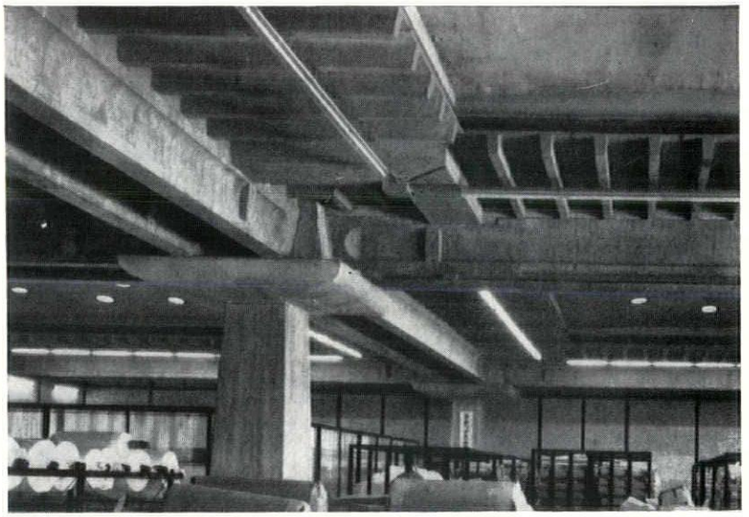
EASTERN DORIC

The weird mixture of sophistication and conscious primitivism that makes Japanese concrete-work so irresistibly fascinating to many European architects reaches an almost Doric exuberance in the new factory for the Nihon company, 28, designed by Ichira Ebihara and Associates. The Doric comparison is enforced by the form and type of the intermediate columns that support the domes crowning the central workspace, 29,



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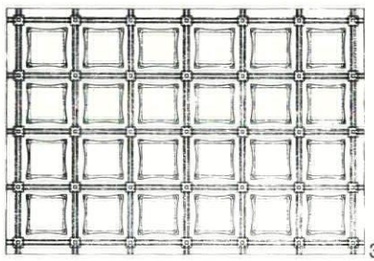
but the relationship of these columns and the massive beam structure they support does not result in anything like the visible logic of exterior treatment that has always made Doric a byword for unshakable rationality in Europe. Since the column grid stands well inside the limits of the outer skin of the building (see plan, 30) all that appears on the outside are the ends of the twinned beams carried by each row of columns, and these beam ends mock, rather than mimic, the functional origins of the Doric triglyph, 31. But, as will be observed, these 'diglyphs' emerge between pairs of battered vertical supports that are no kind of Doric, and do not immediately explain themselves as part of any obvious structural system. In practice, they seem to function as corner supports for roofing members that are elsewhere picked up by the corners of the dome structures, with which they are aligned on plan, and the fact that the whole of the exterior section of the building outside the last run of columns is cantilevered clear of the ground, doubtless introduces supporting problems, but even so one cannot help wondering if these particular members are not, in Sir Christopher Wren's words, 'rather ornamental, than essential' to the structure as a whole.



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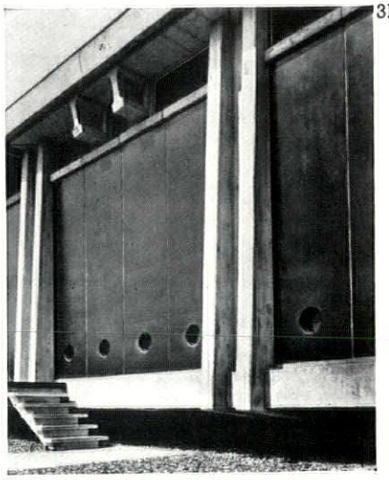


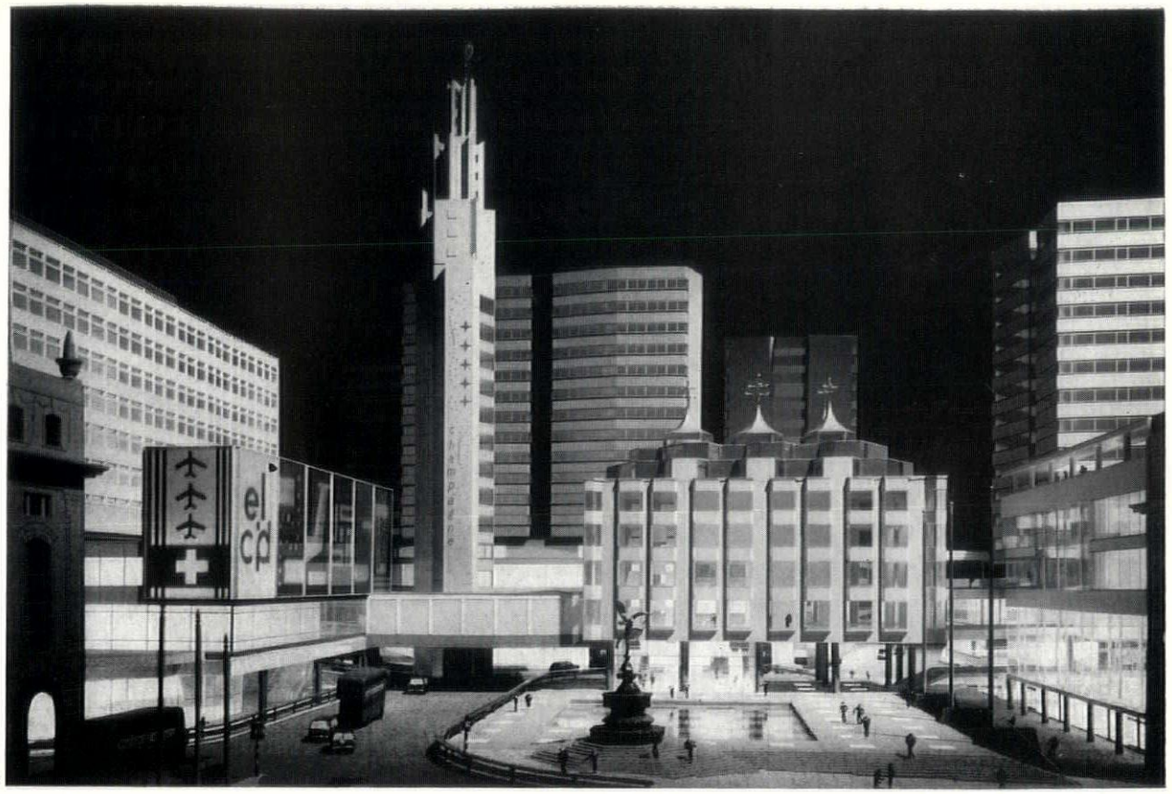
31

views and reviews

MARGINALIA

LIVERPOOL ROADS

The welcome appointment of Graeme Shankland as consultant to undertake a study of the highway planning of Liverpool has resulted already in a first report, dated March, 1962, whose aim is to establish certain broad principles of action and to secure the city council's approval for them. The peculiar qualities of Liverpool's topography and its communication network provide the opportunity for highly imaginative planning, and it will be noted that the basic Shankland map contains both precise immediate proposals for restricting some streets (dotted on 1) to pedestrian circulation only, the designation of the densest central areas (shaded or hatched) for intensive study of methods of traffic segregation, and a ring-road on a grand scale (though not precisely routed as yet) encompassing the central business area and the adjoining university/hospitals area in two generously broad loops that are in promising contrast to the timidity of the previous inner-ring proposals (small dots in 1) which did not include even the main railway terminals in the central area.



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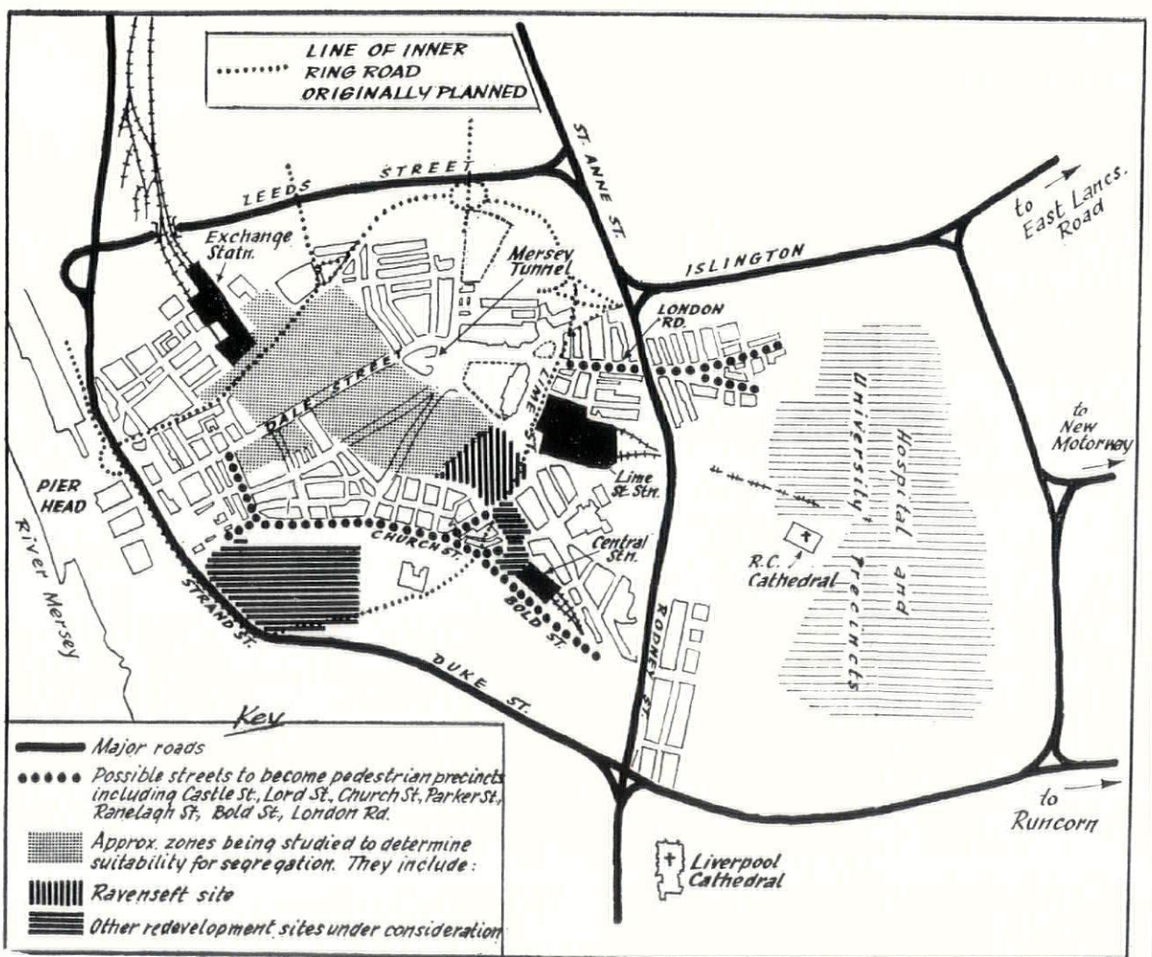
PICCADILLY: FINAL VERSION. In April, one phase of the troubled history of the replanning of Piccadilly Circus was concluded with the public presentation of Sir William Holford's final scheme—though it should be remembered that the detailed forms of the new buildings shown here are purely notional as yet, and what the developers ultimately put up may be different. In this view, 2, looking east with the County Fire Office on the left, the new advertising display screen on the Monico site comes next, then the pedestrian bridge and the proposed 'campanile', with hotel towers beyond. A free-standing block on stilts and the new Criterion Theatre block frame a pedestrian piazza containing the Eros monument. Although there is less in the way of upper-level pedestrian circulation than in the intermediate scheme, the pedestrian still has a greater share in the life of the Circus than those who want to turn it into a mere traffic intersection would have allowed them.



1, *Graeme Shankland's proposals for traffic-planning in Liverpool.*

SHEERNESS BOAT STORE

Professor Skempton's fullest account to date of the Boat Store in the naval dockyard at Sheerness is now available as a reprinted excerpt from the *Transactions of the Newcomen Society*. Readers of the AR, who first encountered the Boat Store in these pages as an ancestor of curtain-walling (*Machine-made America*, May, 1957) will recall that it later proved to be vastly more important as an ancestor of *wholly* metal-framed structures, and it was on this aspect that Professor Skempton and Eric de Maré, the rediscoverer of the Boat Store, made their joint report in the *RIBA Journal* for June, 1961, although points from the Newcomen paper had been printed in the AR (*Marginalia*, May, 1960) as soon as the crucial importance of the structure had been established.* What is crucial, of course, is the fact that the building was completed and final accounts rendered in 1860. It is thus the oldest surviving building with an entirely metal frame, the earliest known building with H-section columns and —whatever buildings no longer existing may dispute its structural claims— unmistakably a forerunner of the aesthetic of metal framing that grew up a century later, which none of its contemporaries and predecessors could claim to be. All this is set out in Professor Skempton's paper, but of equal interest is the very full account he is able to give (from Admiralty papers) of the design and construction of the

* The building was also illustrated in the special Functional Tradition issue of the AR (July, 1957) and in the book based on this issue and edited by J. M. Richards: *The Functional Tradition in Early Industrial Buildings* (Architectural Press, 1958.)

store, and of the life and works of its designer, Colonel Godfrey Greene.

DESIGN AWARDS 1962

Despite the fact that the jury were allowed to range over a deeper period of time than is usually the case, and made at least one award to a product designed as far back as 1955 (Robin Day's BR settee, 3) the CoID Awards for 1962 were very much the mixture as before. Furnishing fabrics and wall-coverings, including no fewer than thirteen patterns by Miki Sekers which earned him the Duke of Edinburgh's Elegance award, were proportionately more abundant than ever, and kept the judges deep in the jungle of taste and fashion, rather than the area of functional testing which was expected to be the keynote after the Duke's fighting speech in 1961. However, the results of quality and functional checks were taken into account this year, though they were of marginal, rather than fundamental importance in the case of the bulk of products selected, and the stringency and scientific control of the tests seemed to vary considerably.

However, the 1962 Awards produced one winner that is really in a different league to all previous winners, and appears to have got into the lists on its functional qualities rather than its aesthetics. The normally intensive scrutiny of style would surely have rejected the SME Precision pick-up arm, 4, for the 'inconsistency' of mating the obvious 'styling,' complete with Vauxhall flashes, of the pick-up head, with the elementary geometrical 'functionalism' of the arm, the counterweight, mounting, etc. May one suppose that this functionally superlative instrument, designed by A. Robertson-Aickmann and W. J. Watkinson, appears among the winners because there was an ergonomist—Brian Shackel—among the designers and design-fanciers who made up the rest of the panel?

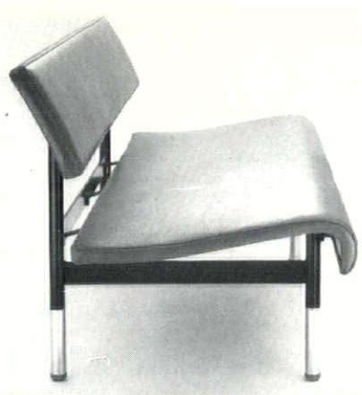
SOUTH BARBICAN

In Graeme Shankland's article on the South Barbican development (AR March 1962) the second tower block should have been described throughout as St. Alphage House (not *Alphege*). The architects of St. Alphage House, Maurice Sanders and Partners, also state that the aluminium framed sash-windows which they employed give a cladding that is, in fact, slightly cheaper than that employed on Moor House.

OBITUARY

JACQUES GROAG

Jacques Groag, who died early this year, was born in 1892. He studied in Vienna and there for a time worked with Adolf Loos. Later he set up on his own and built town and country houses. He was as skilful at architecture as at the design of furnishings. He was also uncommonly sensitive in the laying out of gardens. All this can be seen in houses like 5, published in THE ARCHITECTURAL REVIEW (Vol. 95) in 1944, after Jacques Groag had left Austria and settled down in England.



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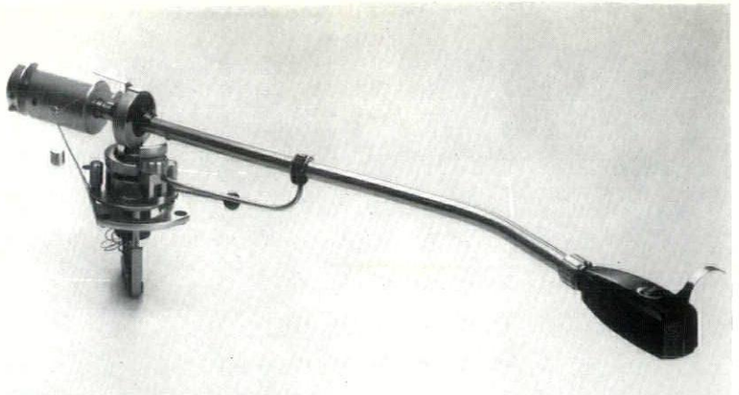
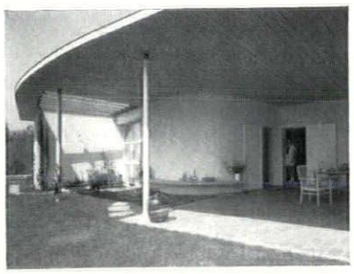


4

He worked for a while for John Lewis's and then for Sir Gordon Russell at the Board of Trade, at the time when utility furniture was being developed.

After the war not enough use was made of his talents. He designed for Britain Can Make It and the Festival of Britain, and also stands for other exhibitions and such-like minor and ephemeral pieces. Architectural practice is a tougher job in England than in Austria, and Jacques Groag was too gentle, perhaps also too exacting, to make a success of it. How brilliantly



5, house in the Beskid Hills, Czechoslovakia, by Jacques Groag.

he could have done, if the right kind of work had been entrusted to him, can be seen from his imaginative design for the laying out of the bombed site of St. Anne, Soho, undertaken on behalf of THE ARCHITECTURAL REVIEW in 1942.

N. Pevsner

BOOK REVIEWS

CLASSIC GARDENS

ITALIAN GARDENS. *By Georgina Masson. Thames & Hudson*, £4 4s. 0d.

I once heard a friend lament that Magnolia Grandiflora had been discovered in Europe too late to be painted by artists of the Renaissance. The regret was a tribute to the opulence and magnificence of gardens where the great white flowers would have appeared at their best, and the thought has come back to me as I look through these rich photographs, which pick their way from Pallanza in the north of Italy to Pompeii in the south, and from Pliny to the enthusiastic restorers of today. Miss Masson is already known for her excellent book on Italian Villas and Palaces, to which this is a companion volume, dealing as it does with the classic Italian tradition—the garden with no Wordsworthian hankering for natural simplicity about it, but man-made for man, an out-of-door development of architecture, where nature is given a graceful but not exclusive place.

Gardens, like prima-donnas, are evanescent, and it is difficult to re-evoke their magic when once their visible presences have vanished or decayed; and these Italian masterpieces reward their owners, it seems to me, for being kept in repair. An old English garden, overgrown and out-of-hand often acquires a new and unintentional enchantment, as if Nature had suddenly found herself at home. But in the Italian the balance is too exact and too important; neither the architecture nor the landscape can afford to be tilted; if the pleached branches or the trim box is allowed to straggle, or the water spills beyond its marble edging, it clashes like a mistake in scansion or a discord in music and the whole intention of the artist is destroyed. This architectural quality, which reached its supreme magnificence in the Roman gardens, is most remarkable in examples like those of Villa Ruspoli and Muti (plates 114, 113) where the actual vegetation is carved to take on the characteristics of stone.

Pliny, it seems, first speaks in our hearing of 'a great number of geometrical figures outlined in box,' and Vitruvius describes the Roman use of topiary decoration and the fashion for *grotteschi* which he deplored. It was the Romans, one suspects, who did to their gardens what they did to the Greek theatres, putting many cornices and statues in place of the open view (although Miss Masson tells us that statues were late). The Greek city, keeping to the realms of thought, gives us the word *political*, the Roman, whose very meditation is concrete, gives us *urban*. And it is from the Roman garden, an annex to the life of the house—rich or humble as the case may be—but never an escape into wildness, that the later Italian garden developed.

Miss Masson takes us with Augustine in the garden-steps of Plato, through monasteries where 'the cloister evolved from the colonnaded peristyle of the Roman country house' and little rectangular beds held lilies, roses and gladioli among scented herbs, through Monte Cassino when the abbey was rebuilt in 1070 and its gardens described as 'a paradise in the Roman fashion,' into the Middle Ages and their renewal of prosperity, through the arrival of oranges and lemons from Arab palaces in Sicily, to the stupendously rich and varied climax of the Renaissance.

There, in its rich profusion, every district in Italy developed a character and a beauty of its own. Miss Masson and her publishers, who have produced this book with their usual excellence, have done what they could: but no single volume can contain the subject, and we are left to hope that another volume on every one of these single provinces may follow; this one being like those modern cruises that are just able to show the intending traveller which are the countries he would like to visit more completely later on.

Meanwhile, there is a great deal of erudition and of information. There is no anti-climax, as in so many picture books, between the illustrations and the script—none of that uncomfortable feeling that the author has mugged up her subject and put in all she knows. Miss Masson has followed her subject *con amore* and given us only a selection, and we hope that more will follow later on.

Freya Stark

SOUND ADVICE

DESIGN FOR GOOD ACOUSTICS. *By J. E. Moore. The Architectural Press*, 16s.

This book has been designed by the author specifically with the RIBA examinations in mind. As such, there is little doubt that it fulfils his purpose. The matter is dealt with in a logical sequence, explaining the properties of sound, its behaviour, the principles of acoustic design and closing with examples.

In dealing with such a subject any author has the inherent disadvantage of having to deal quantitatively with problems for which firm quantitative bases have not really been established. Solutions are still empirical and as resistant to strict definition as 'comfort conditions' in the heating and ventilating field. This is, of course, true of any quantitative analysis of human sensory perceptions. The generalization necessary for mathematical results makes the RIBA insistence on formulating the subject into an exact science a matter for wonder. Having had his Testimonies of Study passed and been successful in his examinations, the average architect finds little use for his knowledge of acoustic analysis. The more general topics of noise levels and methods of insulation against airborne and impact sound are far more likely to exercise his knowledge and ingenuity. However, until such time as the examination emphasis is changed, this book will remain a helpful textbook to the requirements, as well as forming a useful reference for the architect faced with a design problem in room acoustics.

I.S.

Introduction

When a hundred thousand breakfast tables are loaded every day 8 a.m., winter and summer, rain or fine, with bacon, planning may be said to be a fairly highly developed science. When they, the breakfast tables, are concentrated at twelve foot centres more or less, and the bacon is still brought home, *town*-planning, the art of getting bacon to breakfast tables when they are densely packed, is operating too.

The question then arises, is a congestion of breakfast tables a nice or nasty thing to have? One answer depends on whether congestion brings home the bacon better than uncongestion. Another on whether congestion is in its own right the greater pleasure. Which leads one to consider the larger meaning of these terms. Which involves their history. Which demonstrates a curious fact, namely that a large section of the human race *prefers* congestion to uncongestion and always has.

There have been a number of variables responsible for this preference—protection, water, money, liberty—and one constant, the hunch that society exists in its communications and congestion makes easier the contacts between man and man. A correct hunch —society *is* its contacts. *Is* its contacts in the sense in which the telephone system *is* its contacts. Three thousand million contacts the telephone system of this country owns to at the time of going to press, human society many more. Hence the citizen's brush with his bacon: the end term of a complicated series between man and man and man and pig—feeder and breeder, auctioneer, buyer, transporter, the chaps at the slaughter house and the bacon factory, pre-packer, wholesaler, retailer, housewife, shopping basket, citizen, breakfast table. By the standards of modern organization a simple series of operations, in fact highly complicated, but, complicated or simple, a demonstration that the satisfaction of a desire as elementary as breakfast requires a long line of social contacts. When a strike of transport workers leaves the table empty the citizen may have harsh things to say about railwaymen or lorry drivers—evil communications corrupt good manners—but so long as the contact is re-established society does not suffer. A failure to reconnect, however, would reduce that society by precisely the extent of the failure. When contacts are loose we speak of country, when close and complicated, of town, when organized of town-planning. Out of town-planning grows civic design, the study of the emerging pattern, out of civic design townscape, an art which by definition gives the bye (as Oliver Cromwell would say) to bacon and the various ways of bringing it home. Gives the bye, indeed, to nearly all else by abstracting from the dozens that matter one issue and one only—the question whether the artificial world created by congestion and called town has charms to offer. What those charms are. How to encompass them. Whether they provide the kind of frame people will cultivate congestion to get. If the end product is going to be a lemon all that work building and making roads and sewers would hardly seem worth while.

This is an argument which in any but the immediate past simply didn't arise. The debate was not as to whether *the city*, collective and abstract, was in itself desirable, but whether one desirable city rated higher than another—in desirability, that is—desirability being the *sine qua non* of a product universally accepted as the greatest artefact of man. Thomas Aquinas' *civitas communitas perfecta est* voiced a proposition self-evident to kings, for whom city-building was an investment in immortality, to philosophers, for whom the good life was by tradition allegorically described in terms of ideal town-planning, and to wizards, for whom a street lay-out offered a wonderful opportunity to make magic in 3-D. Thus Alexander. Thus Plato, the first Beaux Arts planner (and the worst). Thus Sir Thomas More. Thus Filarete and Campanella. Thus the Church, stealing a march on the others with a blue-print of two-cities-for-the-price-of-one, Jerusalem and Babylon, the first unutterably good, the second inconceivably evil. Evil, not dull. No one ever suggested Babylon was dreary. That was the trouble, it was so hideously inviting, wickedness and all.

Came the storm. Blake's dark satanic mills (which he never saw) elbowed out the New Jerusalem while naughty no longer, simply dull, dirty and dull, Babylon vanished in the smoke. City became a dirty word, and thing; the citizens determined to opt out, and did, leap-frogging over each other's homes by rail or road till brought up all standing by the sea. The flight from the town: with England, the first and still the worst victim of the industrial revolution, leading both the retreat and the attack on the urban thing.

The retreat continues to-day, so does the attack, the one encouraged by the automobile, the other, oddly enough, by the town-planners, British and American. Prior to the birth of Cumbernauld and miscarriage of Hook to raise one's voice in the cause of congestion was equivalent to admitting a fetish for tight-lacing. You weren't nice to know and the planners let you know it, being, all but a small handful, addicts of the Aertex shirt and string vest. Three Aertex types prevail to-day headed by the fuddy-duddies for whom an Englishman's home is his garden. Hence the garden-city, the leap-frogger's dream, valid as a protest against slum and smog, but in its present, last, degenerate phase a mere open invitation to prairie planning and to that extent a menace to the social body as the private garden is to family unity.*

Then there are the collaterals of the modernist junior branch, the light-and-air men, who apply under the rheumy eye of their leader (Le Corbusier) landscape gardening principles in the only place where they are unsuitable, the urban thing. Airy as against prairie planning. Enormous point blocks separated from the world and each other by tracts of landscaped park. There is as it happens one place in the town where landscape principles could apply—the street—but here, ironically enough, the Airies in their eyries capitulate to the traffic engineer.

Finally there are the radicals for whom old-hat stuff about Togetherness is mere reactionary twaddle. Present objective, custom-built anti-towns with drive-in shops sited out there on the veldt for the greater convenience of a car-using society. The ex-urban ideal. Result, the gaseous society, spread like Antares thinly through space for four hundred million miles or so (if lineal add another nought). It is the practical consequences of his ideas

* Dad wants flowers or vegetables, mum wants to hang out the washing, the kids are murder to both. Only solution, to murder the kids.

the radical hates to tangle with. He lives not in a prairie nor in an airy but in a fairy world full of unfurling wings, prismatic colours, novel shapes, lost inhibitions, broken chains, radiant perspectives.

In fact, of course, all these approaches contain elements of worth—and of use—God preserve our radicals even when exhibiting the defects of their virtues—they only become dangerous when they are employed to obscure the one basic truth without which not only towns and town-planning but society itself loses all pretence of orientation. This can be stated in its most universal term by saying that society is everywhere at all times subject to the law of gravity. The gregarious law, that is to say, is the exact equivalent of the gravitational under which the attractive force of bodies varies directly as their masses and inversely as the square of the distance between them. Bodies of people included. Bodies of people *gravitate*. And gravitation, remember, doesn't pick and choose, but operates all round, dragging its victims back to the centre from every point of the compass. You may beat gravity—the second clause shows how swiftly the pull loses its grip—but so long as you remain within the gravitational field your natural movement is centripetal. Released from this field social bodies which were once in orbit (suburbs) can fly off and drift away into space though sooner or later gravity will catch up with them, creating a new nucleus for development. Unless one accepts society as an organism obeying a gravitational law involving nucleated development the word society itself ceases to have a meaning.

There follows the only principle townscape is bound to acknowledge. We know it and we ignore it. The centre is a magnet. From that one law every other flows, including the law of density, which adds categorically that the only true happiness lies at the centre. This law, every gregarious person acknowledges generally in its converse—the further I have to walk to the shops, pubs, cinema, church, school, high-street—the further I have to push the pram—the less happy am I.

Townscape can thus be treated as the art of humanizing high densities after the engineers have made them hygienically possible. Dangerous that word *after*, but the fact has to be faced one man's irresistible impulse to inflict himself on the next raises terrible problems for those of his buddies who have to work out the arrangements. So let's stick to *after*. *After* drains and hygiene have been taken care of the question arises how close you can live to your neighbour and like it. A few living close makes a town, a lot living close a city. Were our cities wicked but still desirable the question wouldn't arise, but the whole issue is prejudiced as we have seen by the disasters that have overtaken them. So much so that it has become normal to think of the city as a kind of purgatory in which one suffers the agony of the not-quite-damned in the cause of earning a living; and so long as this view persists it will be natural to think of it as a place to get out of. Or reform, reform being associated in the public mind with rebuilding in the grand manner, avenues, axes, triumphal arches, *rondpoints* and the rest, as effective a substitute for real planning (involving real townscape) as are pre-packed deep-frozen golden fish fingers for real food.

But this view must not persist. Babylon may be a bit too far to go back, but there is ample evidence nearer home to show that our predecessors, though weak on hygiene, made a major success of the art of living together, a success so major that a whole major industry, tourism, has developed out of the urge of the failures to go visiting the non-failures. So great is this traffic and so enormous its profits that the non-failures are now in danger of being trodden into the ground in their attempt to give hospitality (quotes) to the plug-uglies. Emblem of this conflict, the chara. To appreciate the predicament to the full go to Venice in the full moon and watch a guitarist serenading a chara-load of old ladies from a Lancashire cotton town in a fleet of gondolas hired by a London travel agency as part of an all-in fourteen days, trip through fifteen countries and sixteen capitals. For none of the cotton-spinners is this a genuine experience (if it were it might be worth the price paid), it is merely an expensive investment in cyclorama at the cost of the loss of many cuppas. By no conceivable argument can the trip be said to have broadened their minds or fired their imaginations unless renaming number 23 Worsely Road Capodimonte is to be so described. The most it and the suitcase labels that go with it will do is to serve, once back home, as yet another status symbol. As for the gondoliers and troubadours, the indignity is one only their sense of humour provides protection against. Cornered they would repeat the classic crack of Liberace when accused of a similar accommodation with Mammon, I cried all the way to the bank—witty, but in the last resort tragic. For Venice the whole thing is straight prostitution of the lowest canal-corner kind.

Let us be clear. No one wants to kill tourism. The need is to prevent it killing itself by destroying that which gives it its impetus. The need is to reverse the process by which the world becomes day by day more enslaved to boring uninteresting subtopia and less enslaved to wicked, exciting, dangerous, inviting Babylons. The need is to reverse the process because boring uninteresting subtopia breeds boring, uninteresting people who react on Babylon itself by making it boring and uninteresting. Destroying it in the name of progress. If that is progress the time has come to do something about it. And one of the things one can do is to make a study of the towns and cities people did once enjoy living in in order to rediscover the pleasures of urban life. Have they any message for modern town-planners?

The answer is yes, of many kinds, cautionary included. We propose to consider them in the following pages in a way some fundamentalists regard as superficial because it involves the eye, a view which seems to ignore the part played by that organ in the decisions of the reason—of more than the reason, the imagination, which, before it can get to work at all, has to be made pliable by visual exercise, briefed by memory, fed on what other imaginations have pumped up out of the sludge. The object of the exercise, to compile a case-book of the past in the interest of the present. Surprisingly novel the idea seems too, which shows the distance we have come since the days of pattern-book architecture, indeed, since the early days of architectural journalism—for the technique is the same. With this difference, that now that no one is going out to crib Portofino or Venetian Gothic, it is possible to listen-in to the past in a new way. Hence, as suggested above, this survey with its deliberate return to methods reminiscent of the lantern lecture in the church hall, choice of subject quite arbitrary, depending on which tour the vicar chose for his summer holiday—Italy, in this case, or rather half Italy, the part of the body above the belt, Italy being still two countries divided by history and the power of the sun.

But no, on second thoughts not quite so arbitrary as the vicar's lantern lecture. For the obligation here is to look for a period and place where townscape, if not a certified and licensed art, has been practised on the impulse by men who built what they loved and loved what they built. Could one in that case expect to fare better than in the sector of Europe where, by a strange miscalculation of destiny and business men and despite all that the Lambrettas can do to destroy them, many splendid towns have survived almost intact? Even now, little though she deserves it, Europe still possesses a great heritage of townscape, most of which has significance for the modern planner.

There is another reason for taking Italy as a model and that is the hope that it may remind Italians themselves of the need to protect this inheritance from the outrage that has happened elsewhere in the name of progress. The standard of living is racing up in the Italian peninsula, no one, least of all the townscaper, wants to see it stop. It throws the door open, however, to commercial exploitation posing as free enterprise posing as progress posing as the thing that excuses any enormity in the developers' handbook of crime. Yet the solution is simple enough, to make it clear that outrage-in-the-name-of-progress is no longer acceptable. Now that science has provided enterprise with the power to consume its own excreta 'development' can at last be achieved without the mess traditionally accompanying it.

Italy is a young nation, far younger than the US, hardly a century old, a young nation with an old history, some of it grim. Yet less than twenty years after disaster in war her genius has reasserted itself in ways that make one wonder whether after all she will not always remain the centre of the civilized West. The secret is a special humorous earthy glamour, a property the new Romans have superimposed upon the post-war rat-race, snatching in passing the bay-leaves from the brows of less supersonic sprinters—style and fashions from the French, movies and women from the Americans, from the British, gent's tailoring and sport. Both the glamour and the earthiness are reflected in the Italian way of life which is—hence its terrible fascination—at once more elementary and more virtuoso than those of its fellow democracies either side of the Atlantic.

And here lies the opportunity—and the danger. Wealth is stealing back into the chests of the Roman Empire and with it the power to defend its own entail or complete the crack-up of the estate.



1

Profiles

In a survey that covers as much ground as this one in as little space, to do more than put a fist into the townscape sack and pull out a few plums is obviously out of the question. The results are bound to seem arbitrary. Why for instance start with washing ? Conversely, why not ? Idling in the sun or blowing in the wind washing is often the first thing you see approaching a town, beautiful gleaming human washing. A reminder that we are all brothers and sisters (and fathers and mothers) with a similar need of soap. A reminder, too, that townscape is *not* town-planning, is *not* architecture, *is* the urban scene stock-piled with all its impedimenta, toys, trinkets, tools, services, conveniences, shelters, play-pens, and people. Its topic, the public life of private lives, never better expressed than by beautiful gleaming washing publicly blowing or idling. Let us cherish it while we may, the rake's progress of the launderette suggests that it will soon be a period piece, bracketed with other obsolete Hogarthian practices, like pouring the slops into the street from top-floor windows.



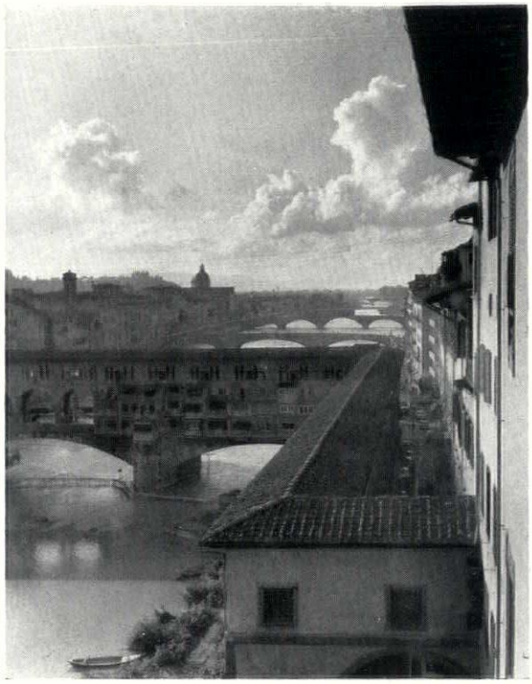


2
3

It is—with few exceptions—difficult to identify an English town by its shape. Italian towns always seem to be able to pull a profile out of the hat. One of these is to be seen hiding behind the beautiful gleaming washing, Capodimonte, a conventionally beautiful shape. The striking thing, however, about Italian profiles is their variety. Like a friend, one is able to associate almost any given town with its physical outline. Nor is this merely because many can boast perimeters in the shape of town walls or hilltops. Posticciola, 2, has neither yet the way it rides the contours is memorable, one signature, clearly stamped throughout, from outskirts, and fringe effects to the articulations at the centre, culminating in the church spire. The modelling ranges from the elemental, at Pitigliano, 4, to the super-sophisticated at Montefiasconi, 6, both small towns, yet the river-front of Florence, 3, demonstrates that an articulation as precise can be achieved on the scale of a city. No trick of the camera, this, as the view from the Uffizi, 5, shews. Rather wonderful that a large industrial city which has been in the front line of war can keep its figure like that. And have such character. Unique Florence is not but she is uniquely adept at putting across her *persona*. An evil one—desperately wicked.



4



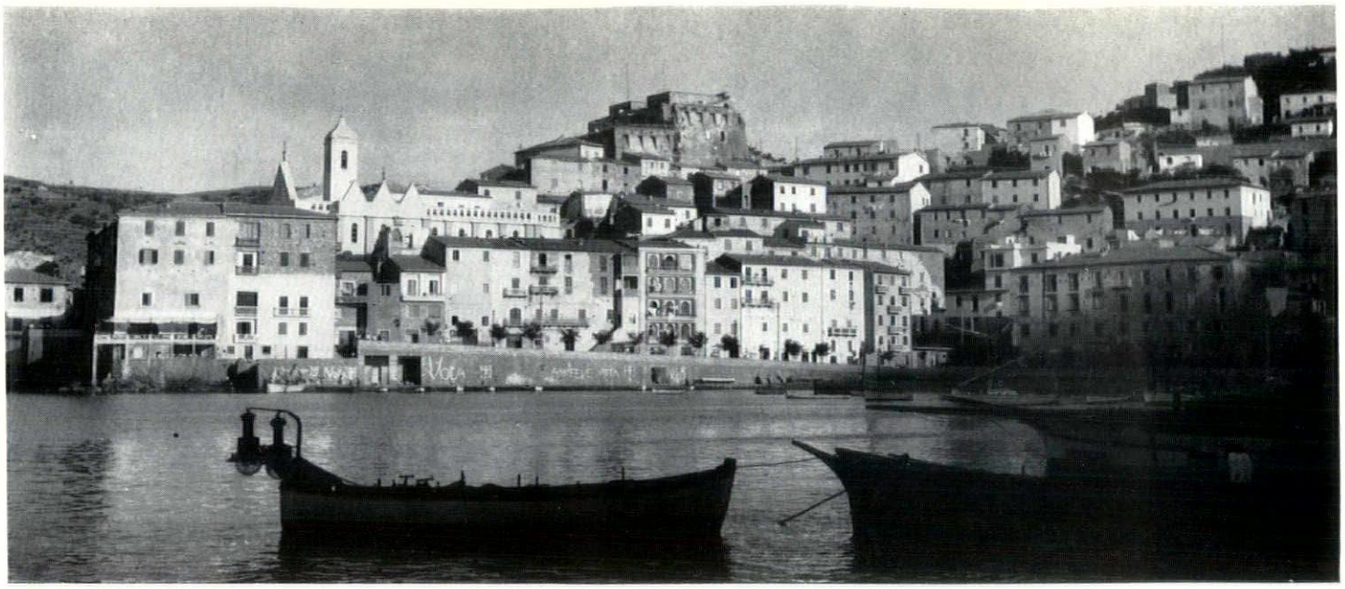
5



6

Contemporary Florentines may not feel more diabolical than other men but in the collective bank they have a handsome capital of crime—starting with the first Tarquin and rolling on through Savanarola's burning, the diabolical sophistries of Machiavelli, the usurious commercial humanism (very wicked) of the Medicis, and the last Murder In The Cathedral (Giuliano's much worse than Beckett's—at Mass, at the moment of the Elevation of the Host, the preconcerted signal). However, moral turpitude doesn't have to be proved here—sufficient if the shape of the buildings expresses it, and they do. Wickedness made stone. A congenital Mannerism elongates every form starting with the instrument of torture which is the tower of the Palazzo Vecchio and running through Etruscan enormities and evilly extruded roofs, 5. Even the colour crawls with vice. Most vicious of all, Vasari's Piazza to the Uffizi (itself an evil building if ever there was one), a shape so sinister that for once it is a relief to see those emblems of the banal, charas, parked in this unnatural place. The river, too, has a cruel narrow straightness, like the scar of a razor slash or a murderer's mouth.

The object of the above note is not, as might be



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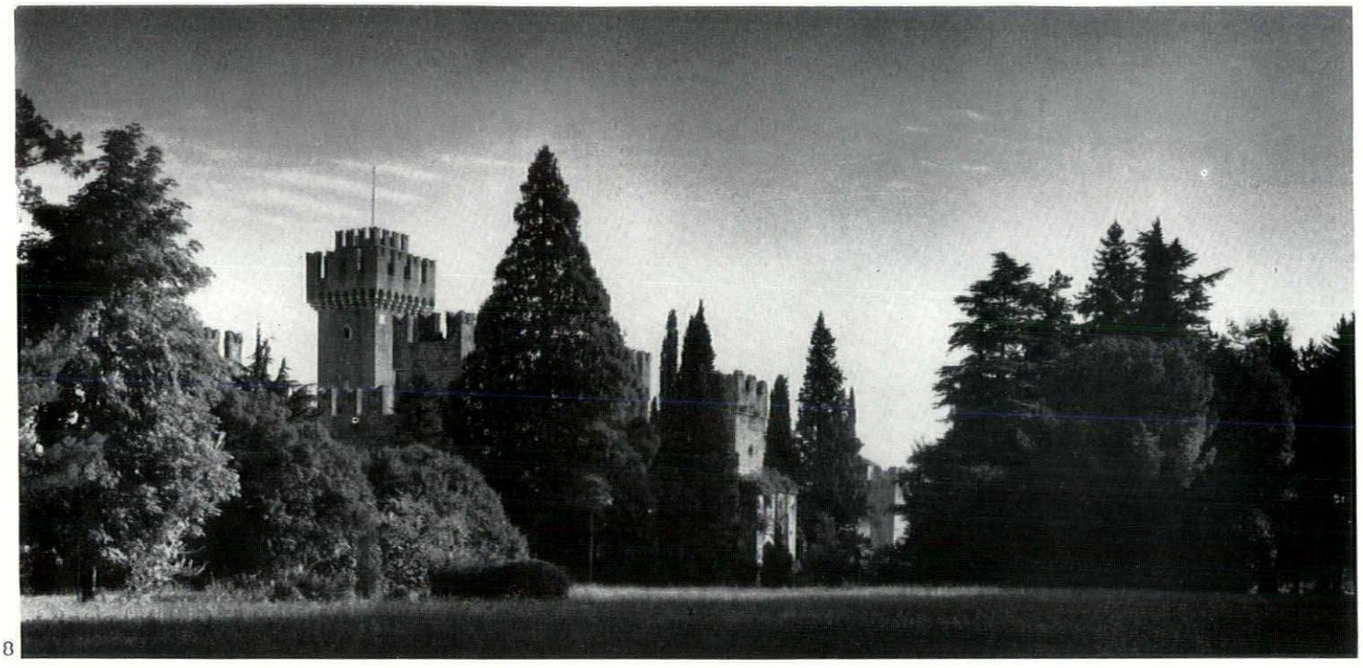
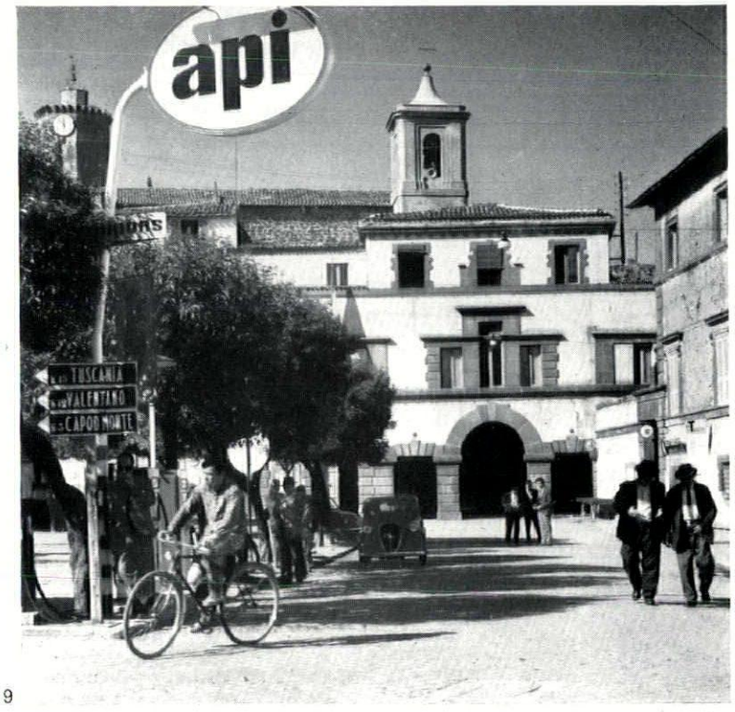


8

thought, to establish Florence as a hot-spot of vice but to celebrate the triumph of a strong personality, for strong it must surely be to arouse such reactions. Ditto the Florentines, to have so doggedly preserved their wicked townscape. At the opposite end of the moral spectrum and in its own way just as individual stands the architecture of Simple Faith, Porto Santastefano for example, 7, home of fisherman and peasant, a model of unaffected composition. Not wicked—simple and salty, yet the build-up upon the cliff is worthy of Cannes. Marta and Lazise, also waterfront towns, present profiles every bit as sharp from the land. 8 isn't a novel shot of Ashridge Park but one of Lazise's landward approaches. Difficult to believe that the other side of the Town Wall set in this sylvan scene is a thriving resort filled to the last bidet with Germans in shorts and water-skiers in less. Also a café-packed quay, harbour, lido, caravan park, plage. Marta's approaches, 9, are not so romantic but more oddly come by. The façade behind Api, so suggestive of Assembly Rooms in country towns, is, in fact, a screen which masks the Old Town from the advancing visitor and by this means fools him into turning left (to the main road) or right (to Lake Bolsena). If instead, he insists on not being deflected, a startling

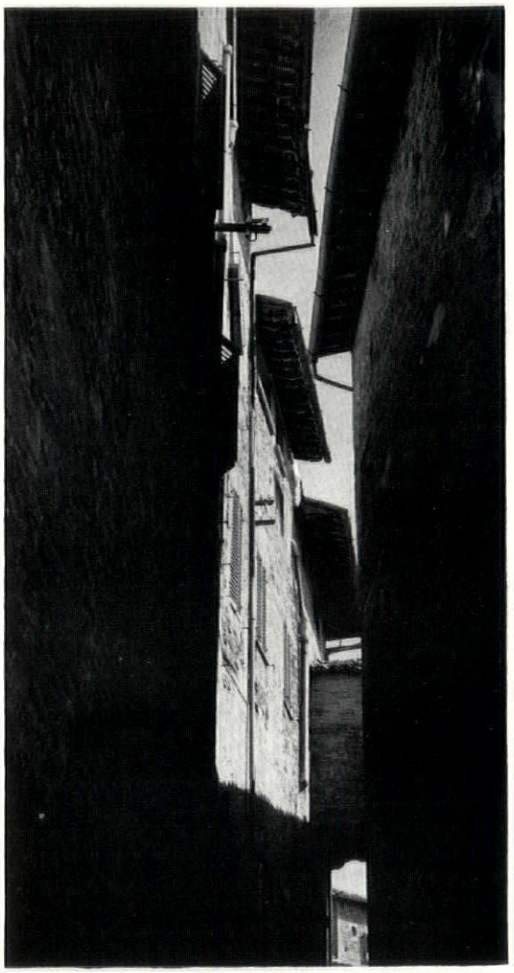


9



10

metamorphosis occurs through the archway—Old Town in every meaning of the word, complete with old-world townees who do not take kindly to photographs or photographers. Lucky if you escape with your shirt. Somebody in the 17th century must have decided the old town wasn't nice to know and walled it in. He was right, and so are they.



11

Streets are dealt with later. Here just a word on the subject of street profile, bold generally, sometimes better than bold, and often, when the sky is brought into the game, matriculating from profile to silhouette. Vernacular or monumental doesn't matter, the nearly overlapping roofs in 11 are as good in their own way as the imposing series of unlikely events which compose the Corso Garibaldi at Urbino, 10. The gateway below, 12, draws attention to something common to all three examples on this page, their masterly way of using—by trapping—the sky. Trapped sky. When achieved, a feather in the designer's cap, because—the art of town-making being the pursuit of enclosure—he is under constant threat from above. The big leak. Too much empty space up there, threatening to come in and break

12

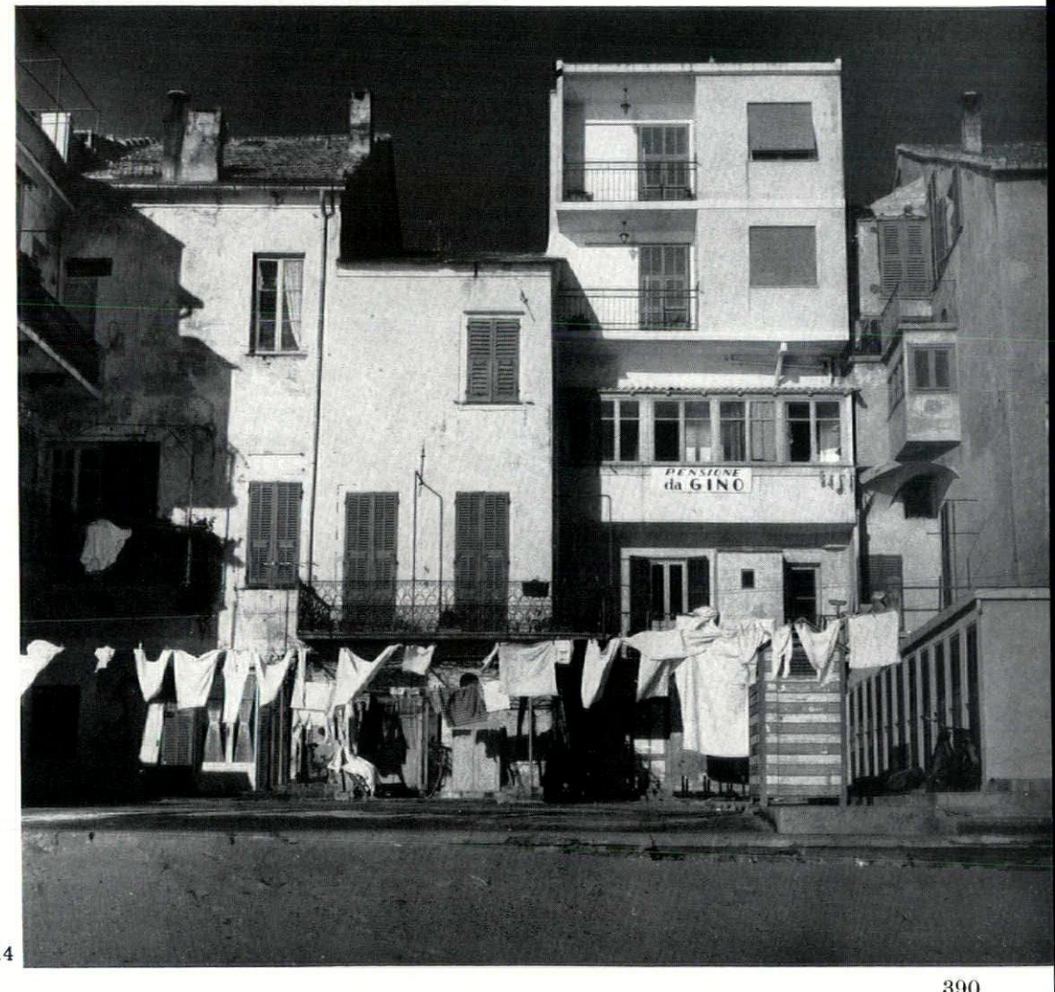




13

the whole thing up. Always remembering that in the designer's vocabulary light and sky have different meanings. In the past sky-trapping was a difficult business in dull Northern climes. To-day architectural techniques and taller buildings make it something of a Must. Every street can't, of course, have Urbino's Palazzo Ducale to give it drama but character manifests in many forms. What could be more brilliant than the front at Alassio with its tall foreground, low middle-distance, and final arrow-head kick-up. Here, 13, one can see how lucky or clever the Italians have been in having no Victoriana to clutter things up. Their architecture steps straight out of the eighteenth into the twentieth century, in the company of two vernaculars, one peasant, the other middle class, neither of which need flinch when elbowed by a modern building. The Mediterranean and Riviera styles. The two houses on the left, 14, belong to the past in time and to the beautiful gleaming washing (of which there is an abundance here), in social standing, but they have no quarrel of any visual sort with the tall new bourgeois next door. Hence the wonderful homogeneity of Italian towns, even the big ones like Perugia, a capital city. Many of the buildings in the general view, 16, are modern but there are no sore thumbs.

There may, on the other hand, be some surprised eyes. In this and the next pages seven examples of large-scale townscape are chosen as typical



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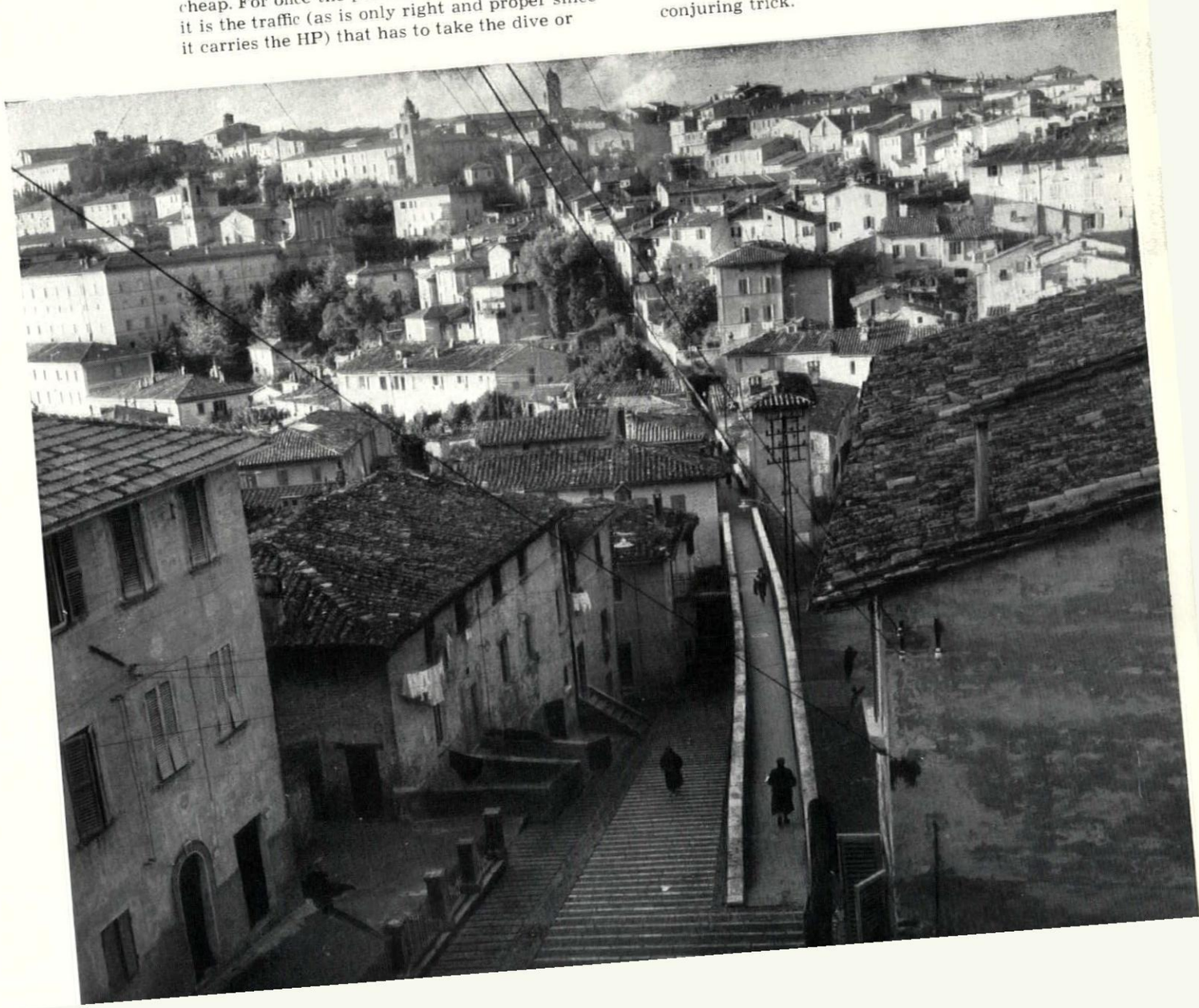
16

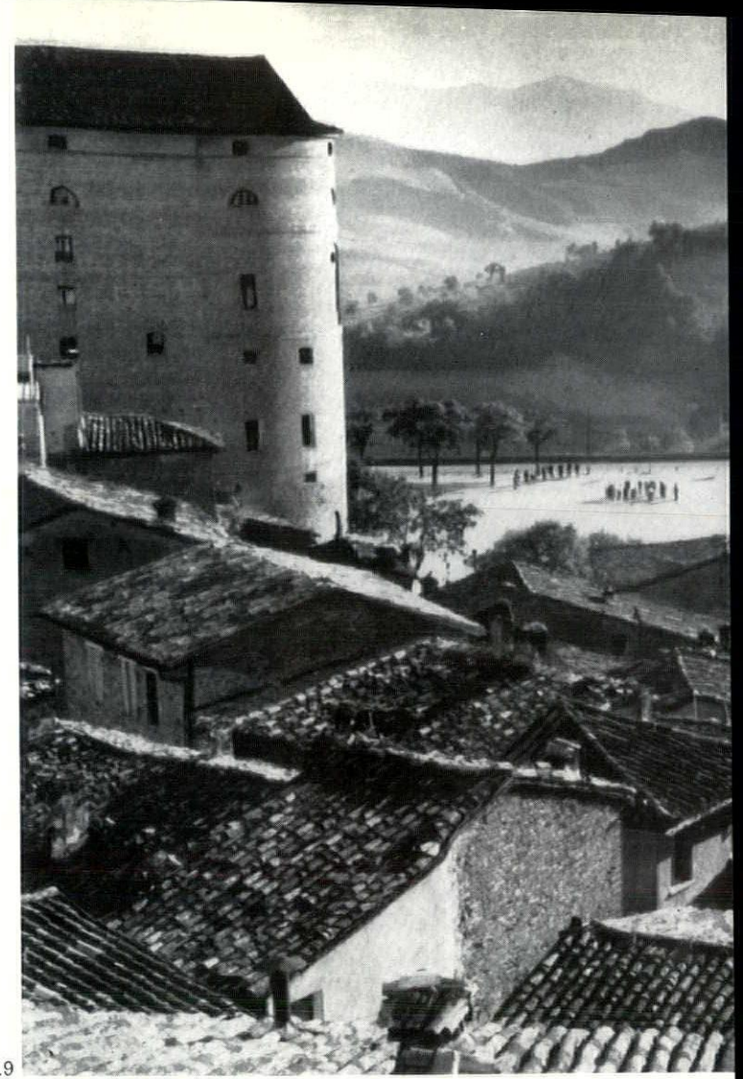
17



of the many a brief survey has to ignore. It is the sanity of the ploy, here at Perugia, which is so impressive. The City is built on more hills than one, each so steep the knees of the pedestrian wobble on sight, or would had this almost magic cat-walk not materialized to waft them (the knees) from one mountain to the other. The arc of its course can be clearly followed through the distant buildings on the route to round and Romanesque S. Angelo. Sane because romantic, charming and cheap. For once the pedestrian is not penalized, it is the traffic (as is only right and proper since it carries the HP) that has to take the dive or do the other thing, in this case, go under, 15. The photograph prompts thoughts of another cultural capital with a similar traffic problem and population (both are slightly under 100,000), Oxford. Rather pathetic, the Christchurch meadow quarrel, now actively pursued for rising half a century, when you consider that hard-up Perugia can afford to build a tunnel under the whole town and rich Oxford can't even bring itself to dig a little ditch. Another way of segregating traffic and pedestrians is practised at one-hill Spoleto, 17, pedestrians going straight up and the traffic being made to go round and around. Sanity again. It's a steep pull if you're walking but you make the top so soon after the roadster that the action takes on the air of a conjuring trick.



One good reason for being stingy with sky is the tendency of its users to ignore space. Like gravity, space operates everywhere and remains in consequence at a discount until manipulated in such a way as to re-attract the attention of the eye. Urbino is another precipitous town with a simple motto for motor coaches—Keep Out. How right too, but where are the buses and charas to go? The answer involves elevating a car park—in two meanings of the word. Physically, by raising it on a great brick arcade, 18, up to the plimsoll line of the town. Psychologically, by turning the grimmest of all modern conveniences into a first-rate piece of theatre by means of a classic space-trick, the ha-ha. An invisible dyke between the ground you stand on and the world beyond, the ha-ha can be used civically as a hazard for isolating one side from another, often a useful traffic gambit. On the monumental scale employed here it becomes a chasm (unseen but deeply felt) between the huge platform hoisted upon its brick arcade and the prospect beyond. Result, the sudden precipitation of town and country into each other's arms, 19, 20. Notice how significantly the action is underlined by the thin fine line of the platform's retaining wall. The presence of that horizontal, with the fore-knowledge it gives of the huge drop beyond, prompts the eye and the body after it to jump-and-be-damned, whence arises in the mind of the beholder the urgent preoccupation with space and space-travel advocated above. Though nothing could be simpler, it would be hard to find a more effective piece of urban drama. The great red elephant of the palace and the white mouse of



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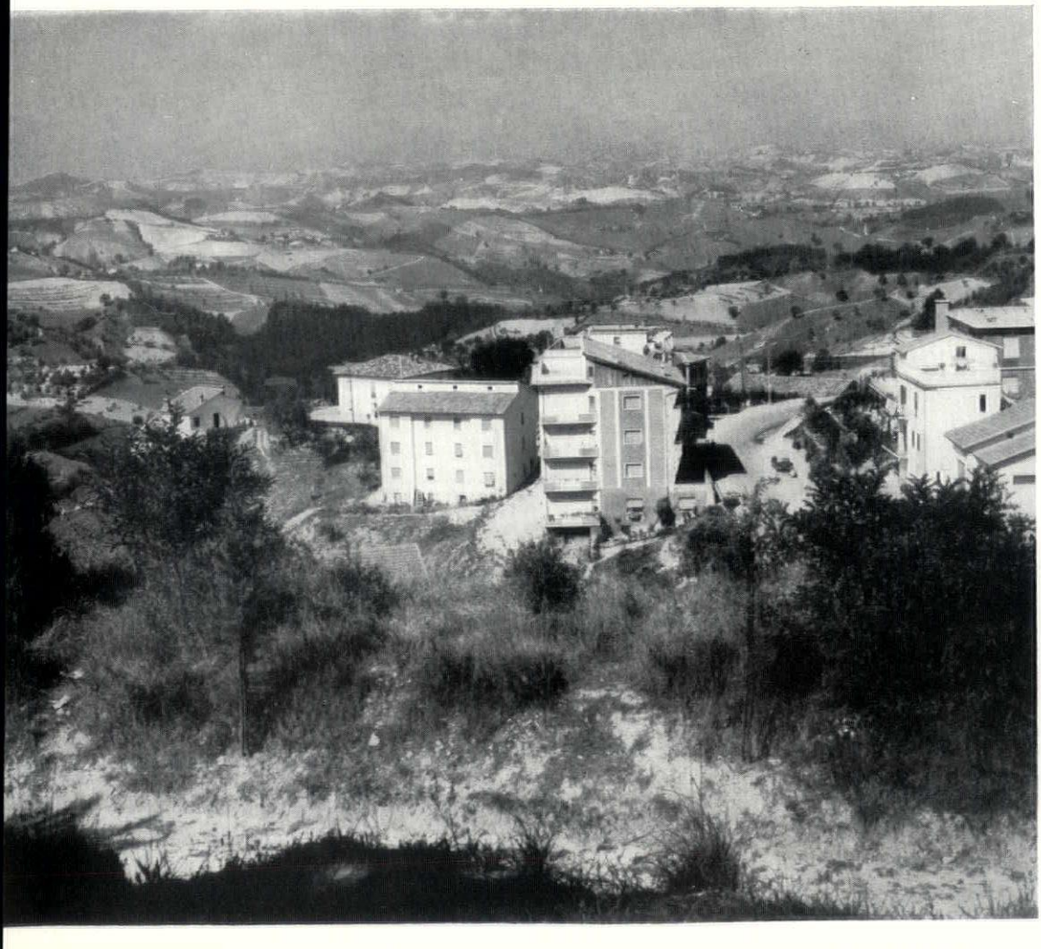
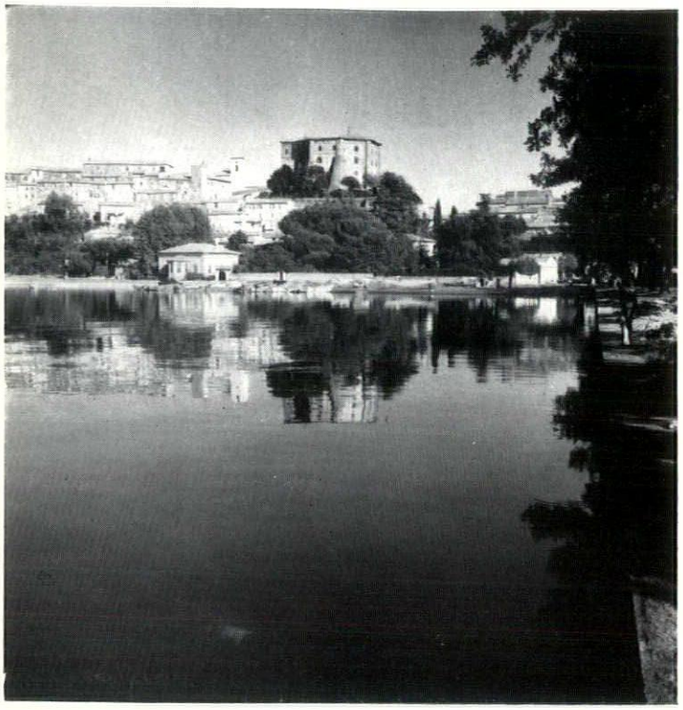


21

the Via Mazzini frame the prodigious view, one foiling the other in a way that makes clear at once the Italian contempt for inflexible drawing-board mechanics and its issue in the mechanical monumental. Sitte had a word for the Beaux Arts hang-over and all that went with it in the shape of straight lines, right-angles, symmetry, balance, rigid standardization of pattern, inflexible geometrical routines—artless—and so at one stroke cut the Grand Manner planners down to size as naïve persons practising banal and obvious tricks to the disgust of more artful performers.

However, not everything in Urbino's garden is as lovely. 21, taken from the town wall, shows something less satisfactory, the start of extra-mural building development, but even so it is obvious that the odds are heavily against the formation of a dense English-style suburban investment.



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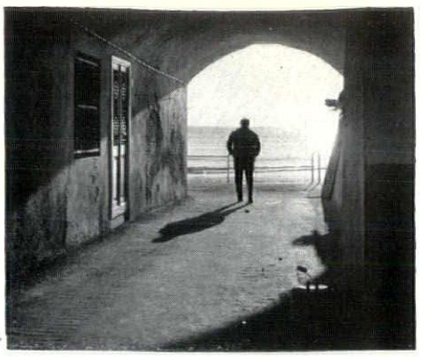

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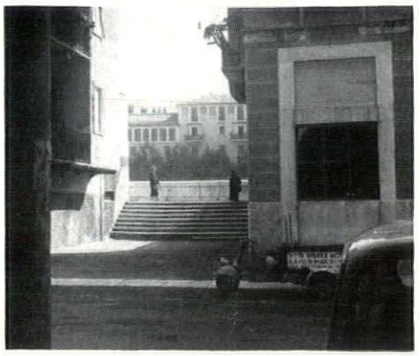

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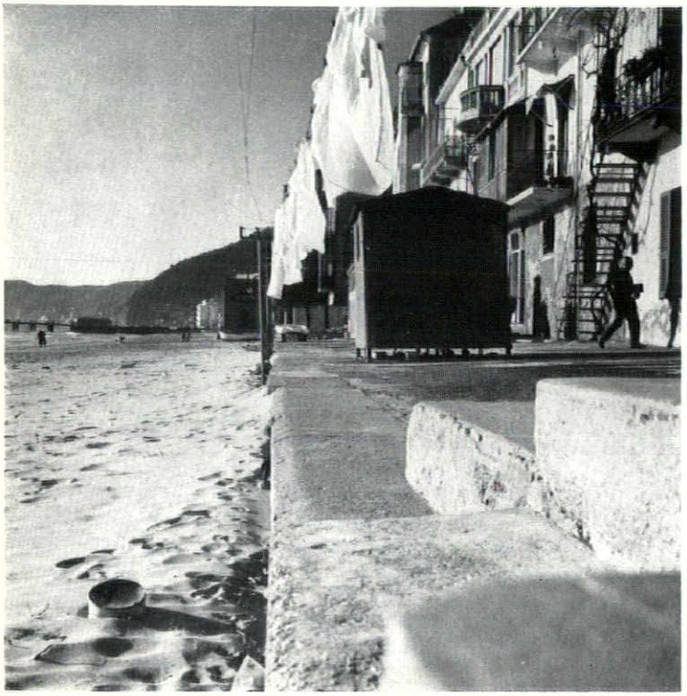

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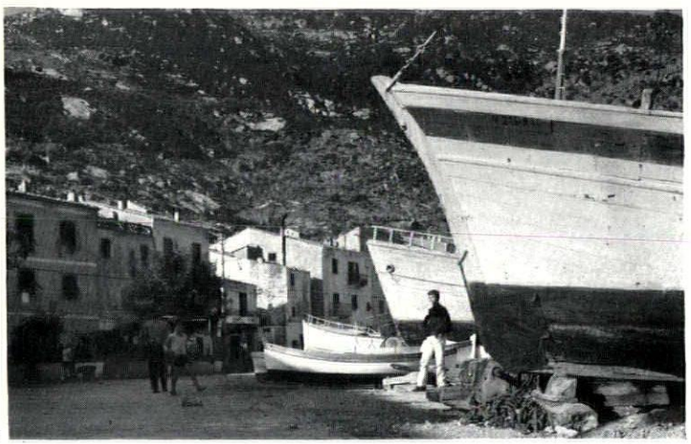


24

The only absolutely fool- or knave-proof way of making a clean break between the urban thing and its converse, the work of nature, is water. Even British-style subtopia has not been able to beat the sea. And being even more ' natural ' than agriculture, water provides the ultimate contrast with town, hence the eternal drama of the waterfront in cities fortunate enough to have one. And hence the extra excitement when artful architects heighten the contrast by presenting to the water—the most savage of all the elements—a Front of the urbane, pasteboard, patched-and-powdered gentility one associates with Regency Brighton-and-Hove. There was a time when the jingling open carriage together with the rest of the traffic on the street actually heightened these contrasts, but the road has now joined the railway as a menace to amenity and should, as a general principle, be banished—though not very far—from the Promenade. All the towns on this page have that in common, a pedestrian waterfront. Capodimonte's, 22, hardly exists even as that. Alassio's, 23, combines the beautiful gleaming washing at one end with civilities between promenading rentiers at the other. Giglio, 24, achieves that most moving of all conjunctions, little painted houses and big painted boats. Lazise, 27, 28, provides the sort of ideal Italian dream-world we now connect with sultry holiday passion in women's Glossies. In each of them you can live it up without the intrusion of a traffic stream that is always trying to substitute noise for vitality and perpetual motion for life. Sit it out. Have yourself a ball, just by staying off your feet and taking what comes in the way of boats, bathers, fish, foreigners, the whole town (like Plato's) joined together into one house, one café in the case of Lazise. But the traffic doesn't want to get too far away. The dead area is always a threat. The traditional solution is the obvious one, to interpose a building frontage between the boulevard and the water and then add a pedestrian promenade on the waterside. In 25 and 26—Alassio (sea), Verona (river)—the camera is set up in the boulevard and the pedestrians



27

are wooing the water. This arrangement ensures parallelism between the vehicular and pedestrian flow, in general a good principle because it reassures the footslogger that he can get back on the town—to be sequestered and then left to die of hunger and thirst is his abiding dread.
Water isn't, of course, a necessary party to this combination. One thinks of Bath and Brussels and Palladio's noble service for pedestrians at Vicenza.

28



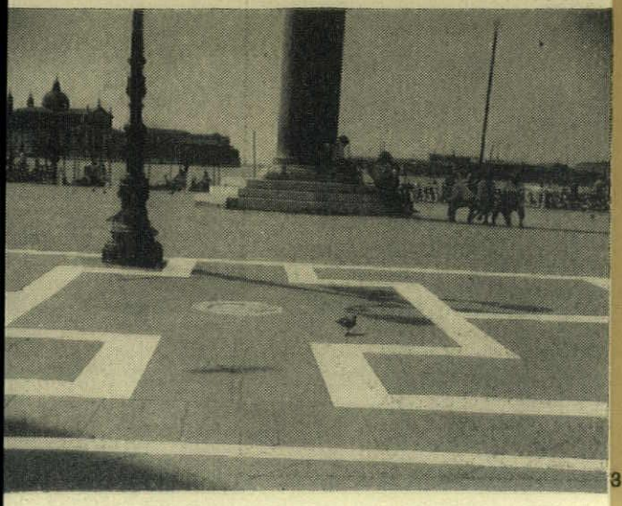




1



2



3

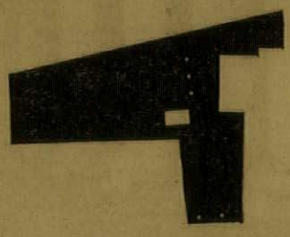
The Functionalist Tradition

For races north of the Alps HF, the literary parent of SF, has typed the Italian as the man behind the Arras. Every schoolgirl with Sir Walter Scott in her satchel learns to recognize the fine Italian hand, the jewelled knife, the poisoned cup, the deep-laid plot, the curious work of art.

In fact the cloak-and-dagger aspect of the Italian personality is in the nature of—hardly a veneer—a compensation for an entirely different kind of character, who may or may not be dangerous, but is most certainly passionate, impatient, violent, above all direct. The converse of the man in the satchel. That passionate directness, the grasping of life at first- not second-hand was the thing that glued Henri Beyle to his window at Civitavecchia. Beside it the façadism of the French and British seemed tedious, as it did, and does, to the Italian, whose natural bonhomie is tested by the impatience he feels of the tergivisators.

Impatience. The complement of passionate directness. Its products spread far and wide over the Italian scene, explaining many apparently wayward decisions. And consequences. In the field of townscape, for example, why no monument is ever plumb on an axis or building scheme quite finished. Brunelleschi's dome still lacks collar and tie, Perugia's *Centro* remains in its underpants. In Rome at the top of the Spanish Steps Benedict XIII, Pius VI and the Trinita dei Monti each in turn shrug hardly perceptible shoulders at the others' alignment.

One could go on indefinitely. The cause springs from a vast contempt for the pedantry of the drawing-board and a still vaster indifference to business efficiency, correspondence, procedures, schedules, dead-lines, the preoccupation, these, of lesser minds. In monumental architecture the form it takes is a strong objection to parallel lines, museum example, the Piazza of St. Mark's with its abutting buildings and open spaces, A, where F. Gibberd has been able to find no parallel lines at all. As one of the results, St. Mark's itself glares directly at the opposite *corner* of the square. In petty detail, likewise, the piazza is sublimely indifferent to axes. Notice the unaxial position of the columns in the Piazzetta, 1, then the extraordinary position of the lamp-posts in relation to the floor pattern, 2, which appears to have been designed to bring the columns back into the picture,



A.
Piazza of St. Mark's
A plan-silhouette of the Piazza and Piazzetta. No parallel lines. St. Mark's itself (the white bite) confronts the opposite corner of the square. From Town Design *by Frederick Gibberd. London: The Architectural Press.*

until the last round-up, 3, establishes a near miss.

So what? The thing is in the target area, isn't it? Impatience, easy boredom, contempt for pedantic detail, an attitude to pomp and circumstance so casual as to border again on contempt, these scarcely add up to the kind of picture one would expect of the world's greatest builders. Yet, paradoxical as it is, Architecture with a capital A has always remained a top dressing in the country of its supreme triumphs, a veneer as thin, 6, 7, as the scribbles on the plaster of Palambara Sabina. Nor has Roman engineering taken its place. At the least provocation the motifs peel off to reveal what lies below the surface—architectonics—a violent preoccupation with fundamental forms in one, two, or three dimensions. Cones, cubes, cylinders, the line, the circle, the square. An elemental geometry expressed in a vernacular of power to which, like Bernini, the greater Italian architects returned from time to time for a wash-and-brush-up.

No class distinctions. The impulse is as clearly isolated in those defence-mechanism status symbols, the Palazzos, founded as they are on the rock—or rustications—of the functional tradition, as in the vernacular of the peasantry. All-purpose too. It could come to the aid of The Faith, 4, or control (with rewarding and ruthless economy) a rush of blood to the head in the shape of the watch-towers which shot up like beanstalks all over the country in the twelfth century. And stayed up, even when, as at Bologna (page 408) leaning over backwards to come down. More defence-mechanism according to the form book, though an



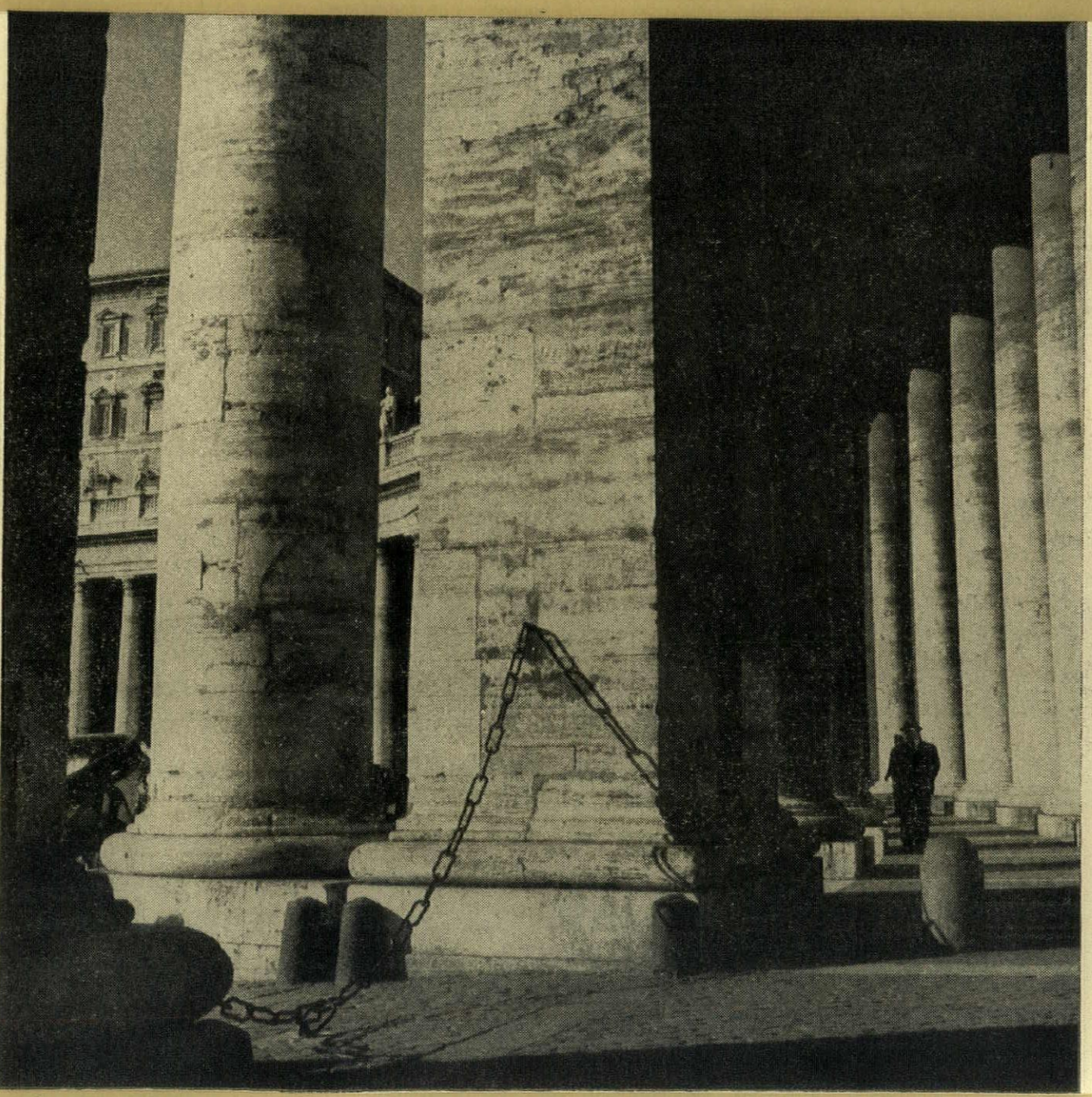
4

observer as shrewd as Alberti saw how thin an explanation that was. He called it something else, a General Infection, 'a kind of General Infection of building high Watch Towers, even in the meanest villages, insomuch that scarce a common house-keeper thought he could not be without his turret: by which means there arose a perfect Grove of Spires.' Impatience again.

There are, of course, dozens of ways of looking at Italian architecture. We are concentrating here on one and only one because despite Nikolaus Pevsner* it seems to have had a poorer press than the others. Since space is short, rather than try to argue it further, let us take one concrete example, a celebrated piece of Baroque, Bernini's Peristyle, and see what that has to say about the business—an odd selection, it may seem, to anyone who chooses to ignore what has been said above, but unless it is going to discover significant form where Cézanne and the Cubists (not to mention Clive Bell) long ago unearthed it, the operation has got to aim a bit higher than the vernacular. The obligation is upon us to uncover the fundamentalist urge amongst five-star jobs and top people.

Well, nothing could be more five-star than the Peristyle. Nor any Person more totally Top than Bernini. There is a tradition that a colonnade stretched in Roman times from the Tiber to St. Peter's or its site. If so, it is fair to say it must have been a very different article from his. Ignoring the baths and greater

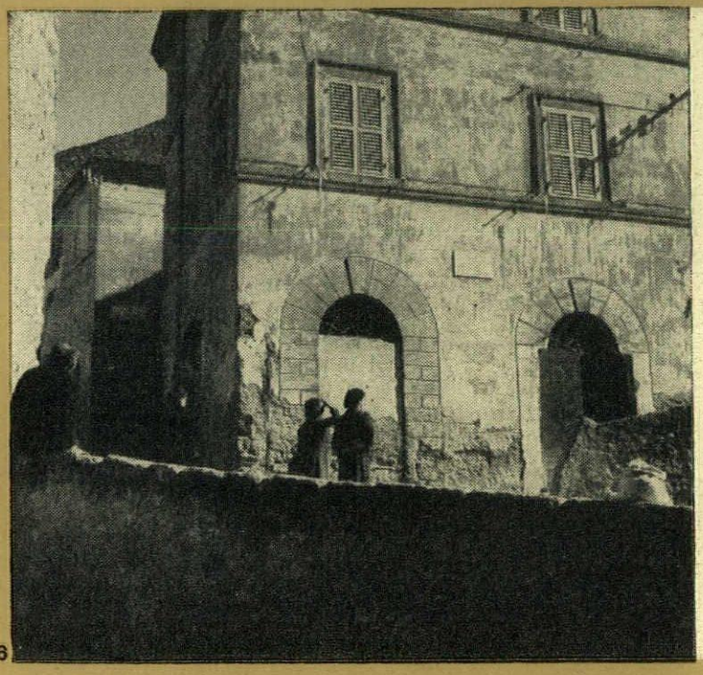
* In *An Outline of European Architecture* (Penguin Books). Pevsner also notes the Italian talent for using—Mannerist fashion—architectural volume as a weapon of spatial exploration.



works of engineering which are mostly late, one is always surprised how mean in scale as well as vulgar in execution the run-of-the-mill Roman work is, from local triumphal arches to the flats at Ostia or the pip-squeak monuments along the Appian Way. The garden-ornament of Hadrian's villa is typical, recalling Lutyens at his Tyringham worst. Such may or may not have been the St. Peter's colonnade, a very different affair anyway to Bernini's, the essence of which is the knock-out punch. In plan and effect it does admittedly echo the austere internal glades of the Coliseum (the ellipse, like Abaccio *al forno*, might be called a Roman speciality) but where one is a bonus on utility engineering the other is a purposeful and fierce hunting down of a specific aesthetic idea, 4, 5, no practical purpose served. The serial arcade, the arch being left flat, the serialization lying in the repetition of the columnar effect. The spectator being left flat too, knocked out by an endless succession of right and left hooks based on the peri in the peristyle. Prize-fighting, this, not boxing. No fancy footwork, no ducking, weaving and stabbing out of straight lefts. Just one tremendous haymaker after another coming from the same place and aimed at the same place, the eye. Before both are closed take a good look at the face behind the fist, no water-front toughie as it turns out, quite a different number, well-spoken and full-bottom-wigged, handing out the punishment with the compliments of one violent man-of-the-world to another. And that's the essence of it, urbane violence, the very attar of the rose, button upon the cap, of civilization, with the artist himself in such control of the fight as to be able to judge precisely where to pile on or let up the pressure. Inside the colonnade no quarter. All the fun and games and boys and girls hoisted on to the roof where they are able to keep out of the way and at the same time provide an audience.

About this stagey extravagance there is nothing Roman, much less Classic, it is quintessentially Baroque, and so is the unity of conception. Yet—and this is the point—the devastating nature of the punch is something else again, the Italian in Bernini prevailing over the virtuoso—fundamentalist slapping down Grand Mannerist—with such gusto that a *tour de force* of Papal pageantry becomes an essay in the functional tradition.

The functionalist tradition. Such a much-more-than-Greek stripping down of the extraneous had no official sanction in the seventeenth century, or indeed, any other right up to the moment Cubism made of it a cult and functionalism an architectural philosophy. Private sanctions it has always had, however, in the Italian breast, never better expressed than in the illustrations of stairscape which follow this note. Two extremes, the steps and the colonnade, pure utility and pure gimmick, yet both bearing the fundamentalist's stigmata of directness and violence.



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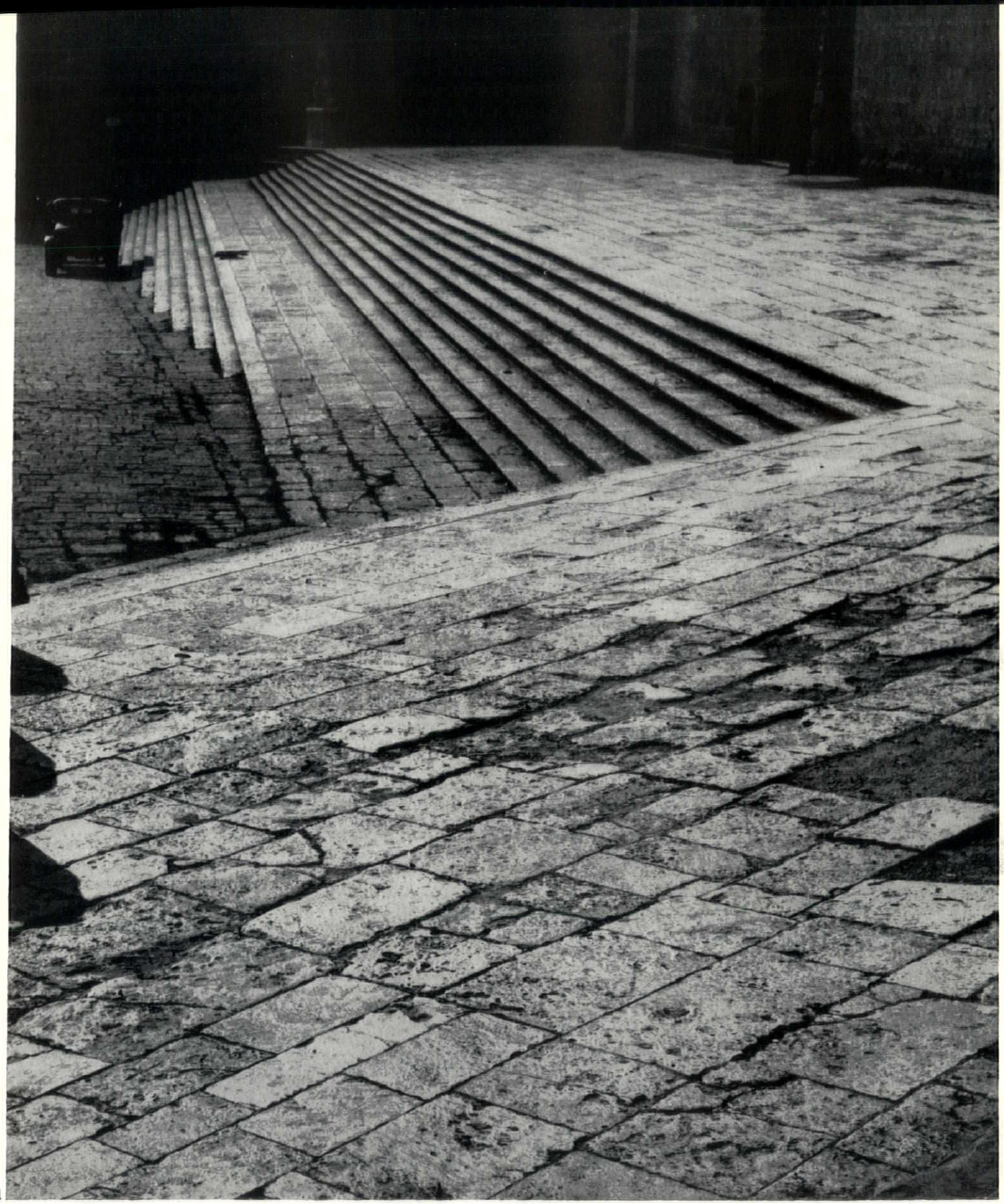


1

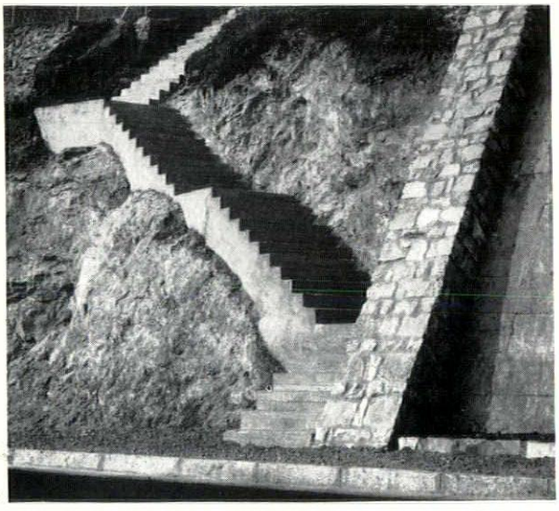
Open Space as Enclosure

Violence

A recurring Italian urge revolves around the need for stairs in open spaces, fetish, perhaps, of a hill-top people. Utility is clearly not the first consideration, the exploration of space is, and the articulating of it by formal means. Once again we come up against this strange capacity for communicating violence, Bernini-wise, to what is, after all, only a tread and riser—passionate builders of stairs have somehow succeeded in becoming builders of passionate stairs. Passionate stairscape is much in evidence in a hundred places and draws its strength from the determination to let the riser do its own business with a minimum of tarting up. At Todi, 2, not even a handrail. At Arezzo, 1, no punctuation of any sort. Another example of Italian fundamentalism, still (as the passionate *modern* stairscape in 3 demonstrates) very much alive.



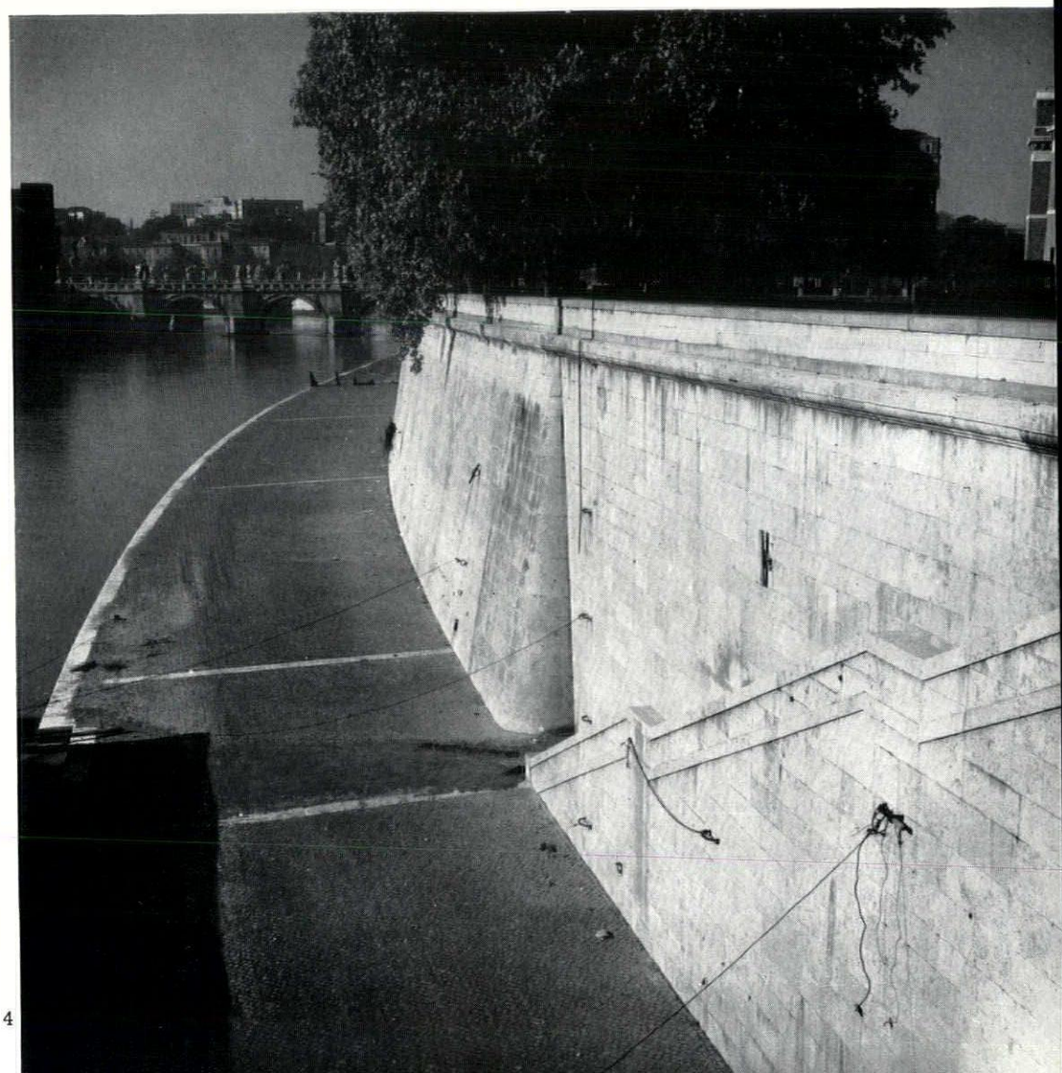
2



3

Remoteness

Genuine remoteness is for the bloody-minded. Most of us get embarrassed alone on mountain tops faced by what Dostoevsky called the silence of the universe. Moral remoteness, however, is a luxury, one of the perquisites only a highly integrated society can provide. The victory over promiscuity. The feeling that although you may be within a few yards of others you are sequestered, not trampled into the ground by the herd. Difficult to achieve in a city obviously, yet successfully done again and again, notably in university towns. Notably too in Rome, where low-level quays, 4, are gradually replacing the mud along the Tiber. Down on the quays one has a wonderful sense of isolation, of being withdrawn a hundred miles from the city. The traffic pouring over the bridges seems to belong to another dispensation.



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7



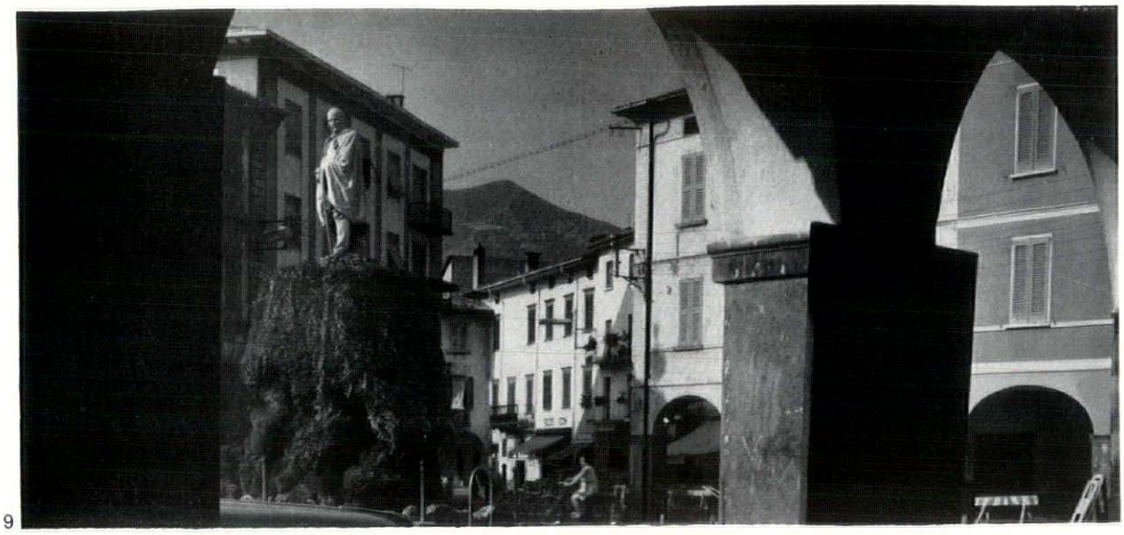
8

Flatness

The quays of Rome are not only remote, they are flat, as flat as your hat, and that flatness has been most carefully preserved against all temptations to accent it with signs, warnings, railings, lamps, bollards, articulations of any sort—except those that emphasize its flatness. The white curb, for instance, which executes a tremendous wheel in step with the river bend. More fundamentalism here. The reaction to such noble simplicity in a city inevitably overcrowded with incident is immense visual relief.

Hurly-Burly

Remoteness is most deeply felt when you are within spitting distance of the hurly-burly, as you are on the quays. The hurly-burly is, in its turn, most deeply felt when it can be stood back from and watched from behind some moral hazard, the potted privet of a pavement café, say. The thing is relative, of course. In a village square, 6, two cars and a gang of children make a crowd. In the city you need a lot going on to get the authentic sense of bustle. Despite the chi-chi café umbrellas on the front at Iseo, 7, there still seems an awful lot of tarmac, until market day, 8, makes the whole thing right. One solution, the permanent market, precisely what Florence has, complete with its own permanent pavilion, in the Mercato Vecchio, 5, a top-ranking piece of townscape made brilliant by the vistas through the arcades. By surrounding it on all four sides, these keep the space fluid and congruous with the street, so preventing any suggestion that the building is *a building*.



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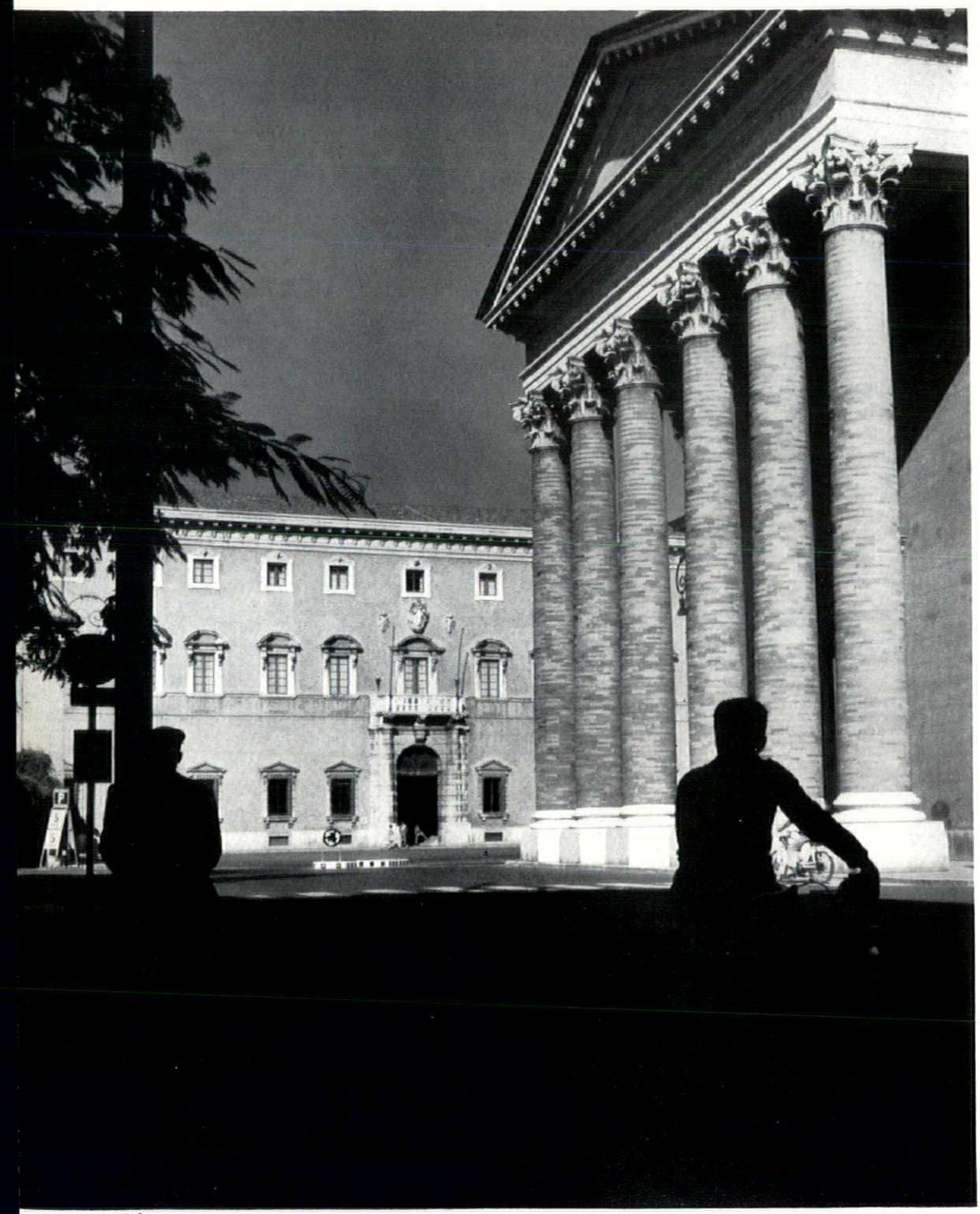


Outrage

The traditional cure for a dead patch in the town is a monument, sometimes by this race of extremists carried to extremes with the springing of a very canny townscape trick which consists in forcing a quart-size monument into a pint-size Piazza. Museum example, the Trevi fountain, 29, depending for its effect, like a poster, on outrage to the conventional urban scale. More violence. Biggest of all these sculptures, occupying the greatest available space in the smallest possible enclosure, is the Florentine dirigible known as the Duomo (page 435). From none of the many approaches to it can this monument be really *seen*, a fact which fills the artless planner with despair while giving the sophisticate much quiet satisfaction.

Theatre

Most towns have to be satisfied with a more modest line in sculptures and here an admirable habit survives of using the monument to aid the build-up of the stage-set rather than horsing around with axes and centres. The whiter houses in the shot of Iseo Market, 7, are on a street which leads to the town square, 9, another example, this, of townscape's independence of capital-A Art. The architecture is nice but undistinguished and the statue a joke, but what a good bit of theatre the whole thing is, and how admirably the joke-statue half bunkers the entering street.

Waxworks

The Piazza at Forli, 10, on the other hand, is five-star stuff with monumental trees, palatial palaces and no less than six *tours de force* in the persons of the church's circular brick columns—complete with entasis. Super-architecture, super-craftsmanship, yet in townscape terms the ensemble, though much presuming, never comes alive, nor can one conceive it doing so even with a crowd-scene thrown in. Waxworks, not theatre.



11



12

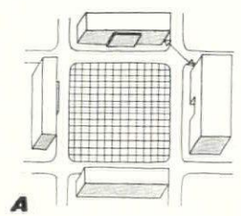
Multiple Use

If what has just been said is thought to insinuate that architecture and townscape are incompatible, turn to the Piazza Erbe at Verona where great architecture and sculpture mix it with the populace in what is probably Europe's most successful example of multiple use. Traffic arrangements included. The confinement of vehicles, 11, to three sides of the square permits a pedestrian overflow, 12, throughout the whole area occupied by the market, with, in so far as the cafés allow it, penetration from the fourth side. An ideal arrangement. The market buffers the cafés from the traffic and the citizen has a delightful sense of being lost in the crowd—noise animated, scents (of flowers and greengroceries) delectable, the scene (from a café table) worthy of an oriental bazaar. Open space used as it should be to heighten the urban congestion and so multiply social contacts.

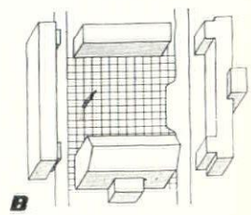
Enclosure

Open space is, of course, a misnomer. There should be nothing open about the right kind of urban lung. Like the Piazza Erbe, it should be another essay in enclosure, and is best thought of as an open-air room in the tradition of the Piazzetta at Venice, called by Napoleon *le plus beau salon de l'Europe*. Frederick Gibberd (in *Town Design**) resurrects Winifred Leonhardt's 'Space-bodies' from *Bauen* where she makes, on the *repoussée* principle, space of the buildings surrounding a given square, and buildings of the spaces they enclose, thus substituting the idea of roominess or spatial volume for *open* space. He does so to make Sitte's point that floor area and spatial volume are not equivalents, or, rather, that the *effect* of spatial volume isn't dependent on the *amount* of floor area—the great and famous open squares—Erbe again—are mostly much smaller than they appear. Indeed, after a certain point an inverse ratio begins to operate—the greater the floor area the less the sense of spatial volume, a lesson never learnt by Beaux Arts planners. His conclusion, that after excessive floor area street openings are the greatest threat to spatial volume, is shared by most planners, and leads him to examine various alternatives starting with A, where the streets meet at right-angles on the corners of the square. Sitte condemned this arrangement as making breaches in the space-body (an over-generalization, as we shall see later), maintaining that earlier planners in order to get overlapping façades, B, avoided where possible more than one street entering a corner. Preferred the practice of C, in which every

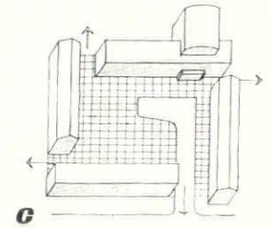
* London: The Architectural Press, 73s. 6d.



A



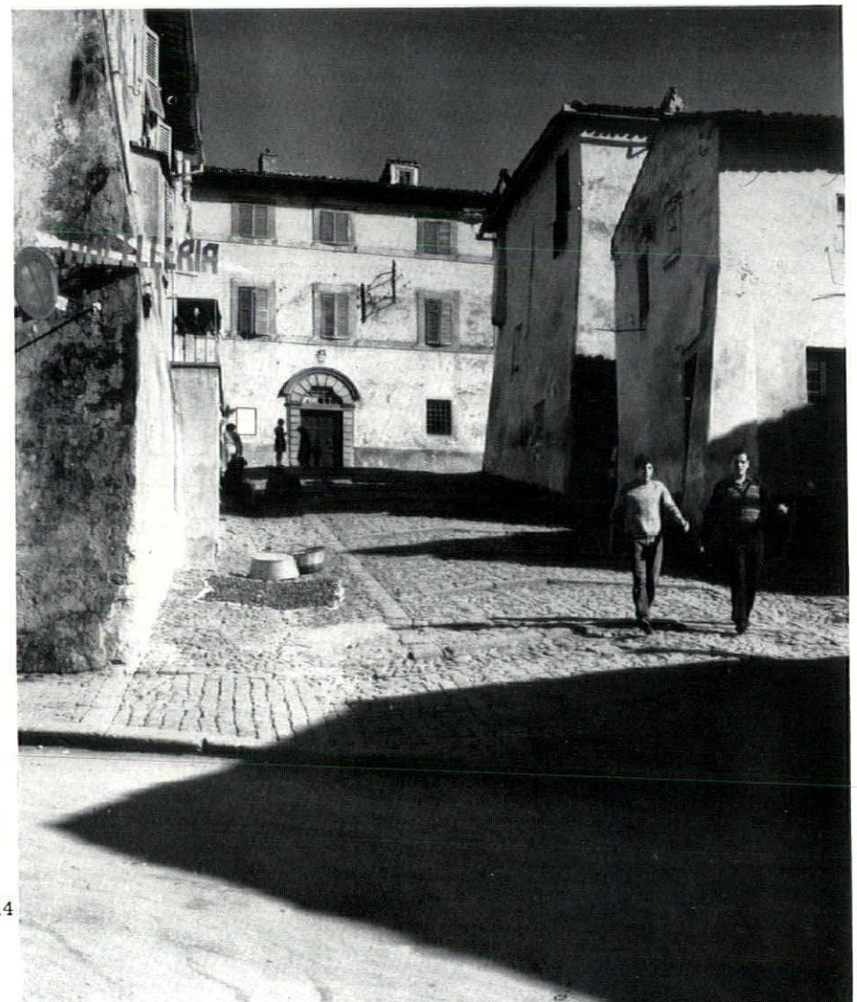
B



C



13



14

entrance into the enclosure is baffled by a building, a practice so common that Sitte concluded it must have been a principle, conscious or unconscious, of traditional city planning. Be that as it may, C is the cue for the entrance of the T-Junction, a character which plays, as we shall see, a significant role in Cinquecento townscape, indeed at one stage practically steals the show. Other variations are possible but none are more than rules-of-thumb. The Piazza Garibaldi at Sabbioneta flouts them all, starting with A, and gets away with it by means that are analysed later not with the idea of confounding Sitte or Gibberd but as a demonstration of the guile by which a good townscaper can overcome his liabilities, consisting in this case of no less than eight entering streets, four of them at the two western corners. The fact is, in matters of townscape diagrams fail and the artist is forced back on the eye or, failing that, its stand-in, the camera. The eye, as we have discovered already, is all the Italians have ever bothered about, on the principle that what does not offend that organ cannot outrage the mind. Thus re-affirming the implicit Italian philosophy, that rules and rulers and compasses and dividers should be in the heart of the beholder and not the hand of the artist. Townscape is by the same token a matter of hunches rather than a system of principles. Such hunches may not always be fully self-conscious but they are the fruit of a philosophy of life just the same.

Leaks

And a philosophy of town. One that is concerned now with substituting the idea of enclosure for open space. And thus of stopping leaks, a tactic considered in greater detail later apropos the street. Here two piazza examples are given to shew how far from rule-of-thumb the business is. One at Orvieto, orthodox, the other, at Tarquinia, very much the opposite. The Orvieto shot, 16, taken from the Cathedral steps, has its sights trained on the corner of the Piazza where the main street enters under the tower. But does it? If so, where? One can't tell. Repeat, *main* street, yet the feeling of enclosure is absolute. One is not even conscious of the existence of an entry or exit. The other at Tarquinia, 15, presents on the face of it just the opposite story. It is quite a common practice in towns of this sort to prove the rule by an exception, 14. After many enclosures, suddenly a street straight and ultra-wide. This act of rebellion the builders of Tarquinia have committed in the town square with a ploy reminiscent of the fourth-wall omission beloved of Baroque planners. The wide promenade that breaks away up the hill from the Piazza is more than a leak, it is a gap. However, by extending a shoulder of building to act as a proscenium arch they have succeeded in transforming the whole scene. Suddenly the gap becomes a stage set with stage-scenery—the trees—and as the illusion grows the gap diminishes until there is no gap, no leak, nothing but impatience for the play to begin. Anticipation—the mood of the play-goer immediately preceding the rise of the curtain—in this case the urge to breast the hill and get an eyeful of whatever is cooking over the horizon—has created a barrier to the negative idea and with that barrier filled the gap. For once the photograph represents rather well the part played by the sky in this action. Instead of roaring in to blow open the town it drops behind the stage to make a back-cloth, and so a curtain.





15
16

and so (though itself the recognized source of leakage), an unwilling agent of fresh enclosure. By way of compensation for all this open air the fountain, 13, is employed in making cosy corners for those who need them.

Baffles

The proscenium arch at Tarquinia shews only one use of what might be called the shoulder of rock. Under *Wings* the use of this motif, an Italian speciality, is discussed in the section on the street. All that needs to be said here is that the Shoulder or Wing provides a simple baffle for widening, diminishing, segregating or cordoning off, an open space. At Bergamo, 17, it is used to carve a little enclave out of the street itself, thus forming the kind of small piazza that is so useful in punctuating the linear network and reducing it to visually digestible sections of town.



17



18

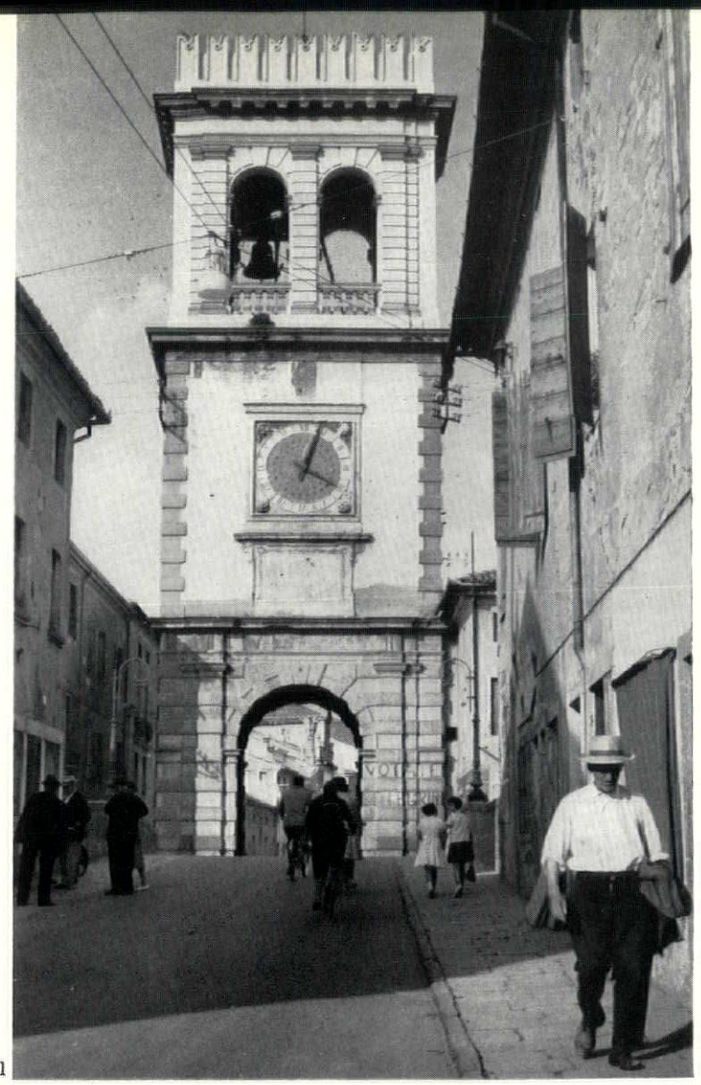
9

The Big Leak

The subtlety of the Tarquinian stage-set lay in exploiting the sky as back-drop by means unconnected with what was said earlier on the subject of trapping. Nevertheless the big leak remains a threat wherever buildings are low and enclosures wide. London has always suffered from too much sky. The Italian insurance against the threat, a surprisingly successful one, consists of those soaring often disconnected towers which seem to take the fight out of heaven. They come in three sizes, the less soaring Gateway, 21, Este, 22, Padua, which relies on titivations and change of materials for its ability to push back the sky. Second, the Great Gesture, represented by the Campanile of St. Mark's, or the less famous Recanati Stump, 20. Or, thirdly, the frankly mad Alberti's Grove of Spires—hailing from Siena, 18, and Bologna, 19, and fundamentalist to the last brick. The two first come within the category of architecture, the third belongs to the realm of violence, insane but fascinating, to be cherished for its excess and more worth while than lorry-loads of nothing-too-much.



20



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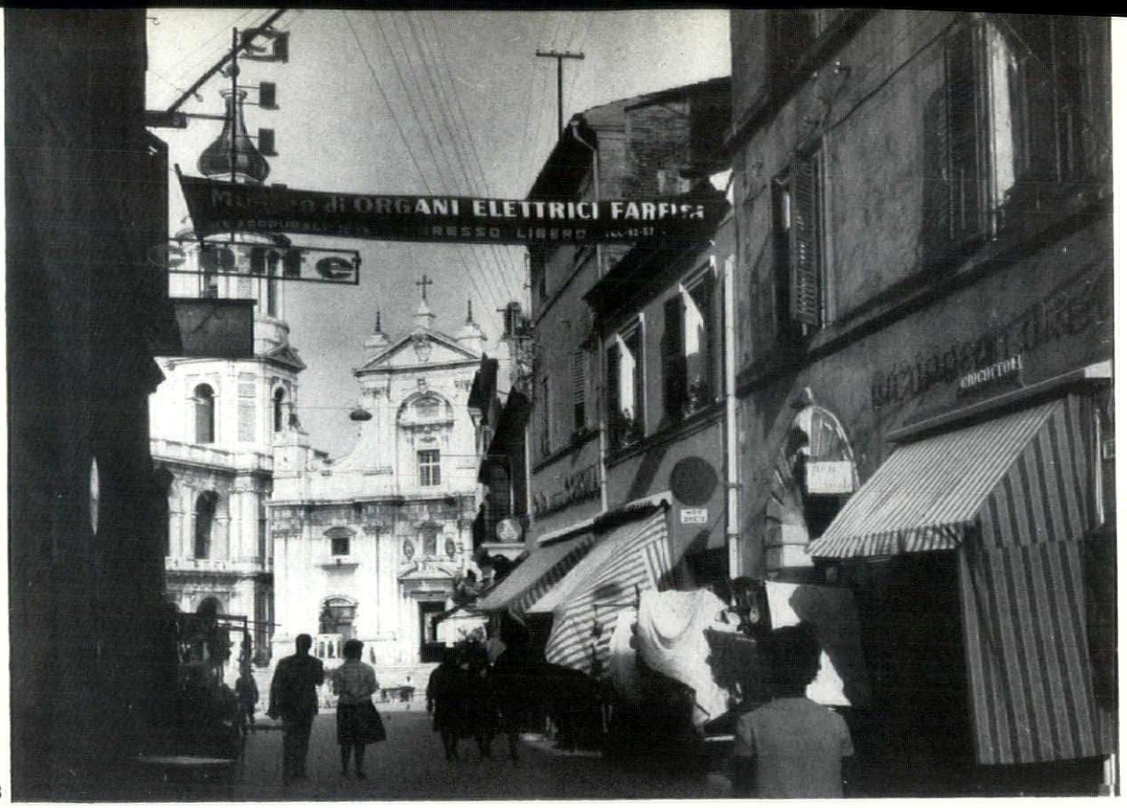

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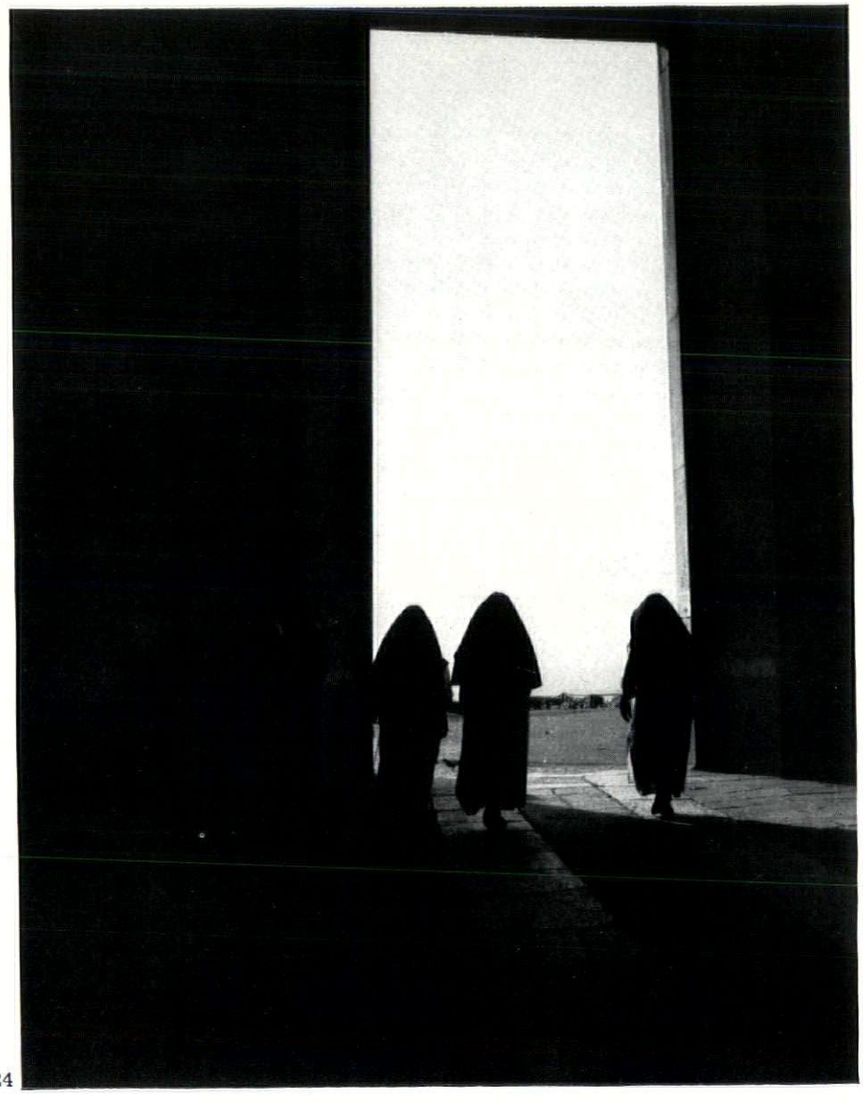
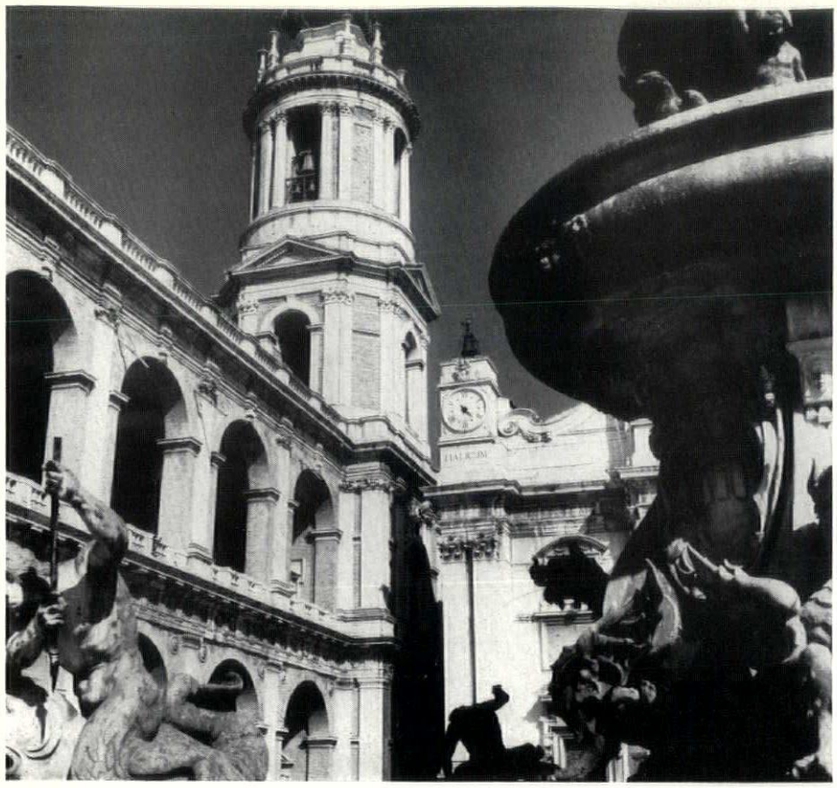


24

Loreto

An exaggeration, as every traveller knows, to pretend that internal combustion has been mastered in the Italian Peninsula—there are few more frightening things than being hunted down the street by a sportsman on a Lambretta playing his instrument for pillion-laughs. However, the Italians shew more elasticity in their approach to the problem than we. To start off with they hold that the street was not made for cars alone. At Loreto the traffic stream is heavily censored. All cars and trucks except those that have business on the main street are either by-passed or parked within a few feet of the square. The censoring is done in the simplest way by a No Admittance sign favoured drivers, i.e., those who have goods to pick up or set down, are permitted to flout. A cop at the other end sees that this privilege is not abused. The street is thus about 75 per cent pedestrian as can be seen in 23. It is illustrated here because we propose to treat Loreto as a special case (which it is) and





25

do it briefly in the next few pages as a test of points already made. First, as the plan shews, the street's entry at the S.W. *corner* of the square and continuation down one side only—the rest of the Piazza being pedestrian. As yet all that can be seen of it is a fraction of the Duomo and the whole, 25, of Vanvitelli's lovely honey-coloured Campanile of 1751, but it is enough to give an idea of the angle of entry since the Campanile stands (remember St. Mark's ?) on the *opposite corner* of the Piazza. A diagonal. One's guess is that the Campanile was built with an eye on the axis of the street. When you do get a view of the Duomo, it is worth it. Seen through the fountain, 26, the façade demonstrates the way good Baroque—one of its virtues as townscape—can make the urban scene busy without having to hire a crowd. When you circle the fountain and look back the scene is still more unlikely for the west and north sides of the piazza are occupied by the Palazzo Apostolico, built (but not, of course, completed) by Bramante in 1510, now a hospice for the reception of the crippled and bedridden and their personnel who come by the ' White Train '—Loreto is a minor Lourdes—to visit the Casa Santa. The nuns in 24 are walking through the great entrance archway towards a fine example of trapped sky in which the sun can be seen to set on March 21st and September 22nd. More than usually due west, that is, and beyond the archway

26



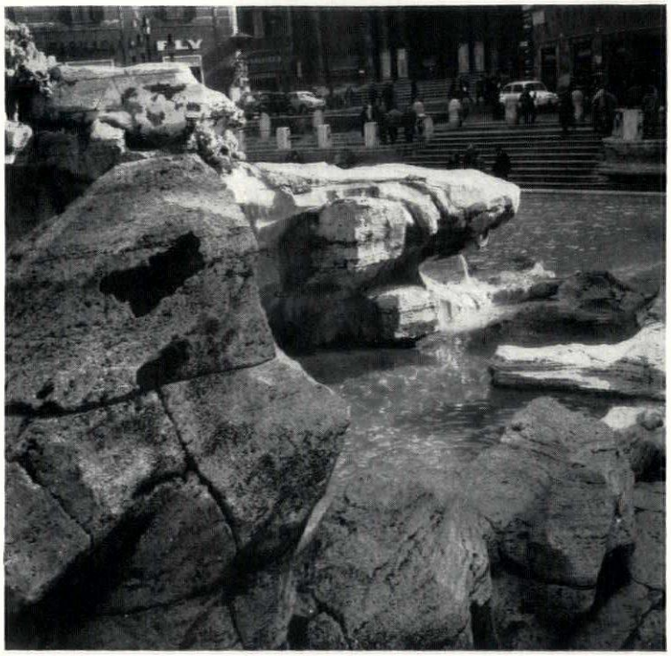


27

is the car-park, totally invisible though only one second away. No cars are allowed through—the Piazza is pedestrian. Reduced in size, sky and arch are seen again in 27, this time in their fabulous context. Difficult to put into words the full effect the Piazza has on the mind. One can only say that after St. Mark's it is probably the most perfect open space in Italy and belongs to the free-floor-area type, 30, 31, as opposed to that other Italian speciality (mentioned already) the quart-in-pint-pot, standard example, the Trevi Fountain, 29. The Piazza della Madonna has everything, great architecture, of several periods, foiled by a vernacular flank (that of the street), 28, and married to a lay-out which is both deeply romantic and extremely practical—the insulation of the car-park is in itself an object lesson to planners. The surprises are not exhausted yet however. In a later note (on Sabbioneta) the word surprise is used to denote the satisfaction one specialist eye feels at being taken for a visual ride by another specialist eye. A mellow aesthetic pleasure. When the word is used here it means something different—profound astonishment. Awe is not too strong for the sensation which bludgeons the rubberneck, when, having exhausted the Piazza,



28



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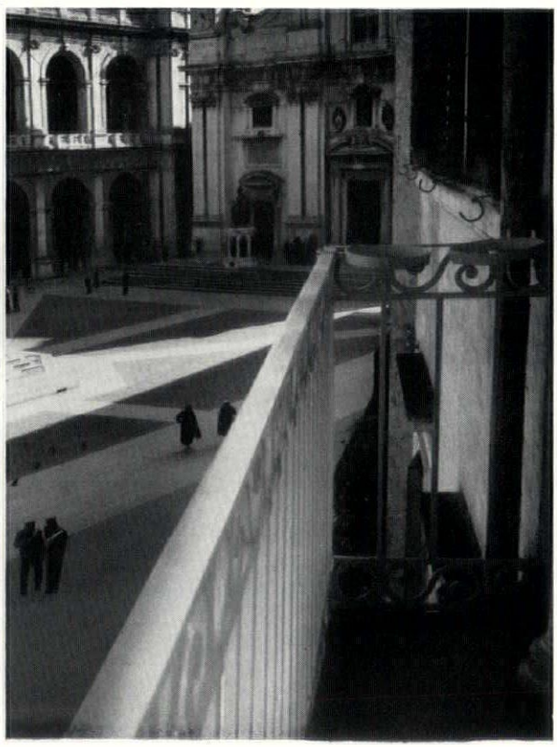
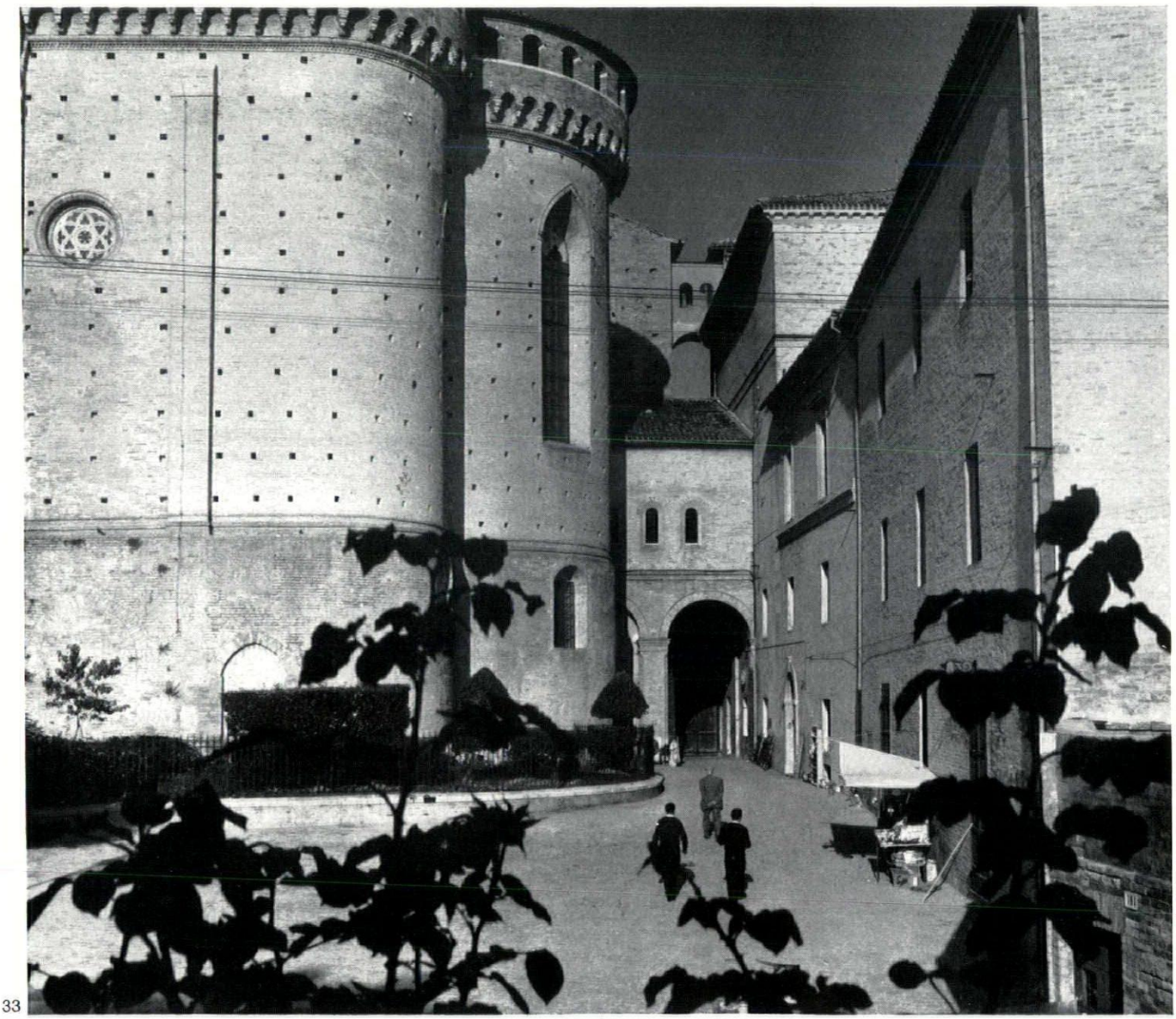




32

he continues down the main street and disappears along the southern flank of the Duomo. Keeping it on his left, that is, or, if he is moving backwards like the camera, 32, right. Disappears, because the street takes a steep dive here into a rabbit hole whose sides are suddenly crowned by a series of battlements. They are very high and very heavily battered and give rise, 33, 35, 36, to plastic undulations reminiscent of Scots castles and Yorkshire Moores. The shock is indescribable. We cannot discuss here why the Cathedral and its surroundings were fortified.



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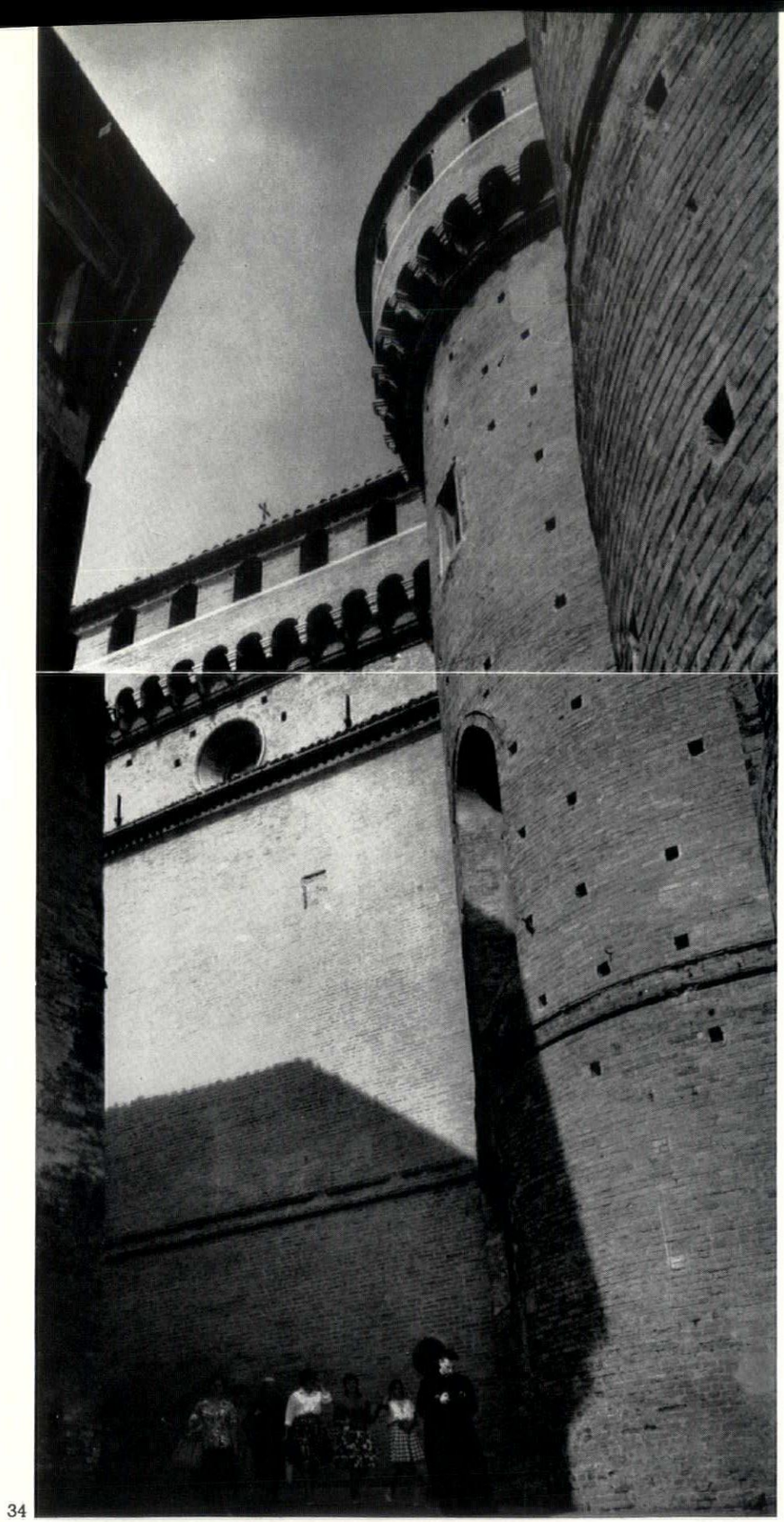

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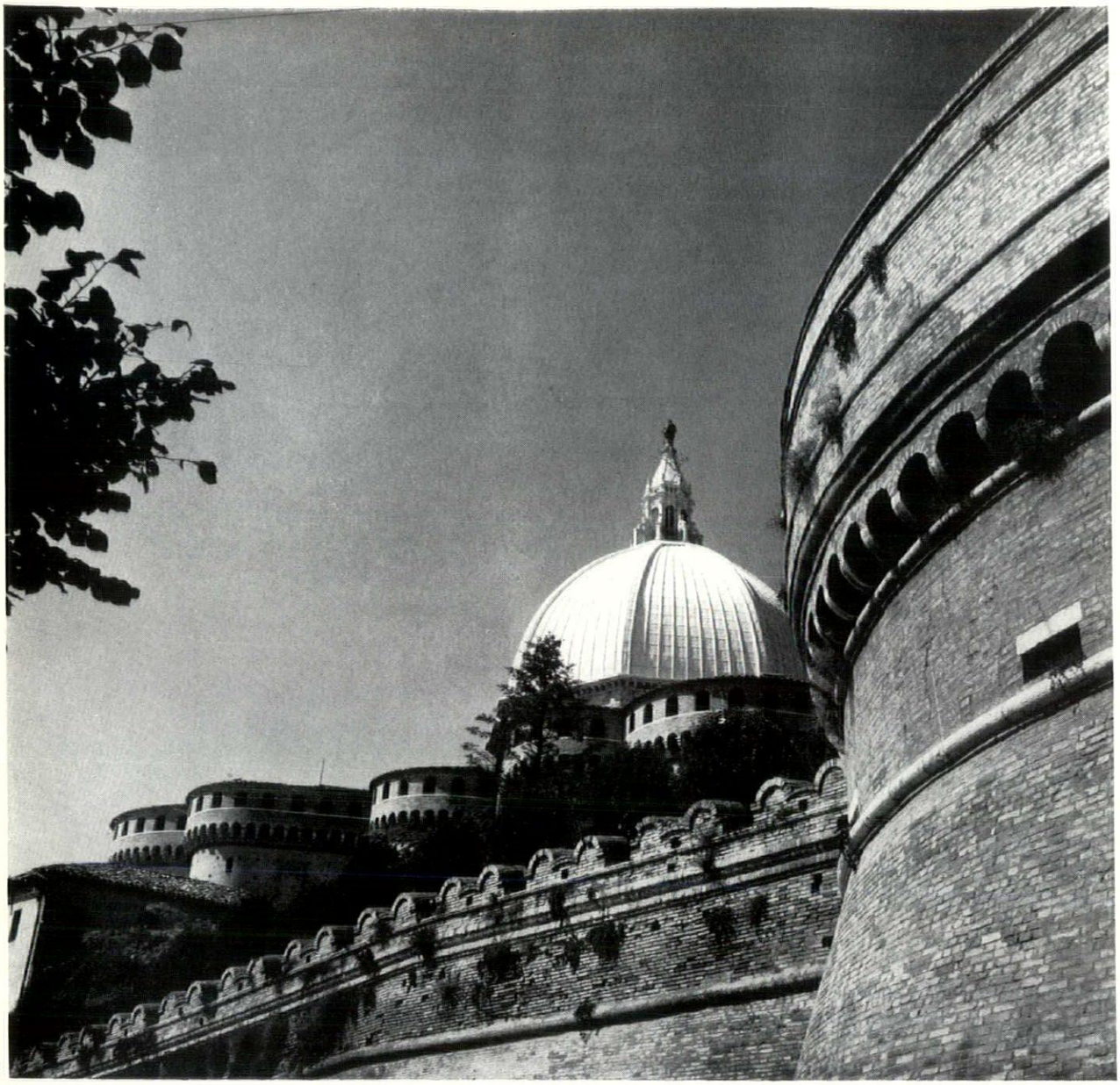
36

but fortified they were and fortified they remain and the fortifications have to be seen to be believed. The building behind the priest and his party, 34, who have just come to the bottom of the rabbit hole, is, believe it or not, the Duomo. When one remembers the façade, surprise seems a fair word to use. And when on the next tack one is able to get a view back, comes the climax. The combination of these fantastic corbelled ramparts and Guiliano Sangallo's dome, 37,



37

shining like a crystal temple straight out of the Celestial City, makes a kind of music not often heard in this hard world. The sublime in Townscape. Nevertheless, useless as a precedent in view of the death in battle of the styles—or so one might feel up to the moment the realization dawns that we in this era have precisely the architecture for the job. The job of creating foils. Supposing we had the imagination as well. And the capacity to substitute for preservationism positive sympathy towards the past. Two very different things. The one lists what the conventional wisdom has established as worthy of reverence and isolates it, insulates it, ropes it off, puts it in a museum. The other uses its own favoured routines to *complement* those of the revered object —composition—artist—not out of piety or pity, out of affection, admiration, the impulse of love. A high-flown sentiment but Loreto, hot-bed of devotion that it is, encourages an intemperate emotional climate. To the near-hysteria of the townscape addict has to be added an electric atmosphere of faith as the sick and dying are brought in to take their chance of a miracle in the Cathedral where beds and bath-chairs queue up to enter the Santa Casa, cottage of the Virgin Mary and Joseph, transported by angels from Nazareth on the night of December 9, 1294, to its present home under the dome and given the treatment by Bramante, Sansovino, Sangallo the elder, Sangallo the younger, the Lombardo brothers, the Della Porta brothers and Bandinelli. The angelic porterage is depicted in the relief, 20, on Recanati Tower. Since the queue contains every known idiocy, deformity, disease, disfigurement, one might expect the emotions to be grim ones but here Loreto springs its last and greatest surprise for the keynote is gaiety. Nurses, nuns, clergy, patients—all have the air of being out on a spree. Which is exactly what they are out on. A spree from life with its laws of nature, deadly utilitarianism, rejection of magic. The saints having taken over a sort of sanity supervene, and sanity and gaiety are close acquaintances. On gala occasions when an altar is set up on the fountain in the Piazza and the sick laid out in battle order to be blessed by the bishop, at certain climacterics in the service the street traffic is stopped. Then come moments of tremendous theatre with tough Commie truck-drivers lounging by their cabs and mentally machine-gunning the scene while tragedy stalks the beds where nuns and nurses cherish cripples, spastics, infants and all-but-corpses. The quintessence, this, of urban drama, in no way lessened by the actions of the other kind of truck-drivers who kneel right there on the tarmac. Should anyone demand an illustration of the definition of townscape on page 384 this is it.

The Street

Street, like *City* is almost a dirty word to-day. Street boy, street walker, on the streets, from the streets. Hard indeed it is for refugees from the industrial revolution to reconstruct an urban world of such allure that its earlier escapologists, the puritans, compared it to a fair. A particularly plushy one. No one in his senses even thought of getting out. Except, like Pilgrim, to save his virtue, flying from Vanity Fair as from some lush doll lest he be debauched by her charms.

The sixty-four thousand dollar question now comes up, were those charms natural or artificial? Did the idea of a planned ensemble, matching gold eye-shade, finger nails, bag, gloves, stilettos, costume jewellery, enter into the doll's stream of consciousness, or was the final product in all its finery as accidental as a hornbill's tail feather.

For the ordinary citizen the answer seems obvious. Towns *grew*. The mediæval city was a picturesque jumble and a picturesque jumble is the opposite of a plan. His view is based on a naïve thought sequence which identifies order with system and system with symmetry. Where there is no symmetry there is no order, the argument runs, and—man being a rational animal—where there is disorder absence of conscious direction must be inferred. Hence Filarete's Sforzinda is town-planning (it was in fact a piece of wizard-of-ozardry) while picturesque mediæval muddle is the product of 'natural causes.'

Modern planning theory with its emphasis on functional issues repudiates the symmetrical fallacy. It reminds the plain citizen that the original meaning of symmetry in the Greek was balance, a very different thing, and the balances in many mediæval towns were often wonderfully adjusted. Because their build-up is organic rather than rational it doesn't follow that the emerging pattern or lack thereof must be accidental. This theme the student of organism can go along with quite smoothly so long as he avoids the mistake of turning for corroboration to the literature of town-planning, for when he does he finds there isn't any. Virtually no literature, literally no corroboration, and such literature as there is echoes the plain citizen's sentiments—not his—with Budgy-like fidelity. Almost to a man from the father of Philosophy onwards those who have jumped into print on the subject have treated it as the art of creating the ideal town and the ideal town is *never* a picturesque muddle. It is on the contrary strictly symmetrical, standing on absolutely level ground (Cicero) with gridiron plan divided into twelve parts each with its particular Temples, Chapels, square Squares, and wide straight noble streets, these handsomely paved and beautifully contrived with public edifices and houses built regularly and in similar style and at uniform height and joined one to another (Babylon's, that unideal city, weren't by the way) in such a manner that the whole city will have the form of a single building, thus amongst other things providing the town with a wall (Plato). Alberti adds that the houses will be rendered much more noble if the doors are built all after the same model.

The gridiron sometimes gave way to the Catherine Wheel, but the symmetrical ideal remained unchanged. For us, who live in a gridiron world without finding it particularly ideal it is difficult to understand why the prophets of town-planning argued in these terms until the realization dawns that though they may have been prophets they were not prophets of town-planning but doctors of philosophy, hailing, almost to a man, from the Platonic cornbelt, a prairie if ever there was one. And home of prairie plans, each little more than a three-dimensional allegory of the good life, hence their appalling dullness—Plato, you will remember, wouldn't even let foreigners into town lest they corrupt the citizenry.

Add to the doctors of philosophy a few wizards and a sprinkling of mad military engineers and even madder princelings with an urge to reconcile building and ballistics, and you have about all history can offer on the subject between the fall of Rome and the sixteenth century. And when towns with systematic layouts do reappear their new regularity does more than encourage the plain citizen in his faith, it convinces him that Cinquecento builders held a view of town-planning similar to his, as the art of getting symmetry into picturesque muddle.

Nor on this point would the historians disagree with him. Here is where the functional planner begins to see that he has been tricked into something dangerously like a regress. By defining it as the business of regularizing muddle his opponent is able to deny the existence of planning except when the formal pattern he fancies turns up. To break this vicious circle a new work-out on picturesque muddle seems indicated and here the student of organism has a stroke of luck, for there is, as it happens, a modern parallel to the picturesque and muddled mediæval cities in the picturesque and muddled English landscape. Is this, too, the product of 'natural causes'? Yes, indeed, the plain citizen would answer, insofar as agriculture is a natural cause, and insofar as its picturesqueness shows it to be unplanned.

This time, however, he would not find the historians so accommodating. Picturesque it certainly is, but not unplanned. In the history of art no picture has been more deliberately painted, down to the last dead tree, yet the fact that this accidental looking landscape was the work of thousands of highly self-conscious amateur 'improvers' had been overlooked well before the last of them was a hundred years dead. The rediscovery of their art—landscape gardening—easily the most important art this country has produced—depended largely on the touch-and-go of a flimsy literature, dependent again on the new eighteenth century fashion of printing and publishing what amounted to private country-house jokes. In their absence, no painting, no picture, no artist, no improver, no conscious direction at all, just the English

Countryside, picturesque, muddled, folksy, product of natural causes.

Touch-and-go indeed. The moral doesn't permit us to claim the same history for the picturesque muddle of the Middle Ages. It does reinforce the reasonable view that if they were not in the modern sense 'planned' (meaning grimly bye-lawed) the mediæval towns were most certainly *made* with all the prodigality of the creative spirit. And with eyes alive to the pattern. Contrived, as they used to say. Which suggests that if town-planning (in the current sense) is a new development, townscape is an old one. Which again suggests that our ancestors were a bit more subtle than we give them credit for. And a bit more successful. Every generation believes itself to be the first beneficiary of full self-consciousness, thereby tacitly denying that distinction to its predecessors. Ours is not an exception. Yet even in the absence of direct proof it seems a reasonable bet that the intuitions of men who made nice towns comes a bit nearer the essence and inner meaning of town-planning than does the exact science of those who, like ourselves, make vile ones.

There is a valid retort to this. If they were indeed our betters at the game how comes it that our ancestors, when they did turn to formal planning, could surface with nothing more interesting than Durer's grid or More's Utopia? The answer is equally valid. Because from first to last, from Durer to Christianopolis the mess of pottage we are being served up with on plate after plate is still the ideal city—more pie-in-the-sky from more philosophers waving Utopian blueprints that are still nothing better than the doodles of do-gooders. To make a true appreciation one would need to find a ready-made real-life town of the right period and analyse its effects in three-dimensions on the spot, not an easy assignment obviously since ready-made towns of the right period do not grow on trees. But suppose the real thing did turn up. And suppose the pattern turned out to combine two kinds of logic, formal and picturesque (the townscape equivalent of Brunelleschi's San Spirito), then two complementary conclusions could be justifiably drawn. The men of the Renaissance could be accepted as heirs of a *living* planning tradition and the picturesque muddle of the Middle Ages could be put down to more deliberate purposes than 'natural causes.' Concede the possibility of *picturesque planning** and the whole situation changes. In place of accidental muddle on the one hand and conscious town-planning on the other, a choice could be made between two complementary townscape approaches, formal and informal, symmetrical and asymmetrical, regular and irregular, classic and romantic, rational and organic, free and formal.

But where is one going to find this text-book example? Just to start off with, if the cry later interpolations is not to be heard ringing through its streets the town in question will have to be guaranteed designed and built at the drop of a hat. Only the first condition, that, and of those that do satisfy it there are not more than two of the right date in all Italy and it would surely be over-sanguine to expect either of these to oblige. Or would it? Believe it or not one of them does. Sabbioneta, a city-statelet belonging to the Princes of Mantua and situated some twenty miles from that town. Built between 1550 and 1564 by Vespasian Gonzaga, a man of violent energy and ferocious temper (he kicked his son to death), Sabbioneta provides (it is suggested here) conclusive evidence not only that town-planning was a well digested science in the sixteenth century but that townscape—picturesque townscape—was in an advanced state of development and practised by self-conscious operators.

Before this proposition is turned down with the contempt it deserves let us add that the theme is not an entirely novel one. Sitte was convinced as early as 1889 that much of the picturesque muddle of Italian and, indeed, other European towns—the hambone shapes of squares, for instance, and the tangential impulses of streets—was far from accidental. In that belief he analysed about a hundred European *plazas* with highly interesting results. There is another piece of literary evidence even better than Sitte's, Alberti's, written (though not published) around 1450 and in the context of the case we are discussing, immensely significant, since Alberti and the Gonzagas were hand in glove. It was for Lodovico III that Alberti in 1472 designed the church of Sant' Andrea, Mantua at which Court he was an honoured guest. Not, it is true, in the company of Vespasian, who was of a later generation, but doubtless selling the whole family, present and future, his act as the Florentine Vitruvius. The Roman original Vespasian is known to have treated as his private bible and carried with him to the wars and it isn't stretching credibility far to believe the new Vitruvius was in the Gladstone bag as well, though the two works would hardly have made good bed-fellows—Alberti regarded his model as a dimwit who couldn't write his mother tongue and said so in no uncertain words.†

To the ideal Platonic tradition we have already discussed Alberti is virtually the one exception. Here we have that rare phenomenon an architect of the highest genius with a brilliant literary talent. In consequence perhaps, a crack appears in the uninviting paste-board walls of the ideal city and a small piece of townscape grins through. Only a small piece but when one considers it in relation to Sabbioneta and the Gonzaga link, a very significant one indeed. Thinking (also perhaps significantly) of precisely the kind of miniature town Sabbioneta was, and is, Alberti says:

> 'But if it is only a small town, or a fortification, it will be better, and as safe, not for the streets to run straight to the gates; but to have them wind about sometimes to the right, sometimes to the left, near the wall, and especially under the towers upon the wall; and within the heart of the town it will be handsomer not to have them strait, but winding about several ways, backwards, and forwards, like the course of a river. For thus, besides that by appearing so much the longer, they will add to the idea of the greatness of the town, they will likewise conduce very much to beauty and convenience, and be a greater security against all accidents and emergencies. Moreover, this winding of the streets will make the passenger at every step discover a new structure, and the front and door of every house will directly face the middle of the street; and whereas in larger towns even too much breadth is unhandsome and unhealthy, in a small one it will be both healthy and pleasant, to have such an open view from every house by means of the turn of the street.
>
> 'But further; in our winding streets there will be no house but what, in some part of the day, will enjoy some sun; nor will they ever be without gentle breezes, which whatever corner they come from, will never want a free and clear passage; and yet they will not be molested by stormy blasts, because such will be broken by the turning of the streets. Add to all these advantages, that if the enemy gets into the town, he will be in danger on every side, in front, in flank, and in rear, from assaults from the houses. So much for the publick streets. The private ones should be like the publick, unless there be this difference, that they be built exactly in strait lines, which will answer better to the corners of the building, and the divisions and parts of the houses.
>
> 'The ancients in all towns were for having some intricate ways and turn-again streets, without any passage through them, that if an enemy comes into them he may be at a loss, and be in confusion and suspence; or if he pushes on daringly, may be easily destroyed. It is also proper to have smaller short streets, running cross from one street to another; not to be as a direct publick way, but only as a passage to some house that fronts it; which will both give light to the houses, and make it more difficult for an enemy to over-run all parts of the town.'

The requirements of defence in passages like this are used rather as they are by politicians to-day, as a pretext for doing what you want to do. 'Even when' writes S. Lang of Alberti (in by far the best short account of the history of town planning that has yet appeared‡), 'he pretends utilitarian considerations, his real concern is obviously with aesthetic questions.' Sabbioneta doesn't exactly *wind*, but that's the interesting thing. Without exactly winding it does manage to carry out all Alberti's ideals for a small town even down to 'turn-again streets' and 'intricate ways.' On the surface the plan is as the guide books and scholars describe it, star-staped, formal, grid-ish, fortified, yet not one of these aspects has any real bearing on the end product which is of an extremely subtle, romantic, synoptic sort, deeply opposed to what is widely regarded as the Cinquecento ideal—through-way bye-passing the town square—T-junctions to all exits—lead-ins—street lengths reduced to a minimum—entrance gates masked—

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* Free planning is the current term, an exercise sometimes treated as a side-kick of functionalism and replaced here for that reason, by *Picturesque* because the latter has visual and historical associations the former lacks and is thus able to grait free planning to its own tradition.

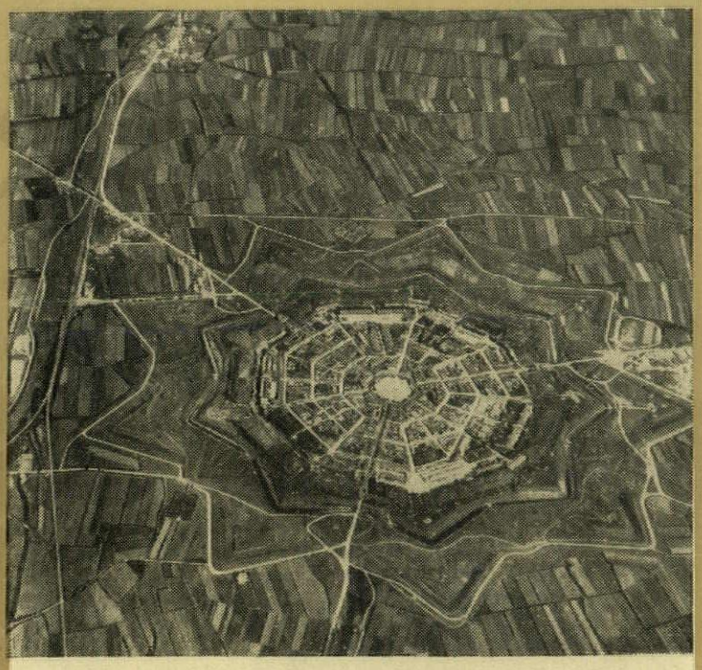
† '. . . he wrote in such a manner, that to Latins he seems to write Greek, and to the Greeks, Latin: But indeed it is plain from the book itself, that he wrote neither Greek nor Latin, and he might almost as well have never wrote at all, at least with regard to us, since we cannot understand him.' Book VI. chap. 1. p. 111 in the English Edition of the *Dieci Libri* (Tiranti.)

‡ In fact the only one—'The Ideal City'; THE ARCHITECTURAL REVIEW, August 1952, p. 93.

all exits to town masked—all views of the world excluded—no rational plan—no quick picture—no geometry—no grasp permitted of the master-plan or underlying rationale—on the contrary, surprise, anticipation, mystery, frustration, chinese boxes, shock, delight, all in the compass of one dusty village exposed upon the flat irrigations of the Po Valley, an area of no mystery, and even less romance.

As a special contribution to the argument the history of the town has been discussed by John Fleming in an article on page 443. The plan itself is dealt with in greater but far from exhaustive detail in the illustrations following this article. One need not say more here than that the result demonstrates the existence in the sixteenth century of an aesthetic which is only now being explored in the second half of the twentieth*. Sir Uvedale Price, that ornament of our race, lampooned by Peacock in Headlong Hall (and thereafter elbowed out of existence), when quizzed by Repton for his part in the destruction of the traditional English *formal* garden, maintained with passion that to destroy ornamental planting of parterres of box or yew or avenues of elm or chestnut when they were acting as extensions of the house to which they belonged was against every principle of Picturesque as opposed to Landscape Theory. Picturesque Theory, he asserted, demands formality where it is justified by the genius loci, and should and could assimilate the Grand Manner *whenever it is picturesquely required.* Whenever, that is, its presence is dictated by the Picturesque aesthetic. A lofty sentiment but one that was never implemented. In the nineteenth century, Picturesque and Beaux Arts routines, the visual philosophies of the two preceding centuries remained separated by the coldest of cold wars, each chewing its underlip when the other turned up, not to say gnawing the ends of its moustaches. Not till Le Corbusier used them as foils was reconciliation even conceived to be a visual possibility. Yet in point of fact that reconciliation had been effected centuries earlier in the Italy of the CINQUECENTO. Such anyway is the contention here. That Cinquecento townscape was founded on what might now be called a picturesque approach to the Grand Manner. Or, if you like, a romantic use of classic principles. Or a free use of the formal. Or a formal interpretation of the organic. Put it what way you like, these are the very issues that exercise the master-minds of our own day apropos (on the narrower front) the relation of space and volume and (on a very much broader) such dicey questions as the possible armistice between science and religion.

* Some would argue that townscape of this kind—the employment of formal patterns to romantic ends—was the basis of the later work at Bath.



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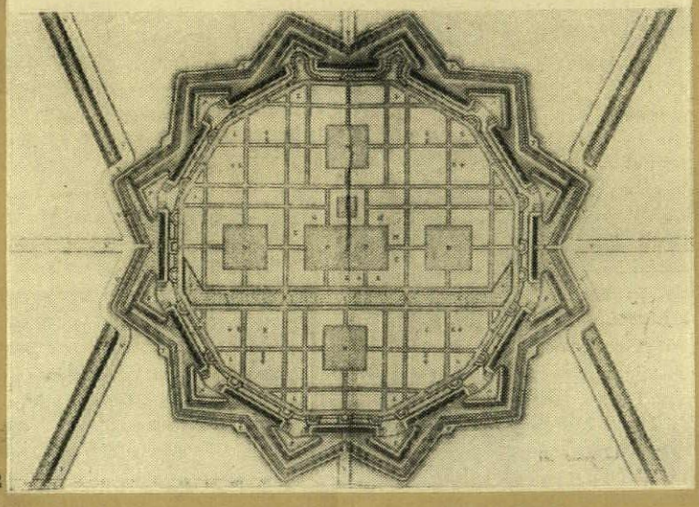

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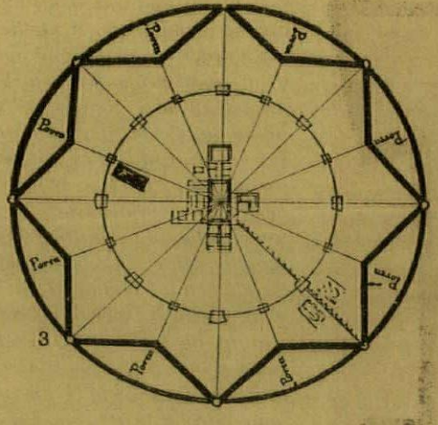
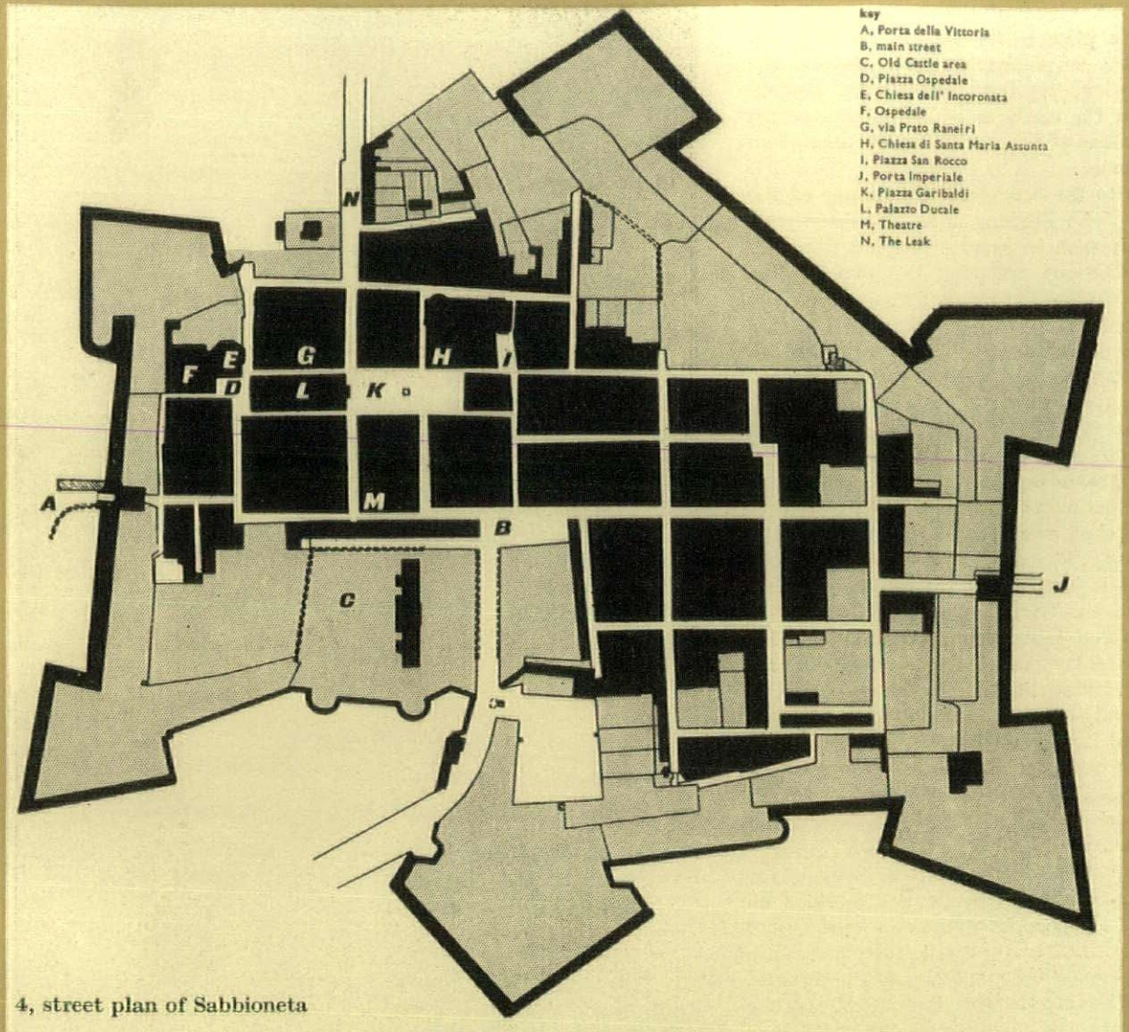


3

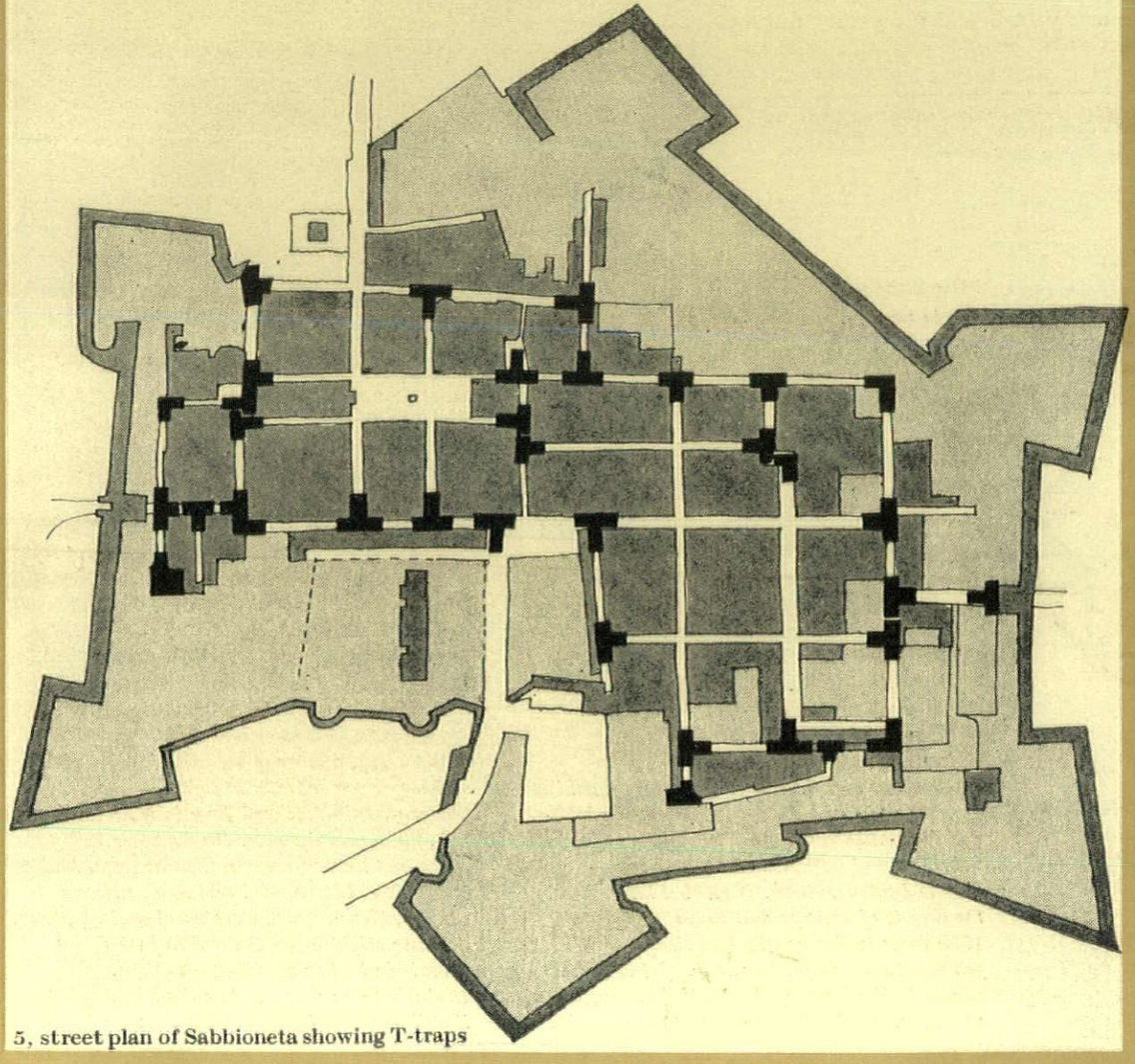
Palmanova

Up to now the argument has clung round the neck of one only of the two existing Cinquecento towns. The other, because it is the first-ever radial plan, because of the paradox of that plan's origin, and because of the strange fact that Scamozzi, who built it in 1593 *originally prepared another founded, like Sabbioneta, on the grid, has an equally dramatic history. They are, indeed, mutually involved. Three years before he built Palmanova Scamozzi had completed the Theatre at Sabbioneta for Vespasian (page* 444*) so his familiarity with the town is not in doubt, and though the differences between the two plans are those one might expect of an adroit professional and an amateur of genius, there are enough similarities to establish common ground. Somewhere between one and the other, however, something surprising happened. Lost in an unreadable and unpublished treatise dedicated to one of the Sforzas of Milan—hence its name—a New Look was born. It rustled through all the Courts of Europe and sometime before* 1593 *came to Scamozzi's knowledge. He fell for it and the fall was a fateful one for it sparked off a fresh spate of ideal towns, radial this time, starting but, alas, not ending with Palmanova itself.*

Where lies the paradox? To appreciate it one must first repeat after Pevsner the creed of the radial plan—much more than a new gimmick, this, a confession of faith, a confession of humanist faith, with everything above the belt dedicated to Man, the new centre of the universe—and everything below firmly planted in astrology and magic. For the surprising thing that came between Scamozzi and his first and second plans was nothing less than the cartwheel of Sforzinda, 3*, and Sforzinda, as Lang has pointed out, was improvised by Filarete, himself a bit of a wizard, out of symbols that belong in the dark waters of mediaeval magic. Humanism and sorcery, a strange mésalliance, but only so long as one admits no common ground between Mediaeval and Renaissance man, the old Adam and the new. Do the other thing, agree that human nature, then as now, had a bit of both Adams, and add that military experts, then as now, were vocal and officious, and one might be on the track of why Sforzinda had so startling a success. Enduring too; disguised as the* Rondpoint *it still survives in the Beaux Arts tradition*



4, street plan of Sabbioneta



5, street plan of Sabbioneta showing T-traps

and Washington, DC, evidence, perhaps, of a marriage of convenience rather than a mesalliance, a highly prolific though hardly a fruitful one.

The point of the story is that both Palmanova I and Sabbioneta demonstrate the existence prior to the new, dull epidemic of ideal townage, of a Renaissance concept more subtle and elastic than that which superseded it. Their own superficially rigid geometry gives evidence of picturesque intention, *meaning in this context an impulse to create the sort of cosy and self-sealing environment which provides the real charms of urban living, and to that extent suggests another such marriage of convenience between Mediaeval and Renaissance ideas—a marriage this time of the old know-how to the new concept. An important consideration for the townscaper (as we have seen) because, by presupposing an old know-how it encourages him to claim a pre-Renaissance history for his art and so a place in the sun for its greatest tour de force, the mediaeval city. At present the position is the one architecture would occupy were all that preceded Michelangelo, that alarming natural phenomenon, expunged from the slate. The sensible conclusion seems to be Sitte's, that men like Vespasian were tapping a townscape vein worked in earlier days and not yet exhausted. Thus what at first sight appeared to be a standard Cinquecento grid turns out to be following Alberti's advice to dissemble. Main instrument and symptom of this intention, the T-crossing—since it is used to bamboozle the eye as to the master-plan hereafter called the T-trap. And given special emphasis in this discussion because it lends itself to illustration where other nuances do not. The number of such T-traps the artist was able to uncover before exhaustion intervened in an area of two major and some nine or ten minor streets is shewn in 5. There are as well L-, P-, and U-traps, quads, courts, culs-de-sac and cosy corners, all arranged on the maze principle to disguise the real lay-out of the town, basically quite an elementary one as that of so small a place would have to be. Palmanova's is both more pretentious and less subtle but the T-traps are there and, as G. A. Jellicoe has suggested,* the streets and open spaces have a variety of proportion which would build up well in three dimensions. Such was the promising début Sforzinda and Palmanova II succeeded in squeezing out, mere clichés by comparison—the first artless plans in modern European history, to be follow-my-leadered by an exhausting procession of equally artless cartwheels and grids. Now and then, when the Grand Manner coughed up a man of genius, something dodgy came up but, mainly, the trend of four centuries has been to foster a theory of town-planning so outrageously over-simplified as to be disastrous to urban man. Second in its capacity for disruption, indeed, only to the industrial revolution. The coup de grace has been delivered in our own day by internal combustion, a form of artillery which found artless plans very much to its liking—you could shoot straight—and in combination the three set up that process of chain fission which has completed the dismemberment of the city.*

**Motopia*. London: Studio Books. £2 2s.

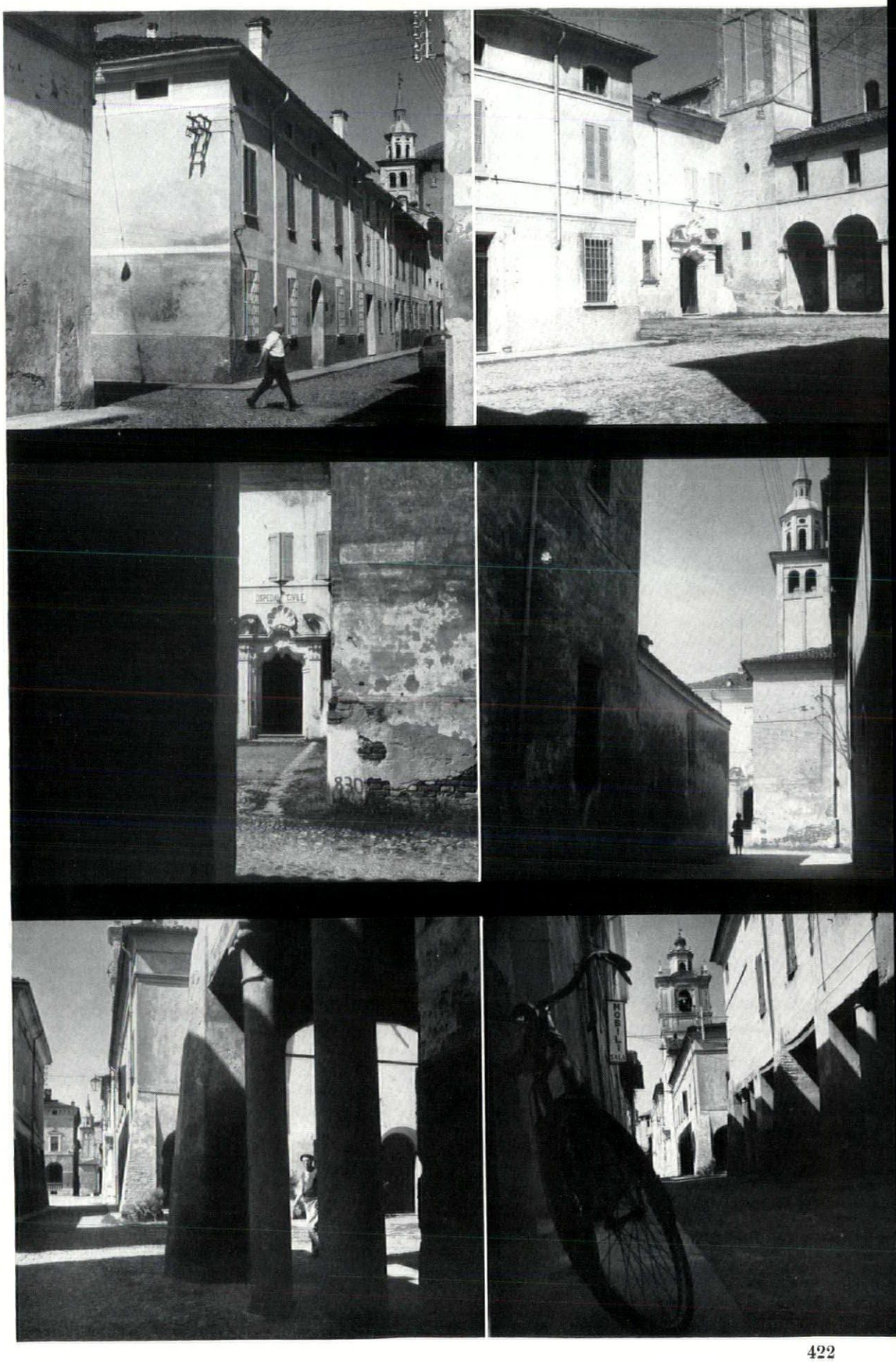
Sabbioneta

Within yards of entering the Porta Vittoria, 1, one is faced with a T-junction which dictates both a change of direction and a decision as to which direction to take. Yet the main street is only just around the corner—why the diversion ? The evidence supports beyond all reasonable doubt a deliberate intention to blindfold the stranger at the gate so that the town and its shape shall not be immediately apparent to him. The reasons, aesthetic rather than military, Alberti's intricate ways; the concealing of the master plan. Notice the shop awning. The pedestrian in O is just

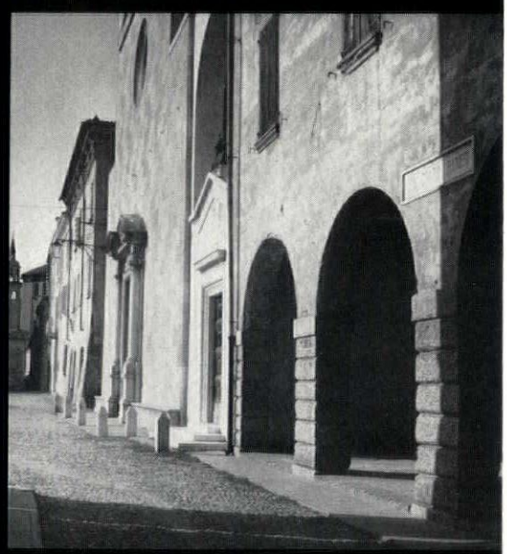
1

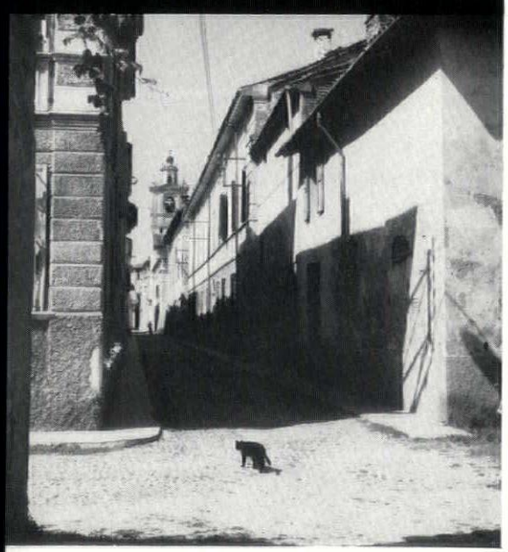


O	P	Q
R	S	T
U	V	W









about opposite it. Having come from the Porta Vittoria he is in the act of turning left to the Ospedale where we shall follow him. Had he turned right he would have come to the main street, B, worth a passing mention because it, too, is closed each end with T-crossings (which we have agreed to call T-traps) and skirts both the old Castle area, C, and the main square, K. Connects with nothing in fact except the two town gates, being neither more nor less than a by-pass, an urban by-pass. Interesting in itself.

We come now to a startling series of shocks. Following the pedestrian up the street the eye is met by the Campanile of the octagonal Chiesa dell'Incoronata, E, a section of its dome and one bay and a half of its portico, the first intimation we are given of the presence of the Piazza Ospedale. Very charming too, P, exactly the proportions one would expect of the town square. Except that it isn't the town square. As one soon finds out, it is a take-in. From this point on the camera moves backwards. Before doing likewise please take a look, 2, at what is coming up. Here is the remarkable scene which meets the eye as one pulls out of the Piazza, utterly unprepared after the bright little interlude for a canyon which makes a gash through the whole length of the town, G, not much over four hundred yards really but a frightening distance to the eye. S. Maria Assunta, H, you will notice, is not allowed any projections that might get in the way of the gash and for a good reason, lest suspicions be aroused in promenading breasts as to its real function as the Big Wheel of the Piazza Garibaldi. Why ? Because the very existence of the Piazza Garibaldi is being kept from promenading breasts by townscaper Vespasian. As of now it is the gash that matters, nothing else and in order that the street may be sealed good and proper from the Ospedale as well as Garibaldi the return wall of the loggia (numbered 830) has been carried across its (the street's) whole width, R, thus introducing a screen between street and square. Neither in consequence is revealed to the other until the last moment when they explode on the attention, one way (opposite to ours) as a blaze of sun and air, the other, as a dive into the dark. The canyon. In both cases the sense of enclosure is so strong that one has the feeling of being lost in the jungle, quite a feat on the planner's part when you think of the size of the town. From the Ospedale door, we start to back, first along the loggia, Q, then sidestepping into the street, closured now by the loggia's retaining wall, R. As we retreat the Ospedale door continues to vanish, S, until we are well and truly trapped in the canyon. Later, townscaper Vespasian's purpose in all this by-play is revealed in the determined way in which the campanile of Incoronata closes the vista, S, T, U. At one point, T, by moving a yard sideways this way or that, we can see a corner of the ducal palace, a campanile, a monumental church tower (beheaded in the photograph) and a dome (seen in 5 right-handed of the column). Thrown



2



3



4

together—accidentally it would seem—they form the sort of monumental free-for-all, one big boy elbowing the other, that one associates with a capital city. And Sabbioneta is a capital, Vespasian's and Vespasian lets you know it by arranging this impressive back-drop to the palace. What happens when his bluff is called we shall see later. Meanwhile (having by-passed in the interests of one story at a time the Piazza Garibaldi), we come to the arcade in U, which introduces another church, S. Rocco, in another pint-sized piazza, 3, and repeats, I, for the benefit of hither-side visitors the performance of the Piazza Ospedale in falsifying the scale (or, rather establishing the real scale falsified by Garibaldi). Acts, that is, as a similar bamboozle and take-in. In any other case than a custom-built town made to the order of one customer, the tailor himself, one could hardly speak with such certainty, but here behind every ploy we have a right to assume deliberate intention. Thus only once in the whole of the canyon's journey are we allowed even a glimpse of the rest of Sabbioneta. All other openings are T-trapped until, as per Alberti's instructions, the Via Prato Raineri, G, runs up under the town wall (so adding several cubits to its stature) before itself being trapped, W, and made to take the last long leg back to the Gate the other end, J, the Porta Imperiale.

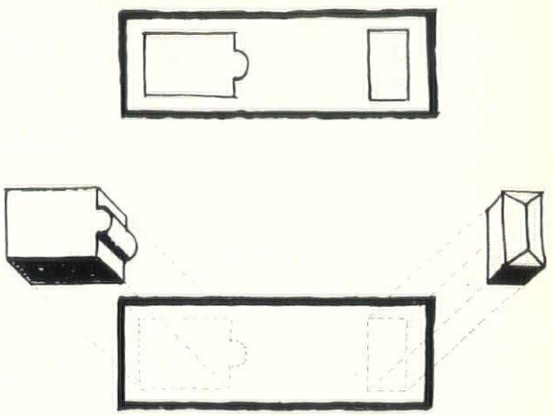
When the Piazza Garibaldi does come into the picture the reason both for the gash and for the lesser piazzas is revealed—surprise. An ideal foil, the gash, and the piazzas, deliberate scale-reducers, designed to unprepare you for the real thing. Not all the finer points can be discussed here, but one is so Italian—this time in its subtlety—that one can't let it pass. Sitte and Gibberd and the diagrams on page 405 reveal

5





6

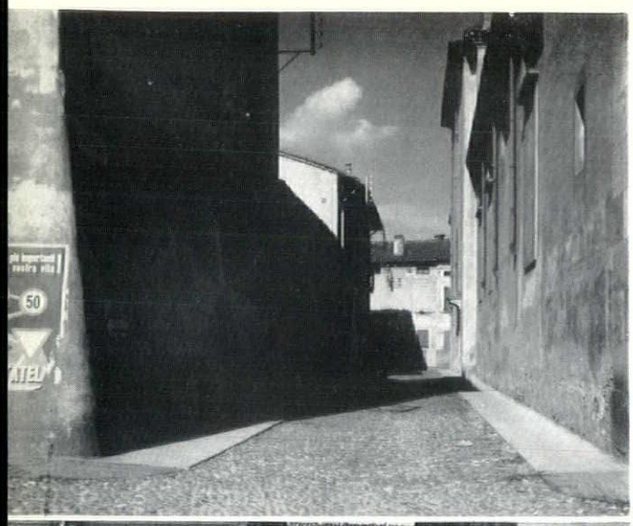


the impossible predicament forced on the planner when two street apertures are required at one corner. Vespasian had four at two and took steps to cure the lateral leak by projecting the palace stair across the aperture, adding two man-size bollards for good measure, 10. Remarkably successful they are too. His main tactic, however, was something much bolder. Not without difficulty, if the odd superstructure is anything to go by, he caused the Palace to tower above its neighbours in such a way as to suggest that it, the Palace, like the Duomo at Florence, is just another of those quart-size dirigibles, parked in a pint-sized open space, a ploy which causes the streets to vanish and reappear as part of the pint-sized effect. For photography the point is better made at the other end of the Piazza for there Vespasian repeated the gimmick in reverse, by reducing instead of increasing the height of the frontage. Upon this frontage he then clapped a single flattened roof and, behold, no frontage—instead a charming little pavilion. A pint-sized pavilion planted in a quart-sized piazza whose quart-sized boundaries, 7, appear (by means of uniform roof lines and T-traps) to be extended round the pint-sized pavilion. The diagram shews what happens—Palace and pavilion, the large and little captive balloons, not only give this complex its peculiar sweetness but conspire to double the Piazza's apparent size.

We now come to the moment of truth. Of the four openings to the piazza shewn here, three 7, 8, 9, are smoothly T-trapped. Result, impressive urban effects. So far so good. But, by an accident which can only be guessed at, one of the eight possible leaks in the square remains unstopped or never sealed. The result, highly farcical, blows the whole card-castle, with its beautiful Gonzaga illusion of Empire, as flat as the surrounding landscape. Hardly believing his eyes the deceived viewer glares first at the stirring urban scene made up by S. Maria

7





8



9



10

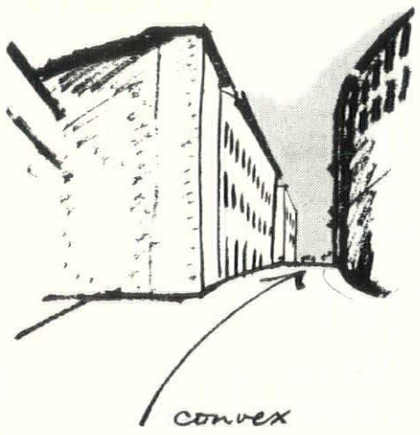
Assunta and the Palazzo Ducale, 6, and then at the dusty country lane, 11, with wired fences and saplings, which comes between. Looking one way, 10, across the Palace steps, Empire ; the other, the cruel reality, laid bare for all to see. End of the deception, but it was good while it lasted.

The final point has been made already. Except for the palace not one of the main buildings is either centred or made a centre. The Chiesa dell'Incoronata, E. has nothing but its campanile on the axis of any thoroughfare. Its dome is always seen off-centre. S. Maria Assunta, H, is neither centrally placed in the Piazza nor on the axis of one of the entering streets. The theatre, M. is on a corner. The Via Prato Raineri, G, hugs one side of the town as does the Piazza Garibaldi itself. The T-trap is everywhere. This is no grid. it isn't even formal planning. It is picturesque planning clothed in formal dress, Scamozzi's plan for Palmanova has many points in common, the T-trap in particular, though here one can feel the weakening of old techniques as the Grand Manner throws its shadow before. The moral ? Surely, that the European planning tradition is picturesque. Free planning, far from being a novelty, has a long history stemming from the middle ages. The counter-measures of philosophers, military engineers, eccentrics like Filarete, megalomaniacs like Louis—the whole French nation, indeed, with its passion for *gloire*, so boringly interpreted in the Beaux Arts canon—occupy an important position in the history of the Opposition but do not represent the Governing impulse. The issue is, perhaps, less one between emotion and reason than a matter of calculation regarding the mind's capacities as a draughtsman—some seeing it as the father and mother of all symmetry, others seeing those who so see it as artless—Sitte's artless planners—underestimators of the reason's capacity for any mathematics higher than simple Euclidian geometry.

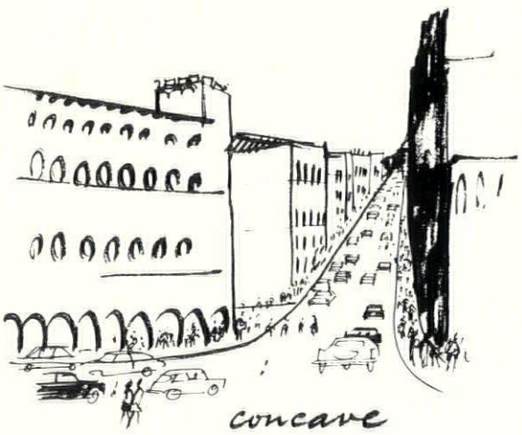


11

The Street as Enclosure



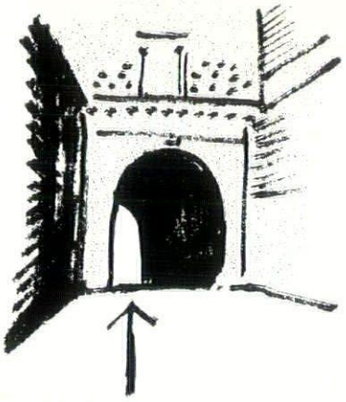
Though exploration of space is legitimate business for road engineers it belongs on the whole to the upper-brackets of street design—Avenues, Promenades, Boulevards, and the like. The big stuff. The two main streets of Perugia, for instance, with their rival variations on the theme, *gradient*. One is convex and boldly curving, acknowledging the earth's roundness, also its capacity to roll on and over the edge, thus forcing the visitor upward to find out what cooks the other side of the hill (quite a lot in this case). Anticipation. The other



gives the same hill (it really is) the concave treatment. No longer round and rolling but straight and—like Regent Street—ewe-necked, the Via Vanucci presents ant-hill traffic effects which look uncontrived but in fact demand a two-way incline. By going down-hill before it goes up, the traffic climbs above itself and is seen to be doing so. The view is from the steps of the cathedral, the last of its kind we propose to deal with here, partly because this is a study in enclosure, and partly because space exploration is the stuff of conventional town-planning and has a history and a literature. Disastrous on the whole, since opening-up in the name of traffic flow usually succeeds in tearing away the curtain of mystery native to a good town. Which is why, when mauled by Sitte's artless planners, the street often turns out to be the city's worst friend—how needlessly we discover when we turn to the work of our predecessors who had no difficulty in reconciling enclosure and circulation. But then they had a number of tricks and used them, beginning with the most important of all, definable as

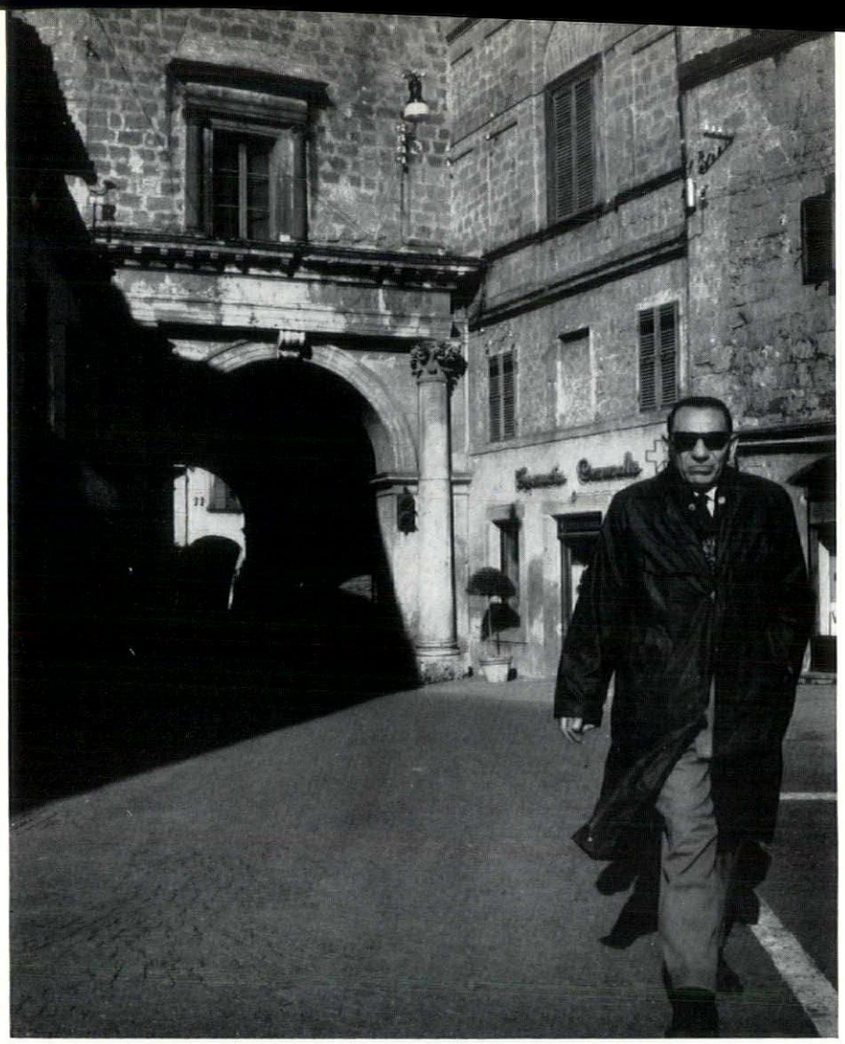


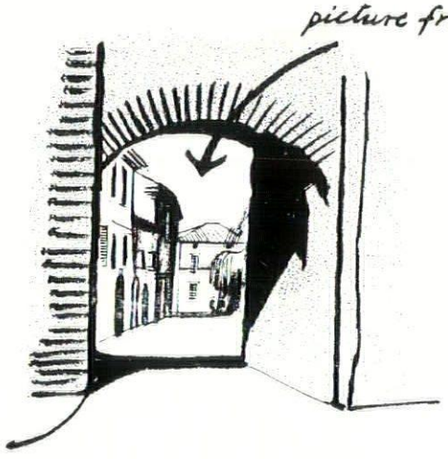




key-hole

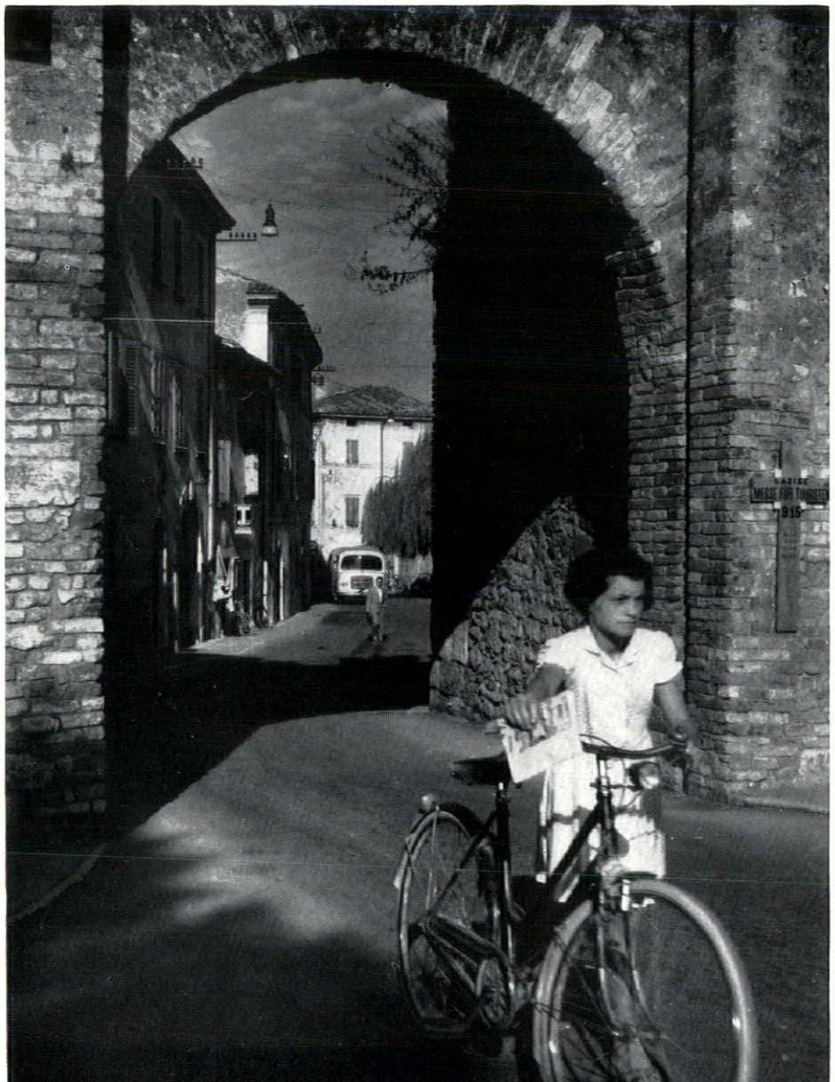
the rabbit-warren concept, seen here in its most primitive form as a mere hole, rabbit- or key-, but at Sabbioneta well illustrated in the canyon effects of the Via Prato Raineri (page 423). The secret lies in treating the street as a way through instead of a through-way by emphasizing the burrowing rather than the bulldozing nature of the thing. Once conceived as a *dive* it becomes a ravine, with towering sides which rise up to enclose it, so introducing a second important concept, that of the picture frame or





picture frame

proscenium arch. The street as stage-set. Important because it establishes a whole visual philosophy, one the Lazise planners were obviously well acquainted with. Look at that tree as well placed as the copper beech in the High at Oxford. No danger of this street blowing the gaff on the rest of the town either (for what it has to blow the gaff on turn to page 395). The house closing the vista could—it doesn't of course—shut off the circulation entirely, and so create the equivalent of a back-drop and unpleasing associations with a



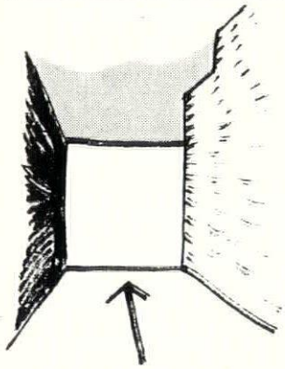


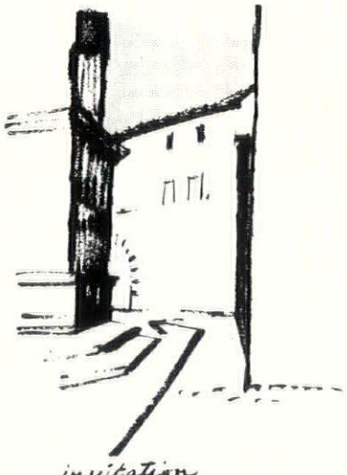
eye stop



dead-end. The absolute closure, ultimate way of cutting off all communications. To get the full weight of the blow the house barring the way must be in full elevation, dead square to the viewer, that is. The smallest touch of perspective defeats the purpose. One has only to turn the thing through one degree for the message to shift from keep-out-this-means-you to









come-on-in-and-see-if-we-can't-find-a-way-around-this-thing-together. Another degree or two and the message shifts again, from come-on-in to

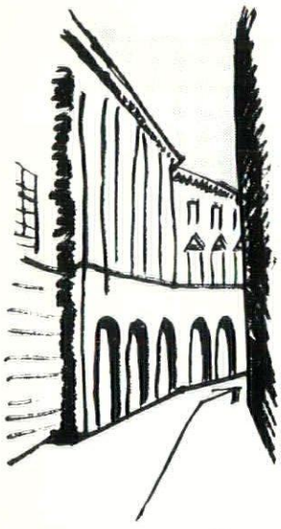




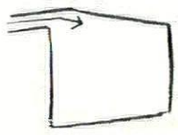
deflection 1.

look-who's-here. Both eye and mind are delighted by the change of front. The element of doubt has been removed, the way through is no longer in question ; thus, in lieu of fighting a rearguard action for the feet, the eye is ready to relax and enjoy the scene, grateful now for something else, the chopping up of the linear network into a visually digestible slice of town. Pedestrianly digestible as well. The promise of more round the next bend would lead normally to anticipation, but here the self-importance of the building and its favoured position in the line of sun and vision, create a mental closure on top of the physical one so that between *here* and *there* the feet enjoy a state of euphoria. One of the townscaper's highest achievements, inducing euphoria in the feet. A few degrees more and the situation

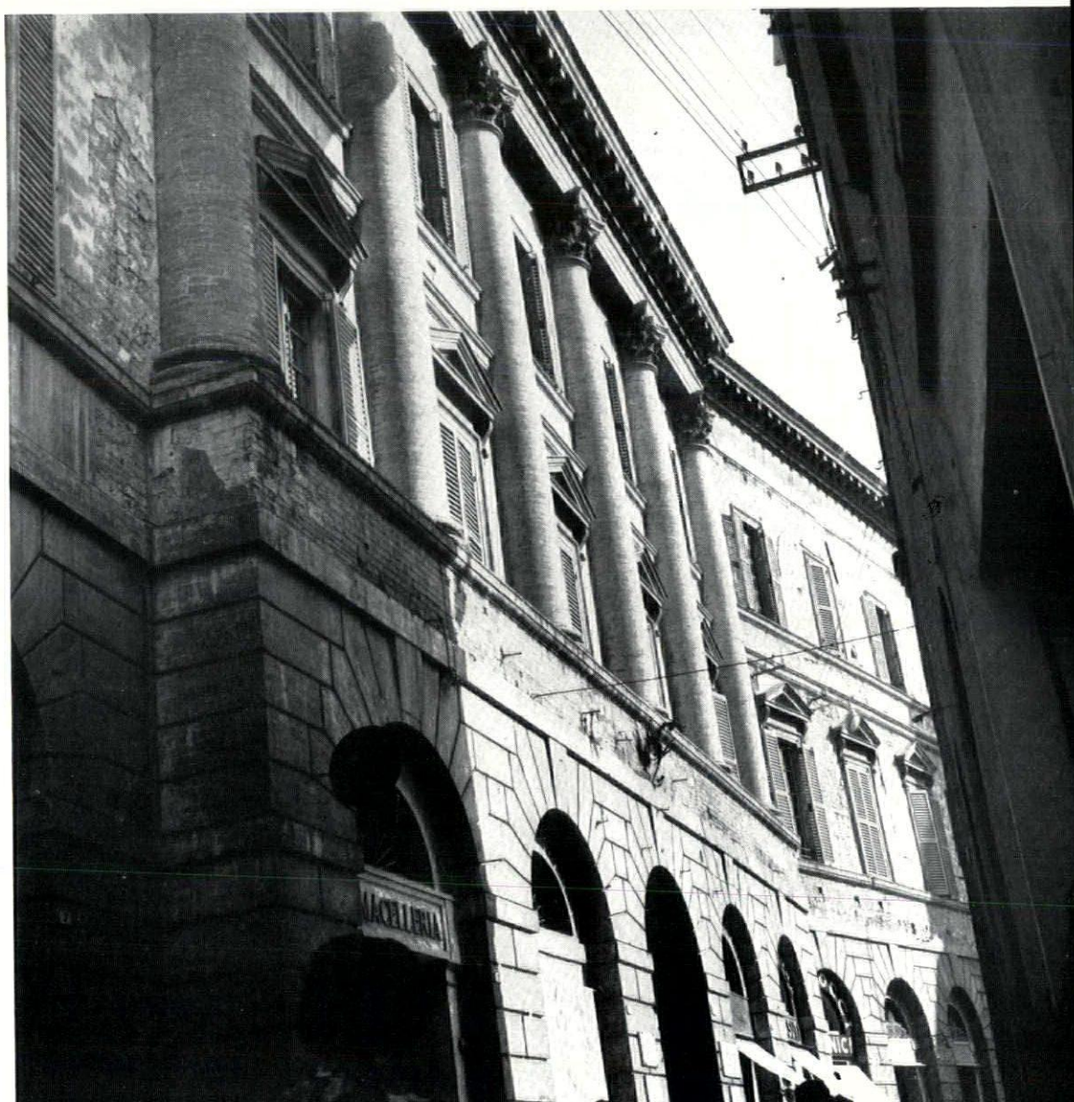


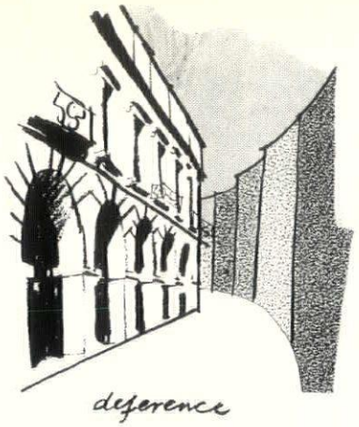


deflection 2



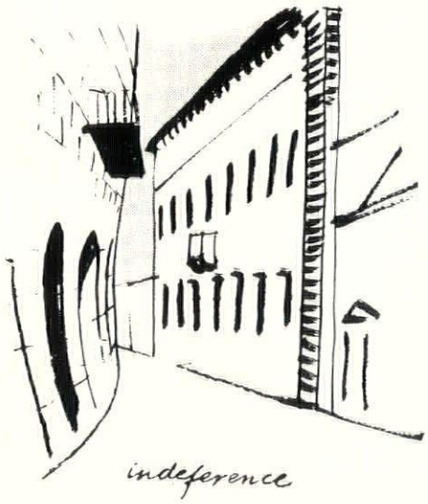
alters again. The change of direction here is so slight and so polite as to leave one totally unprepared for what's waiting just around the corner (one of Foligno's most splendid squares). When the moment comes the modesty of the deflection, just enough to close the street end, no more, heightens the shock. A two-way closure as the plan shews. The angle is just enough to bar the street-end and also just enough to prevent the square-basher getting any but an oblique view back down it. In the cause of stopping leaks a routine frequently resorted to when the T-trap isn't available. His eye, instead of following the line of the roadway to infinity— is brought up all standing on the house-frontages





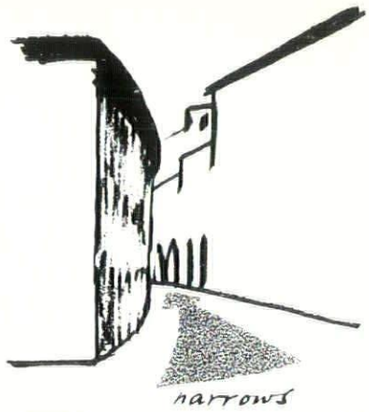
one side or the other. The same result—self-closure—follows when the whole street lists—to port in this case—an example of what might be called deference to the pompous structure on the left, which thus becomes a focal point without prejudice to the street alignment. It seems to be centred while staying just where it is on the side. Oddly enough the opposite exercise which might be called



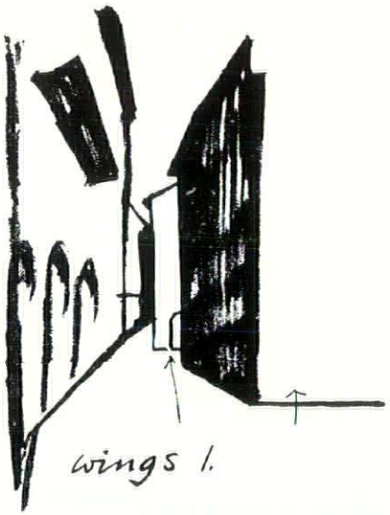


indeference, a distrustful edging-away, realizes the same result—the unpopular party still remains the focus of interest. Where both sides of the street list and list inwardly they are threatened with





a head-on crash with results that suck one through the closing door with a force as relentless as that which does the same thing to a cat. Actually one side or the other generally has the sense to give way and this leads to the most favoured of all Italian townscape ploys—the use of



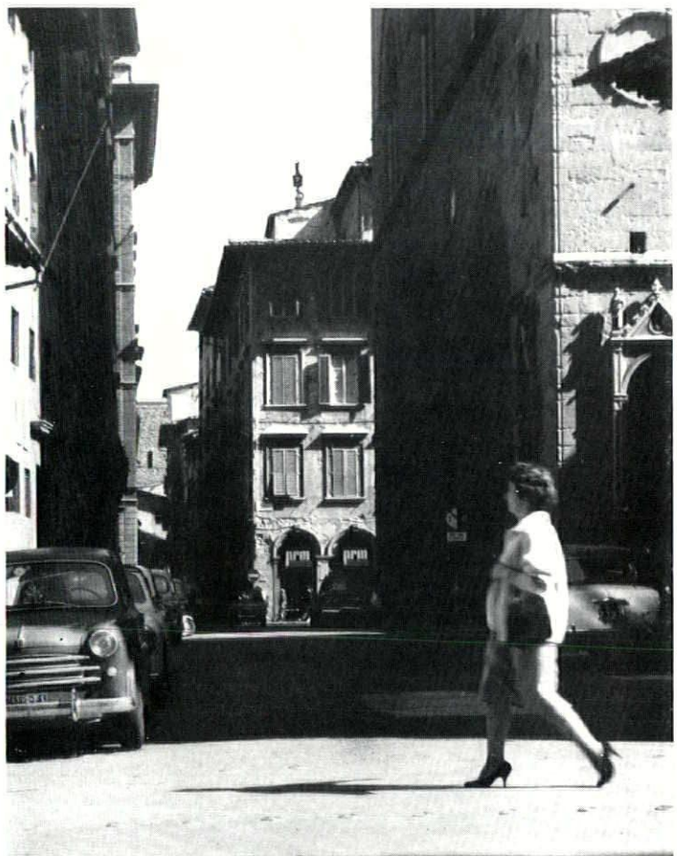
Wings, used in the sense the word is used in the theatre—out of which the practice may well have stepped. Embryonic here, but rapidly assuming a dominant role



as a way of ringing the changes on street width, or, conversely, creating small piazzas—object always the same, enclosure—until the moment arrives when the wing



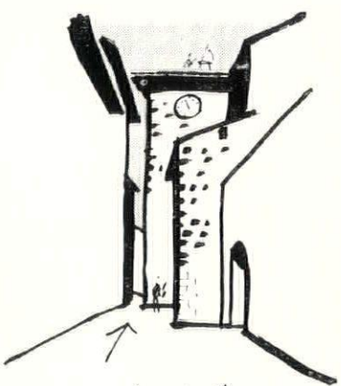






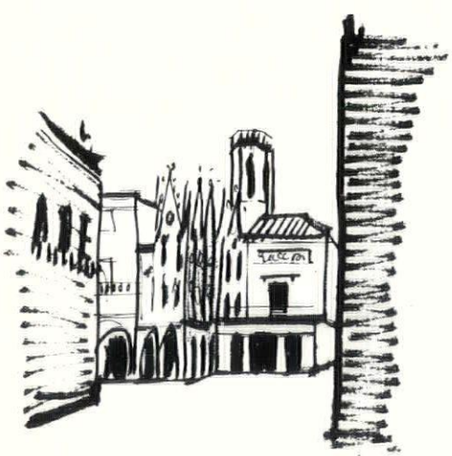
wings 3

itself occupies so much of the stage as practically to stop the show so that we are nearly back with the dead-end. Not quite though. There are endless variations, from



wings 4

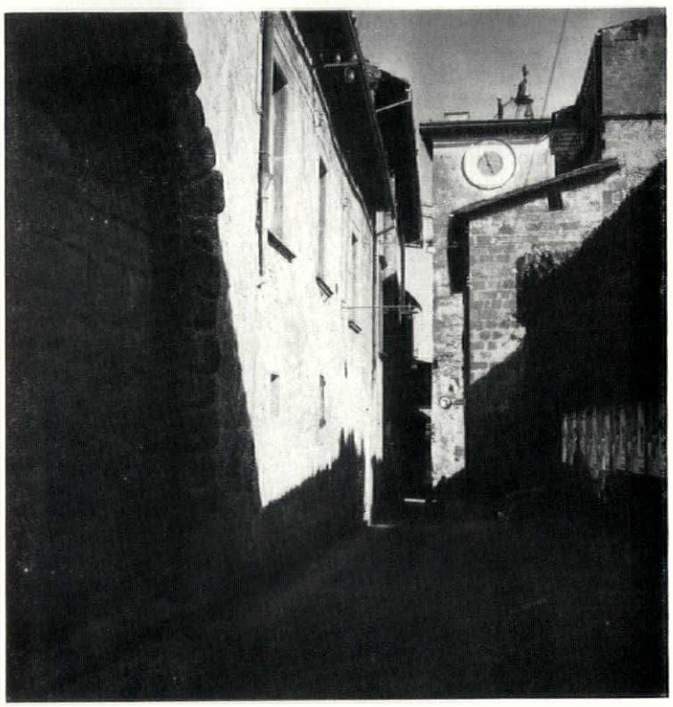
the humble stepped narrows, highly congested, with a delightful un-axial use of the tower, to the



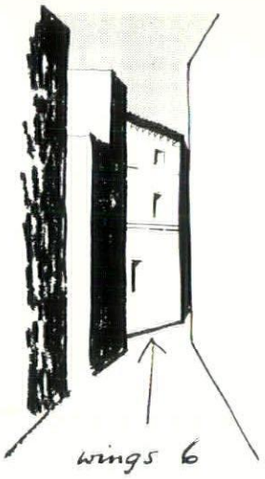
wings 5

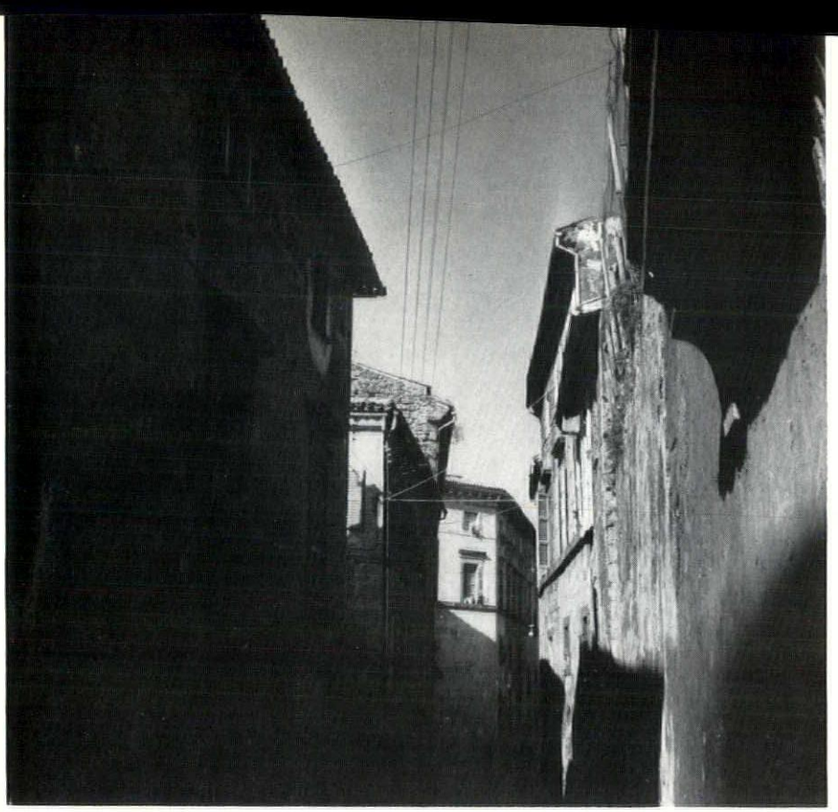
full blown civic composition, again occupying so much of the available space as to graduate from side-screen to stage-set, including back-cloth, though in fact a large main street gets through. A particularly engaging variation, also no doubt hailing from the stage, though next to impossible to photograph, is



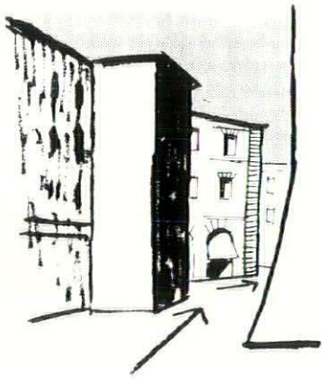


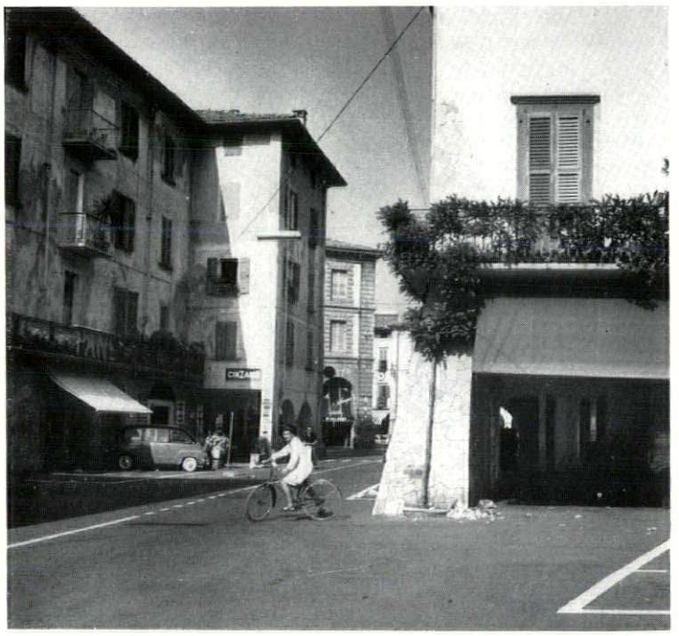




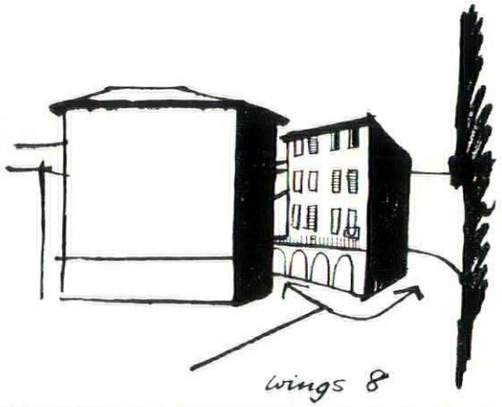


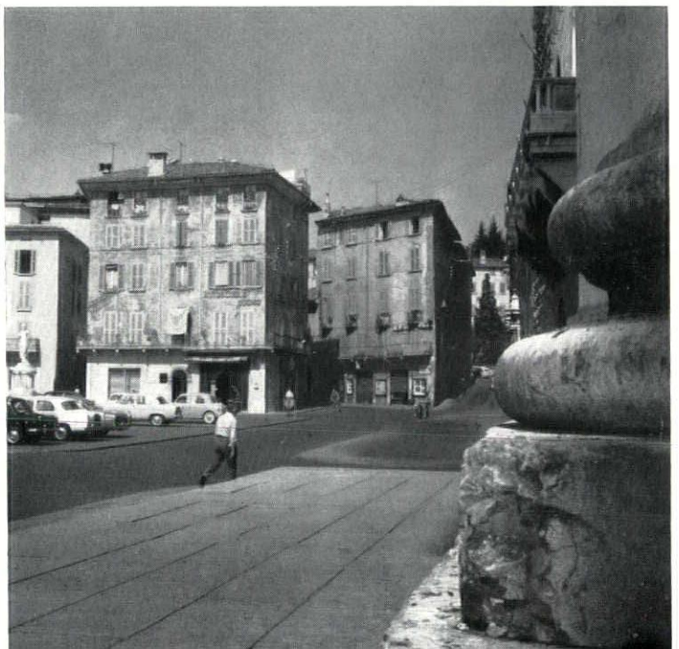
the inclined wing, which may start as a chamfered corner, but quickly develops a functional meaning in its own right by identifying itself with any incoming transverse street and signalling its arrival on the scene in a way to gratify the traffic engineer as well as the planner. The townscaping eye is gratified too by



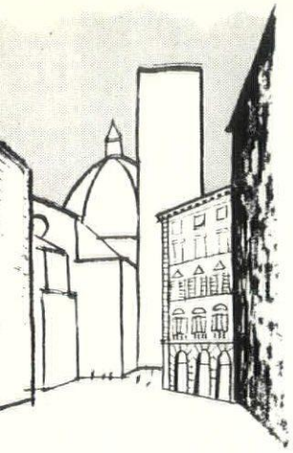


the juxtaposition here of the retreating plane of the Wing (the incoming, overlapping street) with the rectangular projection in the foreground which acts as an advance bastion to the (invisible) square. This is at Iseo. At Brescia the exercise is repeated in reverse.





The transverse street, instead of running for it, *approaches* the eye, springs out on it from behind the back of a similar bastion. Again unphotographable but very daring in the round. And done here on a scale which introduces movement into the story so that the invading Wing becomes more part of the drama than a frame to it. Not its orthodox theatrical job which is, basically, to introduce something else, ultimately the Set-Piece.



set-piece

of the world's notorious Set-Pieces, this, yet many eyes have spotted the Wing that sets et-Piece off. Except, perhaps, to revile it as an oper. One can imagine some artless planner ing the local authority to get it pulled down to uncover Giotto's tower, the kind of alism Mussolini committed, alas, in Rome. single one of the seven approaches to the no at Florence gives more than a partial ose of the building, hence its enormous iveness as a permanent captive balloon, a ess heightened by the contrast in materials een it and its neighbours. Breathtaking when it at night, one of Europe's top bits of re, repeated in a slightly lower key at



set-piece 2

eto, but here with an interesting variation ving the main street (the lane in this is hardly more than an alley) which arrives age 407) in the piazza by the back- or ay side-door—in fact, as we have seen so before (Loreto, Foligno, etc.) obliquely e corner of the square—thereby



tradesman's entrance

catching the monument in flank, indeed practically running it down. By artless standards a vast town-planning gaffe, in practice a most acceptable device, surprising the Beloved in an attitude of unconscious grace by precisely the means used to stop her striking one of her poses. Italian towns are full of good buildings like

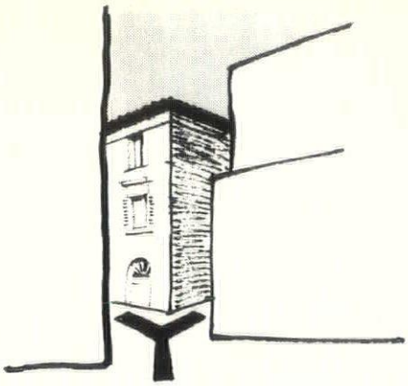




side door

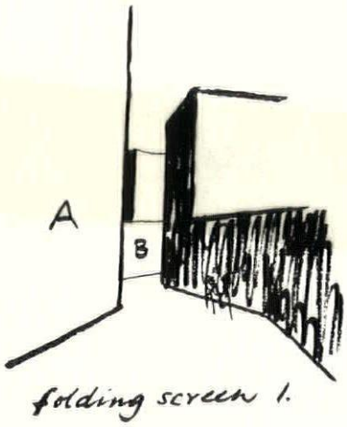
this one at Manciano, which can only be got at by the side door. In consequence they rank less as buildings than as perspective sculpture, an important extension of the architectural *terrain* which explains, perhaps, another popular but extraordinary device, depending for its effect upon the outrage it arouses in the human breast. The side door opens—but upon the *corner* of the building, so that axis and diagonal are, as near as makes no difference, one. None other, this, than the





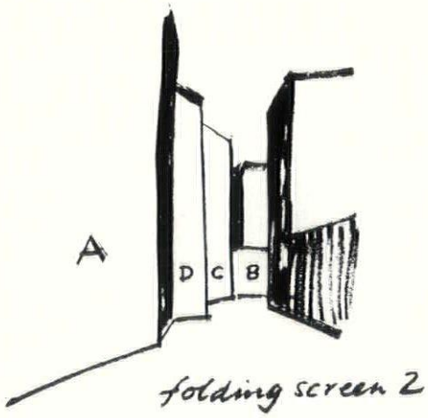
Y-trap

Y-trap, mentioned already, impressive as a sculptor's dream, deadly as a traffic ploy, so deadly as to turn out rather safe—at such points even Italians have to slow down. The same ploy can be incorporated into the street perspective where by teaming up with our late friend, the stage Wing, the Y achieves the concertina effects of a



folding screen 1.

folding screen, seen here before the concertina effects come into play, as no more than a nice piece of urban scenery with an elegantly closed vista. But



folding screen 2

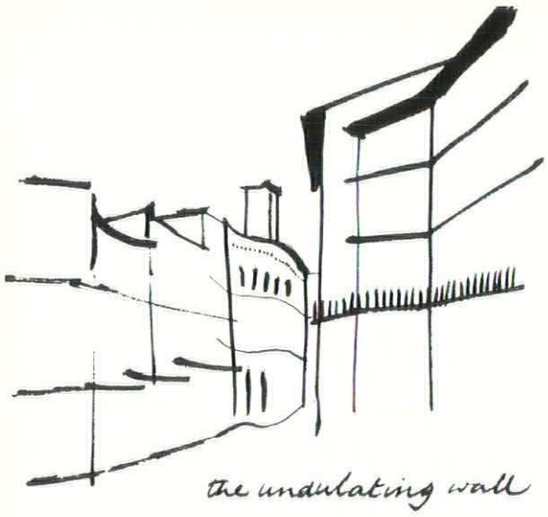
A + B + C + D

as the eye advances what appeared to be a conventional piece of street closure, B, is discovered to be something else, a section of the screen—caught now in the act of folding. Result, the fluctuating wall, to be distinguished from





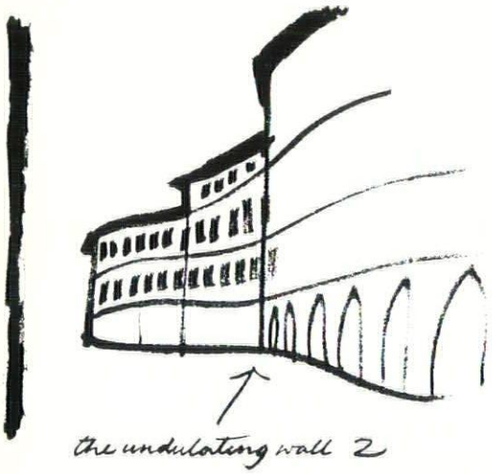




the undulating wall 1.

the undulating wall (far distance) by the use of angles against the other's curves. Both fluctuations and undulations are shewn here in a very satisfying conjunction, foreground and background, though again the effect hardly gets across in the photograph. Fortunately the artist has caught it brilliantly. Undulations are generally identified with Baroque impulses but Italians have used them as stock routines for centuries. Perugia provides





the undulating wall 2

an undulating wall on quite a monumental scale. Deliberate obviously, but also quite unforced, the quintessence of good townscape, and, again, like the folding screen, having the properties of the Wing in demanding closure. Barring two periods when the vogue was straightness, it is difficult to find an Italian street which doesn't.

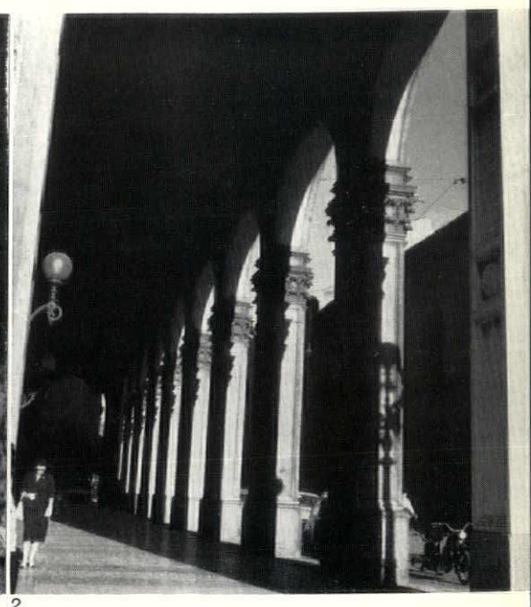


Street Arcades

No accident that most of the analogies so far have been theatrical ones. With this page there can be no more doubt about it, we have walked straight on to the stage. What's more, the curtain's up and the scene set for Montagues and Capulets, or, rather, mummers and mystery players—they performed in the street in the middle ages with consequences almost certainly fruitful for townscape. Evidence that the builders thought in terms of stage effects is provided at Padua, 1, and Bologna, 2, by the arcades' enormous height, for in general, arcading in sunspot towns is kept low to crowd out hot air and bright light, 4.



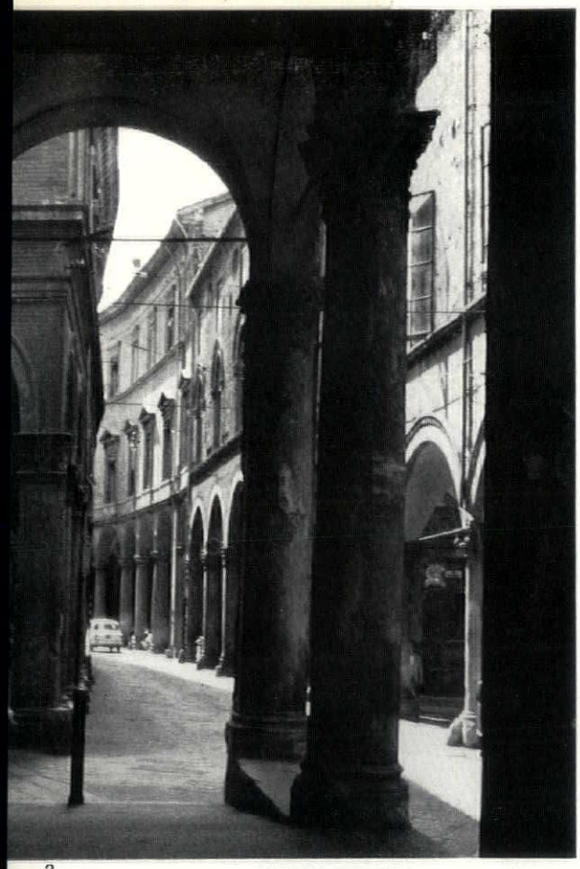
1



2

Perspective

Besides its properties as background the arcade has two compelling townscape virtues, the first of which—its capacity to create and multiply perspectives, 1, 2, 3—furnishes the lucky citizen with the chance of escape down one of them **(the rabbit hole again) in safety** (by enclosure). **Ordinarily the eye has too many** responsibilities



3

for comfort—safety, protection, defence, contacts, food, orientation, opportunity, pleasure and the job of boxing the compass. Result, fatigue, mostly unconscious. To the extent to which it reduces the eye's commitments by limiting and canalizing the visual possibilities arcading does a lot to relieve the pressure. Hence the warm and womb-like sense of relief one experiences in arcaded streets.



4



5

Serial Space

The arcade's second townscape virtue is its ability to act as a lid without sides and thus as a natural creator of space-bodies. Not necessarily the elementary ones of the piazza either, for it shares with glass the ability to define the foreground without prejudice to background and middle distance and so provides the opportunity for more complicated figures which can be explored progressively as a succession of frames or chain of space events. At its best the effect is of archipelagos of space-bodies, one space-island swimming into the picture behind the other. Serial space. This study ends with one of the most delightful of such, shewn here, 5 and 6, in the spirit if not quite the letter of the original, a pedestrian piazza surrounded by cloisters one of which doubles as the side-walk to the street, a main traffic artery, with the traffic stream placed by this means behind bars but not lost to view, so providing the piazza with protection from dead-area dangers. The archipelagos are all around one here, an example of what contemporary planners could do with different materials but the same results at, say, Piccadilly Circus or Knightsbridge Green. Remembering (as northerners) that the sun is no longer the top priority now that neon has taken over its principal function of dispersing gloom and despondency. Remembering also that the cloisters of Bologna, doyen of arcaded cities, were built against the Northern rains rather than the Southern suns.

6



Conclusions

Townscape deals with foils, focal points, fluctuation, vistas closed and vistas open, truncation, change of level, perspective, silhouette, intricacy, anticipation, continuity, space, enclosure, exposure, the precinct profile, rules of thumb. These and a hundred other issues debated over the post-war years in THE ARCHITECTURAL REVIEW have now been collected into one of the seminal books of the century, *Townscape* by Gordon Cullen.*

A big book. Anyone whose emotions are involved in a home-town or adopted city is advised to build a poacher's pocket inside his jacket to carry this big book around until he knows each of its many morals by heart. The present study is by comparison vest-pocket and will be doing all that can be expected of it in keeping fresh the one already on the hook, which defines the city as the product of the gregarious law, the law, that is of gravitation, under which bodies of people are drawn (forget Einstein, remember Poe) to their own centre of gravity. An action which, as with gravitation, generates heat, in this case (Gordon Cullen) *civic warmth*, the climate whose lucent airs cause the urban organism to burgeon so that its sons and daughters wax great and multiply. Multiplication of sons and daughters involves multiple use, multiple use involves a pattern designed to provide the maximum number of services, amenities, entertainments per foot super. The consequence, congestion. Not, please note, the congestion of a flaccid, congealed lump of cold suet (ours today), a complex order, rather, arising from the elaborate productive interlacing of trades, crafts, paths and people—in figures of such complexity as to remind one of the motions of a planetarium, on the surface wholly arbitrary and whimsical, but at a deeper level the product of subtle harmonies.

That is the key-note—harmony, within diversity. Vividly evoked by H. B. Creswell's description of the Strand in the 90's,† hedged by a maze of continuous alleys and courts and 'fronted by numbers of little restaurants whose windows vaunted exquisite feeding; taverns, dives, oyster and wine bars, ham and beef shops; and small shops marketing a lively variety of curious or workaday things all standing in rank, shoulder to shoulder, to fill the spaces between its many theatres.' As shop elbows shop and shoulder squeezes shoulder, one watches the gaps between the buildings inexorably filling up, until with the latest oyster bar making its dive between the small shop and the large theatre—presto—*the street*.

For in the end that is what congestion, dynamic and gravitating, comes down to. The street. *Multiple use invokes the street.* If (to be honest for once) one concedes the Prairies, Airies and Fairies their moments, nothing they can pull out of the bag will ever prejudice for long the first axiom of town-planning. Which is, that the unit of the city is the street.

There was a time when this statement would have sounded dangerously like a cliché. Today, so far have we gone (quite rightly) down the path of pedestrianism, precinctualism, segregation, decentralization—so far has the *city street*, crowded, vital, lived on and variously used, faded out of the planner's schedule of requirements—that the idea sounds almost revolutionary even when the word means anything or nothing—maze of alleys off the Strand, laburnums and mowing machines back there in Arcadia, residential-urban, shopping-arterial, commercial-industrial, or just the pallid, bloodless negation which passes itself off as street in the dull eye of the devitalized townee. One thinks in this context of the Japanese who refuse to name streets because they are nothing but the spaces between buildings.

How deeply that would have shocked the great man who has figured throughout this study as the first modern townscaper, the first man in history, perhaps, to establish a street hierarchy, Alberti. Highways, his started with, headed by one that gave him a lot of pleasure, the dual carriage-way already existing between Ostia and Rome. After highways came high streets, then just streets, then ways, lanes, intricate ways, 'turn-again streets without any passage through' (the U-trap), and 'smaller short streets running cross from one great street to another; not to be as a direct public way, but only as a passage to some house that fronts it' (the T-trap). The irony is that half a millenium later we haven't got any further. Some would say hadn't got as far.

And this is not the place to start. However, a single point might be worth making, which is that despite their diversity there is one thing both the maze of alleys and the laburnums have or ought to have in common, intimacy, the pedestrian, the human scale. The early fathers of the garden city movement set out to provide exactly this cosy human scale and did sometimes succeed in creating little enclaves which they called Closes. Howard's Close (not End), which is exactly what the street one lives a life in should aim to be—not an Open, a Close. When it is close enough the traffic problem has to move elsewhere, thus removing the cry for Radburns unlimited—to run down a child at 10 m.p.h. isn't at all easy. There would be another notch for the belt if we could convince, first ourselves, then our public servants, that the street, customary and canon, is not, first, a traffic artery but a stage-set, built for drama in many acts and for a large cast with parts less tedious than Shakespeare's irksome Temperance Seven. That goes for the alleys off the Strand as much as for Arcadia and its laburnums. More so. Even more than Arcadia the alleys are *occupied territory* (Cullen again) the headquarters of an army-of-occupation whose *persona* remains constant through every shift of personnel, exercising, one hopes, the benevolent authority proper to an occupier and enjoyer by making the most of the available perquisites—sitting in the sun, smoking in the rain, day-dreaming, pottering, loitering (Notice in a Scots town: NO LOITERING ON THIS CORNER. BY ORDER), window-shopping, reading, watching, leaning, chatting, drinking. Also having children and giving them an embrasure of pavement for play. These are not privileges but the basic services the street must provide before it even begins to think of itself as a thoroughfare. Periodic occupations they can be called and must be woven, as Gordon Cullen suggests, into the fabric itself in the shape of floor patterns and punctuations, recessions in the building line, enclosures, deflections, changes of level. And, once woven in, taken over by the army of occupation, and defended in depth, with one up the spout for those absentee landlords, the Borough engineer and the Borough surveyor, who lurk there in the wings

* *Townscape*. By Gordon Cullen: London: The Architectural Press.

† THE ARCHITECTURAL REVIEW, December 1958.

awaiting the opportunity to iron the whole thing out in the cause of smooth, fast, relentless traffic-flow.*

Closeness instead of openness. End of the Bye-law traffic artery. The occupation of the street by those who are *on* it at the expense of its throughness. This the Italians always well understood and matched their understanding with their acts, though in recent years the scooter has undone some of the good work. The theme-song of this philosophy, it's a long lane that has no turning, was incorporated into the folk-lore of the race a long time ago, but we are an unconscionable time a-learning.

Why? Because we have no humility. We think we are good and we aren't good. A bird's-eye view of town-planning in this century reveals the richness of our resources and the poverty of imagination that has the disposing of them. There is something frightening about a world that combined honest worth, technical know-how, good intentions, a bottomless bank-balance and an utter bankruptcy of ideas. Visual ones we speak of here but their absence is a symptom of other vital bankruptcies, emotional and intellectual, which have led the New World (for example) once the redresser of the Old, to redress herself in terms of the mining camp and used-car lot. The gap between potential and performance in this generation is far more sinister than any bomb or budgetary deficiency.

Nor is the disease, chronic as it is, susceptible to any single cure. Nevertheless, amongst the roads back to health one at least is paved not with good intentions but with the good performances of people who knew what they were up to and acted accordingly. First and foremost, as we have seen, the Italians, who may even yet find a formula to reconcile progress with order. Lest they fail the pressing need now is to make an appreciation of the surviving tradition of townscape before its streets are torn up and paved, bumper to bumper, with the coach-work of Global Tours.

* If there's one thing they hate it's a maze of alleys. They soon got rid of the Strand's.

A close up of one of the four equestrian statues in the Palazzo Ducale at Sabbioneta, Ludovico II, Marquess of Mantua, head of the Gonzaga family and friend and patron of Alberti who designed for him S. Andrea Mantua, and so set rolling the New Look in church architecture.





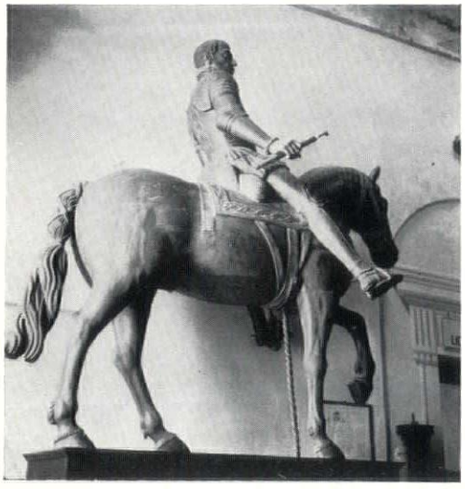
Ludovico Gonzaga, Alberti's friend and second Marchese di Mantua. 1414-1478.



Gian Francesco Gonzaga, conte di Rodigo, last son of Ludovico and head of the Sabbioneta branch of the family. 1443-1496.



Luigi Gonzaga, nicknamed Rodomonte on account of his fantastic strength and courage. Gian Francesco's grandson. 1500-1532.



Vespasiano Gonzaga, son of Rodomonte and builder of Sabbioneta. 1531-1591.

Postscript

History of Sabbioneta

by John Fleming

Of all the ideal cities imagined by Italian renaissance architects only Palmanova and Sabbioneta were ever built and both, surprisingly enough, have survived more or less unspoilt. Being rather off the beaten track, they are seldom visited to-day. And their attractions are not, mercifully, of a kind ever likely to draw crowds. So there seems to be a good chance that Sabbioneta will avoid the horrors and devastation of modern tourism as safely as it has so many other calamities in its long and delightfully uneventful history.

With a population of under seven thousand, Sabbioneta is hardly more than a village by modern standards and it probably had even fewer inhabitants in its heyday. But it was the capital of a little kingdom, a miniature Mantua, with its winter palace and summer palace, its gallery of antiques, its library and its mint. All these buildings went up within a matter of ten years—between 1560 and 1570 or so—and they were disposed according to the most up-to-date ideas of town-planning. Since then time has stood still at Sabbioneta.

The Gonzagas of Mantua—*those* Gonzagas, as Firbank called them, one of the great Italian renaissance families now as extinct and remote as the Mowbrays and Plantagenets—seized Sabbioneta from its former owners, the Persicos, in 1426. For the next hundred years or more the Gonzagas appear to have paid scant attention to their new acquisition, at that date probably no more than a huddle of houses and barns around a mediæval fortress. All Sabbioneta's beauty and distinction is due to Vespasiano Gonzaga (1531–1591) who came into his little kingdom on the death of his father Luigi. Luigi Gonzaga was nicknamed Rodomonte on account of his valour and fabulous strength and, as might be expected, he died young. So Vespasiano was brought up by an aunt, Giulia Gonzaga, who held court at Naples where she surrounded herself with musicians, poets and all manner of artistic courtiers, including men of such intellectual calibre as Ariosto, Tasso and Juan de Valdes. She is said to have had her portrait painted by Sebastiano del Piombo.

In this cultivated atmosphere young Vespasiano grew up and he was given a sound education in the humanities and the art of war. The latter interested him the most. He displayed a precocious talent for mathematics and engineering and at the age of fifteen was packed off to Spain where he served first as a page in the court of Charles V and later at the seige of Valladolid under the Infante Philip with whom he returned to Italy in 1548. For the next ten years Vespasiano pursued the career of condottiere in Italy, fighting at Parma against Ottavio Farnese, in Piedmont against Henry II of France and at Volpiano and Vicovaro against Paul IV.

It was not until 1560 that his thoughts turned to Sabbioneta. The squalid mediæval village should be razed to the ground and in its place would rise up a well-planned model city, worthy of a renaissance prince albeit on a miniature scale. He set to work with the same ferocious energy that had carried him victorious from so many battlefields and within a few years a hexagonal walled town, arose out of the foetid Lombard plain. Work had advanced at such a pace that in 1562 Vespasiano opened his own mint at Sabbioneta,under the direction of Andrea Cavalli.



In so far as it is known at all Sabbioneta is known not for its town-plan but for the marvellous series of interiors for which Vespasiano was responsible, the Gallery of Antiques for instance, over three hundred feet long, or, above, the auditorium of the Theatre, completed by Scamozzi in 1590. *Instituto Editoriale Domus of Milan have produced a work,* Sabbioneta, *which magnificently illustrates these interior landscapes and their details.*

Two years later, however, he departed once more for Spain, having meantime dispatched his first wife on a suspicion of infidelity. His second wife, Anne of Aragon, was to fare little better at his hands and from 1568 to 1578 Vespasiano continued his military career abroad, concentrating his talents on military engineering. He was involved in the design and building of fortifications at Valladolid and of the famous walls at Pamplona. His military career was crowned with a dukedom in 1577 and the following year he returned to Sabbioneta, building an imposing new gateway to celebrate the event.

Typical to the point of caricature of his class and period, Vespasiano's least attractive qualities now began to assert themselves and his life ended in tragedy, with a belated return to the consolations of religion. Having disposed of his first two wives in dubious circumstances, his ungovernable ferocity one day got the better of him with his only son, Luigi, on whom he doted with ambitious passion. The boy had annoyed him unintentionally by not doffing his cap in the street whereupon Vespasiano gave him such a frightful kick in the groin that he died.

This happened in 1580 and Sabbioneta's two churches of S. Maria Assunta and the Incoronata testify to Vespasiano's remorse. He himself died eleven years later, in 1591.

The building history of Sabbioneta therefore falls neatly into two periods—the first, 1560–1570, saw the layout of the new town and the construction of the two palaces, the gallery of antiques and various other buildings of lesser interest architecturally. The second period, 1580–1590, covers the building of the two churches and Scamozzi's theatre. (The only addition of any interest after this date is the Bibbienesque cupola of about 1768 in the octagonal chapel of the Sacred Heart in S. Maria Assunta).

Apart from Vincenzo Scamozzi and the sculptor Leone Leoni, whose magnificent full-length bronze portrait of Vespasiano was executed in 1588, none of the architects and artists employed at Sabbioneta was famous. Indeed nothing whatever is known about most of them and much of their work remains tantalisingly anonymous. The architect of the Palazzo Ducale, the Palazzo del Giardino and Galleria degli Antichi, for example, is unrecorded. Tradition states that Vespasiano designed them all himself and this may well be true.

The names of various painters and decorators who worked for Vespasiano are mentioned in contemporary documents, but since their activities were, so far as is known, confined to Sabbioneta their names now signify very little. The most prominent among them appear to have been Giovanni and Cherubino Alberti, Pietro Martire Pesenti, Alberto Cavalli and Bernadino Campi. All but the last are described as 'Sabbionetani' and one must suppose that they were local artisans whose training might at best have extended to a few months at Mantua.

The lesson to be learnt from the history of Sabbioneta is the value of discipline and tradition. For this exquisite and unique little town was created by local workmen and largely designed by an amateur architect, none of whom possessed or would have claimed any particular artistic gifts. But they were all competent craftsmen who had the good fortune to be heirs to a great tradition and had the good sense and modesty to work within it.

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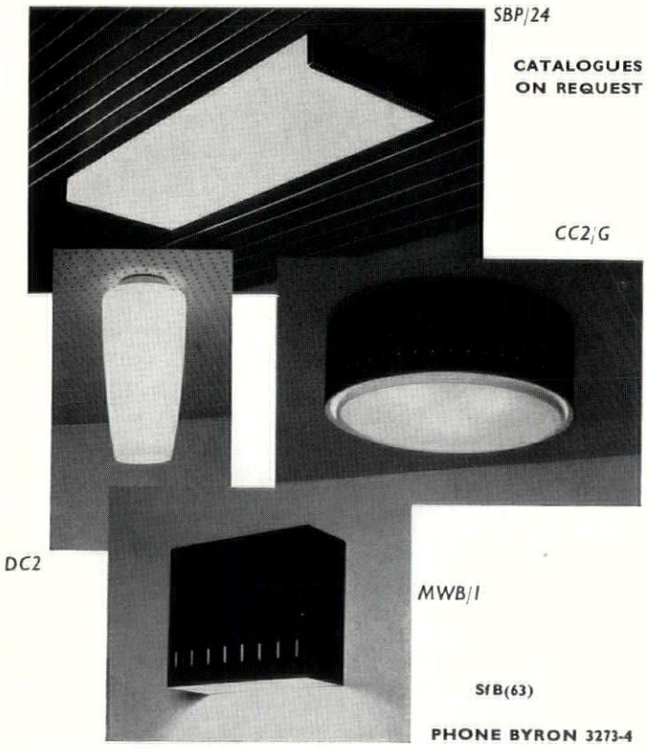

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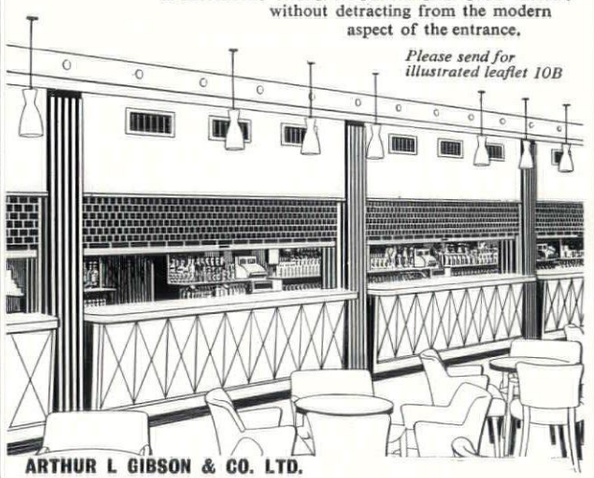

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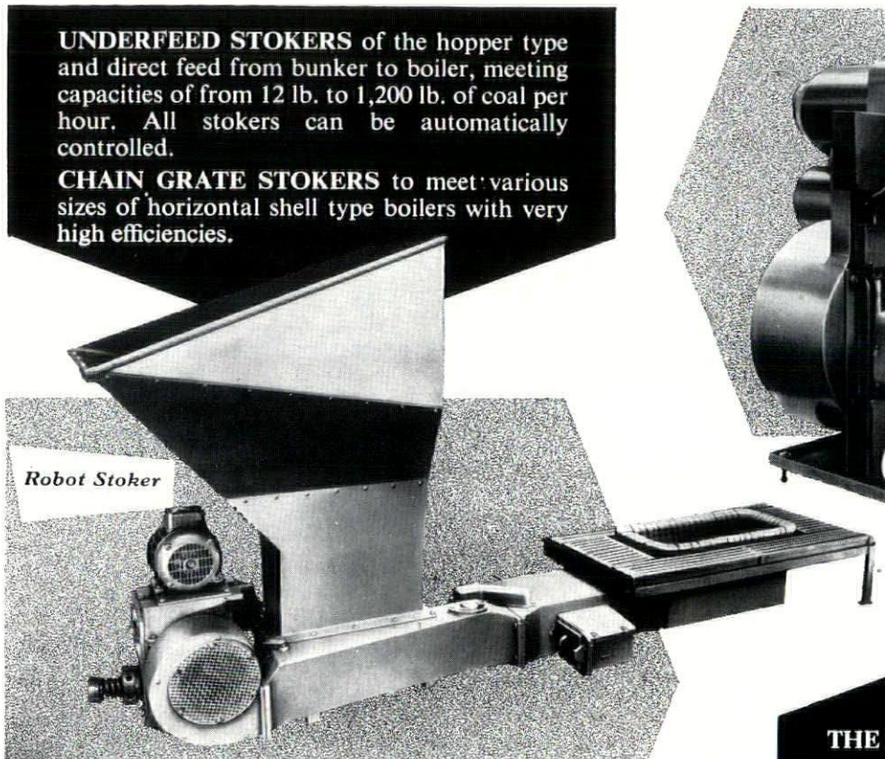

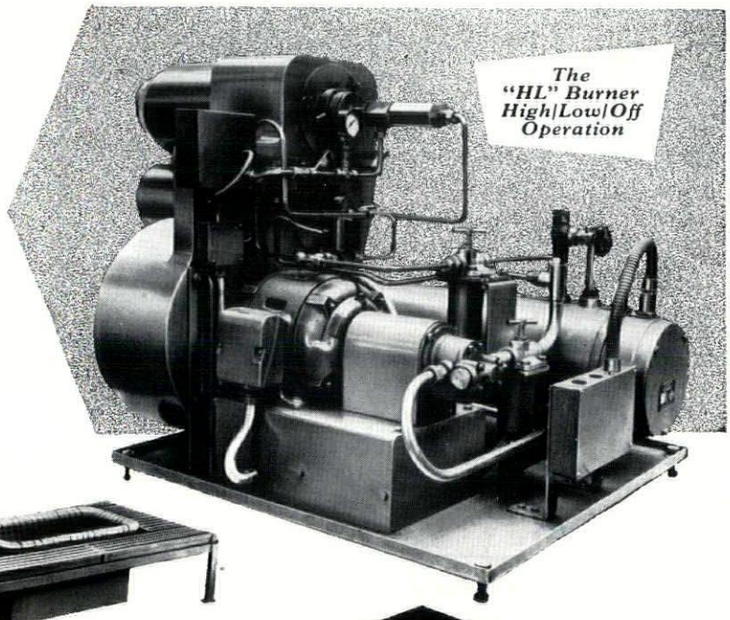

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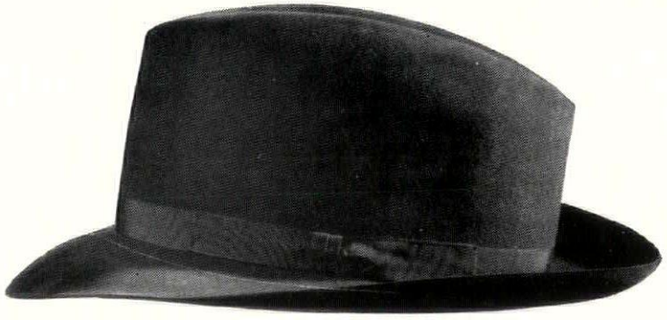

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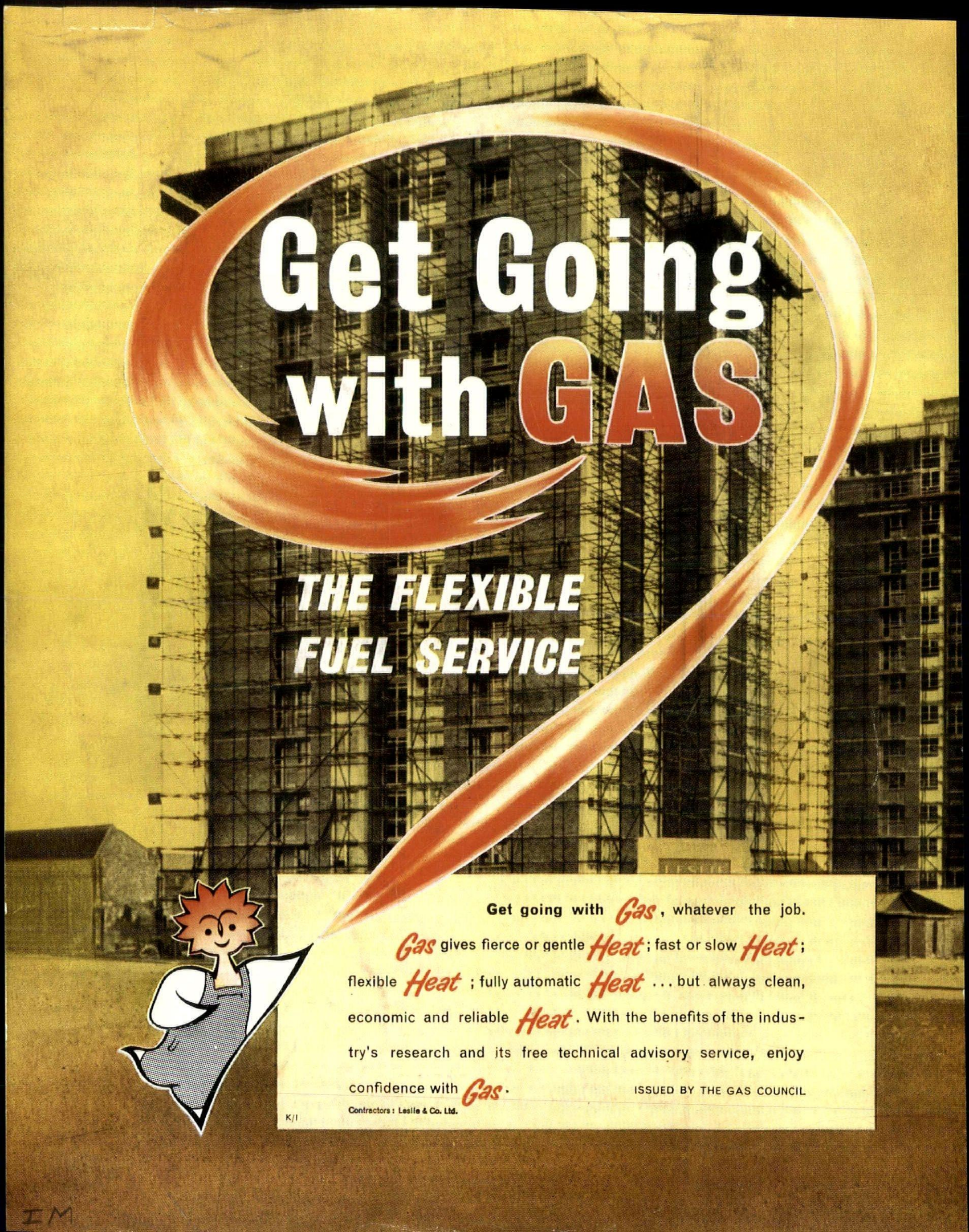
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